



(12) **DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION**

(13) **A1**

(86) Date de dépôt PCT/PCT Filing Date: 2002/06/21
(87) Date publication PCT/PCT Publication Date: 2003/01/03
(85) Entrée phase nationale/National Entry: 2004/12/15
(86) N° demande PCT/PCT Application No.: GB 2002/002859
(87) N° publication PCT/PCT Publication No.: 2003/000727
(30) Priorités/Priorities: 2001/06/21 (0115213.1) GB;
2001/06/21 (0115212.3) GB; 2001/06/21 (0115211.5) GB

(51) Cl.Int.⁷/Int.Cl.⁷ C12N 15/12, A61K 39/395, A61K 38/17,
A01K 67/027, A61K 48/00, C07K 16/18, C07K 14/47,
C12Q 1/68, G01N 33/68

(71) Demandeur/Applicant:
ISIS INNOVATION LIMITED, GB

(72) Inventeurs/Inventors:
ZHANG, YOUMING, GB;
MOFFATT, MIRIAM, GB;
COOKSON, WILLIAM, GB;
TINSLEY, JON, GB

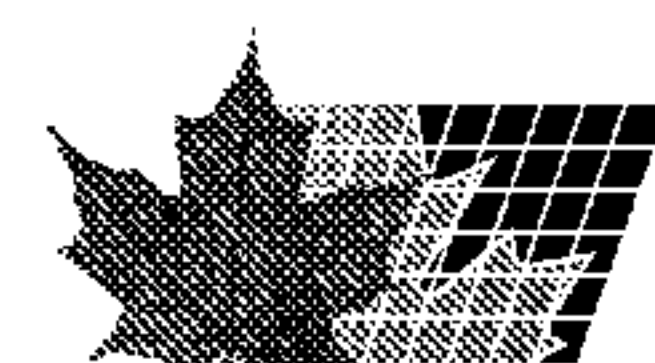
(74) Agent: SMART & BIGGAR

(54) Titre : ATOPIE

(54) Title: ATOPY

(57) **Abrégé/Abstract:**

The present invention relates to isolated nucleic acid sequences of ANGE, CLLD8 and CLLD7 or sequences complementary or substantially homologous thereto or fragments thereof. Also provided are sequences comprising hybrid nucleic acid sequences from two or more of the genes. Also provided are nucleic acid expression vectors, polypeptides, antibodies to the polypeptides, host cells, non-human transgenic animals and pharmaceutical compositions and agents. Also provided is the use of the nucleic acid sequence and/or protein in medicine and research, methods for diagnosing or determining predisposition to disease or severity of disease, methods for preventing or treating disease, and kits for use in the methods and the use of the nucleic acid sequence and protein in treating or preventing IgE mediated diseases and non-atopic asthma, and in screens for identifying new agents for use in the methods.



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 January 2003 (03.01.2003)

PCT

(10) International Publication Number
WO 03/000727 A3

(51) International Patent Classification⁷: **C12N 15/12**,
C07K 14/47, C12Q 1/68, C07K 16/18, A01K 67/027,
A61K 48/00, 38/17, 39/395, 33/50, G01N 33/68

(74) Agents: **CORNISH, Kirstina, Victoria, Joy** et al.; Kil-
burn & Strode, 20 Red Lion Street, London WC1R 4PJ
(GB).

(21) International Application Number: PCT/GB02/02859

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 21 June 2002 (21.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0115211.5 21 June 2001 (21.06.2001) GB
0115212.3 21 June 2001 (21.06.2001) GB
0115213.1 21 June 2001 (21.06.2001) GB

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **ISIS IN-
NOVATIONS LIMITED** [GB/GB]; Ewert House, Ewert
Place, Summertown, Oxford OX2 7BZ (GB).

Published:

— with international search report

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **ZHANG, Youming**
[GB/GB]; 28 Mark Road, Headington, Oxford OX3 8PA
(GB). **MOFFATT, Miriam** [GB/GB]; 30 Lapwing Close,
Langford Village, Bicester OX26 6XR (GB). **COOKSON,**
William [GB/GB]; 67 Hilltop Road, Oxford OX4 9PD
(GB). **TINSLEY, Jon** [GB/GB]; Oxagen Limited, 91
Milton Park, Abingdon, Oxfordshire OX14 4RY (GB).

(88) Date of publication of the international search report:
11 December 2003

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: ATOPY

(57) **Abstract:** The present invention relates to isolated nucleic acid sequences of ANGE, CLLD8 and CLLD7 or sequences complementary or substantially homologous thereto or fragments thereof. Also provided are sequences comprising hybrid nucleic acid sequences from two or more of the genes. Also provided are nucleic acid expression vectors, polypeptides, antibodies to the polypeptides, host cells, non-human transgenic animals and pharmaceutical compositions and agents. Also provided is the use of the nucleic acid sequence and/or protein in medicine and research, methods for diagnosing or determining predisposition to disease or severity of disease, methods for preventing or treating disease, and kits for use in the methods and the use of the nucleic acid sequence and protein in treating or preventing IgE mediated diseases and non-atopic asthma, and in screens for identifying new agents for use in the methods.



WO 03/000727 A3

ANGE GENE IN ATOPY

The present invention relates to isolated nucleic acid sequences of ANGE, CLLD8 and CLLD7 or sequences complementary or substantially homologous thereto or fragments thereof. Also provided are sequences comprising hybrid nucleic acid sequences from two or more of the genes. Also provided are nucleic acid expression vectors, polypeptides, antibodies to the polypeptides, host cells, non-human transgenic animals and pharmaceutical compositions and agents. Also provided is the use of the nucleic acid sequence and/or protein in medicine and research, methods for diagnosing or determining predisposition to disease or severity of disease, methods for preventing or treating disease, and kits for use in the methods and the use of the nucleic acid sequence and protein in treating or preventing IgE mediated diseases and non-atopic asthma, and in screens for identifying new agents for use in the methods.

Atopic or Immunoglobulin E (IgE) mediated diseases include, but are not limited to, asthma, hayfever, eczema, atopic dermatitis and allergic rhinitis. These disorders are a major cause of disease in children and young adults (Jarvis, D. & Burney, P. *British Medical Journal* 316, 607-10 (1998) [published erratum appears in *BMJ* 1998 Apr 4;316(7137):1078]; and Cookson, W. *Nature* 402, B5-11 (1999).

Atopy and asthma are due to the interaction between strong environmental and genetic factors (Cookson, W. *Nature* 402, B5-11 (1999). Asthma is usually recognised epidemiologically by standard symptom questionnaires or by physician diagnosis (O'Connor, G. T. & Weiss, S. T. *Am J Respir Crit Care Med* 149, S21-8; discussion S29-30 (1994)). Atopy is detected by skin prick tests, or by measurement of specific serum IgE titres against allergens with RAST or ELISA techniques, or by quantifying the total serum IgE. The examination of quantitative traits offers significant advantages for both linkage and association analyses in general (Risch, N. J. & Zhang, H. *Am J Hum Genet* 58, 836-43 (1996)) and in the case of asthma (Cookson, W. & Palmer, L. *Clin Exp Allergy* 28 Suppl 1, 88-9; discussion 108-10 (1998)). A number of quantitative traits underlie asthma and atopy, including the total serum IgE concentration, the Skin Test Index (STI), the RAST index and the Dose-Response Slope (DRS) of bronchial responsiveness to methacholine (Daniels, S. E.

et al. *Nature* 383, 247-50 (1996)). The total serum IgE is log-normally distributed, and has a high heritability (Gerrard, J., Rao, D. & Morton, N. *Am J Hum Genet* 30, p46-58 (1978)) and Palmer, L. J. et al. *Am J Respir Crit Care Med* 161, 1836-43 (2000)). It is influenced by genetic effects, which incompletely overlap DRS and the STI.

The heritability of physician-diagnosed asthma is 60-70%⁷ and that of the(log normal) total serum IgE concentration is 40-50%^{8,9}. The heritability of the STI is lower and is approximately 30%⁹. The examination of quantitative rather than categorical traits offers significant advantages of power for both linkage and association analyses in general¹⁰ and in the case of asthma¹¹. The total serum IgE is log-normally distributed with standardised measurement protocols, and the effects of age and sex are well defined¹². Consequently, we have used the total serum IgE as quantitative trait to map susceptibility genes for atopy and asthma.

Differing indices of atopy may be elevated in the same family (Cookson, W. O. C. M. & Hopkin, J. M. *Lancet* 1, 86-88 (1988) and Young, R. P., Lynch, J., Sharp, P. A. & et al. *Journal of Medical Genetics* 29, 236-238 (1992)). RAST and skin test responses reach a peak later in childhood than the total serum IgE, and decline at a slower rate thereafter (Cline, M. G. & Burrows, B. B. *Thorax* 44, 425-431 (1989)). To account for this heterogeneity of phenotype (pleiotropy), the categorical trait of "atopy" is based on a combination of the STI, RAST index, and the total serum IgE (Daniels, S. E. et al. *Nature* 383, 247-50 (1996) and Cookson, W. O. C. M. & Hopkin, J. M. *Lancet* 1, 86-88 (1988)).

Atopy is due to the interaction between genetic and environmental factors. The genetic factors are thought to be variants of DNA structure ("polymorphisms") that alter the level of expression or the function of genes to predispose to asthma. Variants of DNA sequence at a particular site ("locus") are known as "alleles". Genome-wide scans for linkage to atopy and asthma-associated phenotypes have been conducted (Daniels, S. E. et al. *Nature* 383, 247-50 (1996)). Strong linkage of the atopy phenotype to chromosome 13q14 was observed, and confirmed in a second panel of families at the time of our initial genome screen. An earlier study had found linkage of the total serum IgE to the esterase D (ESD) protein polymorphism on chromosome 13q14 (Eiberg, H., et al. *Cytogenetics. And Cell Genetics* 40, 622 (1985)).

Linkage to the region has also been confirmed by a single locus study of Japanese families (Kimura, K. et al. *Hum Mol Genet* 8, 1487-90 (1999)). A two-stage screen in Hutterite families from the US found linkage of asthma to 13q21.3 (Ober, C. et al. The Collaborative Study on the Genetics of Asthma. *Hum Mol Genet* 7, 1393-8 (1998)) in the first stage families but not in the second. Linkage to 13q14 has also been observed to house dust mite allergy in children with asthma (Hizawa, N. et al. Collaborative Study on the Genetics of Asthma (CSGA). *J Allergy Clin Immunol* 102, p436-42 (1998)), and to children with atopic dermatitis (Beyer K, W. U et al *J Allergy Clin Immunol* 101, 152 (1998)). These results suggest that chromosome 13 contains an important atopy locus. A locus for atopic dermatitis has recently been mapped to the same region of chromosome 13-13q14. Susceptibility loci for atopic dermatitis on chromosomes 3, 13, 15, 17 and 18 in a Swedish population: Bradley M, Soderhall C, Luthman H, Wahlgren CF, Kockum I, Nordenskjold M *Hum Mol Genet* 2002 Jun 15;11(13):1539-48.

Close localisation of disease causing genes may be accomplished by the detection of associations between particular alleles and the disease phenotype. Over short segments of DNA, distinctive alleles of the individual polymorphisms will show non-random association with alleles of neighbouring polymorphisms. This phenomenon, known as "linkage disequilibrium" typically occurs over 50-500 Kilobases (Kb) of DNA (Jorde, L. B. et al. *Am J Hum Genet* 54, 884-98 (1994); Collins, A., Lonjou, C. & Morton, N. E. *Proc Natl Acad Sci U S A* 96, 15173-7 (1999) and Abecasis, G. R. et al. *Am J Hum Genet* 68, 191-197 (2001)), and associations between polymorphism and disease are in general unlikely to extend beyond 500 Kb. Linkage disequilibrium may be detected by the study of individuals and by the study of families.

Disease causing alleles will be in linkage disequilibrium with non-functional polymorphisms from the same chromosomal segment. It is therefore possible to detect allelic association with disease from particular chromosomal segments, without identifying the exact polymorphism and gene underlying the disease state.

The detection of allelic association may therefore give information as to disease susceptibility in a particular individual. Furthermore, allelic association is indicative of a disease-causing gene being present within a limited distance of DNA in either direction from the allele.

Identification of the disease causing gene will allow the identification of children at risk of atopy before the disease has developed (for example immediately after birth), with the potential for prevention of disease. Knowledge of the gene and its activity will enable predictions to be made regarding the type of disease (i.e. asthma, dermatitis or allergies) and the clinical course of disease (e.g. severe as opposed to mild) or the response to particular treatments. This diagnostic information will be of use to the health care, pharmaceutical and insurance industries.

According to a first aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising a sequence as shown in Figure 5, or a sequence which excludes one or more of the exons as set out in Figure 3a or a sequence complementary or substantially homologous thereto, or a fragment thereof. The sequence of Figure 5 comprises the human ANGE, CLLD7 and CLLD8 nucleotide sequences. Figure 5a (i) shows the Exon sequences of the ANGE gene including the 2 alternative first exons; Figure 5a (ii) shows the ANGE mRNA sequence and 5a (iii) the translated protein sequence. The NY-REN-34 mRNA sequence is shown in Figure 5b (i) and the protein sequence of NY-REN-34 in Figure 5b (ii) an alternative NY-REN-34 protein sequence is shown in Figure 5b (iii).

For the purposes of the present invention, the ANGE gene is the gene known in the prior art as NY-REN-34, and shown as nucleotides 313649-346509 of BAC bA103J18.03548 (Figure 5). References to the ANGE gene in the present application include variant sequences showing 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 95%, 96%, 97%, 98%, 99% or 100% homology with the ANGE gene of Figure 5, and preferably sharing one or more functional characteristics with the ANGE gene.

The ANGE nucleic acid sequence can comprise any combination of one or more exons from Figures 3a, 5 a (i) and Table 5 or a sequence substantially homologous thereto, or a fragment thereof. These combinations are for all ANGE sequences including human and mouse.

All the sequences of the present invention are isolated, or alternatively may be recombinant. By isolated is meant a nucleic acid or polypeptide sequence which has been purified, and is substantially free of other protein and nucleic acid. Such sequences may be obtained by PCR amplification, cloning techniques, or synthesis on a synthesiser. By recombinant is meant nucleic acid sequences which have been recombined by the hand of man.

The polynucleotide sequences of the invention may be genomic or cDNA, or RNA, preferably mRNA, or PNA or other nucleic acid analogue known to the person skilled in the art. In the present invention, gene products include polynucleotide sequences and protein. References to polypeptide sequences include proteins and peptides.

The public domain REFSEQ entries for the mRNA sequences of CLLD7, CLLD8 and NY-REN-34 are NM_018191.2, NM_031915.1 and NM_016119.1 respectively. These show minor differences at the nucleotide level to the sequences shown above. However for NY-REN-34 these alterations result in a truncated putative protein compared to our sequence which is shown below.

In the present application, sequences which are complementary or substantially homologous are those sequences which hybridise under stringent conditions to the defined sequence or its gene products. Thus, for example, a nucleic acid sequence substantially homologous to a reference nucleic acid will be capable of hybridising to a gene product (i.e. mRNA) of the reference nucleic acid, under stringent conditions. A complementary sequence is one which is capable of hybridising to the nucleic acid sequence itself, under stringent conditions. Also provided in the present invention are complements of the substantially homologous sequences. A substantially homologous sequence preferably has at least 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98 or 100% sequence identity with the defined sequence. This definition of substantially homologous applies to both nucleic acid and polypeptide sequences. Thus, polypeptide sequences having conservative amino acid substitutions that do not affect structure or function are also included. For any given DNA sequence, references to a complementary sequence include the corresponding mRNA sequence and any cDNA sequence derived on such an RNA sequence.

“% identity” is a measure of the relationship between two nucleic acid or polypeptide sequences, as determined by comparing their sequences. In general, the two sequences to be compared are aligned to give a maximum correlation between the sequences. The alignment of the two sequences is examined and the number of positions giving an exact amino acid or nucleotide correspondence is determined, and divided by the total length of the alignment, and the result is multiplied by 100 to give a % identity. The % identity may be determined over the whole length of the sequence to be compared, which is particularly suitable for sequences of the same or similar lengths or for sequences which are highly homologous, or over shorter defined lengths which is more suitable for sequences of unequal lengths and with a lower homology.

Methods for comparing the identity of two or more sequences are known in the art. For example, programs available in the Wisconsin Sequence Analysis Package version 9.1 (Devereux J et al., *Nucl Acid Res* 12 387-395 (1984), available from Genetics Computer Group, Madison, Wisconsin, USA), such as BESTFIT and GAP may be used.

BESTFIT uses the “local homology” algorithm of Smith and Waterman (Advances in Applied Mathematics, 2:482-489, 1981) and finds the best single region of similarity between two sequences. BESTFIT is more suited to comparing two polynucleotide or two polypeptide sequences which are dissimilar in length, the program assuming that the shorter sequence represents a portion of the longer. In comparison, GAP aligns two sequences finding a “maximum similarity” according to the algorithm of Neddleman and Wunsch (J. Mol. Biol. 48:443-354, 1970). GAP is more suited to comparing sequences which are approximately the same length and an alignment is expected over the entire length. Preferably, the parameters “Gap Weight” and “Length Weight” used in each program are 50 and 3 for polynucleotide sequences and 12 and 4 for polypeptide sequences, respectively. Preferably, % identities and similarities are determined when the two sequences being compared are optimally aligned.

Other programs for determining identity and/or similarity between sequences are also known in the art, for instance the BLAST family of programs (Altschul et al, *J. Mol. Biol.*, 215:403-

410, (1990) and Altschul et al, *Nuc Acids Res.*, 25:289-3402 (1997), available from the National Center for Biotechnology Information (NCBI), Bethesda, Maryland, USA and accessible through the home page of the NCBI at www.ncbi.nlm.nih.gov) and FASTA (Pearson W.R. and Lipman D.J., *Proc. Nat. Acad. Sci.*, USA, 85:2444-2448 (1988), available as part of the Wisconsin Sequence Analysis Package). Preferably, the BLOSUM62 amino acid substitution matrix (Henikoff S. and Henikoff J.G., *Proc. Nat. Acad. Sci.*, USA, 89:10915-10919, (1992)) is used in polypeptide sequence comparisons including where nucleotide sequences are first translated into amino acid sequences before comparison.

Preferably, the program BESTFIT is used to determine the % identity of a query polynucleotide or a polypeptide sequence with respect to a polynucleotide or a polypeptide sequence of the present invention, the query and the reference sequence being optimally aligned and the parameters of the program set at the default value.

In relation to the present invention, "stringent conditions" refers to the washing conditions used in a hybridisation protocol. In general, the washing conditions should be a combination of temperature and salt concentration so that the denaturation temperature is approximately 5 to 20°C below the calculated T_m of the nucleic acid under study. The T_m of a nucleic acid probe of 20 bases or less is calculated under standard conditions (1M NaCl) as $[4^\circ\text{C} \times (\text{G}+\text{C}) + 2^\circ\text{C} \times (\text{A}+\text{T})]$, according to Wallace rules for short oligonucleotides. For longer DNA fragments, the nearest neighbour method, which combines solid thermodynamics and experimental data may be used, according to the principles set out in Breslauer *et al.*, *PNAS* 83: 3746-3750 (1986). The optimum salt and temperature conditions for hybridisation may be readily determined in preliminary experiments in which DNA samples immobilised on filters are hybridised to the probe of interest and then washed under conditions of different stringencies. While the conditions for PCR may differ from the standard conditions, the T_m may be used as a guide for the expected relative stability of the primers. For short primers of approximately 14 nucleotides, low annealing temperatures of around 44°C to 50°C are used. The temperature may be higher depending upon the base composition of the primer sequence used. Suitably stringent conditions are those under which non-specific hybridisation (e.g. to non-DPP10 encoding sequences) are avoided. Suitable stringent conditions are 0.5xSSC/1%SDS/58°C/30mins for a 21mer oligonucleotide probe.

The complementary sequences of the invention (which may also be referred to herein as “antisense”) may be useful as probes or primers, or in the regulation of ANGE expression. Preferably, the primer sequences are capable of amplifying all or a portion of an ANGE gene. Preferred primer sequences are disclosed in the Examples and Table 4. Pairs of primers for amplification of all or part of the gene, or alleles, or variants thereof, form another aspect of the invention. Similarly, ANGE probes will be useful in detecting the presence or expression levels of ANGE, or variant forms thereof, in a sample from a subject. The probes may also be useful in analysing the expression pattern of ANGE in a subject.

In the present application, fragments are any contiguous 10 residue sequence, or greater, such as 20, 30, 40, or 50 residue sequence. Preferably, fragments of nucleic acid or polypeptide sequences share one or more functional characteristics with ANGE or its gene, or are capable of modulating (i.e. inhibiting or enhancing) such a functional characteristic. The novelty of a fragment according to the present embodiment may be easily ascertained by comparing the nucleotide or polypeptide sequence of the fragment with sequences catalogued in databases such as Genbank at the priority date, or by using computer programs such as DNASIS (Hitachi Engineering Inc) or Word Search or FASTA of the Genetic Computer Group (Madison, USA).

The fragments may be used in a variety of diagnostic, prognostic or therapeutic methods or may be useful as research tools for example in screening. Fragments of the sequences of the first aspect or their complements may be used as primer sequences as described above.

In a second aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising a sequence as shown in Figure 5 or a sequence as shown in Figure 5 which excludes one or more of the exon sequences as set out in Figure 5d (i) and Table 5 or a sequence complementary or substantially homologous thereto or a fragment thereof. The CLLD8 mRNA sequence is shown in Figure 5d (ii) and the CLLD8 protein sequence in Figure 5d (iii). The nucleotides 294727 to 309803 of Figure 5 is the human CLLD8 nucleic acid sequence.

In a third aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising a sequence as shown in Figure 5 or a sequence as shown in Figure 5 which excludes one or more of the exon sequences as set out in Figure 5c (i) and Table. The CLLD7 mRNA sequence is shown in Figure 5c (ii) and the CLLD7 protein sequence in Figure 5c (iii). The nucleotides 349634 to 410846 of Figure 5 is the human CLLD7 nucleic acid sequence.

In a fourth aspect of the invention there is provided an isolated or recombinant nucleic acid sequence as claimed in claim 1 comprising a sequence as shown in Figure 5 (nucleotides 313649-346509) (ANGE) contiguous with an isolated or recombinant nucleic acid sequence as claimed in claim 2 comprising a sequence as shown in Figure 5 (nucleotides 294727-309803) (CLLD8) or a sequence complementary or substantially homologous thereto or a fragment thereof.

Alternatively, there is provided an isolated or recombinant polynucleotide sequence comprising the CLLD8 gene and ANGE gene, wherein both genes are under the control of a single regulatory element. Preferably, the regulatory element is a promoter. More preferably, the regulatory element is the CLLD8 promoter.

Alternatively, there is provided an isolated or recombinant polynucleotide sequence encoding a protein having the domain structure Pre-SET-SET-Post-SET-PHD-PHD. Preferably, the domain structure is CpGBD-Pre-SET-SET-Post-SET-PHD-PHD. SET and PHD domains will be known to persons skilled in the art.

Preferably, the polynucleotide sequences of the fourth aspect encode a single gene product comprising both CLLD8 and ANGE. This composite gene product is produced as a splice product of the CLLD8 gene, under control of the CLLD8 promoter, and comprises the ANGE gene product. This composite CLLD8-ANGE gene product results from splicing together of the CLLD8 and ANGE genes and is shown to be involved in atopy.

In a fifth aspect of the invention there is provided an isolated or recombinant nucleic acid sequence as claimed in claim 1 comprising a sequence (nucleotides 313649-346509) as

shown in Figure 5 (ANGE) contiguous with an isolated or recombinant nucleic acid sequence as claimed in claim 3 comprising a sequence (nucleotides 349634 to 410846) as shown in Figure 5 (CLLD7) or a sequence complementary or substantially homologous thereto or a fragment thereof.

Alternatively, there is provided an isolated or recombinant polynucleotide sequence comprising the ANGE gene and CLLD7 gene, wherein both genes are under the control of a single regulatory element. Preferably, the regulatory element is a promoter. More preferably, the regulatory element is the ANGE promoter.

Preferably, the polynucleotide sequences of the fifth aspect encode a single gene product comprising both ANGE and CLLD7. This composite gene product is produced as a splice product of the ANGE gene, under control of the ANGE promoter, and comprises the CLLD7 gene product. This composite CLLD7-ANGE gene product results from splicing together of the CLLD7 and ANGE genes and is shown to be involved in atopy.

In a sixth aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising a sequence as claimed in claim 2 comprising a sequence (nucleotides 294727-309803) as shown in Figure 5 (CLLD8) contiguous with an isolated or recombinant nucleic acid sequence as claimed in claim 3 comprising a sequence (nucleotides 349634 to 410846) as shown in Figure 5 (CLLD7) or a sequence complementary or substantially homologous thereto or a fragment thereof.

Alternatively, there is provided an isolated or recombinant polynucleotide sequence comprising the CLLD8 gene and CLLD7 gene, wherein both genes are under the control of a single regulatory element. Preferably, the regulatory element is a promoter. More preferably, the regulatory element is the CLLD7 promoter.

Preferably, the polynucleotide sequences of the sixth aspect encode a single gene product comprising both CLLD8 and CLLD7. This composite gene product is produced as a splice product of the CLLD8 gene, under control of the CLLD8 promoter, and comprises the

CLLD7 gene product. This composite CLLD8-CLLD7 gene product results from splicing together of the CLLD8 and CLLD7 genes and is shown to be involved in atopy.

In a seventh aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising a sequence as claimed in claim 1 comprising a sequence (nucleotides 313649-346509) as shown in Figure 5 (ANGE) contiguous with an isolated or recombinant nucleic acid sequence as claimed in claim 2 comprising a sequence (nucleotides 294727-309803) as shown in Figure 5 (CLLD8) and contiguous with an isolated or recombinant nucleic acid sequence as claimed in claim 3 comprising a sequence (nucleotides 349634 to 410846) as shown in Figure 5 (CLLD7) or a sequence complementary or substantially homologous thereto or a fragment thereof.

Alternatively, there is provided an isolated or recombinant polynucleotide sequence comprising the ANGE gene, the CLLD8 gene and the CLLD7 gene, wherein all the genes are under the control of a single regulatory element. Preferably, the regulatory element is a promoter. More preferably, the regulatory element is the CLLD8 promoter.

Preferably, the polynucleotide sequences of the seventh aspect encode a single gene product comprising CLLD8, ANGE and CLLD7. This composite gene product is produced as a splice product of the CLLD8 gene, under control of the CLLD8 promoter, and comprises the ANGE and CLLD7 gene products. This composite CLLD8-ANGE-CLLD7 gene product results from splicing together of the CLLD8, ANGE and CLLD7 genes and is shown to be involved in atopy.

By the terms "ANGE" "CLLD7" and "CLLD8" are meant either the complete gene product, or a part or parts thereof. Parts of the gene products are preferably splice variants, and preferably include at least one exon or a transcript produced from at least one exon. Thus, the gene product of the fourth to seventh aspects include at least one exon or part of an exon of CLLD7, CLLD8 and ANGE.

In an eighth aspect of the invention there is provided an isolated or recombinant nucleic acid sequence comprising at least a part of the sequence of Figure 5, and comprising one or more

SNPs at positions, which correspond to the positions of Figure 5 listed in Table 1.

Particular isolated nucleic acid molecules include those:

as shown in Table 2c;

comprising a SNP at the position corresponding to position 185752b4_2 of Figure 5;

comprising a SNP at the position corresponding to position 185752b5_3 of Figure 5;

comprising a SNP at the position corresponding to position 4321017b38_1 of Figure 5.

The isolated or recombinant nucleic acid molecules of the eighth aspect of the present invention are different to the “wild type” or “reference” sequence of Figure 5.

This aspect of the invention also provides antisense sequences. Such sequences are typically single stranded and are capable of hybridising to the above mentioned nucleic acid sequences of the invention, or to the sequence of Figure 5, under stringent conditions. Preferred antisense sequences are those which are capable of hybridising to an allele of a polymorphism of the invention, and most preferably is capable of distinguishing between alleles of a polymorphism (of Table 1). Stringent conditions are defined below. The antisense sequences may be prepared synthetically or by nick translation, and are preferably isolated or recombinant.

The antisense sequences include primers and probes, for example, for use in the methods of the present invention. Primer sequences are capable of acting as an initiation site for template directed nucleic acid synthesis, under appropriate conditions, which will be known to skilled persons. Probes are useful in the detection, identification and isolation of particular nucleic acid sequences. Probes and primers are preferably 15 to 30 nucleotides in length.

For amplification purposes, pairs and primers are provided. These include a 5' primer, which hybridises to the 5' end of the nucleic acid sequence to be amplified, and a 3' primer, which

hybridises to the complementary strand of the 3' end of the nucleic acid to be amplified. Preferred primers are those listed in Table 4.

Probes and primers may be labelled, for example to enable their detection. Suitable labels include for example, a radiolabel, enzyme label, fluoro-label, and biotin-avidin label for subsequent visualisation in, for example, a southern blot procedure. A labelled probe or primer may be reacted with a sample DNA or RNA, and the areas of the DNA or RNA which carry complimentary sequences will hybridise to the probe, and become labelled themselves. The labelled areas may be visualised, for example by autoradiography.

Preferably, the probes and/or primers hybridise under, "stringent conditions", which refers to the washing conditions used in a hybridisation protocol. The hybridisation conditions for probes are preferably sufficiently stringent to allow distinction between different alleles of a polymorphism upon binding of the probes. In general, the washing conditions should be combination of temperature and salt concentration so that the denaturation temperature is approximately 5 to 20°C below the calculated T_m of the nucleic acid under study. The T_m of a nucleic acid probe of 20 bases or less is calculated under standard conditions (1M NaCl) as $[4^\circ\text{C} \times (\text{G}+\text{C}) + 2^\circ\text{C} \times (\text{A}+\text{T})]$, according to Wallace rules for short oligonucleotides. For longer DNA fragments, the nearest neighbour method, which combines solid thermodynamics and experimental data may be used, according to the principles set out in Breslauer et al., PNAS 83: 3746-3750 (1986). The optimum salt and temperature conditions for hybridisation may be readily determined in preliminary experiments in which DNA samples immobilised on filters are hybridised to the probe of interest and then washed under conditions of different stringencies. While the conditions for PCR may differ from the standard conditions, the T_m may be used as a guide for the expected relative stability of the primers. For short primers of approximately 14 nucleotides, low annealing temperatures of around 44°C to 50°C are used. The temperature may be higher depending upon the base composition of the primer sequence used. Typically, the salt concentration is no more than 1M, and the temperature is at least 25°C. Suitable conditions are 5XSSPE (750 mM NaCl, 50mM NaPhosphate, 5mM EDTA pH 7.4) and a temperature of 25-30°C.

The use of one or more of the SNP markers of Table 1 in the identification of a gene or

genetic element which influences IgE mediated disease or non-atopic asthma is also included. As is the use of one or more of the SNP markers in medicine or in the identification of an agent for use in the diagnosis, prevention or treatment of an IgE mediated disease or non-atopic asthma.

In a preferred embodiment the SNP marker is as shown in Table 2c, or 185752b4_2, 185752b5_3, 432103b43_1 or 4321017b38_1 or any SNP in linkage disequilibrium with the SNP markers selected in Table 1. The polynucleotides of the first to eighth aspects are used in the diagnosis of individuals having an IgE mediated disease or non-atopic asthma, or in the treatment of individuals having such disease. The polynucleotides may also be used in the manufacture of a diagnostic for diagnosing individuals having an IgE mediated disease or non-atopic asthma or in the treatment of individuals having such diseases.

In a ninth aspect of the invention, the isolated nucleic acid sequences of the invention may be provided in the form of a vector to enable the *in vitro* or *in vivo* expression of the isolated nucleic acid sequences of any of the first to eighth aspects. Vectors include plasmids, chromosomes, artificial chromosomes and viruses and may be expression vectors, which are capable of expressing nucleic acid sequences *in vitro* or *in vivo*, or transformation vectors which are capable of transferring the nucleic acid sequence from one environment to another. The nucleic acid molecules of the invention may be operably linked to one or more regulatory elements including a promoter.

The term regulatory elements includes response elements, consensus sites, methylation sites, locus control regions, post-transcriptional modifications, splice variants, homeoboxes, inducible factors, DNA binding domains, enhancer sequences, initiation codons, secretion signals and, polyA sequences. Regions upstream or downstream of a promoter such as enhancers, which regulate the activity of the promoter, are also regulatory elements.

The vector may also comprise an origin of replication; appropriate restriction sites to enable cloning of inserts adjacent to the polynucleotide molecule; markers, for example antibiotic resistance genes; ribosome binding sites; RNA splice sites and transcription termination regions; polymerisation sites; or any other element, such as a secretion signal, which may

facilitate the cloning and/or expression of the polynucleotide molecule.

Within a vector the gene may be expressed upstream or downstream of an expressed protein tag such as a histidine tag, V5 epitope tag, green fluorescent protein tag, MHC tag or other such tag known to those skilled in the art. Use of such a tag allows easy localisation, affinity purification and detection of the fusion protein with an antibody to the tag moiety.

Where two or more nucleic acid molecules of the invention are introduced into the same vector, each may be controlled by its own regulatory sequences, or all molecules may be controlled by the same regulatory sequence. In the same manner, each molecule may comprise a 3' polyadenylation site. Examples of suitable vectors will be known to persons skilled in the art and include pBluescript II, lambdaZap, and pCMV-Script (Stratagene Cloning Systems, La Jolla, USA).

Appropriate regulatory elements, in particular promoters, will usually depend upon the host cell into which the expression vector is to be inserted. Where microbial host cells are used, promoters such as lactose promoter system, tryptophan (Trp) promoter system, β -lactamase promoter system or phage lambda promoter systems are suitable. Where yeast cells are used, preferred promoters include alcohol dehydrogenase I or glycolytic promoters. In mammalian host cells, preferred promoters are those derived from immunoglobulin genes, SV40, Adenovirus, Bovine Papilloma virus etc. Suitable promoters for use in various host cells would be readily apparent to a person skilled in the art (See, for example, Current Protocols in Molecular Biology Edited by Ausubel *et al*, published by Wiley). In addition, the regulatory elements may be modified, for example by the addition of further regulatory elements, to achieve a desired expression pattern.

By operably linked is meant that the components of the vector or sequence are in a relationship which allows them to function as intended.

These vectors may be used to transform host cells, for example, prokaryotic or eukaryotic cells. These cells may be used in the production of recombinant gene products produced from the isolated nucleic acid sequences of the first to eighth aspects, or in the regulation or

analysis of the nucleic acid sequences of the first to eighth aspects. The transformed host cells form part of the invention. Preferred cells include *E.coli*, yeast, filamentous fungi, insect cells, mammalian cells, preferably immortalised, such as mouse, CHO, HeLa, Myeloma or Jurkat cell lines, human and monkey cell lines and derivatives thereof.

According to a tenth aspect of the invention, there is provided a polypeptide sequence comprising a polypeptide sequence encoded by a nucleic acid sequence of the first to eighth aspects of the invention. Preferably the polypeptide sequences are encoded by a nucleic acid sequence of Figure 5.

The tenth aspect of the invention includes a polypeptide sequence comprising a polypeptide sequence as shown in any one of Figures 5a (iii), 5a (v), 5b (ii), 5b (iii), 5c (iii), 5d (iii) or a sequence homologous thereto, or a fragment thereof. The sequences of Figures 5a (iii), 5a (v), 5b (ii), 5b (iii), 5c (iii), 5d (iii) are the predicted human ANGE, CLLD7 and CLLD8 polypeptide sequences respectively.

The ANGE, CLLD7 and CLLD8 polypeptides or sequences substantially homologous thereto or a fragments thereof may be subject to post-translational modification. Post-translational modification (PTM) is defined herein as including modification of a protein following translation by proteolytic cleavage e.g. cleavage of a preprotein, a proprotein or a preproprotein by removal of a signal sequence or activation of a zymogen. PTM also includes the attachment of a carbohydrate to a protein, the predominant sugars attached include glucose, galactose, mannose, fucose, GalNAC, GlcNAC and NANA. The carbohydrates may be linked to the protein either by O-glycosidic or N-glycosidic bonds e.g. glycosylation. Also included are acylation; methylation; phosphorylation; sulfation and prenylation. Vitamin C-dependent modifications such as proline and lysine hydroxylation and carboxy terminal amidation and vitamin K-dependent modifications such as carboxylation of glutamine residues are also included as is the addition of selenium as selenocysteine in a protein.

The ANGE, CLLD7 and CLLD8 polypeptides may be operably linked to a secretion signal, to assist their secretion from the golgi apparatus to another part of the cell. Suitable secretion

signals can be provided by recombinant vectors such as pSecTag2 (Invitrogen Corporation, Carlsbad, CA). Proteins expressed from such vectors are fused at the N-terminus to the murine Ig kappa chain leader sequence. The secretion signal may be linked to the soluble ANGE, CLLD7 and CLLD8 polypeptide sequences using techniques available in the art, including recombinant DNA technology. The polypeptides may be linked to a tag such as a histidine tag, V5 epitope tag, green fluorescent protein tag, MHC tag or other tag known to those skilled in the art or to a carrier molecule known to a person skilled in the art.

The polypeptide sequences of the tenth aspect are preferably functional and may be useful in drug screening, diagnosis or therapy. Functional fragments of ANGE, CLLD7 or CLLD8 are those which share immunological or functional characteristics with the full length, membrane bound or soluble form of ANGE, CLLD7 or CLLD8. Fragments may be at least 10, preferably 15, 20, 25, 30, 35, 40 or 50 amino acids in length. Preferably, the polypeptide sequences are isolated.

In an eleventh aspect of the present invention, there are provided antibodies which are specific for an antigen of a polypeptide sequence of the tenth aspect or an antigen of the isolated nucleic acid of the first to eighth aspects, or fragments of any of said aspects or which react with an antigen of a polypeptide sequence of the tenth aspect or the isolated nucleic acid of the first to eighth aspects, or fragments of any of said aspects. Herein the term "react" has the meaning that the antibody is able to interact with the polypeptide or isolated nucleic acid. The term "specific for" has the meaning that the antibody specifically reacts with the polypeptide or isolated nucleic acid.

Antibodies can be made by the procedure set forth by standard procedures (*Harlow and Lane*, "Antibodies; A Laboratory manual" Cold Spring Harbour Laboratory, Cold Spring Harbour, New York, 1998). Briefly, purified antigen can be injected into an animal in an amount and in intervals sufficient to elicit an immune response. Antibodies can either be purified directly, or spleen cells can be obtained from the animal. The cells are then fused with an immortal cell line and screened for antibody secretion. The antibodies can be used to screen DNA clone libraries for cells secreting the antigen. Those positive clones can then be sequenced as described in, for example, *Kelly et al.*, *Bio/Technology* 10:163-167 (1992) and

Bebbington *et al.*, Bio/Technology 10:169-175 (1992). Preferably, the antigen being detected and/or used to generate a particular antibody will include polypeptide sequences according to the tenth aspect or isolated nucleic acid sequences according to the first to eighth aspects. The antibody may be a polyclonal or monoclonal antibody, a chimeric antibody, a humanised antibody or a bifunctional antibody or a fragment of any of the above. A bifunctional antibody is an antibody that can bind to two different antigens, these antigens may be different antigens present in the ANGE, CLLD7 or CLLD8 polypeptides or isolated nucleic acid or may be an antigen of ANGE, CLLD7 or CLLD8 combined with e.g. a cellular antigen.

In a preferred embodiment polyclonal antibodies are raised against peptide fragments as shown in Table 5.

In particular, the antibody may be raised against a particular domain of ANGE, CLLD7 or CLLD8. Such antibodies will be useful in diagnostic and therapeutic aspects of the invention. In particular, the antibodies will be useful in the development of assays for detecting or measuring ANGE, CLLD7 or CLLD8 individually or as spliced hybrids in a sample.

According to a twelfth aspect of the invention, there is provided a process for the preparation of a nucleic acid sequence as defined above, the process comprising ligating together successive nucleotide and/or oligonucleotide residues. Such a process may be carried out using chemical synthesis methods or by using enzymic catalysis. Alternatively, a suitable host cell may be transfected with an appropriate DNA or RNA sequence so as to cause production of the desired sequence in a host cell.

In a thirteenth aspect of the invention, there is provided a process for the preparation of a polypeptide as defined above, the process comprising ligating together successive amino acids and/or oligopeptides. Such a process may be carried out using chemical synthesis methods or by using enzymic catalysis. Alternatively, a suitable host cell may be transfected with an appropriate DNA or RNA sequence so as to cause production of the desired polypeptide in a host cell. The polypeptide may be produced in a cell free system.

In a fourteenth aspect, there is provided a host cell comprising a vector or isolated or recombinant nucleic acid molecule according to the aforementioned aspects. The host cell may comprise an expression vector, or naked DNA encoding the nucleic acid molecules of the invention. A wide variety of suitable host cells are available, both eukaryotic and prokaryotic. Examples include bacteria such as E.coli, yeast, filamentous fungi, insect cells, mammalian cells, preferably immortalised, such as mouse, CHO, HeLa, myeloma or Jurkat cell lines, human and monkey cell lines and derivatives thereof. The host cells are preferably capable of expression of the nucleic acid sequence to produce a gene product (i.e. RNA or protein). Such host cells are useful in drug screening systems to regulate or analyse the polypeptides of the tenth aspect or to identify agents for use in diagnosis or treatment of individuals having, or being susceptible to disease.

The method by which said nucleic acid molecules are introduced into a host cell will usually depend upon the nature of both the vector/DNA and the target cell, and will include those known to a person skilled in the art. Suitable known methods include but are not limited to fusion, conjugation, liposomes, immunoliposomes, lipofectin, transfection, transduction, eletroporation or injection, as described in Sambrook et al.

In a fifteenth aspect of the present invention, there is provided a transgenic non-human animal comprising a nucleic acid sequence according to an aforementioned aspect of the invention. Such transgenic non-human animals are useful for the analysis of single nucleotide polymorphisms and their phenotypic effect and so for the analysis of the ANGE, CLLD7 and CLLD8 gene cluster and its phenotypic effect. Expression of a polynucleotide sequence of the invention in a transgenic non-human animal is usually achieved by operably linking the polynucleotide to a promoter and/or enhancer sequence, preferably to produce a vector of the above aspect, and introducing this into an embryonic stem cell of a host animal by microinjection techniques (Hogan *et al.*, A Laboratory Manual, Cold Spring harbour and Capecchi *Science* (1989) 244: 1288-1292). The transgene construct should then undergo homologous recombination with the endogenous gene of the host. Those embryonic stem cells comprising the desired nucleic acid sequence may be selected, usually by monitoring expression of a marker gene, and used to generate a non-human transgenic animal. Preferred

host animals include mice, rabbits and other rodents.

The nucleic acid sequence introduced may not be native to the host animal, i.e. it may be foreign. Such transgenic animals may be distinguished from native, non-transgenic animals using methods known in the art, for example a nucleic acid sample from the transgenic animal may be compared with that from a native animal – the transgenic animal will have a nucleic acid sequence such as a foreign promoter, marker genes etc. Alternatively, the phenotypes of the animals can be compared.

Where it is desirable to use the transgenic non-human animal of the fifteenth aspect to study disease, it may be desirable for the nucleic acid introduced into the animal to encode a variant of ANGE, CLLD7 or CLLD8 which results in asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis. A transgenic non-human animal may be produced that no longer expresses a native ANGE, CLLD7 or CLLD8 gene or any combination of these genes or any particular splice variant of the genes. These animals may be referred to as “knock-out” (Manipulating The Mouse Embryo- A Laboratory Manual, Hogan et al 1986). In some cases, it may be desirable to modulate the expression of the foreign nucleic acid and/or the native gene in a temporal or spatial manner. This approach removes viability problems if the expression of the native gene is abolished in all tissues.

In a most preferred embodiment, there is provided a transgenic mouse comprising a nucleic acid encoding a variant form of ANGE, CLLD7 or CLLD8 or any combination of these genes or any splice variant of the genes which causes asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma. Most preferably, the nucleic acid molecule comprises a SNP at the position which corresponds one or more as shown in Table 2c, or to Position 185752b4_2, Position 185752b5_3 and/or Position 4321017b38_1 of Figure 5.

Preferably, the mouse is modulated so that it no longer expresses the ANGE, CLLD7 or the CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes in a temporally and/or spatially appropriate manner using homologous recombination

techniques or alternatively to over express the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes to produce a protein as a result of transgenic manipulation.

If a functional polymorphism as shown in Table 4c in the ANGE e.g. ANGE1X3C148T, CLLD7 e.g. CL0703 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes is identified (i.e. a "mutation") a construct containing this polymorphism can be introduced into the mouse germ line (i.e. a knock-in) to produce a pathological variant of a protein rather than knocking it out. Alternatively a pathological variant of the ANGE, CLLD7 or CLLD8 gene or any combination of these genes or any splice variant of the genes may be overexpressed.

In the context of the present invention, atopic diseases include those resulting from overexpression of the ANGE, CLLD7 or CLLD8 gene or any combination of these genes or any splice variant of the genes, or the presence of a variant form of the ANGE, CLLD7 or CLLD8 gene or any combination of these variant genes or any splice variant of the variant genes. Specifically, such diseases include asthma (atopic and non-atopic), atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis.

In a sixteenth aspect of the present invention, there is provided a method of diagnosing, or determining predisposition or susceptibility of a subject to atopy or predicting severity of disease in an individual. The method may comprise determining the presence of a variant form of the ANGE, CLLD7 or CLLD8 gene or any combination of these genes or any splice variant of the genes which is known to be associated with a disease state, or measuring the levels of the ANGE, CLLD7 or CLLD8 gene or any combination of these genes or any splice variant of the genes. A variant form of ANGE, CLLD7 or CLLD8 or any combination of at least two of these genes or any splice variant of the genes includes both nucleic acid and amino acid variants. A variant includes any SNP producing an alteration from the wild-type (e.g. for humans) (Figure 5/Table 1) or other mutation or alteration from the wild-type.

For example, probes or primers as described above may be useful in detecting nucleic acid encoding ANGE, CLLD7 or CLLD8 or any combination of these genes or any splice variant

of the genes or a variant thereof. Information regarding the expression pattern or forms of ANGE, CLLD7 or CLLD8 or any combination of these genes or any splice variant of the genes present will be useful in determining whether the individual is susceptible to diseases, resulting from altered expression of ANGE, CLLD7 or CLLD8 or any combination of these genes or any splice variant of the genes.

In a preferred embodiment, the method may additionally, or alternatively, comprise determining the presence or absence of a risk allele which is associated with one or more of the SNP markers of Table 1, where presence of a risk allele is indicative of disease or predisposition to disease or severity of disease. The method may also comprise genotyping one or more known polymorphisms. Any combination of such polymorphisms may be genotyped. Optionally any one or more SNPs in linkage disequilibrium may be used in the method.

The SNPs of the invention are listed in Table 1 where the nature of the polymorphism is described in the format wild type allele/variant allele. The SNPs are positioned with respect to Figure 5, where nucleotide position 1 is the 1st nucleotide in the Figure 5.

The alleles for the remaining SNPs identified in the present invention are described in Table 1.

Any technique, including those known to persons skilled in the art, may be used in the above method. These may include the use of probes or primers as described above, or antibodies of the eleventh aspect, for example in ELISA assays or in immunolocalisation. Preferably, the method comprises first removing a sample from a subject. More preferably, the method comprises isolating from a sample a nucleic acid or a polypeptide sequence.

In particular, methods for use in this aspect include those known to persons skilled in the art for identifying differences between nucleic acid sequences, for example direct probing, allele specific hybridisation, PCR methodology including Pyrosequencing (Ahmadian A, Gharizadeh B, Gustafsson AC, Sterky F, Nyren P, Uhlen M, Lundeberg J. Single-nucleotide polymorphism analysis by pyrosequencing, Anal Biochem. 2000 Apr 10;280(1):103-10;

Nordstrom T, Ronaghi M, Forsberg L, de Faire U, Morgenstern R, Nyren P. Direct analysis of single-nucleotide polymorphism on double-stranded DNA by pyrosequencing. *Biotechnol Appl Biochem.* 2000 Apr;31 (Pt 2):107-12) Allele Specific Amplification (ASA) (WO93/22456), Allele Specific Hybridisation, single base extension (US patent No. 4,656,127), ARMS-PCR, Taqman TM (US 4683202; 4683195; and 4965188), oligo ligation assays, single-strand conformational analysis ((SSCP) Orita *et al* PNAS 86 2766-2770 (1989)), Genetic Bit Analysis (WO 92/15712) and RFLP direct sequencing, mass-spectrometry (MALDI-TOF) and DNA arrays. The appropriate restriction enzyme, will, of course, be dependent upon the polymorphism and restriction site, and will include those known to persons skilled in the art. Analysis of the digested fragments may be performed using any method in the art, for example gel analysis, or southern blots.

There is provided a method of diagnosing, or determining predisposition to disease or severity of disease, comprising determining the presence or absence of an allele of a SNP at e.g. as shown in Table 2c, or at position 185752b4_2, 185752b5_2 and/or 4321017b38_1 of Figure 5, wherein presence of a risk allele is diagnostic of disease or predisposition to disease or severity of disease.

The present invention is advantageous in that it facilitates the accurate diagnosis of disease, or the determination of predisposition to disease or the severity of disease. Thus, by genotyping, an individual may be identified as having or being predisposed to disease and the likely severity of the disease. This helps to identify those individuals who are likely to respond positively to particular treatments or preventative measures. Thus, more effective therapies or preventative measures can be administered.

The diseases, which are associated with the polymorphisms of the invention, include atopic diseases, such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis and non-atopic asthma. Predisposition to disease in the context of the present invention means that these individuals are at higher risk of developing the disease, or a more severe form of the disease, or a particular form of the disease.

In the context of the present invention, a risk allele is the allele of a polymorphism, which is associated with disease or predisposition to disease. The risk allele may be the wild type or the variant allele, as defined below.

The term “polymorphism” refers to the coexistence of multiple forms of a sequence. Thus, a polymorphic site is the location at which sequence divergence occurs. The different forms of the sequence, which exist as a result of the presence of a polymorphism, are referred to as “alleles”. The region comprising a polymorphic site may be referred to as a polymorphic region.

Examples of the ways in which polymorphisms are manifested include restriction fragment length polymorphisms (Botstein *et al* Am J Hum Genet 32 314-331 (1980)), variable number of tandem repeats, hypervariable regions, minisatellites, di- or multi-nucleotide repeats, insertion elements and nucleotide or amino acid deletions, additions or substitutions. A polymorphic site may be as small as one base pair, which may alter a codon thus resulting in a change in the encoded amino acid sequence.

Single nucleotide polymorphisms arise due to the substitution, deletion or insertion of a nucleotide residue at a polymorphic site. Such variations are referred to as SNPs. SNPs may occur in protein coding regions, in which case different polymorphic forms of the sequence may give rise to variant protein sequences. Other SNPs may occur in non-coding regions. In either case, SNPs may result in defective proteins or regulation of genes, thus resulting in disease. Other SNPs may have no phenotypic effects, but may show linkage to disease states, thus serving as markers for disease. SNPs typically occur more frequently throughout the genome than other forms of polymorphism discussed above, and there is therefore a greater probability of finding a SNP associated with a particular disease state.

Linkage disequilibrium is the co-inheritance of two alleles at greater frequencies than would be expected from the separate frequencies of each allele. Conversely, alleles are in linkage equilibrium if they occur together. The expected frequency of two alleles inherited together is the product of the frequency of each allele.

Also provided is a method diagnosing an individual as having abnormal serum IgE levels, the method comprising demonstrating in the individual the presence or absence of an allele which is associated with the SNP marker 185752b4_2 and optionally any other SNP in linkage disequilibrium with the marker and a method for diagnosing an individual as having an STI above 5mm, the method comprising demonstrating in the individual the presence or absence of an allele which is associated with the SNP marker 4321017b38_1 and optionally any other SNP in linkage disequilibrium with the marker.

Where two or more polymorphisms are genotyped, the method preferably defines determining the presence or absence of a haplotype, which is indicative of disease or predisposition to disease. A haplotype is defined herein as a collection of polymorphic sites in a particular sequence that are inherited in a group, i.e. are in linkage disequilibrium with each other. The identification of haplotypes in the diagnosis of disease helps to reduce the possibility of false positives. The haplotype may be any particular combination of polymorphisms of Table 1, optionally in combination with one or more known polymorphisms. A preferred haplotype is the combination of SNPs as shown in Table 2c; or positions 185752b4_2, 185752b5_3 and 4321017b38_1 of Figure 5.

A method for diagnosing an individual as being atopic, the method comprising demonstrating in an individual the presence or absence of alleles associated with the haplotype as shown in Table 2c or the haplotype 185752b4_2, 185752b5_3, 4321031b43_1 and optionally any other SNP in linkage disequilibrium with any one of these markers is also provided.

The methods of the sixteenth aspect are preferably carried out on a sample removed from a subject. Any biological sample comprising cells containing nucleic acid, preferably that of Figure 5, is suitable for this purpose. Examples of suitable samples include whole blood, leukocytes, semen, saliva, tears, buccal, skin or hair. For analysis of DNA, mRNA or protein, the sample must come from a tissue in which the sequence of interest is expressed. Blood is a readily accessible sample. Thus, the method of the sixteenth aspect preferably includes the steps of obtaining a sample from an individual, preparing nucleic acid and/or protein from the sample and analysing the nucleic acid or protein sample for the presence or

absence of a particular allele or gene or combination of genes of interest or a particular splice variant. Where nucleic acid is to be analysed, it is preferred that an amplification step be performed prior to analysis. A preferred amplification technique is PCR, although any other suitable methods may be employed. Preferably the method uses a pair of primers which hybridise under stringent conditions to a region either side of a SNP. The primers may include an oligonucleotide sequence as shown in Table 4.

The subject is preferably a mammal, and more preferably a human. The subject may be an infant, a child or an adult. Alternatively, the sample may be obtained from the subject prepartum e.g. by amniocentesis.

A subject's risk factor for disease may be determined with reference also to other known genetic factors, and/or clinical, physiological or dietary factors.

The above described methods may require amplification of the DNA sample from the subject, and this can be done by techniques known in the art, such as PCR (see *PCR Technology: Principles and Applications for DNA Amplification* (ed. H. A. Erlich, Freeman Press, NY 1992; *PCR Protocols: A Guide to methods and Applications* (eds. Innis *et al.*, Academic press, San Diego, CA 1990); Mattila *et al.*, *Nucleic Acids Res.* 19 4967 (1991); Eckert *et al.*, *PCR Methods and Applications* 117 (1991) and US Patent No 4, 683, 202. Other suitable amplification methods include ligase chain reaction (LCR) (Wu *et al.*, *Genomics* 4 560 (1989); Landegran *et al.*, *Science* 241 1077 (1988)), transcription amplification (Kwoh *et al.*, *Proc Natl Acad Sci USA* 86 1173 (1989)), self sustained sequence replication (Guatelli *et al.*, *Proc Natl Acad Sci USA* 87 1874 (1990)) and nucleic acid based sequence amplification (NASBA). The latter two methods both involve isothermal reactions based on isothermal transcription which produce both single stranded RNA and double stranded DNA as the amplification products, in a ratio of 30 or 100 to 1, respectively.

Where it is desirable to analyse multiple samples simultaneously, it may be preferable to use arrays as described in WO95/11995. The array may contain a number of probes, each designed to identify variants of the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of these genes or any splice variant of the genes from a sample.

Where a restriction enzyme is required, it can be selected according to the nature of the polymorphism and restriction site. Suitable enzymes will be known to persons skilled in the art. Analysis of the digested fragments may be performed using any method in the art, for example gel analysis, or Southern blots.

Determination of an allele of a polymorphism using the above methods typically involves the use of anti-sense sequences i.e. sequences which are complementary to the nucleic acid sequences of interest, which may include part of the sequence of Figure 5. Such sequences are described in the first to eighth aspects of the invention.

Where it is desirable to identify the presence of multiple single nucleotide polymorphisms, or haplotypes, in a sample from a subject, it may be preferable to use an array. The array may contain a number of probes, each designed to identify one or more of the above single nucleotide polymorphisms of the invention.

An antibody to the ANGE, CLLD7 or CLLD8 genes or any combination of these genes, or the presence or absence of any splice variant of the genes as previously described may be used in the method of the sixteenth aspect. The detection of binding of the antibody to the antigen in a sample may be assisted by methods known in the art, such as the use of a secondary antibody, which binds to the first antibody, or a ligand. Immunoassays including immunofluorescence assays (IFA) and enzyme linked immunosorbent assays (ELISA) and immunoblotting may be used to detect the presence of the antigen. For example, where ELISA is used, the method may comprise binding the antibody to a substrate, contacting the bound antibody with the sample containing the antigen, contacting the above with a second antibody bound to a detectable moiety (typically an enzyme such as horse radish peroxidase or alkaline phosphatase), contacting the above with a substrate for the enzyme, and finally observing the colour change which is indicative of the presence of the antigen in the sample.

Any biological sample comprising cells containing nucleic acid or protein is suitable for this purpose. Examples of suitable samples include whole blood, semen, saliva, tears, buccal, skin or hair. For analysis of cDNA, mRNA or protein, the sample must come from a tissue in

which the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of these genes or any splice variant of the genes is expressed. Peripheral blood leukocytes are a readily accessible sample.

In a seventeenth aspect of the invention, there is provided a splice variant of ANGE, CLLD8 or CLLD7 for use in a method of diagnosing an IgE mediated disease, atopy, or a form of atopic disease or non-atopic asthma, or predicting severity of disease, or predisposition to disease.

The splice variant is preferably an RNA, more preferably a mRNA sequence, encoded by the whole or part of the sequence of ANGE or CLLD8 or CLLD7. Transcripts of the ANGE gene and splice variants of the ANGE gene are included as a further aspect of the invention. The splice variants of the seventeenth aspect include at least one exon, or fragment of an exon of ANGE, CLLD8 or CLLD7, or a combination of at least one exon, or fragment of an exon, from at least two of the ANGE, CLLD8 and CLLD7 genes. In particular, the splice variants of ANGE may include transcripts having AB011031 exon 1 or AF155105 exon 1; or comprising at least exon 2; lacking exon 2; comprising at least exon Va or Vb which lies between exons 5 and 6 (Fig 4G); lacking exon Va or Vb; comprising at least exon 4, 5, 6, 7 and/or 8. The intron/exon map of ANGE is shown in Figure 3.

In an eighteenth aspect, there are provided the use of a splice variant of ANGE and/or CLLD8 and/or CLLD7 in the manufacture of a diagnostic for use in a method of diagnosing atopy or a form of atopic disease, or predicting severity of disease, or predisposition to disease. Alternatively, the splice variant is provided for use in the manufacture of a medicament for treating disease or for use in a method of treating disease.

In a nineteenth aspect, there is provided a kit comprising a splice variant according to the seventeenth aspect for use in a method according to the sixteenth aspect. Preferably, two or more splice variants are provided, preferably in the form of an array, or on a chip.

In a twentieth aspect, there is provided a polynucleotide sequence comprising the ANGE, CLLD8 or CLLD7 genes, or a polypeptide encoded by the sequence, or fragment thereof, for

use in a screen for an agent which inhibits or enhances the activity of ANGE, CLLD8 or CLLD7. Methods of screening for such agents are also provided.

In a twenty-first aspect of the invention there is provided a kit for diagnosis of disease or predisposition to disease, comprising a means for determining the presence or absence of a allele of a SNP of Table 1, wherein the allele is diagnostic of disease, or of predisposition to disease, or of severity of disease.

In a preferred embodiment, the kit comprises a means for determining the presence or absence of one or more risk alleles of polymorphisms according to the eighth aspect. In particular, the kit comprises means for determining the presence or absence of a risk allele of a SNP as shown in Table 2c; or at at position 185752b4_2, position 185752b5_3, and/or position 4321017b38_1 of Figure 5.

Preferably the kit will comprise the components necessary to determine the presence or absence of a risk allele of the eighth aspect, in accordance with the sixteenth aspect of the invention. Such components include PCR primers and/or probes, for example those described above, PCR enzymes, restriction enzymes, and DNA or RNA purification means. Preferably, the kit will contain at least one pair of primers, or probes, preferably as described above in accordance with the eighth aspect of the invention. The primers are preferably allele specific primers. Other components include labelling means, buffers for the reactions. In addition, a control nucleic acid sample may be included, which comprises a wild type or variant nucleic acid sequence as defined above, or a PCR product of the same. The kit will usually also comprise instructions for carrying out the diagnostic method, and a key detailing the correlation between the results and the likelihood of disease. The kit may also comprise an agent for the prevention or treatment of disease.

In a twenty-second aspect of the invention, there is provided a method of identifying a compound for treatment of disease, comprising (a) administration of a compound to tissue comprising a nucleic acid molecule comprising one or more SNPs at positions which correspond to a positions of Figure 5 listed in Table 1; and (b) determining whether the agent modulates an effect of the SNPs.

In a preferred embodiment, the isolated nucleic acid molecule is according to the eighth aspect of the invention, and most preferably comprises a SNP as shown in Table 2c; or at a position corresponding to position 185752b4_2 and/or position 185752b5_3, and/or position 4321017b38_1 of Figure 5.

In this aspect, a nucleic acid molecule of the invention, and/or a cell line according to an aforementioned aspect, may be used to screen for agents, which are capable of modulating the effect of a SNP.

Potential agents are those which react differently with a risk allele and non-risk allele. Putative agents will include those known to persons skilled in the art, and include chemical or biological compounds, sense or anti-sense nucleic acid sequence for example as described above, binding proteins, kinases, and any other gene or gene product, agonist or antagonist. Preferably, the agent will be capable of modulating the effects of the disease causing allele. Most preferably, the agent is one which is capable of ameliorating the deleterious effects of the risk allele.

Such agents may be suitable for either prophylactic administration or after a disease has been diagnosed. The route of administration is suitably chosen according to the disease or condition to be treated, however, typical routes of administration of the agent of the present invention include but are not limited to oral, rectal, intravenous, parenteral, intramuscular and sub-cutaneous routes. The invention also provides for agents to be administered either as DNA or RNA and thus as a form of gene therapy. The agents may be delivered into cells directly by means including but not limited to liposomes, viral vectors and coated particles (gene gun).

In a twenty-third aspect of the present invention there is provided an agent or antibody as described above according to the invention, for use in preventing or treating an IgE mediated disease such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma.

There is also provided an agent capable of influencing expression of the ANGE and/or CLLD8 and/or CLLD7 genes for use in a method of treating an IgE-mediated disease e.g. atopy or non-atopic asthma in an individual. Preferably, the agent is capable of influencing the activity of the ANGE and/or CLLD8 and/or CLLD7 gene promoters and/or influencing RNA splicing of the ANGE and/or CLLD8 and/or CLLD7 or ANGE and CLLD7 genes or any combination of two or more of the genes or of any splice variant. Influencing or modulating the activity may include either inhibiting or enhancing, or altering the pattern of activity. Examples of agents according to the twenty-third aspect include but are not limited to proteins, such as transcription factors, which may bind to the ANGE/CLLD8 promoter or splice sites; antibodies or binding partners; ribozymes; and polynucleotide sequences.

Preferred agents for influencing the expression of the genes include polynucleotide sequences, which are complementary to the relevant polynucleotide sequence of Figure 5. Sequence complementarity can be determined using conventional techniques available in the art. Preferred complementary, or antisense, sequences are those which hybridise under stringent conditions to the genes. Suitably stringent conditions are those under which non-specific hybridisation (e.g. to non-ANGE sequences) are avoided.

In relation to the present invention, "stringent conditions" refers to the washing conditions used in a hybridisation protocol. In general, the washing conditions should be a combination of temperature and salt concentration so that the denaturation temperature is approximately 5 to 20°C below the calculated T_m of the nucleic acid under study. The T_m of a nucleic acid probe of 20 bases or less is calculated under standard conditions (1M NaCl) as $[4^\circ\text{C} \times (\text{G}+\text{C}) + 2^\circ\text{C} \times (\text{A}+\text{T})]$, according to Wallace rules for short oligonucleotides. For longer DNA fragments, the nearest neighbour method, which combines solid thermodynamics and experimental data may be used, according to the principles set out in Breslauer et al., PNAS 83: 3746-3750 (1986). The optimum salt and temperature conditions for hybridisation may be readily determined in preliminary experiments in which DNA samples immobilised on filters are hybridised to the probe of interest and then washed under conditions of different stringencies. While the conditions for PCR may differ from the standard conditions, the T_m may be used as a guide for the expected relative stability of the primers. For short primers of approximately 14 nucleotides, low annealing temperatures of around 44°C to 50°C are used.

The temperature may be higher depending upon the base composition of the primer sequence used.

Antisense sequences which hybridise under stringent conditions to the ANGE or CLLD8 or CLLD7 genes may be useful as primers in any of the aspects of the present invention. Pairs of primers for amplification of all or part of the ANGE, CLLD8 or CLLD7 genes, or alleles, or variants thereof, form another aspect of the invention.

There is also provided the use of an agent or antibody as described above in the manufacture of a medicament for use in preventing or treating an IgE mediated disease such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma. The agents of the above aspect, in particular antisense sequences, may also be useful in diagnosing an individual as having atopy.

According to a twenty-fourth aspect of the invention, there is provided, a pharmaceutical composition or medicament comprising a nucleic acid or polypeptide sequence as defined above according to the invention. Alternatively, the pharmaceutical composition may comprise an agent as defined in relation to the above aspect or an antibody according to the eleventh aspect of the invention.

Administration of pharmaceutical compositions is accomplished by any effective route, e.g. orally or parenterally. Methods of parental delivery include topical, intra-arterial, subcutaneous, intramedullary, intravenous, or intranasal administration. Administration can also be effected by amniocentesis-related techniques. Oral administration followed by subcutaneous injection would be the preferred routes of uptake; also long acting immobilisations would be used. In addition to the active ingredients, these pharmaceutical compositions may contain suitable pharmaceutically acceptable carriers comprising excipients and other compounds that facilitate processing of the active compounds into preparations which can be used pharmaceutically. Further details on techniques for formulation and administration may be found in the latest edition of "REMMINGTON'S PHARMACEUTICAL SCIENCES" (Maack Publishing Co, Easton PA).

Pharmaceutical compositions for oral administration can be formulated using pharmaceutically acceptable carriers well known in the art, in dosages suitable for oral administration. Such carriers enable the pharmaceutical compositions to be formulated as tablets, pills, dragees, capsules, liquids, gels, syrups, slurries, suspensions, etc., suitable for ingestion by the patient.

Pharmaceutical compositions suitable for use in the present invention include compositions wherein the active ingredients are contained in an effective amount to achieve the intended purpose. Thus, a therapeutically effective amount is an amount sufficient to ameliorate or eradicate the symptoms of the disease being treated. The amount actually administered will be dependent upon the individual to which treatment is to be applied, and will preferably be an optimised amount such that the desired effect is achieved without significant side-effects. The determination of a therapeutically effective dose is well within the capability of those skilled in the art. Of course, the skilled person will realise that divided and partial doses are also within the scope of the invention.

For any compound, the therapeutically effective dose can be estimated initially either in cell culture assays or in any appropriate animal model. These assays should take into account receptor activity as well as downstream processing activity. The animal model is also used to achieve a desirable concentration range and route of administration. Such information can then be used to determine useful doses and routes for administration in humans.

A therapeutically effective amount refers to that amount of agent, which ameliorates the symptoms or condition. Therapeutic efficacy and toxicity of such compounds can be determined by standard pharmaceutical procedures, in cell cultures or experimental animals (e.g. ED₅₀, the dose therapeutically effective in 50% of the population; and LD₅₀, the dose lethal to 50% of the population). The dose ratio between therapeutic and toxic effects is the therapeutic index, and it can be expressed as the ratio ED₅₀/LD₅₀. Pharmaceutical compositions, which exhibit large therapeutic indices, are preferred. The data obtained from cell culture assays and animal studies is used in formulating a range of dosage for human use. The dosage of such compounds lies preferably within a range of circulating concentrations

that include the ED₅₀ with little or no toxicity. The dosage varies within this range depending upon the dosage form employed, sensitivity of the patient, and the route of administration.

The exact dosage is chosen by the individual physician in view of the patient to be treated. Dosage and administration are adjusted to provide sufficient levels of the active moiety or to maintain the desired effect. Additional factors, which may be taken into account, include the severity of the disease state. Long acting pharmaceutical compositions might be administered every 3 to 4 days, every week, or once every two weeks depending on half-life and clearance rate of the particular formulation. Guidance as to particular dosages and methods of delivery is provided in the literature (see, US Patent No's 4,657,760; 5,206,344 and 5,225,212 herein incorporated by reference).

According to a twenty-fifth aspect of the invention, there is provided a method of preventing or treating disease in a subject comprising modulating the activity, expression, half life or post-translational modification of ANGE and/or CLLD7 and/or CLLD8 or any combination of two or more of these genes or any splice variant of the genes in the subject.

In addition, the treatment of individuals having an IgE mediated disease or non-atopic asthma includes prevention of atopy, and prophylactic and therapeutic measures.

Preferably, the method is carried out in a subject who has been diagnosed as suffering from, or is susceptible to IgE mediated diseases such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis, or non-atopic asthma.

Preferably, the method comprises determining the presence or absence of a risk allele of a SNP such as one which has an association with IgE mediated disease e.g. at position 185752b4_2, 185752b5_3 and/or 4321017b38_1 of Figure 5; or which has an association with asthma, atopy or a combination thereof e.g. as shown in Table 2c; and if the risk allele is present, administering treatment in order to prevent, delay or reduce the disease.

Preferably, the step of determining the presence or absence of a risk allele is carried out in accordance with the sixteenth aspect, and therefore also comprises determining the presence

or absence of risk alleles of SNPs of Table 1, or any combination thereof, for example as described above.

There is also provided a method of preventing or treating an IgE mediated disease or of non-atopic asthma in an individual, the method comprising modulating the expression of the CLLD8 and/or ANGE and/or CLLD7 genes or any combination of two or more of the genes or of any splice variant of the genes. Preferably, the method modulates the production of a gene product according to the first to eighth aspects of the invention. In particular, the twenty-fifth aspect may be achieved by modulating the activity of the CLLD8 promoter, or modulating the splicing of the CLLD8 and/or ANGE genes.

By modulating or influencing is meant inhibiting, enhancing or otherwise altering the expression.

The prevention or treatment of disease according to the twenty-fifth aspect may include the administration of any agent capable of modulating the effects of the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of these genes or fragments of these genes or any splice variant of the genes or of an allele which has an association with disease. Preferably, the agent is one which is capable of ameliorating the deleterious effects of the risk allele. The methods include, but are not limited to, gene therapy techniques. Gene therapy techniques typically involve replacing the nucleic acid sequence comprising the risk allele, or otherwise down regulating the effects of the risk allele. The nucleic acid sequences of the first to eighth aspect, or sequences anti-sense thereto, will be useful in gene therapy.

By modulating is meant inhibiting or increasing the activity of the gene or gene product. Preferably, the activity is inhibited. The activity of the gene or gene product includes any aspect of its production or function, including transcription and translation of nucleic acid sequences, and assembly of the protein, post-translational modification of the protein and downstream interactions with other factors.

The activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes can be modulated in a number of ways. For

example, the expression of the gene may be inhibited through the use of antisense sequences, such as those of the first to eighth aspects of the invention or by the production of antisense RNA sequences. Such sequences when introduced into a subject by gene therapy will hybridise to the ANGE, CLLD7 or CLLD8 gene or to any transcript which is a combination of two or more of these genes or to any splice variant of the genes or to RNA transcribed from the gene or genes, and inhibit its transcription or translation. This method may be particularly useful where it is desirable to modulate the function or expression of certain splice variants of ANGE, CLLD7 or CLLD8 or certain combinations of these genes whilst not affecting others.

Introduction of a nucleic acid sequence may use gene therapy methods including those known in the art. In general, a nucleic acid sequence will be introduced into the target cells of a subject, usually in the form of a vector and preferably in the form of a pharmaceutically acceptable carrier. Any suitable delivery vehicle may be used, including viral vectors, such as retroviral vector systems, which can package a recombinant genome. The retrovirus could then be used to infect and deliver the polynucleotide to the target cells. Other delivery techniques are also widely available, including the use of adenoviral vectors, adeno-associated vectors, lentiviral vectors, pseudotyped retroviral vectors and pox or vaccinia virus vectors. Liposomes may also be used, including commercially available liposome preparations such as Lipofectin®, Lipofectamine®, (GIBCO-BRL, Inc. Gaithersburg, MD), Superfect® (Qiagen Inc, Hilden, Germany) and Transfectam® (Promega Biotec Inc, Madison WI).

Other means to modulate a biological activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes includes using agents which may affect interaction of ANGE, CLLD7 or CLLD8 or any combination of two or more of these genes or any splice variant of the genes with downstream factors with which they interact.

Also provided is an agent capable of influencing expression of the ANGE, CLLD8 or CLLD7 gene, for use in a method of preventing or treating an IgE mediated disease or non-atopic asthma in an individual. Preferably the agent is capable of influencing the activity of the

ANGE, CLLD8 or CLLD7 gene promoters or of any combination of two or more of the gene promoters. Preferably the agent is capable of influencing RNA splicing of the ANGE, CLLD8 or CLLD7 gene or of any combination of two or more of the transcripts of the genes. Agents include nucleic acid sequences of the first to eighth aspects, polypeptide sequences of the tenth aspect, antibodies of the eleventh aspect, and any other agent defined herein, preferably those which are capable of modulating the activity of ANGE, CLLD7 or CLLD8 or any combination of two or more of these genes or any splice variant of the genes.

The subject may be any animal, preferably a mammal, and more preferably human.

Also provided is the use of an agent as defined above in the manufacture of a medicament for use in the prevention or treatment of an IgE mediated disease or non-atopic asthma, as defined above, in a subject.

According to a twenty-sixth aspect of the invention, there is provided a number of screens. A first screen provides for identifying an agent, which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes comprising:

providing a polypeptide sequence as claimed in the tenth aspect of the invention;
providing a substrate;
providing an agent to be tested;
measuring whether the agent to be tested modulates the activity of the polypeptide by measuring processing of the substrate.

The components of the screen are combined, in any optional order, more than 1 substrate or polypeptide may be included in the assay.

In the screening assay the polypeptide may be any polypeptide according to the tenth aspect of the invention. Fragments of the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of the genes or any splice variant of the genes may be used. Also, the ANGE, CLLD7 or CLLD8 genes or any combination of these genes or any splice variant of the genes

which comprise one or more SNP nucleic acid sequences of the present invention, such as described in the first to eighth aspects may be used. The polypeptide may be purified or non-purified. The polypeptide may be soluble. It may comprise one or more of the domains.

The agent being tested is being identified for use in the prevention or treatment of an IgE mediated disease or disorder or in non-atopic asthma. IgE mediated diseases or disorders include: asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis.

The substrate may be any which is processed by a polypeptide according to the tenth aspect of the invention. By processed is meant any changes which can be measured. These substrates may be fluorescently labelled or modified to allow easy detection of processing. Such labelling or modification is known to the person skilled in the art.

In a preferred embodiment, the assay is any means of measuring histone methyl transferase activity or nucleotide exchange factor activity known to the person skilled in the art. For example Hama *et al* J. Biol. Chem., 274: 15284-15291 1999.

The present invention further provides a screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of these genes or any splice variant of the genes comprising:

providing a polypeptide according to the tenth aspect of the invention;
providing an agent to be tested;
providing a cell; and
measuring whether the agent to be tested modulates the activity of the polypeptide by measuring adhesion of the cell to a surface.

Such a screen can be referred to as a cell adhesion screen (or assay). The components of the screen are combined, in any optional order.

Typically cells used in the cell adhesion assay may be maintained in suspension where adhesion is measured by aggregation of the cells due to intercellular adhesion molecule

interactions. Alternatively, adhesion to a surface may be measured. The surface may be a non-biological molecule e.g. tissue culture plastic or it may be a biological molecule, which is cellular or non-cellular. Examples of a non-cellular molecule include extracellular matrix components such as fibronectin, collagen and such like. One or more cells or other biological non-cellular molecules may be attached to a surface such as a tissue culture surface or an extracellular matrix component-coated surface. Adhesion is determined by measuring the adhesion of a cell to a surface. Modulation in cell adhesion may be either an increase in cell adhesion or a decrease in cell adhesion. An agent is considered to be a modulator of the polypeptide of the tenth aspect if it affects the activity or expression of the polypeptide, this may be either at the level of expression of the ANGE, CLLD7 or CLLD8 genes or of the expression of any combination of two or more of the genes or any splice variant of the genes or by altering the half life of any of the ANGE, CLLD7 or CLLD8 mRNA or polypeptide molecules or of any combination of two or more of the genes, or of any splice variant of the genes or by affecting the post-translation modification status of the ANGE, CLLD7 or CLLD8 polypeptides or the polypeptide encoded by any combination of two or more of these genes or the polypeptide encoded by any splice variant of the genes.

The cell may be the host cell of the fourteenth aspect of the invention comprising the vector of the ninth aspect. The twenty-sixth aspect also includes the use of the host cell in screens to identify an agent.

Yet a further aspect of the invention provides a screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 genes or the activity of any combination of two or more of the genes or the activity of any splice variant of the genes comprising:

- providing a polypeptide according to the tenth aspect of the invention;
- providing an agent to be tested;
- providing a cell;
- measuring a change in differentiation or proliferation of the cell.

The components of the screen are combined, in any optional order.

Typically, differentiation may be measured by any means known to the persons skilled in the art for example in the case of a B-lymphocyte, the change in differentiation can be B-cell activation. The cell may express one or more of the polypeptides of the tenth aspect or be the host cell of the fourteenth aspect. In the case of other cell types it may be the induction or prevention of production of a cell signalling factor such as an immunomodulator e.g. a cytokine or growth factor. The cell signalling factor may be secreted. The immunomodulator may be a peptide regulatory factor or may be any other biological substance which expression is altered by an agent which modulates the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes. Typically this assay is performed *in vitro* for example in tissue or organ culture and the cell may be cultured following removal from a patient or animal or the transgenic animal of the fifteenth aspect.

The change in phenotype may be any. It may involve a change in B-cell phenotype.

Such a screen provides an *in vitro* model for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes.

Yet a further aspect of the invention provides a screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or the CLLD8 gene or any combination of two or more of the genes or any splice variant of the genes comprising:

- providing a transgenic animal according to the fifteenth aspect of the invention;
- providing an agent to be tested;
- contacting the transgenic animal with the agent to be tested;
- detecting a change in the transgenic animals phenotype.

The components of the screen are combined, in any optional order.

The cell against which the agent is tested may be in suspension, tissue culture, as part of an organ or as part of an animal. Preferably the animal is a laboratory animal, such as a rat, rabbit, mouse or other rodent.

A change in phenotype includes a change in gene expression or in the production of RNA or protein or in cell morphology or behaviour.

Yet a further aspect of the invention provides a screen for detecting a side effect associated with the use of an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of the genes or any splice variant of the genes comprising:

providing a cell which does not substantially express the nucleic acid sequence of the first to eighth aspects of the invention or the polypeptide of the tenth aspect of the invention;
providing an agent to be tested;
contacting the agent to be tested with the cell; and
measuring any side effect produced by the agent on the cell.

The components of the screen are combined, in any optional order.

The side effect to be measured may be any, and may depend on whether the cell is part of a larger tissue or animal. It may involve a change in cell differentiation, or cell proliferation. The side effect may be a measure of the change of phenotype of an organ or animal.

Yet a further aspect of the invention provides a screen for identifying an agent which modulates the activity of a polynucleotide according to the first to eighth aspects of the invention or a polypeptide according to the tenth aspect of the invention comprising:

providing an isolated nucleic acid according to the first to eighth aspects of the invention or a polypeptide according to the tenth aspect of the invention;
providing an agent to be tested;

measuring whether the agent to be tested modulates the activity of the isolated nucleic acid or polypeptide by measuring the interaction of the agent with the sample of nucleic acid or polypeptide.

Preferably this screen is an *in vitro* transcription assay, measuring transcription of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant of the genes.

Alternatively, an agent may be identified by the use of theoretical or model characteristics of the ANGE, CLLD7 or CLLD8 gene or of a transcript produced by a combination of two or more of these genes or any splice variant of the genes. The functional or structural characteristics may be of the protein itself or of a computer generated model, a physical two- or three-dimensional model or an electrical (e.g. computer) generated primary, secondary or tertiary structure, as well as the pharmacophore (three dimensional electron density map) or its X ray crystal structure.

Putative agents will include those known to persons skilled in the art or new substances, and include chemical or biological compounds, such as anti-sense nucleotide sequences, polyclonal or monoclonal antibodies which bind to a polypeptide sequence of the tenth aspect.

According to a twenty-seventh aspect of the invention, there is provided the use of a nucleic acid sequence or polypeptide sequence as defined above in a screen for an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or of any combination of two or more of the genes or of any splice variant of the genes.

The method preferably comprises contacting a putative agent with a nucleic acid or polypeptide sequence according to an aforementioned aspect of the present invention and monitoring expression and/or activity of the nucleotide or polypeptide sequence. Potential agents are those which alter the activity or expression of the polynucleotide or polypeptide sequence compared to the activity or expression in the absence of the agent. The present method may be carried out by contacting a putative agent with a host cell, tissue culture, or

transgenic non-human animal comprising a nucleotide or polypeptide according to the invention, and displaying inflammatory disease.

Also provided are agents identified by the methods of the twenty-sixth aspect.

Preferred features for the second and subsequent aspects of the invention are as for the first aspect *mutatis mutandis*.

FIGURE 1 shows a Linkage Disequilibrium map of the atopy locus.

a) Linkage Disequilibrium map of the Atopy Locus

A GOLD plot²⁸ of colour coded pair-wise disequilibrium statistics (D') between markers is shown. The locus extends from the bottom left of the figure to the top right. Red and yellow indicate areas of strong LD. LD is approximately divided into four regions. The scale bar at the bottom indicates a distance of 200Kb.

b) Detail of LD around the ANGE (NY-REN-34) gene complex

Association to IgE levels is shown above the figure. Genes are shown as black arrows, pointing in the direction of transcription. The scale bar at the bottom indicates a distance of 100Kb

FIGURE 2 shows the extent of linkage disequilibrium between SNPs on chromosome 13q14.

- FIGURE 3
- a) shows the schematic structure of the gene ANGE
 - b) Detail of structure of ANGE promoter and alternate exons
 - c) Pile up of transcripts by amplification between alternative Exon I and Exon III
 - d) shows transcription of ANGE to immune tissue from alternate Exon 1.

FIGURE 4 shows splice variation in *ANGE*.

a) PCR amplification of exons 1-3 in multiple tissue cDNA panels

The presence of a smaller band indicating absence of exon 2 is observed in all tissues

b) PCR amplification of exons 4-6 in multiple tissue cDNA panels

The presence of additional bands indicating retention of a additional exons (Va and Vb) is observed in lung and immune tissues. The band is present in cDNAs from unactivated lymphocytes, and absent in activated lymphocytes.

c) PCR amplification of exons 7-8 in multiple tissue cDNA panels

The presence of additional bands, indicating retention of exon 7 is observed in lung liver, kidney and pancreas, and immune tissues. The band is most highly expressed in cDNAs from resting T and B cells.

FIGURE 5 shows the nucleotide sequence of the *ANGE* 1 gene (NY-REN-34) as nucleotides 313649-346509 the nucleotide sequence of *CLLD8* as nucleotides 294727-309803 and the sequence of *CLLD* as nucleotides 349634-410846 of BAC bA103J18.03548.

FIGURE 5a shows the following sequences for the *ANGE* gene:

- (i) Exon sequences;
- (ii) Protein sequence;

FIGURE 5b shows the following sequences for the NY-REN-34 gene:

- (i) mRNA sequence;
- (ii) Protein sequence;
- (iii) Alternative protein sequence;

FIGURE 5c shows the following sequences for the *CLLD7* gene:

- (i) Exon sequences;
- (ii) Protein sequence.

FIGURE 5d shows the following sequences for the CLLD8 gene:

- (i) Exon structure and nucleic acid sequence;
- (ii) Protein sequence.

FIGURE 6 shows the nucleotide sequence of BAC bA101d11.01116.

FIGURE 7 shows the nucleotide sequence of BAC bA236m15.00303.

FIGURE 8 shows domain architectures of CLLD8, ANGE and related proteins, drawn approximately to scale.

Proteins are described in the text. The SET domains of CLLD8 and ESET are bifurcated due to the presence of large insertions. The IL-5 promoter REII-region-binding protein, that arises from an mRNA initiated within a middle intron of the WHSC1/MMSET gene⁴⁶, is shown.

Domain symbols: AT, AT-hook DNA-binding motif; B, bromodomain; C (white-on-black), cysteine-rich regions flanking SET domains; C, FYRC domain; C₅HCH, zinc finger domain; CpG, methyl-CpG-binding domains; CXXC, CXXC-type zinc finger; HMG, high mobility group domains; N, FYRN domain; P, PHD domains with two (blue rectangle) and one (yellow rectangle) Zn²⁺-coordinating groups; PW, PWWP domains; SET, Su(var)3-9, Enhancer-of-zeste, trithorax methyltransferase domains; and, T, tudor domains.

FIGURE 9 shows co-expression of the CLLD8/ANGE gene complex.

FIGURE 10 shows Northern Blots of the gene for ANGE (NY-REN-34) and CLLD8. The presence of large bands and differential splicing in PBMC is apparent.

The figures show alternative probings of the same Northern blot. The expected transcript size of approximately 1.6Kb for ANGE is seen in all tissues. A 3.0Kb band is prominent in lymph node and thymus, and polymorphic higher molecular weight bands between 6.0 and 8.0Kb are visible in immune tissues. The expected 4.0Kb band is seen for CLLD8 in all tissues. Additional higher molecular weight bands may also be seen, but their distribution does not coincide with that of ANGE.

FIGURE 11 - Western blot of Cos-7 cells lysates after transient transfection with pcDNA4 expression vectors.

3×10^5 cells were transfected with 1 μ g pcDNA4His/MaxLacZ only (lane 1) or with 1 μ g pcDNA4His/MaxLacZ plus 6 μ g pcDNA4His/Max-CLLD7 (lane 2), 6 μ g pcDNA4His/Max-CLLD8 (lane 3), 6 μ g pcDNA4His/Max-REN34 (lane 4) and 6 μ g pcDNA4His/Max-ANGE (lane 5). Cells were harvested 24 hours post-transfection and whole cell lysates run on a 10% polyacrylamide gel. Proteins were transferred to PVDF membrane, which was probed with an anti-polyhistidine antibody.

FIGURE 12 - HMT radioactive assay using nuclear extracts from Cos7 cells transfected with pcDNA CLLD8.

Cells were harvested either 24 or 48hrs post-transfection with nuclear extracts being tested for HMT activity. The control extracts were treated with Fugene only. All Cos7 extracts equivalent to 11 μ g total protein. Positive control = bacterial SUV39H1(82-412) 10 μ g; negative control = no protein.

FIGURE 13 shows examples of results obtained with each of the DNA probes containing a potentially functional SNP.

FIGURE 14 shows the results of such immunolocalisation experiments. CLLD7 (a) and ANGE (b) have a punctate cytoplasmic localisation whereas CLLD8 (c) appears to be restricted to the nucleus of the COS-7 cells.

TABLE 1 shows associations between LnIgE and the identified SNPs in BAC bA103J18.03548, BAC bA101d11.0116 and BAC bA236m15.00303.

The position is in base pairs from the beginning of the reference sequence from the BAC/PAC contig.

TABLE 2 shows association of common b4_2.b5_3.b43_1 haplotypes to total IgE in subject panels.

- a) SNP/marker associations with total serum IgE.
- b) Association of common b42.b5_3.b43_1 haplotypes to total IgE in subject panels.
- c) Association with categorical traits (asthma and atopy).

TABLE 3 shows the full length cDNAs isolated from a 1 mb region of Figure 5.

TABLE 4 shows the primer pairs used in the identification of the SNPs.

- a) SNPS identified in region.
- b) Shows the primer pairs used in RFLP assays.
- c) SNP sequences

PCR amplification between exon XII of *CLLD8* and exon III of *ANGE*. Three bands are observed (A, B and C) and their splice structure is depicted in the insert. Band B, which lacks *ANGE* exon II, has an open reading frame that continues from *CLLD8* through to *ANGE*. The highest molecular weight band arises from priming from a homologous sequence within the IgGFc locus.

TABLE 5 shows peptide sequences used to generate antibodies.

TABLE 6 shows putative functional promoter SNPs tested by EMSAs.

Example 1

Subjects

The primary mapping was carried out on 364 subjects in 80 nuclear families sub-selected from a population sample of 230 families from the rural town of Busselton in Western Australia^{3,51} (The AUS1 panel). Families in the panel included both atopic and non-atopic members, and sibships of three or greater were not exclusively atopic or non-atopic. The AUS2 panel consisted of the remaining 150 nuclear families from the population sample. The UK2 panel consisted of 87 nuclear families recruited through a child attending an asthma clinic in the Oxford region. The families contained 216 offspring (148 sibling pairs). The ECZ panel consisted of 150 nuclear families recruited from the dermatology clinics at the Great Ormond Street Hospital for Children, through a child or children with active AD, as previously described³⁰.

Phenotypes

Skin tests to House Dust Mite (HDM) and mixed grass pollen (less the response of negative controls), specific IgE titres to HDM and Timothy Grass, and the total serum IgE were measured as previously described (Hill, M.R., James, A.L., Faux, J.A. & et al *British Medical Journal* 311, 776-9 (1995)). A "Skin Test Index (STI)" was calculated as the sum of the prick skin test results to HDM and grass mix (95% of individuals in this population who were atopic reacted either to HDM, or to grass pollen or both). Bronchial responsiveness to methacholine was measured as previously described: the maximum dose administered was 12 μ mol. The slope of the dose-response curve was calculated as (pre-dose forced expiratory volume in one second (FEV1) – last FEV1), the cumulative dose of methacholine. A constant of 0.01 was added to each measurement, to allow $\log_e$ transformation when Slope was 0. Eosinophils in peripheral blood were Coulter-counted and the values $\log_e$ transformed before analysis.

"Atopy" was defined as a STI > 5mm, or a RAST score to HDM and Timothy Grass > 2, or a total serum IgE > the 7th decile of the age-corrected population. "Normal" was defined as a

STI of 0 and a RAST Index of 0, and a total serum IgE < the 7th decile of the age and sex-matched population. Intermediate phenotypes were classified as unknown.

The subjects were administered a modified British MRC questionnaire as previously described. "Asthma" was defined as a positive answer to the questions "Have you ever had an attack of asthma?" and "If yes, has this happened on more than one occasion?"

SNP discovery and typing

Discovery of SNPs was performed through direct sequencing of non-repetitive DNA fragments that were greater than 1000 Bp in length. For each sequence reaction, primers designed covering 500-600 bps genomic sequence. Five individual samples and one pooled DNA panel of 32 individuals were sequenced. Traces were assembled by the Polyphred/Phrap programmes. Following this random SNP discovery, sequencing of all exons with 250bp leading and trailing DNA was carried out for all potential candidate genes from the region.

SNP typing was by PCR and restriction digestion. In the absence of a natural restriction site, one primer was modified to generate a restriction site. PCR was carried out in 10 µl reaction which contained 1) 5 µl 10 ng/µl individual DNA; 2) 5pmol forward and reverse primers; 3) 0.08 u TaqGold; 4) 1.5-3 mM Mg²⁺. PCR carried at 94°C for 15 minutes then 35 cycles for 1) 94°C 30s; 2) 50-60°C 30s; 3) 72°C 45s. After finishing PCR, the plates were tested for checking if the PCR worked, then 5 µl digestion solution which contained 1-2 u restriction enzyme added to each reaction. Samples were run in 2-4% agarose gels after 3-5 hours digestion. Total 40 SNPs were typed in the Busselton and UK1 family sets.

Statistical analysis of association

Errors in SNP typing were detected by testing for Mendelian errors and by the MERLIN computer program (<http://bioinformatics.well.ox.ac.uk/Merlin>), which identifies improbable recombination events from dense SNP maps. SNP haplotypes were generated by MERLIN and recoded as individual alleles.

Tests of association to quantitative traits were carried out by the QTDT program, which allowed use of markers and phenotypes as covariates in analyses²⁹. Association to asthma and categorical traits was examined by the Monks test routine of QTDT^{29,31}

Sequence analyses

Genomic sequence was analysed using a modification of HPREP (G. Micklem, unpublished); screening for repeat elements in RepBase⁵² using REPEATMASKER (Smit, A.F. and Green, P. <http://repeatmasker.genome.washington.edu>); for matches to human, rodent, EST, STS and other DNA databases, SWISSPROT, TREMBL and TREMBLNEW peptide databases, CpG islands using CPG⁵³, transcription factor elements and putative promoter regions using PROMOTERSCAN⁵⁴, and exon predictions using GRAIL⁵⁵, GENSCAN⁵⁶, GENEPARSER⁵⁷ and MZEF⁵⁸. Annotations were collated using ACeDB (<http://www.acedb.org/>). Known genes were identified using BLASTN⁵⁹ against the EMBL DNA database. The peptide databases SWISSPROT, TREMBL and TREMBLNEW were searched using BLASTX⁵⁹ for homologues to transcripts of unknown function. Putative roles for remaining transcripts were established using PSI-BLAST⁵⁹ and SMART⁶⁰.

IMAGE clone sequence and extension

IMAGE clones mapping to the region were obtained from Research Genetics and sequenced on a 377 DNA sequencer using ABI Prism Big Dye Terminator (PE Applied Biosystems). Consensus sequences for each IMAGE clone was aligned by the GCG program. Marathon-ReadyTM cDNA RACE libraries were obtained from CLONTECH to extend 5' and 3' cDNA ends of the IMAGE clones. Two gene-specific primers(GSP) were designed for each direction for each consensus. Distinct bands from RACE PCR were cut from gels and purified. The bands were cloned with ZERO BluntTM PCR Cloning kit from Invitrogen. The inserts were sequenced using Big Dye Terminator, and integrated into consensus sequences with GCG.

Tissue expression

Human Multiple Tissue Northern (MTNTM) Blots and Human Immune System MTN blots were obtained from CLONTECH. Human Multiple Tissue, Human Immune System and

Human Blood Fractions Multiple Tissues cDNA Panels from CLONTECH were used for expression analysis by PCR amplification of target sequences.

Systematic investigation of the exonic and intronic structure of the splice variants of ANGE was carried out by selective PCR, gel separation of products, cloning with ZERO Blunt™ PCR Cloning kit, and Big Dye Terminator sequencing.

Example 2

A saturation genetic map of chromosome 13q14 identified a one lod support unit for the location of the atopy locus within a 7.5 cM region centred on *D13S161*¹⁷. A 1.5Mb BAC and PAC contig was constructed, centring on *D13S273*. A positive association between the total serum IgE and alleles of the microsatellite *USAT24GI* in two panels of families⁴ was found.

The limit of detection of linkage disequilibrium (LD) between a disease and a marker given our sample size is likely to be less than 100Kb^{18,19}, suggesting that the atopy gene was within 100Kb in either direction of *USAT24GI*. This region of chromosome 13q14 is commonly deleted in B-cell chronic lymphocytic leukaemia (BCLL)²⁰.

Scaffold sequence tag sites (STSs) from our BAC/PAC contig were then used to prioritise genomic sequencing of the central 1Mb of the locus. These STSs were mapped on to BAC contigs built by a combination of *Hind* III digest fingerprinting and STS content^{23,24}. An overlapping set of clones from the RPCI-11 BAC library²⁵ was sequenced using a hierarchical shotgun sequencing strategy²⁶. The sequence of the region (in the form of 3 BACs) is shown in Figures 5, 6 and 7.

Linkage disequilibrium mapping

SNPs were detected by sequencing repeat-free contigs than 1.5Kb in length in 5 unrelated atopic subjects and 5 unrelated controls, together with a pool of DNA from 32 unrelated individuals.

Association to Quantitative traits

Forty-seven SNPs and a 15 bp deletion-insertion polymorphism were identified with minor allele frequencies $\geq 20\%$. These were genotyped in our primary panel of 364 individuals in 80 nuclear families^{3,4}. Error checking and haplotype generation was carried out by the MERLIN computer program²⁷. Linkage disequilibrium (LD) between markers was assessed by estimation of D' from the parental haplotypes¹⁸ and portrayed by the GOLD program²⁸. LD was roughly distributed into three major and one minor islands (A, Aii, B and C)(Figure 1a), defining regions in which association to disease could be localised.

Association was sought between the $\text{Log}_e(\text{IgE concentration})$ (LnIgE) and the SNPs by variance components analyses²⁹ (Table 1).

Association to LnIgE clustered around the 185752b4_2 SNP and extended for approximately 100 Kb within the A and Aii islands of LD (Table 1). Association to the STI was less well defined, but seemed to be centred around 4321017b38_1 and extend for 150 kb. The distance between the two peaks was approximately 160 kb.

In order to test if these peaks corresponded to distinct QTLs, associations to the LnIgE were tested with the STI as a covariate and vice versa (Table 1). Associations were similarly tested with 185752b4_2 and as covariates. In each case the LnIgE/185752b4_2 complex appeared as distinct from the STI/4321017b38_1 complex.

The region of association to LnIgE extended across 3 genes (Table 1)(Figure 1b). The identification of the genes is described below. Inclusion of markers in the first or third genes as covariates (b1_1 or 44593_15) did not abolish the association within the middle gene, whereas the use of a marker in this gene as a covariate (b4_2) removed the evidence for association in the outer regions. These results suggested that the QTL is contained within the centre of markers, which show association to the LnIgE.

In order to test for replication, six markers (b11_2, b4_2, b5_3, b43_1, b38_1 and b28_2) were typed in other panels of subjects. In order to minimise the numbers of comparisons, the

markers were assembled into 3-marker haplotypes, and multi-allelic tests of association were performed before examining individual haplotypes. The b4_2, b5_3, b43_1 haplotype showed consistent association to the LnIgE in each of the panels tested (Table 2). Two haplotypes containing the b4_2*2 and the b5_3*1 alleles (A and D, Table 2) showed negative association with the LnIgE, although they differed at the b43_1 locus. Positive association was observed with the C haplotype (containing b4_2*1 and b5_3*2) in a panel of families with atopic dermatitis³⁰. These results further suggest that the polymorphism influencing IgE levels is nearest to b4_2 and b5_3.

The combined panel of Busselton families (AUS1 and AUS2) may be taken to be representative of the general population. Association was seen to asthma in these subjects with the b4_2 and b5_3 markers ($p=0.024$ and $p=0.017$ respectively) using a transmission disequilibrium test³¹.

Association to categorical traits

Gene identification and domain homologies

Unfinished BAC sequence of the region was assembled and annotated. Systematic identification of expressed sequences was carried out by examination of EST databases and from a cDNA selection experiment⁴. Partial sequences from these sources were consolidated into cDNA contigs, and further extended these by 3' and 5' RACE and Northern blotting was carried out to determine transcript sizes, and to examine tissue expression of the genes.

Six full length cDNAs were identified from the 1Mb region of genomic sequence (Table 3). Four other sequences were found in the EST databases, but did not have open reading frames (ORFs) or a splice structure and were likely to be genomic contaminants (UniGene clusters Hs.58452, Hs.268773, and Hs.212161).

Physical mapping of the chromosome 13q14 BCLL locus cell has recently identified 5 of these genes²². Three were considered novel candidate genes for leukemogenesis and were named as *CLLD6*, *CLLD7*, and *CLLD8*. The other genes are karyopherin- γ 3 (*KPNA3*) and

the gene corresponding to the NY-REN-34 antigen (ANGE). The sixth gene is Emopamil-binding related protein (*EBRP*).

Sequence homologies for the three distal genes do not suggest an obvious role in atopy or asthma: *EBRP* may act as a D8-D7 sterol isomerase in cholesterol biosynthesis, the sequence of *KPNA3* suggests that it is involved in the nuclear transport system³², and *CLLD6* contains a SPRY domain, suggesting possible microtubule-binding. The three remaining genes form a tight cluster which contains the region of association to LnIgE levels (Table1)(Figure 1b).

CLLD8

The most proximal gene, *CLLD8*, contains both a methyl-CpG-binding domain (MBD) and a SET domain²²(Figure 8). The MBD appears to lack amino acids required to bind methylated CpG^{33,34}, but remains likely to bind DNA. SET domains modulate gene expression epigenetically through histone H3 methylation³⁵⁻³⁷. *CLLD8* is likely to be a H3 methyltransferase since it contains both active site and flanking cysteine residues that are important for catalytic activity³⁷.

Histone Methyl Transferases

The expression of genes in eukaryotic organisms is dependent on DNA accessibility. In its natural state, DNA is packaged around a set of histones, H2A, H2B, H3 and H4. Further higher order compaction is facilitated by the interaction with H1 histone and other non-histone proteins. In this condensed state, chromatin is inaccessible to the transcription machinery and thus genes contained within it are silent. Histone methyl transferases play a critical role in the regulation of gene expression. In mammalian cells, these enzymes are known to methylate histones H3 and H4 at specific lysine residues. The most widely studied member of this protein family is SUV39H1, which selectively methylates histone H3 at lysine residue 9 (K9). The catalytic domain of this enzyme is contained within a highly conserved sequence known as the SET domain. This sequence is required in combination with two flanking cysteine-rich sequences (Pre-SET and Post-SET) to facilitate histone methylation. Thus the PreSET-SET-PostSET domain is regarded as a characteristic signature

of histone methyltransferase proteins. CLLD8 contains an expanded SET domain and a methyl binding domain, a structure that is capable of recognising methylated DNA.

Reference: Kouzarides, T. "Histone Methylation in transcriptional control" (2002) *Curr Opin Genet and Devel* 12:198-209

ANGE (NY-REN-34)

The next gene is approximately 4Kb distal to the 3' end of CLLD8 and is transcribed in the same direction. It encodes NY-REN-34 antigen which was identified by serological analyses of cDNA products from four patients with renal cell carcinoma³⁸. Transcripts of the gene are also highly represented in stomach, tonsil and in B-cells (UniGene cluster 279799). The gene product contains two PHD (plant homeo domain) zinc fingers, which suggest its involvement in chromatin-mediated transcriptional regulation³⁹(Figure 8). PHD fingers normally possess two Zn²⁺ co-ordinating groups which contain cysteine and histidine residues. The N-terminal (5') of the NY-REN-34 finger pair however lacks one of the two co-ordinating groups.

The arrangement of PHD fingers in NY-REN-34 is characteristic of human proteins such as ALL-1 and AF10 whose genes are fused in some cases of acute lymphoblastic leukaemia⁴⁰(Figure 8). Analogy to AF10⁴¹ and ALL⁴² PHD fingers suggests that the NY-REN-34 PHD finger pair is likely to possess a homodimerisation or a protein-binding role or both. NY-REN-34 has also been called BCAP (BRCA1-C terminus associated protein)(EMBL accession AB011031) and is likely to interact with the BRCT domains of *BRCA1*. These domains are capable of stimulating transcription, remodelling chromatin and interacting with histone-modifying enzymes such as the histone acetyltransferase p300 and the human histone deacetylase, HDAC⁴³.

CLLD7

CLLD7 follows only 3Kb from the end of ANGE, but is transcribed in the opposite direction. It shows strong protein sequence similarity to RLG and RCC1 (regulator of chromatin condensation 1). RCC1 binds to DNA and to histones H2A and H2B⁴⁴. *CLLD7* contains a BTB/POZ domain, which classically form homophilic and heterophilic dimers.

Remodelling of chromatin structure is important in transcriptional regulation of genes influencing IgE production⁴⁵, so *CLLD8*, *ANGE* and *CLLD7* may all be considered candidates for influencing atopic processes. However, *CLLD8* and *ANGE* both contain domain homologies to the IL-5 promoter REII-region-binding protein (*RE-IIBP*)⁴⁶, as well as to genes found in leukaemia (*ALL*)⁴⁰ and multiple myeloma (*MMSET*)^{46,47} (Figure 8). This suggests a role in immune regulation and immunoglobulin production.

CLLD8 and ANGE (NY-REN-34) co-expression

The close genomic proximity of *CLLD8* and *ANGE* raises the possibility of co-ordinate expression of both genes, or expression of a combined gene product that would be similar to *RE-IIBP*⁴⁶. PCR between exon XII of *CLLD8* and exon III of *ANGE* identified three bands (A,B and C) which were expressed in most tissues (Figure 10). Each band contained a specific splice structure (Figure 3), but our sequence did not identify an extended open reading frame in any of the bands. Despite the absence of an open reading frame, the non-random splice structure suggests a function, which may be regulatory.

Tissue expression and splice variation

We examined northern blots of *CLLD8*, *ANGE* and *CLLD7*. The northern for *ANGE* showed polymorphic high molecular weight bands (Figure 10). High molecular weight bands were also seen with *CLLD8*, but these did not match the tissues in which similar bands were seen with *ANGE* (Figure 2). *CLLD6* and the other genes from the contig showed the expected size bands with a uniform and ubiquitous tissue distribution.

The *ANGE* gene contains 10 exons. Examination of the public databases identified a number of alternative first exons with alternative start methionines for protein translation (EMBL:AF155105, AL552215, B1463029, BG759124). We have been able to identify all of these variants by sequencing of specific PCR products from cDNA panels (data not shown). In addition, versions of the cDNA show skipping of exon II were found (ESTHUM:

BF662927 and BE787177, EMBL:AL552215). The AL552215 variant results in an incomplete first PHD domain, that would not be anticipated to be functional.

Exon-specific PCR of cDNA from multiple tissue panels identified exon II skipping variants to be present at approximately the same concentration in all tissues (Figure 4a).

Highly tissue-specific splice variants were found which contained additional exons between exons V and VI (named exon Va and Vb). These variants differed by 54bps, and were present in lung and peripheral blood leucocytes (PBL) (Figure 4b). Examination of PBL fractions showed that the splice variants were present in unactivated CD4+, CD8+ and CD19+ cells, but absent in activated cells. Both exons result in a premature stop codon. Alternative splicing with a premature stop codon has previously been identified as mechanism for negative control of transcription⁴⁸, and a negative role for these variants is consistent with their expression in inactive T and B Cells.

A splice variant in which intron VII was retained between exons VII and VIII (ESTHUM: BE141730), which was most strongly expressed in active CD4+ and CD8+ leukocytes was observed (Figure 4c). This variant also results in a premature stop codon.

ANGE

The identification of ANGE (NY-REN-34) by positional cloning rests on three lines of evidence: genetic localisation, tissue expression, and inferred or demonstrated gene function. In the present case, although the region of association to the total serum IgE concentration extends across three genes, our analysis suggests that this is attributable to polymorphism within the gene for ANGE (Figure 1, Table 1, and Table 2). Domains from *CLLD8* and ANGE have homologies with known B-Cell transcription factors. Only one gene, ANGE, has differential expression in immune cells and tissues, and is likely to be responsible for atopy at this locus.

We have carried out further sequencing of *ANGE* and *CLLD8* for 5' regions, all exons, and non-repetitive areas of introns. One conservative coding (Glu-Gly) variant was found in *CLLD8*, and showed only weak association with the IgE(p<0.01). One non conservative (Pro-Ser) variant was found in *ANGE* (*ANGE1x3C148T*). A non conservative coding (Val-Ala) variant was found in *CLLD7* (*CLD703*).

The SNPs within the A island of LD were in strong disequilibrium. Control regions for genes may extend for 100Kb⁴⁹, and we have observed at least two haplotypes with different effects on serum IgE levels. Our results indicate that loci underlying complex traits will contain several polymorphisms with different functional consequences⁵⁰.

Example 3

Sequence analyses

DNA sequence from overlapping, unfinished BACs was assembled to form larger contigs using contigwalk, a systematic comparison and extension tool using BLASTN (S.J. Broxholme, unpublished). A framework map of the region of interest was prepared using vector scores of STS markers from the critical region in the Genebridge4 Radiation Hybrid panel and the Radiation Hybrid mapping software RHMAPPER (Stein, L., Kruglyak, L., Slonim, D., Lander, E. (1995) <http://www.genome.wi.mit.edu/ftp/pub/software/rhmapper>.) RHMAPPER was then used to find markers in RHDB (Rodriguez-Tome, P. & Lijnzaad, P *Nucleic Acids Res* 29, 165-6. (2001)) that could be placed within this framework.

For each RHDB entry placed within the framework, the accession number was found from its annotation, and ESTs were selected for the next stage. TIGR Assembler (Sutton G.G., White O., Adams, M.D. and Kerlavage, A.R. (1995) *Genome Science & Technology*, 1, 9-19) was used to make a non-redundant set of sequences.

Genomic sequence was analysed using a modification of *hprep* (G. Micklem, unpublished); screening for repeat elements in RepBase (Jurka, J. *Trends Genet* 16, 418-20. (2000)) using RepeatMasker (Smit, A.F.A. and Green, P. <http://repeatmasker.genome.washington.edu>); for

matches to human, rodent, EST, STS and other DNA databases, SWISSPROT, TREMBL and TREMBLNEW peptide databases, CPG islands using cpg (Larsen, F., Gundersen, G., Lopez, R. & Prydz, H. *Genomics* 13, 1095-107. (1992)), transcription factor elements and putative promoter regions using promoterscan (Prestridge, D. S *J Mol Biol* 249, 923-32. (1995)), and exon predictions using GRAIL (Xu, Y., Mural, R. J. & Uberbacher, E. C. *Comput Appl Biosci* 10, 613-23. (1994)), GENSCAN (Burge, C. & Karlin, S. . *J Mol Biol* 268, 78-94. (1997)), geneparser (Snyder, E. E. & Stormo, G. D. *Nucleic Acids Res* 21, 607-13. (1993)) and MZEF (Zhang, M. Q. *Proc Natl Acad Sci U S A* 94, 565-8. (1997)). Annotations were collated using ACeDB (<http://www.acedb.org/>).

Known genes were identified using BLASTN (Altschul, S. F. et al. *Nucleic Acids Res* 25, 3389-402. (1997)) against the EMBL DNA database. The peptide databases SWISSPROT, TREMBL and TREMBLNEW were searched using BLASTX (Altschul et al., supra) for homologues to transcripts of unknown function. Putative roles for remaining transcripts were established using PSI-BLAST (Altschul et al., supra) and SMART (Schultz, J., Copley, R. R., Doerks, T., Ponting, C. P. & Bork, P *Nucleic Acids Res* 28, 231-4. (2000)).

IMAGE clone sequence and extension

IMAGE clones mapping to the region were obtained from Research Genetics and sequenced on a 377 DNA sequencer using ABI Prism Big Dye Terminator (PE Applied Biosystems). The reaction contained 2 µl Bigdye, 2 µl Half Bigdye, 1 µl primer (5pmol/µl), 1-4 µl plasmid DNA (400 ng) and 1.4-1 µl dsH2O. The sequence reactions were performed in MJ thermal cycler. 1); 95 °C - 1 min ; 2) 95°C - 15s; 3) 50°C - 10s; 4) 60°C - 4mins; 5) repeated step 2 to 4 for 24 cycles [25 cycles total]; 6) 15°C - hold. Consensus sequences for each IMAGE clone was aligned by the GCG program.

Marathon-Ready™ cDNA RACE libraries were obtained from CLONTECH to extend 5' and 3' cDNA ends of the IMAGE clone sequences. Two gene-specific primers(GSP) were designed for each direction for each consensus. There were about 150-200 bps overlapping sequence between the two GSP primers. GSP primers were designed to have 25-28 bps, 50-

70%GC and Tm, 65°C. Touchdown PCRs were used for the RACE the ends as: 1) 94°C for 30s, 2) 25-30cycles at 94°C for 5s, 68-72°C for 4 min .

Distinct bands from RACE PCR were cut from gels and purified. The bands were cloned with ZERO Blunt™ PCR Cloning kit from Invitrogen. The inserts were sequenced using Big Dye Terminator, and integrated into consensus sequences with GCG.

Northern blot analysis

Human Multiple Tissue Northern (MTN™) Blots and Human Immune System MTN blots were obtained from CLONTECH. The Human MTN Blot contained RNA from: heart, brain (Whole), placenta, lung, liver, skeletal muscle, kidney and pancreas. The Human Immune System MTN contained: spleen, lymph node, thymus, peripheral blood leukocyte, bone marrow and fetal liver. The Blots were hybridised with probes generated from cDNA clone or tissue cDNA solution. The average size of probes was 500-1000 bps. For gene i154016, the probe was 1180 bps from exon 1 to exon 10. The probes were radioactively labelled with [³²P]dATP using random primer method. All probes were hybridised at 42°C overnight in Hybridisation solution (10%Dextran sulphate; 4x SSC; 50mM sodium phosphate buffer pH7.2; 1 mM EDTA pH 8.0; 10X Denhardt's; 50mg/ml herring DNA sonicated; 1%SDS).

PCR Screening of MTC panels

Human Multiple Tissue cDNA Panels and Human Immune System Multiple Tissues cDNA Panels from CLONTECH were used for expression analysis. The Human Multiple Tissues cDNA panel contained cDNA from: heart, brain, placenta, lung, liver, skeletal muscle, kidney and pancreas. The Human Immune System Multiple Tissues contained cDNA from: spleen, lymph node, thymus, tonsil, leukocyte, marrow and fetal liver. MTC panels were examined in all cDNA consensus sequence over the five BACs genomic sequence. PCRs were carried out in 50 µl which contained: 1) 36 µl deionised H₂O; 2) 5 µl PCR buffer; 3) 1 µl advanTaq Plus ; 4) 5 µl 8mM dNTP and 5) 4 µl 5 pmol forward and reverse primers. PCR was performed as 1) 30s at 94°C; 2) 22-38 cycles at 94°C for 30s, 68°C for 2min; 3) 68°C for 5min. In order to observe the abundance of the particular target, a total 5 µl sample each time was removed from the reactions at 22, 26, 30, 34 and 38 cycles.

For ANGE (NY-REN-34), the CLONETECH Human Blood Fractions MTC panel was also tested as above.

Systematic investigation of the exonic and intronic structure of the splice variants of ANGE was carried out by selective PCR, gel separation of products, cloning with ZERO BluntTM PCR Cloning kit, and Big Dye Terminator sequencing.

Results

We then investigated the genes within the region of association. Unfinished BAC sequence of the region was assembled and annotated. Systematic identification of expressed sequences was carried out by examination of EST databases and from a cDNA selection experiment (G. Anderson. DPhil Thesis, Oxford University 2001). Partial sequences from these sources were consolidated into cDNA contigs and were further extended by 3' and 5' RACE. Northern blotting was carried out to determine transcript sizes, and to examine tissue expression of the genes.

Six full length cDNAs were eventually identified from the 1Mb region of genomic sequence (Table 3). Five other sequences were found in the EST databases, but did not have open reading frames (ORFs) or a splice structure and were likely to be genomic contaminants (i274117, i46536, i513822, i143317 and i447262). Physical mapping of the chromosome 13q14 BCLL locus cell has recently identified three of the genes we found, which were named as CLLD6 (i2350400), CLLD7 (i44593), and CLLD8 (i626548) (Mabuchi, H. et al. *Cancer Res* **61**, 2870-7. (2001)). These genes were considered novel candidate genes for leukemogenesis. Our analysis of the domain content of these genes agrees with the assessment of Mabuchi et al that CLLD7 might be involved in cell cycle regulation by chromatin remodelling and that CLLD8, which contains a SET domain, might be associated with methylation-mediated transcriptional repression. We have observed a SPRY domain in CLLD6, which might be involved in microtubule-binding. CLLD6 seems to be beyond the region of association to LnIgE or the STI.

The gene corresponding to image clone i154016 has been previously recognised to code for NY-REN-34 antigen, which was identified by serological analyses of cDNA from four patients with renal cell carcinoma (Scanlan, M. J. et al. *Int J Cancer* 83, 456-64. (1999)). Transcripts of the gene have also been consistently found in breast carcinoma and in tonsil. The gene contains two PHD domains, one of which is complete and the second of which is N-terminal (5') to the first and is missing one of its two zinc co-ordinating residue groups (mostly Cys). These two PHD domains are very similar to pairs of PHD domains in *Drosophila*/human trithorax and human ALL-1, suggesting that the gene for NY-REN-34 antigen is involved in chromatin-mediated transcriptional regulation (Aasland, R., Gibson, T. J. & Stewart, A. F. *Trends Biochem Sci* 20, 56-9. (1995)).

Image clone i1895799 is Emopamil-binding related protein, which acts as a D8-D7 sterol isomerase. Image clone i626789 is karyopherin alpha 3, with homologies that suggest that it may be involved in the nuclear transport system (Takeda, S. et al.. *Cytogenet Cell Genet* 76, 87-93 (1997)).

Chromatin structure is important in transcriptional regulation of genes influencing IgE production (Lavender, P., Cousins, D., Smith, P. & Lee, T. Presentation at the National Asthma Campaign International Congress, June 1999. *Clin Exp Allergy* 30, 1697-708. (2000)) so that the SET domain and PHD domain-containing proteins (CLLD8 and NY-REN-34) are prime candidates for influencing atopic processes.

Mapping of the transcribed sequences back onto the SNP/LD map showed that three of the genes were contained under the peak of association to the LnIgE and STI (Figure 1). These genes were NY-REN-34, CLLD7 and the D8-D7 sterol isomerase.

Further examination of the genes was based on their tissue expression. Northern blots of CLLD8 and CLLD7 and Karyopherin- showed ubiquitous expression of a single sized transcript, as previously described. However, NY-REN-34 showed differential splicing, with higher molecular weight bands present in immune tissues (Figure 2).

This gene was therefore examined in more detail. It consists of 10 exons, and an alternative exon 1 has been seen in W tissue (Figure 3). Only one of these exons has a promoter (Figure 3). We could only identify PCR products that contained the promoter-associated exon from multiple cDNA (MTC) panels. Further exon-specific PCR amplification of cDNA from the panels showed a number of unexpected bands (Figure 4) in tissues. An alternative version within and without exon two was seen, and was present at approximately the same concentration in all tissues (Figure 4a). We observed further additional bands when amplifying exons 4-6. These bands were highly tissue-specific, being present in lung and peripheral blood leucocytes (PBL) (Figure 4b). Examination of PBL fractions showed that the splice variants were present in unactivated CD4+, CD8+ and CD19+ cells, but absent in activated cells. Sequencing of the splice variant band revealed the presence of an additional exon between exons 5 and 6. This resulted in an immature stop codon. Further splice variants were seen with amplification of exons 7-8 (Figure 4c), which were specific to leukocytes.

The evidence therefore suggested that the gene for NY-REN-34 is responsible for atopy at this locus. It is situated at the peak of association to the LnIgE and the STI, its sequence homology suggests that it acts as a regulatory factor, and is differentially spliced in the specific tissues known to be involved in the regulation of IgE and the allergic response. We therefore have named the NY-REN-34 gene ANGE (atopy new gene).

There are many cell types and phenotypic readouts which can be measured to assess the contribution of these genes to the disease phenotype, including cell-cell interactions, inflammatory cell recruitment, inflammatory mediator release, and effector functions. We primarily used B cell lines as the model system for the cell based assays and IgE promoter activity as the main readout of B cell function.

Example 4

It is of interest that CLLD8 is in close proximity (approximately 4Kb) to ANGE, that ANGE has an alternate first exon without a promoter, and that high molecular weight bands were observed on Northern Blots of ANGE. In order to establish if CLLD8-ANGE may on occasion form a single gene product, PCR was performed between CLLD8 and ANGE exons

in placental cDNA. A band was observed, indicating the presence with a gene with the domain structure CpGBD-PreSET-SET-PostSET-PHD-PHD. A similar domain structure has been observed in IL-5 promoter REII-region-binding protein (Garlisi, C.G. et al. *Am J Respir Cell Mol Biol* 24, 90-98. (2001)).

Mutations associated with 13q14 have not been identified in any of the genes mapped to this locus. However, the recognition that CLLD8/ANGE form a single transcript with differential splicing (Fig 9) suggests that this gene may cause atopy.

Example 5

Mammalian Cell Electroporation

Below is the protocol for the transfection of B cells by electroporation used in the IgE-luciferase reporter assay. These electroporation conditions have been optimised for B cells by measuring β -galactosidase activity after transfection with pcDNA4/HisMax-LacZ. The conditions used in the optimisation experiments are given in the Results section.

The human Burkitt lymphoma cell line DG-75 (DSMZ) was cultured in fresh RPMI plus 10% FCS 24 hours before transfection. The cells were harvested by centrifugation at 1000rpm for 10 minutes and washed once in cold RPMI. 5×10^6 cells were resuspended in 400 μ l cold RPMI and transferred to a 0.4cm gap electroporation cuvette (BioRad) containing 10 μ g pGL2 reporter vector, 10 μ g pcDNA4/HisMax expression vector, and 1 μ g pRL-TK (Promega) for normalisation of data to account for differences in transfection efficiency. A pulse was delivered at 1000 μ F and 250V at room temperature using a Gene Pulser II Electroporator (Bio-Rad). Immediately after transfection 600 μ l warm RPMI plus 10% FCS was added to the cells which were transferred to 1ml warm RPMI plus 10% FCS in a 6-well plate. The cells were cultured at 37°C for up to 24 hours in the presence or absence of human recombinant IL-4 (Sigma).

Measurement of β -galactosidase activity in pcDNA4His/MaxLacZ-transfected cells

24 hours post-electroporation the transfection of B-cells was monitored by measuring β -galactosidase activity in cell lysates. Cells were harvested by centrifugation, washed twice in

PBS and resuspended in Reporter Lysis Buffer (Promega). After incubating at room temperature for 15 minutes the lysates were centrifuged at 14,000rpm for 10 minutes and the supernatants added to an equal volume of 2X β -galactosidase assay buffer (200mM sodium phosphate pH7.3, 2mM $MgCl_2$, 100mM β -mercaptoethanol, 1.33mg/ml ONPG). The reactions were incubated at room temperature or 37°C until a yellow coloration had developed. 1ml of 1M $NaCO_3$ was added and the absorbance read immediately at 420nm.

X-gal staining of pcDNA4His/MaxLacZ-transfected cells

Transfected cells were harvested by centrifugation, washed twice in PBS and fixed in 3.7% formaldehyde in PBS for 15 minutes at room temperature. After washing three times with PBS the cells were incubated in X-gal solution (0.2% X-gal, 2mM $MgCl_2$, 5mM $K_4Fe(CN)_6 \cdot 3H_2O$, 5mM $K_3Fe(CN)_6$) for 2-16 hours at 37°C.

Dual Luciferase Assay

800 μ l of transfected-cell suspension was centrifuged at 3000rpm for 10 minutes and washed with 1ml PBS. The cell pellet was resuspended in 50 μ l passive lysis buffer and incubated for 20 minutes at room temperature on a rotating wheel. The lysates were briefly centrifuged at 14,000rpm and dual luciferase activity was measured in 20 μ l of the supernatant using the Dual-Luciferase Reporter System (Promega) according to the manufacturer's instructions.

WST-1 proliferation Assay

U2OS cells were seeded in a 96-well plate at 3×10^3 cells per well and cultured at 37°C for 24 hours in DMEM plus 10% FCS. Transfections were performed in triplicate using 300ng pcDNA4/HisMax expressing CLLD7, CLLD8, REN34 or ANGE and 0.2 μ l FuGENE 6 transfection reagent mixed in 20 μ l Optimem, as described in section a. The cells were cultured for 24, 48, or 72 hours before adding 10 μ l per well of WST-1 cell proliferation reagent. Absorbance was measured at 450/690nm after a one-hour incubation at 37°C.

Histone methyltransferase assay

10 μ g of SUV39H1(82-412)-GST protein (1mg/ml) was added to 5 μ g biotinylated H3 peptide (first 21 amino acids of Histone H3 with a Biotin label on the CO_2H terminus from Upstate

Biotechnology) in MAB (methylation activity buffer as described in Regulation of chromatin structure by site specific Histone H3 methyltransferases, Rea *et al.* Nature 406, 593-599, 2000. but using Tris-Cl pH 8.0) and water to a final volume of 100µl, allowing for the addition of 600nCi of ^{14}C s-adenosyl methionine as the radioactive substrate to initiate the reaction. This was incubated at 30°C for 90 minutes. 30-50µl of PBS washed Streptavidin Agarose beads (Sigma) were added at room temperature for 30 minutes with gentle agitation, to bind all biotinylated H3 peptide. Unbound reaction components were removed by washing beads in at least 10 volumes of PBS, spinning at low speed (~ 5000rpm) and removing supernatant to aqueous waste, taking care not to remove any Agarose beads. The beads were then resuspended in 100µl of PBS and added to 3ml of scintillant fluid for counting of ^{14}C labelled methylated H3 peptide.

Screening Methods for Modulators of Methyltransferase Activity are disclosed in Patent WO 01/94621. The screening methods in this patent relate to modulators of murine SUV39H2-methyltransferase

Screening for modulators of Suv39h2 Mtase activity (from WO 01/94621).

All steps are automated and the position of the different compounds being tested are registered on computer for later reference. Compounds being tested for modulating activity are aliquoted into 384 well plates in duplicate. 20-200 nmol of recombinant GST tagged human SUV39H2 in MAB buffer, is then added to the reaction. 20 nmol of branched peptide ([TARKST]₄-K₂-K-cys) which has been labelled with europium is then added, followed by 100 nmol of S-adenosyl methionine. This reaction is left at room temperature for 40 mins, then transferred onto a second plate to which the α-methH3-K9 antibody has been coated. This reaction is then left at room temperature for 40 mins to allow the antibody to bind methylated substrate. Following capture of methylated substrate, unbound non-methylated substrate is washed off in 50 mM tris pH 8.5. The europium label is then cleaved from the peptide in 50 µl pH 4.5 enhancement solution for 25 mins. The chelated europium molecules are then excited at 360nm and the level of emitted fluorescence at 620nm is then calculated

using time-resolved fluorescence in a PolarStar plate reader. The results are then automatically graphed.

The level of fluorescence is directly related to the level of MTase activity. The effect of the different compounds on the MTase activity can be clearly seen on the graph when compared to control reactions with no compounds added or with no enzyme added. The principle of the screening method is as follows:

- a) Suv39h2 is incubated with S-Adenosyl Methionine (SAM) and a chromogenically labelled unmodified peptide substrate (e.g. branched peptide [TARKST]4-K2-K-cys). Following methylation of this substrate the substrate becomes an epitope for a Lys9-methyl specific antibody which has been immobilised on a microtiter plate. The level of bound peptide can then be quantified by the level of fluorescence of from the chromogenic label.
- b) In the presence of a modulator (e.g. an inhibitor, I) the transfer of methyl groups by the MTase will be affected (decreased), this in turn will affect the amount of substrate captured by the immobilised antibody, which is quantified by the level of fluorescence. A compound with inhibitory effects will result in a decrease in fluorescence signal, whereas a compound with enhancing effects will result in an increase in fluorescent signal.

A truncated SUV39H1 (82-412), without the Chromo domain, was amplified by PCR from a Jurkat cDNA library and cloned into pGEX-2T. Histone methyl transferase activity of truncated protein was confirmed by radioactive assay.

Cloning of cDNAs into bacterial expression plasmids

All genes, CLLD7, CLLD8 and ANGE, were successfully amplified from I.M.A.G.E. consortium clones and cloned into the appropriate vectors: pET28a, pGEx4T and pGEx6P.

Expression of proteins in mammalian cells

Full-length cDNAs for CLLD7, CLLD8, and ANGE 1 were cloned into pcDNA4His/Max plasmid (Invitrogen) for use in over-expression studies in B cells. Whole cell lysates were prepared 24 hours post-transfection and protein expression was detected by western blotting using an anti-polyhistidine monoclonal antibody. The bands that were detected in the western blot migrated at approximately the expected sizes for the recombinant proteins; CLLD7, 58kDa; CLLD8, 82kDa; REN34, 22kDa; ANGE, 37 kDa (Figure 11). This indicates that pcDNA4His/Max constructs are functional and express the genes of interest. Confirmation of these results was obtained by probing transfected Cos-7 cell lysates with an antibody to the Express Epitope (Invitrogen) for detection of ANGE and with specific antibodies to CLLD8 and ANGE.

IgE reporter assays

The human germline IgE promoter was cloned into the luciferase reporter vector pGL-2 Basic (Promega) in both forward and reverse orientations. pGL-2 Control, in which the luciferase gene is under the control of the SV40 promoter (Promega), was used as a positive control for luciferase activity. For normalisation of data due to differences in transfection efficiency, cells were co-transfected with pRL-TK (Promega).

The effect of over-expression of CLLD7 on IgE promoter activity was measured. Cells were co-transfected with the IgE reporter construct +/- pcDNA4-CLLD7. Luciferase activity was measured 24-hours post-transfection and IgE promoter activity expressed as a ratio of firefly luciferase to renilla luciferase activity.

Histone methyltransferase assays

Histone methyltransferases (HMT) are chromatin-modifying enzymes functioning mainly in the nucleus but could have a role in the cytoplasmic compartment. Therefore, both nuclear and cytoplasmic extracts were purified from transfected Cos7 cells, for use in the HMT assay. Human SUV39H1 (used as a positive control in the assay) is a Lysine specific Histone methyltransferase that specifically methylates lysine 9 of Histone H3. Methylation of H3 has

been shown to recruit HP1 protein resulting in formation of heterochromatin and may thus be involved in gene regulation/gene silencing (Rea *et al.*).

Nuclear extracts from Cos7 cells transfected with pcDNA CLLD8 were tested for HMT activity. In experiments transfected Cos cells showed increased HMT activity relative to the untransfected control (see Figure 12).

Example 6

Identification of SNPs that alter the function of a gene is of importance when the SNP is in a genomic region, which is known to be associated with the disease. This example describes one approach to functionally validate a SNP in a putative gene regulatory region such as a promoter or enhancer. Alterations in the normal function of these genomic regions influences the levels of transcription of the gene potentially affecting the levels of protein, the consequence of which leads to a disease state. The ability of proteins to bind to DNA with or without the SNP was demonstrated by electromobility shift assays (EMSAs). An alteration in the shifting pattern or intensity when comparing the wildtype and mutant DNA is indicative of differential binding of transcription factors. This differential effect potentially will result in differing expression patterns of the gene.

SNPs tested

Four SNPs were identified by in-silico analysis using DB and Celera SNP databases which lay within predicted regions of the CLLD7, CLLD8 and ANGE gene promoters. The description of the SNP, oligonucleotide probes and potential transcription factor binding sites are shown in Table 7

Labelling of oligos

The DNA target was produced by 3' biotin end labelling of complementary oligos with or without the SNP then incubated together to allow annealing to form a double stranded target DNA.

EMSA

Optimisation of double stranded oligo probe and nuclear extract was performed as demonstrated in the table. After incubation at room temperature, the samples were run on 5% polyacrylamide gels, electroblotted onto Biodyne charged membrane and the position of the biotin labelled oligos identified using the LightShift chemiluminescent EMSA kit (Pierce) as described by the manufacturers instructions and visualised by exposure to film or CCD camera.

Results

NR1 oligos, hcv9873896, Figure 13a

The results showed a difference in protein binding to the wild-type and the mutant oligos for NR1. There was an increase in the migration distance for the DNA-protein complex with the mutant oligo. This is possibly due to a decrease in affinity for the mutant oligo, the protein could be dissociating or it is possible that a different protein from the nuclear extract could be binding to the DNA.

NR2 oligos, clld7x1a295t, Figure 13b

There was protein-DNA complex formation for both the wild-type and the mutant oligos but there did not appear to be any difference between the two.

NR3 oligos, clld7prom1a351g, Figure 13c

There was evidence of protein binding with the NR3 wild-type oligo but there was no binding detected with the mutant oligo.

NR4 oligos, clld8x1a384g, Figure 13d

There was a very strong affinity for the protein by both the wild-type and the mutant oligos. There did not appear to be any difference in the affinity between the wild-type and the mutant oligo.

Example 6a

In order to identify the cellular localisation of the CLLD7, CLLD8 and ANGE proteins we generated mammalian expression constructs which when transfected into cells have the ability to express the recombinant protein. Using antibodies specific to an epitope tag fused in frame with the protein of interest allows for visualisation of the protein within the cell.

Expression cloning

The open reading frames of CLLD7 (1590bp), CLLD8 (2157bp) and ANGE (993bp) were generated by PCR using full-length EST clones and the PCR product cloned into pCDNA-His.Max-TOPO (Invitrogen).

The frame and integrity of the orf was verified by double stranded sequencing of the insert. The plasmid expression construct was grown in bulk and purified ready for transfection of COS-7 cells.

Transfection and analysis

Each purified plasmid clone was then transfected into the COS-7 cells using Fugene transfection reagent (Roche). Prior to transfection the COS-7 cells were cultured on cover slips overnight at 0.5×10^5 per well in a 24 well plate. Cover slips were then fixed and labelled with Xpress antibody (Invitrogen) and detected using the anti-mouse Cy3 antibody. Images were obtained by immunofluorescence microscopy (Fig 14a, b, c).

References

1. Jarvis, D. & Burney, P. ABC of allergies. The epidemiology of allergic disease [published erratum appears in BMJ 1998 Apr 4;316(7137):1078]. *British Medical Journal* **316**, 607-10 (1998).
2. Eiberg, H., Lind, P., Mohr, J. & Nielsen, L. S. Linkage relationship between the human immunoglobulin E polymorphism and marker systems. *Cytogenetics. And Cell Genetics* **40**, 622 (1985).
3. Daniels, S. E. et al. A genome-wide search for quantitative trait loci underlying asthma. *Nature* **383**, 247-50 (1996).
4. Anderson, G. G., Leaves N.I, Bhattacharyya S., Zhang Y., Walshe V., Broxholme J., Abecasis G., Levy E., Zimmer M., Cox R., Cookson W.O.C.M. Positive association to IgE levels and a physical map of the 13q14 atopy locus. *Eur J Hum Genet* (in press) (2002).
5. Cookson, W. The alliance of genes and environment in asthma and allergy. *Nature* **402**, B5-11 (1999).
6. O'Connor, G. T. & Weiss, S. T. Clinical and symptom measures. *Am J Respir Crit Care Med* **149**, S21-8 (1994).
7. Duffy, D. L., Martin, N. G., Battistutta, D., Hopper, J. L. & Mathews, J. D. Genetics of asthma and hay fever in Australian twins. *Am Rev Respir Dis* **142**, 1351-8 (1990).
8. Gerrard, J., Rao, D. & Morton, N. A genetic study of immunoglobulin E. *Am J Hum Genet* **30**, 46-58 (1978).

9. Palmer, L. J. et al. Independent inheritance of serum immunoglobulin E concentrations and airway responsiveness. *Am J Respir Crit Care Med* **161**, 1836-43 (2000).
10. Risch, N. J. & Zhang, H. Mapping quantitative trait loci with extreme discordant sib pairs: sampling considerations. *Am J Hum Genet* **58**, 836-43 (1996).
11. Cookson, W. & Palmer, L. Investigating the asthma phenotype. *Clin Exp Allergy* **28 Suppl 1**, 88-9; discussion 108-10 (1998).
12. Dizier, M. H. et al. Detection of a recessive major gene for high IgE levels acting independently of specific response to allergens. *Genet Epidemiol* **12**, 93-105 (1995).
13. Kimura, K. et al. Linkage and association of atopic asthma to markers on chromosome 13 in the Japanese population. *Hum Mol Genet* **8**, 1487-90 (1999).
14. Ober, C. et al. Genome-wide search for asthma susceptibility loci in a founder population. The Collaborative Study on the Genetics of Asthma. *Hum Mol Genet* **7**, 1393-8 (1998).
15. Hizawa, N. et al. Genetic regulation of *Dermatophagoides pteronyssinus*-specific IgE responsiveness: a genome-wide multipoint linkage analysis in families recruited through 2 asthmatic sibs. Collaborative Study on the Genetics of Asthma (CSGA). *J Allergy Clin Immunol* **102**, 436-42 (1998).
16. Beyer K, W. U., Freidhoff L, Nickel R, Björkstén B, Huang S, Barnes KC, Beaty T, Marsh DG. Evidence for linkage of chromosome 5q31-q33 and 13q12-q14 markers to atopic dermatitis. *J Allergy Clin Immunol* **101**, 152 (1998).
17. Bhattacharyya, S., Leaves, N. I., Wiltshire, S., Cox, R. & Cookson, W. O. A high-density genetic map of the chromosome 13q14 atopy locus. *Genomics* **70**, 286-91 (2000).

18. Abecasis, G. R. et al. Extent and Distribution of Linkage Disequilibrium in Three Genomic Regions. *Am J Hum Genet* **68**, 191-7 (2001).
19. Abecasis, G. R., Cookson, W. O. & Cardon, L. R. The power to detect linkage disequilibrium with quantitative traits in selected samples. *Am J Hum Genet* **68**, 1463-74 (2001).
20. Oscier, D. G. Cytogenetic and molecular abnormalities in chronic lymphocytic leukaemia. *Blood Rev* **8**, 88-97. (1994).
21. Kalachikov, S. et al. Cloning and gene mapping of the chromosome 13q14 region deleted in chronic lymphocytic leukaemia. *Genomics* **42**, 369-77 (1997).
22. Mabuchi, H. et al. Cloning and characterisation of CLLD6, CLLD7, and CLLD8, novel candidate genes for leukemogenesis at chromosome 13q14, a region commonly deleted in B-cell chronic lymphocytic leukaemia. *Cancer Res* **61**, 2870-7. (2001).
23. Bentley, D. R. et al. The physical maps for sequencing human chromosomes 1, 6, 9, 10, 13, 20 and X. *Nature* **409**, 942-3. (2001).
24. McPherson, J. D. et al. A physical map of the human genome. *Nature* **409**, 934-41. (2001).
25. Osoegawa, K. et al. A bacterial artificial chromosome library for sequencing the complete human genome. *Genome Res* **11**, 483-96 (2001).
26. Lander, E. S. et al. Initial sequencing and analysis of the human genome. *Nature* **409**, 860-921 (2001).
27. Abecasis, G. R., Cherny, S. S., Cookson, W. O. & Cardon, L. R. Merlin--rapid analysis of dense genetic maps using sparse gene flow trees. *Nat Genet* **30**, 97-101 (2002).

28. Abecasis, G. R. & Cookson, W. O. GOLD--graphical overview of linkage disequilibrium. *Bioinformatics* **16**, 182-3 (2000).
29. Abecasis, G. R., Cardon, L. R. & Cookson, W. O. A general test of association for quantitative traits in nuclear families. *Am J Hum Genet* **66**, 279-92 (2000).
30. Cox, H. E. et al. Association of atopic dermatitis to the beta subunit of the high affinity immunoglobulin E receptor [see comments]. *Br J Dermatol* **138**, 182-7 (1998).
31. Monks, S. A., Kaplan, N. L. & Weir, B. S. A comparative study of sibship tests of linkage and/or association. *Am J Hum Genet* **63**, 1507-16. (1998).
32. Takeda, S. et al. Isolation and mapping of karyopherin alpha 3 (KPNA3), a human gene that is highly homologous to genes encoding *Xenopus* importin, yeast SRP1 and human RCH1. *Cytogenet Cell Genet* **76**, 87-93 (1997).
33. Ohki, I., Shimotake, N., Fujita, N., Nakao, M. & Shirakawa, M. Solution structure of the methyl-CpG-binding domain of the methylation-dependent transcriptional repressor MBD1. *Embo J* **18**, 6653-61 (1999).
34. Wakefield, R. I. et al. The solution structure of the domain from MeCP2 that binds to methylated DNA. *J Mol Biol* **291**, 1055-65 (1999).
35. Rea, S. et al. Regulation of chromatin structure by site-specific histone H3 methyltransferases. *Nature* **406**, 593-9 (2000).
36. Jenuwein, T. Re-SET-ting heterochromatin by histone methyltransferases. *Trends Cell Biol* **11**, 266-73 (2001).
37. Nakayama, J., Rice, J. C., Strahl, B. D., Allis, C. D. & Grewal, S. I. Role of histone H3 lysine 9 methylation in epigenetic control of heterochromatin assembly. *Science* **292**, 110-3 (2001).

38. Scanlan, M. J. et al. Antigens recognised by autologous antibody in patients with renal-cell carcinoma. *Int J Cancer* **83**, 456-64 (1999).
39. Aasland, R., Gibson, T. J. & Stewart, A. F. The PHD finger: implications for chromatin-mediated transcriptional regulation. *Trends Biochem Sci* **20**, 56-9 (1995).
40. Angioni, A. et al. Interstitial insertion of AF10 into the ALL1 gene in a case of infant acute lymphoblastic leukaemia. *Cancer Genet Cytogenet* **107**, 107-10 (1998).
41. Linder, B. et al. Biochemical analyses of the AF10 protein: the extended LAP/PHD-finger mediates oligomerisation. *J Mol Biol* **299**, 369-78 (2000).
42. Fair, K. et al. Protein interactions of the MLL PHD fingers modulate MLL target gene regulation in human cells. *Mol Cell Biol* **21**, 3589-97 (2001).
43. Miyake, T., Hu, Y. F., Yu, D. S. & Li, R. A functional comparison of BRCA1 C-terminal domains in transcription activation and chromatin remodelling. *J Biol Chem* **275**, 40169-73 (2000).
44. Nemergut, M. E., Mizzen, C. A., Stukenberg, T., Allis, C. D. & Macara, I. G. Chromatin docking and exchange activity enhancement of RCC1 by histones H2A and H2B. *Science* **292**, 1540-3 (2001).
45. Lavender, P., Cousins, D., Smith, P. & Lee, T. Presentation at the National Asthma Campaign International Congress, June 1999. Controlling the inflammatory response through transcriptional mechanisms. *Clin Exp Allergy* **30**, 1697-708 (2000).
46. Garlisi, C. G. et al. A unique mRNA initiated within a middle intron of WHSC1/MMSET encodes a DNA binding protein that suppresses human IL-5 transcription. *Am J Respir Cell Mol Biol* **24**, 90-8 (2001).

47. Chesi, M. et al. The t(4;14) translocation in myeloma dysregulates both FGFR3 and a novel gene, MMSET, resulting in IgH/MMSET hybrid transcripts. *Blood* **92**, 3025-34 (1998).
48. Walker, W., Girardet, C. & Habener, J. Alternative exon splicing controls a translational switch from activator to repressor isoforms of transcription factor CREB during spermatogenesis. *J Biol Chem* **271**, 20145-50 (1996).
49. Flint, J. et al. Comparative genome analysis delimits a chromosomal domain and identifies key regulatory elements in the alpha globin cluster. *Hum Mol Genet* **10**, 371-82. (2001).
50. Terwilliger, J. D. & Weiss, K. M. Linkage disequilibrium mapping of complex disease: fantasy or reality? *Curr Opin Biotechnol* **9**, 578-94. (1998).
51. Hill, M. R. et al. Fc epsilon RI-beta polymorphism and risk of atopy in a general population sample. *BMJ* **311**, 776-9 (1995).
52. Jurka, J. Repbase update: a database and an electronic journal of repetitive elements. *Trends Genet* **16**, 418-20 (2000).
53. Larsen, F., Gundersen, G., Lopez, R. & Prydz, H. CpG islands as gene markers in the human genome. *Genomics* **13**, 1095-107 (1992).
54. Prestridge, D. S. Predicting Pol II promoter sequences using transcription factor binding sites. *J Mol Biol* **249**, 923-32 (1995).
55. Xu, Y., Mural, R. J. & Uberbacher, E. C. Constructing gene models from accurately predicted exons: an application of dynamic programming. *Comput Appl Biosci* **10**, 613-23 (1994).
56. Burge, C. & Karlin, S. Prediction of complete gene structures in human genomic DNA. *J Mol Biol* **268**, 78-94 (1997).

57. Snyder, E. E. & Stormo, G. D. Identification of coding regions in genomic DNA sequences: an application of dynamic programming and neural networks. *Nucleic Acids Res* **21**, 607-13 (1993).
58. Zhang, M. Q. Identification of protein coding regions in the human genome by quadratic discriminant analysis. *Proc Natl Acad Sci U S A* **94**, 565-8. (1997).
59. Altschul, S. F. et al. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. *Nucleic Acids Res* **25**, 3389-402 (1997).
60. Schultz, J., Copley, R. R., Doerks, T., Ponting, C. P. & Bork, P. SMART: a web-based tool for the study of genetically mobile domains. *Nucleic Acids Res* **28**, 231-4 (2000).

CLAIMS

1. An isolated or recombinant nucleic acid sequence comprising an ANGE mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
2. An isolated or recombinant nucleic acid sequence comprising a CLLD8 mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
3. An isolated or recombinant nucleic acid sequence comprising a CLLD7 mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
4. An isolated or recombinant nucleic acid sequence comprising an ANGE – CLLD8 hybrid mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
5. An isolated or recombinant nucleic acid sequence comprising an ANGE – CLLD7 hybrid mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
6. An isolated or recombinant nucleic acid sequence comprising a CLLD7-CLLD8 hybrid mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.

7. An isolated or recombinant nucleic acid sequence comprising an ANGE-CLLD8-CLLD7 hybrid mRNA sequence or a sequence complementary or substantially homologous thereto, or a fragment thereof.
8. An isolated or recombinant nucleic acid sequence according to any of claims 1 to 7 where the sequence encodes a human polypeptide, or a sequence complementary or substantially homologous thereto, or a fragment thereof.
9. An isolated or recombinant nucleic acid sequence according to any of claims 1 to 7 where the sequence encodes a mouse polypeptide or a sequence complementary or substantially homologous thereto, or a fragment thereof.
10. An isolated or recombinant nucleic acid sequence according to any of claims 1, 4, 5 or 7 comprising one or more exons of ANGE 1, or a sequence complementary or substantially homologous thereto, or a fragment thereof.
11. An isolated or recombinant nucleic acid sequence comprising a single nucleotide polymorphism in a nucleic acid sequence according to any of claims 1 to 10.
12. An isolated or recombinant nucleic acid sequence as claimed in claim 11 comprising part of a sequence of Figure 5, and comprising one or more SNPs at positions which correspond to the positions of Figure 1 listed in Table 1.
13. An isolated or recombinant nucleic acid sequence comprising a SNP at the position corresponding to position 185752b4_2, 185752b5_3, 4321017b38_1 of Figure 5, or at the position corresponding to position 4321031b43_1 of Figure 5 or at the position corresponding to position of Figure 5.
14. An isolated or recombinant nucleic acid sequence which hybridises under stringent

conditions to a sequence of any of claims 1 to 13.

15. An isolated or recombinant nucleic acid sequence according to claim 14 which is capable of distinguishing between alleles of a SNP of Table 1.

16. A primer sequence as described in Table 4.

17. A vector comprising the isolated nucleic acid sequence of any of claims 1 to 15 to enable in vitro or in vivo expression of the isolated or recombinant nucleic acid sequences of any claims 1 to 15.

18. A polypeptide sequence encoded by the isolated or recombinant nucleic acid sequence of any of claims 1 to 15 or a sequence substantially homologous thereof or a fragment thereof.

19. A polypeptide sequence according to claim 18 where the polypeptide is post-translationally modified.

20. A polypeptide sequence according to claim 18 or claim 19 where the polypeptide is operably linked to a secretion signal.

21. A polypeptide sequence according to any of claims 18, 19 or 20 where the polypeptide comprises a Histidine tag.

22. A polypeptide according to any of claims 18 to 21 where the polypeptide is linked to
a
carrier.

23. An antibody specific for the polypeptide of claims 18 to 22 or the isolated nucleic acid sequence of any of claims 1 to 15.

24. An antibody which reacts with an antigen of the polypeptide of claims 18 to 22 or an isolated nucleic acid of any of claims 1 to 15.
25. An antibody according to claim 23 or claim 24 where the antibody is a chimeric antibody or is humanised or bifunctional.
26. Use of the antibody of any of claims 23 to 25 in an assay for detecting or measuring the polypeptide of any of claims 18 to 22 in a sample.
27. A process for the preparation of a nucleic acid sequence according to any of claims 1 to 15 comprising ligating together successive nucleotide and/or oligonucleotide residues.
28. A process for the preparation of a polypeptide according to any of claims 18 to 22 comprising ligating together successive amino acids and/or oligopeptide residues.
29. A process according to claim 28 where the polypeptide is produced in a cell free system.
30. A host cell comprising the vector of claim 17.
31. A host cell comprising the vector of claim 17 for producing polypeptides according to claims 18 to 22, or for use in the regulation or analysis of the polypeptides of claims 18 to 22.
32. A transgenic non-human animal comprising the vector of claim 17.
33. A transgenic non-human animal that comprises an isolated nucleic acid sequence of any of claims 1 to 15 which results in disease.
34. A transgenic non-human animal that does not substantially express the isolated nucleic acid sequence of any of claims 1 to 15.

35. A method of diagnosing, or determining predisposition or susceptibility of a subject to atopy or predicting severity of disease in an individual comprising determining the presence of a variant form of the ANGE, CLLD7 or the CLLD8 gene or any combination of ANGE, CLLD7, and CLLD8 or any splice variant of the genes.

36. A method for diagnosing an individual as being atopic, the method comprising demonstrating in an individual the presence or absence of an allele which is associated with one or more of the SNP markers of Table 1 and optionally any other SNP in linkage disequilibrium with the markers.

37. A method for diagnosing, or determining predisposition to disease, the method comprising determining the presence or absence of an allele of a SNP marker at position 185752b4_2, 185752b5_3 or 4321017b38_1, wherein presence of the allele is diagnostic of disease or predisposition to disease.

38. A method for diagnosing an individual as having abnormal serum IgE levels, the method comprising demonstrating in the individual the presence or absence of an allele which is associated with the SNP marker 185752b4_2 and optionally any other SNP in linkage disequilibrium with the marker.

39. A method for diagnosing an individual as having an STI above 5mm, the method comprising demonstrating in the individual the presence or absence of an allele which is associated with the SNP marker 4321017b38_1 and optionally any other SNP in linkage disequilibrium with the marker.

40. A method for diagnosing an individual as being atopic, the method comprising demonstrating in an individual the presence or absence of alleles associated with the haplotype 185752b4_2, 185752b5_3, 4321031b43_1 and optionally any other SNP in linkage disequilibrium with any one of these markers.

41. The method according to any one of claims 35 to 40 wherein the method comprises the steps of

- (i) providing a suitable sample from the individual;
- (ii) preparing nucleic acid from the sample; and
- (iii) analysing the nucleic acid sample for the presence or absence of the allele.

42. The method according to claim 41 wherein prior to analysis the region comprising the SNP marker is amplified.

43. A method according to claims 41 or 42 wherein the method comprises the use of a pair of primers each of which under stringent conditions hybridises to a region either side of the SNP.

44. A method according to claim 43 wherein the primers include an oligonucleotide sequence shown in Table 4.

45. A splice variant of ANGE, CLLD8 or CLLD7 for use in a method of diagnosing an IgE mediated disease, atopy, or a form of atopic disease, or non-atopic asthma, or predicting severity of disease, or predisposition to disease.

46. Use of a splice variant of ANGE and/or CLLD8 and/or CLLD7 in the manufacture of a diagnostic for use in a method of diagnosing atopy or a form of atopic disease, or predicting severity of disease, or predisposition to disease.

47. A kit comprising the splice variant of claim 46 for use in a method of diagnosing an IgE mediated disease, atopy, or a form of atopic disease, or a non-atopic asthma, or predicting severity of disease, comprising determining the presence or absence of the splice variant in an individual.

48. A kit according to claim 47, comprising two or more splice variants in the form of an array, or on a chip.

49. The use of a polynucleotide sequence as shown in Figure 5 in a screen for an agent which inhibits or enhances the activity of the ANGE, CLLD8 or CLLD7 genes.
50. A kit for diagnosis of disease or predisposition to disease comprising a means for determining the presence or absence of a risk allele of Table 1, wherein the risk allele is diagnostic of disease or predisposition to disease, or of severity of disease.
51. A kit according to claim 50 comprising means for determining the presence or absence of one or more risk alleles of polymorphisms according to any of claims 11 to 15.
52. A method of identifying a compound for treatment of disease, comprising (a) administration of a compound to tissue comprising an isolated nucleic acid molecule comprising a SNP at a position listed in Table 1, and (b) determining whether the compound modulates downstream effects of the SNP.
53. An agent or antibody for use in preventing or treating an IgE mediated disease such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma.
54. Use of an agent in the manufacture of a medicament for use in preventing or treating an IgE mediated disease such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma.
55. A pharmaceutical composition comprising a nucleic acid according to any of claims 1 to 16 or a polypeptide according to any of claims 18 to 22.
56. A pharmaceutical composition comprising an antibody according to any of claims 23 to 25.
57. A method of preventing or treating disease in a subject comprising modulating the

activity, expression, half life or post translational modification of ANGE and/or CLLD7 and/or CLLD8, or any combination of two or more of these genes or any splice variant of the genes in the subject.

58. A method according to claim 57 where the disease is an IgE mediated disease such as asthma, atopy, hayfever, eczema, atopic dermatitis or allergic rhinitis or non-atopic asthma.

59. A method of treating or preventing disease according to claim 57 or 58 comprising determining the presence or absence of a risk allele of a SNP marker at position 185752b4_2, 185752b5_3, 43210b43_1 or 4321017b38_1 and if a risk allele is present, administering treatment in order to prevent, delay or reduce the disease.

60. A method according to any of claims 57 to 59 where the method comprises administration to a subject of an agent capable of modulating the effects of the disease-causing allele.

61. An agent capable of influencing expression of the ANGE, CLLD8 or CLLD7 gene for use in a method of preventing or treating an IgE mediated disease or non-atopic asthma in an individual.

62. An agent according to claim 61 which is capable of influencing the activity of the ANGE, CLLD8 or CLLD7 gene promoters, or of any combination of two or more of the gene promoters.

63. An agent according to claim 61 or 62 which is capable of influencing RNA splicing of the ANGE, CLLD8 or CLLD7 gene, or of any combination of two or more of the transcripts of the genes.

64. Use of an agent according to any one of claims 61 to 63 in the manufacture of

a medicament for use in the prevention or treatment of an IgE mediated disease or non-atopic asthma.

65. A screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of these genes or any splice variant comprising:

- providing a polypeptide sequence as claimed in any one of claims 18 to 22;
- providing a substrate;
- providing an agent to be tested;
- measuring whether the agent to be tested modulates the activity of the polypeptide by measuring processing of the substrate.

66. A screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 genes or any combination of two or more of these genes or any splice variant of the genes comprising:

- providing a polypeptide as claimed in any one of claims 18 to 22;
- providing an agent to be tested;
- providing a cell; and
- measuring whether the agent to be tested modulates the activity of the polypeptide by measuring adhesion of the cell to a surface.

67. A screen according to claim 66 where the surface is the surface of a further cell.

68. A screen according to any one of claims 66 or 67 where the surface comprises a non-biological molecule.

69. A screen according to any one of claims 66 to 68 where the surface is a biological molecule.

70. A screen according to any one of claims 66 to 69 where one or more of the cells are immobilised.
71. A screen according to any of claims 66 to 70 where one or more of the cells are a B-lymphocyte.
72. A screen according to any of claims 66 to 71 where one or more of the cells is a cell transfected with the vector of claim 17 or is the host cell of claim 30 or 31.
73. A screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 genes or the activity of any combination of two or more of the genes or the activity of any splice variant of the genes comprising:
- providing a polypeptide as claimed in any one of claims 18 to 22;
 - providing an agent to be tested;
 - providing a cell;
 - measuring a change in differentiation or proliferation of the cell.
74. A screen according to claim 73 where the cell is expressing one or more of the polypeptides as claimed in any one of claims 18 to 22.
75. A screen according to claim 73 or 74 where the change in cellular differentiation involves a change in expression of a cell signalling factor.
76. A screen according to claim 75 where the cell signalling factor is an immunomodulator or a peptide regulatory factor.
77. A screen according to any of claims 73 to 76 where the cell is cultured following removal from a patient or experimental animal.

78. A screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of the genes or any splice variant of the genes comprising:

- providing a transgenic animal according to claim 30 or 31;
- providing an agent to be tested;
- contacting the transgenic animal with the agent to be tested;
- detecting a change in the transgenic animals phenotype.

79. A screen for detecting a side effect associated with the use of an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or any combination of two or more of the genes or any splice variant of the genes comprising:

- providing a cell which does not substantially express a polypeptide sequence as claimed in any of claims 18 to 22;
- providing an agent to be tested;
- contacting the agent to be tested with the cell; and
- measuring any side effect produced by the agent on the cell.

80. A screen according to claim 79 where the side effect involves a change in cell differentiation.

81. A screen according to claim 79 where the side effect involves a change in cell proliferation.

82. A screen according to any one of claims 79 to 81 where the cell is part of a transgenic animal.

83. A screen according to any one of claims 79 to 82 where the side effect is a measure of the change of phenotype.

84. A screen for identifying an agent which modulates the activity of the ANGE, CLLD7 or the CLLD8 gene or a combination of two or more of the genes or any splice variant of the genes comprising:

providing an isolated nucleic acid sequence according to any of claims 1 to 15;
providing an agent to be tested;
measuring whether the agent to be tested modulates the activity of the isolated nucleic acid by measuring the interaction of the agent with the sample of nucleic acid.

85. A screen according to claim 84 where the screen is an *in vitro* transcription assay measuring transcription of the ANGE, CLLD7 or CLLD8 gene or a combination of two or more of the genes or of any splice variant of the genes.

86. Use of a nucleic acid sequence according to any of claims 1 to 15 or a polypeptide sequence according to any of claims 18 to 22 in a screen for an agent which modulates the activity of the ANGE, CLLD7 or CLLD8 gene or of any combination of two or more of the genes or of any splice variant of the genes.

DEMANDE OU BREVET VOLUMINEUX

LA PRÉSENTE PARTIE DE CETTE DEMANDE OU CE BREVET COMPREND PLUS D'UN TOME.

CECI EST LE TOME 1 DE 2
CONTENANT LES PAGES 1 À 208

NOTE : Pour les tomes additionels, veuillez contacter le Bureau canadien des brevets

JUMBO APPLICATIONS/PATENTS

THIS SECTION OF THE APPLICATION/PATENT CONTAINS MORE THAN ONE VOLUME

THIS IS VOLUME 1 OF 2
CONTAINING PAGES 1 TO 208

NOTE: For additional volumes, please contact the Canadian Patent Office

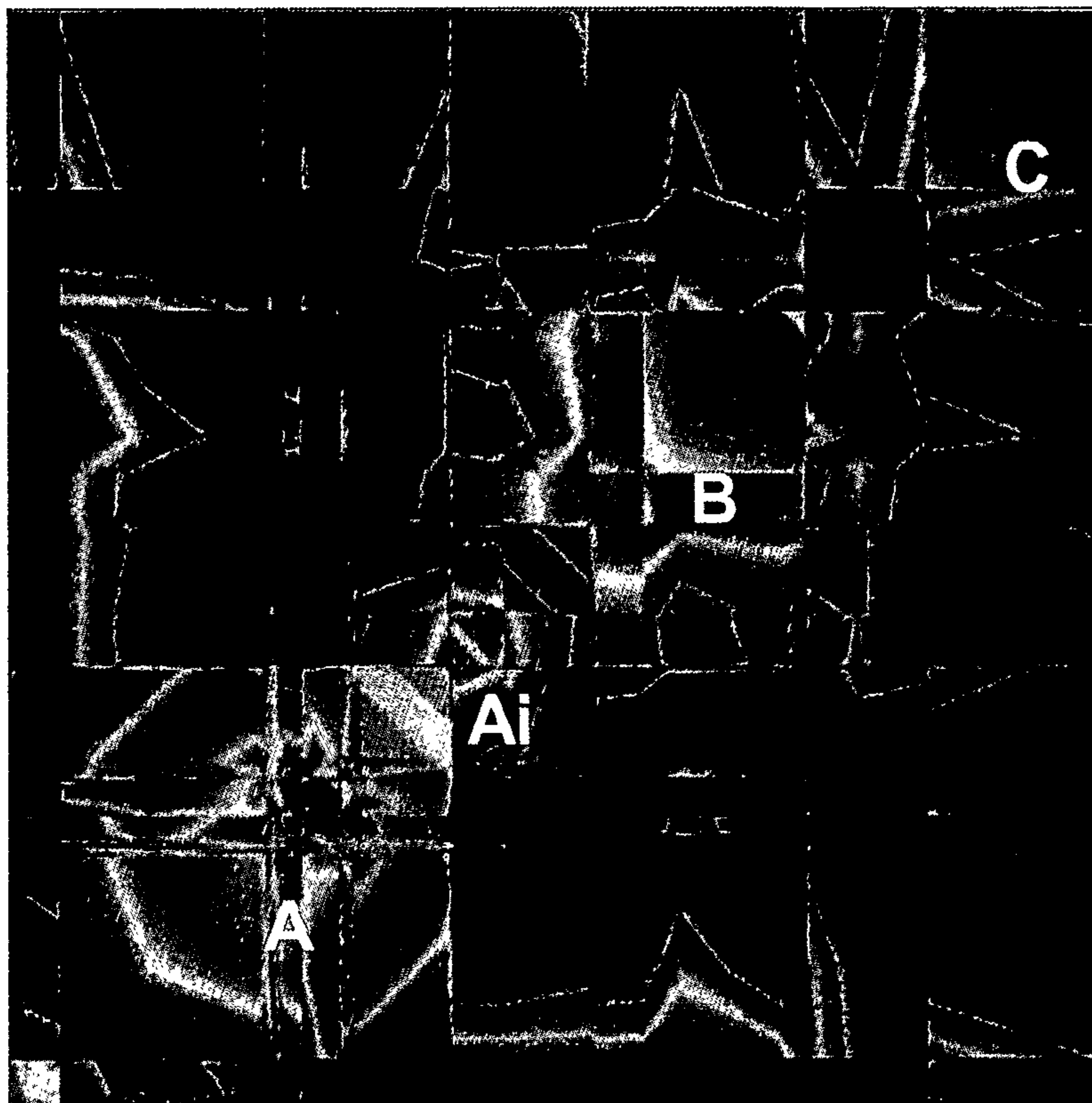
NOM DU FICHER / FILE NAME :

NOTE POUR LE TOME / VOLUME NOTE:

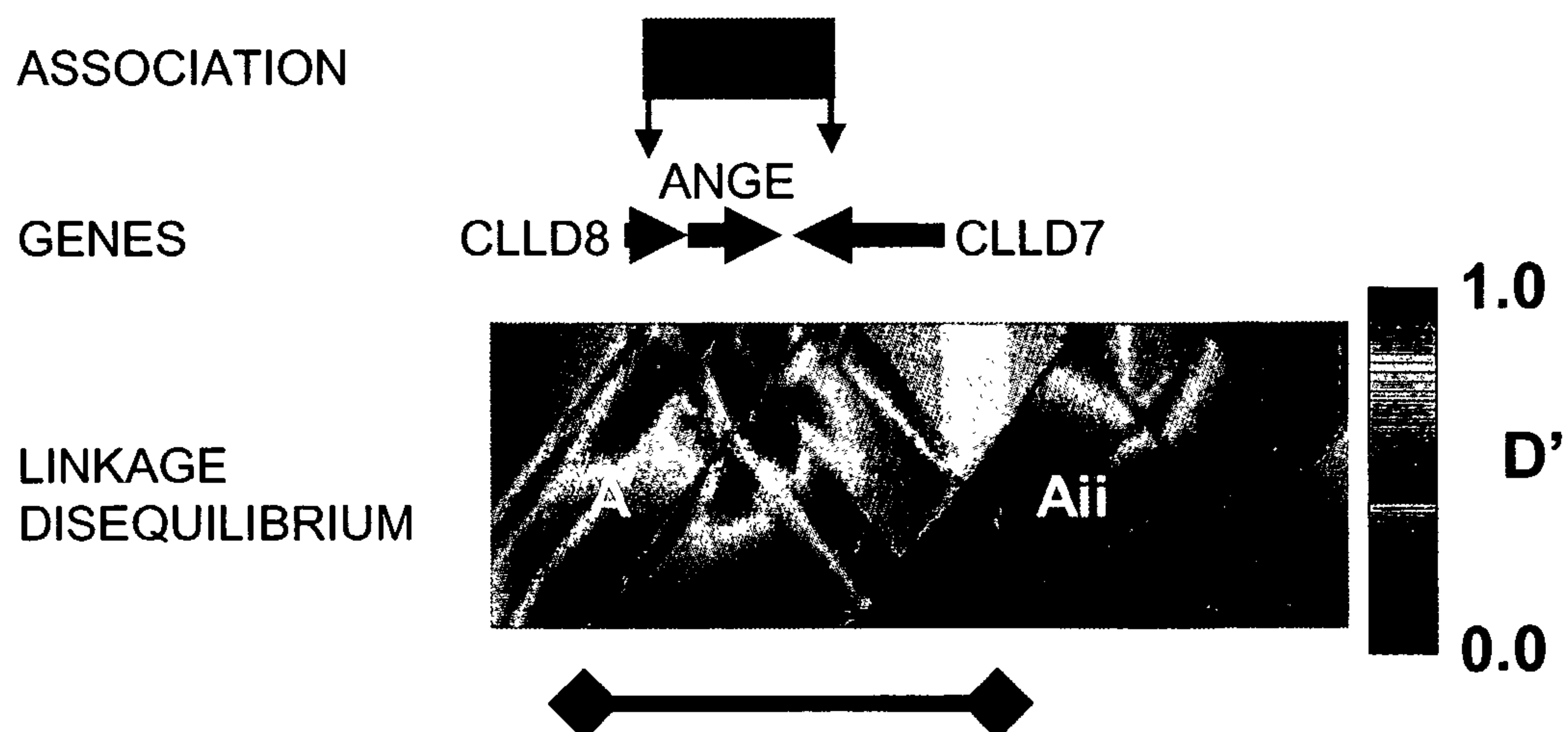
1 / 338

FIG. 1

a) Linkage disequilibrium map of the Atopy locus
The size bar indicates a region of 200Kb



b) Detail of LD around the ANGE (NY-REN-34) gene complex
The size bar indicates a region of 100Kb



2 / 338

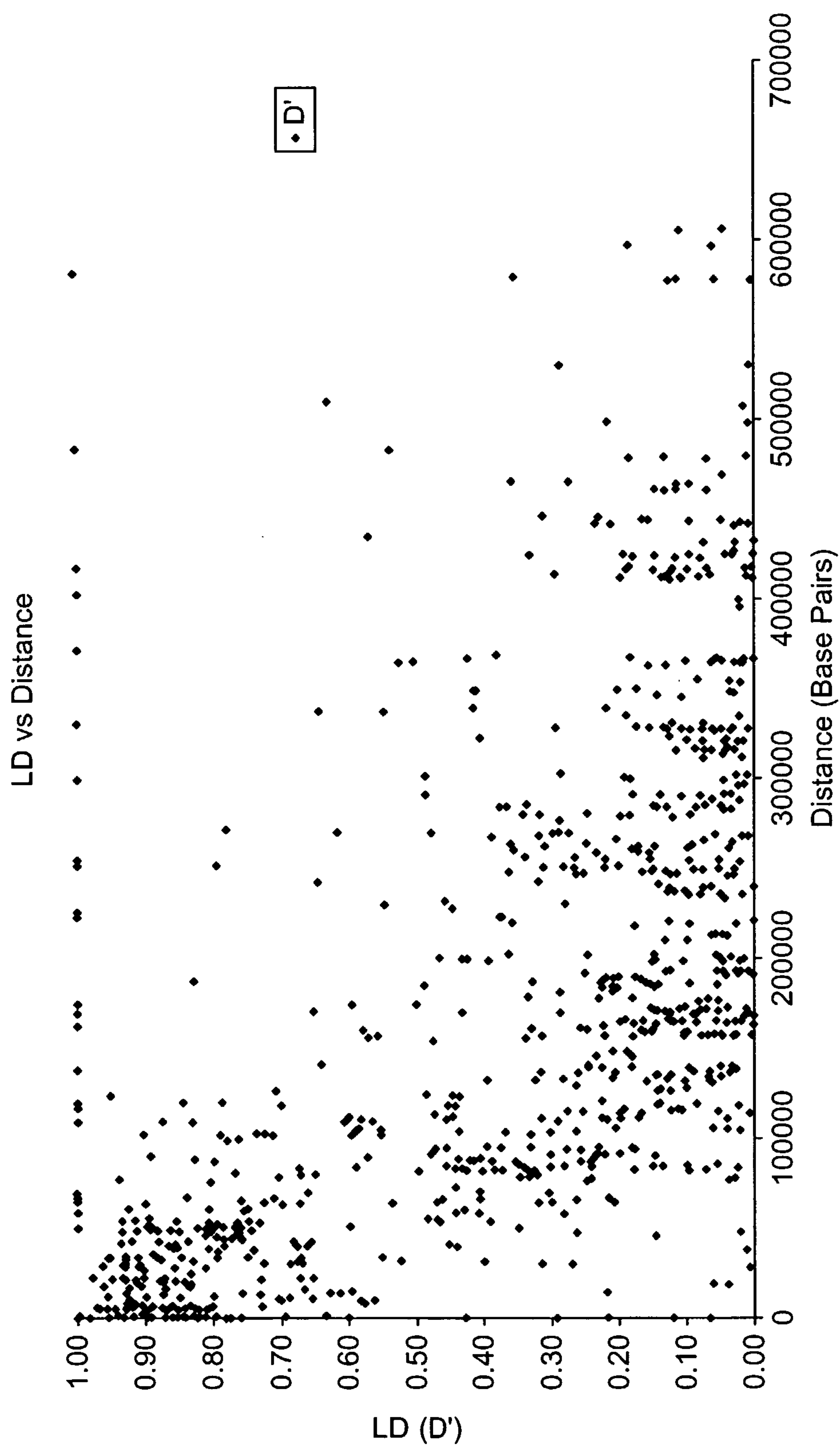
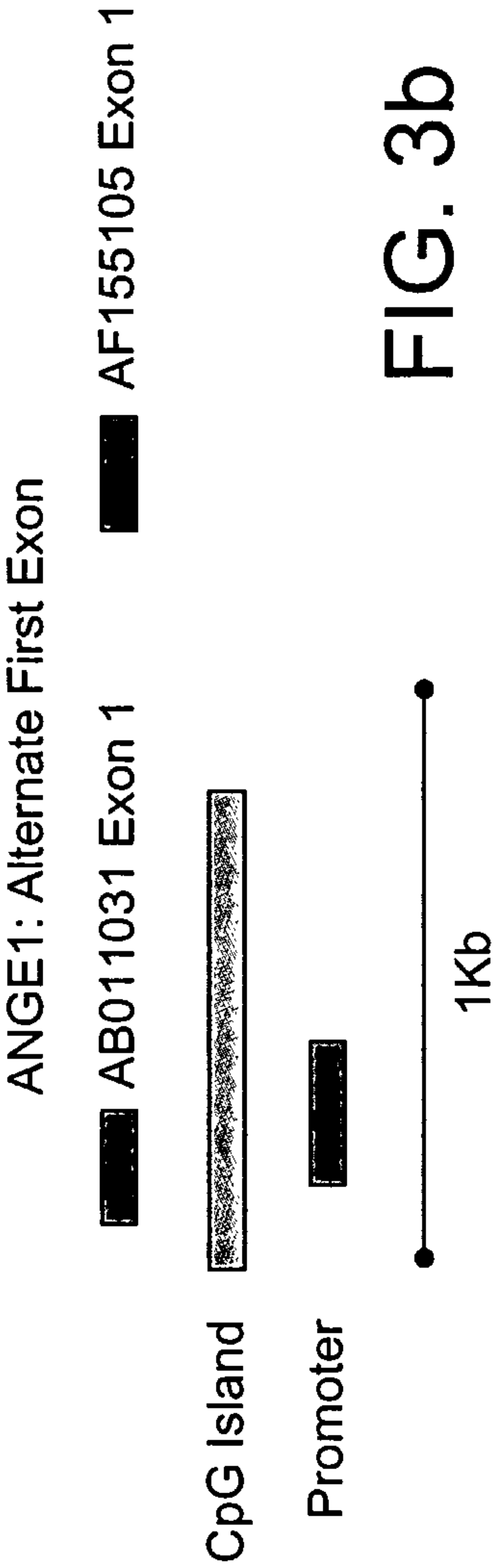
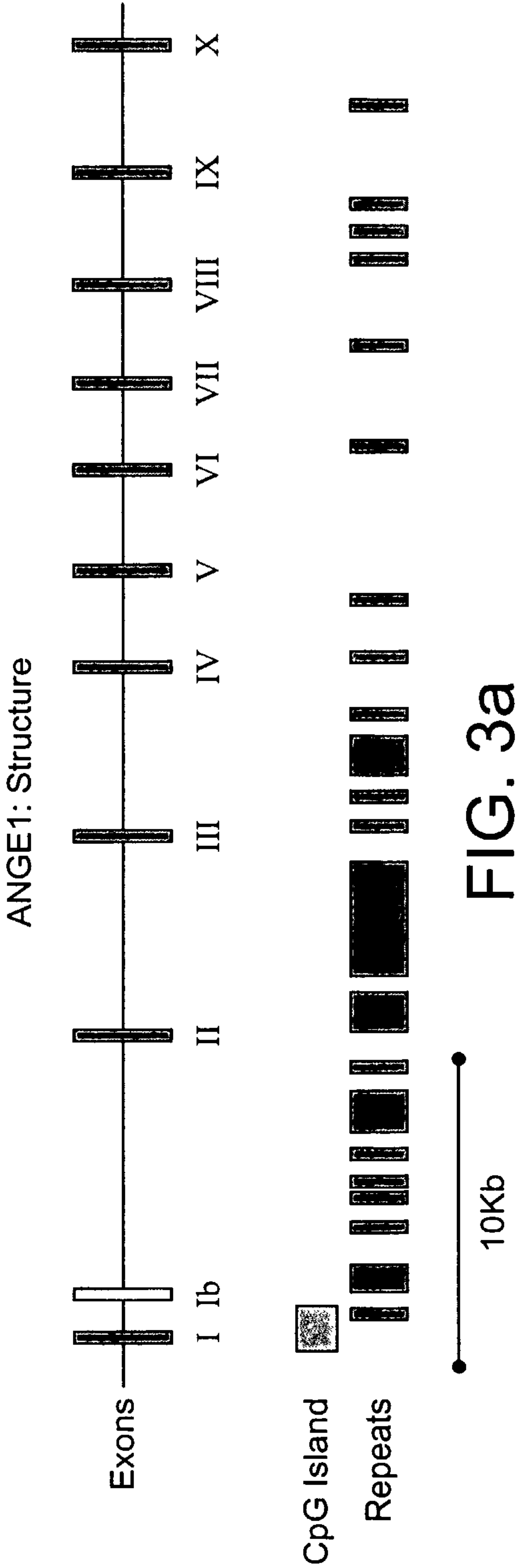


FIG. 2



4 / 338

Pile up of transcripts cloned by amplification between alternative exon I and exon III of ANGE. PCR primers mark the L and R extent of each transcript (so it can be seen that either of two primers were used for alternative exon I, whereas the same primer was always used for exon III). Multiple versions of alternative exon I are discernable, and skipping of exon II is observed in some transcripts. Variation is also observed in the length of exon II.

FIG. 3C/1	FIG. 3C/2
FIG. 3C/3	FIG. 3C/4

FIG. 3C

FIG. 3C/1

Alternative Exon I (begin)

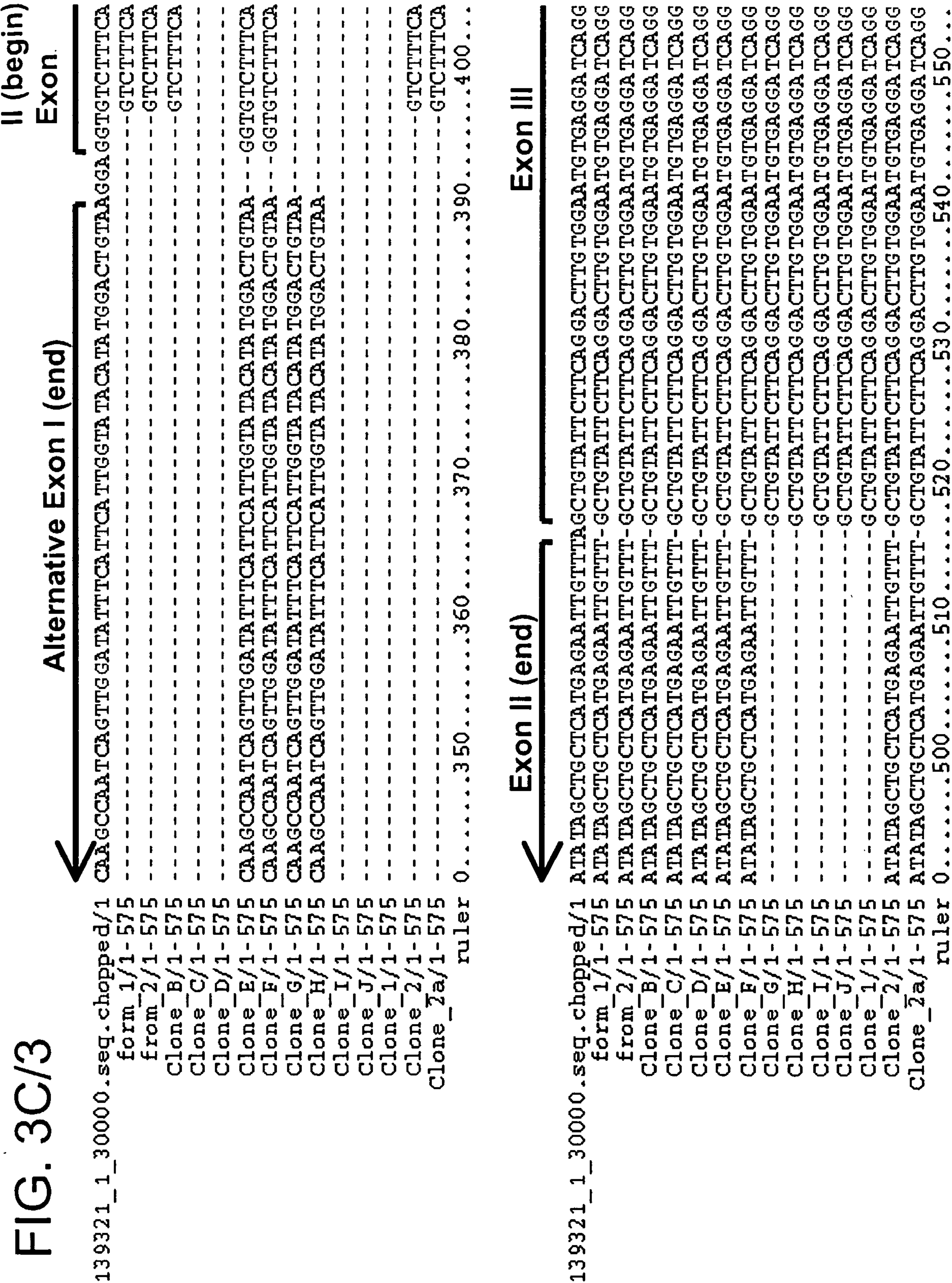
139321_1_30000.seq.chopped/1	-----TCATGGCCAGGCGTCGCCGCCCGGCCCGAGAGGGTGCTCGGCCGCCAGCAGCCC
form_1/1-575	-----
from_2/1-575	-----
Clone_B/1-575	-----
Clone_C/1-575	-----
Clone_D/1-575	-----
Clone_E/1-575	-----
Clone_F/1-575	-----
Clone_G/1-575	-----
Clone_H/1-575	-----
Clone_I/1-575	-----
Clone_J/1-575	-----
Clone_1/1-575	-----TCATGGCCAGGCGTCGCCGCCCGGCCCGAGAGGGTGCTCGGCCGCCAGCAGCCC
Clone_2/1-575	-----TCATGGCCAGGCGTCGCCGCCCGGCCCGAGAGGGTGCTCGGCCGCCAGCAGCCC
Clone_2a/1-575	-----TATGGCCAGGCGTCGCCGCCCGGCCCG-----
ruler 0.....50.....60.....70.....80.....90.....100...	

Alternative Exon I (middle)

139321_1_30000.seq.chopped/1	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGGTGGCAAAGACTCAGCCAAAGGTGGAAA
form_1/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGGT-----
from_2/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGGT-----
Clone_B/1-575	CGGT-----
Clone_C/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGGT-----
Clone_D/1-575	CGGT-----
Clone_E/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGG--GCAAGACTCAGCCAAAGGTGGAAA
Clone_F/1-575	CGG-----GCAAGACTCAGCCAAAGGTGGAAA
Clone_G/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATCGGG--GCAAGACTCAGCCAAAGGTGGAAA
Clone_H/1-575	CGG-----GCAAGACTCAGCCAAAGGTGGAAA
Clone_I/1-575	CGGTAAACCCAGGACAGTGGAGGGGCGCCCTGATGC-----
Clone_J/1-575	C-----
Clone_1/1-575	-----
Clone_2/1-575	-----
Clone_2a/1-575	-----
ruler 0.....200.....210.....220.....230.....240.....250...	

141	GGAGGCCCGGCCGCGCAGGAGGGGCTCCTCTTCCACCGGTGCACCAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	19
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
42	-----CACCAACAACCGATGTCAACTCTCCTAGCGCCCTCCGGCTCAC	
94	GGAGGCCCGGTCCGCGCAGGAGGGCTCCTCTTCC-ACC-----	
98	GGAGGCCCGGCCGTGCAGGAGGGCTCCTCTCTTCCACCGGT-----	
63	-----GCCGCGCAGGAGGGCTCCTCTCTTCCACCGGT-----	
	110.....120.....130.....140.....150.....160.....170.....180.....19	

AGTTGAAGGGGTGTTCCCG	CAGAGAGGATGACACAAAGGCACCAACCACAAAACGTCACACGTAAACA	TCA	TACGTGGCAACCA	291
-----	-----	-----	-----	80
-----	-----	-----	-----	80
-----	-----	-----	-----	46
-----	-----	-----	-----	80
-----	-----	-----	-----	46
AGTTGAAGGGGTGTTCCCG	CAGAGAGGATGACACAAAGGCACCAACCACAAAACGTCACACGTAAACA	TCA	TACGTGGCAACCA	189
AGTTGAAGGGGTGTTCCCG	CAGAGAGGATGACACAAAGGCACCAACCACAAAACGTCACACGTAAACA	TCA	TACGTGGCAACCA	155
AGTTGAAGGGGTGTTCCCG	CAGAGAGGATGACACAAAGGCACCAACCACAAAACGTCACACGTAAACA	TCA	TACGTGGCAACCA	189
AGTTGAAGGGGTGTTCCCG	CAGAGAGGATGACACAAAGGCACCAACCACAAAACGTCACACGTAAACA	TCA	TACGTGGCAACCA	155
-----	-----	-----	-----	77
-----	-----	-----	-----	43
-----	-----	-----	-----	94
-----	-----	-----	-----	98
-----	-----	-----	-----	63
...260...	270...	280...	290...300...310...320...330...	34



II (begin) Exon

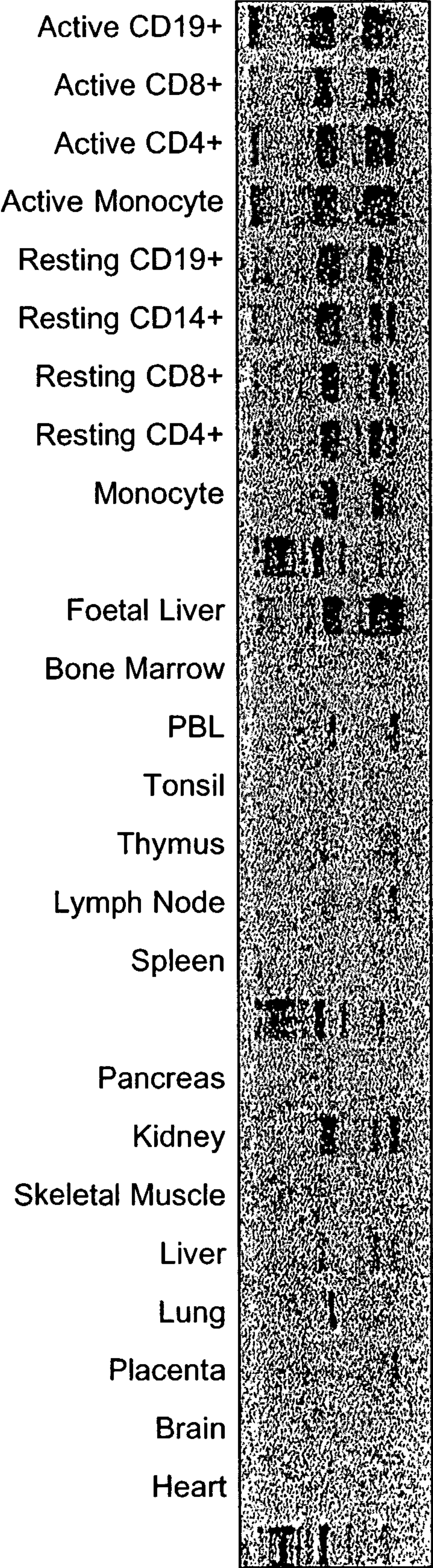
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A - G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T G T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T G T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A
- - - T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A
- - - T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T G T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A

G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T A T A C T T T G C A C A A T C A G A G A
G G T T G C A G A A A G A T G G A A A A A A G G A C A T G T G C A C T C T G C C C C A A A G A T G T C G A A T A T A A T G T C C T G T A C T T T G C A C A A T C A G A G A
410 420 430 440 450 460 470 480 490

A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----574
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----306
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----307
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----273
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----296
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----262
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----469
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----435
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----347
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----313
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----185
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----151
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----202
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----325
 A TCCACTTAAATCCCTGATAGAAAGTTTTGATGTGGAAATCAGTAAAGAAAGAAATCCAGAGAGGAAAGGAAGT-----290
560.....570.....580.....590.....600.....610.....620.....630.....64

FIG. 3d

Transcription of ANGE to immune tissues from alternate exon 1

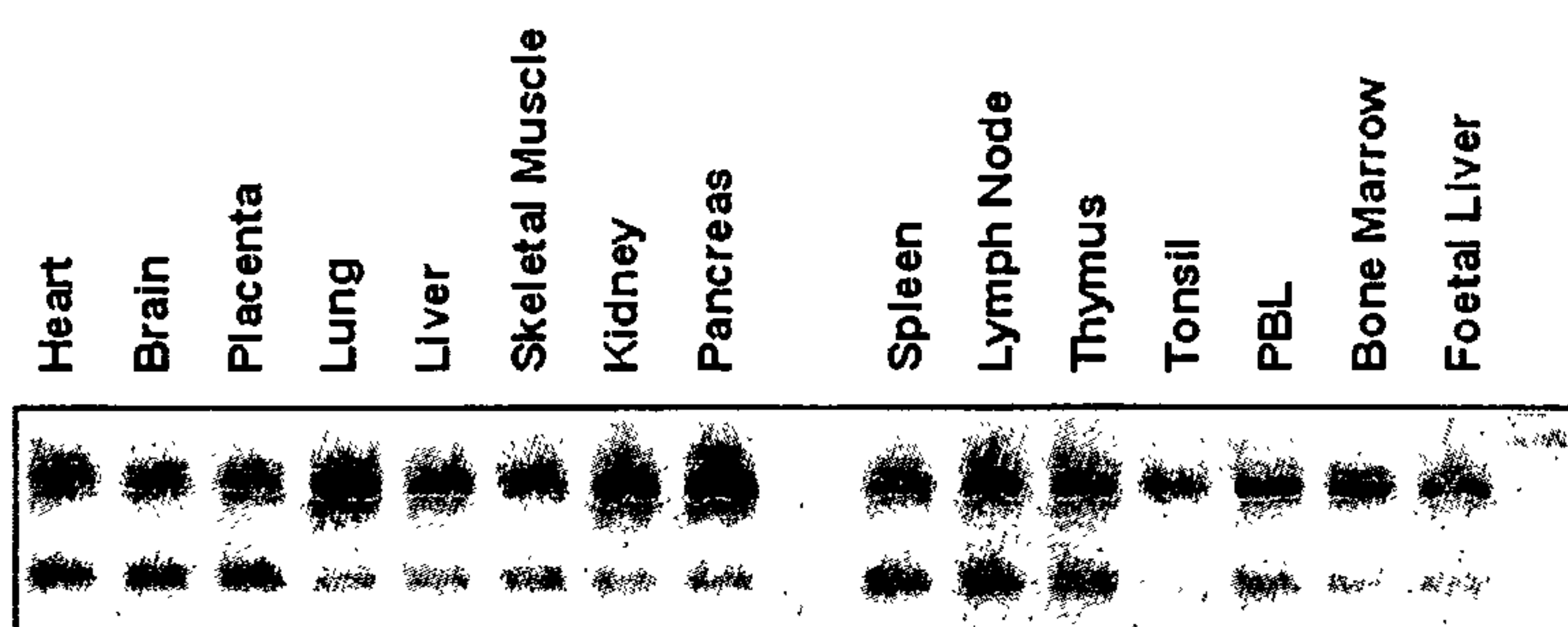


10 / 338

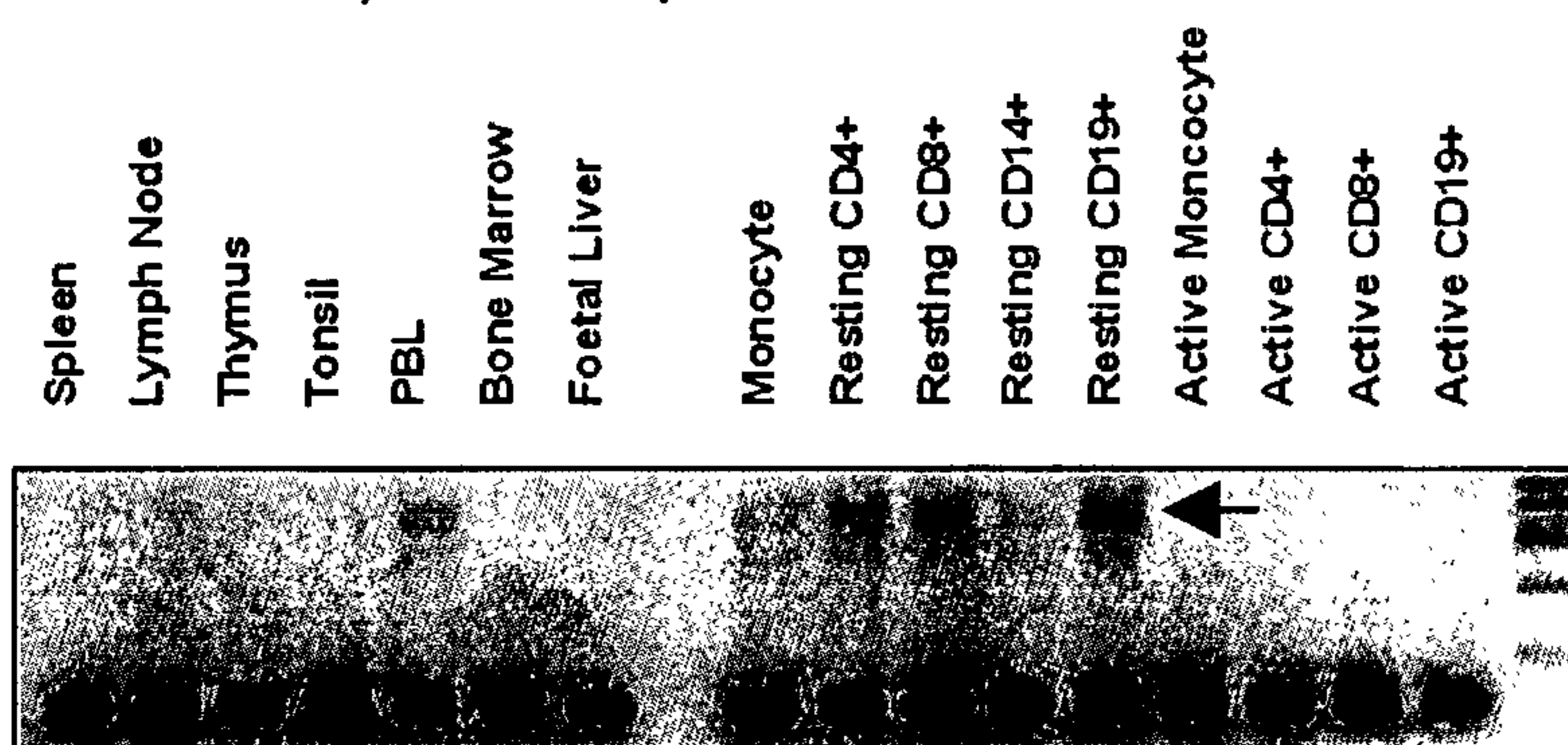
FIG. 4

Splice variation in ANGE in multiple tissue cDNA panels

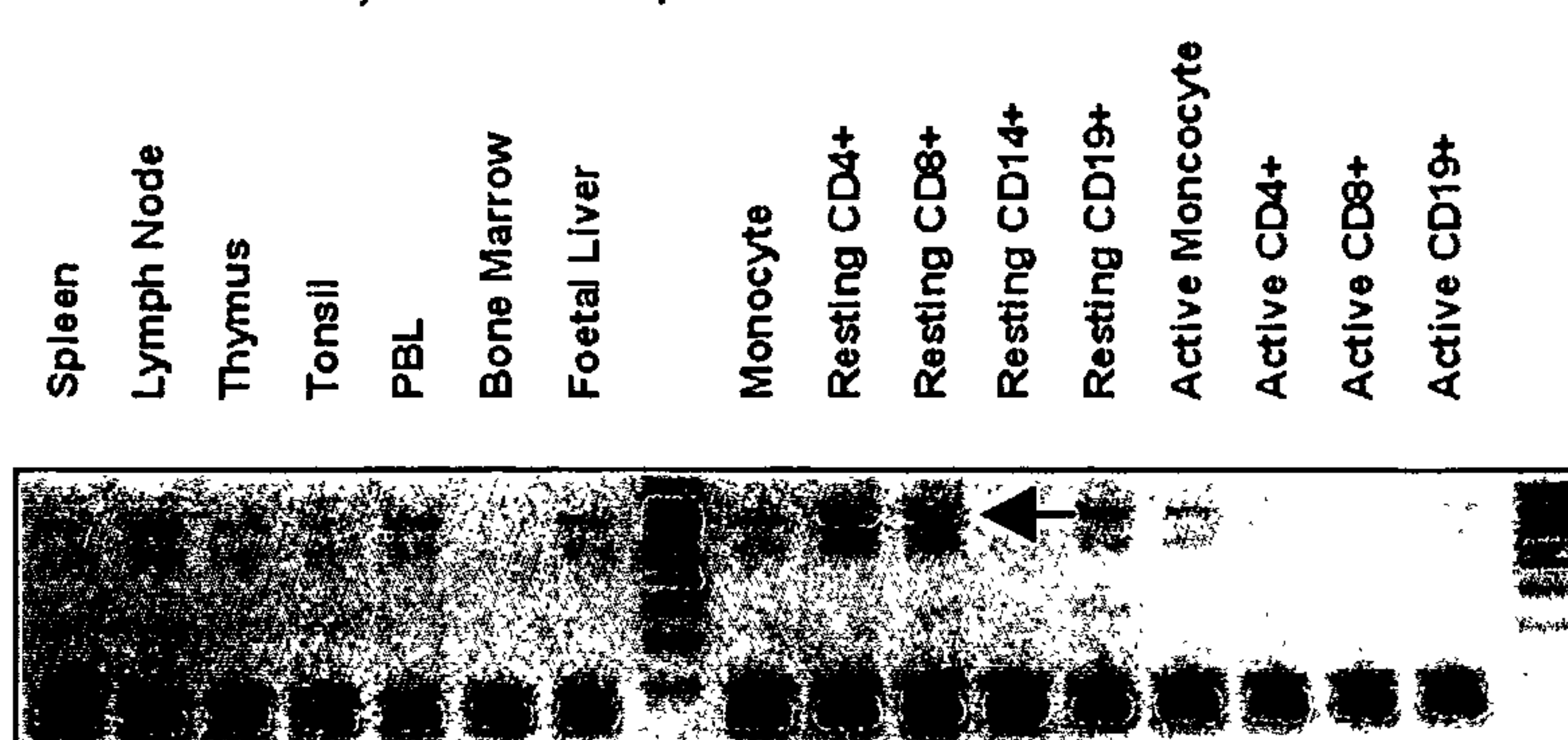
a) PCR amplifications of exons 1-3



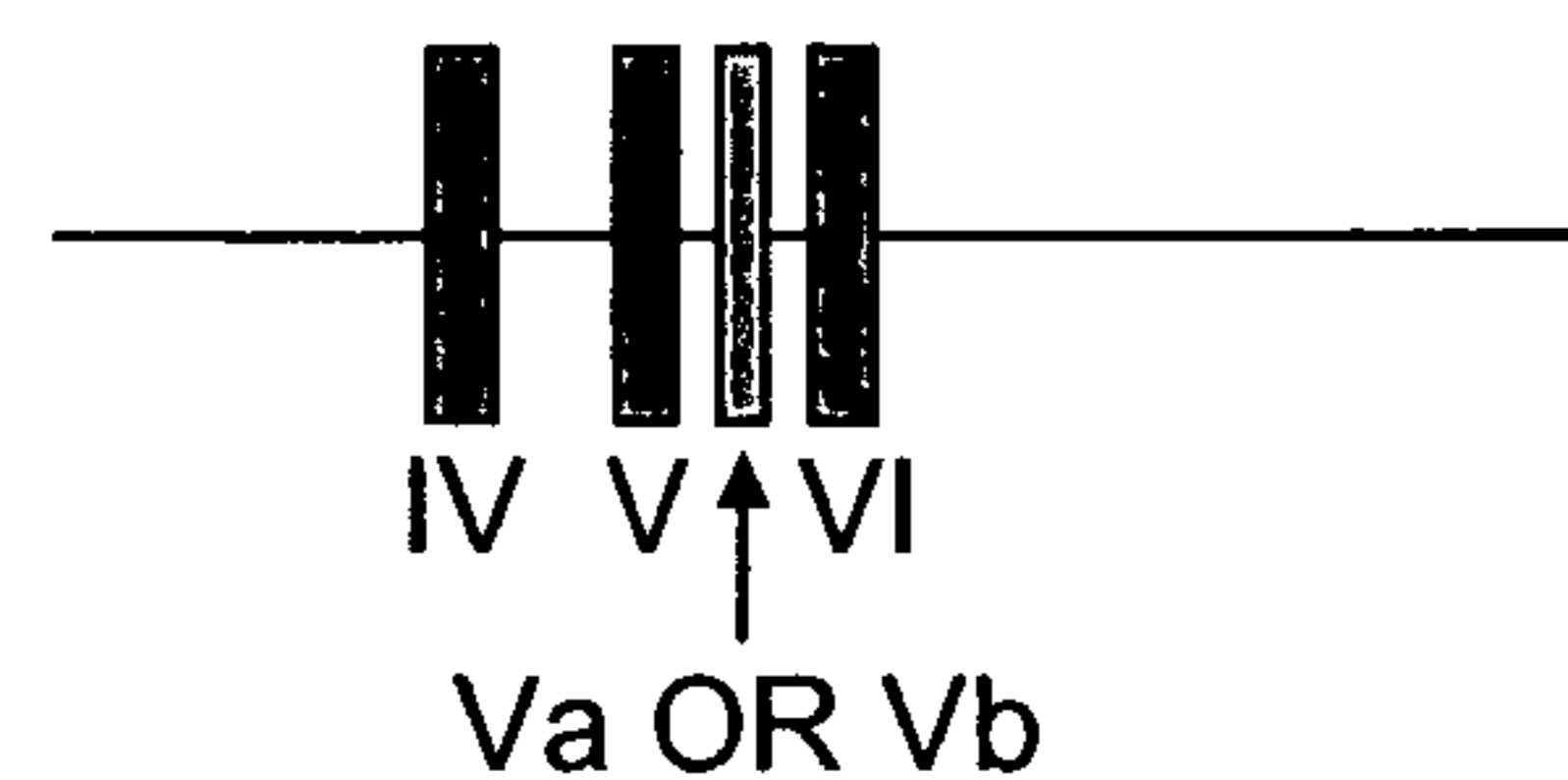
b) PCR amplification of exon 4-6



c) PCR amplification of exon 7-8



Exon structure of alternatively spliced band



11 / 338

FIG. 5

bA103j18.03548

```
1  gaattcttta aaattattta aaattaagag ttataagcaa ttctaatttc
51 atctaattgt tcaactgaagg ctgggctagg acctggtgtc taaatttttt
101 tttaaactgat caaagccttc agagccgagt ggccagtcct ataactcctag
151 gccactagaa aactgaatttt cctgaatttt ctgaaaaagt ttttcaagta
201 gaaagccttc tgggattttt ttttcttttt ttttttccag tccccacttt
251 ggatgtagta aggcttctaa aggtcaagtt atcttgagct aagaaccttt
301 agatactttc actttcagct ttttctttgt tttttgaggt ctttttatag
351 gtaaagagaa atcaaaacag cttctatctg gctccgttaa ctacttttat
401 gttccatcct tgaaattcat ttatgtcagc atctgttaca gtacatagta
451 ttagtcatg ttttcttctt ctcactttat ctggtgtcac ttctgcccta
501 agtgtgccct agctaagtc ttaggtcttc ttggtgtatc cctctcttgc
551 ttggatatac catctttttg ccttccattt ctgtcttgaa gaatactaaa
601 tcttcaaaca tattatgtat ataactgcct tcaggctctt ttttcacctt
651 ccaatccagg ttcttttcta tacctagatt aatctttctg aaaaacacct
701 ttccctctaa gaaacaattt ccttagtttg atataagatt ctttatattt
751 ctgttcagtt tttaaaattt actaccttcc agtccatact tgaaccagct
801 acctcaccag attaaactact catctctccc tgagcagagc tcactgttca
851 ctattcactt gtgctcttat gtacagggtt ttctgttttt tctcttacct
901 aagcttcccc ttgattgct gttgccagg aagactccat aacacttcca
951 tttccctttt caaagccttc ctaaaccatt ttaggcctta gtaatctttg
1001 tcttctgccc ccattctttt gatatgcata ttgcttatct tctgcatgaa
1051 gattctaaat tcttcaagg tacaatctgc tcacacaggg ttcctagcac
1101 agtgctcctt atgtgatagg cactaaatga acattttgat tatttgtaaa
1151 atttgggtgg ggggagatta tctttttgac tttatacctt taattacctt
1201 tatgactaga aggtgcttta cagtaaaagg agacaatgtt gaactataga
1251 gccttaaaaa cataattaaa tgaatatagt ttttaggagg actcttctgg
1301 ttaaaagggt taagtagatt ctgtgcacaa cattgagaag tgttttaaac
1351 ccatttgtag tctcatttat aaaggagtag agtaagaaaa catcctgaaa
1401 atccatgtga ctgtgagagg actgaggaag cctgagcaaa attgaacaat
1451 tggactaaac tttactgagt tctgatgggc tctgtgattt atttggggtg
1501 gtagatttac tcatatcctt gtgtatgggt ttatatagca tcatagtccc
1551 catctatgag tcattcatc aaccaatata tgttgagcat ctactctctg
1601 ctaagcattg ttctaaacac taagactaca acagatattc tgatgagggg
1651 agtggacaat aaataagcaa acaaatagat tgtggtaagt gcaatgcagg
1701 ttaattaaaa tagaatgggg taagagagaa tgactgggta gtttaaggaag
1751 tcttcttgga aatgacattt aaacagatct gagtaacaag gaagtaacat
1801 gtcaaaatca gaaaaacatt ccaagtgagg aaataactgc tagcaciaaag
1851 accctacagt ggagtttcaa gaggtagtta aggatgaaat cacatagggc
1901 cttgtaggca tgggtgtgga ttttagattt attttgagta agatgggaag
1951 ccattagagg gttctgagct aagcagtgat aaaaagtccc tctggcttcg
2001 gtgtagaaag tagttggggg tcaagggcaa gaatgtacac tgggaaacta
2051 gctagtggta taattacagt cactcaggaa agataggaga aaggaggctt
2101 tcattaaagt ggtcgtagtt gtagaacagt gaagtggagg taaagttaac
2151 cagatatagt aagagattgg atgcggttta gagaagaatc aaggatgtct
2201 cttttttgta aggtcaaccg agaggaagaa tagacccaaa gtcagccgag
2251 taagtttatt gaacctgccg gctgctccac tacagacaga ggaggaagcc
2301 ctgagcttat aaaatgaggg gtttatattg gggagagaga ccctggggtc
2351 gtttggttgg taactttatc atatatcacc ttgtgacatt tgtggtagca
2401 gctaaatgaa ggaacttaca ggtagggtga ggtaaagctt gtttgtgctt
2451 cccacgacct cccctgtgc ggtcccaatg gcctgtaatt gggatttgct
2501 tatcacagca aggcctgata ggtgaagtct gctggcttca ttgtggcacc
2551 tagataaggg cttagaaatg taaaggggct cagagggaaa ggtgggcagc
2601 acagagaaga gttgcagagc ataaggggga ggggggtggg cagcatggag
2651 aggtttgagg ggagcgtcag cagtaccaag attttttggg gcagtttgtc
2701 tctaacactt ttgacttgag caactaggta gatggtagag ctttttactg
2751 tggggagaga aaaagagggg caggtttaga gaagaaaaaa tcatgggttg
```


12 / 338

```

2801 atattggact tgaggatcct taagttcagt agaggagaaa atgtaacaat
2851 acaggtatag ttaaatttct ataatagaaa aatacctaga ttggaattat
2901 atttctctat tgctttataa caaattatcc caaaatttag cagcttgaaa
2951 aaacaaactt atagtttctg tgggtcagga attgagaacc agcttaactg
3001 ggtaattctg atgcaggggtc tctatgaggt tgtaatcaag atgtcaactg
3051 gggttgcagt catctcaagg ctctcctggg acttcactca ctttcagggtt
3101 cactcacatg gttgtctcca ggaaccctca gttcctcacc acatgagttt
3151 ttccataggg aagttacaca caccgtcatt tctgctgtat tctgtttgtt
3201 agagtgagtc attaagtata acacacacac aaggggaagg ggattagact
3251 tcaccttttg aagaaaggag attcagagaa tgtgtggacc tctttctaaa
3301 ctacaaaaga atgttaaaag aagaaacaaa gcaagcctaa agcccatgaa
3351 gaatcaccag attatagctt gttcctctga ttcttattta gtatcaaaat
3401 attaggtttt acacttgtat tcccaggacg gactctaaaa ggggaagtac
3451 agttgcatac tcttcatata tgccaagtat ctattggaga caagcaattc
3501 tcaaagaaca agccattcca agctaaaaaa aatgtatttt atcatttggt
3551 tgaagctggt tgtctcctat cactttgttt attaagccag tatcattagg
3601 tatcaagtgt attatttaat gtctttctgt tctcatcaca ggttattgct
3651 tacaactcag aaggtaaaag taatccaagt gaagtagtag aatttactac
3701 ttgccctgat aaaccaggca tacctgtaaa gccttcagtg aaaggaaaga
3751 tacattcaca cagttttaaa ataacctggg gtaagatatt atgcatgttt
3801 atacattatt acttttgctt ttgattaaaa taatttgaat atgaagataa
3851 tttttaagat atttgagtaa atttgttatc tcaagccagt ccaaaaagaa
3901 atgtgagagt cattcattgg gtatgttttt tgtggaaaac cttatactct
3951 catacatgct aggttaagat atgataaaaa ggaacttgcg atccactgta
4001 agataatgag caggggtagc actgtgaaat gaaggattac tgaacttgca
4051 gctaaaagtc cctgggtcat ctggctctcg taagaaatga aaaccattca
4101 tttaaaacaa acatttatcg agcacctacc tacataccta atggaaaaac
4151 aaagatccca taaacttgac ccttgccctga aaaattcaga ccaataaaaa
4201 tgcttcagtg atatttataa tattcaaaaa tttcaaacia ccttaacatc
4251 taaagtaaat ggaggctggg catggtggct tacgcctgta atcccaacac
4301 tttgggaggg ccaggcgggc agatcacatg aggtcaggag ttcgagacca
4351 gcctggccaa catggtgaaa ccccgctctc actaaaacta caaaaattag
4401 ctgggcatgg tggcacatgc ctgtagtccc agctactcag gaggtgaag
4451 caggagaatc gcttgaaccc aggaggcaga ggttgcagtg agtcgagatt
4501 gtaccattgc attccagcct gggcaacaga gtgagactcc atctaaaaaa
4551 aataaataaa aataagtaaa tggaatatca tgcagccatt aaaaattggt
4601 atagagagcc atatttttaa tatggtaaat taagtgaaaa gcagatgaca
4651 acagcatgga gtaattgggt actggtatta agtcattgca ggtgattttt
4701 tttttttaa cctagtttgg tattctgttt attaggtttt ttttatcatt
4751 tttatgttgt tttgtacct gcctaatact actttgcttc tttggataga
4801 tccaccaaaa gacaatggcg gagcaaccat caataaatat gtagtggaga
4851 tggcagaagg ttctaacggt atgaatggat attaaacact gatagattta
4901 ttccagccag tctctttcta ttctttatgg ctttacattt tatgtcatat
4951 cttttctttc ttcttgcttt tcataaggta caccataaaa agatgttcac
5001 ttcactttgg gttgtcctgg attttttttt tttaatgtca taagtttatt
5051 gacaaacata tctagtatgc catatgaggt caagtttgat ccacttccag
5101 aggctgtacc tcttaaaatg ctcttcatat ctgttaatgg atgaactgaa
5151 acatccttat gttttaagta gttgttgtct tactacaaga aagggtgtag
5201 caaatgcaga tccaaagtac aaacacatct tagctagtaa cgaccacttg
5251 ttttccactg aaaatggcaa attcttccca gggccctcct cacagtggct
5301 cctacggacc acagaggttg tgaacctccg gatgctctgg cccaacgtag
5351 cgctgctgga agctctgcga aaggcacaga aaccgaggac ggatgaaatg
5401 gcggcacctc accaagacct tttttttttc ctggattttt ttttctttg
5451 tttgtagcag ttaggatttt gcctgttatg atccacttta aattgtgatt
5501 tccagaaata cagtgaatca aatgtaagag tgctgaacaa ctgtatcggt
5551 gcattttacat gttctttttg ttctcattta tttacattgc tcagcctcta
5601 tacacctaga ccaagtcatt agatactatg aatcttctga aggttagttt
5651 attcagttag atttatatac agatatatca gagaaggatt aacttctaaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

13 / 338

```

5701 atttaactca catcatacta gtttttagtag taagttttat gactagttaa
5751 cttttattctt gaatcacaca ttttagcagtg tttattttcta tgaaatgacc
5801 tatttcctgc caaaaagaaa aaaaagatgt cttttaatta ggactagact
5851 tcctctgata ctgggtttttt gtactctttg tatgctataa cgttattact
5901 ggaccagtaa acacatttaa aatgcttaat taaaagtaaa ttatcaatct
5951 aggccaaagt ctgtacagag ttacagagat atttcaactc cacaaagcca
6001 tgcagacttg tctaggaagc tgcacacata aagaaaatta gatcatttcc
6051 aggaaaccga aacaaaccta aattgtttct gacaaattac acaataactt
6101 actttgtgaa gctaggatac ctgatgtgtc catgatacca gaacgttaaa
6151 cattacctag tatctgattg aacacaattc ctcaccttac aggaaacaaa
6201 tgggaaatga tatacagtgg tgctaccagg gaacatcttt gtgatcgact
6251 gaatccaggc tgtttctatc gtttacgagt ttactgcac agtgatggag
6301 gacagagtgc ggtaatactt atatgtagat tcttttgtgt tgttattaag
6351 tttggccaaa tggggttagga tcaccagggt ccacttcaaa tattgaaaca
6401 tatccacaaa tggagaaaag taacttctgt aacctgttgg gttaatttga
6451 tagtgaccaa aatattctaa tgtggtactt agctcacagt aagtattcag
6501 tgtgtgtctg ttgtctgggt ggtattcagc tttggaaaaa caatacatg
6551 aaaacattgg agaaaatttt ataaagataa atttgagaat gatgctcaat
6601 aaccatacta agcagagata gaaataaaat aattatagac cgatttactg
6651 ctccataaat tatgtgtgtg aggacacatc ataaaatagt atctgctgtt
6701 taatctactt tctaataatt acttacttca aaaaagttgg ccattatttt
6751 attattagag actcaataac caaaatgaac ttaaaatgta ccattgatat
6801 aaagacataa tgttctaggg atgtatgttt attaatgagt gatttttttt
6851 ttttttggga aacagtctca ctctgtcgcc caggctggag tgcagtggca
6901 cgattggggc tcaactgcaac ctctgcctcc tgggttctgc aacctctgcc
6951 tcctgggttc aagaattctc ctgcttcagc ctccctagta gctgggacta
7001 caggcgcccc ccaccacaac tggctaattt ttgtattttt agtagagacg
7051 gggttttacc atgttggcca ggctggcctc gaactcctga ctctgtgatc
7101 caccggcctc agcctcccac agtgctggga ttacaggcat gagccaccgc
7151 acccggccaa gtgatttttt ttttttaaat gaattaaacc aagaatgggt
7201 tcttggatca ttcataattg ctgggttttt tttttgaaat gaaatttaat
7251 gcaatgaaag tattcttttt taaaaatgaa atataggcat tttgttgaaa
7301 atgaaactaa tgtgcaactg agtgtagatc ctgcccact ggcttgtgct
7351 ccagttgctt cattttatcc agtaagaaaa tctccctgga tttcagaaaa
7401 gcaacaacac atagacatgc acaaaatcct gttctactat agcattttac
7451 agcattttta catagatagc tttctgataa aaagatgacc aaatattttg
7501 tgtttaaaaa gaatgttaag tatgaacctt aatatgttgc aagtaagtaa
7551 tatgccactg agtttgtggc attgtttttt ttgagacaga gtctcactct
7601 gttgcccagg ctggagtgca gtggcacgat ctcggtcac tgccagctct
7651 gcctcttggg ttcacaccat tctcctgcct cagccttcca agtagctggg
7701 actacagggt cctgccacca tgcccggcta cttttttgta ttttttagtag
7751 agactgggtt tcaccatgtt aaccaggatg gtctcgatct tctgaccctg
7801 tgateccacc gcctcagcct cccaaagcgc tgggattaca ggtgtgagcc
7851 accgcgcccc gccagtggtg gcattgtttt taacagagtg tctttaaaaa
7901 taaaggcttt ttaaaatata aatatagcat agaaactaaa agcagtatca
7951 aatacctaga aagatgccaa gtaactggaa aagcttacct gatttttaga
8001 ttatttttag gtggaaagga tgaaggaaag ataactcttt aatgtataag
8051 ttaagcttgg tgcagtgaca aatgtgtata gtctcagcta ctctggacgt
8101 gggaggattg cttgagccta agaatttgag gctgtaatca tacctgtgaa
8151 tagcaactgc attccatcct gggcaacata ccaagacccc atctctaaaa
8201 ataaataaat aaatcagtgt ttaggttaaa aatacagtct acagtagtaa
8251 agtagccaaa atattctaaa cctccttaca acaatacaaa cagcatatac
8301 agtattttta aacatccctc cttagaagag atttatggat ctttttggag
8351 aagatcaaaa atattgccca tttaaattgt ttggaagttg ttttttctt
8401 tagttatgga aagaaaagga aaggaagggt tcattgaagt tctttttcag
8451 taacttgctt tgtatatagt agttgcacag tacatgtctt tctttgtcta
8501 tgaaaatttt gagtttttat ttaattgggt tttcattttt tttcagaact
8551 ttattccttt tttgttgaca atcaagtaca atttcaaatt atcagtgcaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

14 / 338

8601 tattttgtggt tatattatatt ttccttacca aaagcaatct gattattttgg
8651 ttttggggca tttttgtttt ctttttgctt ttgttttggc aggtctctga
8701 atctttactt gtgcagactc cagctgtgcc tcctggccca tgcctccctc
8751 ccagattaca gggtagaccc aaagcaaaag aaatacagtt acgatggggt
8801 aattttccatt ttggtaataa attataatta agctagaaca ggaagtattc
8851 gtcttggttaa attgcattaa tctttccatc ttttaggacc ccctctggtt
8901 gatggtggat caccattttc ctgttacagt gtggaaatgt ctcctataga
8951 aaaagatgaa cctagagaag tttaccaagg ttctgaagta gaatgtacag
9001 tgagcagcct tcttcctgga aagacataca gcttcagact acgtgcagct
9051 aacaaaatgg gggtaagaag actgtgctgg tagaattata atcacaatgg
9101 tgatataatgt ttcatttttaa catatatcat catatccatt atttggccat
9151 ttggcttttaa catatgactc caaattttac aatttttaac aagcctacat
9201 tgataaatac aagagaagtc ggtatatattc ataacttaat ttttatgaaa
9251 tctcagtatt tttagatccc acttacagtt tgtgacactt tggacttcag
9301 ctgggctaga gtttaccttt taggcagtggt taatagagtt tacttaatca
9351 atttaagagt agaaataaaa tcataagtac tgaagttttt tgaggctgat
9401 tgaagttttt gaggtttttg aggctgattg aagttttttg aggctaaagt
9451 agcattttact ttcagttggc aactaattat gattcatttt ttttgcccaa
9501 atgaaaaaaa acttatgctt gaaactattc tggtttttga tgtatttttt
9551 gaaatattat ctatgtattt aatatataac tccaaaaagt ggacaaagta
9601 ggtgatatct ccatttcaca actaaggaaa cgggttcagg aaagctaaat
9651 attttgccca cagtcataca aactaataag tgatagaggt aagctacaaa
9701 ccttagtttg tcagactcca gagccaaagc tctttccact cagctatgac
9751 acctctcatc tctctgcaat aaagcagggt ccctaaggac aaagcagtaa
9801 tttcctatct cagctaaata acaattttct tcaactattg tataattaaa
9851 atttttatag aattaaactg acagttctct cctaccattt attttgggtga
9901 actatactat atttcaaact ctgttttcca acagggttct gtattttacat
9951 ctgtaaactt atttttcaat ttattttctgt ttgatttttt gaaacagggt
10001 ctcaccctgt caccagggtt ggaatgcagt ggtgtgatct tggctctctg
10051 caacctccgc ctctgggct caggtgaccc ttctacctca gcctcccaag
10101 tagctgggac cacagggtga catcaccaca cctggataat tttttcatat
10151 ttttagtaga gagagggttt tgtcatgttg ccaggttag tctcaaactc
10201 ctgggctcaa gagatctacc cacctcggcc tcccaaagta gtgggattac
10251 aggcaagagc cactatgccc ggcctaaatt tcttatatgt caaatttata
10301 tacttaggct gctcttacac aagtcattcc tttctgtaag aagccatctt
10351 gtcagcctca caaggctgca gtacactagg atcgcatctt taatacttac
10401 gtcttaattt atattttcag gtttgtgata atttgtcaaa atcaccttaa
10451 gtaaataattt actttccgta tttccagaga acatacattt tagaccttc
10501 taaagctatt ccagatttta agataaaaatt tatgcctacc agagagcagt
10551 actgataaat aatgtactat aagtacacta tttacagttt tatttttaat
10601 aaaatccatt cagcatgcta gaatgggtgaa gctttgtcat tattttgttg
10651 ttgtcgacat gaattaacct tgttcaaaaa aggggggcaa aaaaatgaca
10701 tttgtcatgg aaaacttttt ttaatcccta taggacttga ggaacagaat
10751 ccttacttca gttcttataa atagtgtgct taaacctcaa gtttctatca
10801 tttagtggcc ctttccatgc tctccatgaa ctaaactgaa ttatctgtgt
10851 gactgatatg ttttcttagg ttgccttata acatgtataa cagtactctt
10901 tattttaga tacctttgta tgtatgtgtg tgtatagaca gatagacaga
10951 cttttttttt gagacagggt atctgtcacc caggctggag agcaggggta
11001 tgatcatggc tcaactgcaac ctcaacctcc caggcttaag cgatcctcct
11051 gcctcagcct cctgagtagc agggactata ggtgcacacc accataccag
11101 gctgattttt tactttttta tagagatggg ggtcccctta tgtttcccag
11151 gttggtctca aactctcggg ctcaagtgt tccccacct tagcctcca
11201 aagagggtgg attacaggca tgagcctctg cacctgacct tttatatata
11251 cttattattg taaatcattt gctgccacta gcagtctgta agtctatact
11301 attaaatgac atattggcca ggcattggtg taaatgcatg taatcccagc
11351 actttgggag gccaaagggt gtgggtcact tgaggctcagg agttcgagac
11401 cagcctgacc gacatgggtg aacccttct ctgctaaaaa tgcaaaactt
11451 agctgggcat agtggcgtgt gcctgtaatc ccagctgctc tggaggctga

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

15 / 338

```

11501 ggcaggaaaa tcacttgaac ctgggaggcg gaggttacag tgagctgaaa
11551 tcatgccact acatccagcc tgggcgacag agtgagactc tgtctcaaaa
11601 aaaaaagcaa ttaaaaacaa aaaactatta aatgacagat ttatatattg
11651 aattttggct aggcacagta gctcacacct gtaatcccaa tacttgggga
11701 ggccgaggct ggcagatcac ttcaggccag gagttcggga ccagcctggc
11751 caacatcggg aaaccccata tctactaaaa atacaaaaat tagctgggct
11801 tgggtgtacc cacacctgta gtcccagcta ctcaggaggc tgaggcacia
11851 gaatcgcttg aaccaggag gtggagggtg cagtgaactg agattgtgcc
11901 actgaactcc agcctgggca acaggctttt tctcaaaaaa ataataacat
11951 atttggaatt ttaaaattga ttgggttttc aaatttattg ttttaaatta
12001 ggaacttttg aactactaat aaaactatct gccatagttc attgattttt
12051 acatgaaata tttattttca agatgggttc aagattactt ttcacaaagc
12101 aggcgcatta tatcaccatt ttgctctgcc ttgtaaactt gccatctggg
12151 atttttgggt ggtattcatg tgagagtaaa gcatattctc tagcagtttc
12201 ctatagctac aggtttgttt gttttttttc attgcttcta acaggatata
12251 gttactatga gtccatgaaa tataatggaa atgtgaataa ggagtttact
12301 gaagacttta aacatttgat ttttttttaa tcgtgaatat gatagaaact
12351 ggtagtggtg agcagtgcaa atatttgaag tggtgatttg tgaaatagcc
12401 cagcattgcc ttaaacaaaa tcacagtcta cttcttggtt tatacatatg
12451 atagtataaa aggtttcttt tttttcccat tttctgagat ttatagattg
12501 gtatatagct ttaaaactata taaagtttta tggaaagatt ttttaaactt
12551 attaatataa attttaaagt tgatataatt aaagtgaacc tatcttctgt
12601 ttataaaatg caagattcct taacatttat aattatacag atgaaatagt
12651 ttctataagg aagttggagt tttgattttg ccctttatag atgttagatt
12701 gtgcagattt gtctgtattt tctcaccata tcaaataata cttttattat
12751 aagattgggt ttcaagagcc gtattagttg ttataattga ttagtatata
12801 gtttaacttt attcatcata tttatactgt agatttatgg ccagagggtg
12851 aggttatttc aggagagttg atgaccttca tttaaagtct agctaaaatc
12901 agtgctgtaa acaaaaggaa acattttacgt ttgtttctgt ttgccatata
12951 tagtagcctt gatttttttac ttttttataa aacagttacg ttcacaatat
13001 tagcctgagg tattaatgac attgtgatga taaaaaatgg tgtatatcc
13051 ctgtgcaatc ggatttgag gaaaaatgaa ggacttaaca ttatctgaag
13101 tcactgatac tctgaataag tatgggtcaag gagtgaacta tttcttttg
13151 gaaaaacttt ttaaaatttt attttttaaag tattatactg ttatttttag
13201 ggcctaattg ttacattgaa tagttgggtt caccttctta aggtttttta
13251 ccaatattca tgaaacttga tattttttaa atccctaccc tttggtaagt
13301 cgttatttat taacattttt attggtgatt aatacatggt ttttcctaaa
13351 ttaaaaataa ataacttga ataattttta tattaaatat ttgttaacaa
13401 ctgaatgttt ccatagaatt ttctgagaag ttgagtttct tagagtttct
13451 gtagctggct gggcccagtg gctcatgcct gtaatcccag cactttggct
13501 caagcagtc tccctctgag acaggaggac cacttggtgc caggagtctg
13551 agaccagcct gggcaacatg gtgaaaccct gtctctgtaa aaagtagaaa
13601 aattagccca gcatggtagt gcacaccctg agtcccagct actcaggagg
13651 ctgaggtggg aggatggctt gagcccagga agtcgagggg gcagtgaacc
13701 atgtttgcac cactgcactc ctgcagtcta ggtgatggag ccagccagac
13751 cttgtctcaa aaaaaaaaaa aaaaaaaaaa aaagaagttg agctagctct
13801 taaagatggg catttgga aactgcctga tacagtgcag taacaagtag
13851 gtttacttct gaccattata atgatgcgcc actgttaagt gaaaatacca
13901 gtgtattggg gcttttcttt tgctaattgag ctttgaaaaa ttgatgacaa
13951 gaaatttctg taattgttct cctatgtgtc ggggaaggaa tttgccaata
14001 ctgaataaaa ttttttatat tccgggtaat gtatgtttaa agtaattatg
14051 agaaagtgag ctttttagca tggaacagaa aaatcaaatt ctgttacaaa
14101 ataaacaaat ttatagaaca gaatgttggt aaaatttgat atggaatatg
14151 cctaagaaag attcgtgaag tattaacaaa ttaaaaataa taatttacac
14201 ctaccatctc ccgtaccttt aattagatct aatttcttca ctccttatat
14251 ttctcctgaa ttattccacc gacctcatc cctaattgtc tgcccttctt
14301 acaaaaacca tttcctgaag aaataagggg cagaagaaag tataggtaaa
14351 tgaaacttta aaatttctca cacctttact ttcattgatt ttaagtcttt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

16 / 338

14401 ttagttaatg tgaatactta tagaattatg accaaattaa tcttgaaaca
14451 cagggaaaag actttattaa tgaatcttta aatatgcagt tctgtgcaat
14501 cagtggacat ttaaggggtga aaaataaaaa cactagttac atttgttttt
14551 ctagtttgga ccatttttcag aaaaatgtga tattactaca gcccctgggc
14601 caccagatca gtgcaagccc cctcaagtga catgtagatc tgcaacttgt
14651 gcacaagtga attgggaggt attgtaattt ccattgactt gtatctactt
14701 tcttaagtga atagaatagt ttatataaaa gaataaagat actgttcatt
14751 tttaccgcct atattataca gagtaagccc tagtttaatt cacatgaaaa
14801 acagtgactt ctttttcctc tttgaagaat ttgagtaagg tatatttgca
14851 ttacaaatat ttagattcct gttcattatg tgctttgtat ttttatgaat
14901 ggctttgtct cagtactgag atatttcagc cactgtaagt ttaatgttca
14951 gaatagacat acacaggaat tagtaaattc tatttctctt atatttatcc
15001 agtacacatc tccagtgtac ttattgtgga tagtaataat cagtgatgat
15051 aattattata ttttcagttc cttttgaaat ttaacaaaat gtgtgtatgc
15101 ttttaacatt tcatattaat agaattatct tgaaacatat ttaccttaaa
15151 acactctttc taaagtgact tagtcatatt tctacttcta attcaaaaca
15201 gttatatatt tgaccaatct taaattcaga taatcttaat gaataaaaaa
15251 tgtaaaattg aacagttttg attgtgctta aaagttttta agaaactcaa
15301 aagcaatcta gttttacatg tgctcaggta aagagcattt ttggccaaaa
15351 gctattttaat caacatcaag actaagacct ttatcctttt cttaatttaa
15401 aggttccttt gagtaatgga acagatgtca ctgaatatcg actggagtgg
15451 ggaggagtgt aaggaagtat gcagatatgt tactgtgggc ctggtctcag
15501 ttatgaaata aaaggacttt caccagcaac tacctattat tgcagggtcc
15551 aggtaaagat gatcagtaac ttgtcactta actctatcca gagttttata
15601 tttcattggc attttcatgg tcatgacttt gttaactcgg aggctctgtt
15651 aatttgtagg ctctgagtgt tgtgggtgca ggccctttca gtgaagtagt
15701 agcctgtgtg actccaccat cagttcctgg cattgtgacc tgtcttcaag
15751 aaataagcga tgatgagata gaaaatcccc attattcacc ttctacatgc
15801 cttgcaataa gctgggaaaa gccttgtgat catggttcgg aaatccttgc
15851 ctacagcata gactttggag ataaacaatc cctaacagtg ggaaaggtta
15901 caagctatat tatcaacaat ttgcaaccag atacaacata caggataact
15951 ctaaaaatta tgttgatttt tgcctagacc agagagacgc tttaaataaa
16001 acaatcataa ccaaactttt tttcttatgt ggcacttaga atacgaattc
16051 aagccttgaa tagccttgga gctggtcctt tcagccatat gataaaatta
16101 aaaactaagc ctctccctcc tgatccacct cgtctggaat gtgttgccct
16151 tagccaccag aaccttaagc tgaaatgggg agaaggaact ccaaagacat
16201 tgtcaaccga ttctattcag taccaccttc agatggagga taagaatgga
16251 cggtaggttt ttttaattgc ttctttatat agtttcttag gtcttaagta
16301 tatacatttc tgtaactatt agaagtaggc cagggtgtggg ggctgacacc
16351 tgtaatctca gcactttggg aggctgaggc aggcgaattg cttgagccca
16401 ggagtgcaag accagcctgg gcaagacagt gagaccttgt ctctaaaaaa
16451 aatttatattt aatgaagtaa gttttcaaaa acgaagtcaa gattgtcata
16501 caaaagtgtg ctgtttttta aacgttagaa aacacaatgt acatttcctg
16551 tttataattt gtgagtggaa taccaagaga aaaaaataag tgggctactg
16601 tttggttgtt ttctgtaatc catttactgt tttcatgata gtaaaagaca
16651 cctaattctta gatacaaaat aaactcttca gtgtttattt ctagcaggac
16701 acaatttttt ttttttaaga caaggtcttg ctctgtcacc caggctggcc
16751 tccagtggca ctatcttggc tcattgcaac ctctgcctcc agggctggag
16801 ccatectccc acctcagctc cccaagtatc tgtgaccaca ggcgtgggccc
16851 actacacctg gctaattttt gtatttttag tagagatggg gtttcaccat
16901 gtcgctcaca ctgggtctcg actcctgggc tcaagtggtc ctccccgctc
16951 agcctcactg agtgctgaga ttacaactca tgagccactg tgctgaccg
17001 aaacaatttt tttttttttt ttttttgaga cggagtctca ctctcaccag
17051 gctggagtgc agtgacgca tctcggctca ctgcaatctc cgcctctcag
17101 gttcaaacia ttcccctgcc tcagcctccc aagtagctgg gactacaggt
17151 gcgcaccacc acgcccggct aattttttgt atttttagtag aggcggagtt
17201 tcaccatggt ggccaggatg gtctccatct cctgacctcc cgatccacct
17251 gcctcgacct cccaaagtgc tgggattaca ggcgtgagcc actgcacccg

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

17 / 338

```

17301 gccctgaaac aattttatag taaatgatta tgatcgttcc tggcctctga
17351 gatccttgag ggcagagatt atgtttcagt cttttccaga ttcctgacac
17401 agggcctgca cgctaaatga atacagttca gtttttctact gtgtgatctc
17451 agttagattc tgtgattaat tatctagtcc ctttgctaata cactgttgct
17501 aatctttgct aatctttgaa ttagaaagaa cctaatttca ttcaggttct
17551 ttctgtgcct ctttcacatc ttcatgtaca tgttgtaacta ttcctatata
17601 atgtgccata tactgccaca ctaaatcatg tattttaatt acagtgttaa
17651 ctctgaatat ttgtaacagt cattctaattg ccaactaggg ctatttattc
17701 acattatatt ccatataagc aatgccacat acctcccaca gctgttaatc
17751 ctttaatat ttaagaattt tgaattttgc ttttctactt ttcactgaat
17801 atattagaaa caatttccaa atctgatgga ctcagaatac tagtaacagt
17851 ttttcccaag atttactttt ctgtgttggt tgtatcttag ccaggatttc
17901 aacaatgaaa tattcatggt gcttgtagat aaccactctc tatcagaat
17951 acttatacat ttaaaataac atatggaata attttgata ctagtatatc
18001 accagtaaga acattacaca gaacaaacgt gatcatttcc taaaatctgt
18051 atcgatgaat gttagccttt gttcttgga gaattttatg taatctttgt
18101 agccttatct ctacaaagag attatttgcc ttgtacaggt ttttggtata
18151 gccatttatc tttaatatat gttattatta ctggacaaat taattgttta
18201 aatttttttc ctcccctttc tagcatacat ttggggtagt gcaagaaggc
18251 ttactggaaa caggctaat tagtgtttg ttgaaagata atagaataaa
18301 gattctatta gatataaatt ctattataga acttccaact taatattcag
18351 ctagcatcta gagaattgtt atggggtagt aatatggctc atggcctttg
18401 gttgtggaaa ataaagaaat taaaacctt tatgatactg ttaagttaa
18451 tgcacacatt taataaatta aatcaattta atatctttga ttactttcat
18501 tccctttgat tttcacaact atatacactt gctgtgggat ggtatcataa
18551 tgatacttta gttgttccct gatccagatt ttgtcattgt tcagcttttt
18601 taaacagtgg tattaccact attttttttt cctgtcatta aaaaaaatt
18651 tagaggttga aaaggcaagg cttatccaat tactgcttat tggagtagt
18701 gtttcttctt gtcattaaat atttctttat ttttaacttg gctacaattt
18751 tcagactgtt agcattgaat aagcattcat tattcattct ctaatttcca
18801 aaaattttag aaacatccaa tcaaaaataa tgggatgcat tcaacttata
18851 gataacatat taggagaaat atgtatgata ttcaacttca ttgaacagtt
18901 caagtgggta atgtattgga aattttatat tatcatactg cttttgtaaa
18951 tctctaaaaa aacgtcacca agtcaactaa aaatctgcct gggaattgag
19001 aattctcttt tttccagata aagacaagga agattaaaat agaaacttaa
19051 tctcatagct caggctctta tgccatactt ggcaaatttt atcaatatga
19101 ctttagttag aaataatttg taatgaaaat tgtgatgttc tgagcatctt
19151 ttaaaatgta cattaacaaa acagtattca gaaacaaagc taaaccggaa
19201 gcctgagaag aaacagttat ggtcggacat gaaatttagt aacagacttt
19251 tggtaaatca tgtcaaattg ggaaatttac caaatatcct atttttctta
19301 atctgatgaa aaacagattt attttaagt acatagagtt cctggcatca
19351 aacttttggg gtaacttatc actcctaaat aatgttcata actgtgtttt
19401 tatactagtt tgtaaaacac ttttaataagg tatcataagg tagtataagg
19451 tttatctaat agttatttcc attttaggtt tgtatcccta tacagaggac
19501 catgtcatat atacaaagta caaagactta atgagtcaac atcctataaa
19551 ttctgtattc aagcttgtaa tgaagctggg gaaggtcccc tctcccaaga
19601 atatattttc actactccaa aatctgtccc agctgccttg aaaggtaagt
19651 tatacatcct gaacttattt tctttataat aaattacttt ttaatgtatt
19701 ttcataaatg ctttgttttac tgatattaaa atttagcatc cagtatatgt
19751 ccaccagtta tacaaaatcg tataggcaag cccaactcta ctgagagttc
19801 cactcaataa taaaagctgt tttatctggc acgctcatat tcagacaagt
19851 actggctttt gtcactgatg tttttaataa tgtagcataa aaatactaaa
19901 ttgaatagga aggctggttt tctaagagg tcatttgctt aaagaaaaaa
19951 atcacaaact ctggttggtt aaacgttttg agttattgat attacattca
20001 tttggatttc agaaggaaag cttggtcatc tgttaagcaa aacaaattct
20051 tcattaatgt gggtttttca attagtttta cacacacatg tacacatatt
20101 tacacacatt tgtatataca tttatctttt aattttagag gggttcttat
20151 tttaaagtga ctctggcaag ggctacactc tatttttagc tgaaaagtct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

18 / 338

```

20201 ataaagttaa ttgctctgaa gactaatcac agagacttct agaaccatat
20251 cctagatcat gtacttaaac ctatcatttg ttaaacagca gaactcttct
20301 tgactagtct ttctaataat attgagtttc actgagtcac ttttctgttt
20351 gctcatcaag tttagtgtct cttagcttta agaagagtgc tgactataag
20401 cagggcacag tggctcacac ctataagccc agtgcttttg gagactgaag
20451 tgggaggctc acttaaggcc aggagtattg agaccaacgt gggcaacata
20501 ctgagacctg cctctctaca aaagaaattt tgaatcagct gggcatggca
20551 gcatatgcct gtgtgtgtag ctgcacagga ggctgaggct gcattgagct
20601 atgatcgcac cactgttgct caggctgggt gacagagtga gatcccatat
20651 cttagaatac aagagtgtct attttaacct ctttgatgc aaatttcaaa
20701 aattcactga tacttatttc aagtttataa gtggatttta aatatttgtt
20751 gatttttatt aagacaagtg tctgcatgat gtaccaaatt aaaaatcaag
20801 tggaacagat attatttata tttgtttcct acagcccca aaatagagaa
20851 agtaaatgat cacatttgtg aaattacatg ggagtgttta cagccaatga
20901 aaggtgatcc agttatttac agtcttcaag ttatgttggg aaaagattca
20951 gaattcaaac aggtatgtac caagatatta atgtgtggat gcatattttt
21001 accctttttt aatttttatg tattttcagt gtaagatttg gccatcttta
21051 ccttttaatt cataaatatt tattcagtat atattatgtt ccagagatct
21101 caagattcca aatcttttca gtatgaacta cacttgaaca gattattcat
21151 ttatctgata agtattcatt gaattctgtg ccaggcactc aggatatagc
21201 actgaacaaa aagtcccttg cctccatgga gcttacttac attctggtgg
21251 aaaagaagac actataagca agtaaacadg acaatatatt gtcagatata
21301 agtgtaatgg agaaaaaaca aaattggata aaagaaatag ggagtggagg
21351 gggagggcac tgagtgttat ttcatttggg gcactcagct gacatttcag
21401 catggcccag aggagatgac tatggagaga agagtgttcc aagaagatac
21451 gctgaggcag gaacatgcct attaaatctg atgaacataa aggagccaat
21501 atgactggat ggagagagca aagggaagag ttgataaggt cggatagtta
21551 atcctaaggg gcctataggt ggtatggagt gacgtaaggc ataataggcc
21601 atactgtggc ttttactcca cgtgaaatga gaagacagtg gaggattttg
21651 accaggggat tcacgtgatc agacacaacg ttgttttgac tatagtgttg
21701 aaactacagt aggacaaggg cagaactaga aagactaata aggaggcttt
21751 tacaataata gtattaataa tagtcataat gcagtgtgtt aaatatgaca
21801 ttaggcatga agttataatg gaaacctaga ggaattgtca ccttcctagc
21851 caagagggtt caaagatagc tttctgataa agcaagaata gcagtgagat
21901 agagtggagt gttgccaatg tttgttaca cttttaaaaa gaataagctt
21951 ttataccact ccaaagacta attaaatacc tatacatttc acctgatttt
22001 ccctttttcc tgtaacctta attttgaggg cttttaagct gggttgtttt
22051 cattgtgtct tatattttcc tcttccacta aaaaaaagat ccttcatttg
22101 ttttattcca gtattgtgct attgtaacca ctctatgtaa tatcttaact
22151 gaaattacaa aagatccaaa gagtcagatt aaatctggca tgcaattgtt
22201 tttctttatt aagccatctg caaattgaca ggataattag atttgaaatg
22251 taatttacag ataagtaggt ttccttctaa ggaggaagca aaattaatat
22301 taaagaaaat ataattgtat tacacgttta aaggaaatag ggattccaca
22351 tttgagtagt atatgaataa ccttaaggct tgtttgaatg acttttcttg
22401 ggtgtataaa cttctgaaa ttagcttgag caggttaatc tgttttcttc
22451 agtcctgtat ttacagttac ctgtgtctct tctgtcttag aggtcttccc
22501 acatctgaaa taaaaaattg aaaacttgat cccatcatct tccctcccag
22551 tatctcctct ccaacatctt tacttcatca gtgtcataga caccaatatc
22601 atcttggctc ccaagcttta aattcttaga tgaatttttt tttcctatca
22651 actcttaatc agaatttgtt tctaaatcca taaaactaca tcagggcctc
22701 atcacttttt acatgtacat caagagtccc tgtcctactc agctcccttc
22751 agtccttcac acagcctcac gattaggatt ccataaacac tgttttaatg
22801 tcacacacct acagtggctc cttttgaatt aacctaaatt tccaactagt
22851 gtaattaatg tattcttcct ctttgtacca gatctcttat caccctcatg
22901 ccatttgttg aggtttttct ttcttaacct aatactgcca ggctcatgga
22951 atggtatatg aagacacatg gaaagtataa agacaaaaat catctattat
23001 atccataaga caaatacata tttttaattt ttactcaatt tacttcagtg
23051 ttatgtatac aattttacac tactttatca tacaacattc tgttttaagt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

19 / 338

```

23101 gaatcctttt acaggttgaa gcatcccaaa taaagtccaa aattcaaaat
23151 gttccaccca aaatctgaaa ctttttgagg atcgatatga cactcaaagg
23201 aaatgctcat tggagcattt ccaatttcag atttttgggt ttggaatgct
23251 caactagtaa atatgcaact attccaaaat caaaaaaatt gaaatgcttc
23301 tggttccaag catttcttat aagggatacc caacctgtac catctcccaa
23351 acatggatca tttctacatt ctattccctg aaacattatg catccttaga
23401 actaatgtat agtcaccatt ttctttcaga tttatcttaa agcttctttc
23451 agtaagtcc tttatatatt gttatcagca tccacatttt tatttattgc
23501 caataattca ctaatttaat gtccttttat taagtaccta ctatatgcta
23551 gattctggag acagaaaaat gagacagaga tcttacttta ctttgagagc
23601 aaagcaatat gtaaaaaatt agatttacat cacaggtaca attgaggcag
23651 ctaaaagtac ttgaaagccc ccatgtgttg gttcttctga cttgtagccc
23701 accaactaac tggagaaact caactgacaa gtcatttaac cctatgaacc
23751 ttggttttct caattacaga atgagtgggt ggaggttgct cattattgga
23801 aatgatagct cctacagatt gagcagtgc tgcagtctga gcactgcgct
23851 aagtgcctta acaagcatta gttcatttca tcctcataat tatcatacat
23901 gttaactact agtatgtctg ttatactaag gtagttggtc taaaatcaca
23951 tctggagtgt gaagtggtag agcagacctt ggatgccagg ggtgaacagt
24001 tctagtatat agcttcttat ttatgcctag tgttccatta ttggaacact
24051 aagcttgtgg tagttattta tatctcactg atcaaggtta ttgccaaggt
24101 ctgatttttc aaaaaaaaaa aatttgcaac ctctggcata aatgggttaa
24151 ttactagcac attcctctga aaatccgtgg aatttcattc tttttatttc
24201 ccttgtgagg catggcagag gaggtcctat tttctgattc taagtgatct
24251 cccctctctg gtttatacag tgatttgcca taggcaccta tagaaagctc
24301 cccttattca ttttccattt cattgtacag atatgtttga aattatatgg
24351 aaatttatca gttatacaaa gacataatgg gggaagcaaa agtagacact
24401 atcccttctt tgatggaatg attgcattga aaaatgactt cttacatttg
24451 agaaaagcaa gaaaatgctt gaggaccgat tttgcttggt ctctagctgc
24501 cctggggcac atctgcactc cttaattcat ctgtgaaccg tataagggta
24551 gatcctcgct tttgaaattt ctcttgcccc tatgcaacaa acagataagt
24601 actttaatgg acaggtattt ttaacatgtc atttaaaaga taaaatcaat
24651 ggcattcact ggctttcaca tgaaaaacaa ttctaacact agccagtttt
24701 aacacatttt ctgtccagcc ttcacacgta attcttcctt ctaatatattt
24751 attaacagat ttacaaggggt cccgactctt ccttccggta ttccagcctt
24801 cagctgaact gtgaatatcg cttccgtgta tgtgccattc gccagtgcc
24851 agactctctg ggacaccagg acctcgtagg tccctacagc accacagtgc
24901 tcttcatctc tcagaggact gaaccaccag ccagcaccaa cagagacact
24951 gtggaaagca caaggaccgg acgggcaact agtgacgagc agtgtgctgc
25001 cgtcatcctt gtgctgtttg ctttcttttc cattttgatt gcctttatca
25051 ttcagtactt tgtaatcaag tgaaaatata actttatttt ttaactctat
25101 tacattttat tttgtcatgt actaaaatta tttctgtatt gcttttataa
25151 aaaacagtgg catttagcac tggcattgag actatagcac atcatttttg
25201 ccattttcag tgcttatatt gttaggtaga ggctggcact ttattagaat
25251 gcaagccaca aaaatatcaa ttttgttttt tttgttaggg tgggtcttct
25301 ttttttcttt ccctctctct ttttttaaca aatgccttct tatagaaaaa
25351 ctttctaaga ggcaacaatt tagaatggat attttgacga atcggcatga
25401 gtgtaacagt gataacctga tctgtttggt ttaaagatta ttaccaagtg
25451 aaaaattcag aatgaataga atttacacta acatgctata taaaatgtta
25501 aagtctgatg ctgtgaaagc aatctagtgc tatatttcta cctcctcatt
25551 tgtcttaatt atttggtgag tgggattatg atgagtaact ggaggggctt
25601 agaaacaaaa actggatgaa agagtatgca tgaagaaaag cttctttgat
25651 aatgtggag ttcttcatta taaatatata ttcatagaatt cacagataag
25701 tacttaaaga acagacagtt tacttggcct aaaaatattt tgatgtttac
25751 tcaaaaagta cctcttcagg tcttgagaac atggaaaaga attgagtgtc
25801 tttaaatact ttttagaaag taatcataaa agtaaattga atttcaaacc
25851 tatttggtct ctgttttggt aacctttgaa ctatatgtat gtgtataagg
25901 gtatacacat acatatatgg catataacaa gtgtacacat atacacataa
25951 caagtgtaga agtatatat acatacatat actcactctg tctggtatag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

20 / 338

```

26001 gctaattttg aagaactccc ataagtttct gctgcttctc ccataactgc
26051 tgccaccacc atcagaattc ataatcaaac ctaacctttt tgtttggggc
26101 accaaatctg aagacaaaat taatttgcac cagtaaactt caagctgctt
26151 tctttcttga aaactaaacg tttaacgtat aatgtctgtt tggatactgt
26201 tccaaattgt tgattgcatg tgggttaatg tgcattagag cactttgcaa
26251 ttgcataatt cattaatggt ttgtgagctt gcatttggtga gttattggat
26301 gatcagactg aattttgtca agtatcacat tgtacatctt gcctagatgt
26351 cgatgactgc aagtaataat acagtttata atgaaactat ctacaattct
26401 tgttttagca catctgttat ccgtaaaaca cctgtaacta gcttttttaa
26451 tttattattt gaattttagg atagcgaatc actaattttt agttgctgag
26501 gttggcattt tagtgattat taagcacttc tgtcagtctt tgaaaaaaga
26551 acgtattttt tgtgctttga agatctctga agaatttctt ttataataga
26601 atgggcatgt attgtaacag ttttatgtca aatgatctgt gctgtagaaa
26651 aacattaacc cttgttcaaa aaagaaatgg ataaacttgg cttttctaag
26701 tggtaagaat gacctgtcac tataatatac tgtatgttta cattttattt
26751 aaatttaatc tcttatgtat aggggtgataa ccttccccag aaacaacagt
26801 gattgcgatt gttttctaga aacttcttta aagtgccaca tttggcagta
26851 caaatgagtc tgagtgtaat agcccagaga tttatatata gttgaatgtc
26901 taaaatggta aaatgtgcc a ctgtgtcaag ttacagtggc ttatgttttt
26951 catagtaatt caaatgaact tcctattttt gatagtaa at gtcattta at
27001 agtatacttg ccatttgagc ctactgcaa aattagtgca gaggagaaaa
27051 caatttttaa tgtaatcttg attttacctc atatactgta cattccaaaa
27101 actctaaact ttttaaagat tatagatata ctaccaaaca tatcacctta
27151 aaattgtata aggctgaatg aacttcatac aaatgaaaaa aatctcataa
27201 aaatacataa actatgtagc aaaagtatct gtaaaatcca tggaaaataa
27251 aagttgtatc attctttttg agatacgttt attgtattca tatatatcca
27301 ttatttgcta cctgtttaag aaagtgaat gttatggctt cccctcttcc
27351 aatgagctta aaacattttt cccaacagta tataaatctt caacatgaga
27401 ggatgtatat ttattatata aagcccagta aagaataaaa ttagaagttt
27451 taccctagtg acttgatttt gtgcaactca tgaaatatct tacttccttt
27501 ccacatataa agaatacagt gagtctaagg taaacttccc agtgggaaga
27551 aaatccctaa cctctccttg cctttcccac atccctattt tctagtacct
27601 tctttcgccc accaccagag gcccagaacc ttcttggtag tggcactgct
27651 ggggtctgcct tccaccagaa aatccaacat tctctcactc atccccatt
27701 aaaatttcca tcccaagaac ttcctcctgg ggatggacac tcagtgcctt
27751 tttttttttc tttttttaat gggtaagcta gtaaatttta tgttataaat
27801 attttaccac cataaaaaaa tcattgaaaa attcactgaa gaagccaata
27851 tggaaagagg agaactcaat gtttaaaata aagccaactt ttttttttta
27901 ttcaagaggt aagtacatag cttcaagctc aaggtctagg ttgaggacaa
27951 tcatgagtcc tattaaagga caaccagttt aaagaacact gtcaggcaag
28001 ctaccacgta gctctccttc actccaggct tagctgttcc agacttccca
28051 gtactgatga aggatcatgt ttttgttcag ctttgcccag tgctgtcatt
28101 cataatagat aaatgaaaag tcccagaaac ctggttggtt tgggaagggt
28151 ttcttttggt ccaggcttca gtggttaata tgcttgacaa atttcagagt
28201 ctctatctct gtagaccaat gccaaagaat tgctttctgg attcactggt
28251 agcagctctt cgtcttcac tttggcaatg taagaaaacc accatattct
28301 ggcccccagc cttcacagcc acagtggaga attaagtcta gggcaaaatc
28351 agccttgcca tggtcacgaa ttaaaagtgt ggtgaccagt cttccaacgc
28401 ctcagttccc tttggcatgt gggaacacct gattcattct ttgtttcatt
28451 ttcctctgac tcggctctgtc tgctcatggc tctgttggcc gttgatgctg
28501 atggctgcct gattattctc tggctcagga gggctatggc cagtcccttc
28551 ctcagttcta tcagcagcag aggctgctgc ttcctctttt ttgtcatcca
28601 tctcatcttc cgaagggggc aagaagtga gcttcaggcc tgtgaagttg
28651 gagagcagca agaatagtgc ctcagagcaa aataacttca tgcactcctt
28701 caatatatca ggaagcttac tctcctcagc tttctcatag aatcatcttt
28751 tgttgccag gcacgggtggc tcatgcctat aatcttagta ctttggaagg
28801 ccgaggtaga caggtcacct gaggtcagta gttcaagacc agcctggtea
28851 atatggtgaa acccctgtct ctactaaaat agaaaaatta gctaggcatg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

21 / 338

```

28901 atgccagggtg cctgtaatcc tagctactcg ggaggctgag acggggagaat
28951 tgcttgaacc caggaaacgg tggttgcagt gagccgagat ttaaaattta
29001 aaaaatgata ataaaaaaaa aaaaaccttt tcttaggggg acctcagctg
29051 ctctcttcca catctccatt ctccaaggcc tcacagacct ttgcaaattt
29101 ctcaggctta agaaatttct taggagaatt tcagaacttt cttcaaactc
29151 ttcttgagtt tgaatttggt aatccatgtc cagataagta aggttgatcc
29201 aatcaaacaa tttcatgttc ttgtgggggtg tgagggtctc aagatatgag
29251 ggggttcaaa gtagttggga ggcctagtca gtgaaggacc atgaaaccag
29301 ccacttatag acaaatgtga cttcagacag gactttggac acctggtgaa
29351 aggacactgc agatacttca aagaaaacca gtttgttcca taaaggggta
29401 agagacgaca atctgcttcg gttgaaagtg ttcataatg ttgtacaggt
29451 ccaggatacc ctccaggctc ctgtcccagg aaagaaccag gtacaggata
29501 aaggcgatcc agcgcccttc tagctcatca tcatggcaca gcagggcac
29551 agtgaattca tatttagcac aggacacatc gatggttggt tccagtaa
29601 tttagaaatg ccagaaagcc aggaccagaa atcttcaaac agaattttcc
29651 ttaaagcaga gatgtgaggc cctcttcttt aaatcatcag actgctggaa
29701 cttacataaa tcattatact tgtcatggaa atctaagttc ataagttcct
29751 tctgaagccc ttccaagaag tegtcttttg atgaagtttg ggatcatgca
29801 gtgaagaaag gggtcctatg ccctgacaat ggcttcgtag ctccaggcct
29851 caaccacctg ctttttcaag gtttcctcca tgacggcatc tgaaaattcc
29901 gccatcacct ccttcttttc cttttttccc acccggttcc ggccgggctc
29951 cactggccgt ttcactctct cacaaggtag agagccacgc catatgactc
30001 agtgctttta aaatccatgt agatctctta attgccacaa ctccaaggac
30051 cgtgatagag tttaaaatgt tgggctgggg aaggagagtc cggaaatagg
30101 aacatcacag aagcagctaa gcatgagtc aggtttgagt ggggtatgat
30151 actgatttga cagtatgatt gcacgtcacc tctttttttt ctgtagattg
30201 gaaataggag tcttttgcac cctgtttgag cattccatgg gttggtttcc
30251 aacacaaatc ctttgcttct caccattata agattatttc tgcaggaaga
30301 ttccattgac gtggtggctc aaggaggcaa acaggcttca aaagaaaata
30351 ggccgggtgt ggtggctcac gcctgtaatc tcagcacttt ggaaggccaa
30401 ggtgggcaga tcacaaggtc aggagttaga gaccagtctg gctaacatgg
30451 tgaaaccccg tctctaccga aaatacaaaa attagctggg cgtggtggtg
30501 cacacctgta attccagcta ctcaggaggc tgaagcagga gaatcgtttg
30551 aacctgggag gcggagcttg cagtgaagca agatcgtgcc actgcactcc
30601 agcctgggtg acagagcgag actccatctc aaaaaaaaaa aaaaaagaaa
30651 atattccccc aaacttaagc agtgattctg taacctaaact cccatcatca
30701 aaagagatga tgcctcatgt ttttagagag tttttaagtg ttctattttc
30751 atatacattt tgtaagtata tgccgttgag aatgtgtatc ccttttgttt
30801 atttatcatt ttctctctga tgctcctaag gcgggagaaa aaacttgag
30851 gaaaaaaaga aaatcaacca aagaaccaag atttcaacaa ggtggtcatc
30901 aaattctgtg tccagagtgg tgccctcaaa tgtttagatg ctgtaatggc
30951 tattttttgt ctcataaacg gggctattgt gccatttcca cttactacgg
31001 gaaatttgcc aagagaaaag ggtttcaaaa ctgaacagat tttgaagcca
31051 catggcccat tcaaatcatt atggctagga tctgtcaacc atttaatgtg
31101 ttgtaagcat tatgttcagt tctttacctt gggcatctca tacagtcctc
31151 ttaattgctc tagtaagcat tatctgcagc acagagaagt cgagctctct
31201 gccacaggtc tcatggctaa taaatgatga agctgggggt tgatccaggt
31251 ctggggctcc cacacttgac cactatcctc tgctgtctgg cccaaaattt
31301 acaaactcta ggaaatcaaa attaatatga attgacttta atagtgcgtt
31351 tatgatagca tttattgatt gagtaccacc tgtttgctag gcaatgtgct
31401 aagcacttcc tcataatgaa aacaagccac agccctctaa ggactgaaca
31451 gaaagaaatc agatgagaag aatctggtat aagcataaca gactaaatga
31501 gaaaccctaa tttctttcct cttgaatttc atccctgat acttttacta
31551 ccatttttgag cccacactca atccttaagg ctagcccatc ttaaataatta
31601 atccaaggat gaaaacgcca tttttgccac ttaccgcaac taagacaagc
31651 tgacattttc aaaaatgaat atagctacca tgtggaccaa cctcaaaaac
31701 acactacaat gaaggaagcc agacacagaa agtcacatat tatacaattc
31751 catttgattt aaatatccag aatgagtaaa tccatagaga cagattagtg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

22 / 338

```

31801 gatgccaggg ctggagggag gaggaatgg ggagtaactg cccagtgggt
31851 gctgggttga tggaaatgct taggagccag acagaggtag tggttgcaca
31901 actctgaggg cactaaatgc cagtaagttt gtcacttcag aatggttaat
31951 tttatgtgaa tttcacctga attgcttaag aagggaatat aaaacctata
32001 aactgataca caggtaacat aagactagag aatcctgggc atcaagtcca
32051 taaaactgac gtagtcagta agttcatttt gctaaggaca gaggccaact
32101 tgtctctttt ttctcaaact cccacacctc ccaggatgct accactcctt
32151 tcagcctgtg acatgtgcct ggcttacaac tgaatatttt atggatgtcc
32201 ttgagtgtga ttaaacaatt tcgcctgccc acaccaagt tatcagctct
32251 atctcattct taatccttct aggatgacac agaggtctta aagaagaaat
32301 taccttttca gtttcacagt taatcaatgg cagcagctgc acagtaagaa
32351 tgctcgatg cagtagtgta aggcctataa cctcttcca cccacgcttc
32401 caagggcttg ctccctctcc accatcccc ttggttaattg ttgccacgct
32451 gagcctgtct gtctctcagg agaaactggg actaacagaa aaactgctaa
32501 agcaacagcc acagagtaac aggaatctgc actccacaaa agtcttgctt
32551 gaatttgccc tgccgtgtcc ctgctgtgta aaaagaaaac ctaggaaaga
32601 ctgagcccct ggtcaatgtg gcggtcaggt cctggcgggtg agattgggaa
32651 atagctggcc ttgaacttct ctgccagggg ctcccttcca gggccagctt
32701 tgctatctct gcattttact aaagatacca tttcctgggtg cctgggggtct
32751 agaggacca gtgggtcatg tgaatgagga aggggctgag tgtgaagcca
32801 cagatgccct gtgtgtgggtg acagctgtga ggtgcctgca gagtggcacc
32851 agcctacagg ctgcagggtg cagtctttgg ggaacatgag ctgagagctg
32901 ccacagcttc cggttttgca agacaatgct tccttctcaa actcccacac
32951 ctccccggat gttaccactc ctctcagcct gcggcacgtg cctgggtttac
33001 aacaatatat tatggatgtc cttgggagct attaaagaat ttggtctgcc
33051 taggccaag atatcatgct gacaatctgg aactttacct gaaatttccc
33101 aattgtaaaa ggttggttca aaacattatg aaatggccag gctccgtggc
33151 tcacatctgt attcccagca ctttgaggag cagaggaggg tggatcactt
33201 gagcccagga gttcaagagc agcctgggca atctaggag acccccatct
33251 ctacaaactt catgccttgc tcttatgtgg ggaaaagagt gtaaagcctg
33301 tggagtgttt acaagtttac ataagtaaac tattgtacaa gttacggatg
33351 tatttttttt tttttttttt tttgagacgg agtctcgctc tgctgcccag
33401 gctggagtgc agtggcgga tctcggtcca ctgcaagctc cgctcccgg
33451 gttcacgcca ttctcctgcc tcagcctccc aagtagctgg gactacaggc
33501 gcccgccact acgcctggct aattttttgt attttttagt gagacggggt
33551 ttcaccgttt tagccgggat ggtctcgatc tcctgacctc gtgatccgcc
33601 cgcctcggcc tcccaaagtg ctgggattac aggcgtgagc caccgcgcc
33651 ggccgttacg gaggtatttt aatgctcctc acaactttcc agattcttca
33701 atttgccc ataaatctgggt ttctgagaaa gacactggaa gacactttcc
33751 tagcagaatc cagatcataa cctagcattc tctgcagctg gtggtgctat
33801 ggtctgtata gcaagaggcc acccagcaca gtagttatgc ccatggactc
33851 tggaagtgga cagcaccacc cttactggct gtcccagtga cctgggggtca
33901 cttctctgtg ctttgctctt ctcatctcta acatagagat actaaaagaa
33951 cctgctgcct tggactgctg tggaggatta aatgcattca gatatgaaag
34001 tacttggaac agtgccttgc acacagcaag cattagcttt atattcatcc
34051 agaccatccc tttatattca tcaaaagcca acaagtgagg cctccagccc
34101 ggggccaaga gcctattgat gacaccaacc tcttgctctt ggggacgcag
34151 gccgtagctg ggccaaacct agaccacccc ttgccccaca tgagttacag
34201 gtggagaggt actcaaagag taaagaagag agacgccc atgctccgggtc
34251 tactgagaac ttctcttccc tctcgctaga ttaactatga agtcaggaag
34301 ctggtgaatg tctacagaaa cacaaagtag aaaacagatc tgggtccatt
34351 ccttcctaaa acattgaatg ccaaccatc ataagagctc agatatgtcc
34401 taagggccaa gttatgtttg aacctcagca tagcaatgtt atcaaaaaag
34451 cccgctgggt ctccacctct ccatatcagt attctgtctt aagctgaagt
34501 atcagtgact acttactgag caccactac aatcagagca ctgttttaac
34551 ggctaggaat tgtaaagaaa acaatggtac ctggttctac agaagctcat
34601 tcattctcca agttaacaaa tatttattaa attctcactt tgtgccaggc
34651 actaaggaaa cagcagtga cacagcagat taaagccctg ccttctgggtg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

23 / 338

```

34701 cacataatgt tgggagatag agatagataa taaacaaata gctaggtaaa
34751 ttaaatagta tgtcagttga taataagcaa tatggagaaa ataccataga
34801 gagggagtgct ctgaatggag gtgagtaatt cacaacagcc aggatgctga
34851 ctgcagactc agtgagcctg cctcagcgcc accatggtgg gtggggaagg
34901 gaataagggg ggcttcagca gaggctgggg tagtccatca ggccaaggag
34951 caaatgggaa aaaccaaaga gactcaggga ttcgcagccc atgagagcca
35001 tggggaagat gtcaagtgtc cctgatagca tcacctgagt ccaagaaaga
35051 agctacctct tcaactagcca caggcccatg cgcccaaggc tagcagagcc
35101 actggtgacc aggcaggaag ggaacatgga actggagtct agcaaatgcc
35151 agcccctgac accccaggag ccggcgtgaa gcttcataag gacctctccc
35201 tctagcttta agccactgac ccctctcccc gtacacctgg gccaccttga
35251 ggaaaggcat gatgtctgag agaagggaac actgcccaga ggggctgctt
35301 aactgatccg cctggatcat gccttaccta ggctagagca ttcatttctc
35351 ttgttgagag cacaggggaa aatcaaatac actataaatg aagaaattac
35401 attttctctg cctaggggga ggagacaggg aggaagaaaa agtggaact
35451 gtgagtacag aaactatttt gaggagtttt gcatgaaaat gatccaggag
35501 agaaaaactg atgacaagag agagagaaag agaattgacg cagtgatgtc
35551 tggaggagga gaaaggagca cttaaggggc agagctgact tcagctgcaa
35601 gtaccaccaa ctgtcccagg ggagcacgag cagaggtggg ggtgtggtag
35651 ttatcttcag agaaacaggg tgcaaggaaa cctcccaaag gaaggggtgg
35701 tgggtgttgg gtctaaggag agaggagggg gtataaacca gcagcctggt
35751 ggtgggagag tgaatgaggt caggtgagag ttgggaaggc cgggggaacg
35801 aagcaccctg ctagagggtt tgctttcaag tgaaacaacg ccatgtgaga
35851 gcaggcaagg agtaggcagg gaattcggct tcaccagggt tgtggtgctc
35901 ttggtggatg gacgaggctg acaatggaga aaagagcaag ggagtcgagg
35951 gcgtctgtgt gggagtgatg gcgactgccc gtggaattta cgttgggtaa
36001 aggaagaaag tgaagacctg gggcaggcaa gggaccggga aaaggaagga
36051 ggagccagcg atggaggctg cagtgggttg aaggattacc ggaactgagg
36101 tgctagggga agagagctaa aaagagagcg ggcggagggtc agaaagaggg
36151 ctgactgaag tggaggtgga ggaaggctgg caggcaaccg tgaggtgtaa
36201 gttccgtcga caggcgcggc tgagatcggg tggagagcaa ggtcataggt
36251 ggaaaggagg tcaacaaact agaggccaag gcattccaag actcggcatg
36301 ggtgtgaacg gccgcagatg cagtgcctca aagagagcgc aggcacctgt
36351 ccctcaggga ctacgggtga ccacggagga aagcgctagg gagggcggtt
36401 ttaggaccgc tggaaacagc agcgatgagg gaggcgacag gtgtccctcc
36451 tccaagctca cagtctgcat gtgagagaga actgcaggag aagcttgccc
36501 taggcaaagc caggtgtcag gtccagaatc gagactccag agaagaggtt
36551 gaggatttaa gccactgagg ggggtggagct gggcagtgag taggacgtca
36601 ggcttgcaag ctctgggatt aggcgacca gagcccatat ccagtcctcg
36651 cctcttactg cctgcttgat ctcaagcaag accgctttgt tcatgggcca
36701 aaggagcgcc ccgggccatg aggattaaat ggagagcaca gggccagatc
36751 catctaaatt ctcaagtaag gttagctatt gttattaaga ccacaccgaa
36801 cagactgaac atccgtttta gcccctttcc ccaattttcg ttctttccgg
36851 tggttgacaaa tcctctagtt ttttaagttt ataaaacatg ttgtacataa
36901 gaatgacata tcacatgtga aagtactcta gtgtccacgt aaatatttgt
36951 cttgttcttt ataataagta aacatgctca cggatccttg aaattatctg
37001 gtcactgccg ggcgcggttg ctcacgcctg taatcccagc actttgggag
37051 gtcgaggcgg gtggaccacc tggggtcagg agttcgagac caggctggcc
37101 aacatggcga aaccctgact acacaaaaaa cacaaaattt agccggggct
37151 tgggcgctcc tgtgtctcca gctactcagg aggctgaggt gggaggactg
37201 cttgagcctg ggaggtcgag gctgcagtga gctgtgatcg cgccacttaa
37251 actccagcct ggacgacagt gagaccctgt ctcaagaaga aaaaaagaaa
37301 gaaagaaaga aaaaaagaaa aaaaagaaat tatttggtca attatatggt
37351 cagctccctc caccactcgc gaatttacag aagaggagaa ctgggctggg
37401 cgagaccagg actagcccaa gattacacaa gttactcggg ttagagacca
37451 ggattagaca ggagaggctc tagattctgg tctagactcc cctcctatta
37501 tttagcatta tggcttctg aggattacca tgagccctcc tccaccgtca
37551 agcggcagct accagccacc agaccagatc ccttcgaagg tgcccggagt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

24 / 338

```

37601 accagactga caaaagcgcc cgtacagtgc tcagtcctgt aaccaaagct
37651 gtctaggggtg cagacatcgc tcaccggacc gggtagggct cgtgcgctaa
37701 gggcgccggg tattccagtt agtggagagg gaagcgccct ggaactgcat
37751 gggcccggga gagggcgcgg gagcggagca gggccgggcc ggggcccggc
37801 gcggccgtgg gcggagactg cgcgcagcta gctcgggagc gcctcggagc
37851 ccaccccgcg gagccgcttc tcgcgccccg cagcgcagcg cagcgcctcg
37901 ccgtctgacc tgccgcgccc gcagcgtgcg ggctgggaaa ggaggcgctc
37951 accgagaggg accacgcgcc aggtctccag cccgaccgag gacgcggcgg
38001 ccgcgcggag caccatggg cagcccctgg aacggcagcg acggccccga
38051 gggggcgcgg gagccgcgct ggcccgcgct gccgccttgc gacgagcgcc
38101 gctgctcgcc ctttcccctg ggggcgctgg tgccggtgac cgctgtgtgc
38151 ctgtgcctgt tcgtcgtcgg ggtgagcggc aacgtggtga ccgtgatgct
38201 gatcggggcg taccgggaca tgcggaccac caccaacttg tacctgggca
38251 gcatggccgt gtccgacctc ctcatcctgc tcgggctgcc gtccgacctg
38301 taccgcctct ggcgctcgcg gccctgggtg ttcggggcgc tgctctgccg
38351 cctgtccctc tacgtgggag agggctgcac ctacgccacg ctgctgcaca
38401 tgaccgcgct cagcgtcagc cgctacctgg ccactctgcc ccgctccgc
38451 gccgcgctct tggtcacccg gcgcgcgctc cgcgcgctca tcgtgtgtct
38501 ctgggcccgtg gcgctgctct ctgccggtcc cttcttggtc ctggtgggag
38551 tcgagcagga ccccgccatc tccgtagtcc cgggcctcaa tggcaccgcg
38601 cggatcgccct cctcgccctc cgcctcgtcg ccgcctctct ggctctcgcg
38651 ggcgccaccg ccgtccccgc cgtcggggcc cgagaccgag gaggccgcgg
38701 cgctgttcag ccgcgaatgc cggccgagcc ccgcgcagct gggcgcgctg
38751 cgtgtcatgc tgtgggtcac caccgcctac ttcttccctg ctttctgtg
38801 cctcagcatc ctctacgggc tcctcggggc ggagctgtgg agcagccggc
38851 ggccgctgag agggccggcc gcctcggggc gggagagagg ccaccggcag
38901 accgtccgag tcttgcgtaa gtggagccgc cgtgggtcca aagacgcctg
38951 cctgcagtcc gcccgcgagg ggaccgcgca aacgtgggt ccccttccc
39001 tgctcgccca gctctgggag ccgcttccag ctcccttcc tatttcgatt
39051 ccagcctcca cccgcgggta cttcccatcc cccgagaaaa ccattgctctg
39101 tccccagga gctctggggg accccagggc gctttgaggg tgggatcccc
39151 ggatccgatt cagtaaccag cagtgccttt ccagagcctc tgagaccaga
39201 aaggagagtt ggtaattctt aatccaacca cctgttagat gccacagatg
39251 aggagtccct acagtgcctc tgagaagacg agggagattt cattaagcta
39301 aaatttttta tttaatgtta agtgatgctg aaggctaaag taaaccttgc
39351 tcgtatcaaa aagtaaagat tgtgcagacc tgtttagtaa ttcttttcaa
39401 cagagaacag aaaacttgct tccgaagtgg gtttgtggaa ggaagcctgc
39451 caaggcggct tgttcagaga aattgctcct tctggtttat gtccagcctt
39501 gataacacat atgggagcct actatgcagt tttaaagcaa gtatccatgc
39551 agcctgcagc ctggctcattt tttctggggg gaggatctgc ctaggtagaa
39601 gttttctcta atttattttg ctgttacttg ttattgcaga tggttccttg
39651 tcgggggtggg gggtttattt gcttcccaat gcttttgtaa atcccgtgct
39701 tgtgtcttat gttgcagtgg tgggtggtct ggcatttata atttgctggg
39751 tgcccttcca cgttggcaga atcatttaca taaacacgga agattcgcgg
39801 atgatgtact tctctcagta ctttaacatc gtcgctctgc aacttttcta
39851 tctgagcgca tctatcaacc caatcctcta caacctcatt tcaaagaagt
39901 acagagcggc ggccttttaa ctgctgctcg caaggaagtc caggccgaga
39951 ggcttccaca gaagcaggga cactgcgggg gaagttgcag gggacactgg
40001 aggagacacg gtgggctaca ccgagacaag cgctaactg aagacgatgg
40051 gataaccagc acggccaagc caggctcctc ttgcagttct aagactttgg
40101 ggaaaacagg tgtgtagaga aataaagact gcaaagtagg aacagatcct
40151 gttaagaaga atggaaagag ggttgcagtt gtgccagttg gttaagaagt
40201 agaccgcatg atttatttaa ccaaggatg aatgtaact gcgccaacct
40251 ttctagtttc cttcccacgt acctcctaag gaaggctgat ttaccatca
40301 tgaaatccca catctcaaag tgtgctcttg tgtgatgggt tcatgaagtc
40351 ctcatctctc tactcttcgg aaagatgatt gttcatttta cagttaaagt
40401 atacacaaag atgctgcccc aaaactgcca cctctgagat catgagtgtg
40451 ttttatgttt tggatgtaaa tgtaacagta catctacaag gaaccaggat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

25 / 338

```

40501 aatgatagtt ttgatccaag aaatgattta atacctatgt atggctgcaa
40551 aaacttttag aagtaaaagg aattctgggt agactccagt gttcaggggt
40601 cccacctctc tccagatcac agcaaatcat aaagtttagg caaaataata
40651 gcctctttca gaagtattaa gcaatttgtt tgcaaccacac ttctccttga
40701 cactgcccac gggaccttcc cagtgccact ggccatgggg tggcaaactt
40751 tgggcatcaa catttgagag tagagagctc agcaggacat ggctttctcc
40801 agtgactaca aatgacgttt gtaaagagct atttaatatg ctttatctca
40851 cctcagcttg gtggggtgag tactgttgtc aacattcctg ttttggaagt
40901 gagtcttgga ttgcccacac aggagctggg gagctggagt ctgaatccag
40951 tgtttaagtt gctcacccaa tcccaagcca agatgctgtc cttactgaaa
41001 aacgccagcc aatggattta gtcaagagtg aaagagaact cactggacat
41051 tctgatcaac aactctgtaa ctttgttttg ttttttagag tttaaaacac
41101 aaatattttt agagggttac tgctgtcact cagctccaaa gggcttcact
41151 tatgccacct tctgtatgaa tggcaccccc aagatgtggg cagggtacag
41201 ctttcacagt tgtacatggg accttttttg gggctttcag attgataaat
41251 tcaaacctaa attacaatag gatcttgatt tgtatgagga atttgcctg
41301 agaccttcac gaatcttcac atctacaaat accagaaaaa tgacaaatgc
41351 tataacttca gagttataaa gacagataga cataaagtca cattgagact
41401 tggaggctag agaggcagct ccgttgattc actgacttga tgtctctgct
41451 tcacagccca cagtttggtt ggctttggta aatgtctaaa ttactttccg
41501 ccacaggcca ccatagtctc ttttgaatag ttaaaactac aaaagatgaa
41551 tacataaata acaagggtct gcccgacatg cattcaaagt tctgttgctt
41601 tctcattttc ttagccaaag ccctagctca gtccccagcc cggccacaaa
41651 ttggcacagg aatgaagtct ctctgttgct ttttctccta gctagtggaa
41701 gaagcagatt gcagtcactt caggaagcat tccctaaact gtgttctgca
41751 gattttccagg gattattgga aaaaatgggt ctgggggttaa atatggcagg
41801 aaaataccac attgtgttcc ccctaccaca ccctaaacat ttcacacaca
41851 taacacaata tagcatgtca gaggtctctg gaagttgtct caaccaacat
41901 ttccttgact tatttttatca cagaaccaac tctccatctt ccctcccaag
41951 aacacttagt aaaatctcat ggagtggaga atactttggg gagcactgat
42001 gtaggggttc tgacagtgga ggtgtcagcc tggagcctcc ataactctct
42051 gcttggtagc actgagtaca gcagctgcca cagtccttct gctcatggga
42101 gctcctctct ggagcagtca ggagtggcca cctccctagg gaaagtcaca
42151 gcaaagaacc ttattaagat gtatataata ttttatttta tttttttaga
42201 gacaggatct caccctgttg cccaggctgg agtgcagtgg cacaatcata
42251 gctcactgta accttaaat cctggattca aaccatcctc ccacctcagc
42301 ctccccagta ggcaggacta caggcacaca ccacatgcc tggctaattt
42351 tttagttttt tgtaaagttg gggcttgct gtgttgccca ggctggctc
42401 aaactcctgg cctcaagcaa tcctcctgcc tcagcttccc aaagtgtggt
42451 gattacaggc atgagccacc acacctggct catgtataat attctaaatg
42501 tagaagcaaa gacctctctt ttgagctttc tcgttcagaa tctagaaaac
42551 aaggatttac atgacacttt cctgggactt aagcatgttt ccagggtgtg
42601 gcatagggag gattatcctt ccctccag atggtacctg agatggaggg
42651 cctgaaggcc atcccttcct tcaggattct tgtgtggtct cagcctacta
42701 gtggactgtg aaatcagtaa gtgtgtcata tttttcttta atggaacagt
42751 gtggacaaga atagagtcca ttgtgtatca catgtactaa ggtaactatt
42801 gtgctgtgaa acttttgttt caattatgtt ttggttggtg tctttcccgg
42851 ttcacaaaat aaaatacatt ctaactgtgg gtcagtgtgg aaaatgttta
42901 aaaagttgtt ctaagatcta aagtttttct ctgttcttac actgacaact
42951 ggctatgaaa agggaggcca agtcagcgaa tcaactggagc aggagaatca
43001 ctgagctctg gtttccagtc cagggtccc taccaccca acccagggtg
43051 gtaatcatgg aggctatggg ccagccactc cctccacccc aacagagacc
43101 cgtgctggca ttccagccac ttctctttga gccccctctc cttctgcag
43151 gcagaaccac ttttgttagg tgagctgcca accttggaag agagtttgta
43201 tttcattcat tccatggca aatatttacc aagcaactgc taagtgccag
43251 acgtgtataa tacaatacac tagaaaaact agtccatgtg atgatgaaa
43301 aatcaatcaa ctttctaagt gcattctctg tttgaaatgt gtattgtgtc
43351 atctagacta acatggattc accatttaga tcagatggaa gtgcagaaca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

26 / 338

43401 tcagggtttgc actatctgtc tggatgttcc tcctcttttg tatgtgagac
43451 atttccactt ctgaaggaaa tgttcaaaga gctattgcac aacatccact
43501 gggatccaag agttccctgt gccaggttct caaagagaca caggcaacgt
43551 gctaattggtg ttgaaaattc aaacacgccc tctcctgacc ctttctactc
43601 atgtcataat gacatttgcc agtatatgga agcaaatttt agtggttgca
43651 caggcttagt gtgttttggt ttgttttaga gacagggtct tcctctgtca
43701 cccaggctgg agtgcagtgg cttgatcaca gctcacttta gcctcaactt
43751 gctgggctca agcaatcctc ccacctcagc ctctcaagta gctaggacta
43801 taggcacaca tcactctcac acctagctaa ttaaaaaaaaa atttttttta
43851 agagataggg ttttattatg ttgccaggc tgggtctcaa gtcctggcct
43901 caatcgatcc tcacacctca gcctcccagg gtactgggat tataggcata
43951 agccaccacg cccagcttag gtttagtggt ttaaaagtgg ctttacttaa
44001 acatagatgg gatgcaatat ttaattatga gcccaatttc taaggattcc
44051 aaaccctatt acagagcccc tagtcttcta cgaggagcct ttgaattcag
44101 cgtttcctct tctgagcgca cagggcacag gctccaaagg aatgctctgt
44151 ggaagtcact caacctgtcc ctgggtgtaca ctatgtctct ggtgtacact
44201 acagaggagg ggactcgacc ggccccctta ggaaaacact acacactttt
44251 taaatagtgc acacctgtgt actaagggtt aaaaggcttt ttattcccca
44301 cactaattct ctgggtcagt ggttctcaaa cttcagcctg catcagaatc
44351 acctggagga cgtggtaaga cacagattgc tgggcttccc ccagagggtt
44401 ttggagttag taggtctggg gtggggccca agaactctgta tttctattga
44451 attcccaggt attgctggtt tatgtcccag gtgaaacaca gcgggatggc
44501 ataagatttc atcacactac tcagggcacg ctcgactgaa aacctaacaa
44551 ctgtttaatt ctgaaatttt ccatttaata gttttggacc atggttgacc
44601 acaggtaact gaaacctcag aaagcgaaac tatggataag ggggactact
44651 ttgtgggtcc aaagaagcca tccagctgga aaagtctgt tgttgcatth
44701 tccacaggct cctgcaaata ggtcctgatg gtcaaatact cttttttttt
44751 tttttttttt ttttgatata gggctcact ctgtcaccca tgctggagtg
44801 cagtggcaca atcacggctc actgcagcct cagcctcccg gactcagatg
44851 atcctctcac ctcagcctcc tgagtagctg ggactacagg tgcacaccac
44901 cacaccaga taatttttta atttttttgt agagacaagg tttcaccatg
44951 ttgctcagac tattctcaaa ctctaagct caagcaatct gccctccttg
45001 gcctcccaaa atgttgggat tataggcgtg agccaccatg cctcagcact
45051 taaatacttt taagaaatgt tgcaatacta tataaactct ttttgccat
45101 acagcttttt ttttcctctc atatattaac attccccaaa atactccacc
45151 ttgaaattct agagagaagt ttgggtatga agtcagggtt caccataaag
45201 atttgggagg caacagcatg gaaatgatca tcttatccag tgcctcaaaa
45251 acttttgctt gcatcagaaa cactagaggg cttcttaaaa cacggatttc
45301 tgggcccact ccagaagttc tgattctgta agtctgagaa tttgcatttc
45351 tgtgtagtth gcagggtgtg ctgctgctgc aactccagga tcacactttg
45401 agaaccactg atttaagtga tagaaataga tggccccgac taggagaaag
45451 cttaccaaga tcaaagcaga ggtgcaggga tgcactctaa tgatccccac
45501 gctggctgga agtcacaaaa gcaggcagaa gagcagaaaa gaaaaagcat
45551 gtgatgcatg tgatacaacc caaaggaaga gcgtttcaca gagggctcga
45601 ggtcaagggg tcacgcacca cagggaacac aaagagaatg aagtaggggt
45651 gccagacgaa attcagagcc tgaaactaaa tttgaatttc tgataaacia
45701 catatattht atgtataagt ttaaataatta ttagcatgac aactaagggt
45751 ccaggcgtgg tggcaaacac cgggagtccc agcacttttg gaggccgagg
45801 caggagggtt acttgagacc aataattcaa caccagcctg gcaatatagc
45851 aagatctcat ttccacaaaa aaatgcattt cttcattagc tgggcatggt
45901 ggcgtgcccc tgttgctcta gttacttgaa aggctgaggt gggaggatag
45951 cttgagctca ggagtttgag actgcagtga gctctgatca cgctaccgca
46001 ctttaaaaaat atagcatacc tattacttac attttaaaat catttattat
46051 ttatctgaaa tccacattta aatgggcact ctatttttat ttttaaatct
46101 ggtaacccta ggatactggc aatggaaaga ccacagagtc tggcaaaagg
46151 aaggaaatcta gaaagtgcct ttcaagagag tgctggggca ggagccggaa
46201 gatggtaagt tgaaaggaaa tggccactga gcaacagtgg gttagatggt
46251 cccagccttg gggccctctt tgtgcaggga gctcagcagc tgattaagca

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

27 / 338

```

46301 actttgcccgc tagtcctgta ctgtactgac ttgtaccccc acccaagagc
46351 cagcctctcc tgcctgtggct tgtatcccag caccaccagtt aggaaagcac
46401 ctaccgccct tgtgttaggc atctgcactg cacagtcagt aattattttg
46451 atttttttaa atcacaaaac tgaagaatgt gtctgattca gaacttcctg
46501 gaatataatg tgtcatgaca atctgtcaaa ctgaagaagc ttcgtttgta
46551 tctaacctgt tcctaggtgt ttatgtacac ttaggcattt ttttaaggct
46601 taattttctc tttctgcaaa aggggttgaa tgaaataaaa ttttgtaaa
46651 tgaataatta atttacaatg aggggtgggt cttttcttct ttttgagac
46701 agggctctac tctgtctccc aggctggaga gcagtggcgt gatcagagct
46751 cacttgcagc ctccacctcc caggctcatg caatcctccc acctcagcct
46801 cccaagtagc ttggactata ggacacacacc accacacca gctaattttt
46851 gaattttttg tagagactga gtctcaccat gttgccaag ctggtcttga
46901 actcctgggc tcaagtaatc cgcctgcctc agcctcccaa agtgctggga
46951 ttctaggcat gagccactgc tccaagctgg gtggttcttc ttctaaaaaa
47001 aatgtaactc tgtgtgatga ctgagaccat aaaggataat gaagtaatat
47051 ttaaactctgt gtaaagcaac tagcattgtg ccgggtagta atagatttga
47101 taaatactac ttaaagttaa atggaggata gcaacatttt ggacagggaa
47151 aaatatcgat ttcttaaaaa ctaagttcat tgcagtatta taatacatta
47201 taatggagtg tttagttata taactattgc aatgtacgta taacataata
47251 taatacaagg tacttggtat gccatctgga atgcagtaat tctcagtaaa
47301 tgtgagctag cattttttgtc ctgagttcat atcctattaa ctatcacttg
47351 ttgggtcttt ttgtttgttt ttaaaaacat gaaacaaaag tactgaacat
47401 ttattttcta aaaatccaac aactcataag aggcattatc acttcattac
47451 ttagcttttt aaggacacacc attggcattt tactcccaa ggatgctatc
47501 tttcactgaa agtcttcagt tattttttgt atttataata accccattca
47551 tatgattctg agttatcctc cagcatgcat ctttaaaaac tggattcttg
47601 tgcctaatagc aagcatctgg ctttcttaaa taaagatgaa aatggccagg
47651 tgcaatggat tgagccttat agtccgagct acgcaagagg ctgaggtggg
47701 gactactctc ttaagcccag ggggttgaaac ctgcagttag ctatgatcga
47751 gccaccgcac tccagcctag gcaacagagc aagacctcac ctctaaaaat
47801 aaataaaaaat aaaaatgcat ttcataaaca catttcccag tagcagttcc
47851 taagttggat tctttaaatg ttcctttact aatttccata tacattttga
47901 tttccttcga caaggaaaaa atacaaagta tattttatgt ttaagttgtt
47951 gggctatata taaaaatgaa taggcctgta atcccagcac tttgggaggc
48001 agaggtgggt ggatcacttg aggtcaggag tttgagaaca gcctggccaa
48051 catggtaaaa ccctgtctct actaaaaata caaaaaaaaa aaaaaacca
48101 actagctgga cgtggtggca catccctgta atctcagcta ctcgggaggc
48151 tgaggcatga gaatcacttg aacacaggag gtagaggttg cagtgagccg
48201 ggattgtgcc attgcactcc agcctgggca acagagttag actgtctcaa
48251 aataataata ataataatag gaccaggacc cttaacctca agattctgtg
48301 acttgtcagg atgggggaaa aaaagtatgt aaataagtat agatgtgatt
48351 aaataagttt taataaagag caggggaatt tagagaaact gtaccaagca
48401 ttaaagtat tacttttagt aaccagaaat tccttccatg gatgtagtta
48451 agattttata gtatttgga ggccaaggca ggaggaccat ttgaagccag
48501 gagttcaaga ccagcctggg caacatagca agaccctgtc tctacaaaaa
48551 aaactaaaaa gttagccagg tgtgggagtg cacacctgta gtcccaagct
48601 gctagagagg ctgaggcagg agaactactt gagcccagga gttcaaggct
48651 gcagtgagtt atgcttgcac cactgcactc tagcctgggt gacagagtga
48701 gaccctgtct caaaaaataa taataataaa ataaaagatg ttatagtgat
48751 tgttggctca aaccatgcaa actctgtctga acatagttta ttaacaataa
48801 ctctccatct gaggagtcac taaatctttc tgagctcagt ttgctcacat
48851 gtaaagtaag aaggtagaa ccaaattatt tgtcatctct tctacataaa
48901 ttattctgtg aatccctcac ttccctcagc cttgtaggtt tgggtatatt
48951 ttagaaattt gctagaatta ggccaggtag agtagctctc acctgtaatc
49001 ccaacacttt gggaagccaa aacaggagga tcgcttaagc ccaggagttc
49051 aagaccagcc taggcaacat gacgaaatct catctctaca aaaactacaa
49101 aaacatccag gtgtggcggt gcatgtctgt agtcccagct actcgggagg
49151 ctgaggtggg aggatcactt gagcccagga ggtcaaggct gcagttagct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

28 / 338

49201 gtgattgtac cactgcactc cagcctgggt aagagagcaa gaccctgcct
49251 caaaaaaaaa aaaaaaaaaa aagtactaga attaaacaaa agagacttgt
49301 tgcacctaaa atagcttttt ataaagcttt caagtccatg aggttgattt
49351 tcatttataa tacagttgct aacaagttgg gtcactctgct gtgcccacca
49401 atagcatggt aaaagcattc aataggatgg cacaagagag gaagggctat
49451 tagcaacaga acagtgatgt tgggagatgg ggtaactaga ctgacaggaa
49501 agaatgagga aaagtgggac atccaatggg gaggtccatc acactgatcc
49551 tgagcccccg acggcaacac caaactatgc tcagcacttt ttaaagaaat
49601 tattttaaact gacaaataaa aattgtatat gtttattgta tgcaacatga
49651 tgttttgata gatatatggt gtatacattg tggaatggct aaatcaagct
49701 aattagcata tctgatacct cacatacttt tttggtaaga atatttataa
49751 tctactgtct tcgcaatttt tagatataca atttattttt gttaaccata
49801 gtcaccatga tgtacaatag atttgctttc ttttcttttc ttgtttgaca
49851 caggggtcttg ttctgtcgcc caggatggag tgcagtggca tgatcatggc
49901 tcaatgcagc ctcgacttca ggggctcaag tgatcctgct gcctcagcct
49951 cctgagtaac tgtgactaca ggtgtgcgcc accatacctg actaattttt
50001 aaattttttt tgtagagata gcgtatcact ttgttgccca ttctggcccc
50051 aagcaatcct cctgtctcga cctcacaaaa tgctgggatt acaggcatgt
50101 ggcaccacac tcagccatga ttgcttgaat ttattccctc tgactaactg
50151 aaattttgaa tcctttgacc aacacctccc caatctctcc ctgcttccgt
50201 ttcttggtaa ctgttttact ctctgctttt tatgagttca atttttttag
50251 attccacata tgagtgagat tatgtgggat ttgcctttct gtgcctggct
50301 tattttcccat aacataatgt ccttcaagtt catctgtggt gttgcaaatg
50351 gcaggatttc cttctgtttt aaggctgaat agtattccaa tgtatgcata
50401 tatgtatgta tgtatgtata aaccacattt tcctatacac tcatccattg
50451 atgggcacct aggttgattc catatcttgg ctattgactt gttcattttt
50501 aagaatcagt ctttctgccc acaatgtgtg gtgtcttccg tacacacatg
50551 gtgggggctg atcaggaggt agtgggtgtg tcagggtatat ttgtgtccac
50601 caggtttcct tccaaaatga atgtccaggc tactgggctt ttagagaaat
50651 agtcccaagg tatctacgca ctctgctggt cttggaaagt caggatttgt
50701 cgtaagcaca tctgtcgcat tggaagcatc tgaagaaaac tgttcttttt
50751 cttaacgggc attgcaactg cttttaggat tccacagtgt taaatctgcc
50801 ctttcttttag agcagtcag aaagatgtaa taactgaagg aaatgggcct
50851 tcctccactg ataggcatga tgcttttgaa atttaagtgg agctcttgca
50901 tttgtttttt gtatggacgg tataaggaat ggcacaaacg ctagatggaa
50951 tagctttata gctgttgagc atttgtgctc ttttgtgcat caatagattt
51001 ctatttcatt ggtttcattt gttcttaaaa atgccctatt tttattttat
51051 ttattttatt ttttgagatg gagtctcgct ctgtcaccag gctagagtgc
51101 attggcacga tctcggtcga ctgcaacctc tgcctcctgg gttcaagcaa
51151 ttctcctgct tcagcctcct gagtagctgg gactacaggc acctgccacc
51201 aagcctggct aatttttgta tttttagtag agattgggtt tcaccatggt
51251 ggctaggatg gtctcaatct cttgacctca tgatccaccc gcctcaaaaa
51301 atgccctatc ttaacaagag cctttggggg gaaaattcca gtggcaaact
51351 tctggcatct tcttgacagg cagcagctta actacagtta tcacattcac
51401 aaatgaagtg gtaaaaaata ttgaatttta ttatactttt tggtttgagg
51451 aagccactaa tgtggccact aaacatgatg ttcaaataaa accttctggg
51501 aagtttttca gggattacca ggataacct gaatctcaac tagcctttga
51551 cattattaga aacagtgtcc caatggtaga gcacattatt cagaaactta
51601 gatttttctca gatcagcacc tcaaagtact tatactaaga cacaggacat
51651 ctccagctca acatgtcaga gtaacacact gctgacatgt acagagtgc
51701 tcaccaatct agacgcactt ctatggagct ccattgctgg aagatcaagt
51751 ggaaatacac acggaaaggc aaagaacttc tatctgttca caatttatga
51801 tgctcgctat ctgcctgaca tctatgtctc tttcttaatg tttacatatc
51851 atttcaggtc ctgtgttccc aggatggaga ctgagagtga gcacagatgg
51901 atgtaagcat cacaaaatat gcccaaaaaa aactgacca gaggtcaggt
51951 catgtcactt ggttaacata actcttaata caaaacatgg tttgcattta
52001 atgatagaca cataaagcaa actctataca aatgagtcag agcctccaaa
52051 agtaactcgg aaattactga caatacctga gataatattt taagatgctt

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

29 / 338

52101 tgtttttcac tattaggaag taaaactatg atttgcatta ggccacttag
52151 tcactaaagg taaatttggc tacaggcctc ccaccaaadc cattagccat
52201 ctatgtccta catgttgaat aatcacagcc tgaacttgca tgctttgaaa
52251 acttctctgt ctccaagaag atggtattca aagtgtcaag tttcatttct
52301 gtgcgatgcc cgccagtggc gtgatgaagg gattaaagtc attttgggaa
52351 ttacatttat aatctacca tctaattgacc aggatttgag ttatcagctt
52401 ttggaagaaa taaatgttga ggaagtgagg gagggagaaa aaaatttata
52451 caaaagaacg aagcttccaa ctcaaataca ttgtgtttta agtgcactat
52501 taaaactatt ccataaggaa tagtttagga agttaccaga aagtgataga
52551 aactgtgtgc tcacctgaac aggatttcag ggtaaacttt gtcttcatca
52601 aagaatggac agtagccagg tccagtggct caggctgtaa tccagcactt
52651 tgagaggtgg agttgggaag atcccttgag gcccgaggtt acagaccagc
52701 ctggtcaata tagtgggacc ccattctctta aaaaaaaaaat aaagaaagag
52751 aaaggaagga ggggagggga gtggagggga ggggagggga ggcgaaaggg
52801 aagggggaag tgtggagggga tggaggggga aggggagggg agggaggaag
52851 gaagaaagga aggagttaca gttacagttt gaatggaggg atgcctcact
52901 gttgccccac atgtgttgct ggggcttgca cccctttgtt gtatctctac
52951 cctaactggg ccattcagctt tttagcggac cacacatgaa ccctctgttt
53001 tacaagcaag acagaacatg agttcacaga cactgacaac tgatttgtct
53051 ctcttttggt attctttggt tttttttcat tgcctcatct tgatttatat
53101 gcataagcat cttgatttat ttttgcaaaa aaaaacttcc aaaaataaaa
53151 gttttgtagt ttacctagga ataatacaca aaatattgca tttttgtgag
53201 gaaaagctat ttgtatagtt tatttcaatc taataatatt tgaaatttgt
53251 ttgaaaagca aaataaaaag aagcactgca gagtaactgt gtgattgcct
53301 gatgggttgt cctgcctgct acacagacaa aaccaattca ctgggaacac
53351 ggtactatag taaagaataa gtttaattaa ctaaggccag ccaagtggaa
53401 gaactggagt tattactaaa atcagttttg ctgagaactc agaagccaga
53451 gtttttatgg ataatttggg gggcaggggg ctagggaatg gatgctgctg
53501 cttgggttggg gatgaaatca taggggtgtg gaaaacagtc ttcattgcatt
53551 gagtcggcct ctgggtgtgc gccacaggac cagctgagtt atgcattcat
53601 ggtccgggta ggatcagttg gttaccagaa tgcaaaagtc tgaaaaatac
53651 atcaaaagat caatcttaga ttctacaata gtgatgttat ctataggagc
53701 aatgactcct gggcagtaag agagtatgaa aactatgccc atatttagca
53751 gaattcaggc cgtcccataa tcctaacctc gtggcctttc attagactta
53801 caaaggcagt tttagttcct ggacaaggag agggtcattt tagggagaga
53851 ctactgcttt caagttaaac tataaactaa attcttccca tggtagctt
53901 ggcctatgac caggaatgag tgaggacagc cagcctgtga acctagaagc
53951 aagacggggt cagccatgct agatttttct gactgtcata atctttgcaa
54001 aggcagtttc aactgtccag attatttagg tcaactcagg gaaatgtata
54051 tgatgcacat gtaaaactaac aacattcagc ttttgtcata tgagtgacta
54101 tgtaaatgtg aataaattac atttttagctg ttgataagac atatgtgcat
54151 tattgcataa gtatgcaaat actaactccc tcttcttcct caaggcactt
54201 tgaactaaag agtcctcaaa tctgaacatt ctttttatta aaataaattt
54251 gtgctccaaa aagcatataa agcaatttat aaaagcatct aaaataaaac
54301 acacatgaag taaatgggga aagtagaaac taacaaaaaa ttaggatagg
54351 caaaataaga ttataccagg aggaaaatga ggacataaaa ttcattatcct
54401 ggtgtatggg taagaagttt acgtgattca tgggagacag gagaatcgat
54451 ccttcaagta ttccaagatg acatcttaaa agctagaaaa ctatgtcctc
54501 aacaacaatc tttaaggcaa gcataagtaaat gaatgtccta gagctttttc
54551 ttataaagcc aatgagaaaa attgtcccac atttggaata tgattaaata
54601 gtgactactt aaattttttt gctatgcatt tttttttttt tttgagatag
54651 agtcttgctc tgtcaccag gctagagtgc agtgacacaa tctcggtcct
54701 ctgcaacctc cacttcctag gttcaagcaa ttctcctgcc tcagtctccc
54751 aagtagctgt gattacaagt gtatgatacc accacaccgg ctaatttttag
54801 tatttagtag agatagggtt ttgccatgtt agccaggctg gtctcaaact
54851 cctgacttcg tgatccacct gccttggtct cccaaagtgg tgggattaca
54901 ggcgtgagcc attgtgcca gtcacatttt ctagtattag aaaataacat
54951 gactgcttga ataaaagcag gacattgtta aagggaactc tcatttgata

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

30 / 338

```

55001 ttcgggggga atgcaagttt gttgtcacat tttttaaatt aatagcacac
55051 aattcataga agcatagccc tctaaaaaga gattaccttg ctgaaactga
55101 aaaagtgtta ggattttata gcctttttta ataatgtaa taaccccaaa
55151 caagatacca ctatatacct attacaatgg ccaaattcca gaacactgac
55201 aataacaaat gcaggtgagg aagtggagca accagagctc tcatttgtca
55251 atgaaaagag tcaaattcta aaaaaatctt tgaagagatt tactttgagc
55301 taaatatgag agaccaatga cccgtgacac agccctcagg agatcctgag
55351 aacatgtgtc caaggtgggtc aggggtacaag ttggttttat acaatttagg
55401 gagatataag acatcaatta atacatgtaa gatgtatact ggtaggtctt
55451 ggaaaggcag gaaaaccgga agtggggact tccagggtcat agttggattc
55501 acaggttttc tgactggcaa ttgtttgaaa gagttattat ctaaagacct
55551 ggaatcaata gaaaggaatg tctgggttaa gataggcagt tgtagagacc
55601 aaagttttat catgcaggcg aagcctccag gtagcaggct tcagagagaa
55651 tagattgtaa aggtttctta tcagacttaa agactctatt ctatcagtaa
55701 ttccaaaatg gaggagggca taatgaggca ggtccagctc ctccttccca
55751 tcatggcctg aaagttgacc tgaactagtt tttcaggtta actttggaat
55801 gcccttggtc gagaggaggg gtccaatcag atggttgggg ggcttagaat
55851 tttatttttg gtttatacat tcatttctgt tagaaaggaa aaaaaggtag
55901 agttactttg gaagatagtt tggcagtttc ttacaaaact aaacatactc
55951 ttaccatatg atctaacaaa catactcctt ggtatttacc caaaggagtt
56001 gaaaatatgt ccacagaaaa acctgcacat ggggtgtttgc agaagcttct
56051 tttttttttt tttttaattt tatcattgtc caaacttgga agcaaccaag
56101 atgttggtcg gtaagtgaat agataaataa ctatgctaca accaagcaat
56151 ggaatattat ttggcactaa aaataaatga gctatcaagc ccgaaaagat
56201 atggaggaaa cttaaataat gcatattgct aagagagaag ccagtctgaa
56251 aagactactg ttctgcaatg ggcagggtcta tggaaatcta cccctaaagt
56301 ctgcggaagc taagaggcca agaaagaggc tgacacattt ggtttctcag
56351 gaaaaaacia acaaacaaac aaacaaaaac atttaatagg gacttaggaa
56401 gagaagccac aatgtcctgg gcagctgcca gacaagggtg ttgattccca
56451 cactatgacc cccacagacc cagggtcttc atgtcatagg gaaggaatgt
56501 gtaggacaat tatagggaag ggcaagatgc tatgtgaatc tgcctagagc
56551 agaatttatg gtcaaggagg ttttgacctt agggcaggat ttacagtaag
56601 tacaagctct tacacaagga acagtagata aaatggaaga tagcagcctt
56651 ccctaaattg aggttaatca agaagtcaac agggcggatt ggcatccaag
56701 atggagttgc gttagcctcc acaactacat acaatgatc caactatatg
56751 acattctaga aaaggcaaaa ctatggagac agtaaaaaag aagactagtg
56801 ttgccaggag ttaggggtgca gggatgaata aagcaaagca cggaggattt
56851 ttaaggcagt gaaactactc tgtatgatat actacaatgg tggacacatg
56901 tccctacaca tttgccccaa cccagagaat gtacaacacc aagagtgaat
56951 tccaatgtaa actgtggact ttgggtgatg atgacatgtc agtgtagggt
57001 catcaactgt aacaaatgca ccactctggt ggggggatgt aatagttggg
57051 gaggtgtgac atgtgtgtgg caggggcatc atgggaaatc tctattttcc
57101 accccatttt gctgtgaacc taaaactgct ctaaaaaaat aaaatctttt
57151 ttaaaaagtt aacccaaaag tatatgggtt tattgcccta aagaaagtta
57201 accaggcata ttgtacctaa cttagctatt ttagagaatc cttttctctt
57251 caagtattta aatcctgttc ctcaaataca ctctgaacta ggtctcattg
57301 ctgccaccaa cggttcactc attttaggag ttaaagtagg gggagttaat
57351 tgagttttat tggaaaacgg ccacactcag tcgttttcat atcatctatg
57401 gctgcttttg tagcagaatg gaatagttgt gacacagact aaatgggtctg
57451 aaaaacctaa aatattttgt atctgggcct ttccaaaaaa gtttgtaaac
57501 tccgggcca aataaaactt gacacttgct cgaatctggt atgaaaattt
57551 tgcttgtagc atcagttaac atcagcagat gatatgatac caaaaagtac
57601 ttggtatcat cagttaacat cagcagatga tacgatacca aaaagtactt
57651 ggtatcagtt gcttttggtt aaagcaatc tacagagggc caaaatactt
57701 tagctaaaaa ccactgatc agaactctta aggctgggac ccagaaatct
57751 gggttttaac atagtctctg agggactctt atgcatactc cagttggaga
57801 atcgctggag cccactggcc tagccagtg gtggatgtac agattctgac
57851 tcagaaagtc tgaagtgcag cccaagattc tgcttttctc acaagctccc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

31 / 338

```

57901 acatgatggc gatgttgctg gtctgagggc cttagtttcc tcacctgcgt
57951 aatggagatg ataaaaatct atttcatagg gttgttggtg gtagtaaatg
58001 aagtcataat gtccatttat atcctgcccc cacccttttc aagctatgtc
58051 tattggggca agttaccgaa tgtcttggtt cctataagtg gagctaaata
58101 atattgcca catcacaagg ttgctggaag gagcaaatga gataataaac
58151 ataaagtacc tagaacagag cctggaacac tgtaaaggct caataatgta
58201 agatactatt attactatta tcattatcgt tacatagggt gtctgatcat
58251 agcagatatt ccatcagtgt tagtttcctc cctactccct ctctatcca
58301 tcctctcatc cctaccctc cctctagtgt cttctgttga tttctttttt
58351 atttttgttt agagatgctg tctcactctg ttgcccaggc tggcatacag
58401 tgggtgcaatc atagctcact gcagcctcaa actcttgggc tcaagcgatc
58451 ctctcacctt agcctctgga gtggctgtgg ctacagggtc acattaccac
58501 aactggctaa ttttaaaaag tgttttgtag agatggagtc tcgctatgtt
58551 gccaggctg gtcttgaact cctggcctca agtgattctc tggctttggc
58601 ctcccaaagg gatgggacta tgggcacaag ccactgcacc cagccctcct
58651 tctgttgatt tctaattgtt ctaattagat aacttctata ggaatgctga
58701 ttcagaaata cctgaacca ggtggcccta cctgacagtc cagagggtgc
58751 acacaaacag ggacccaaaa tgagcttgga cattgactgt gctgccagg
58801 cccctctgcc caccctctc caggcaggct tttggtagag agtttgggag
58851 aacaagggaa agtgggcttg ccagtccttc ccacctcagg ggagcaccat
58901 ttccagggtc gcctgaacat tcttactctg cagcacatta atctacgtgg
58951 caccaagttt atttttctga gaagattatt tgggacaata tatggaaaat
59001 ctgagaagtc atttctctt ggagcactg ccctccataa caagcacat
59051 attcctgaag ggcactctga ttttgtttca ggtttctttt tgcttctca
59101 gggtttaagt gctgccagga atggccttct aagaattgct tagcaaact
59151 taatctccag actcagggtg gtggggataa tcacattttt tgccgaaat
59201 gaccaaattg aaaccatccc cacagggttg acaagaatgg catgctgggt
59251 tctggacaga aatatagtta taattaagaa tgaatcagcc gggcgcggtg
59301 gctcacgcct gtaatcctag cactttggga ggccaaggcc ggcagagtgc
59351 ctgagctcag gagttcgaga ccagcctagg caacacggtg aaaccccatc
59401 tctgctaaaa tacaaaagaa attagctggg catggcagca tgtgcctgta
59451 gtcccagcta ctcgggaggc tgaggcagga gaaatgcttg aacctgggag
59501 gcagaggttg cagtgcgagc agatcgtgcc actgcactcc agcctggggc
59551 gacagagcaa gactccgtat ctacaaaaaa aaaaagaact aatcagacag
59601 gcacggtagc tcacacgtct aatcccagca ctttgggagg ccaagggtggg
59651 tggatcgctt gagttcagga gttcgagacc agcctggcca acacggtaaa
59701 acctggtctc tactaaaaat acaaaaatta gccaggcttg gtggcatgtg
59751 tctgtaatcc ttgctattca ggaggcagag gcatgagaat cacttgaacc
59801 taggaggcag aggttgcatg gagccagtat tgtgccacta cactccagcc
59851 tacctgggca acagaatgag actctgtctt aaaaaaaaaa aaaaaagaa
59901 ctaatcaggc cacaattcag cacacttcct tgttgccaaa agtcactaga
59951 tcctgacat ttgcatcccc attgttccta aagataggat ttctgacatt
60001 aagattataa tgatggagac aggaggcaga gaaattctag gcagacaggg
60051 gcaggctccct ggcaaagtcc catcctcaag ccaaaaagcc tgagactgca
60101 gcccaaagtg agaacttaca tcctgtttct cccgtcaaaa tgttgctttt
60151 tccaaaacca cccatggccc gccctgcccc ctatcctgtg cttataaaaa
60201 cccagactc agccggcaaa aaggagaagc agctggacat cagagactat
60251 ggctcaacgt ctgagagaag tggcttgact tcagagagac agcttgacag
60301 cataacttca gagaagaatc tggccagaga cagccggact tcaggggaag
60351 attaccttcc caccctatcc ccttttcagc tccccttcct gctgagggcc
60401 acttttatca gcgataaaat cctgttttta ccatctttca attccttcgt
60451 ccaaactcat ttctcctgga tgccaaacaa gagcctagga gccacaagtg
60501 cagatgcaaa aggctgtcac actggccctt tgccctcact ggtggaagac
60551 agctccctca catgaaaagg cagaggggagg ctctgcagag ctgctaacac
60601 ttaagctgtc tgcaaatggc agagctaaaa gaccactgta aactccctc
60651 tggggcttca ggggttgtag gaacccacc agatactgcc ttgggggcat
60701 gcatggagtt tgctcctgct ggtgctcaaa agtgctcacc tggctcctgc
60751 acctgctcac ctgtgtgctc cctcccataa ggggtggaga gcagtgagtc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

32 / 338

60801 cgaatgagtg gagttcactc ctgctgggtga cgaagtggcc agctgattcc
60851 agtgggttggtg tactccagtt cctgccttat ttgctcatgc gctccctccc
60901 gcaaggaggtt gagagctgtg ggctgagtaa atgggggcacc cctattgcga
60951 gtcctgcaaa gcggtcaggg aaatatccta cttcaataag actgtttaaa
61001 aatggatttg catccctgtt gttcctatag agatgatctc tgacggaatc
61051 ataaggcttt tgtttaagga ttgcttaaga tgttctcaga tccaaatttc
61101 agcgaccagt ttggagaccc tcacagaaga acgggatgag cataagaaca
61151 cagcttcttc atctccctgt cccatgactt caccctgtgc tcttcgacca
61201 gtgaacactc tccacacttg ggcccactcc aaaaccctaa agactgtagc
61251 cccaaactcc tcagacagat ggattttaaga ttccctccca tctcctcctt
61301 tgggtgaccct ataggtaa atgctttatctg ctaaaaccca gtgtctctgg
61351 cactggatcat ggagtgcctt ctcacaagag caaaattgag tgtaaggtag
61401 attttcttcc acaagccaggt tattccataa gcaccaccag catcagcaga
61451 tccagctaca gattcagtgat ctatgatcaa ctccacagac catcagcttg
61501 ctttggttgag aggattctgt cctaataaac aactgctaa gactaacatt
61551 cccaatccac aggacctaga ataaaagaaa attcaggcta cttagagaat
61601 aggtaaatga aagatgaaaa agggaggagc aatcaacagt attgagcacc
61651 tgtgctttgc caagcaccat actacttggg atcatgtagc ctttcatgaa
61701 aatttgtgat aaatgtttta ccatcatcct ttccttcctt ctttccctgg
61751 gctattcctt cctcccttcc ttcttccctg agtaagtcag tcaaaaaggc
61801 atttgataac ctccctccc ctcccttca agggagaaga ggctattaca
61851 gcagaggaag aggaaggggc tggaaagcca aagaagcaac tagcatgcta
61901 ggaagggtgag tcacatacag gggaactgag ggtggaaaaa agaaagaaag
61951 gacagaggct gctcctttag cctggatccc agagccaatt cacaggagca
62001 gcagcatgta acatgagtaa aaattaacct ttgtgggggc aagccactga
62051 gatttcatgg tcatttgtgt gaaaggaaaa tgaatcttgg ggcccaaaa
62101 tcactaagct aaaggaaaa gtcaagctgg gaactgctta ggacaaacct
62151 gactcccttc tattcaagtc atccctctgc tcaactgagat aaatgtatat
62201 ctgattgcct cctttagaaa gggtaatcag aagctcaaaa gaatgctagc
62251 atttgtttct tatctacct agacctggaa gcccctccc aacttcgaga
62301 tgtccacact ttccagacca aaccaatgtt catcttacat atgttgatgg
62351 atgtttcata tctccctaaa atgtacaaaa ccaagctgtg ctctgaccac
62401 cttgggcaca tgtcgtcaag acctcctgag gctgtcacag gcgcataatc
62451 ttaacttttg caaaataaac tttctaaatt aactgagacc cgtcttagat
62501 tttgggggtt cacatttgtt acccacagca agccgggtct aagccaactg
62551 atacagtaac tggtaataa cttctgttct tagagtgtga atacagcttg
62601 tctctctcat atcaaagccc atggctcctc cacttgatat atagaattgt
62651 ttattgattt aaaaaccatt ttattgatta aactggcctt tgtagaactc
62701 agctgctctg agcttgtcca cttctcagca cttagggaat atttcatttt
62751 ataactcctt ttagtctctt tattcctctg cagcagaaca attattccac
62801 caatactgtg gaaaagttag cctagtctga aaaatatctc agctacaaat
62851 acctaaaaat gcaggataaa atatggctga gctagcaaga aagtaagaga
62901 aatagtccaa gtatttaaac tgctctgaaa tactaaagga ctgaaaatgg
62951 aatgagacca ggagtccaaa gagagggtta tgagcaataa agctaattgat
63001 tgtttgaagg gcagggcaga tctagactgc tggggattaa agatacacac
63051 acaaacacac atataacata tatagggtgt tatgtatata tatatacata
63101 tagttatttt gagagtttaa gacttaaaga aagttgcaaa aataatacag
63151 agttcctgtg ttacccttca cccagcttct gcaataataa tgtcttacct
63201 attcacagca ctttggtaaa agcaggaaac tgatactggg aaaatactgt
63251 taatacaggt atagatctta tttgtgtttt actagttttg aatgtaccac
63301 tttgcatttt tgggtgtatag ctctatgaat tttatcacat gtatagatat
63351 gagtaactgt caacacaaag aaactctgtc gtgttacctc ttaacagtca
63401 gacccttgtc ccaaccataa catttggcaa tcatggattt gttcttcaat
63451 gctataattt ttctttggct atgagaatgg tatctagatg gaatcataca
63501 gtatacaaca ctttaagact ggctttttaa aactcaccac aatgcccttg
63551 agattcattc aagttgtacg tatcaatagc tcattacttt ttatggctga
63601 gtagtgtccc atggcatgga tatactccag tttgctttct attcattcac
63651 taaggactgt ttggcttgtt tacagttttt ttgttttttt gtttttgaga

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

33 / 338

```

63701 tggagtctca ctctgtcgcc caggctggag tgcagtgggtg caatcttggc
63751 tcactgcaac ctctgcctcc cgggttcaag tgattctcct gcctaagcct
63801 cctgagtagg tgggactaca ggtacatgcc accacgcctg gctaattttt
63851 tgtattttta gtagagacgg ggtttcgcca tgttgcccag gctgatctca
63901 aactcctgac ctcatgatcc gccgccttg gcctcccaaa gtgctgggat
63951 tacagggtgtg agccaccatg cctggcctgt tttcagtttt tgactattaa
64001 aaataaagcc accatgacat tcatgtacag agttttgttt gaacataagt
64051 tttggtttgt ctaggataaa taccaggag tgtgattgct gggatgatag
64101 ataagcatat gtgcaacttt ataagaaact gtcaaactgt tttctagagt
64151 gggttatgcc ttttatagtc ctaccagcaa tgtttgagag atccggttgc
64201 tctgcatcct cactagcatt tagtgctgtc agtacttgtt attttagcca
64251 tttaaatagg tgtgtagtag aatctcattg tggttttaat atacatttcc
64301 ctaatggcca atgacactga aactgtttt acatgtttat ttgccatctg
64351 tatactctct ttgggtgaaat gactattcaa gtctttgatc cattttctaa
64401 ctggactgtt tacttactct gagtttatat ggttctttat atattctgga
64451 tatgagtcct ttgttgata catgctttgc aaatattttc tcctagtcca
64501 tggcctgtct ttaaaccctta gtgttaattg ccatgaaggc actgtcaaca
64551 aagtctacac ttcaggaaag gtgcagaatg gagttctctg gatatagtca
64601 aatcacctga agagctttac cctcagaaca ggcgaactag aaaaaattct
64651 acaagccaaa gaaataaata gcaagctgaa agatagatct gaagaaatta
64701 gccagaatgt ggctcagaga aacaaaatga tgcaatattt taaaaataat
64751 aatttagaac ctcagaagg ttaacctatg cctaatagga attccaggag
64801 gagagtctag agtaatgttg tccaatacag tagtagccaa tagccacatg
64851 tcactactta aaatgtaa taaatgaagt taaaatgca
64901 gttccttggg tgtactggcc acatttcaga tgctcaatag ccacatgtgg
64951 ctgggtggcta ccatattgga cagtgcagat atagaatact acaggaaatc
65001 ctactggaca gtgctgatct aggtcataaa acaagtctga acaaatttca
65051 aagaactggg atgatacaga tgttttgtgg aaataaacta gacattagaa
65101 attaaaaaca aaataactcc tactgcctcc tctcacctt tccccatta
65151 caattccacc tcttaatgtc ttcattgtct tgatgagaag cagaacgtcc
65201 ctactgtgtt ccatggcacc aagttcccca gaaccgcca gtctctgatg
65251 acagaacatc ctggaccgcc cagctccaca cccaaccca agaagttctc
65301 taaaacactg accatgacag cctggggtag gtttccactt taacattctg
65351 accaaaattc tcaactcgat gcagtcagag tctgcgcaac ctgggacctc
65401 gagccaagaa atcctcaagt gaccttactt ggcaaaacca acaaaacaac
65451 caaatacagg tctcaagcga tttacagctc ggtgcttaac tcggtcaccg
65501 gccgaggggc agccctctgg cgccaaagcc ccgcctctct atgacgtcac
65551 acgaggagcc ctgaagtggc ggtcaagctt gaggcgtcat ctggctgcgc
65601 ctagtgggcc gttgccttac agttgctgag aggaggcgag aggcgggggc
65651 gctaggggcg agatcatgtc tgactgggag aggtttcctt ggcagcagag
65701 gacgctaggt ttgggatgaa agaagctggg cagatgcaaa atctggagag
65751 cgcgaggggc gggcggtcag tcagcaccca gactggcagc atgaccggtg
65801 agtgtccggg accctgctcc cgccacccta cctttcgctc tgccctgtgc
65851 gtctcccgtc attgaactcc agattccttg tctgagcctc tttgcctccc
65901 ctgctgcttt tggatgtctc ctgcccgcc tctgctgtgc cctccgcg
65951 tcgccaggac caatcggtc ggtcgcactg gcttttgaag tctcgctttt
66001 taccctgtt agctacttct cacaggacct agagctgggg cctctgaggt
66051 caaagagcct gaacatttcc aaacggcgct tttgccttga tttccaaatt
66101 aaccgcacgt gacgctttcc tgtatttcga ctgctttacc gtcgaaggtc
66151 agcgcathtt tcgggttgtg ttctaactgc tttcctttta gcaacgcccc
66201 atcacagtcc aaagaaaagc ttgcaccacg acgacgtcag atgcgaagac
66251 ttttcacagc ttgctttggg ttgtccccct cagctatgtg tattagctgt
66301 accgtttttt cctgcagggt gagggctgga gaaagaaggc tcaacttttt
66351 aagtggagaa ggaggtagcc acgactaagg ctgaagcgtc tactgctaag
66401 atacctctga ctctctgtc ccctatcttt ttctgtgcct cttgcgaaag
66451 cagctgggct taggctgcag cacctaagtg gcattgagat tggctccctt
66501 tttcaccatt agtaacaaag tttaaagtgt ttgtcgtctc tttttaggtt
66551 cagataccaa ggctttctaa agtcaacctt ttcactctgc tcagcctctg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

34 / 338

```

66601 gatggagctc tttccagcag aagcccagcg gcaaaaatct caggtataat
66651 ttgtttcata gtttttcccc ttagaaaagc agtggtttaa aatctgagtt
66701 tattgctcca gtttctgtca tacctaaaac caaacttaac aaggcttaag
66751 atttaaaaaa tatcttttatt gattaacatg acactttata attcccagcc
66801 gtaataagtc atcttccatt ctaaaaatac tttctgagaa taccatgttt
66851 atcgggtact aatgggtattc atatgtcagt tcggctaata agattattgt
66901 ctataccaca taatttcccc caattatata tactgttggt gttttatcta
66951 ggtagtttac tcctctgcc aagaaatata taaattgcct ggagatagag
67001 accatgtctt attttaccta gcatataccc tttagagtct agcattatat
67051 gagtgctaat tgattaatgt tggatggaag tagtctcttt ttggatcttg
67101 aaagacagga tcaaaacaga ttagaaatgg gctgtgtgca gtggctcacg
67151 cctgtaatcc tagcactttg tgaggctgag gtgggtggat cacctgaggt
67201 caggagttca aaaccagcct gggcaacata gtgaaacccc atctctatta
67251 aacatacaaa aattagccag gagtggtggt atccgcctgt agtcccagtt
67301 acgcgggagg ctgaggcatg agaatcgctt gaacgaatcg ttggaggtta
67351 cagtgaactg agattgcacc actgcactcc agcctgggtg acagagcaag
67401 actccatctc aaaaaaaaaa tcagaaatgt atagtaagaa taatcataaa
67451 agccaatata ttggaattgg aagtataaac atcctgcgtc ttttctttct
67501 cctacccttg gggcaacaag gggctaggtt ctcatthtcc tccatgcttg
67551 gaatggcatg atgctaggtt ctcatcattt ctgtttgata attttggaag
67601 cttagggtgt tggcattaat ttttataggg ggccacggcc attggaaaat
67651 agtattaggt taagttgagc atttaagact ttttttaaaa cagaggtaaa
67701 atgagggggg tggggcagaa aattacacat ggcttctcac cactctaaca
67751 acattactgt taatattttg gtgcttccaa tcttaagcat gaggtttttt
67801 atttttactc ttacaaagtt gtagttatat tctgcatgta ctgctgagg
67851 tttccaactt gcccataatt ctgctgaaag gttgctttag attttccaga
67901 gaaagactat aaatccttaa attcccacag tactcttagg agaccaccta
67951 ctcttttcat tttactgtgg atgaggtttt gtgcttgga ctggagacac
68001 aaagcagaaa aaacatgggtc tttattttct aatgagtaga aacactaggc
68051 atttaaacaa ttaaaacaga attggtggag tgagtacata gtataagcag
68101 agatgttggc aagactggga gccaggctct atatggggaa gtgaagggaag
68151 gattcacaga gaaggtcgta tttgactga gacatgaagg attagtggac
68201 ttttgcccaa gccagggaac tctacatgga aaagcttgga gcaatgagag
68251 aatttgtggt cctcaggcca gaaagtgaag ttaggttagag ggaagagact
68301 ggaaaggagc ttgacaatgt agacaggaat catatcataa aaagcattgt
68351 atgccttgca aaggagttaa gattttatct tatcaatata ggaattgcat
68401 tgaggaattt taacaggatg tgaggatatt cgcttctcat aataaaatga
68451 tatctcttgg ttaggtttcc tcccccaatt cctatgtgaa gtgttttata
68501 gatagtaaaa cattatttaa aatattatac atcgttattc catatttctc
68551 accctcatcc cccactctg gctctacatg ttattaacgg ctgagaaagc
68601 tcttcatttc cttcatatc tttgaaattc ctttattcct tctacttgtt
68651 aatagtttag tattatttta tgaaagtaga tttccaagct gttagggtatt
68701 ttatgtagtg ttgtgttttt tttgttttgt tttgttttgt tttcagataa
68751 aatttatttt gaagagccag attagaaaca aatatttaga ggtttaagac
68801 ttttaggccg ggtgcagtgg ctcatgcctg taatcccagc actttgggag
68851 gccgaggcag gcagatcaca aggtcaagag atcgagacca tcttgcccaa
68901 catggtgaaa cccgtctctt gccaaaaata caaaaagtag ctgggcgtgg
68951 tgggtgcgtg ctgtagtccc agctacttag gaggtgagg caggagaaac
69001 acttgaaccc aggaggcaga gattgcattg agctgagatc acgccactgc
69051 actccagcct ggcgacagaa aaaaaaagaa aaaaaaaga aaaaaaacg
69101 tataaaaact ggacatatta gagattgaat acaaattttg aaaaggcgtt
69151 cttttttttg taaatatcca gatgtgatct cgtttttagt ctgttttttt
69201 atatacacac cacatcctgt gctgaaatta agtttttttt ttcaacaggc
69251 acaagttgta tttaattagt gagaaatgac atttatgttt ctattaggaa
69301 ggaattgatt ggccaactaa ttgttggaag ttatttgcaa ataatacaca
69351 ccctactgtt tcctcactat atatagagaa agctgtggat ctgagaaac
69401 tgagatgaag ctttcagtta gcattttgtt aaaaaaata ctaccaagga
69451 aatttcaaaa ctatattagc aacaaaattt tatacaactt tatatcatgt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

35 / 338

```

69501 ttaacaaaag atcaagggtta tgactctcat tttctcccaa gccacaact
69551 cttaagtttt cctggcatct cattccttca tctggtgggc accatggaag
69601 ttttctaaat gaaaataaat aagtcttttg tttcagatat tttatttggtg
69651 atcttattta gaaatctgac tcatacgcat gtctatttaa ggctttttaa
69701 tggaaagtta taacacatag aaatgagtag agaaggcatc aaaacaaaga
69751 acatccatgt cttcagaaaag ccaggcaacc tggaaactagg attgacttgg
69801 ctatatgaaa ggttatcact cttagctcct ggtcctggag catgcccagc
69851 tcctattcac tgcattgggtg tctttccagc tgtgctccca taccatgtg
69901 tcctaggact acaaccctct caccatgggtc ttgggtaggc ctttacttct
69951 gttcttacct acagggcttg ggactccaag gcacttgggg agggagagcc
70001 tcaggattac tctggcagtg atctgggtga aagaggcttt tgcattgtaa
70051 cttgggaact tgactatcat ttttaacatt gtttatatga gaaaaatgtg
70101 ttttaaattc cgaaaaggga gatttaccaa gtatttagaa catgattgta
70151 ggttgtcaat tacttgtata tttaatgtca ataaagcaga agtatataat
70201 ttcattagtt cttctgatat catggccatt gcaaaaaagc aagaccaatg
70251 atagtgtggg ggaagaatac agaataagag ggagcatatt gtactccact
70301 tttatagtgt tatttattgt acaaacatta tcattgaaac tgaatttata
70351 gctgcaacat ttttaaaaac ttttttttc tcttggtttt cctttttgta
70401 ctagttaata tccacataat tttgcaggta gttgcagtca tagcaggaac
70451 acaattttgt atttgacagt tttggtactg ttacaggggt gataagttat
70501 taatttttaa ttatacagta agaatacatc taaatttcat atgcatgtag
70551 tatatgctgc catttgtgtt atacttgttg aaatatttaa tttctcaaaa
70601 tgttgcccaa ttttgtgcct aatatttctt taccatttac tatagtatat
70651 tttttccagt attatttgca catggtattc ttagagttga gtacaaactt
70701 tttccaatta agagaaaaaa agtcttcttt aagctaaagt aataagattg
70751 tttcacttaa attctttagt ctgcttttgt tgtacagagt aaatcacaga
70801 aataccaaga tgcaattaga catgtaattg tattggaaat actgcttttg
70851 atactttacc aacatttgct ttactaaaag tatttttatg agttaccaa
70901 gtaatatatg tttgttattt ttaaaatgga cagaagaaaa attttatcat
70951 aattccacct cctagagact aattactttt taaaaattgt ttctcagtct
71001 tttttctctt actttcttta cttacatgag atcatttaac tctggatcct
71051 acccttttca cttaacataa gaaaataact atgctgtaat gctagtataa
71101 acattggagc agcaccttag tctagtaatt tagagtagcc agtggtttta
71151 cagccagcct gcctgggttc agactctggc tccgcctctt actagttgta
71201 taactttggg taactctacc tctctgtgtc agcttctca tctgtaaaat
71251 gaaatgttac tagtatatac tacatgagggc ttttatgaga aatgaatgag
71301 ttaatatattg taaaggctct agtgccctggc acatgttagg tactatgtgt
71351 ttgttggtgt tgttggtgtc tccttattta tttatttggt tatgtattta
71401 ttttaataga gatgtggtct tgccatgttg cccagactgg tcgctaactc
71451 ctgggctcaa gcagtccacc cgcctcagcc tcccgaagtg gtaggattac
71501 aggcattgag caccgcacct agcctcctaa ctctttccat tgtgtcttct
71551 ggtaccttat gctaaaggcc ctcaactgtac ttttccagaa cagaagcaat
71601 gtggcataat ggttaagaca atggatcttg ggctggatct ggcatatcca
71651 cttaattacc tgtgtgacca tgggtgaatt atttaatctc tctcagccac
71701 aatttcctca tttgtacaat ggggaataata ggagctactt tataaagtta
71751 taaggattaa atgagataat ttagggcctg gtacatgata aacatgcagt
71801 agatgttagg tactgttatt atcatcactc atatatataa ttattaccac
71851 tactagcacc cacatcctta ccgtttttcc actgatacca tcacttcctc
71901 tacttcctgt tctgtctgaa cagaaacctc attcccagaa catgggtttt
71951 cttataaact tctttttgat ggttctttct tttctagcat ccagcacttg
72001 tttcataaga ctagcagggtc aacatttaca aagtttccca ttcctacttt
72051 aaaactttat caatgtatta actatcccac cctttttttt tttttttgta
72101 aacagagtct tgctgtgttg cccaggctgg agtgcagtgg cgtgatctcg
72151 gctcactgca acctccatct cccgggttca agcaattctc ctgcctcagc
72201 ctcccagata gctgggacta caggtgcgca ccacatgcc cagctaattt
72251 ttgtattttt agtagagaca gggtttctact atgttggtgca ggctgggtctc
72301 gaactcttga cctcgtgatc tgtccgcctt agcctcccaa agtgctggga
72351 ttacaggtgt gagccactgc acctggctat ctcacctatt ttggagctca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

36 / 338

```

72401 cagaattctg tgtcactttc tttgtcttaa tcaacttact tcatagtcac
72451 tttcctgttt tcataaatca taagccctgt gagagctgca tcttgagcaa
72501 ctaggctgtc atgtagcaag ggttcaataa gtatttggtg aactaataaa
72551 tgaaggactt tgggccctgc ctcaaaactt tctttctact tcaagttttc
72601 actttttccc tcatggatat acctgtattc gttttctatt gctgctataa
72651 cagatgacca caaagttggg ggcttaaaac aacacaaatt tattatacag
72701 ttctgtaggt aagaggtctg aaatgagcct tactgggcta aaatcaaagt
72751 gttggcagag ccaaattccc ttcagacact ctacgggagg acctttcctt
72801 gccttttcta cctgtggaga ttgtctgttt tccttggtct atggggccct
72851 tccatcttca aagccagcaa tggccagtcg ggtctttcat gttgcatcgc
72901 tgactctccc acaccctct tttactcata atgacccttg tgataacatc
72951 gggccaatca gataatcaag gataatctcc ctatgtcaag gtaggtgggt
73001 agtgcctcag ttccagctgc aaactgattc ctccctgcca tgtaacaaaa
73051 catagtcaca ggctccagtg actgggacaa ggaaatctct ggcggggcat
73101 tatcctgcct accacaatcc cgatctaata cctttgctac atagttcctt
73151 atcttctcaa ttccagttaa tttacctcta ttccacttta gtcattcatg
73201 gccacacttt ggacttttcc attactcaaa actgccacaa ttctgaaacc
73251 ataaacttca gaattttatt ttctcattac aatttccaat ccttctatgt
73301 tttgggaaag tacatagggg atagattata aaggtttatt tactaggtaa
73351 agtagtatga acttgatcca aacaaagtgg gaagtcaatg tagagtttca
73401 tcatggaaaa aaaaatgggc aaagccaagg aagccagcct ttaaatatgg
73451 gaatattgaa ttagtcatat gtcttatgtg ctaatctttt tttttcctta
73501 atctgatttt tattagaaaa atgaagaggg aaagcatgga cccttaggag
73551 ataatgaaga gaggaccaga gtatctactg acaaaagaca ggtaaatttt
73601 tatgatttca catatatatg ctcataataa caaagcaaaa ggaatagtat
73651 aaagtagaat aaaagtgcct ccatttctac tatcaaggga gtttttaaaa
73701 tactcttcta aaaatgggtc gtatatttac aagactatat gtcactcctt
73751 ttttttaaaa aaaaaagtac agatgggatt attctatgct acatcctaca
73801 tcttgcttta aaaaaaaaaa aactcttgat ggttcatata gatgtgttaa
73851 gaaatactct cccttagttc tctcacactc ccacaçacct tgctgggtat
73901 gccaagaatg caaggcccta accatttttt acctgggtca tttctcagag
73951 ttgtgtttgc agtgatcaac cctgaagggt gaggtaatat ctccctccag
74001 gacaaaaagc aatctggctt actttctgct gtgaaacagt aggacctca
74051 agctcagtgt tctctccta taacactacc caccctgtgt ccaggcagcc
74101 atctgtgccc atttgtatta cccctcatgg ggcttgaggg caggaaacag
74151 aatgatgct cactactgact gctgtgctgc aaataataaa gttcattggt
74201 tctaaccag aagtttcatg ttttctgcta atatccatga aacagtaaca
74251 ggttaactta ttagttggta agtagggtaa aatcaaagtg cagacttgaa
74301 agatgaacct tgttcttttt aatattgtat agtatttcct tgttacttta
74351 ttcctttgag tttccagag gttccgattc attggatgca gagtgagagc
74401 taagcatgta tgttttgaag agttaccttg atgattccga tgtatattcc
74451 tagagatttc ctaattcatt ctgagagtga gccagtagg aatatagaaa
74501 taatttgtct cagaatattt acatgttttc ataataagaa aggccaagg
74551 aaaaaaata gtgaatcacc atttaagtca atgtactagt ccatatacaa
74601 aacagactgt acccttttgc ccatgtttta gtgtaaaact ctgtgactag
74651 gatcaaacag atgacttgcc aaaatgttag cgaagtgagg caaaatcaaa
74701 ttcagagcag cgattcactg aaaagattca gtcctctggg agttgtggta
74751 aatggaagtg ccaaaatgga atgcaacttg agcttttatt tgttttattg
74801 agtttgggat ggaaaaatct ttgtctcaaa cttgggtatt tggccttacc
74851 tagatgcaaa atgaaaaaat acatattttc tgaggtaaaa aggactctag
74901 acaaaaaagt gataaataaa ctcgacccaa aagattgttc taataacaaa
74951 taagttgatg agtgtgcttc tcaattgata ggaacaattt ttttttttat
75001 gttttattct ggctttattt ctgtctgttt aactaggaaa atctaaagct
75051 gaaatcattc cttgcagcc acttccactg gttacgttgg ttcaatttaa
75101 caataggagc tctgtcaaga tcttttgatg aggcagcatt acttcttttc
75151 caagatgata cgtattggcc gggcacggtg gctcacgcct gtaatccag
75201 cactttggga ggccgaggcg ggcggatcac gagatccaga gatcgagacc
75251 atcctggcta acatggtgaa accccatctc tactaaaaat gcaaaaaatt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

37 / 338

```

75301 agccgggCGT ggtggcagct actcagctac tccacgggct gaggcaggag
75351 aatggcatga acccgggagg cggagcttgc agtgagccga gatagtGCCA
75401 ctgcactcca gcctgggCGA cagagtGAGA ctgtctcaaa tcaatcaatc
75451 aatcaatcaa tcagtccagc ctgggCGACA gagtgagact ctgtctcaaa
75501 taaataaata aacaaactta ttgaaagtat tcagaaatca ataataatat
75551 atgcttcgca tttgaggagc ataaaactca agaaattttg gtagggaggg
75601 gaaagtgttc acaaattcaa ggtcaattta aagcttattt taaaagccaa
75651 tatagatagg tttttcatat tttatataca tccttaggta catattttgt
75701 aaagcagaga tttttgtatt cctttataaa tgtccttcta gtttaggaga
75751 tggttggtta actcagaaat ggaattccat aaaatcttct ctgttccttc
75801 ttttttagat agtttacaaa ttattctccg taatctcaaa cattcatact
75851 caaaaccgaa actgaaactt gactagttaa tctcgctttg gtctgacct
75901 taaagtgatt tcagatatgc tgtattgggg gataagtata gggttaaatc
75951 cctttggaag gggatgggga ataggGACAC cctctcctta gcccaagctc
76001 ccctcatgta acagtcagtc ccaagcccaa ggatcagggt tacattcctt
76051 acttcagagg cttttgctgt gaaaacagca tagactgttt tgtgccttat
76101 gcagaactga cttttttttt taaccttagt ctgttttata tgatattgtt
76151 ataccagctt tgattagtat ttgtttaagt tgagaaactt taggttcaat
76201 agtaacacaa aaccttcact caaagagatc cactggaagt gcttagaacc
76251 ccagtcagta accagtctgc agggcttaat tcaggctcag ccagtccttg
76301 ctctgtggaa tattgctaag gtagctcaag ctcaactc tgacatcaag
76351 ttctctcatc ctttttgaca cttgatggta tgtcttcctt ctttttgttt
76401 ttataactta cctatagtag gagtggggac ctaactatag tagtctagac
76451 tgccatagtg ctaaaaattg atacagccag tagtttctca aaagaaattg
76501 agaattatct tttctttggt caatatctaa aatattttag aatttaagat
76551 gacctctgct ttagttctgc cttttaccat ctgtgggtct ttcagaaagt
76601 catgtaaact ttctgggctt tacttatcca tgtgtaaaat cagggcttta
76651 tattctttat taccatctag aagcttaata ctaaattgga ctacacttaa
76701 tcctataaga aacaagtcaa attgatctag ttcttgccct ttactagggt
76751 ataatgtatc taatctttca ctagaacaaa ttaatgataa ttacatgctt
76801 aattgtttga ttagtagagc ctaggtttag aaaatttctg gcctaaagtc
76851 aacactaaag tttcagaagc tttttggatc taatgagaaa tgtgctttgt
76901 acaaactctg tttagataaa gaattaaaca aaacttccat ttttattaat
76951 aattcaagta taatccataa tatgattatt aggtgttata actaataagt
77001 tgttatttta tatcttaatg taggtaaaga gaactggctt tgtggtggtg
77051 aaaaacatga aaattgttgg tctccactgt tctagtgaag atttacatgc
77101 cgggcagatt gctcttatta aacatgggtc aaggctgaaa aactgtgatc
77151 tttatttttc cagaaaacca tgttctgctt gtttgaaaat gattgtaaat
77201 ggtaagtgca gaaaagggtt tgttggggat taagagtatt tatctgggat
77251 gggcgtggtg gtttatgcct gtcacccag cactttggga ggacaaggca
77301 ggaggatcgc ctgagcccag gagttcacia atagcctgtg caacataggg
77351 agacctcatc actacaaaaa ataagttagc taggcatggt gatgcacgcc
77401 tgtagtcccc actacttgag ataatgaggt gggaggattg cttgagccca
77451 ggatgtcaag gatacaatga cccgtgattg cgccactgca ctctaagctg
77501 ggtgacagaa caagacctg tctccagaaa aaaaaaacg aagaaaggag
77551 cgtttctctg agagcagtc gtgggaacac atttgctaaa taccacagag
77601 ataatttaga aatatatatc tgaaagtcag gtgctatggc ttgcacctgt
77651 aatcccagct actcagaagg ctgaggcagg agaattgctc aagccggga
77701 gttcaaggct gtagtgagct atgattgctc cactgcactc cagcctgagt
77751 gacagagcaa gacctgtct ctaaaaaata aaataaaaaa tatgtaaata
77801 tatactgaa gacagtttga tacattataa gagtaagcat cagaaaacat
77851 ggattctggt ctcatctatg tctactaacc tattaaatga ccctcagtgt
77901 atgagtagac taatgctaac tgctataaca aaacaaaatt tcagtactt
77951 atgtactaga tatttatcac ctgtataata gtccagcaca tgtgttgcta
78001 aacagcaggc agctttctcc atttggttga ttcctgggct aggcactctc
78051 tgtctcattg ctgttgctac ctctagggtt ttgagtcctc tgtatccaga
78101 ggcagactga gaaagaatga gtagagaggg tgaacctgct tcttaaaaac
78151 cctgacctgg aagtcacata catcatttct gttctcatcc attgtgggaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

38 / 338

```
78201 ctggttggtcc cactgggcag ctgtctttca gtgactacta tacactttgg
78251 aaggaggaac acaaattttt aatgtatagc catccgtcca caccaggcta
78301 ttcactaaac ctctttgtgc ttatgattct gttttgcacc caggatatatg
78351 ccgatcattc tttcatttaa aaaatatgca tcttggttgc taggcatcat
78401 ggtagatcaa aaaacaaaaa aaactaatgt ggttccta atttactctc
78451 gaggtgttat ttgggggcca aaataacaat ttaatatgat gcattatcta
78501 gtaccaaadc agcgatacag gttgtaagt atatttggtc tcagaggaga
78551 aatagtgatc cctgcagatt tccatattat gaaaggctgg ggcttaagct
78601 tgatcttgat gcgtcatagg tagaggaaga ggaacacatt cctggtcagg
78651 gggaacagtg tatatggagt catcaagttg taagaagcaa agttctaggg
78701 gtcagtattt gaaatggaga attattcttg gagaacagtg gcagatgaat
78751 tatagtata gtggagaact ttgaagaact gtagagcctt tggactttat
78801 cttataaaac agagttccta ggctgtgtg gagaaagagc tatttttatt
78851 tacagcaaag ccttaagagt aatgatcaga tctatgtcaa ggtcagtgcc
78901 ttgagctata aatggcagaa cttctagaag aaatggatca tgtggctaga
78951 aacctctcgg cctgcaacaa gtatttcgag caggtaggta tctgtggtag
79001 tgattggatt ctatattctc aactgcagtt accaatacat tgagaagata
79051 ggtatgaaag tgggtggtggc atttttttca ctttttccca attaacagg
79101 cagattggac atgcatttca tcatcatgt tcaactgacc tacagttcct
79151 gtttgtaggt aatgtggaga cattgaagat tcttgagaaa gatgtaacgt
79201 gattgaaatt tttgttggtt ttgctgttat tgaattggag caggagaga
79251 ttagagattg ggagcttgat tagtagacta ttgcattagg caaggccaa
79301 atagggttca gatgatgaca ttgatacaga aatgaaagaa tgtgaaagaa
79351 ccaaaacatt tgttggtgta tctgttccag atcaaggagg aaaaatgaat
79401 aaaagatagt tgtgctttgt gctgagctaa ctgtgctgaa agcagctcta
79451 atagcctcgg agccacaaat tagagggaag aataggagag tgcaggtaac
79501 tcatcactgc ttgatgtctt aagacatttc atcctgacaa aaaagataat
79551 gaagtatgga aagtcaggaa ggacctacag tggaaatgct tgtgtattgg
79601 tgttgagcaa tatataaaca aaattgctat gttagattag gcttatgtat
79651 tatatttagt tatcttagga agggggcatg gttgaacccc atgctatagc
79701 tagattactt tagttagaat tgctattacc tcagttataa ggcaaagatt
79751 gttgtagcac agtggttctc caagtgtggt ctgtggactc ctgatggtcc
79801 acgaggtcaa tgttattttc ataataatac taccttcagg ttgggcatgg
79851 tggctcatgc ctctagtccc aacattttgt gaggctgagg caagtggatt
79901 gcttgagccc aggagtttga gaccagtcag ggcaatatgg agaaacccca
79951 tatctactaa aaatagaaaa attagctagg cgtggtggtg catgcctgta
80001 gtcccagcta ctcgaggagg tgagggtgga ggaccactgg agcctaggat
80051 gcaaagggtg cggtagagctg tgatcgtgcc tcaccaatgc actccagcct
80101 gggccacaga gtgagaccct gtcccaaaaa gcaaaaacaa aaacactaca
80151 ttcatactaa tggtagcaaa acaatgatag gtaaaactac tgtttccgta
80201 tctttatttt tattttattt ttttttgaga cagagtctcg ctctgtcacc
80251 caggctggag tgcagtggca caatttcagc tcattgcaac cccgcctcc
80301 caggttcaag cgattcccct gcctcagcct cctgagtagc tgggattaca
80351 agcgtgcacc agcatgcccg gctaattttt gtatttttag tagagacaag
80401 gcttcaccat gttggtcagg ctgatctcga acttctgact catgatctgc
80451 ccacctcagc ctccgaaagt gctgggatta caggcgtgaa ccactgcacc
80501 cagcctgttt ccatatcatt aagacagtgg tgccaaactg ccctggtagt
80551 cgtcatactc ttcactgcac tcagagggaa aaaagaaaac cagttttaca
80601 taagaagggtc cttgatgaaa cagtaaaaag tatcaatttt attaaatccc
80651 aacttgagtc tgcattcttt taatatcttg tgtgaggaaa caggagggtg
80701 gtataaagtg cttttgctac agacctagg tatgaagatg gctttaagga
80751 aaacctgta tgtgattgtt tgagttgcag actgacttat ctactttttt
80801 aatggaacat catgaactga caatggttag ttagacttgg atatttgga
80851 gatattttct tgaaaatata gtgaacctgt cactttcaga taaacaactg
80901 acagtatttg ttgccagtga taaaatttga gctatcaagt gaaaattaga
80951 attttggaac actcatattc tctattatga gcctgacagc atctcaccac
81001 ttagactctt ttgatgggat tgggtggtgat attaatgaac gggatttttt
81051 ttaatatattg aaaatcagta aatcattgtt ttccggatga ccaatgcaca
```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

39 / 338

```

81101 atgctacaaa atcatgcatg agtaaaagcc attctaagtg caagacagac
81151 caacggactt taacgtaaca gttcaaaaag tttgttgata tggtttcaga
81201 ttctacattg taactaacct ttaagaaact atcccttgtc aaatttttat
81251 gtagtgccaa agaagaatat tcacaagtat ctgaaatggc tgttaaaata
81301 ctccctttttc aaccacatat ctatatgagg ccagataatt ttcgtatact
81351 tcaatgaaaa caacatattg caacagattg aaaacagaag caaatttgag
81401 catccagttg tcttctatta agccaaattt ttttttttac aaagcaagtt
81451 actttattag aatttttaaac aatgtataag tgatggaatc attctaacaa
81501 cacatctatt cactgcttac aattccaacc aatttcagtt ctctgatatc
81551 taatgacaag agcgaagacc tgttaaagtt ccttcacca gtaaaacca
81601 cagctcaaag ttgtgggagt gattaactga gccataggcc ttcattcaca
81651 tgtttaccac attaaaatac cacacagtgt tttcttataa ggtcaaccac
81701 ctgggaacta attaacatta gcattaagat ttaaataaac tgttaggcac
81751 agggctagat caggcattat aaaaccctgt gggtccctag tcaagtcaca
81801 caaatcccca aatatttttag cttgtaacag tttgttcctt cctctcttga
81851 gacaattatt tgggtacttg cttttggcaa taacgtaatt cacaatggaa
81901 gtttcctaac tgtgatgggt ctttaggcaa cttcgagaa tgaagataga
81951 aattatgcat gattatataa catgaagagt ttaatttcta ttacacactc
82001 aatttccatg ccctgatttc tcttaactct ataaacacat gtaaattctt
82051 tgcagagctt taaagagctc tgaaagggaa aacaccttcc catatatgga
82101 attgatagca tagtacaggt caggcgcagt ggcccacacc tgcaatccca
82151 acattgtgag gccagtggga ggaccacctc aggtcaggag cccaagacca
82201 gcctgggcaa catagcgaga ccccatctct accaaaaaaa aaaaaaaaaa
82251 aagagctggg tgtgggtggg cacacctgca atcacagcca atctggaggc
82301 tgaggcagga ggattggtag agtatgggag ttagaagtta cagtgaagta
82351 tgatgtcacc actgcactcc agcttgggtg acagactggg ctctatttaa
82401 aaaaaaaaaa aaaggtatag tgatacacta ttaattccat gtatgctaata
82451 atgagatagc atccatataa actactatca agtctttatg tgccagctac
82501 tgtaataagt cttttcaagt ttaactcact gaattcataa tgaattatga
82551 ggtagctacc attatttccc ccattttaca aatagggaaa ctgaggctgg
82601 gagacattat ttaacttgcc caagtttcta aagccagtta ctggcagaac
82651 tgggtatttga acctacttaa tctgattcta gagcctgtgc tatataaact
82701 cttaccact atgctatgct attcattagt atccatttaa caattactac
82751 tattgcaata gctgcaatta tcactcctat agtacagggg aatctatcaa
82801 agaaacactc agctttcact tatctatttc tgaaaacatt ttttattaaa
82851 gtataaggtg catttcactg atctattttt ataattgtca atttatttaa
82901 gtactttgat tatatgatgt aagaaaaatg ttagaaatgt cttctggaat
82951 taaccagaac acaataaatg tgcaaaaatt agaattggaat ttacagagtt
83001 tataggccac tgaagcccat ccattgaaacc cttcatgaaa ctcatcatg
83051 aggccaaagg gcagaacaaa ccctccctga aaatctcaat tgggctttta
83101 gaattttaat ttaaatgtct atacgaattc tgctgtcag tttgttcctt
83151 ccactcttct taattttcca gtgatattgc tgataactat tgtttttcct
83201 ttactatta atccaaatat taaagatatt tgtaaaaatt taaaacaatc
83251 tcattcttac aaatttttgt tttggaaaat agtttttttc ataaagctaa
83301 tgttatttat attaatgtat aacagattat tgttattttt aatgaattaa
83351 taaatatttt aaattttgtt ttaattttca agtacagtaa atatcagtag
83401 atatattcca cataaataaa agcttttttg agtcctcaat aatttttaag
83451 agtgtttaagg aatcctgaga tcaaaaaatt tgagaaactc tgcttttagca
83501 tttgccacta atacacaaat gtctgtctaa agaggatttt tcccctcttg
83551 aatcaggatt actggaagca gctaagatgc ctagatgaaa ggttttaccat
83601 cactgctggg taggaaatgg attatgagaa ctcgaacaga gggaagggtga
83651 aatgcaaccg gaggaacac tctgatatga ggtttgaggc cttcaaaatt
83701 gctttgcagc ataagccaca gtgagtcagg agtaccaggg agtggataga
83751 atgtttattt gtttaactga gactttttag ttcattcaatt attttgaagg
83801 gtagaacact ctgtgggctc tctttctatt tgcttctggg tacaatcaca
83851 aaaaaaaaaa ctctcctagc tgaaattaca tgcagtacta gcaaaggggt
83901 ctctttgtta taaactgttc attaatggac gaacatttgt gtacttaact
83951 atgtataagg catctcatcg ttcaatttca aatacaaaatt aaaatatttt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

40 / 338

```

84001 ttcacatttg ttatcctgtt atgttttctc ttttacaaat tgtctgttcg
84051 tatctttttg tctctcttta ggccttattc ttgtcaattc atatgtgctc
84101 taatgaattg aaatatattc tgtatatata acattactaa cctttcctct
84151 gtcacactga ttgaaaaatg atctatttag tttgttggtt tgtctttaat
84201 tttgtaagct ttaaaaagtt aatatgtccc ttcagacacc atcccaacat
84251 cacataagaa ttttttcatg ttataaattc tttgtggaca tatttgataa
84301 ctgttttatt atgaggagga ccataattaa ttcaaccatt cccctatttt
84351 ggtcatttag gtttttgggt ttgggttttt tgtttgttta acgtctttgc
84401 ttgctatttt aaagaatgct gcactaaatg tgcattgcat agatttcttc
84451 tctgtattta gaatatattc ctagaatgga ttctcagaag aattctcagt
84501 ctgtggagag gaacattttt aatgcatgga agaggatatt attccagata
84551 gaaaactagg caatattagt tgttcctgtt aagattttta aaaacagcca
84601 tggcaccatg gaggactctt cgagtatata gtttttagcg tgggctttgg
84651 gatcacactt cacaacacca gtaactccac aaatgcattc ctagaggctc
84701 tgtgagaggc tgggtaactt tttcttgaaa aggccagata ataaatatatt
84751 tagactttgc aggccgtgtg gtgtctgtca cagctactca actctgccac
84801 acgaaagcac ccaaagacta tataagttaa tgggtgtgtc tgtgtttcaa
84851 taaaggttta tttatggata ctgaaatttg aatttctgac agttcgatgt
84901 gtcacaaaat gttcttttga tttgtccaac tattttaaaa tgtaaaaccc
84951 attcttaacc tgtgagctgt acaaagactg gcagtggact ggatttggcc
85001 tgtgggtggg agtttgccaa ccctcaggct atataatagg tgacttggtg
85051 atagacattt attatataga gggttctaga tatactgcaa tgatagggtg
85101 gattttataa tgaaaaccct aaattcagca tgtatctcat aattaccttt
85151 cgtattttgt atttcagctg gagttaaccg aatttcatac tggcctgctg
85201 atccagaaat aagtttgctt acggaggctt ctagtcttga agatgcaaag
85251 ttagatgcca aagcagtgga aagattgaag tcaaacagtc gggcccatgt
85301 gtgtgtctta cttcaacctt tgggtgtgta tatgggtgag tttgtagagg
85351 agacctctta caaatgtgac tttattcaaa aaattacaaa aacattgccg
85401 gatgctaaca ctgactttta ttatgaatgt aaacaagaaa gaataaaaaga
85451 atatgaaatg ttatttttgg tttcaaatga agaatgcat aagcaaatac
85501 tgatgactat aggtttggag aacctgtgtg aaaatccata ctttagcaat
85551 ctaaggcaaa acatgaaaga ccttatccta cttttggcca cagtagcttc
85601 cagtgtgccg aactttaaac acttcggatt ttaccgtagc aatccagaac
85651 agattaatga aattcacaat caaagtttgc cacaggaaat tgcaaggcac
85701 tgcattggtt agggcagggt attggcatat cgaactgggt agttacatag
85751 atcgtaaatt ggggctgatt gggtgggttg tatttgtctc tgaagtgttc
85801 gtctcattta tggtagaggt catttactca tagttactta agttttgctg
85851 ttcatacaat atagagaagt tagtgagacc cttgagtaga caactctttc
85901 tcccagcagt tttgggattc cttgtagcct tatattcagt accacatttc
85951 tacatcaggc cctcattaat ctaggccctt ctttctgctt cttgctttta
86001 tgatttcact gttccttgag ccctccacta aaggtaggac aagaagagaa
86051 aggagaggcc cagtgcagtg gttcatgcct gtaattgcaa cactttagaa
86101 ggctgagaca ggaggatcgc ttgagctcag gagttcaaga ccagcgtggg
86151 caacatagca agacctcgac tctaacaaaa aaattagctg ggcattggtg
86201 tgtctggtgg tgcgtgccta tagtcccggc tacttgggag gctaaagcag
86251 gaagattgct tgagcccagt agtttggggc tgcagtgage tacaatagca
86301 ccactgtact ccagctccag agacacagca agactctatc tccaaaaaaa
86351 gaaaaaggag aaaacccaaa ttattcattt ttgttaactc ttcaatatatt
86401 tgatgtactg aatatttaac aattttttaa aaatctttac aataacatta
86451 attcaaaata actaatagaa tcaaggtaaa ggaatggtga ttattgcaga
86501 ttcttccagt tgctggtatg tcttcaatca gcaagttgag aaacattttt
86551 actgtattgt attaagttgt atatttggaa aaggaaaata ttacttggga
86601 tttttctttg ttatgataaa agatggcatc tgtatttcca aacatggaac
86651 aatattatca catcttacct gatgtaagat ttctcaaagt agaatcatga
86701 tcaactttta aaatgcatct ttgtgataaa ggggaaaaaa catagacagg
86751 aggagcagta gagtaagatt tgtttgggga gtgtactgta gtaggattta
86801 aaaattatcc caagaaagaa gagaaagtca tcagaaaagg tctctacaga
86851 tgctgctggg ctgcagtagt caacagaagg gaggttctca gctggcagca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

41 / 338

```

86901 aatagaatcg ccattgaaac ttttataaaa agtacagatg ctatactttt
86951 tactttttata aaaagtacag atgctatact ttttactttt ataaaaagta
87001 cagatgctat acttttttact tttataaaaa gtacaaaccc caaccagac
87051 ctattaaacc aagtccctaa caaaatatgg ccaagttcta tgttttttaa
87101 agttccacaa ggtgttctga tgttcgcaga gttaataatt gctcaattct
87151 tcttaaagat tttgattctg taggcacaca ttatatgacc ccaaacaatt
87201 gcattgtgta aaagtctggg ttcattgta tttatcttat tgggggttat
87251 atatttgttt ctttgccaac tccagctttg taaagaattt ttctgtaaac
87301 cattcaaaaa gatagaaaac ataaatggga acagctgttg tagctataat
87351 tacttaatta cccttacta attagaattc agcagaaccc tgctgtgtt
87401 ccagagtaag agggcgatgt gaatctgcta ttttactgga tcttagtacc
87451 tcttgcttct catagaacac cttatcatac cagctgtgat tccagtgtt
87501 aaagacgcag tatgtataca tttgcattta tattgtttat tagatactct
87551 aactactgt atagttataa gtatatccac tattgtgcag aattttgtac
87601 ataaagccct gcttacgcat ttgatgggca atttaaaaga tttttcaagg
87651 ttaattgttg gtgatttttt ttttacctgg aactcaaact ctgaataggg
87701 tgcaactcct ctgtcactca ctctactcca ctgtgcactc ttccagggaa
87751 gaaaccatgt cttaatcatt ttttccttag cactaaacac aatgtgcgtt
87801 gaatggataa aacaaatctt tttatccaaa gataaagggt ccacaatccc
87851 ttatgcaaaa cttttggagc caaatgtaaa ggaattcaga atttttccga
87901 ttttatttta ttttttttga gacagggttt tactctgttg cccaggctga
87951 gtgcagtggc actcatggct cactgcagcc ctcaacctct cagcctcaag
88001 caatcctccc acatcgacct cctgagtagc ttgtactaca ggtgaaccac
88051 caccatgtcc agccaatttt taattttttg tagatatgtc tcaactgtgt
88101 gcccaagctg gtctcgaact ccttggttta agcaatcttc ctgcctcagc
88151 ctcccaaagt gctgggatta caggcatgag ccatcatgcc caatccagat
88201 tttaaaaagg taatatggta catatactgt tatataggac tcccagtggc
88251 atctgggaca gtaccctgta atcacattaa tacatacaga gtgaaaaaag
88301 taggaatatt tgcactaaga ataattgagg gctataaata actcaatttg
88351 ggtcagattt ggccgcaaaa taagtgcac aaacttcaaa aaaactggat
88401 gtaaaagatt tcagatcagg gactctggac ctgtaattct tccttaatga
88451 taaataataa caatgacagt ttatggaaca cctactatgt gtcaagcact
88501 gagcttgggtg atttatatat gtatctcatt taacattgag ggtacttcag
88551 taaggtggat atccctatga tacagtgcgc ttccaattaa gcttttaatt
88601 tcacattatt cagtttggtt tgatgacctc atttctccct aattaataga
88651 tgaagatacc atttcattta aaaatgtaca tatgattaaa atgaattcca
88701 aaacctctaa caacagaggt ctaaaatgaa ttgaaagtag ttgcttataa
88751 ttgctttttg aatgatgaat aaagaggatc catagagatg tcatgaaaag
88801 tatgttacta gccagggtgc gtggctcccc cctgtaatac cagcactggg
88851 agactgaggc aggaggactg cttgaggcca ggagttccaa aagtatgttt
88901 ctagaatacc cgaaggtagc aaaaagtggt aaaaaaaaag tgtttagact
88951 cttggggaaa aaagagcagg aggaaggcat caaaaatctt atctatctgc
89001 ttttaagtact gagttgtgat ctcttcgtgt cttgctttct catcagatta
89051 ggtgttttcc aaagctaagg attatgcctt cctcctgggc cacagtactg
89101 ataagagag taggctggag taatcaagaa agttaacttt taaaacagaa
89151 ctcaagtgtt ctcaatatg agtatgcctg agaatacaagg gggagctcag
89201 gagtaatgca gattcctaag ccttgacctg ctctctcaga gaggttgatt
89251 taggggactt ccatggaagc caggagttgc ctcttttttt ttttttttaa
89301 attttaaaaa caagcatcca gtaattttga tgcaagagga ctgtggagca
89351 ccttgacac tgacatgacc acaggattgg gagctaaaat aaccacacct
89401 gtgttctaga acaaaaagtt cccctctgat tttcagtgat caaagagccc
89451 caggaatttg actcaatgat tgtaagttga cctttccttc aaagttgtac
89501 agagaaaacc ctgtgaatga ccagatcata gggagcaatt tctgtaaaaa
89551 ttatagacat gaaaagattt ttgagaaatt acctcatctg tcaccagcct
89601 tgatgctgag tgacatcaaa tctgttttat atggatgaaa atttattcct
89651 attttaaaag acaagtagta aagaatatcc tcttgatgta accaacctta
89701 gctaggcagc agagctgcat gctgatggaa aaatcacatt ttttttttcc
89751 tcctaacaag gtttagtctg tccccaggct gaaacagaaa aagtggcttc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

42 / 338

```

89801 tgtgactaag aaacataaca ttaaaaatat gcagtgttga tggtagaaaa
89851 gggggccttt aatatggaga atttttattc tggtttttta ttttttcatt
89901 ttagatttat gcataaatta aataaaactt taaagatttt ggttttgcag
89951 gcaaataata tcttatgttt ataacttctg ccacttacct tagaaatgag
90001 cataaagcca ttgatttgta ttcttgccca ctcatgttaa actctaaagg
90051 tctaggaagg aacccaattt tgtttacacc aaaatccctt ttccctctac
90101 tctgtagaag gaagtcactc cgtgcactct gctgttcagc ctcatttatt
90151 tccttcagag cacagcacat aaagtactgt ttgtttcctt gttgctgttc
90201 tccttcacca tccaactgta agtcgtatga ggaagggact acagtttccc
90251 tcaccactgc atcctcagtt ctcacagtac ttggaacata agaggcattc
90301 aataaatgga aatttttgtc aaggatttct ttttcttttt tttttttttt
90351 tttgagatgg agttctgctc tgtcccccag gctggagtga agtggtagca
90401 tctcaactca ctgcaacctc cgcctcccag gtttaagcaa ttctcctgcc
90451 tcagcctccc aggtagctgg gattacaggc atgcaccacc acacctggct
90501 aatttttgta tttttagtag agacgggggt tcaccatgtt ggccaggctg
90551 tgtcaaggaa ttctttatgt cacggtgcaa ggtggaggaa aggccaagca
90601 ggttggatct ggagggctaa gttttagtct atttctttgc ctgtttctgc
90651 atctagaaat ggaaatttta tctgctttac ctttagggta aaaatgagat
90701 catgaataaa catgtttaac ataaattata caaatgcttt gtggtataat
90751 tttgaaaacc agggtttgct tgaatttgag atgggaaatt ttattagagt
90801 atcataactg ttttaaagtt aacctcttaa taagacattc attctagttt
90851 ttaatgcaat tgtggcacia attttctttg tacctttact ggaaagtagg
90901 tatttaaaaa tgttatcatt ggagggattc acttttagga aattgtaggg
90951 tgaaaccacg gtttcagtta atcctcccca aaatgaaaat gccttagggg
91001 aagttcacag ataattgtta ttttctacgt gtaaatgtgc cacttaacta
91051 ccttagtccc ttattaagat tttgataaat actatgggtt tcataattag
91101 tgtaatttgt cttagaaatt tgaaactcaa cattgtatag aaggaaaaag
91151 taaatcctta atatgtagaa tttctatttt gttttttaat tttctgtttc
91201 agattaatgg ttttaagaag tacagcttta cttttgcaaa ggttttgggt
91251 ctacagggaa attataatct tatgtttgtt tataacttct gctatttgat
91301 ttagaaatgg gcaagatgtc attaacttgc attctttttc cctcaaggta
91351 aactgaaggt caaagaaagg acaacatttt gtttaaatca gaattctctt
91401 catgtacttt ctagcaatag atagatagat ccataaagat ttgtttatgt
91451 tcgtatgaga agtttgaact tttttcttag caagaacatt ttcataagat
91501 atattttcca tgattagagt ataaataatg ctgggaaaag acaaatttgg
91551 ttgttggtgaa cagttattac acaaaatcca ttagttctga aacctttatt
91601 aaattttatc acctatcaga agtagttgtt tagaaaccgg cttgttaatg
91651 gagaatcaat gaagttgcac ttagttctgg ctacagcttt gagggacctg
91701 actgtggaca ctgccattta gtggcctcca catacgtatg tgtgactgag
91751 ttggtagtga ctctctctag ttatttggtt cctagctccc atattccata
91801 cttaaaagtg tttattttta tacttttctg taattagtga agatacaagg
91851 attgctgcta catttatgaa gtatgtttca atacaagttt ttattacttt
91901 tggaaaaata tattttctaaa actaacatat cataattttt actgagttaa
91951 atgccatata tctttcagag gatcataaaa caggagttag ggagtcatt
92001 tgggcagaag ggaaatctgt aagtatgaaa acaattcttt aaatatataa
92051 cctggatttt gtttaaacat agttcagtct tcggtgcatt acaggttact
92101 gactgccaag gcgggcagat cacaaggcca ggagattgag accatcctgg
92151 ctaacacaaat gaaaccccat ctctactaaa aaaaaaaaaa atacaaaaat
92201 tagctgggag tgggtggcggg tgcctgtagt cccagctact cgggaggctg
92251 agacaggaga atgggtgtgaa cccgggaggc cgagcttgct gtgagcagag
92301 atcgtgccac tgcactccag cctgggtgac agagcgagac tccgtctcaa
92351 aaaaaaaaaa atattaatat ttttgtaatg gtgcatttat gaagatctat
92401 aaagatttgc tcatccctca acagttttct agatagacgc attcattcag
92451 caaacatttg ttaaacactc tctacagggt aggcactgtg ccacagttaa
92501 tgctggggat taaagatcac attttatggc ctcatagttt agtgatggag
92551 atgtagaagt aaaatataac tgatatgtaa gtgtaattat aactgatatc
92601 atgagaacat agaggaggaa cctttgcttg gaaaaataag taaatactgt
92651 tggagaatat tattaatgtt actaatataa tattcttgaa gaataagata

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

43 / 338

```

92701 atttcttcag acagagcaag tcaataggac caggaggata acatgaatat
92751 tcttggtgaa cattcttttt tttttttttt tgagacagag tccccctctg
92801 tcacccaggc tggagtgcag tgggtgcaatc ttggctcact gcaacctctg
92851 cctcctggat tcaagtgatt ctcatgcctc agcctcttga atagctggga
92901 ctataggcat gtaccaccac acctggctca tttttgtatt tttagtagag
92951 atgggatttt gccatgttga ccaggctggg cttgaactcc tggcctcaag
93001 cagtccaccc tcttctgcct cccaaagtgc tgggatcaca ggtgtgagcc
93051 accatgcctg ccctgaatat tcttaatat aatattaata atgttaaaat
93101 tcttgaagat taggaggata tcatcaggca gagcaagtta atgggaccag
93151 gagaataaca cacagagact ggggtgagag agagaatatg ggaaaacgca
93201 tttgatttgg cacatagagt aagcaacaaa gtggacggga ccatgaagaa
93251 ctctatattc catgtaaaga ttttggaactt tatcctggca gtgacatact
93301 atagcacagc actaaccagt agagagaaaa ggcaaggctc aaactgaatt
93351 tttaaattttc taggtgttat atatatatat atatatatat atatatatat
93401 atatagagag agagagagag agagagagag agagagagag agagagagag
93451 agagagagag agagagagag agagtctcac tctgttgcca ggctggagtg
93501 cagtggtgca gtctgagctc actgcaacct ctgcctcctg ggttcaagca
93551 attctcctgt ctcagcctcc ccagtagctg ggactacagg tgtgtgccac
93601 cacaccagc taatttttgt gtttttagta gagatggggg ttcaccatgt
93651 tgtccagaat ggtctcaatc tcttgacttc gtgatccacc tgccttggcc
93701 tcccaaagtg ctgggattac aggtgtgaac cactgcaacc agctggagcc
93751 atgtttttta aaggaagaca gataaattaa ttttaagaaa atatttaatc
93801 atgtaatcaa taaaaaatta ttgatgaaat attctgcatt taaaaatat
93851 taaatcttca aaattctatg tgtattttac acctgcagca cctctcaatc
93901 tagactaacc acatgtgggt agtggcgact gtatgggaca gtgcattcca
93951 agaatgttct aagtggggaa atgatttgat cagatttgca ttataaatag
94001 aatgaggtag ggctagacag aaaataagga gattaataaa aagagatgag
94051 gacttggaga tgtggggatg gggttaggag ctagaatcaa gagatattta
94101 gtaactatat agctgactga aaggtgagcc tacattttgc ctcagggact
94151 tcacagaaag taatctgaca atttgctttg atgtttcaca aactcctcaa
94201 gttcactcat ccagtatctt ccctgctaac ctccctccctc atcagtgggtc
94251 accatcttgt ctgttactgt acacatacaa tcacctagca caatggattc
94301 caccttcaaa atacctcttg actctactta cctgtacccc aactgttaac
94351 tcctactaga atactaggct cctctgccag aaattcctca gcactctgta
94401 caacttgtct gtgacattca tcacagttaa agttatctgt tcaatttctt
94451 accctcccca gactagaagg ctcatgaggg tagggactct ctgtcttgtt
94501 tacagttgta ttccagcacc tagcataggt ctaactgggtg gttggaactc
94551 tcatttgtgt gtacatgaat gctcagcaga cttttggctt aacatctggt
94601 tgttaatgat tttgtggaga atgtcagttt ctagttatct ctagagtagg
94651 ccagcaggca gcacggtgaa atggaaagac acatggctta gagtcaagta
94701 atctgggctt gaattctggc tatgttactt actcattttg tgaccctaga
94751 caattaatca ctcttgcct cagtttcctt atctgtaaaa cagtaatatt
94801 aatagtatca ctcttttaggt tgtttcaaga attgatcaaa tgaaatgatc
94851 catgtaaaac tcagtatggc tgggtgcagt ggctcatgcc tgtaatccag
94901 cactttggga ggcgggggtg ggaggattcc ttgagcccag gagtccaaga
94951 caatcctggg catcatggtg agaccccggt gctacaaaaa aagaaaaaat
95001 tagccaggca tagtgacata cgcctgtggg cccagctact tgggaggctg
95051 agatgggagg atgacttgag cccaggaagt caaacctggg tgacagagtg
95101 agaccctgtc tctaaataaa taaataaata aataactcag catgatgttt
95151 gacatttagt aaatgttcaa acagatttat taatgagata atattttgtt
95201 tgcaggcttt tgttggtcct ctattacatg atttttatga agctgctaca
95251 gtaatgagtc tgttgatatt atcatgagta attataatat attgaaattt
95301 aatgagtttt atagcatatt ccaaaaaact attacacaca cattactaat
95351 atttcattct aataattgat aaagcattca tattaactac tatttctctt
95401 taaaagagaa ataagagcca ttgaagtaag aagttctata ataatatgca
95451 tataatagag gcttaataaa tactgaagat gaaaatgcat tttttatttt
95501 ccaactaaat cacaatagca cattttttagc ccaacagaaa ttttctgttt
95551 aaagtattta aaagtttttg acttgctaac cagtagcatg gcacagagca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

44 / 338

```

95601 cataagaaat taacaatcac ttgttgagta cctgctatgt acagaatact
95651 cgaacatggt gaagggatgg aaaagaaata tataacatgg tttctgctct
95701 ccaggatcta taatttatTT gggaagtaat atctgaatca agtgaaataa
95751 tttgttagtt aagtaagata gtattttaatt aattgcaaaa aacaaggact
95801 tccttgagat tatagattag agaggtgggt ggccttcttg gaatttagct
95851 ttgacaagat cacactgcag taggagtatc tggattata ttttttgata
95901 gctcagttta ctgtagaaaa ttgaatgaat attcattata caaagtatga
95951 tagcaagctt caaaaataca ttgcaaagtg tcttttcaga atgttgaaac
96001 taaccattgg tttgctcact ctctgtagaga agttgtgatg gaacagggtgc
96051 catgtacttt gtaggatgtg gttacaatgc ttttctgtt ggatctgagt
96101 atgctgactt cccacacatg gatgacaagc agaaagacag agaaataagg
96151 aaattcagat acatcataca tgcggaacag aatgccttga catttaggta
96201 tgaaatcctt cttgggtgtac ttttctttaa aatgtagcaa gggttggttg
96251 aaattaattt tcttataatt gtaatttatt tcctttttca aattccaaga
96301 aagtttcctt tcagaagtat aactttggta aagcttggtc ctcactgcca
96351 gacctgaagc tatgacctga cctgagggtc tgcctcttc aggtcttccc
96401 aatttggtga gcatgtcttt ttttcccttg cctctctcca atatgaaact
96451 gctttaagtt tatccttttg gatcttgctc agcctctcat atttctggat
96501 gttaaggctc ctttgttttc taaatctgga gcacgcattt attaatacag
96551 ttacacgcca cagaaagaca ttttgagcaa cgatggacta catgcacaac
96601 gtgttcccat aagattataa cagagctgaa aaattcctga gtgaagtagc
96651 cattgtaaca tcacacgtta ctttttttat gttcagatac gcaaataactt
96701 accatttgtt tacaatggcc tgcagtattc agaataggga tttataatga
96751 accaaattgc ttcaaaagag cttttgttag tgattatacc tgttaattta
96801 catcattttc acaaacactt ctcagccttt accattaagg ttaagggatt
96851 aaaaaactgt gtaagacatg actcctgtcc ttggagagct tctaatacaa
96901 taggggatat gagacggcat ccacctcgtg ctgtggattc tgtgggaggg
96951 gcaaatagtg agtgctgcgg acattctgga gctgctatgg acaaatggga
97001 gagtgcaagg gaaaggcttt agggagaac tggcatctga actgagcttt
97051 aaaggattcc tagactgggg caattggaag ggaagggaag accattcttg
97101 cttctagcat aagcaacggt ctagaagtag gaaaatccgt ggtgtgttta
97151 ggagcatgaa tattccagtt aggttggaat gtggacacaa gggaaagaca
97201 gctcacaagg acaggctggg actggactcg agaggacttt gagtttatgc
97251 tccatttggt aggcagcggg gaaatggaat ggcattgaca gagccatacg
97301 ctatagatta tgtaggtagt attgtttgaa cagactagat gcatagaatt
97351 ctgttgccct agtccagggt aacgtaaaata acagtctcaa caaggaagat
97401 ggatgtggaa ggctggcggg ggaggaattg aagatggctg gctgagagct
97451 acgtaagcct cagaacccgg aagtcagtc ttcagcccc agttgttagt
97501 cctaaactac cctcagcatg caaaatttca cccaaaattc cctctattct
97551 tttccttgct ctcttcatta cagatttact tgcttcattt tgtacagagg
97601 tgtgaatata tcaaatagaa acttttcttt ttaaaattat cctatgatag
97651 ggaaggggta agggaaactat aagtcaaaac agaacttaag tatttgatta
97701 ttcatttagt aaacatttat tgactatcca ctaggtagca gatagggtg
97751 tgtcatttgt ctaacaagat gagtttagtg ctaatcagac atgattagct
97801 cttaaggat cagtttcaaa tctaattcca gtattctaaa caggtagtta
97851 tttagaaagc attgggggtt ttttctctct tcttttggtg tctgtatctt
97901 cctgatttca tttattttgt aatctgaaac tgaacctctt acttagaatc
97951 aataaattat ttttagttat aataattgtc atgttcagggt tgtatcataa
98001 cacttttggt ggtttacata ctttgaacat tcagtaattc agcaagtcta
98051 aggcttgatg atcattatta ataattgtcat aaatctgttt ttaaaacagc
98101 tcaattttag tgtttaaaga ttttctaaa aaataactta ccctttcaga
98151 aacgaccttt ctgatatttt ataatttttt ttgtaggtgt caagaaataa
98201 aaccagaaga aagaagcatg atttttgtga caaagtgcc atgtgatgag
98251 tgtgtacctt taattaaagg tgcaggcata aaacaaatct atgcaggaga
98301 tgtagatgtt ggaaaaaaga aggcagacat ctcttacatg aggttcgggg
98351 agcttgaagg tgtagcaaa ttacggtaa gtagatacac atttttttca
98401 ggtgtatttt gtattatgtt gtaggtacc ctgctgcaat attgtaagtt
98451 agtgattccc acccttttaa agagtttcaa caaattatta ttattattat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

45 / 338

```

98501 tattattatt attttattat tattatttga gacagagtct ctctctgttg
98551 cctaggctgg agtgccagtg gctcgatctc ggctcactgc agactccgcc
98601 tcctgggttc aagtgattct cctgtctcag ccccccaggt agctgggatt
98651 acaggcgccg gccaccacgc ctggctaatt tttgtatttt tagtagagac
98701 ggggtttcgc catgttgtcc gggctgggtct caaactcctg agctcagggtg
98751 atccgcccgc ctccgtctcc caaagtgctg ggattacagg cgtaagccac
98801 cgcgcccggc cgagtttcaa caaattatta ttattattga gtttatttat
98851 atgtgcaaac ccttacctaa ctgcaactgt tcagctaagg attcctgcct
98901 tatgaattta catctctgta gagaattgag ccagtggatc ttttgggtgcc
98951 atctgggtggc tgataaaaga aaaatctctg acccatctct tccctctcct
99001 ttctggctta gagaggtgga tagaggtgaa aatacttcag cagtccccac
99051 ccttttcggc accagtgacc ggttttgtgg aagacaattt ttccacagat
99101 ggggttatgg ttttgggatg aaactattcc acctcagatc atcaggcaat
99151 agattctcat aaggagcacg cagcctagat ccctcagggtg tgcagttcac
99201 agtaggggttc tgctcctatg agaatctaata tccaccgctc atctgacagg
99251 aggtggagct caggcggtaa tgctcgctcg cctgcactca cttgctgccg
99301 tgcggcccag ttccctaacag gccacggacc agtactgggt gctgccaag
99351 gtttgggatc ccctgcaata gtttaaaggc cacccccacc cccaaacaaa
99401 gggaggtgca cacacacaaa cacacacatt tctcatgaga aaaatcagga
99451 aaacaagaat atttgtttat ttatttatat atttattttg agatggagtt
99501 tctactcattg cccaggctgg agtgcaatgg cgtgatctcg gctcactgca
99551 aactcagcct ccgggttcc agcgattctc ctgccttgct acccccaccc
99601 ccctccccc acccccaggt atctgggatt acaggcgcac gccaccatgc
99651 ccagctaate ttttgtattt ttaataatag agacgggggt tcaccatgtt
99701 ggccaggctg ctcttgaact cctgacctca ggtgatacac cggcctcggc
99751 cacccaaagt gctgggatta taggcatgag ccaccacgac tggcccggga
99801 aaaaaagaat ttcttatttt atagttccaa aaatgtactg aggtagttca
99851 tggaaaacac aagaactttt aagtctttat acctcttcac tatttggttt
99901 ctgggtttttg tgggtttttt tttttttttt tttgcttttg tttttgtttt
99951 gagacagggt ctactatct caccagggt ggagtgcagt ggcgccatct
100001 tggcaatctc tgtctcctgg gctcaagcga tctgcctgcc tcagcctccc
100051 aaagtgctgg gacaagcatg agccactggt ctcagcctat tttggttttc
100101 aaaaagcttt ttatttggaa aaaaccttaa gcatacagaa aagttataaa
100151 aacactacaa agaaattttt tcccagaagt tgttgacatg ataccagctc
100201 accctttatt tcctcaaagt agaaataacc acataattac aaccataaaa
100251 atcaggaaat taacattgat acattactgc cactaatcca cagattccag
100301 tcaaggttca ttagctgccc aagaaatgtc ttatatagca ggtttcccca
100351 acccctgggt accagttaag aagcttcttc tgtatttatg gtcactcccc
100401 attgctcaca ttactgctta agctctgcct ccggccagat cagcagcggc
100451 attagattct catgtgagtg tgaaccctat tgtgaactgc ccatgcaagg
100501 gatctagggt gtgcactcct tatgagaatc taaagcctga tgatcccca
100551 ttctcacca tctggtctgt ggaaaaactt ccatgaaacc ggtacctggt
100601 ccctgggtgcc acaaagggtt gggactgctt ttatatagca aaaggatcct
100651 gtccagaatc atacattgtt tctatgacat ccaatgattt aatcctggca
100701 ttgaatgagt taatgtaaca tttaactact agaatttgca gtgggaagaa
100751 aaatgatata aaagaaccgt ttatatattt cagctttaca ttctgccat
100801 atacatcagt ttgagtccag gatacctgga acatacatat atatgattaa
100851 cttggacata taacatataa ttatatatgt atataatttt aaatatagaa
100901 acatactatc cagtgtctgt catgtgtata tgaagtatca taagttttta
100951 ccatttgtaa tattgtcatt tttttctaat tgtcttattt aaagtttatc
101001 acatttttaa atgaggggggt gttgacatgg cactgaaaga aggcagagat
101051 gggaaagata ctttttttgt aaaactcaat aaaagcttat atccaactag
101101 tcagagaaat ctctacttcc gtgtttttgt tttctgtctc ttcatctctc
101151 ctgaagagtg tgaataaata ggtttttcaa gttctcctca taaagattaa
101201 gtgacttaat cataaagatt aaggactatg agtgatgggt tatggagaat
101251 tctgaaatat cttgcttact ggtagatttt aatagctttt caattgtaaa
101301 gagaatgaag agatcagaag aacttaagaa agggcaagag aagcagaagg
101351 aggcaggaag actaagggga tcttcagggg cagagatggg aaaggaagca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

46 / 338

```

101401 cccagttggg ccagaccctc ccggaaatac cctcactcag gcacatgttc
101451 caaaggctgt tgttcatggt tgttctctgt tctacctcca gtgaagatga
101501 gctgtccatc ttctcatcct tctcatctgg cctggctgca aatattatgt
101551 agatggttag ctagatacct agttttgtaa atgcaagtaa ttaacatgaa
101601 ctagaatttg ttctaaatct gaatttcagt accaagatta tcaaaaatag
101651 tgtgtgtcaa taaatttggt atttggtttt aagattaaag caaattgaaa
101701 ttactttgaa agattttttg ctttcctttt tgataagtta ccatagacct
101751 tgagataagt agttctattc tgtggtgttg tcacaaacca ggctaggact
101801 gggcaacact gtttccaaga atagatttta tcaatctata tccatgtcca
101851 catactcagt tctttgtttt ctctttaata tgtgtggatt tttctctatt
101901 aggttatatt acttattttt attatgaaag tagtatatgc tcattgtaga
101951 agactaggaa aataaaaaag aacgtgtatt atctcacaac tcatagatac
102001 cacaattaac atgttgctgt attttctgcc actaaaagtt ctttaaaaaa
102051 tatttttaaat aatttaacac aatattccaa cccataggcc taacttattt
102101 aaccattccc atgttggttg acacctggat tgtttctaag tttttacagt
102151 tataagaagc ctttttatga atgtccttaa acataaattc aggattactt
102201 gtttttactt tgtctgccc aattaatagg ttttagtggt ttgacgtctt
102251 tcaaaaaatg cctaatttta aacatttttt tggtaatttc tcatgtagct
102301 tcctaccctt tctaagtctt ctctctttct tgggtctagc ctaaaccatc
102351 ccattcgttt aaataaccaa ccatttctag atgtcctccc tttccaggga
102401 cttttaatac atggtaaaat gtttgtcctg tatctcatcc cccctcaagg
102451 ctcgtgatgt taactagtta atctgatgag tgaactgatg cttatggaag
102501 aggctcccgg gtaatccata tttgtgtcct gagatgggtgc cctagcaggg
102551 ccttttggtt aagtcattag tgattctgat agagattcta tccagctgag
102601 aaaagaaggg ctgtgctata agataccgat tactctccat ttttattttc
102651 tcctgcccc aatattctatg taatatctgt gaatcttcag gcttccctat
102701 ttattcctga atggttgaga tgaaatacag taatcagagg agatatatga
102751 tatgatataa aatgatatga tgcaggtaat agtttatgat ataacaacat
102801 taaaaggcaa ggtaatcttg gtcataattt ctttttcttt tctttttttt
102851 ttcttttttc tttttttttt ttgtgagaca gagtcttgct ctgtcttcca
102901 ggctggagtg cagtggtgca atctcggctc actgcaagct ccacctcccg
102951 ggttctcgcc attctcctgc ctcagcctct cgagtagctg ggactacagg
103001 caccggccac cacgcccagc taattttttg tatttttagt agagacgggg
103051 tttcaccttg ttagccagga tggctctctat ctgacctcgt gatccacca
103101 cctcagcctc ccaaagtgtt gggattacag gcgtgagcca ctgtgcatgg
103151 cctatcttgg tcatattttc attctttaat acctaggcct tttctagcta
103201 ttataagatt ctctaggacc tggagataga atacaatgcg atgttaattc
103251 catagtactg ggcattgggt ctaattctat tgcctcctgt agttagggtg
103301 taacctgaga caagtcactc caatcctctg gtcttccact tacttccaat
103351 taaaatgaat gtaaagaatc ttcaacttct ctaagagtat tgattcggat
103401 cccagaagtt atatcattca ggatcactca gtgtggcggt attagggctt
103451 tgttaatttg aacatgctaa cttctttttc ttctattttt ttaatttttt
103501 ttttttttca agatggaggc ttgctctgtc acccaggctg aagtgcagtg
103551 gcaccatctc agctcactgc aacctccacc tcccagggtc aagcaattct
103601 cttacctcag cctcccaagt agctaggact acaggcgctg gccaccacgc
103651 ccagctaatt tttgtatttt tattaagac ggagtttcac catgttggcc
103701 aggttggtct caaactcctt aactcaggta atccacctac cttggcctcc
103751 caaagtgtct ggattacagg tgtgaccac tatgccagc catttttctt
103801 ccatttttaa gaagttgttt tgatatttaa aatcaatgtg ctggaatgct
103851 atgtattaaa tcctctttta acaagtaaaa tgtttgtgca ctcttacagt
103901 ggcagctgaa tccatcagga gcttatggtc ttgaacaaaa tgagcctgaa
103951 aggagagaaa gtaagtattt atgtattgag gtgaactttg ttgctgagga
104001 gaaaggatat acagtgaatt ttaatgatca ggtgatgaaa attgtgttaa
104051 tagatggagc atattatttt tgaagggttag atttttgcca ttcaatttgt
104101 tcataaatat ttgtgggtct accatatgct aggtgctatg gaaagtgcg
104151 attaataatt actcctatag aatctacagg ttaatacaaa taattatgca
104201 caaattgact ttataaatta aatgcataatg aaacagtaaa cagcaatgct
104251 cttctataac aaaacaaaag cttattgggg agtgagaaag gaaaaatatg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

47 / 338

```

104301 tataattagt acagatggat tgggacccaaa tgatgaggat atatacattc
104351 ttctagagta aacccacatt tgcccagatt ggaaatgttc tggtaacttg
104401 aataatctga ttaactaaga atcatcacag ctaccataat gaattactag
104451 tctttaaagc tttattattc gtatactact acagatattt tgaatgtaat
104501 ataatctttg agaagtctta caattcttta ggcacataat tttagatatg
104551 agtgctatat aatattattc taaaatagta actataggcc aggtgtggtc
104601 actcacgcct ataatcccag cactttggga ggccaaggca gggggatcac
104651 ttgaaatcag gagttcgaga tcagcttggc caacatggtg aaacctcgtc
104701 tccactaaaa atacaaaaaa tagccaggta tcatggcaca tgcctgtaat
104751 cccagctact tgggagtttg aggcaggaga atcacttgaa tccaggaggt
104801 ggagtttgca gtgagccgag atagcgccac tgcactccag cctgggcgac
104851 agggcaaaac tctgtctcta aaaataaaaa taaaacagta actatattat
104901 cgaattattt ggatttgaag taaatggaag ttttctgtaa gttttcttga
104951 taataacaat tttttaacct tgaaaaatca agaagtataa aggtcttaga
105001 ataatttttc tgtgaatata ttgattttca gtgttctgaa ttagctttat
105051 ttgattcaaa tagaaaatgt attgtttgca atttgaaaaa aagtacatat
105101 ccactgcatc tttcttttta aaaattttatt agcaaaaaag gctgtatcta
105151 tctatctatc tatctatcta tctatctatc tatctatcgg tctgtctctc
105201 tgtctatcta tacatctgat taaataatgt acactcaatg acagtgtttg
105251 aaggggccaa tgaataattt cctatgttag ggaaaggata caaaaagcac
105301 gaatcataaa aagggttaatt tatctatgct acaatgaaga atatctgttc
105351 attaaaaat attactaggc caggtgcagt ggctcacacc tgtaatccca
105401 gtgctttgga aggctgaggt ggggtgaattg cttgagccca ggagtttgaa
105451 accaggctag gcaacatggc aaaacctctc ctctacaaaa aatacaaaaa
105501 ttagccaatt gtggtggcac atgcctgtgg tcccagctac tcaggaggct
105551 gaggtggaag gatctcttaa gcatgaagag gttgaggctg cagtgatcca
105601 tgcttgtacc actctactcc aaccttggca acagagttag accctgcctt
105651 aaaaaaaaaa aaaaaaaaga tatcactaca agagtgcaaa ggcaagccat
105701 ggaatatgag aagatacttg ccacttataa tcaacaaagg gcttgtatct
105751 aggattttatt attcctagat tactaaggaa aaggaagaca tgctgtggtt
105801 aaagccccaa gattggaagg aggggacaaa aggaaggctt ctggtttgct
105851 ggcaatgttt tatttattga cccagatgat ggttacatat gtttgctttg
105901 tgacagttca actgaacagt taagtttatg tttatgcatt tttgaacaag
105951 tgtttgatct cagtaagcaa taccctattt cctttttaat tatatgatag
106001 ttttactgat atgtaattca tctatcataa atttgcttct ttagtagatt
106051 cacgaagttg tacaggcatc actacaacat aatttcagaa cattttcatt
106101 atctgagaaa gaagtctcat gcctatttgc agtcactccc cattcttcac
106151 tccccctagc cctaggcaac cactctttca gtttttatgg attagtctat
106201 tctggccatt tcatataaat ggaatcatal agtatgtaat tcctttccaa
106251 tttttgatcc agttgagaaa tagacaccag aatcaacaga tgaaagttac
106301 aacaccagct ttgttgtagg actggggctt gacttttggg taaatcagtc
106351 tgtctaactc agagggggac ttgctgctgg atactctctc agtgccagta
106401 gcagggacaa acagagaagg aaggcaggca gtgtgactga caactctcaa
106451 gtgcccttcc actccatgca aatggaaccc aggtaacca taacaagcat
106501 tcttttttaa gagtcatgga gctttcaaga aaataagaga aatattctcc
106551 taagaacaaa atagagataa gaaggcattt tgctagaatc tgaggagcaa
106601 tagtaagcga acacaatagc cagagctatc ctggggacaa atgtccatat
106651 aagctgggat ctgagatcag gtctgggtct gctgcaagggt gagtgaactg
106701 aacttagttc acccaatcaa cacatgaaaa gatgattaaa cttattagta
106751 gtcagagaaa tgcaaatata cattgcacgg aagtagcttt ttttttgctt
106801 tttttttttt tttttttttt ttttatgacg gagtctcact ctgtcgccca
106851 gtctggagtg cagtggcgtg atcctggctc actgcaacct ccacctccca
106901 ggttcaagag attctcctgc cttagcctcc caagtatctg ggattacagg
106951 catgcaccac catgccagc taattttgta ttttttagtag agacgagggtt
107001 tcaccacgtt ggctaggcta gtctcaaact ctggacctca ggtgatctgc
107051 ccgccttggc ctccgaaagt gctgggatta ccggcatgag ccaccacgcc
107101 tggcctgaaa tagcattttt tataagcgta tggcctagag aaactcttgc
107151 atattgtata agagtccagag agacaaagaa tttgttgcta tattgttttt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

48 / 338

```

107201 aaaagcaaaa actggaaata acacaaatgt ttgttttggg tggttagata
107251 aaaatattat ggtgtattcc cacaatggac taccatatag cagtgaaaac
107301 aatgaacta gagctacatt cttcaacatg gatgaatctt agaaatataa
107351 atgttgaatt taacaaagca aactacagaa ttatgatacc atttctgtat
107401 aaagttcaaa aagacatacc atatatgtgt taaatgtggt aggccaggca
107451 tggtgctcac acctataatc ccagcatatt gggagactga agcgggccaa
107501 ttgcttgagc ccaggagtcc aagaccagcc tgggcatcac agcaaaaactc
107551 catctctaca aaagatacaa aaaattagtt tggcatgggt gcctgtgcct
107601 gtagtcccag ctaccgcaga ggctgacata ggaggatcac ctgagcccag
107651 gaggttgagg atgcagtgag ctgagatcac accactgcac tccagcctgg
107701 gtaacagact gagacagacc ctgtctcaaa aaatatataa ataaataaat
107751 aaaatatact ttaatatata gtatatacag taaagttatt gttagaagc
107801 aatcgattga taaacacaaa aatcaagata ggagttgcct ctgagtgggg
107851 tgaaagggga tgggacgaga gagggagcgc acgggaattg ataatgttct
107901 agttgttggg ttcggcagta tgttttgttt tttttccatc tcccccaac
107951 acacataatg tagttttatt cagttttaaa caaactgtaa ctcttttggg
108001 gcagtaagtt catgagtgtt cattttattg ttaggcttta gaactcccat
108051 ctgtattatg tatgtattat tatatattac ataatacatt atatatagag
108101 agagagaatg tttcaaatat tacatgatat gatgagaaca agaaagagag
108151 aggggtggct ttccagatct acctctggaa ggcaagtctg agccctggcc
108201 caggtgtcct taggacaagg aaacagcagg gcagaacata caggctcagg
108251 gcaggaaatc cctcaaaaga tgggaagaaa ggggcagaaa gaagcttttg
108301 caggtgatag atatgttcat tgtcttgact gtggggatag tttcatgaat
108351 gtgtacttat gtcagaaatc atgaaactgg actaagcaaa atggctcctt
108401 cctgtgatcc catcattttg ggaggctgag gtgggaggat tgcttgaggc
108451 caagagttca agaccagttt gggtaacaga ctgagaaccc catctctaca
108501 aatattacaa atcaaaaagt aaattaaaaa aattcatcaa gctatacact
108551 ttatgttttag tttattgcat actttaaaaca tgtatcattt attgtacaaa
108601 taaagctatt aaacacaaaa gccaggaaga ggttgaagcc atactctttt
108651 cccagcctgc ccagtcagat aagtccgtct tccttccagt cccagattc
108701 tccctacccc acacacagtc cccttctccc ttaggaggta cattttattt
108751 cttccagtct agtaatagga cgtcccccca ccaaaaacat aaaacaaaaa
108801 gttttatgaa ttacttgccg tacactgttg agtgaattca gtttttgggt
108851 tttttttttt ttgagacagg gtctcgctgt gtcaccagc ctggaatgca
108901 gtggcacagt catggctcac tgcagacttg gcctctctgg gctcaaacag
108951 tcctcccacc tcaggctcct gagtagctgg gattacaggt gtgcgccaca
109001 acacctgttt aaaaaaaaaa aatttttttt gtagagatgg ggtctcccta
109051 tgctgccc aa gctggtcctt aactcttggg atcaagttat cctccctcct
109101 cagcctccaa aagtgttaaa attacagacg tgagccattg caccggcca
109151 atgtgaatcc agtttttaaa agccagattc tgtattgcct gagagtaagt
109201 tatctagatt ggattctcta caattgagaa tttgaagata aaataaagtg
109251 aaagttcctt taacttaagc attgttttgc tcttacaaca tgtaaggctg
109301 aaacaagtgc ccatgggttt gaaatgaagc tgtcctgacc tagcgttatt
109351 ctcaatgcta gatggtgtgt tgagacctgt cccacagaag gaagagcagc
109401 accaggacaa gaagctgcgc ctcggaatcc actaagaagg cctgtctaca
109451 ctgcagggga acctcaagaa cttttcattg cacttctaaa attcagcctt
109501 gttcattcag aaaataagga tggattttgt gaataattga aaagattttt
109551 taaggaagct aatttatatt taggatacaa atggtgttaa taagaatatt
109601 tgtcttttag atttatgtgt gggttttcca taatgtagta gtgtgttatt
109651 ttattacacg aaatgaggga gcaataactt caaccaatgt aatcaccaac
109701 agggactgat ttctatttat cttgacttta tattagccaa tttgaaaggg
109751 tctgcttcac aagaggtcat gcctctgcag ggaatcacac accttttgag
109801 aatatattaat tcttttgaat tacaagagtg acagttagta aactgctcca
109851 gggaaataag tgtcatcttt taagagtcag tgtatagcaa accaaaagat
109901 cacatttata ccaaagctt tctagtaatc agaatttact taattagaat
109951 tgactcataa aaataaagtt agtggacttt gtctccattt ttaaagtata
110001 ttttgtaa at gtttaattctg tggctctgtt tatcacagac tttgggtagc
110051 aataggaaga gagtgttatt ctgagacagt gtcgctgctt gatatactg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

49 / 338

```

110101 actcttgaaa tcactaacag tgaacctcaa atttggttat gatgttaaca
110151 gagaagaaat atttgagtct ggaatattga aactagcttt cctagaattc
110201 cattaataaa tgctgctccc ccatatagtc ttcccttctg tataattaac
110251 ataggttgtc tcatggcttt gatcttcaaa aggaagagcc ttttaaaaac
110301 atttgccaac ctcaagaata aatactgaaa gtcttgaaag tatggtcatt
110351 tcagctattc cagattgctg tctgtgattt ctcacatttt tatttgctga
110401 gaaacattca gaaaattatt ccaaaaatga aggtacattt tctgttctct
110451 cctagggttag agaggggttg cctggggtgc ttcattgagaa atgtcttcct
110501 ggatctgcgg tggtcagggt tgcctctgct tttgttccct gcctttccgc
110551 cacatcacac ggcctcactg ggcttcctac cagtttctca gaattacacg
110601 cagcaccatc caaacattgg ctccatgcca gggctgtgac tgcagcctgt
110651 gtaggaccat ggggagttca gagtcatcat acaaggcagc caagaactgc
110701 cataaacact acacagatgg agggcatggg ataggacagg agaggagggtg
110751 atgtacactt agaggtaact aaggctagtt tgaaaaccgt gaattaagat
110801 attcttatca gtataaaaac actgagattg cttacctccc aaattgcttt
110851 attgtattaa ctctcatgct tcagctcttg gatttggtgt ttctaactaa
110901 catgtcatgt acaccaaaaca ttttataaat caatcagtaa atattttgta
110951 agacccaaaa tcctggcata ttgccagggtc tgtggatttg cctgttgggt
111001 gttgggatgg gatatcagag gaagaagcat acaagtggga aaaactgtga
111051 ttagaaaggg aaaaataggc atttccacag tactattaag agaggcatga
111101 taatgccatt ttttttcttc tgtacaactg gtcagatttc aataaataat
111151 cattgatggg ttactgtgta gcctcagaag gtgaagtcta tgagggcagg
111201 gaggtgtgtg tgtgtgtgtg tgtgtacttt ttaactgctg aaccccagtg
111251 tctagaacag tacctggcac acagtaggca ttccataaat atttgtttat
111301 tgattgaatg actgctaaac actgctagac tgcggggatg agatgtgtga
111351 gaaatgcctc ctgatcttaa gacactcaca gtcaagtgga agatacaagc
111401 atggaatcaa gtaattaaga aaaatgattc tcaggccagg tgccgtggct
111451 cacacctgta atcccagcac tttgggaggc tgagtggggg agatcacttg
111501 aggtcaggag ttcaagacca gcctgggtcaa catggtaaaa ccccgctctc
111551 actaaaaata caaaaaaaaaa aaaaaaaaaa aaaagctaga catggtattg
111601 catgcctgta atcccagcta tttgggagac tgaagcagga gaatcacatg
111651 aacccaggag gcagagggtg cagtgaagct agatcatgcc actgcactcc
111701 agcctggaca acagagcgag acttagtcta aaagaaaaga aaagaaaaaa
111751 atgtctctgg accagcagac tatttggttag aagtgcatat tcttaggggtg
111801 ctccctagge ttactgaatt agaacctctc aggggtgggc cagcaagctg
111851 gggtttcacg accttgctgg tgattctggt gacctttaag gctgagaact
111901 gccattgtgg atgtaactgt aggaacagtg ggggcacacg aggatttacc
111951 agcactctgg ggagtcattg aaaggacctt gtagaggcag aggtgatgag
112001 gtggggcctg aggggatcca ggggtttgcc aggtaaacag tgggaatgag
112051 acaaatttct gggaaaaagt gatggagaca gactgctgag ccaccccagg
112101 agcccgcctg ggtttgagga agctctgtgg ggcacttttg acccagatct
112151 ataaattccc agtcttcac ccttagcctg agaaatcaga acttacactt
112201 aaacaaaaaa tacaatgtct ttctaaattt caaagaatgg gaggatgatg
112251 gtaagttcat aatttgtaaa aaaaaaaaaa aaaaaaaaaa atagctctgc
112301 catttgttta ctgcctaagt ggccacagaa tatgctactg tgaggggagc
112351 taagtgtgag catttgcttg gcttccttca tcccagtcac gcagaacata
112401 cgcagggtgt tgtattttca ttgtattgct gctgaagctt tttctttcct
112451 ttttcaagac aggggtctcac tctgttgccc aggctggagt gcagtgggtg
112501 cttcatagct cactgcagcc ttgactgttt tctgtgctca agcggtcctc
112551 cccacctcag cctcccaagt agctgggact acaggcacgt gccaccacgc
112601 ctggctagtt tattttttat ttattttttg tagagacagg ggtcttgcta
112651 tgttgcccag gctggtcttg aactcctggc ctcaagcaat cctcctgcct
112701 ctgcctccca aagtgtgtgt attacaggca tgagccaccg cgctggcca
112751 agttagcttt atttctgggt caatgaatgg taccaacact ctataaacat
112801 gaactctatc tttagtgaac ctatgatata taaatgagct tatcgccctt
112851 gaatgtctat atctaaaccc acgtaacact tgggaaggag aaagaaagaa
112901 gtgagcccat cttgggacag gagctccttt ggtgagtgtg gcacagagtg
112951 atttgttagg gaaagcacat gtctttccag aaggacatga gccagaactt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

50 / 338

```

113001 tcctggaata cttcccacca ccccatgatt ctcagaaatt ggggtccagg
113051 ccaggatgaa cgagaaagaa accacagtgc atcccagtgc tgacacccgt
113101 acccagagag gcccgggccg gggatgtatc ccaaggacaa aaggtggagg
113151 gaggaggctg gggggagtgc acttcctgtg gagtgaatgg aaacagcctg
113201 gctctgccta atgtgcatga ggggctgggg gtggcttgaa cagcttgaag
113251 taccttgtgt agtgtgtgcg cacattcaca atgttagaaa aaaacaaaaa
113301 caagagctaa gcgagaagtc tgaaatactg tgggtgatga tgctgttgag
113351 ttgcaagaaa tggaagctcg tgagccggga ggcttctgtg tggcagatcg
113401 taactcctga ccaactttgt ttcacccatg atgataacca gcagagggtc
113451 tccaggttgt ttatttttga acatggtaca attcattaac aaatatttgc
113501 cagggttag cttaccatga gccaggcact gtgaggagtg cagttacagt
113551 ggtgaggaaa accagacaca aaccctgccc tcgtggagct tatcgtctag
113601 ttggggagat ggacatacat cagtattcat gaaaatgaat gaaaggtaca
113651 cagaaaagaa ctggcctccc aacaaataca gggacatgtt ttttcagttc
113701 ttccacttca cagagatctg gtactattat aatggcacca tgggctgcac
113751 ttagtggacc cagaaagttc tactggtttg ggttttttaa aagatatcct
113801 acacgcttaa gcagggaatc ttttggaac ctctggaaga acaatcatat
113851 taaacatgca aatagggctg ggcacggtgg cgcacaccag taatcccagc
113901 actttgggag gctgaggcag gtggatcatg aggtcagggg tttgagacca
113951 gcctggccaa catggtaaaa ccctgtctct actaaaaata caaaaaaaaaa
114001 aaaaaagaaa gaaagaaact agccaggcat ggtggcgtgg gcctgtaatc
114051 ccagctactc agcaggctga ggcatgagaa tcacttgaat ccaggaggcg
114101 gaggttgacg tgagccaata tcgtgtcact gcacttcagc ctgggcaaaa
114151 gagcaagact atataaaaaa aaaaaaaaaa ttggaccatg acccttaacc
114201 tcaagattct gtgacttgtc aggggtgaaa aaaatgtatg taaataagta
114251 tagatgtgat aagctttaat aaagagcagg ggaatttaga gaaactgtac
114301 caagcattaa atgtattatt tttagtaacc agaaattcct tctattgatg
114351 taattaagat tttatagtgt ttgagaggcc aaggcaggag gaccacttga
114401 agccaggagt tcaagaccag cctgggaaac atagcaagac cctgtctctc
114451 caaaaagaaa ctaaaaaatt agccagttgt ggtggtgcac acctgtagtc
114501 ccaagctgct agagaggctg aagcgggaga atcacttgag cctaggagtt
114551 caaggctgca gtgagctatg cttgcaccac tgcactccag cctgggtgac
114601 agagtgagac actgtttcaa atagaaaaaa aactgcatat agtactttac
114651 tctcagatat gagtgtttct gttgaccagg aattttacca ttcttggttc
114701 tctgatgcgg aggtggcctt gtgaaaggac acagtttctg ctgagctgaa
114751 cacgctttag tgtaatctga tgaagaactt ctatgctggt tgcggtattg
114801 gtggaaagtg ttttattttg cagaaaaagc acaaattcca cagagggcaa
114851 cagttatcca ttcactccat agctatctat tgctgcatga cagactacce
114901 cctaaaactt agtggcccat gccactattt tattttgcat gattctgtga
114951 gccaggaatt tgggcaagat tcagcagaac agctctactc cctgtggcac
115001 tggctggggt catggacggt tgtgtgccac tgggtgggtca gttgagaggg
115051 gggcccagcc ggcacaggga cagtgaggct ggaccatcca aggggcttct
115101 ttcaggtttc tgggtgcctca gcttggtatg ctgaaacagc tggcagctgg
115151 ccagggtctc ccagcagggt ggccagacct ctatgagggt gcaagggtc
115201 tgaaagtgaa tgctccacaa ggatggggcc agtgtgtccc ccttgcatac
115251 tgctggctca tggatcactg gccaaaggcca gtttcgtggc cacaccaga
115301 gtccatgtgg aggggctgc acaggacatg aagccaggag gtatagttca
115351 cagggaaca caaaagtaac gttcactgca gggacagagc agatcactga
115401 agggaatgcc actgggaatc gagcccatg tcctggcccc tgagcagagt
115451 tctgtcccca agaccattac tcctcatgga acttttcacc tccctcacac
115501 ttacggcaat gctaacagtc actacacacg gttctgagaa ccttcaaatt
115551 gaagccctca tgatgtttcc taagaagttg cagttgtcca aatccacaaa
115601 cccagatttt agttggcaag tctgagagggt tctgggtaac tgttttgctg
115651 cacaaacgtg ggtattcctg aaagtttaaa gattcatctt caacatgcta
115701 gggaaagcca ccatgatagc tagtctaata atgccagac catccctca
115751 ttgatgaatg gaaggctcac attttaagat gaatatgggc caggaggtt
115801 tcacctttct tggctgagggt tgatgcaaaa gtgataaacc ttggtgcttc
115851 ccgcctccct gttccctggg gatgggccag aatcagatgc catcagggac

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

51 / 338

115901 cctgcaggca attctgagaa ttccttttaa gaagacacct gcaggaaggg
115951 tgaaccgctt tctagccctt ctgcagccag ccactcccc tgccctttga
116001 tgacacaggt tctgcataag gtgagaggga ggacaggggtg acatccattt
116051 cttgtaaaaa tgcctcaatg agaaaagggc cacatgcatt tcttgtaaaa
116101 atgcatcagt gagaaaaaca acagcagcag caacaacagc aaatatttac
116151 tgaatctcct agtatgatcc aagcccccaa atcaagaaaa tgtgaatgct
116201 gatgtaaaaa aggaaggtat ttgttcaaac tgcctggcca gtgtttttga
116251 agaaaacaga gatctccaga gaccctttt ttggtcctaa gtagcaagca
116301 aacaagttca ttaaattgtgt actgtttatt tgtgatgtct ccaagcagag
116351 tagttggctc ttgttatata tctgggagaa taatcaatga tttatgcttc
116401 tgacagtctt atcatagcca tttacataat ggtcatgtgt atttgtgact
116451 ttaataccct ctgcatatag ccttaatttt taaatggatt acactgtttt
116501 gctgttgtga ctttgcttgt ttaatcatag ctaagacttt tctgaagtca
116551 aatacttttt ccattatcac agtgaggcgt tggcaaaaaa gtgggggctt
116601 gctgggttaca cttgctgaaa ataaatcttg cgtttatttg gactctcaag
116651 attggagctc tgaattcaca tagtccagtg tttatgcaca gagcaccact
116701 ggcattgcca ttgattacga ctggcatgac cactgccaga ggtttagcag
116751 ccctggcaca catccaccaa atgccatttc aatcactcag aaatttctac
116801 aacaacagaa ggccccccac atgttgggat agtgggctgc ccttgcttga
116851 gcacagctga tcgatccaac cactggtcag cggttgcatc tcctcttcaa
116901 cactccccta aaggacaga tcagccgggc tctgctccag catccccagc
116951 gatgaagaag tcaccacctc ctgaagccac attggcctgt cctcattatt
117001 aacatgttat ttttatggag taaactcctc ccccatcacc cctcagacc
117051 ttgtctataa cacaggcctc tttgtgtctc ctcccctaca ggaatgcct
117101 ggagtacttg aaagtagcca ttgtgttcct gctgtcctgt gacagcctcc
117151 cacctctcct ggaaacttac tgtgtcattg tagctaggtt tgcattttac
117201 agtgaagcat tttttacttc acctcattaa atgttcacac tgtgaagcag
117251 ggattagcat ttccactgta cggataatga aatggagtct caggttaaac
117301 gacttaccba aggctacact gctaacgatt ggcagagcca gaacatgaat
117351 ctgctccaaa ttcaatgcct ttcataattt tcccaatatg cacttcattt
117401 ttttttcttt tctttttgag acagaatgtc actcctattg cccaggctgg
117451 agtgcagtgg tgtgatcccg actcactgta gcctcgactt cttgggctca
117501 ggtgatcctc tcaactcagc ctcccagagta gctgggacta taggggcaca
117551 ccaccacacc ttgctaattt ttgtattttt tgtagagatg gagttttgcc
117601 atgttgccca ggttggtctc aaactcctga actcaagcag tgtgccacc
117651 tcggcctccc agagtgtctg aattacaggc gtgagccacc gcgcccggca
117701 caatatgcaa ttcgttttgt ccagcctctc cctctgatgt cttcattctt
117751 cccattacaa ctccgcatgt ctccctgtggg ggaaggcatc agtggcccca
117801 atttttcacc ctccctttc acatgttttg ccagttccat cagcagggtg
117851 aacttggttg gggactttgt tttcaataga ataagatgga aatgtcctcg
117901 tgtgagtttc gacattaggc tcaagaagcc tgtgtgtttc cactttgcgt
117951 ttctgccatc accaaacatc cggagcagag ccaccccagc tagcccagcc
118001 gagattaggt gactcccagc cccccacag acttaggaag aaaacattgg
118051 ttttatttaa gttattgcgt ttcagggggc tggttatgct gcagttgcta
118101 agcaatacat ttctccaact ttcaaaaagc ttccctttcc ccacgggggt
118151 cctttccctt cactacttg aagcctgtgc tagctttctc aacatcctcc
118201 tcctgtttat tccacaaacc actgctgcct ttctgctccc cctccccatg
118251 ggaaggtgct cccaactcc tagtggccta accctgcttg ggccctgggc
118301 cttcagtgtg cagcatcaac tcgtcctgaa cctctccttt tttggcttca
118351 taacgcttac ctcttgctcg cctcgacctg ttcttggtt tcttatctct
118401 ctctctcct cccatggctc ttctggggcc ctctcacctc tttgcttcct
118451 ctccagggcc cccatccttt cccaggacct cgaggaccac caaagtgtg
118501 acgactgttc ccagcctgcg tctcttccca ggtgcagctg tgtgtgcacg
118551 cccctagacc gctcccccg gggcctgatt cacagcaatg atcaccagca
118601 cgtgaggaaa gactggcgta ggggagagtg gccagggttc ccgccagaga
118651 ggtgttgacg gagtccaggc gagaagcgat gcggcccaac agggcattag
118701 ggtcaccaga acccctgtc tgggcacca tgcttctacc tgcagagctg
118751 gagttttgtt tgcagacctt agtgtgggac ttcacattta tccttattaa

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

52 / 338

```

118801 atctaggcat ggtcagattg cacccaacac tgcagcttgt cctaccgctt
118851 gctaattttg tttcagacac taattaggcg tcgctctcag agaccagggg
118901 cactcaggca tttgatcaat gtgttacttg tgtcccatcc aagtcacgca
118951 taatggtgaa tagaaagggc ccagcaggaa cacagtaaag actgttactt
119001 gtttttagcca ctagagggct gcatgtccca gaaattgatg caggtgctgc
119051 ttagaagtga aactaggaaa tgtgagcact gttgggttct atgggggttg
119101 gagtttccag ggcgggggcg cagaggagag tgtagcacac tggggagcag
119151 cagatgggtg tagcattcgt gggcaaggag agggaggagt aggggggttg
119201 cagagaccac gaagggcctt aggaacactt ctggggagca ataggagacc
119251 atagaaggac tttaagcaga ggccacacga tcatatttgc tttttttttt
119301 ttttttgaga caggttctct ctctgtcacc caggtgcag agcagtgcag
119351 tgatcacggc ttactgcagc cttcaccttt tggactcaag tgatcctcct
119401 gcctcagatt cctgagtagc tgggattacc ggtgtgcacc aacacacctg
119451 gctaattttt tatttttatt tttgtagaga cagtttccag gctgggttca
119501 aactcccggg ctcaagcgat cctcccacct cagcctccca aaatgctggg
119551 attacaggca ctagtcactg cgcccagccc ctatttgcag cttaaagcag
119601 tcactccagc atccgtgtgg aatggaggga ggaagaaggg aattggatgg
119651 ctgctggttg gttcagaatg agaaatgata aaggtctaag gtgacatctg
119701 aagggaataa aggaggggac agaggaatgt aagtgaactg agcagaatga
119751 gggcagagtg gcaggggaca gaatggcagg agccacccaa caggagggga
119801 gggggaggga atgggaggga agggagggtc acctggaaga tgtgaggggg
119851 ccagggagtg aggagagaaa gaggaagtgt aaattgtgct ttgtaaagaa
119901 tgagtcgtac attcactcac gatagagcat ttattatgtc gcagacactg
119951 ggctagaccc tggggataca ttcattgagg aaacagacac tgcccctgcc
120001 ctggagtttt gcaccctagt ggagagacag caggtatttg gggcgggagg
120051 ctctgtgctt gggcctggga agcccagaag tgggtattta agctgagaga
120101 gcaaggatga gaagcagcag ccggtgaaga aagctgggaa gactattccc
120151 agcagaagga acggtatcag ggaaggccct ttgggaggga tggaaaagca
120201 gccaggcttg ctggacttgt tgcaggagga aggctcggcc tgatcctgtg
120251 tgctttaagg acagtgggtc gggctttggg tttgattctg tgcataaagg
120301 gaagccacta gaggggtttg gggcaggaga gaaccatgac cagatgcgac
120351 ctatgaaaag atcacttttg atgcttgcag agatgggggt cagtccaggt
120401 gggagccatg cagatgcaga gagctgctca gatgggacac aagtctcaga
120451 agcagaaatg ctgatgaatt ggctgcagggt gagaggcaga gagaactcat
120501 gtgccttctt gggtttcttg catgaacaac tgggggaatt tcaggggcat
120551 cagcagagct ggggaagcca ggtgcaggga gtgacaggaa gtcacatgcc
120601 atattttgaa ctgtaccttg gagagaggga gcctgagagg catccagcca
120651 gcaggtgagt gcatgcatga gcttgagatg tgccgaagtc ggcccggagc
120701 cacagagggt ggagccacgg tggggcacgc acagaccaca gacctgaagc
120751 cttgcaggaa gacagggaga tggagaggag atgctgcagg gactgagtcc
120801 aggcacaacg gtgctcagtg ctcggctctg aggtggagga ggctgagctg
120851 agagagcaca ggagggtgag gttgcctggg cgacaggaga ggagagggcc
120901 tggagaagag gccaccagct ctgtcacctg ctgctgaggg gtcagatgag
120951 cacaggaaat cgctactgga tctggtggct ctgaggccct ggatagccct
121001 ggggaagagc tcttccaggg aggtggggaa gccagagatg ggtgggttgt
121051 gaggtacatc acagggtgag aggtgtagcc cattcgtgga gaaattggag
121101 aagttttgcc ctgaaggagg gcagagagac agaaaagggg ctggaggggc
121151 agctgaggga taaatggtgc ttttttgacg ggtgacgcac atcttgtgca
121201 ggaactacct gaaaacttgt gaagacatta gaaagaagag ccaagacca
121251 agaagggaat tgaagggtgc agggaaactg tcatgcccgc cctgccctgg
121301 ccttcttata cgggtgcctg ttccttggtg gcaggtcacg tgccacatct
121351 tgattctgat gggcatagca cattgacaac tgaacaaagc caccgggctt
121401 ggaaatggtc cctggtcaag gtgaaggaca cgctggtgct tgccagaggc
121451 caccaggcag ctgcaggcac gccctcttcc ttcctccac acgcttggtg
121501 gcacagagcc tcattcatcc aggccagcag gtcacagcca tgggaatgtc
121551 atgctcagtt cccagggaaa agggcagagg ctttttcccc tgcagaagaa
121601 ccagtctgca cctagggcct tgcccgtttt cccaagagt cctgtgatta
121651 tataagcatc atctgtccct gatgctgggg tcctggtcaa gacttcccca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

53 / 338

```

121701 gggcggggct ggggtgacac agctaggccc tggcctggag ttcaaccacc
121751 ctttgtcctg atggcacttt ataaaaacac tgtcagcctg gtctctggga
121801 taacaggggtt acaagcctct ggatgactaa ttggccctca gaactaactg
121851 gatcaaatac aaactttggg atgatattgc gtgccccag gccaggtgga
121901 gacctagact gagcatggac actgccatgg agaaaggaca tgggaaccgt
121951 ggggtcccc tgcctgccag ccacccccac acctcgggtt gaggtgggat
122001 gtaggttaca gataaggtta aaatacaaat ggaggcaggt gaaaagttgg
122051 gtgggtccgg aggtttgaat cgcagcaagg aatggatcgc ttcctcttca
122101 cccagacctc agctgctccc taaatctcag tgaccgcaa atcggctgcct
122151 ctggcccacg tctttcttga gcccagact catttgtcca acggctgcct
122201 ggacatcccc acgccacgtc tccaggcaca ggacactcgt gtgcctctgc
122251 cccccatccc gggctccctg tcttggctga gcacatcccc ttctactcag
122301 gtcacccacg ccacaggccc atgtcctcca gaaatgggtc agctatgcct
122351 ggtcaatagt aaatcctaag tatctcccaa gttctatggc tgctgcctct
122401 gggctctggg tttgaatcct gcaccaccat ctgctcactg tataattggg
122451 tgagcaaccc tctcagtccc tgtttccatg cctgtaatat tgggattgtg
122501 aaagatgtca taatcagaat ggagccactt ttgttaaaaa caaatcctga
122551 caaatagagc caagggaagg ccatgaagag aaatattcgc atgcataaat
122601 gcctaataac aaaaactacc acggcagact atgaaaactg caaccttgca
122651 caaaaaatgc ttctaggagg acagctgccc agtaactacc tgtccagcct
122701 tggactgggtg tccctcttgc aattaaccct tgcagccaag gatcattact
122751 tcaaagcaac aatacagtcc tcactttcct tcacctttgc cttccttcat
122801 ctccctgaag gcacacgtgc tttttactct ggcaggcata ctccctggca
122851 gtgccctatt cctgagtaaa catcactttc tttgagagcc actctctggg
122901 tatttagggt gacaggataa tcacagtacg cacctcataa ggtttctgaa
122951 gactgatgtt aatactctaa agcatctgga gggggactgc cagcagcacc
123001 gagttcgcac tcgctgttac cagctggcgc tcatcatccc acctccctc
123051 attgttcccc ctccaggccc ggctccagag ctctcccca ccagacacac
123101 aggtgttcag gtcacttct gaataaaggc cagccgcctt aatgatggcg
123151 tcagaccctt agctgggcat ttaaggctcc ctcccggccc tctcacatcc
123201 ccacatgccc cggacaaagc gcacacgcct cgtcattttc cagccatgct
123251 tcgtgcccac ggccctccct gcagcgggaa tctctcgctc tggtgacggg
123301 gctaattgtg gcgccgaatc tgagcccggc atgtcaccta ctttacctcg
123351 ttgggttcca caacaatcct gtgaggcagg tctcttttg gcctgtttcc
123401 tggaagctcg gtgattctca agagggaaca gctagccgtg gagccaggat
123451 ttcagtccag gtgtggccta tcccaaagtc caggtgggtc tagttaatcc
123501 acacaaacct ctcatgagta gatgacattt caaaggaaaa agggacctga
123551 cgtctccgag atgggaaagg atggtagcag ggtgtatgtc agcatctccc
123601 cagggcagaa cacatctggc ggcactctga atgtctgttt tgctaagcat
123651 gagcgtgttt ccacaattcc ctctctggca ggtgatgaat tagagttggg
123701 cccaagagca catcgtgtca gctgtgagg gaggtgaact ggggcgggcc
123751 ccgtgtgggt acagctggct ggcgttgtca gagacctctg gctcccttg
123801 ttgtcagggt tccccattcc ctgcacctcc cccttcagct tcaccactgt
123851 gggcccagtg tggggggctc tgcactgaag ggtgcctgcc cttctgtagg
123901 tccgccatgt cctcagggtc ggcagaggga tctgcccttc ccccgggct
123951 cctcacctcc tgtctatcct cccttctctg ctgactcggc cccagtgcc
124001 gctgcagggg acagacttac aaaggcctct gattcccttg cccacgagc
124051 tccaccacca caggaggcct acagtaacct cgggtgtgtc ctcggggtcc
124101 tgtcccagga tccatcccta accagcaagg agaatgaatt caacagatgt
124151 taaatgaaca aataaatgag tagttgaata catatttttg ctttacagct
124201 ttaaatatca gaactaaaac taaaagtgt cttatttttt ccaaccttcc
124251 ctaaaggata aattatcaat gtatattgca acatattctc caaagggacc
124301 ctatgatcac agtattttta agtaacacag atggctctca gtggagtgt
124351 taaattgcat ctatgttaca ttggttgatg gtaaaggggt tgcggctttt
124401 tgtgtgtttt gatggcgact ttatttttag gtattgtaac tgcacatgct
124451 cctccatgag gaggaagtga tgagggaagg cggggaccct ggcaggattt
124501 ggatgtgcat ccaccatgaa cttcagcctc thtagcccca tgggtgctggg
124551 gccactggga aatggtggaa tggctggctg agtggcaatc gctcctgtca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

54 / 338

```

124601 ggaaatctaa gctaattgta tgtccaactg aaaaagaaag ccaagaaaac
124651 aaaacaggtg cagaattgca atctgaaaaa attttttaac actttaatta
124701 tttaatttta ttttctacag atgaagtctc gctacgttgc ctaggcttgt
124751 ctcaaactcc tgggctcaag caatcctgat cccccaactc tgccataccc
124801 gccccccatc cccagcccac ccccatctcc acctcccaaa gtgctgggat
124851 tagaggcata agccactgcc accgctgcaa tctgaaatta atgcctatgt
124901 caagttgaag gactgctcaa aatattggag aggttcaaga ctgaatgtcc
124951 ctacgtctata cagaggtcta attagatctt ccaaacatca gacaaccaag
125001 tgaagttaag ttacctaccc ccttgaatga atctagcttt tgaaatcttt
125051 ccgctgagtt atccttttagc gctggtatcc agaattcctt tttccgtggg
125101 ggctgggagg agatgaagtt atctgtcctg ggacagagag ctgaagaata
125151 ggccgagggg cctgaattca cagcctgggt tccaaagaca tggaccttgg
125201 ggtcagccct ggccctaaat cctggctctg tggccagctg tctgatctgg
125251 agggagttac tcaccctctc tgtggtccaa gtttccctcc atcagggtga
125301 gactcgagtg agatgtctgt gcaggcttag tgcagaccag accgaacact
125351 cagcttttct ctgcttatta tggcagctac ataacagcag tttccatggt
125401 tcaaaaacaa aatcacacct tgtttacatc catcttcaat cttttcaatc
125451 tttttatgta gactaagtct agcttttcag ggtatcccaa tagtatatgt
125501 ttcagacctt tatctaactg tgagcccca atacaatatc caaaaccttt
125551 ctgaaagaac actcatgaag agatgggtgt cattcatgcc acatgtataa
125601 tattcttttg gataaaatgg caaaacaagt aaaagacata aaatcgtaat
125651 gtcctctaata acaacaggcc agcaagattt gtaaactctgt tttgaaacaa
125701 ctatcttttg acattaaaaa cgattccagg aatctttgaa tttcattttc
125751 cttcacattg ttacaatcac tttcagtctt atataatttc tagactgtgc
125801 tatggctcac agcagctgtg tctcatggga aatgcagaca aaccagtctg
125851 gctggtgagg ggggctgtgg aaagctcaca gccctcctt ggacagccac
125901 attgctcccc cagagccatc aaaggagggtc cgcctatgag gctgagggtc
125951 tgggacattt ccaaggggag ggtgctcctg agtgttttct ccaggagcaa
126001 tcctaacttc tgggcagatg cctggctctg gccaaagacc tcgtccaaga
126051 acattatgat ctcatccct actggcctaa cgctaggacg cttccagctg
126101 gggaacctcc caggcagcag tgggggagag ttccacatgg tttctgatgc
126151 cctggaccat ccctagtcca cagccttgac gatgggacgg gtgcagggtc
126201 actggttggg ggggcataca ggaagggtgt ctggggccct ggggcagcat
126251 aaggctttcc ctgctggaa cgggtggcaag aacaaacaca gccacacaca
126301 tgcaatggaa tgaaaccaac caagaagtgt gtggtacctt ttatttagtc
126351 agtcttcatt taaatgtgtg cttttgaaat cactaaatat gaccttttca
126401 gaattcaatt ctacagtat ttacagtga ctttgtgcaa acaaattccc
126451 ctttgtgcaa agggggagct tcctgctccc cttttcacat taataactta
126501 caaattcaga tcacaacaaa accccagact ctagttttct gtttgaaagg
126551 tactgagctg ggataatggg ttgctaggaa agagctaata caagcccaaa
126601 ggaaataaaa tgttttcttt atcagaaaag aataataaca aggcctcact
126651 ctccaaagga aaacagacgt cccaagatgt tgtggaacag tattaagtaa
126701 ccaaatacaa ttccaatggt tatttcacct tcatttttta tacttacact
126751 catctctttt aattaaataa gcgaaccag aaaagtgcaa ttcgaaggga
126801 ctctgaactg tcagggaacg ttataaaaaa aatctgacgt cagtactaa
126851 agagtacggg tcatcaggct gccggccggc ctctgcaag ggcactggcc
126901 agggaggcca cagctgccaa agcggggagg tgcgccaggc cccacatcac
126951 ctgcctcggg gtccatgccaa ggcaagaaag aaacacacac ctgggcctag
127001 ccaagggtgg tgccctgccaa ggtaactctt caggtacaaa atctacaaag
127051 gggatcagtc ctggagaaca catttctctt cccctctcta ggcagagaaa
127101 tacctggctg aagaaaaact acacaacact caagtaatgt ataaggaggg
127151 gttcctgtgg aaggcaacga ttcatgattt agaaactgaa gtgtaaaaaa
127201 tacagatcaa caattgtgcc tttcattctt gtaaaatatc gctttaaaat
127251 cccgttttag atggttgatg tctgaaacga aaccacggcc ttttaaaata
127301 tttttgattc caagcctttt tataaggaag aggaattaac acctcaatca
127351 tcctagtcac aagagactat tcaggaccaa aactgtatag gctttctatg
127401 tgttcactaa agactgtgat gggcaattat agaatacag cttattagaa
127451 aaaaattgct tttatcaaca tctgatacaa tggctctgaa aaaaatttat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

55 / 338

```

127501 tgatggatct gagaattttt tcacacatga atcattttctc cttccaatgg
127551 ttattgatac tgatagaagt tccccgctga gactccctgg acccatgggtt
127601 tgtgcctgct gggcatccca ctatgctgat tcctactcta aaagacactt
127651 acagcagaaa gcattcaccc atgaccatta tgaaggaaat attctgtccc
127701 tcactcaccc tctggaagct aatatggagc agcagtcact ctatccagag
127751 ccacatgttc acagtttctt agcaagcagg tcacaccccg tgggtccctt
127801 attccccgtg acccttggtg atccatcctc ttctgtctca gttgctcccc
127851 tgctcacctg gactgcggga ggcattgggtg cgccactga ggccatgctg
127901 aggagctggg atggaatgca ggacagggag agaggggaga ctgagctgag
127951 agggagcact ggatcctggg aggtgtggat gcactgatta cagtccaaag
128001 acattggcag caacaaagga cacacaatga ctgaaaacat taacgttacc
128051 ttctgggatc tctcagtgcc ctgagcgatc tgttgtgtcta cctacagatg
128101 ggcaaagcat ttttgcaccc tggccctatt cccagttctc ccctgagaac
128151 tcagtcctcc ttgaagactt ggtgatgcct gtcaattgag ctcccattta
128201 gcggctcatt gtgccagggt gctcacatct gcaagttaaa attgctttta
128251 tcaacatctg atacaatggg tctcatttca cataaataat cacagacttg
128301 actaaaatga atatattatt ctagggttaat ttttttccat tcaaagtgtt
128351 atactccatc taccagaac aattacagca gaaaaaatag gcacctcaa
128401 agtcttccca agaatgatga ctttctgaaa tgacacactg taaaactgg
128451 acaaatgaga cgactgactg tgacaggggc cggggagctc ttcaaggggc
128501 cgttttcttc aagtctcgga tctgtttaat caagtagttc ttctcgtcag
128551 cgaactgctc atcatccgtc ctttcttttt ggaagctgct cagaaactca
128601 atgagtttgg gctgattttt taacaggatc tccacaatag gctgtgtttt
128651 gtgaggactg gccacaaaca cctgaaacaa aaagaaacaa atacttagga
128701 gtgcaagcca gggacctcac ccacgctaca gcagtgcagg ccagggacct
128751 caccacact actcgcgttt catgctgac tgatattatt aatgcgtaga
128801 agcccctgac tctaattctc agtgagggtg atcaatacag tcacacacca
128851 cataacgaca tttcagtcaa caacagacca tgtatacgac tgtaatccca
128901 tagcaccata atggagctga aaaattccca ttgccttggtg atatcgtagg
128951 tcagtgcatt tactcatgtg tctgtggtga tgctggtgta aacaaaccta
129001 ctgcccggcc agctgcataa aattcaagcc cgtacaatta tgcacagtgc
129051 ataatacttg ataataacg acgatggtac tggtttacgt atttactata
129101 ctatacgtct aatcattatt ttagagtata tgccttctac ttagtaaaca
129151 aaaagttaac tgtaaaacag cctcaggcag gtccctcagg aggtatccag
129201 aagaaggcac tgttatcgta ggaggtgaca cctccatggg tgttatggcc
129251 cctgcagact ttccaggggg acaagatgtg gaggtggaag cagtgatact
129301 gatgatcctg accctgtgta ggccgaggct aatgtgagtg tttatgtctt
129351 agtttttaac aaagaagttt aaaaagtaaa aaataaaaaa ctttaagcac
129401 agaaaaagct tatagaataa ggatataaag aaagaaaatg tttttgtaca
129451 gctgtataat gtgtttgttt taagctgtgt tattgcaaaa gagtaaaaaa
129501 gttttaaaaa attaaaaaat aaacttttta taaaagtaaa aagttacagt
129551 aagctaaggt tatttttatg tatgtattta tttatttttg agacaggctt
129601 cgctctgtca cccaggctga cgtgcagtgg cactatcaga gctcactgca
129651 gactggaact cctgggctca agcgatcctc ccgcctcagc ttccccagtg
129701 gctaggacta caagtgcatt ccactgcacc tggctaattt aaaaagtttt
129751 tcgtagaggc aggcctgact atgactgcca aggctggtct cgaattcctg
129801 gtttcaaaca atccttccac cttggcctcc caaagctgtg ggattacagg
129851 catgagccac catgcctggc cctaaggtta acttattatt aaaacaagaa
129901 aaaaaatttt ttaaatcaat ttagtgtagt ctaagcagtg tttatgaagt
129951 ctacagtagt gtacggtaat gtcctaggcc ttcgcattca ctcaccattc
130001 aatccctgac tccccagag caactgccag tcctgtaagc tccatttatg
130051 gtaagttccc tatacagggtg taccattttt tctcttttat gccatcttgt
130101 tactgtatct tttctatgtt tagataccca aataccattg gggtataatt
130151 gcctgcagta ttcagtatgg taacatgctg cacaggtttg tgctctaggc
130201 gcaatagccc acactatata gcctagggtg gtggcaggct ccaccaccta
130251 ggtctgcgta aatgcactct gtgatgttcc cacacaaagg acatcgccta
130301 gtgagcatgt ttctcagaac aactccctgc tgttaagcgc cacaggcctg
130351 cacttcacct ttcctatcac tctcctaagt cactagctag gagcacgtgg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

56 / 338

```

130401 gagctatcta tgaacatttc atatttgact ttgttttact tttaaattatt
130451 tgttcttaac tataaaatct ttcaaacaga aaataacata acaaattccag
130501 tatacgtacc tcacaaattg aatagatttt accattgtgc ctcaagagtc
130551 tcttttttaa caaataaaac attacaaatg gaaccaaacc ctcaccttcc
130601 acctttcccc tcccacctcc agcagtgtgc caccatctct gggcacattt
130651 caatccttat cctcctatta catagatatt taaacataaa caacatatag
130701 tatgaaagag cttatgattt ttaaacataa tttatttttt gaacacataa
130751 tatcatcacc tagttcaaaa ttcaaaaagg acaaacgtga atagtcctcc
130801 tctcaccttc cctccctgga ggtcaccaat gtcactgttt gttacatatg
130851 tgaagcttta aaaattacaa ctgctgggcc aggcgcggtg gctcatgcct
130901 gtaatcctag tactttggga ggccgaggtg ggcggatcac gaagtcagga
130951 gatcgagacc atcctggcta acacggtgaa atcccatctc tactaaaaat
131001 acaaaaaatt agccaggcgt ggtggcgggc gcctgtagtc ccagctactc
131051 gggaggctgt ggcaggagaa tggcgtgaac ccaggaggcg aagcttgagc
131101 tgagctgaga tcgcgccact gcactctagc ctgggcaaca gagtgagact
131151 ccgtctcaaa aaaaaaaaaa aaaattacaa ctgcccaggt cctacctccc
131201 agatacgtca actcagcagg tctgtggtgg atgtctagca ttctgtattt
131251 ctatgaagtt ccacagagat tcttatgtga actcctggtg gaaaccacga
131301 tctgatactg actggtgcac tattttgtaa aagacacact ccttagttac
131351 tgctacatac atgaccacat gaccagaatg cagatcaaag tgtctctgag
131401 ccctacagag ctctctggtg tgatggtctg gcctcctgcc tctgcctggc
131451 accccctctg cccacccatc cctgtcccat agctgtgcag tgcccaactc
131501 tacagggaac acactatgaa agggcttagt tatggggcag tgggggtttc
131551 atggctaagc ctttaagggt cctccaccct agcaagtgtg gggaaggaga
131601 aaactaccct aggatgttga gtaccaatgt ggagaataca agactgcaga
131651 ggctcccatc ccaggagggt gcgatgacat tacatttccg ggtttggaac
131701 aggaaggctc atggtgtggg cggcatgaga gctagtccat gagtacggca
131751 gagaatgttt acacgtggtg gtaagaaaag cagcattcca ggaatactga
131801 attgtccac tgcaggctct gaggtgggag ggacaggacg tgggagcaac
131851 agtaagaatg agtaaggga cgtgggagct aaggcggcgc cggctctgga
131901 acctgggttc aaattccacc tctcctacat gttagcagtg tgtccaccag
131951 caaagtthttg ttatctagaa ataaaaggac ctctgcctgt ctgggtgggg
132001 agaattgtgct ggagaacatc agcagcttca gcacaagtaa gtctcctgaa
132051 agccttctgt tgtcactgta tgtggggagt cgtgcttgct ggaggcaaag
132101 tgctgaact gaattcaagg cctcgtcact gcccacacac cctaattctg
132151 gtcaactgta cacacgaccg tgggcagcca gttcatagcc ctcccagctg
132201 gttgtcttca ttcattgggg taagtgtttc acactcatcg aacacttaac
132251 cctcacaaca gccctgaagt ataagagctg ttatcctcat ctgttaataa
132301 ggaaacaggc tgagtcatat taataaactt gaccacatag tagtatggtt
132351 aacagcgcag attcagaagc acacagcctg ggcccaaact ctagcaccat
132401 ctcttattag ctttatgatt tcacaaaact tgtttacctc tctgtacctc
132451 agtttcttca tctgaaaaat ggggatgata acagtacctg agtgccatta
132501 ggtaactgtg aggcttaatg agaacagtat atgtattcta ctccatgcat
132551 tcaaattggt catggcacac agcatgcacc attcaaattg atggagtaga
132601 acacatacat tgttgcaaaa ttgcttttgc caggctcaca gaactagcaa
132651 gggctgaagc tgagattaat cccaggatgc ttgttctgag aactgatgag
132701 atgtgacatt ttaccagggt aggttcagaa ctagaaatca aagcccacaa
132751 atctgatact cagttcattt ggccaattta gttctgaaat tgttcataaa
132801 tatgatatat aaattcttca tgtttctgtt ctttccatca aaggtcatgg
132851 actcactcac acagcaagt ctaaggaata cagaaccctc tctgggaaca
132901 ctgcacgtcc ctgtggtcac gagtggctca tgatgagaca gtctcttggc
132951 agcccacatg gcttacttac agtgagccca ccgctcagcc aggccagggg
133001 acccataaca gagaaggaaa agggtttctt aagcttctgc ttgggtgggtc
133051 tacagccatg gggtgacaag gaggaactga ctttgacctt tctgggttat
133101 aaagtatcct aggctcctct gaaacaacca atgggaaata gaaatcacia
133151 agaaaattag aaaacacttt gagacaaatg aaaacaaaaa caaaatatat
133201 caaaactcat aagatgcacc aaaagcagtg ctcaggggga aatttatagc
133251 tataaatgcc tacattaaaa aagaaagatc tggactgggt acggtggctc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

57 / 338

```

133301 acgtctgtaa tccagcagcg tgggaggcca aggcgggcgg atcatgaagt
133351 caggagtttg agaccagcct gaccaacatg gtgaaaccct ctgtctacta
133401 aaaatacaaa aattagccgg gcatgggtgg gtgcgctgt aatcccagct
133451 attcaggaag ctgaggcagg agaattggctt gaaccagaa ggcggagggtt
133501 gcagtgagcc aagatcgtgc cacggcactc cagcctgggc aacagagcaa
133551 gtctccatct caaaaaaaaa aaaaaagaaa agaaaagaaa agaaagatct
133601 cagattagta acctagtttt atagcttaag gaactaggaa gagaagaaca
133651 aactaaacca aagcaacata aggaaggaaa gaataaaact tagagcagag
133701 ataaacaaaa cggagaacag gaaaatgaca gaatcaatga acccaaaagt
133751 tggttctttg aaaaaatta ataaaattga taaaccttta gctagattga
133801 ctaagaaaag aaagaagact caaatgctaa acattactaa tggccttata
133851 gaaataaaaag gggattatga gagatgctat gaacaattat atactaaaaa
133901 attagataac ctagatgatg acatggccaa attcctagaa acatgcagac
133951 tacccaactg actcaagaag aaacagagaa tctgcagacc tctgacaaga
134001 gatcaaatca gtaacttcca acaaaaaaga gaccaggacc agatggcttc
134051 actagtaaat tctacctaac atttaaagaa gaattaacac aaatctctct
134101 caaattcttc tgaaaactgt aagaaatggg aacacttcct aacttatgat
134151 atgaggccag tattacccaa ataccaaagc cagagaaaaa caacacaaaa
134201 aaactacata ccagtatctt ctatgaataa aaatgcaaaa aatcctcaac
134251 aaaatactag aaaaccaagt ccatcactat atcaaaagga ttctatacca
134301 tgaccaagtg ggatttattc cccagaaata caagggtggg tcaacataag
134351 caaatcaatc aatgtaacac atcacatgta ctgggttaaa ctgtgttccc
134401 caaaaagata tgttcaagtc ctaattctca gtatctgtga gcgtgatttt
134451 atttggaaac acagactttc ttacagatg tactcaagat aagatgagggt
134501 caatactggc ttaggggtggc ttactccaa tgactgggtga actctggaca
134551 cagagacgct tagggatata gaggagaacg ccatgtgaag atggaaacag
134601 agatgcttct ataagccaag gagcaccaag gacctctggc aaccaccaga
134651 agctgggaga gaagcaagga agattctccc tgagagtctc caaaagaagt
134701 caatgctgcc aacaccttga ttttggactt ctggcctcca gaactgtgtt
134751 ttctgttgtt ttaagccatt ctgtctgtgg tactttgtta tggcagccta
134801 gaaaactaac acaagtgtac cgcattagca gaatataggg aaaccacatg
134851 atcttctcaa ttgatacaga aaaagagttt gataaaatcc aacacctttt
134901 catgataaaa acactcaaca cggaggctgg gtgcagtggc tcacacctct
134951 aaaccagca ctttgggagg ccgagggtgg cgaatcgctt gagccagat
135001 attcaagacc agcctgggga acatggcgaa acccctctc taaaaaat
135051 ataaaaatta gccaggtgcc gtagtgaca cctgtagtcc cagctactcg
135101 ggaagctgag gtgggaggat caattgagcc tgggagggtg aggatgcggt
135151 gagctgtgat ggtgccacca cactcccacc tgggcaacag agtgagatgc
135201 tgtctcaaaa aacaaacaaa caaacaacaa aactcaata taggacattt
135251 ggatattcac atgcaaaaga cgaagctgag cccttatctt actctaaata
135301 aaaagtaaaa tcaatcaaag acctaaatat aagagctaaa attttcacag
135351 gaaaatacag ggtaaatttt cataatgttg gatttgcaa tggtttctta
135401 gatatgacac caaaaataca agcaatgaaa gaaaaaacag gtaaaactgaa
135451 ccaaattgaa aacttttgta tatcaaagga tactatcaag agagtgaana
135501 aaacacacag aacgggagaa aatatttgca aatcatatat ctgatcagtg
135551 tcttgatcc aggatataa aagaactctt acaacttaac aacaacaaca
135601 gaaaacccat tccaaaagg ggaaaagaac ttgaacagac atttctccaa
135651 aaaagatata caaatggcca ataagcacat ttttaaaatc ctcaaaatca
135701 ctagtcatta tggaaatgca agtcaaaatc acaatgagat accacttcgc
135751 acccactagg atgactgcaa aaacaaaaaa aaacaaaaaa acaaaaaaca
135801 aaaactctga cagtaacaag tgttgcaaag atggatggag ataaattgaa
135851 accctgggcc aggaatgatg gctcatgcct gtaatcccaa cacttgggga
135901 ggctaagggt ggaggatcac ttgagcccag gagttcaagt tcaagaccag
135951 cctgagcaac acagcaagac cctgtctcca caaaaaatta aaatattagt
136001 tgggcattgt ggtgcacatt gtagttccag ctgctcagga ggctgatgca
136051 gcaggattgc ttgagcccga gaagttgagg ctgcagtgag ctgtgattcc
136101 agcccgggta acagagcaag actgtgtcaa aaaaaggaaa ggaaaggaaa
136151 ggaaaggaaa gggaaaggga aagggaagg gaaagggaaa gggaaaggga

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

58 / 338

```

136201 aaggggaaagg gaaaggggaaa ggggaaagggg aaggggaaagg gaaaggggaaa
136251 ggggaaagggg aaggggaaagg gaaaggggaaa ggggaaagggg aaggggaaagg
136301 gaaaggggaaa ggggaaagggg agggaaaggaa agggaaaggaa agggaaaggaa
136351 agaaagaaaaa gaaattgttg ctgggtgggaa tataaaatga cacagcctct
136401 gtggaaaatt ggctgttcct cagtaagttc aacaatgaat taccatatta
136451 ccgagcaact ctttctctaa aaatggaata cattgttcaa acaaaaactt
136501 gtgtagtagt gttcatagca gcactattta caatagccaa aaggtgcaaa
136551 caacccaaat gtcccttaac tgatgaatgg ataaacaaat ttgtggtata
136601 cccatgcaat ggaatattat ttggccattt aaaagaatga agtaccgggc
136651 cgggtgcagt ggcttacacc tgtaatccca gagggcaagg caggtggatc
136701 acttgaggtc aggggttcct gaccagccta gccaacatag tgaaaccttg
136751 tctctactaa aaatacaaaa attggctggg tgtggtggca gatgcctgta
136801 atcccagcta ctccggaggc tgaggcagaa gaatcccttg aacctgggag
136851 gtaaagggtg cagtgcgagc agatcgtgcc actgtactcc agcctggtga
136901 cacagcgaga cctgtctca aaaaaattaa aacaaaataa aaaaagaatg
136951 acgtgctgat ggatcatgct acaacatgga tgaaccttga aaacagtga
137001 tgaacaaaac accacacaaa aggccacaca ctgtatgatt ctatttatat
137051 aaaatatctg gaataggcag atccatggag ccagaaagca gactaatgat
137101 cgccagggga tggagggtgag gggcaatggg gaatgactgc ttactgagta
137151 caggggttcc ttttgggatg atgaaatggt ctggaactag atattggtga
137201 cagttgtaca acatcgtaaa tacactaact gttactgaat tgtacacttt
137251 aaaatggtta atgctgaatt ttatgttatg tgaattttac cacaataaac
137301 taaaattggt acttatatta aaaaaaaaaa aaagggactc caggcctggt
137351 tatacaaact gcctgatggt tatgtaatac ctatcagaaa tgtgtggctg
137401 ctctggttac catttggtta caaggaggtt gctgtgaagt tttagctaaa
137451 aattgcctgg cattttgtgg tgactacata aataactcat gacagtcttt
137501 ctttcttaaa aaaaaaaaaa aaaagattaa ctataataga caaactgatg
137551 ttgcaaacca aaataataga caaactgatg ttgcaaacca aaataaatgt
137601 aaaatgtact ggaatttgca gacaggcatc actggttcaa ttccactgaa
137651 ttcattcact gtaccataaa cctaaggaaa atgctaagtt tgtgccagg
137701 ttttaaattt tttcttggtt ttatttttta tggcttctga actctgccgc
137751 ctctaaaagt agttgctgac tggagtcagc taatgcaata gtgcatgatt
137801 cccttggggc agccaggaca ctggtcaagg cctgagatta acacactgat
137851 gataagaaac acacttctaa ttcaagggtat atggaagcaa gtcttttgaa
137901 tattatgtcc agggtagaaa tttttttggt tgtctttggt gtccctgttt
137951 tttaaaaaat gtaattttca aaccaccccc aaacaaatga aactaccag
138001 gacttctcct tttagaatgc cgccttattg cctgtatccc tcagtttaca
138051 taacatgcct gagagatgtg atctgtggag ttctcaggcg tggtagagg
138101 aaggcaaata tcatgaccac aactcaaata tttttagttt agaagactga
138151 aaatattgca ctctccattt taaaactgaa tgcatttcat ggaaaataaa
138201 atatctacat cttacacaca tatccattaa tttcattcaa attctatttt
138251 gccaacaggg attgagccag acaagggtat gggagggttag tcttctgcgt
138301 tgctgacctc actgcctttg atgcgtgctg caagcctgga atgctctgta
138351 tatgctcctg ttacgggttat gtggaagcta ctccaagcaa aatcccacc
138401 catcgaagtg tcaaataagg caacctatgc cttattcata tgactacaca
138451 tctgagtaat aatttagaat attttgacac aatacttgct agtactgatc
138501 agagacaatt aactttttcc tgtttaagaa aggacttgat tgttaaatct
138551 gcaagctggt tgggtgtcta taagcatcac tgggcccacg acagaattag
138601 actggacccc actgcacatc aaggagggaa gaaaagcccc aggaaggaag
138651 tgagggtggt ggaggccagc agcctgaaag tacaggatgc tctaaaaacc
138701 tctagaatct cctgaaatcc tcctcctcac tgccaccatt cttaccatca
138751 ctctgattac acaagtgata catgtggaaa actagtgaag taaagaaaag
138801 cacaaagaag aaagtaaaaa aatcactgac ataattcctc caccagaga
138851 taaccctgt gaatatctgg tgtatgtatg tgcagcattt ttttcttggt
138901 cacgtcacta tttgtagaaa tatttttaaac aaaactgggc ttgcattctg
138951 tacatagtac tttgtaaaact actttttcct taacaatatg ttttttaatg
139001 cttgtagatt cttcttacat tacatgagat gatcgccatt tcaaaaagat
139051 agatatcatc tgctgaatcc ttgctatgca ctgggcattg tgctaaacag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

59 / 338

```

139101 tttatacgaa ttgtattctt ttatcttgac aacggctctg ggaggaagat
139151 acaatttttc cccaatctcc aggtgaagct gagagaagtt aaagcagcat
139201 ccctgaccac taggctgtgt gtgcagcgtg cgccttccgg gctgtgctgg
139251 gtgcttccgc tagtgactac acgacagtat ggctgccagc ttcgccctct
139301 ccatgtgtgg cagtgaccga ctatttcgtt caaatgttct taactactta
139351 tctaaaggta ggggcaagga ggggaaaagg ggcttggggg caagctataa
139401 tcacgtttct catcttttaa actgttaagt aaactagtgg atcaaagaaa
139451 tgggaacgcc ttctttccaa agttttttca gcattttaat gttgccttta
139501 gacagctaaa tgcaagggtg atgtctggac acttccttag agtaacagaa
139551 cacgttgatt tgaactgaac aattcaagcc tgtaggcagt tttgtaaaag
139601 gaatatagca tagtgattac ctatatctca cggagttttt aaaaagtttt
139651 tcttaaaaac agctttatta aaattcagac tatatagttg actcatttaa
139701 agtatacttt ttaatgtttt acagtatatt cacatagttg tgcaatcatc
139751 accagaatca attttagaac atttttatca tcccaaaaag aaaccctata
139801 cccattagca gtcgcccgcc ccctccgcac cccaacatgc tcccagctct
139851 aggcaacact aatctacttt ctgcccctag agctttgccg tattctagac
139901 attcatataa atggactaat aaaatacgtg gtttctatga ctagcttctt
139951 tcacgtagca caatgttttt aaggttaatc catgttgtag catgttacga
140001 atgccacatc ctttttggtg ccaaaattgg attgggtttt gaaagtattc
140051 aatgagtatg tccttataaa gtgttttagc gagtttctgg cccgcagcga
140101 ctgctcatta cagttgctac ttccttcaac gtgaaatcac tgcagtgtca
140151 catacagcag taatcgcttt cccaatatt tactgttatg cagatgcaag
140201 ttattaagat tcatatttaa acccaatagc tcattttaac tattttgggt
140251 aaaatatttt atcttccatc caaagaatga gtatactagt atttcctcta
140301 gtaatactgt aaaaagagga attcatactt ctaatatact ttatcacagt
140351 caattgtaga aagaatagac tcttgtaact gggagggacc tcaggaactt
140401 agctaattca tccttccact tcagacacaa cccactggta attcctggca
140451 aacaagaatt gattcctatt agatcccctg aaaagggtgat tctataacca
140501 tcctcaatga cctattccag tgtctacaac tcccgttctc agaaaattgg
140551 ttttatttat agtcactctc cgcagcctat tgagatagct gctgttggct
140601 tgcattatga tattctatga aacatgtgct ctgcccctca gtaccactgt
140651 taaatttctc tgtcagctct cttttttggg gcataagtgt ttttaaactc
140701 ttccacatag gtcttggttt ccaaatagct caatcatttc tgtggcttct
140751 ctctgctgag cctctctgta ttctctatac cctcctccag gtaagcacct
140801 cagaggaact gtgcagctct ctttcctagg atccttaagg agaagtcatt
140851 tacctgatga catggccaac ctcaagattc ccagagctgt caatataaac
140901 ttcaccccgg tgaaatctga ctcgagttga agagaacact ggctttgtgc
140951 atcagggggc ttcactctgc tatcacttgc tcaccctgga cttttctgct
141001 ctttgtgcca tcactttctc aatgatttta tttccttccc aggtctgtga
141051 tactgtactt ttcactactg agcttttagc cacttattcc tggtttcatc
141101 tacaatggac aaatactaca gccattcaga atccttattc ttcccggagg
141151 ccttcagctc catcggaagg tctggcgaat gtgatgagca cacacgctgc
141201 tgacctcatt ctccaagcct cagatggaaa tgtggaccag gacttcccag
141251 gggaagccgc ctgcacaaaa catagattcc agacctacac attctcgctt
141301 tctgaatgga atatgccagg aagggaaggat ctaaataatat tcacaagtca
141351 gaatagttct atttaacatg acgatgcttg tcaaacattt tgtcagaaag
141401 atttttttta aagatactat attactacc aggactctgt tcttgccca
141451 atatttgaaa actgaaatga gtccctccag gttagcatta ccagatttag
141501 taaacagaaa gagaggatgc cccattaaat tctgtttcag atgaacaatg
141551 agtaattttt ttaatgttag tatgttccgt gcagtgtat actttggcca
141601 tctcaaattc aaattgaatg gggcatcttg tattttatct ggcaatcctt
141651 atctggttca gaggcacaga ggctctcagt ttccttcctt taagaacata
141701 catattggct gggtgcggtg gctcatgtct gtaatcccag cactttggga
141751 ggccgaggga ggcagatcac ttgaggtcag gagtttgaga acaggttggc
141801 caacttggtg aaaccccatc tctactaaaa atacaaaaaa aaaattagcc
141851 aggtgtggtg gtgggtgcct gtaatcccag ctacttggga ggctgaggca
141901 gaagaatcac ttgaacctgg gaggcaaagg ttgcagtgag ccgagatcac
141951 accactgcac tcaagcctgg gtgacagagc gagactctgt ctcaaataaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

60 / 338

```

142001 aaataaataa ataaaaataa aaataattct aaaaaaagaa catacatatt
142051 aatttactta ctcagacatt aattaaatat ttaaatagcc actatgtgcc
142101 aaaaaccctt ctagttgtta ggagatagag cagagaaaga acaaatcaga
142151 ggaaaattcc tgctcgcaaa gcgcttctac gaaatacaaa ggtctggcaa
142201 agaggcactt tgccatttcg aatttaccag cctcagttcc ccacatataa
142251 gtggggctat gtagaagaaa gaacatggga tttggaagca gaagatggcc
142301 ttgtctgtga gagctcaggc ttgtcactta atctctcaga cagtttcctc
142351 gccaatgaaa cggacaccac atctgcctga cttcacagat ggggtgagga
142401 tcacatggaa tttgtcagg gaaagtgttc tgtacgctac aaaatgttaa
142451 aatgttacta acattattgt taatgcaatt gctttggtat tttggaaatc
142501 aaatctttgg gatctacaaa tttcatataa ttgtggaagt tacataggaa
142551 actagacatg tatcccaaaa ttacatggaa aagcaactta aattttttta
142601 tgctaggtaa tattcacaaa cattaagtat aggctgcatt ttctttatat
142651 actactgcaa aaatattttg taaagtaggt aacaacatta taaacattca
142701 gtagcaggat tatcaaacag agccgtaagt aacatattta tatacttggt
142751 tgatgatgtt gctaaagttt gccagaaata cccattgcaa acctttctat
142801 aaagaaacat agagttgatt gttttatgaa tttttaaaga aagtcttttt
142851 aaaaatagaa aggagaagtg aggccttaat tatgactttc cacattttct
142901 ccttggtctt tttgttaa atgcaaaagg gtaaaataag atcaaatgag
142951 gacacgataa agctgaatgt tcgacaccat ttaaaagcag ttggtgagac
143001 attaagtcag aagttggtat acttttcaat atgctgttac aattttaggg
143051 gaaattatca ttattaaact agttcatagc caattcctaa attcacttgg
143101 tctcaattgc tttctccatg agtacgggtta gatttggtac accatgacca
143151 tagtagtttg gtgtgctaga aagtgggtcc ttaggccggg agtggtggct
143201 cacgcctgta atcccagcac tttgggaggc tgagacgggc ggatcacctg
143251 aggtcgggag tttgagacca gccgggccaa catggcaaaa cctcatctgt
143301 actaaaaata caaaaattag ctgggtgtgg tggcacatgc ctgtaatacc
143351 agctactcgg gaggtgaga caggagaatc acttgaacct gggaggtgga
143401 ggggtgcggtg agccgagatc atgccactgc actccagcct gggcaacaag
143451 agtgaaattc catctcaaaa ataaatacat aaataaataa tattaanaag
143501 tgggtcctta aggaagtgag taattcacgg ttagtccttc actaaattca
143551 tctgtaattt tgcttatttt cagtaagacc acacggaaac tattctcatt
143601 cttgttctac atactttttt ggctgaactg tcaagccgac ttttatattc
143651 tggaataagc tggggacaga acttcttggt ttgaaggga tagctattat
143701 agccaaatgc taggatctga gtgacagact agtgccatat ttggcactgg
143751 ccatgcctga gttccagcag ctctgagcga gcaaacgaca cagaccattt
143801 tcttacacct tacatggttt ggtgggaagg ggcaacacgg ccctttgcta
143851 tcaagggtta cagggaaagg aaaggagaaa gatcatctca taatgtatcc
143901 ctcaatccat attgggcaca tctctgggag agtcaggacc agagacaaaa
143951 gtctcctgac ctagtatctt agaattacac ttcagcactt tcattttgca
144001 agtgaaaaaa tgcattccagg tggatttgcc caaagtggct gctggcaact
144051 gagacagaac aaagaccttg ctctcttgac ctccatcggg gctttccac
144101 cacactatcc tgctcaccaa tagtaggaag cacgtgctga gcctattagc
144151 aggctaata gaagtcagcca ttaacaatcc agcaaagaca ttttcaggac
144201 tgggttccac attctttgca ccctacggaa ggtgctctgg ggaaaaaac
144251 ctattaatta aacgatgtga aaacaatcct aggacttagc tgttactttt
144301 ttctaaataa caaaatattt ttggcaagta aacaatgtag ttcatacttc
144351 agtggaagga acatagccgg ggtacggggc aggccaagtt acacacatac
144401 aagtaaaca gcggtcaact atttttaaat gtacctacc tgtccaatga
144451 ttaggtgacc caaattctga tcttctcaga ggatggaaat aggttatttt
144501 tattttgcaa cccactgttt ccttctatat ataatactgc atttttgaac
144551 aaaattatat gaagtttatt ctcatttaaa gttctgtggg agctgaatga
144601 tatgatacac agccttctac aattccttcg gtccaagggt cttgagaggg
144651 cctatcattt tataatgtgt aggcattttc caggcctaca gcactctatt
144701 tttgtttcat tctttttttt gaaacttttt atgaaataat tctaacacat
144751 ggaagagtac aagagtaaca tatcagactt catattccca ccattggctc
144801 tatcaaaatc taatatcttt tgccatactt gccttcagat ttttttttta
144851 ataaaatatt acagatatag ttgaaggcta ttggacactc ctgtatgata

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

61 / 338

```

144901 tcgcttattc tcttccctac ttcttctcct gagatgacca ttatcctgaa
144951 tttggcattt ggcattccca tgcattttgc aattttgttt gtttttttga
145001 gacagagtct cgctcagtca cccaggctgg agtgcagtgg cacaatatcg
145051 gcttactgca acctctgctt cccaggttca agtgacaatc ctgccctagc
145101 ccactgagta tctgggacta caggcatgca ccaccacacc tggctaattt
145151 ttgtgttttt agtagggact gggttttgcc atgttggcca ggctggcttc
145201 aaactcctgg cctcaagtga tccacccacc tccgcctccc agagttctgg
145251 gattacgggc atgagccacc atgcccggat tccatgcatg tttttggact
145301 ctaactgcat atatatgaat ccacacttag tgttcttttg catgttttca
145351 aactttaaat aaatgacata tttaaataat tggtcattcc actcaacaaa
145401 atgtttctaa gattaggcaa agcgatccac ataactctat ttattttaac
145451 ccattattat gtgctattgt atttgtgtag cacaatttat tttcccagtc
145501 tcccactggg gcccatgtat ggcttttccc attttaacaa atgttgcaat
145551 aaacatcttt gcacagtaag tccttattta aggtggataa cttcttagaa
145601 attgtaactt taagcaaaac aacagataag gcaaacaatt tttccatcaa
145651 atttacaaca aaacatgggt attcgaggac ttgctgtaat gtacatgggt
145701 ttgttttaaag tctgcttcca agcacctatc aacgacttta agagaggatt
145751 tactgtacat aacccttat gcacacatcc aagagtgtct ctaagaaact
145801 gcttagaaat ggatttcaga gttgaagggt atccacagct tcaagagttt
145851 attttgctaa actgttctcc aaagtgatta caccaattta cacagtgtat
145901 gacagctccc actgctgtcc aatcctacaa aaatctgata tggttggaca
145951 ttttcgccaa tatgaagaac ataaagtggg atctcattga tattttaatg
146001 gccatttcca caattacaag taagaagaac acctatttat tggccaatca
146051 ggtttcctca tctgtaaact accaacttgt atcttttacc aatttttctg
146101 ttatttgtct ttttcttaaa gacttgtcag ttatatatgt cacattctat
146151 cctgtctttt cagtttatga tttctttttt gaacagaagt ttaaaatttt
146201 agtgtgggtca cattttttaa tattttctat tatggctggg tatgggtggt
146251 catacccagc cataatagag gccaaaggcag gaggatcact tgagcccagg
146301 agtttgagac cagcctaggt aaaacagcga gacctcatca ctgcaaataa
146351 taaaaataga attagtggg catggtaagg gcaggcctac aatcccagct
146401 actcaggagg ctgaggcagg agaactgctt gaggccgaga ggtcagggct
146451 gcagtaagcc atgatcacac tactgcactc cagcctgggc aacatagtga
146501 gaccctgtct caagaaaaat ttctattatg ttttgtgact ttttatttct
146551 ttttaaagga attcttctca cccaatatt atatagacag cctcttattt
146601 tctcttctaa aagttaaaaa aaattgcttt tctagtgcag atctttatct
146651 agaacttatt tctgtgtata ctgcagggtg agattctcta cacagacaac
146701 ccattatcca agaaacattt attgaatatt taacccttct ttcactgggt
146751 tataatccct ccatgatcaa atatcaagtt tcggatttat ataggtttat
146801 ttctgggccc tctactctgt tttgctgttc tatttatcag cttctaaggc
146851 aatacaatgc tgttttcatt tactctaaat ccataacaag tcttaatatc
146901 tggtagagaa gattacttcc ttcttcaaaa ttgccataga taatcctagg
146951 ctattgctct accacacaaa ttttagaatc agcttgtcaa gttccaggga
147001 aagtccagtt gggattttga atggaactga ataaaaatta taaattagtt
147051 gaggatttta actgctctaa tgggcttctg gacaataaat atctgggctg
147101 gagcttccag agagccgaac acatggagac tcctgagggg tggctgtcga
147151 gggaaggcat ggaagctcca tgccccttct cccatacctt gtcctacata
147201 tctcttcaat taaaaaaaaa aaaaaaaaaa atatatatat atatatatat
147251 atatatatat atatatatat atatatatat aatgatgtaa taaatatctg
147301 gtggctgaaa gatcaactaa aaatgtctta cttttcaaag caacaattac
147351 cttataaact gccatgcctc ccatttatgg acttacaat tctatcacta
147401 aacattcttt ataaaaactg agatcagggt ccatggttca cacctataat
147451 cctgtaacta ggcagcttaa cttcaaagtg catttaaaac atttttcccc
147501 tttctcttgg gtttaaaaaa gtaaccttga agcaaactgc agaagtgttt
147551 tcccttagtc ttaaaataga ctccacgacc cacccttctc tcaactgtct
147601 tactcccttc acatttatct aactgcatgc tggatatctaa ttatctgcct
147651 acttagaagt tccaggggct aaacgtgaat cttgagtcag acagaccaag
147701 cttggagacc cagctgcaaa attccagaga taacctcaag gtggctagtc
147751 aacaacccag ccatcggttg gagcatgcca gcctgcttct cacctggact

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

62 / 338

```

147801 gggacccaag acagctacca gaacaagaaa tacagacact gtactcagca
147851 taattttttac atgccttcca tatcatgttt tctcttttta aaaccttgcc
147901 ttgcccctaa aattcaaagt agttgcgttg gatgggaatc tggccacttt
147951 cctattatta cttttggcta ataaagtaac tttcttttta ccagacctgc
148001 ctcttggtta ctggactctg cgtgtggtga gcaatccaac ttgtgttcat
148051 ttacaatccc agcacttaga ggctgaggca ggaagatcac ttgagcctaa
148101 gattttgaga ccagcctggg caacacagca agaccctgtt tcttcaaaaa
148151 ataaaaaact tagctgggcg aggtggcacg tgtctatagt cccagctact
148201 tagaaggctg aggtgggaga attgcttgag cctaggaatt tgaggctgca
148251 gtaagccatg atcacaccac tgcactctag cctgggcaac agagcgagac
148301 cctctctctg aatttaaaaa ataaataaaa tttatttttt atttagaaaa
148351 atattttatt ttttatttat tataaattta ttattttatt tttattttatt
148401 agaaaaaaga accaaaaaaa tctggaactc tctgaatgct tatttccact
148451 ctaggtatct atcagaagat aagaatctta aatattaaaa aaattagctg
148501 gatgcataaa atgcacattg tagcattact tagagtagga aaaaatgaaa
148551 gtaacctaaa tatcaatgac ataggactat taaactagaa gaaatatacc
148601 caatgataca ctatgatggg gagaaatata ctggctctaa aaactattta
148651 tagcaataat gaaaatgggt acttatggta tagcattaag taataaaaatt
148701 aggatatcag ttgttggtac actgtgaata cagctgtaga aaaaactctg
148751 gaatgtgtgc actgaaaaat aaaatgtact aaactattta caatagttag
148801 gctgggaata cagaattaca aatagaattc tcccacctac tccacctgtt
148851 aaaaaaatct attgtagggc caggcacagt ggctcatgcc tgtaatccca
148901 gctctttggg aggccgagga gggcggatca cgaggtcagg agatcaagac
148951 caccctggct aacacggtga aaatcgcttt tactaaaaat aaaaaaaaaa
149001 ttagccagga gtggtggcac acacctgcag tcccagctac tcaggaggtt
149051 gagggaggag aatcgcttta acctgggagg cagaggttgc agtgagccga
149101 gatcgacca ctgcactcca gcctgggcaa cagagtgaga ctccatctca
149151 aaacaaaaaa caaaaaacaa aaaaaccact attgtctaaa ggggttactt
149201 ttctatcata acaaaatata ttgtaaaaaa ataataatat taataatgtg
149251 agtagtaccg gactgtgtct tcagggcgctc atttaaagtt cgaagagaca
149301 gtgctttagt gaagcaaagc attcaaggcc gacactcagg gtttgggatc
149351 tagctcaatc actgattgtt ttagaagttt tgggaaagag tatcatgcat
149401 tttctccgtg aaaaaataaa aatattttaga tgtatggatt agtcagcaaa
149451 cctttatgaa tgggcattca ttaagataac tctgaaattt catctaaatc
149501 atgcaaaaca caaagactgc ctatttcatt ttctttcaag tatgaaggag
149551 agtaaagagc agggagtgtg ccatttggaa ctggaaaaaa aattgcctac
149601 aacattgttt ccagagcttg tactttttac cttaaaaaca tgaaaggctt
149651 caaactggat gttgggactt ttatcccga gagggttcat catgagtttc
149701 aggttctccg gcttgctgat atactttgtc atgatggcaa agttgtgacg
149751 gtccaggatc agctccccta gcagctagag gaaaacacaa aaccaaagct
149801 gtaatctcag agccacctga ttcaaaatat agctcacgct ttctcactga
149851 aaaacaaaat ataaatgtga gtaagaatgg tgttgtgaaa aaaattagag
149901 tgtccttaag tgcattctca agcacaggca taaaagcaat agttattgag
149951 caattttttc acactgcttt gctgatgtca gtgcttagta ctttttttta
150001 gttggtcttt gctgcagctc acctagagct aggcagaaat aaatttatgg
150051 ttttcaatac tcactttaat tatcttgctt cgcactaatg tattgctcca
150101 taggcattca ggtagaagta ataacaaaat tggtagcata atgatacctt
150151 ctttacctgc ataaatgtat gctaggaggt cactattaag acagtttgtt
150201 aaatgactct tacatttccc ctgactttta ttataaaacc tgatataaag
150251 tcagaaaaaa aattgacccc aaatctgtat caaatttagt aagtgcagca
150301 agtttgtatt aaaaagcaaa gcaaaacatt ttttggtgac aaattgatag
150351 ttccccaaat acagcattac cctaaaacaa aataaaaata cccaaagtaa
150401 gaatagttga agaccctcta gcaacatggc tgaatgtatt gttgctctat
150451 cttagaaaact ttttgttctc accataattc tggagaacag aattatagcc
150501 ccctggctgc ttagcaatt cctaaagctt cagcagccag ggggctgaaa
150551 catactgtaa tataacttta tatagaagat atgttttagt ttcaattgtc
150601 ctattttactg gactttttct gaaggcctca ggggagtaac acatcattac
150651 atggttacag aaatcctgga tgggaagaaa agcgcacatc aaactgaggg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

63 / 338

```

150701 ccaactgtct atcaaaggag tcccagatgt gtgcaagcat ctggctgcca
150751 gtaaaccacc accttgccctg tgatgtatct tttgtgtatt taacatgaaa
150801 gaagtataca acctgaggtt attttaatgc atgaaaataa cgtttgtaa
150851 acctgaaaaa aggatgaccc ctggtggatg ttggctggtc actagttatt
150901 ctcatacaca tggaatagca accacgtagt caaactgtta atctgcaacc
150951 tccttcatct ttctgcagct tctaacgtta acctaacacc ttctggaaac
151001 tttctttgct cctggtttcc taccttgtgc agcttgttcc cttgctacct
151051 cttcaatggc tcccttgccct tttgcactac ttatgcagca attttccaag
151101 ctgtatactt ggatctgcta tcttttatct cccaacagtc tcatctatac
151151 ccatgggttc aactgtaaca tctaggaaga tgtctcccaa atctacattt
151201 ctagtctccg cttctttcct aaactctaga cccacatttc tttctttctt
151251 tctttttttt tttttttttt tttgagacag agtgtcactc tgtcgcccag
151301 gctggagtgc agtggcgcgga tctcggtcca ctgcaagctc cacctcccag
151351 gttcatgcca ttctcccgcc tcagcctccc gagtagctga gactacagcc
151401 acctgccacc atgcccggct aatttttttag tatttttagt agagacgggg
151451 tttcaccatg ttagccagga tggctctgat ctctgacct ggtgatccat
151501 ccgcctcggc ctctcaaaat gctgggatta caggtgtgag ccaccacacc
151551 cggcctctag acccacattt ctaactgcc actgggcagt cgcacttgaa
151601 cactgctgga ctgtcacact tagcgtctct aaaaccaact ccctttcttc
151651 tctttgttaa tggcaccagg agctgccctc ctccggttgg gaagagaatt
151701 ggtcttcctt agctcctttc tttcccttgc tcctcacatc aaatctccat
151751 ctaagaccta ccaattttct gtttttaagt gtttcttgaa cacctttcat
151801 tcaatgttca cagccagtaa tctcattcaa accctcacta cttttcagct
151851 gacctactac cacagcatgc aaaatggtct ctcttcagt cctcacctaa
151901 tccgatccat tctgcacatt ttgtcaaaga aatcttccaa aaatcagtat
151951 ttgttaccaa ttccacttag attagaaagt gaacgaataa acaagcaaat
152001 tcctagattc ccatagattt agaaaaaagt aactcattaa gatgccgttc
152051 ccagcctctg tgatgtggaa tcatttctcc tgcttccttt cctcagctcc
152101 cttcctccat cttccccact ctctgtctc tgtggcttta cttccccagc
152151 tccaaaatct tgagaaacac tttcacctct tctctgcctg ttcaaacctg
152201 gcccatcctc tcagaaccag ctccagacatc gtcttcggga aagcctttcc
152251 tcttctctac agttgacttt gctttgcctt gtagtgcaga gttatttgtg
152301 accctgttta aagaataagc tccataaggg cgtgtttcaa atccccctac
152351 aacctaaactg tgtgatgtgc atgggtattg ttggggaaat aaaagtccta
152401 cccacatata cagagcacia tacagtaact catctctgaa aaagagattg
152451 caaacagaca aaactatccc ttattacagt caagaagcta caatccatta
152501 catatatata tcctcaagat gaagggtaac ctgtccactg ggggaggacc
152551 tgactaccat ttctgtgcac tctttcatgg tccccctaa tgcacctagc
152601 aattaagggtg accatttggt ttagctattt atctgaataa taaaacttct
152651 cttatctctc tgacaagcaa atagttggaa aagggcacct aggttaaact
152701 ctcttgtga cagagagata gtattatctt cctagatgct tatatttcaa
152751 aggtagggtc tccagaccct ccaaaaagaa aaaacaaaaa ctaaaaaact
152801 tctgggttgt aagcctgtcc agagccttac ttatcttcta aagatatata
152851 caaaaataat caaatactga atagacacat atatatcata tacactcatg
152901 ttaaaaggct tcagcaaaag gaaaatttca tttttgaaaa ttacacaca
152951 cacactcaat aaacatttgt tgaagttata tttatgagtt aagttcagat
153001 taggtcactt caatttttat tacctgggga tacctacata taaattctat
153051 ccaatctatc ctctgctaata agaatttcac aatttttctg aaacaattaa
153101 ttgtgttaat tcaacactaa atcttttagc cattaaatgt taatctattt
153151 taatattaac aatgacaaaa tgctgcattc cagaataata caaagcacta
153201 taaagcaata ctataccaag taaatgggaa acacacatat tttacttctt
153251 taaatttctt attttgtatg cctcatagta catagttaag ccatgcagca
153301 agtggaaata agtttttttag aaacctaagt gttttaatga aattgaccag
153351 agcccaaaaa attccccagt ttccaccaag cttcttttga attataatct
153401 ttcttgctgg taattaaatg ccaggcctct gcagaagata aggaaaaaat
153451 tccaaagctc tgtcacatga tggaaaggaa tttctctgtt aattattttt
153501 tattgacacc aggaattaag cagtgcagga aaatttagaa tatgattaat
153551 aaaaggcagc aggtagcaac tacttttgaa tcagaaaata gcctagtact

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

64 / 338

```

153601 taagacagtt tattacttac aaagttgcta tataataatc taacctctct
153651 tgtttcctgc aattatgaaa catctatgta aaaagtatta cagaatccat
153701 ttatacagaa acacagttgt gtcaaaatag aatatactgc taccacagat
153751 ctaattacca aaaggaaaaa ccaaaattgc atcagtgagg cttccagaat
153801 gtttttctag caaaaaaaaa aaaaaagagt aaacaatatt taatgagctc
153851 tatgtttata tatgagctta tttcacagtc gtctaccttt ttgtttgctt
153901 gaacagagtg atgcaaaacc attttggcaa catctcttcc tataatctaa
153951 cattaaaaaa aaccaactct ccagtaacca ttttaatact ttctgcattc
154001 ttaggtaatt tatctgcatt ttgtcaggca tttttttcca gtgtcctatc
154051 aattcttggg tttaccatgc tataaatcag atatccatga gatgcctaac
154101 tgtaaagatt ttaggaggaa tagcagccaa atggtatgtc tgggtgaatt
154151 aatgaaaaac aggaaagatg cctcgtgaat aggctaaggc atctgcaaat
154201 aagtaggaaa tacaacacagc tttcttcctc caaatttggg tcaatcacct
154251 tagttcacat aaatctctcg attttgatcc agtatctgat agactcccat
154301 tgaaaaaaag gaaggatttg gagaatttat gagcaacttc ctatatgctg
154351 gaccttcaga gcactgtcac ctctgtttac tactccaatt gccatcttcc
154401 ttccagggcc actactcgtt gtaccatgga caagcttacc tcatttggct
154451 atccttgtgg agccctacaa ataacgagtt ctgttcttta cgtatgcagc
154501 tgtataaaga gaatacaacc ttatcttcat ctgctcttag caagctttct
154551 ggacatggga gaacacagcg ctgaagtcac tctctgcccc aaggtcagtt
154601 ccacacacag tttggtctca tccactactg gctttttttc tagatgggtc
154651 tcctgggtata agtttctaca caaaggggaa actcaataaa aagtgtctgga
154701 tggctggctg aaaaatggcc tccccattaa caccagtgga gggtagaaat
154751 ataaaggaaa ccaggtcatg gctgatgcag gatcgtgggc aaagtaaatt
154801 gacaaaaaat gtgatacaaa acagattgac tttattgtct tagtttaaaa
154851 ttatactcca aatttagaag caaatgcatt gttctatgaa tgccatcatc
154901 ttgacatgta aaaataacac aagtgtgtga cactatatcc caaacctaga
154951 aaaaatagga aaaaatgaca atacaagtgt gatgttttagc aagctggacc
155001 atcatatgag ttgctgcact aaaaacagtc agttttatca tctgctgaaa
155051 acattctttt tgtgggattc tgagagggat ctgaaggaca gagacacaac
155101 tccagcccac atctccctcc cctcaggggc tctcccacct cccctggcc
155151 acatggctgc ttccaggcac cattccactg tgggagagag ggccacttat
155201 agatggatgt ggtcttactc tgttgggttc cctgtcattt ccacagccag
155251 ttaataggtg cataacctca agtagcagat gtaacttggg ttcacacaac
155301 acacacatac acacaaaaac acccttatca gagccatctt aattttccat
155351 aaatttagcc ctctgtttta agatcaactc atcaaggact tcaatgatcg
155401 tctagctgct ctggcgacac cacacacaca cacacacaca cacacacaca
155451 cacacgccta tctcccaagt cgccgctttc tgtctccttt ccctactctt
155501 ctttttagta cttaaaacca tctgaaaact atgtatttat ttgtttattt
155551 gtctattgtc tgttttccaa caacagaatg tgaggcccag agctgttctt
155601 ggctgtcatc atatgtctgg agaattgagca cataaatatt tgttaactaa
155651 atggaatgtc ttattacctc cctcacacct ccttctccaa taattcatca
155701 aactatgcta tttacgggta attgagaatt ggctttattt tcatttccag
155751 ctagctgcat cgtcttttaa tctcttgcca gattctgttt cagtgtaatc
155801 ctggcagtat tttagaaaag caaaatttcg gtatataccc aaaggactat
155851 aaatcatgct gctataaaga cacatgcaca cgtatgttta ctgcggcatt
155901 attcacaata gcaaagactt ggaaccaacc caaatgtcca acaatgatag
155951 actggattaa gaaaatgtgg cacatataca ccatggaata ctatgcagcc
156001 ataaaaaatg gtgagttcat gtcctttgta gggacatgga tgaaattgga
156051 aatcatcatt ctacgtaaac tatcgcaaga acaaaaaacc aaacaccgca
156101 tattctcact cataggtggg aattgaacaa tgagatcaca tggacacagg
156151 aaggggaaca tcacactctg gggactgttg tggggtgggg ggagggggta
156201 gggatagcat tgggagatat acctaatgct agatgacgag ttagtgggtg
156251 cagtgcacaa gcatggcacg tgtatacata tgtaactaac ctgcacaatg
156301 tgcacatgta ccctaaaact taaagtataa taataaaaga aaaaaaact
156351 gtaaaaaaga aaagcaaaat ttcgtatatg cgatcatgta gtcttctgac
156401 atatctgttt gttagaggtg atttttaaaa aacatttctc ttctaattct
156451 tagggaatga ccatgtttca tatttcagaa tctctcccgt aaatatcatg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

65 / 338

```

156501 tgaacatgtc atgttaagtg gtggaagtat ttttaagcaac ctgcaggaaa
156551 aactgactg tcgtgaatgc tcaggggaatg ggacctggtg atgaaatata
156601 gcataaaaaa ttcttttagga aaatatgtta caaatctggg agataaatgc
156651 ttcccataaa acagaagccc cataacattt caactatata aacataattt
156701 gatagtaaaa agctatttta tactcaaaaa tacagatatt aagaatttat
156751 caattgctgt gcttaaaact tagagggaag gtttaatttt tgcattttac
156801 atgtcttttt tttttttttt tttttttttg agatggagtt ccgctcttgt
156851 tgcccaggct ggagtacatt ggcacgatct tggctcactg caacctccac
156901 ctcccagggt caagcgattc tcctgcctca gcctcccgag tagctgagat
156951 tacaggagcc caccaccacg cccagctaata ttttgtattt ttagtagaga
157001 tgggggtttg ccatgttggc caggctgggc tcgaactcct gacctcagggt
157051 gatccgccca ctccggcctc ccaaagtgtc gggattacag gcgtaagcca
157101 agatgcctgg cctcagcaga aatattctaa attttactta tcatgtactt
157151 atattgttac ttccaaaagc aggacaggac acttacatta ttttgctata
157201 aaatacagtc ataacataaa atatagtaaa tacttctcaa gttattttaa
157251 aaaaggatat tttaattttt ctgtgtttac tcatatacta atagaccctg
157301 catttgctaa tgagatataa acttacgggg aactgactt aaagaaattt
157351 gatattacct ttaaagactg tctcttagta acataattct cagactgaag
157401 caattttctc tagtcttcaa aaatctaata aaaagaaaat acacattaga
157451 gtgtaaaaagc agcagtggat tctccgtatt aggctggctt gctttctttt
157501 tcaggagcaa attcccaact tctggccatt ttaccatcct tctttacatg
157551 tgaagacact gggggacagg gaggtcaaga attacaagag acatccttcc
157601 ctatttttatt ttagttctgc aaattagata aaaactgagt aattttgagt
157651 ccttccaata aatcattttg aataaaactt ctagtaaaaag ttgcaagaga
157701 actcatttta tgccatttta aagaaatctt tatgtaagta gccttgctgg
157751 tggctatggg tccacaattt gggaaaatat taaatacact taaggcttca
157801 cttggcaagc cataaagaat cagactgttc aattcactgc ataaacagat
157851 aaagaacgag gcaacctttg ttgcatgacg gcccaactag tctctctgga
157901 gcacttcact ctaccggaa gctggggaca ctggtgcacg aagtcttctt
157951 tcctaacaatg gtcaccaacc atggcctagc ccttcagttt aacacagagt
158001 gctggcatct ggggaggttc agcattcact tccatcaggt gtgggcacac
158051 agctcataga gcactgaagt gggaggaatg agcgcagcca ggacggagga
158101 caagagatca ggaactgaag agggtgacaa actcctagcc ctcgagagat
158151 caagtgcgag gggagagtgt gtgccgtgt gtaatgaggg caagctgtgc
158201 atgctgacaa tcaccgatag agaataaagt gaaaagtaaa aatacaaagg
158251 tgtagctcac attaaaatca cagtaattat actctttaat atgaatgact
158301 tattttattct atcctgaaac acaaggagaa ttttgtggat cattaaatgc
158351 atcagacaag ccttgtgata aatttgaata gtaaatataa aatgcaaata
158401 catgtatgtg gtatgacctc ctcccagatc caccagcttt attactttag
158451 agtcatgcat catgtgctcc agtttcatgg catactgcta aagaaatatc
158501 agctgaaaga gtctgaaagg tttgaagggg catgagttct cagagctcgc
158551 attcaggcca atgcaggagc ttcagcagct gtgaaattac taaattacac
158601 aagaagtgat atatggatgt aaaaacaaaa ttaggtaaaa aaggagtcaa
158651 agagaatgaa tttattagtc tctcaaactg tcatgtatta tacctgaaca
158701 caaagcatta ctgcacaaca catttacctc attcattcta taggaaaaaa
158751 tagtaattag ttgatattgt agatttatcc acgttatctt agccttttaa
158801 aaattttatt tcttataaat gtgacatcta atgaatcttt ccttaacatt
158851 ccatctagca tatatagtta ctgaacaacc aaactatata ttaacagttc
158901 atttcctaaa ttcaaaaata gacaattttc tttttctttt tctttttttt
158951 tttgagacca agtctcgctc tgatgccaaag gctggagtgc tgtgacgtga
159001 tctcagctca ctgcaacctc cgcctcccgg gttcaagcaa ttctctgcct
159051 cagcctcccg agtagatggg attacaggca cccgccacca catctggcta
159101 atttttgtat ttttattaga gacaagggtt caccattttg gccagggttg
159151 tcttgaactc ctgacctcgt gatccacca cctctttcag tctatacatt
159201 ttgggatgcc tctagcaata aaaattatct tccttgaggt agaattgaggt
159251 tattagaggc tggggaagggt aggaggagg gaagatgaag agagactgggt
159301 taacaggtat aaaaatacag ttagaagaaa taagttctag tattcaacag
159351 cacagtaggg tgactatagt taataattta ctgtatattt caaaatagct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

66 / 338

```

159401 agaagagaag atttggaaag ttcccaacac aaagaaacga taaatatttg
159451 aggtgacggg catcctgatt accctgatgt gatcgttaca aattgtatgc
159501 atatatcaac atatctgatg taccataa acatgtataa ttattttgta
159551 tcaattttaa aaatcatcct cccctcacat tttacactta aaacaaatac
159601 tctagttgat tctgtggcta tttcctttat aacatgagga cataaaaatc
159651 acttttgatt ttataattat attgctaatt cctaacttta aattgaagga
159701 caactggcaa aaataaaatt tattttatatt ataattaaaa gagaagtagt
159751 taaatatttg tgatttgaat gtgtgaagat atactattga taggcagagt
159801 aggccacacc ttcccagtat tcaggagtat gttgcaacct ttgtctagga
159851 tataaatgat tcagagactc cttgaggact attattaata tttgtttgct
159901 accactgggc catatgccta ttatgtgccc aactatactg catactgttg
159951 ggaaggcata aagtcatagt aatcatcaaa aatgtacttc tttttgtaag
160001 cacatgtaat ttaatttaat actaaagatt tcaatcaata aagatacttt
160051 accttaattt acttattact accataaata tcatatacac atgaaattgt
160101 tttttgcttt taatagatga agacaaaaaa aatccattca tcataccata
160151 tatataaata tttagaactt cttggttttag gcatcaataa taaaaatagt
160201 taagtgtctg ttttaagacag cagattacat tcttgctgtt aggtgtcagg
160251 cactagactg ggtgatggag acagagtagt aacattaact aacacatgta
160301 aaaatgccaa aaatcccagt aaaaaataac tgtggctgtt gctaggatga
160351 ggatcagaga ctcccccttc ctaagtccta gtttagatgc atgctgtcca
160401 acatagggcc atacgcggct actgagcact tgaaatgtgg ctagtccaaa
160451 ctgagatgtg ctgtaagtgt aaaatacaca tcagatctca aacactcagc
160501 atgaaaaaag gatgtaaaat agcttgatca tttttcactt catcttagcc
160551 aaaagaccga gaagcgatga tcattttcca tattgattgt acattaaaat
160601 aacatttttc gtatgtttggg ttaaatagat gtatattatt aaaattaatt
160651 tcacctgttt ctttttacct ctttgtgtgg ctaactagaa aattttaagt
160701 tacatagtgg ctctcatttc tggctggcat tatatttcta ctggacagca
160751 ctgaggtaga gcatctgaac caacactaga acaaaacata caaagttttc
160801 cttctaggtt tgagctatat tttactgtat aatgctgctt ctattgctta
160851 cacatttagt aaaagtatcg ttgcttttgg atggatctgt caccacaaa
160901 tgtatgacac tgcattaggc attaggaaaa caagtaacaa cgattaaaaa
160951 ctaatactga gtgcttactc tggtagctgt ctgaaaactt taaatcccgt
161001 caaactccct caacaaccct atgattcagg tattattact atgttcattt
161051 tgcagtgggt gtagtaactt gccaggggcc actaaggagg caggtcttga
161101 agccaagcaa gcacgaagac tctaaagtcc atactgtgct cttaaccttg
161151 tgtcctgcag ataagattcc tgcctcttag ggggtgcaag ggccagccag
161201 aaagatacag acacaccata ataatacaag gtgaaaaata agagggagcc
161251 agagagagag agaagaaaga gagaagggga gaggaggag aggagggaga
161301 agagagagga gagaggagag gggagagaga cagagacaga aagagagaga
161351 gaaagagaaa ggatgcatgt tttgggaggg gtaggattag ggaaagcttt
161401 ctaaagagtc atatttcaac caaatctcaa aaggatgagt tggattcact
161451 gtcagggaag ggagttgcaa gataaaaaat atttctggta tttttactac
161501 taagtaagac taattatcaa ccaagtaaaa tgatgtactt tagtgagggt
161551 ggggttctct tccttttgga gttacctact gcctcctttg atttgcaaca
161601 tcaaagcaag caggtgctag tcattttatt agcttcagag cacaacacga
161651 agagatgtga aaaaggtgaa agccctgacc tcctgccatc tcaattttcc
161701 ataaagtttc ctgatgacct ggtttccagg tagacaaatc aggagtatgg
161751 ttgaatgcga ctgatttctc ttgtggataa ttcacagggg caattgctca
161801 tagatctaaa agggaggagg agagaaagtg ggaaagtctt taaaaatgat
161851 ttctacttac agtgtcgtaa ttttgttcta agaagtctgc taccaact
161901 ttatgtctgg ttagtaaatc ctagaaaaag aaaaaccaag tgaaacaaaa
161951 ctgttatagc tattaatatt acaaagtgtt cttttctaag gtttaagaac
162001 atataaaagt tgcagaagaa cattttcatt tgcgccacaa aattatttcc
162051 attcctagct tagcctaaga tgtgaaatac aagtttggtt catgttagaa
162101 aagaaaaact ctggtgttaa acctagtgtt tcaaattcat attgttagat
162151 ttatgataga aataatttaa ctggtgaaac aaatggaact tgagatgagt
162201 taattttttt tttttttttt tgagatggag tctcactatg tcaccaggc
162251 tggagtgcag tggcatgac tcagctcact gcaagctctg cctcccgggt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

67 / 338

```

162301 tcaagcgatt ctctgcctc agcctcctga gtagctggga ctacaggcgc
162351 ccgccaccac atccggcttt ttgtttttgt attttttagca gagacgggtt
162401 tcaccgtgtt agccaggatg gtctcgatct cctgactttg tgatccaccc
162451 gcctcggcct cccaaagtgc cttaaccact tttaaaatgg gcgcctcggg
162501 tactggaagc ataggactga catttagcag tgtcaaacca gtattgttcc
162551 tgctcttggg ttaatgggat gtaagggtgt gtgcaagtta ctaagtagca
162601 caatccatcc tttcaaaatt gaagatgagt agccctatct tatggcagat
162651 ataaacttgc agaaaactga acaaagcatg aagaaacatt tgactgtctt
162701 caactcatac ctaaattata tccttaactc actttaatgt tgtaggaaaa
162751 caagcctcac ttaatccctt ttatatgctt agaggctaaa tgccctgtct
162801 aggtgctatg aaaaatttaa ttaaaaacat aacaagaatt ttaaagtttt
162851 ccaaaataaa ttcttttaat acatatttaa ttaaaatttc ctaaaagcat
162901 atagaaggta cacaacataa cttcacaaag aaaaggcaga taacaacat
162951 aataaaaccc acttatttct actttaattt tttaaaagt aaaatattta
163001 aagcattgtg tactataatt ttcaaattca aaaataataa gagtggctct
163051 taattcccta ttgctatcac acaacttgat caaccactgg gcctatcagt
163101 ggaaacatgg tgtttttccc ccccgatgga gcagagcatt cattaccact
163151 ctggaactga agttctaaaa tggaaaacca tttacagggg ttccgttccc
163201 acccgtcaa aggtcttgat tcaaactagt tcctgcatca ggggaccctt
163251 gaaagagtaa ggtagttcca caagatcctt tgaggctcct actctttttt
163301 ttaaaggata atattggtgt catgctttca agcatccctc ccctaacatc
163351 atagaaaccc catgagcagt aatagaaatt ttctgagctg aaccagggca
163401 gagggacccc cctctatggg ctgcagcaga cactgtggat tgctgcaccc
163451 atgggagttc tctacctgct tcaactatcg tcagcctttg aaagtgagga
163501 ctgggttccc cacactgcag gccagcgcga cacagcccca gtggcaacaa
163551 aaagagcagg ttgcagatca gtgctgcctt gaaaggttgt gtcatacatt
163601 agtgttaccc caaagaaaaa gggatcagga gggagttagg ttaaaaccaa
163651 cactttcaaa ttccaaggca agaaaacctt gaaacagctt gaaaatccag
163701 tattaggaaa ccataatagg gtggggtaga attcctccag catatatata
163751 tatgctagat atatataata tatatatata tatatatata
163801 tatatatcat atcatggata cagccaataa acaatgcaca cattccctct
163851 ctcacgccc aatttccact ccagtgtgta atgggattga tacatggata
163901 taccctcaaa tttatgtaca taataaatgt atatacaaac cacatatata
163951 tacacacagg cttatgtaca cataatacat agacaaatat aattgctgca
164001 ttatagatca cataactgag tgaaaaaaa aaaaagaaac cacaaaaaaa
164051 acagctagga tcctacccaa gaaggaaaag acagaaaatt gtgaaggaaa
164101 ataaagttca aactccaaag aatttagaat ttaaaaacct taattcaaat
164151 agtgactctt ttcactctac ctccaaacaa ttctgttttg agaggcctaa
164201 gttttgcata gtatattatg ctgaaaaatc tgatatctat atttttaatg
164251 aatactgctt gagagaaact tggggtagag tgagagagac acttaattgc
164301 agggacataa aaggctgagg agccagcgac agctgccgtt tagagggtg
164351 actgtgctgg ggagtgtacc gagcactttg caaatacggg ttctgatctt
164401 cacaagtccg tgaaaaaggg atgattttct tcatttcaga tgtggaaaat
164451 aaaactcaaa ggttaactaa attgctcaag gacatccagc ttatcagggtg
164501 gcagagaaag acagaattca aaccacttct attatgggaa ttttttagagg
164551 gagggatgaa agagattatg gttgtatgga atcctttttg ggaaaagact
164601 tttggtagac aaatctatgc caaaataaaa aactaacaat gttacaatat
164651 taataactaa actgagcaac agtcccttta agagctcaaa accaaaaaga
164701 ttaggaggtt ataaaaaacc caaaaccaat gccaaaatca agtcaatcat
164751 ccaaccaaac aaaacccttt gaaaccagct actttaaaaa aaaaagtgat
164801 ttatggtcat tgttacatta tattaacat aagcatttgg taaaataaag
164851 aaaattggtg tttccaaaac tgacagcata ctagaaaact ttttatgatt
164901 atttagattt taaaggattg acttaaattc aatggaaaat tggcttaaat
164951 acaaatcaaa acaccattta tttttgtcat tcaatattgt tgctgaaaat
165001 taaattgggc tgaatatatg acagcaagaa attactatca agtacatctt
165051 attctatcaa atgtttaaaa acctttgggg aaattttcag aaatacatat
165101 taagtatttg ctttcctcct ctattggcgt ttgttctatg tttgtaatta
165151 tgtgaaggct tacttttttt taaaaaatga atttacttgt ttccatgaca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

68 / 338

165201 gcgaagagcc atctgatagg aaaggggaaa aaaatgggac tgtagtgtct
165251 attatttagca aacacctcct tagtagttta gacacagaca ttttggtaga
165301 aagaaatgga atcatccttt gtatttaatg tcattcttca tgttggtatgc
165351 aaccgaggcc tatctcacca ctatctctag atccaccttt tgaggggatc
165401 atctctagcc gctgtacaat ttttgtcttc cggggtgaga aacagccact
165451 cctgggattt ccaacactcg gagcccggag ccatgctgcc ctcaccgccc
165501 ctcccttcac ccagcagtca cttccaggag tctgttccca agcccttcct
165551 ccttcttttc cttccttcct tccctcactc ggctgttctc ccgagatttc
165601 agtttcctta ctccaagctt cccattcttc atactccgcc tctcgttaac
165651 tccccttctt cccttcccct tcttttctct gcccttttct gtctaccag
165701 acctcccctg tgggctctc ctctcttccc tgttttcttc agggagacca
165751 taggacgctg gcaggctgaa tggaggcctg tggacacccg agcaggctgc
165801 aaactccttc cttcaaacc cgacgctag aggccttggt tttgttgag
165851 ttttgctga ggctttgggg aatgatggc attgcggttc ctttctctg
165901 atgtctcggg caattcagt cttgtccgaa acccgcacac cctcctgctt
165951 acgacaacaa aagtgccaca gtggccgggc gcagtgactc acacctgtaa
166001 tcctggcact ttgcaggggc caaggcaggc ggatggcttg aggtcaggag
166051 ttcgagacca gcctggccaa catggcaaaa cccctctct actaaaaatg
166101 caaaaattag ccgagcatgg tggatgcgc ccgtgggtccc agctacctgg
166151 gaggctgagg tgggaggatc acctgagcct gggaggctga ggctgcaatg
166201 agctgagatt gcaccactgc actccagcct aggtgaggga gtgagacctt
166251 gtctcaaaaa gtgctgcagt taactgggct taccctgctc ctaggcagct
166301 gttaacaacc agctgctgtt gcttaagcct gccctggaat ccacccccag
166351 cccaccccaa gtggcttcca aatattccca tcattctcaa acagtattct
166401 ccctccagag ttcttgtcaa ttaaattttc ctttgcattc tgtatttcca
166451 gagatggcct ggttgcttt atagatcgtg tgccaggcag ctgccaggac
166501 ttgcctcccg cttaccacc caccactctt tggcttctc catcacaaca
166551 aatctctctg acggcccagc ctgcaggctc cgcctccagg gagaccagc
166601 cccgtccctc accctccgcc aggcattctt ctccctaagt cccagcttcc
166651 ttctgcccc a ctgacatctc ctacccttta ccactctctg acactctctc
166701 acactttgtg tcaccatgtg acctaatata cctttcaaca gatttatggc
166751 accttctcag aacaggctgg gtaacttct agtctgcaga taataggtag
166801 ttttcagcag agcaaaccac tgctttcccc tttttccacc tctggagagc
166851 tattttaaag aactatttac catctaagtc ataggcaact ttcaatcact
166901 gttcataaag taatacgatt ggagtatgta ttaatattag tatatggact
166951 atatcgatat tattgaaata catatttaag gtaatatata aaaaataaaa
167001 attcatacat ggattacaat taagtaaaac ttgtaaaaaa aagttacata
167051 cgtatatcct gaaaaaagta taaattaatt tggagttatg taaatagaac
167101 aattaaattg ctaaaatgct tttgaagaaa tgaatctgaa tacatatata
167151 tatatatata tatatacatt taaatgagtc ttacctactt tttaaacctg
167201 aaaacctatt tttttcaatg atgctgttac attgtcagtc tatagtattt
167251 tttgaattcc tcttctcaa cagcttcaga gctgatttgg tagacattga
167301 agaaaaatcat atctatttta tttctattta tatcttaaaa ttagttttct
167351 tataattatt atccctcccc aaataattct agctaacttg atcaccact
167401 ttataacta accggaatgt caaataggct tttgtttcca aaacttttat
167451 ctgcccttga atgataaaag tttgccatta ttgaaaaatg agcatgtaat
167501 acacattgat accaacttca aaatatgtta aataatagca ggatcataag
167551 cctaagtaac tggttttcta aatagaaat ctcgaatgta acatcactca
167601 ttagatgact aagttttggt atgtttgtct gcaaattagc tgcactcttt
167651 tctgatatat tctctgaaca tttttttgat gataaaatac agaaaccaa
167701 agtaaaatga ttgtcagggg ctggaggagg gaggaatgg ggagttatta
167751 tttaataagt atagaggtag agtttgaatt tttcaaaata aaaaagttct
167801 ggtagttggt tgcctaacaa tgtgaatata ttgcatccta cgatttccta
167851 catagtgaac aagtagataa tacatgatca aactatagat gattatgaaa
167901 caacgacaat ataatttctt actattttgt ttcaccatgt ggacatttaa
167951 aaatttcatt cataaaataa catgatgtcc ttcattattca aagatgtaat
168001 tctccatctc cttcactac ctagtctct tcccagaat taatcactgt
168051 tgctgtttcc tatgcactct tgcagaggta ttcagtgcac atgtacctta

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

69 / 338

```

168101 agtggaagct tatgcccttt aatctgtttt taacataaat gacagcatgc
168151 cacacacaga gcactacata ttcctttccc acgtaactgt atatactgga
168201 attcactcca tttgagcttg tgacaaatat tttgagttgt tttcctgcaa
168251 taggacagac tggcctcata gactgcattc tatttacaga ttcctcttat
168301 gatccacatc atacatgggt ggctacactg aggcctaaga agtaaaattt
168351 cttgcttttt aaaattaaat tgcctcttca ggggccaagt gactataaat
168401 tgacctagct gagttggaaa aaaaaaatta ccttgaaagt agcaaaggca
168451 tctgaagcaa tatcaaatgt tgacaactcc acgtacttaa agaaatctct
168501 gaattgatta gaaaagagga tgattttggc aagtggttca tgtcgaatac
168551 attctctcag cataatccca caacgtaagg caatctgtgg ggcttcatat
168601 ctaaagcgta aacaagagag aaatagagaa ctctgttatc ctattaaat
168651 aatattaatg gcatcaaaag aaccatttca atactgctat taatggaagc
168701 atacatacca tttgtcacga ttcattcaat atccactgaa gatctactat
168751 gtgcctggca ctattgcaga cgtattctgg aatttgagtg tattctgaaa
168801 cacttagata tactcaaata tgaacatggt gacagctggg ggtgggggga
168851 tgaggcagaa tgtaaacaat gaaaagataa tttcatacac tgagaagggc
168901 tgtaaaaact gttgacaata aaatacgcca cattataaag gtgactaaat
168951 tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgagtg actacttaag
169001 ttactttact ttagactcaa ggaaaaggca aaatgttcca ggcaaaggga
169051 aaaaactggt caaaggctcc atggcaagaa caggcttggc gaaacagaga
169101 aggaggaata aagcctgtgt gattcgattg tagaggaaga accgtgagtg
169151 gtgtgaaatg aggcaggggt ggagagaagg gcaggggcca gatcccagat
169201 cagatacagc tttgtcagcc aaggtaagca gttggtttta ttttaagtgt
169251 aatgggaagc ctttgagag tttaaagcaa gaaattgaca agactaactt
169301 atgctttaaa aagatcactc tggcttcttg ttgagaatgt ctgtaaaaca
169351 gcaggagaca tataagaaca ggagcagaac ccaggagagg gaacgggggc
169401 ttggcctggg gtggcaggag cagaacagag gactgtgggc aggtggtgga
169451 tactgttcgg aggaagagtc aacaagactt gctgatgatg tagctggagt
169501 tgggtgaggg aataaatttg gaaactgaga attcacgaat gattcctatg
169551 tttttggctt gaatcactgg gtagatgggt gtgctattta ttaagatgaa
169601 taaactagta gaggaacaag ttagtaaaga aattaagagt ttgtggttga
169651 ccacattagt tttgagatgg ctgatatcta agtagaaagg tctccttggc
169701 agtatgatac acttatctgg actttaggaa aaagatagga gagacctata
169751 taaatatatg atttgcatgc agtaggtggc taatacatag ctgtggactg
169801 attgactcac ttaaatccta agtggaatca tggctcacag caaaaaatat
169851 gctagacaaa cgaaacgtct actgtgggaa acaattcagg actggcatac
169901 cagattgggt ccatttctaa tacaacaaca atctctcaaa gtcaaattca
169951 gtctctaagt aagtttaaga tatattccag tgtgtgataa gatttcaaga
170001 aaatgaataa tgcttagccc aagtacaaca agccctgtat tgaaataata
170051 cagttgacaa ttgtgtggta aatataggaa gaatagaaca aagaaagata
170101 tagttgtgat acactgggaa gtgagcagaa tatagggcc cctccaaaaa
170151 aaaaaatctg gtggggcggt actgctcact cctgtactcc cagcactttg
170201 ggaggctgag gtggatggac tgcttatgct caggagttcg agaccagcct
170251 gggcaacatg gctgacttta caaaaaataa aaaaataaaa aatttagctg
170301 agaccctgac tttacaaaaa ctaaaaaaat tagctggaca tgggtggcaca
170351 cgcctgtagt cccagctact caggaggctg aggtgggaga ttgcttgacc
170401 ctggaaagtt aagcgagact ctgtctccaa aaataaaaat aaaataaat
170451 aaaatctgac catattttta aagagatatc attgaccatt tcaactgaat
170501 actagttttt atggaacttt tatgatacta taaaacttta agatatatta
170551 ttactcatca actactagta acaacatttg ttgaacaata agtaatgtac
170601 tactctttat aagattatag aattttcatg aaagacagat tcaagaataa
170651 agattcaatt gaggaatatg actactttcc aatatcaaat ttacaaatat
170701 tagtagaaga aacagcaaac aaagatacca ggggtgtatt tattcatttt
170751 tgtcctgttt atgcagaatg atattcacia atattgagta ttccctgaat
170801 aactcatagt aacattaaat gctgatacat tcagatagtc atgattcttt
170851 gtagaatata aggaatgcc aatttatagt ctagcaattt ctcttattag
170901 aaaaacctga aactcagcct attggctcac aaggacaggt tgtcaggtgg
170951 ggttttatta aagatgttgt aaagaggggt atatgttctg aaatgtaag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

70 / 338

```

171001 gagaaaagca ctgtcattta ttgatagagt actcaagaga gtataaaaata
171051 aaggctgttg gcctagagaa agaatactaag ggaaggacaa ttaaaatcca
171101 gacttattga tcagcaagat atatgtggat ttttgtaatt tggccctaac
171151 ctttaactttt cagtttcatc tcccatcaca ttcgttattt ccctggagcc
171201 cctcattccc tcaattggaa tgcccttctt acattcccac aactcagatg
171251 cttctcatct ctcaaggctt agttcaaagt ccatctcctc cttgaagcct
171301 ttcctaataca ctacaattca ggattattct ttcctgcccct cactcctcaa
171351 taacagcttg tctgtaattt ctctttaaca cttttttcat tctgtattat
171401 gttatactgc agtaaattgc tatagggtcta ttttcttcat tacaatcaat
171451 ttaattgttg gggatatgtt ttacttatcc tgttaccttc tcctctcctc
171501 ccctatcccc atctccattt ggtgtctatg tcatttattg ctactttctc
171551 ctgtccctac cccagtctcc gaagagtgcc tattataatg tttttcacga
171601 agcatgcata taatgaattt aatgaacctc aaactgaaga aatgtcttaa
171651 tactagagta ctctaattgag agtcaaactc tgacgtatac aaaatatgca
171701 tcctctctgg ccaacatttt ctcatctctt aattcaattt ccaaactaag
171751 accatctata aaaagtttcc actctaactt ttgggtataa ttagttctct
171801 ttttcctttc atttcgtgaa gcttattgaa accatctgtg atgcactgac
171851 agttttattct tgagaatcaa aagaatgttt ttaaaaaacc aagactcctc
171901 tgggtcagca cacttgctcat ttcacccag cagtttgaca tctgtcattc
171951 tgagattaca acttcttaaa ttcagaaata catagggata tacagagata
172001 tatagggaat tctaattctc ctacgtactc tttaagtgat ttataattca
172051 catagatcat ttctacctga ctacctctca gtatattgac ttttgatagg
172101 ttattgctta ctatttaaaag aagtgtctca aaagataagc ttaggttaag
172151 tttcaaatecc cactaacatt aatatcctta ggtctgttaa agaataata
172201 tgtatcccac ctaattctatt ctactcatag ataagcttcc tgatggcaag
172251 gatcctgcct aattactgca ttttccacaa tggctaacc c atggcaggtc
172301 cccagtaaag gttaattctga tgaatgtctga atcactattt tatagaactg
172351 aatcttatct tccctcttga tttgtaattt agatcatata gtctggacta
172401 taatgaactg tgtcagtgtg gagaaggcac tatctaggca tgcccatcaa
172451 ataattgacag cataatgaaa agtctctctc aaatttaatg aaagccaaaa
172501 tgtaagagca atggtctcag ctggcagtga gctacagtaa tcattacaca
172551 gaaaatggtc agaagaatga tcttgtgcaa gaataatttca atttaagaac
172601 aaagattaca ttatgtaagg gggaaaatga cttttgtgat tattgctgga
172651 agtaaacag gccaggaaat acctggaaag cttttgtaaa atgccattca
172701 acaaacactt ggccctctca atatatgtcaa gaacgtatgt ttctaattca
172751 gaaacatttg ctgactaaaa ataattgagtt aggccaggca tagtggctca
172801 tgcataataat cccagcactt tgggaggcca aggcaggagg attgcttgag
172851 cccaggagtt tgaaaccagc ctgggcaaca tagtgggacc ctgtttctac
172901 aaaaaaaaaa aaaaaattaa ttagctaagt gtggtggcat gcacttgtag
172951 tcccggctat ttgggagggt gagtcaggag gatcacttga gcctaggagg
173001 ttgagactat agtgagctgt gatcacagca ctaccttcta gtatgggcaa
173051 caaagcaaga ccctgtctcg ataaataaat aaaataatga gttagttctg
173101 tccacccaaa aggcctagaa gcaataacaa tccaatgtca atgagcacc
173151 ctacgaacca gattgtagtc tctaagaacc atttctctct aaaaagaacc
173201 aacatccttg gtagaaattt caggctcttg tcagcaaatg tacaagtggg
173251 gtggcatatc tcgttacacc agaaagcaaa gaagctctca gaaactattt
173301 tagtgatgtt aagagatatc acctagaagg ggccacagat ggccaattga
173351 gcattaaaaa aacatgtgta gaactaaata agacatatag aaaacattaa
173401 atccattagt tcatcagata ctagaagagt gtgtgtctct gtacatatat
173451 aaatatatat atatatattt acacacacac atatataaag gcagggggag
173501 ggagggaaat aactcattag acaccgatga aagttcctag gatattctat
173551 ttttctctaa aatgataatt aaaagaaaag aattgagcat ttattctgcc
173601 tctctggtat gaattatact tcagagtatt ctaacacctg aagctgtggt
173651 gggatgaatga cagtattctc tataaaacta ctttagccaa taaaaaatac
173701 aaaagggaatg acagaattca aaattacctt tttgtcacct ctagcaaat
173751 gacggaatca ggcaatgttc atcaatggat ggtaaaacaa ttaagtttaa
173801 ggttgatggg aaactttata gtggattaga ctgtcaccaa ctgaaccat
173851 tgctcagtct tagcattact aaaagtacat ctctaattgt gatgaaatat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

71 / 338

```

173901 gaactacata gcaccatcta caaaataact gccaaaatga aactgcttaa
173951 aatTTTTtTat aataaactta aaaaaacagg ataattggga gaaatttatg
174001 attttaacat cagccttctg gaacatagtc cactggccac agttctttat
174051 ggatcactga gagctgttca gtgacctcat tctcaagttc tctcagtacc
174101 ctggaatgtc atttgcctga gccagaagac aaattcattt agagttagta
174151 agtccttatt tataatcttt tcatagaact tgggctccaa atacatttta
174201 ccatgtttta taccacatat ccagataatt ctctttgata cacaagtatc
174251 aattgctttt tgtcttatat tctttatggg tagacttagg ttctatacag
174301 aatgttacta tcatactctc atttatatta ttgtttgatg tgtaaagtga
174351 ccaatcaagt tatgccctag gttttaaagt gacttcacaa ggataattcg
174401 gtaaaaatcc tgacttttaa gaagggctaa atctctagca ttcagtgcta
174451 aattagaaaa tggtaacagg ggctgggtgc ggtagctcat gcctgtaatt
174501 ccagcatttt gggaggccga ggcaggcaga tcacaagacc atctggctaa
174551 catggtgaaa cctcgtctct actaaaaata gaaaaaatta gtgaggcgtg
174601 gtggcatggg cctgtagtcc cagctactca ggaggctgag gcaggagaat
174651 cgcttgaacc tgggagggag aggttgcagt gagccgagat cacgccactg
174701 cactccagcc tgggcgacag agcgagactc catctcaaaa aaaaaaaaaa
174751 agaaaatggg aacaggtaaa actgattatg gtacaactgt tccactaccc
174801 tgtcctcagg agcatcaaca attcccgtc ccttcacatt tgaacagtcc
174851 tcgaatcttc ttaaagggtat attaattggt aggaacatgg gatttagtgt
174901 cagatctgca tggaaaacta ggctctgtca tgtattagcc atataacctt
174951 gagcaatatc cttactctct ctgagtttca gtttcctcat ctgtaaaatg
175001 gtaaaaaaat aatatgtagt cctcatagta ttggaaagta aacaacataa
175051 cataagtaaa gacattacaa cagctggcac atagcaaaca atgagtaaat
175101 ggtttataca aaacaggatg tgaagggaat agttaaaagt ttgggttgaa
175151 aaacagaaga ataatcattg caatagagaa ttaaaaccag aggtgtagtc
175201 cccaaattgt cactaatgat ttcgtttgga gagattatgg gatgtacttt
175251 ctttttctgt tctacatttc taaaatgttt tagtttttaa ataataacca
175301 tgtattactt ttgaattgga aagaaatgga aatgttttca aatacgcat
175351 ctcttcattc tcagtatctc cattaaagt ctgatgataa tctcttcccc
175401 agactcttcc aagctggaat ctcagcctcc caccccaagc tattttctat
175451 gttgccacca gaactcctca tgtctagtc ctggatgact ccatgttgcc
175501 tacagaatga cattcaaact ccctagtagg acttggaag ctcttcatca
175551 tctggtctca gtatttccaa cttcatagc cacccttccc tctgactcac
175601 acagaactct agtcacacca gaattcttgt cattctccaa acacataaaa
175651 tctcttatat actttcacct ttctgtgggc cgaaatggca atgaacaaag
175701 tgatcttaga tagcacatgc tgaagatgac agaaccctct gatgaactag
175751 aacatctgct ctgcactatt acatgagaaa tatacttatt ttgttgtgga
175801 gccaatcac tttgggggtct atgtgttata gaagctttgt atcccctaac
175851 taatagatga tacaaggatc tttcccttcc cagagctgaa agaaacaatt
175901 ctccagtaaa acaattattt tgtacccaaa acaaaagtaa tcatagtaca
175951 ctactttgct cactagtga taataactgt gcaatcataa taatctaat
176001 gtgattatta aaatttaaaa ttatgataaa gtttattagg aagataaggg
176051 aaaggaaata gaataatggg ggcagtaaaa agactatcat ctagtttatc
176101 ttgtcaaaga tactgcttaa aattgataag tgaaaaatta gtataagccc
176151 attatttgta acacagaggt aaatatatga tgaaaacaat gatgaacaaa
176201 taaaagagat aaaagtgggt gtctttgggt aataggactg aaaaatagag
176251 aagaaagagg caaagaggcc aggcgcagt gctcacgcct gtaattccag
176301 cactttggga gtctgaggca ggcagatcac ttgaggtcag gaggtcgaga
176351 ccagcctggc caaatagtga aaacctgtct ctactaaaaa tacaaaaatt
176401 agccatgcgt ggtgatgggc acctgtaatc ccagctaccc gggaggctga
176451 ggcaggagaa ctgcttgaac ccaggaggca gaggttgacg tgagccaaga
176501 tcgcatcact gtactccagc ctggacaata gagcaagacg ctgtctcaaa
176551 aaaaagaaag aaagaaaaga aaaaagagac aaagaactgc tatttattga
176601 tatatctgat ttttaacta tgtattattt tgatacaatt aaatatatta
176651 aatgtacaag agagaaaatg aacacaggtg agatggacta ggtatgaaac
176701 agcagaattg aaaacaggaa tacaataaaa taaagagacg tcctggtttg
176751 agatgggtgga gtagaaagac aaggggagga agaagatggg ctgctgtcct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

72 / 338

```

176801 caagctttgc tacacctaga tctccagtct ttatgattca gagtagcctc
176851 caaatgccca agaaacattt ataaataagt atacataaaa ataataatca
176901 gggattctat caccacctc gacttcagtt ttatggcttc cctatagacc
176951 catatacatt caccttggca gatgctagct actggaaaaa ctctcatacc
177001 tgtatttcat ttcccagaac cagaatatat atgtgtgtgc ttatgtgcgt
177051 ggtgagggca ttcaatctca tgcaagcagg aaaagggtaa gtgggcagct
177101 aggaataggg cagatagggg agcataagca atactgtaat aggaagagac
177151 agaaatagca gaaatgtgga ggaaaggaag gcagtaaatg gaaacataac
177201 atttagaaac attaggtgc aaagaaagga ttttgctgca gtaatcatag
177251 agacagatct ggagggctga cctcacacat gacaaatacc ttactgcag
177301 ttccaaaagg gaactcatca tatctcaaat gagactaatg ctatgcactt
177351 ttaacaacta ttaaaaactt agccctactt gaaaggaagc catgtaccta
177401 ccctttgagg agcataaaca ggatatgagg atgagcacta atatactcca
177451 cagtaggact ccgagtgcct atctgtcttc tcaagatgtt gttaaataac
177501 tgggtcacat ctttttttcc ctgttaaaga aacaaacaga aattaaattg
177551 tacactctaa atggatgaat tgtatagtat gtggaatata tacatatata
177601 tatacacaca gacagaaatg gtaccatcct ttctaataatg caaaaaaacg
177651 ttaacttact cttcccatag acccctaaca agctgtgctt gcaaacacag
177701 tctacaaaat ggatgcagct ccttgccaca ggatgtgtgc tgggggaaat
177751 ttgaccaacg agaaatccat ttcccacaga gcatggaagg acataaagtg
177801 aatatgacag aactgaattc tttgtttttt cactgtctac ctttatgcaa
177851 gaaaaaaatt atgattatca ttttttaaacc ttcataataa aggaaggaaa
177901 acagaagaag aaaataagat tttagtaaaa tgtagggttag aaccaaattc
177951 ctttttctta gatctacttt ctagtatttt ttgctttcac gttatcactt
178001 tattcactgt tcttcaccct agtgccttga cttaaaaaat aaagtgggtt
178051 ttccattagc tggaaatatt tgatctaggt gatcataaca aatcacatct
178101 agcctagagg aacagaagag atcacccaat cagtgaagca gaggaaccag
178151 atatgcaatc atggataggg cttcttagag tcctcatgga caagacctgc
178201 actctcatat accttacaac ctgtctagcc tggttttcca aaagaaatct
178251 tggactggac ctgagtttac tatatgaaaa ataagtacaa gaatgactga
178301 tatggtttgg ctctgtgtcc tcaccagat ctcttacga attgtaatcc
178351 ctataatccc tatgtgtgga gggcaggacc tgggtgcgagg tgattggatc
178401 atgggggtgg tttccctcat gctgttctca tgatagtga tcagttctca
178451 cacgatctga tggctttata tgggactctt tcccctttgc tcattcactc
178501 ttccttctcc tgctgccatg tgaaggctctg tgcctgcttc cccttccgcc
178551 atgattgtaa gtttccctgag gcctccccag caatgtggaa ctgtgactca
178601 attaaacccc tttccttttt aaattactca gtctcaagta tttccttata
178651 gcagtgtgag aacataacta tacaatgaca ttgcattctc aatcagtatg
178701 gccctagttc tggccttcat ctctcaacta aactatgaaa gagcttgctt
178751 cagttactgt ctccacttca aagcatcctc accctgcaga gtgagctagc
178801 tagaaatgca aatatgacca tgccatctct ctcttaaac acttcaacgt
178851 ctcccttttg cttagaaaaa agtccaatac aaaaaggcca ggcgcagtgg
178901 ctcacgcctg taatcccagc actttgggag gccaaagtgg gcagatcaag
178951 aggtcaggag ttcaagacta gcctggccaa tatggtgaaa ccccatctct
179001 agtaaaaata caaaaattaa ccggctgtgg tgggtgtgcac ctgtagtccc
179051 agctacttgg gaggtgagg tagaagaatt gcttgaaccc gggaggcaga
179101 gggtgcagtg aaccgagatc gtgccactgc actccagccc aggcaatgga
179151 gcaagacttc atctcaaaaa aaaaaaaaaa aaaaaaaga gacagaaaga
179201 aaggaaagag agagagagag acagaaaaaa agagagagaa agagaaagaa
179251 aagaaagaaa gaaagaaaga aagagagaaa gtccaatacc cttcaatgac
179301 ttgacagcag ccaacttttc cagtctcatc agctaactat cacttccaat
179351 tcctacatca agttctatta gtaccaaatt gctgcaccac atatacacia
179401 cattttatgg ttctatatct ttgttgatgc tcttcccttt ttcatgaact
179451 ctgtcattct ttaagattca gttcaggagt tttctccctt gggatgagtg
179501 cccctctctg tactacaacc atgtcctttg ccacatcgat cagtacctcc
179551 tctttcccac tacctctacc tccaccttca cagcagcaaa tacttactga
179601 gtgcttactc tgtgccaggc acttatgcta agagctttac aggtattatc
179651 caattttcac aacaacctta ttttttttaa tttcatattc tttttgttat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

73 / 338

```

179701 tttttttctg gcatgcatac aaccacctta taatatacat attataaaaa
179751 agaaattaag gatgtataat atatgtttta taaaatgtac aaatgtaaat
179801 atgtatatat acatattata aataaggaaa ttaaggatta ttgagattgc
179851 ctagatctca ctgtcctgtc agatactgat aaatatctac aagcactaac
179901 accatccaag aaaacatgac ctcaacaact gaactaaata agacaccagg
179951 gaccaatcct gggacaatag agatatatga cttttcagac agagaattca
180001 aaatcactat tttgaggaaa atcaaagaaa ttcaaaataa cacagagaaa
180051 gaattcagaa ttctatcata aattttaatac agattgaaat aattaaaaat
180101 aatcaggtag aaattctaga gttgaaaatg caattgacat gctgaagaat
180151 gcatcagagc ctcttaacag aactgatcaa gtagaagaaa gaattagtga
180201 gcttgacagc aggctatttg aaaacatgca gttagaggag acaaaagaaa
180251 aaagaataaa aaacaatgaa gaatgcctac gagatctagg aaatagtcta
180301 gaaagggcaa atctaagact tactgacctt aaagaggagg tagaaaaaga
180351 gataggggta gaaaacttac tctaagagat aatatccgag aacttcccaa
180401 acctagagaa agatatgaat attcaagtat aagaaggtta tagaacacca
180451 agcagattta aaccaaagaa gactacttca aagcatttaa taatcaaact
180501 cccaacatca aagaaaaaaa aatcctaaaa gcagcagggtg aaaagaaaca
180551 aataacatac aatggagctg caatatatct ggcagcagac ttttcagtgg
180601 aaaccttaca ggccaggaga gagtggcatg acatatttaa tgtgctgaag
180651 gaaacaaatc ttttacccta gtatatctgg caaaaatacc cttcaggcat
180701 gaaggagaat taaagacttt cccagacaaa caaaagctga gggatttgat
180751 caatactaga cccatcctac aagaaatgct aagggtagtt ctccaacctg
180801 aaagaaaagg atgttaatga gcaagaagaa atcatcttaa ggtataaaat
180851 ccactggaaa caggaagcac atagaaaaac acagaatagt ataatactgt
180901 aatgggtggg tgtaaactac tcttgtctta aggagaaaga ctaaatgatg
180951 aaccaacca aaataataac aacttttcaa gatataaaca gtgcaataag
181001 acataaagag aaacaacgaa aagttaaaaa gcagggggag gaagttaagg
181051 tgtagagttc ttattagttt tctttctgtg catttcttta tgtaattagt
181101 attagttgt catcaattta aaacaatggg ctataagatg gtatacgcat
181151 gcctcatggg aacctcaa ataaaaatac aatggataca caaaaaata
181201 aaaaacaaga aattaaagca tagtgccaga gaaaatcaca ttcattaaaa
181251 ggaagataga aaggaagaga agaaggaaga gatgactaaa aaacaaccag
181301 aaaacaaata acaaaatggc aggagtaagc cccacttgt caataataac
181351 attgtatgta aatggactaa agtctgcaat caaaagacat aaagtggcta
181401 cttgggaggc tgagggtgta ggatcacctg agcccaggag gtcaatgggt
181451 cagtgaactg tgattgtgct actacactcc agcctggatg acagagtga
181501 accctgtctc aaaaaaaaaa aaaagaaaag aaaaagaaaa aagacacaga
181551 atggctgaat ggatgaaaaa aaaacaagac ccaaatgatc tgctgcctac
181601 aagaaacaca tctcacctat gaagatacac atggactgaa aataaagaca
181651 tggaaaaaga tattccatgc taatgaaaac aaacaaaca aaccaagcag
181701 gagtagctat acttacatca gacaaaacag atttcaagac aaaaactgta
181751 agaggagaca aagaaagtca ttatataata ataaaggagt cagttcagca
181801 agaggattta acaattgtaa atatatatgc accaaacact agagcaccca
181851 gatatgtaaa gcaaatatta ttagagctaa agtgagagac acatcccaat
181901 acaacaatag cagatcttag acctgggaca tgataacttt taccactgtt
181951 actcaacata atattggaag tcttagctag agcaatcaaa caagagaatg
182001 aaatgaaggg caaatattat tagagctaaa gtgagagaca gatcccaata
182051 caacagtagc agatcttaga tttggagcat gacaactttt accactgtta
182101 ttcaacataa tattggaagt cttagccaga gcaatcaaac aagagaatga
182151 aatgaagggc atccaaattg gtagggaaga agtcaaatta tccttggttg
182201 cagatgataa aaccttatat ttggaaaaaa ctaaagactc cacaaaaaaa
182251 ctattagaat tgatgaacaa attcaataaa gttgcaggat acaaaaatca
182301 acatacaaaa atcagtagca tttctatatg ctaacagtga acaatctgaa
182351 gaagaaatca aaaaagaaat cccatttata atagcaacaa ataaaattaa
182401 atacctagaa attaacttaa ccaaagaagt aaaaaaatct ccataatgaa
182451 aactataaaa aaatggatga aagaaattaa aaaggacatg caaaaaagga
182501 aagatatcc gtgtccatgg attgaaagaa acaatattgt taaaatgttc
182551 atactacca acgtaatcta caggttcaat gcaatcccta tcaaaatacc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

74 / 338

```

182601 aatgacattc ttcacgcgaaa tagaaaaaac catcctaataa tttacatgga
182651 accacaaaaa acccagaata gccaaaacca tcatgagcaa aaagaacaaa
182701 actgaagaaa tcacatgact tgacttttgaa ttatactaca gagctatata
182751 gtaacccaaa cagcatgata ctggcataaa aatagacaca cagaccaatg
182801 gaacagaaca aagaatccag aaacaaatct acacacctac agtgaactca
182851 tttttttaca aggtgctgag aacatacatt gaggggaaaa gacagtcttc
182901 aacaaatagt gcagagaaaa ctgaatatcc acatgcagaa gaatgaaatt
182951 agacccttat ctcttgctac atacagaaat caaatcaaaa tggattaaag
183001 acttatatct aagatctatg aaactatgaa gctactaaaa gaaaatattg
183051 gggaaactct ccaggacatt ggtctgggca gaaacttctt gagcaaaacc
183101 ccacaagcac aggcaatcaa agcaaaaatg gacaaatggg accacatcaa
183151 attgaaaagc ttctgcacag tgaagggtac aatcaacaaa gtgaagagaa
183201 aacctacaga acacaggcct tctatgaaaa ggtgctcaac atcactgatt
183251 atcagagaaa tgcaaatcaa aactacaacg agatatcctc tcacgacagt
183301 taaaatgcct ttcacgtaaa cgtcaggtaa caactattgc tggtgaggat
183351 gtggggaaaa ggaaccctc atatgctgtt ggtaggaatg taaattagta
183401 caactactat ggagaataat ttggagggtc ctcaaaaaac taaaaataga
183451 gataccatat gatttagcaa tcctactctt aggtatatgc caaaagaaa
183501 ggaaatcagt atatcaaga gatattctaca ctcccatata tgttgacgta
183551 ttgttcacaa tagccaagat ttggaaacaa cctaaatgtc caaaaacaga
183601 tgagaaaatg cggataaaga aaatgtggtt cctatacac aataaagtac
183651 tattcagtca taaaaaggaa tgagattctg tcattgcaac aacatggatg
183701 gaactggagg ccattatggt aagtgaata aaccaggcat agaaagacaa
183751 acatcagatg ttctcagtta tttgtgggat ctaaaaatta aaacaagtga
183801 actcatgaaa atcaagaata gaagcatggt taccagaggc taggaagggt
183851 agcaggggag tgtgtcaggg tgagatgggg atggttaatg ggtacaaaaa
183901 acaatagaaa caatgaataa gatctagtaa caccaaggat aaatgcttga
183951 gaggatggat acccaatttt ccatgatgtg gttattacac attacatgcc
184001 tgtactaaaa tatctcatat acactaccta ctatgtaccc aaaaaatta
184051 aaaagaaaaa aagagaaaaa agaaataaat aaaaacccat gctctcacga
184101 ggtcaggagt ttgagaccag catggccaag atggtgaaac cccgtctcta
184151 ctaaaaatac aaaaattagc taggcttggg ggcacgcacc tataatccca
184201 gctactcagg aggctgaggc aggggaatcg cttcaaccca ggaggcagag
184251 gctgcagtga gctgacatcg tgccattgca ctccagcctg ggcaacaaga
184301 gcgaaactct gtctaaaaaa aaaaaaaaaa aaaaaaaccc atgctctcca
184351 aacaccctcc ctccaaaacc caacccccca tcaaagccca aaaaacttaa
184401 tagtatgaaa aacaaacaat ctgccaggca tgggtggctca cacatgtaat
184451 cccagcactt taggaagcta aggcaggcag atcaccagag gtcaggagtt
184501 cgagaccagc ctgaccaacg tggtgaaacc ttgtctctac taaaaatata
184551 aaaattagct gggcgtggtg gtgcatgcct gtaatcccag ctactcggga
184601 agctgagaca caagaattgc ttgagccctg gaatgagctg agattgtgcc
184651 actgaattcc agcctgggca acagaccaag atcctgcctc aaacaaacaa
184701 gcaatctaata tagaaaatgg ataaaaggct ggggtggggtg gctcatgcct
184751 ataatcccag gcaagaaatt actttgaaa gctgaagcag gattacttga
184801 gccaggagtt tgagagtagc ctgggcaaca tagcaagacc ccatctctac
184851 ttaaaaaata aaataaaaat aaacaaaaca gagaaaatgg ctaaaagaca
184901 tgaagacaca ttttaccaaa gaggatatac agatggcaac aagcacataa
184951 aagacgttca acattgttag ccattaggga aatgaaaatc aaaaccacaa
185001 tgaaatatta ttacatgcct atcagaatgg ctaaaataaa aaatagcaac
185051 aacatcaaat gctggcaaga atgaagagaa actgtactca tacattgtag
185101 tggaaatgta aaacagtata gccaatctgg aaaacacttt agcagttcct
185151 gaaacagcta aacatgcagc taaccataac agcaattgcg ctcttggcat
185201 ctatcacaga gaaatgaaaa ctatgttcac aaaaaacca attagtaggt
185251 gaatcttcaa tttaaaagaa tactccaaaa tcagttgctc tcataatttt
185301 aaaacactaa aaaatgttta taggccgggc acggtggctc atgcctgtaa
185351 ttctagcact ttgagaggcc aagcctggag gctcagttga acccaggagt
185401 ttgagaccag tctgggcaac atggtgaaac cccatctcta caaaaaata
185451 caaaaattag ctgggtgtag tggcacatgc ctatagtctc agctatttgg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

75 / 338

```

185501 gaggcttatg tgggaggatc acttgagcct agaaggtgta ggtggaaggt
185551 gtaggttgca ataagctgag atcatgccac tgcactctag cctgggtgac
185601 agcgtgagac cctgtctcaa aaaaaaaaaa aggttgaatt acataaattt
185651 tatttatact gatgttaaag actatatattg ctgtataaaa aaagatatag
185701 ctgtaagcat aaattgattt taaaatgaaa gaaatcatct gtttcgttca
185751 aacctttcta gaccctgcag tgtaatatg cagaataaat atcaaccctc
185801 tttgaaatgt cataggaaca tgtttttcat acttcccagt gaaatgtcac
185851 aagaacattc catacagcat tccagtagaa atgaagctct gcagaactct
185901 atccaacttt tacatagagg aaaacattct tctagttcat tagcaaatgt
185951 gtgcaaaggc aaaggaagcc ccctgtggat aacaaaagca ggttctgcta
186001 ccagggaccg cttcccaaaa cagaggaaag gattagaata gaaaggatta
186051 cagaacactg aaacagggtac aagctgggtga ataatgatct ctacattaca
186101 cgttaatctt tgtagctatc aatttgtcat gccaaatcta actggagtga
186151 aaccttaact atttcaaaac cagttttttg caaccgcgag gctgccagat
186201 ctcaagccct ggactcagaa gtggccagaa aaaaaagaca gaaaaaccct
186251 aaaaatatat ttgataataa agaagcaaca tccagaaatg gcccaaatg
186301 ccaaaaatta gctggcaatt ctaaggttac atacaatgta accaataaga
186351 tcccaaaccct gaagaagccc ttgtgtttgc tggcaaattc aaaaaagtca
186401 gctttaacat gaaatgctcc ataattattt gctgaatgaa tgaattatat
186451 atatggaagt attaactcaa atcaaataag aaaagagaaa aggagggaag
186501 aaagaggtgg tgaacagcag tcacagcaac cagaatgatt gctgaaaaag
186551 agcatccctc acagatagca tagatgagaa aagggaatg agaaaagaag
186601 gcggagacta gaaaacaccc acttcaaaac acaagccatt gacttttata
186651 tagaatatat ataaagaatt ctcaaaattc agcaacgaaa ttaaaaaggg
186701 gcaaaagata tgaataaata cttcataaaa gaagagatat ggtagcaaaa
186751 atgtacatga aaagatgctc aacatcatta gtcattagag aaatccaaat
186801 taaaatcaca atgagatatc acaaaccctt attagaatgg ctaaaacaat
186851 aaaacaaaac aaaaagttga cattccccaa cagccctact ctaggtattt
186901 tatctaagtg aaaggaaaac ctatgttcac actaaatact atacataaat
186951 ggttaacggc agctttattt gtaattgcta gaaactggaa atatgtaaaa
187001 tatcccacaa gtggggaatg gataaatgat ctgtgggtcca tccatgcaat
187051 ggactactac tcagcaataa aaagcaacag actcctaata catggcaacg
187101 acatggatga atctcaaagt cgttatgctg acagaagcca ggctcaaaag
187151 gctacatata tatgattctg ttaccctaat ctttttgcaa tggtgaaaat
187201 ataaggactg aaaactgatc aatggttgcc agaggccgag gacaggaaaa
187251 ggagatgatt acaaagaggc aaaggagatt tttttttttt tttgagacaa
187301 agtcttgctc tgtcaccagc gctgaagtgc agtggcataa tctcgactca
187351 ctgcaacctc cacctgccag gttcaagtga ttctcctgcc tcaacctccc
187401 gagtagctga gactacaggt gcacaccacc acaccggctt aatttttgta
187451 ttttttagtag agacagggtt tcaccatggt ggccaggatg gtctcgggct
187501 cctgacctca tgatctgccc acttcggcct cccaaagtgc tgggattaca
187551 ggcgtgagcc accgtgccc a gccggcatag gagaattttt tagggatgag
187601 gaactgttgt tcttcattac agaactgtgc actaaaaagg gtgaatgtta
187651 ctattttataa attgtatcat aattttttaa aatgaaaatt atagccagtg
187701 aagtcaggga cttctctatt cttgctgggtg tgttgcgggg gagttgaggt
187751 ggggtgggagc aagtggttgt gctgaatttc agtagcagaa gtggataggc
187801 agaacagtct accgggtgag gggtagccac tgaatggatt agtgagggat
187851 cttgctgggg actaaaattc aaattggact aatttataga tattgggaaa
187901 gatataggga atgaaactac aagctagctc aaagttgctc tcaaaaaaat
187951 ttaaatatat taaatttata tattacatga aatccatctg tgggaattta
188001 tatgggagat tatctcccc actgccccaa tatctttgtc attctatttt
188051 ctctgcaggc tggcttcttc tgtttcttta ggccacatag tgaaaaatac
188101 gaccactgat ggaaaaactg catttactat ctttagcacc tggctaaaca
188151 ctggggttct gtctcagttc tagttccaga attcctgcag aaagcctctg
188201 gccctctttt ggtcagatat ccacttgtag atcattcagc tttgtgttgt
188251 ccaggggtgtc atatcaccca aaatggttgt tcccatggta accatgtgag
188301 tggagaagga gggagcattc cccagaaagc agagggagtg ggcagacaca
188351 acactttata cacagcaca gcagtccttca tccttatgca gattacattc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

76 / 338

```

188401 cttaaaatgt ctggtacgat caaactaatg gtcactgtct taatttttatt
188451 acaaacaatt aacagggttc acatctaatt aagagcctga tgccaaatgc
188501 cattttttaat cacccataaa ttatatctct ttataggata aaggccttct
188551 aaagcttata ttcattaagc tttagggcaa tagggtaatg ataacataaa
188601 atgccatttt ctatgacata gtattttccct acctgagatt gtaaatttctt
188651 taatttgtcc agtgaggggc acaaaatata tacacaatca aataaaatca
188701 agaccaaaca taattaaata aaatcaatgg ctgacacgca tagtaagcat
188751 ttcaaattgt taaatgtata atgtacagtt aaagctggta ttttaaggct
188801 ttatgatttc tggtatatatt ttacagtaat aaaaccaaag gtaaagagcc
188851 attttttttt ctttttcttt ttctttcttt tttttttttt ttgagatgga
188901 gtttcactct tattgccag gcagaagtgc aatggtgcga tcttggtcca
188951 ctgcaacctc ctccctctgg gttcaagcga ttctcctgcc tcagcctccc
189001 aagtagctag gattacaggt gcatgccacc atggccacgg ctaatttttg
189051 tattttttagt acagataggg ttttgccacg ttggcgaggc tgggtctcgaa
189101 ctccctgaatt taggtatccc aaaatgctgg gattacagac gtaagccacc
189151 acgcctggcc aagggccact ttaatcaggt ccagggaata gaaaaagatt
189201 attagaggat aaacatttac aaaatgtagg actacaaaat ggcttaatga
189251 aaagtggaaa agttgatcct ggagtgtttg ttttgctatt ttttttctt
189301 ttgagacagg gtctcattct attaccagc ctggagtgcg gtagcacaat
189351 cttggctcac tgtagcctca accacctggg cccagggtgat tcttccacct
189401 tagcctcctg agtagctggg accacaggca ggcatactct gctaattttt
189451 tttatttttt gtagagacag ggttttgcca tgttgcccag gggggtctca
189501 aactcctggg ctcaagcaat cctcccacct cagtctccca aagtgtctgg
189551 attataggcg tgagccactg cactgggcct gttttgctaa ttttttttaa
189601 tgtagcgaga aataatcatt agggattaag ttaccataga agacaatttt
189651 ctgcttcttt gagctgctta ttcagcctga acagttcact ttgcatccac
189701 cctgggtttg caaggcacac ctgcctttaa aatgaatgta tcagacctta
189751 caggcaatac attttccctc ctttgatctc ttatcacgtt gtgtttcaaa
189801 acatcaaaga gtctaaagct gtgtcttgaa tagtagccaa acctcaaaaa
189851 acacagctga gtttgatcct gagcccataa aaatcagaag ccttgcaaac
189901 tcagccacaa atcatttttt gaacctcata atagtgtgct gaaatgggtc
189951 ttttctgtct gcaattttta ggcttaaagc attagataaa aatttatagc
190001 tacataatga gattttttatt taacccaaag gccgacctcc taactagcca
190051 ttattcacat gatgatagcc ggatcctcca gtattgtccc taccacagtg
190101 ggccactttc ctctagattc ctgacagaga agtaggtttg tcaaagattc
190151 ctgagtcagt ccctgccatc cagttaaagt cagtgtgcc agccaccatc
190201 actgctgtca gctcagggtt ccaaaccctt gctcccagcg cccttcaacc
190251 cccattcatt gccttggttc ctgcaactgc ttattttttt agcactcagt
190301 ttactccaag tgtagaaaac cacccttct tcaactcaact tgttttttgt
190351 tgttggtttt gtttttggtt tgtttggaga tggagtctcg ctctgtcgcc
190401 cagtctggag ttcagtgggt caatctcggc tcaactgcaag ctccgcctcc
190451 tgggttcacg ccattctcct gcctcagcct ccctccagag tagctgggac
190501 tacaggcgcc cgccaccacg cccggctaata ttttatattt ttagtagaga
190551 tgaggtttca ccgtgttagc taggatgggt tcgatctcct gacctgtga
190601 tccgcccggc tcggcctccc aaagtgtctg gattacaggc atgagccact
190651 gcgcccggct caacatgtat tattagtaca aagttccttt acaaagggtt
190701 aaggtgaaca aaggataatc acagcacagt gcagaaacac cttcaagctg
190751 aagtctacag atcactttta tgaaagggtt ctcagtcttc ctgatcatct
190801 ttctccatga acatcttctt tttgtcatgg ttctggatac ctctctctcc
190851 ctccctccaa acctttctcc tttcttctat ttctactcc tatcaacctt
190901 ggccaaagag ggcattttct aaatttctgt tacttttctc tgccaaggaa
190951 atctaagctt ttttctttca gtcttttctt tacagacatt gcctagagac
191001 ttcagccttt caaactaaca aaaaagccaa tcaaggatat ttctaaacaa
191051 aaattcactt ttttctctg taaggaatgt gccattctcc taggttatct
191101 ggcaaaagct gtagtccatc cttaaaataa taatttttcc tttctgttat
191151 caaaacatac cagaaatttt acagtcaaat gactgttctg ctatccaaag
191201 aagcaccagg agaggctatt cacgtactga aatcatataa tcatcaccct
191251 aaagagtttg aattatcttc taaacaattt actgattcct tcagaaaaat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

77 / 338

```

191301 ggctcactgg tatgtcccaa taccttcttt tgggtccaatt cttttacctc
191351 tgctttgata tctcattctc attactacat tcattcaaac aattcacaaa
191401 ttaacatgcc actaggtgtg gcaaacacag tcctcgtact caaggtaaca
191451 cagaagtggc tgtcccagtg caagccatga accaagagac atgggggtgg
191501 gggttctgtg tcgctggagt aagtctgaag tcagaaggaa ttttatcaag
191551 ctgtcagtag cttacataga tacttttaggc ttgagaagga gagttgctgc
191601 ctgcaggctg atcatccatg cctccagttc atagagataa catagtacat
191651 ttctataagt aggctaataa tgctaggaat gctggctgcc tccttcctga
191701 aaatactgta tgtagttgga atgcttaaaa tggaaactgta ctaaactttc
191751 actccttttc attcattcat ttattcattc aaccaggaag tatatatatt
191801 tctacaggct agagaaggat aacggctgca tctatggagt atcacattca
191851 cttataatta tgttctaggt atgtgtcacg tcaattgaat aaataaagtt
191901 aagaattgcc tatcttatta tcacaataac aaatcttcat aatagttttg
191951 aatcatcagt ttaaaaacgt attatatcta gtattttatt ctggagggaa
192001 ggcaagtata taatacatTT tatttttaaaa attaaagtaa tccacaagag
192051 taatcaattt aactctgcat ttgaaggctt aatcttcagc tatatggaaa
192101 attcaaatgt tcagaaagat acttcttttc tccaaggatt ccagagaata
192151 aaagtttact tgataaaaat gtacaagtct attttaggca attaaatgtc
192201 ttaattccaa aataattttt aaatgaactt cttctcaaaa tttttaattt
192251 atatttgatg tgccacataa aagaagggga acttgcataa ctgtttctta
192301 cattccactt ttgttatctg agccaatgcc aaagaaagtt ataaggcacc
192351 caaagttttt ctttggtata ctctcccta actccccaat tcttggaag
192401 cactttgaac ctatgagggt ctgtggctgc tcaaagcttc tacagggtcac
192451 tgaacctgac gacatctcat ccctgactca ttcttcaaaa cataaccatc
192501 cttagtcata ttcttcttag cactccactg caaattgggt taatctcata
192551 aactaactca agcgtactta tgaattaatg acgacagtag cttaatatgc
192601 tgctgttctc agagaaacaa gcaaaacaa agaaaattta taaaactata
192651 ctactataag aataggggat cattttccta tttatgggtca ctgaccaact
192701 aaatctaaaa aaaatcaagg gttataacaa aaacaaacca gcttacactt
192751 aacttttagtt cctgagtttg agaaaaagag gaaatgaaaa aatactacta
192801 cttgacattt gtatacagtt tgcatttata tttagtgtcc ctatataaca
192851 caacatatat atgtatatat ttttatttag tttaatattt aaaacaatgc
192901 agtaagttcg tattattcct attttataga tgagaaaact taagctcaaa
192951 gaggttaagt tactgaccat gaaagagcag agctgggact ctaaacaatt
193001 ctaattccga gtcaagtgtg tttttcacta tgccacagct tctacaagtg
193051 ttcataatac ctaattttta actaaataaa agaaacagaa aagtatatac
193101 atacagtaag actatacttt aatttcacat atagctgatt ttaaactctaa
193151 gatggagacc taagatggag agggagagta agcaagccaa gcaagaggaa
193201 aaagaaaaag attctgagca aactgtcgca aagacaaaaa accaaacact
193251 gcatgttctc attcataggt gggaattgaa caatgagaac actgggacac
193301 aggaagggga aaatcacaca ccggggcctg ttgtggggtc gggggagcgg
193351 ggaggggatag cataaggaga tataccta atgtaatgacg agttaatggg
193401 tacagcacac caacatggca catgtataca tatgtaacaa acctgcacgt
193451 tgtgcgcatg taccctagaa cttaaagtat aatttaaaaa aattgaaaaa
193501 aaaaagaaaa agattatggg tcagaaaatg ccaaaggcag agaaagagat
193551 agaataagga agggaaagaa agaaaaagac agctgtaact gaaaggatga
193601 gctgaagtct gggcccttcg ggggtccccc ttggtcttgc ttctagccac
193651 aactggactg cacgcctcct ggctctgcac tcctcctcct ctgcttcggc
193701 tgctaaaatc ttccctggtc taacttgtgc agagagctgt aggctactac
193751 ttccacagat ccccaaagcc ctgacctgat cttggtctaa tcacagtaat
193801 cactgtcatt agttttcctt ccacttatcc agtgaacaaa actaaaagct
193851 attcactttg catatctcct ctatctctga gaatgaatgg agaccaagt
193901 acctacctga tacgaacaaa attcgtatta tgatagaaac aaagcaacaa
193951 agccaaacca ggacttctgt cgctcaaca gtcaatgcc aaacttgtct
194001 atgtatccat ttctcactga aaaatcacca cctctgagtt acacaataga
194051 taataaaatg actagacata ttcaccactt acatttctaa gcttttgttt
194101 tagttagtca gtttattatt taggtaaatt aggtataatt gccttcaaaa
194151 ggagataagt atattactag cacttaacac atttcttaaa tcattggtat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

78 / 338

194201 aatatgttca ttaaaagaac tgtctgaatt tgaagctctg aagtaagtga
194251 gtgacttttg gcaaattact taatatcttt gaacttttagg ttcttcatct
194301 ataacatggg gctaataata cagtattaaa cacaaaggta gttttaagaa
194351 ttcaacgagt tgaatgcttg aaactgtacc tggcatatag caagcattca
194401 acaaatgtta cttcttatta ttacttctat taaccgttat ctttgctacc
194451 tagctgcata aaacttaact atagtttggc tttttgcttt tgtaaaaaat
194501 agattaattg tagacatttt agaaaaaact ttaaaaaata acacatggaa
194551 agccataatg aaaagcaaaa gttgaatagt agatagatag atagatagat
194601 agatagatat taaaattgaa aagcaccact gacatccttt tacagctggc
194651 ttacctcaaa gtctatcagc tgcaggtcag ctatcagtgt cactagcagg
194701 ccactgctgt agagttcttg tgctagctga gccactgctt ctgttggggg
194751 ttctttctcg tttgtaccac acagaatttc tttcattgct tgcagtgatt
194801 tagacacttc ttctgaagcc tagtgaccaa aacgtatgct aacggttaaa
194851 agaataaaaa tgtttaggcc ataaacaaac aaacaaataa tccaaaaaac
194901 cacttcttgg tcttgggctc tgtttattta taatgaatgg cacagttaca
194951 aacaaacaaa aacagtgagg ggaatcacca tgtttggttg gacctagttt
195001 ctaatggcct gcatttacat atcaaagggt gccagcctgg ctctaagagc
195051 cggggctata caagaaactt tttcggtctt cctctccctt ctccctctcc
195101 ctctgtctcc ctctcccccac ggtctccctc tcatgaggag ccgaagctgg
195151 actgtactgc tgccatctcg gctcactgca acctccctgc ctgattctcc
195201 tgccctcagc tgcccagtg ctgccattgc aggcacgcgc cgccacgcct
195251 gactgggttt ggtggagacg gggtttcgct gtgttgggcg ggcaggcttc
195301 cagcccctaa ccgcgagtga tcccgccaac ctccagcctcc cgagggtgccg
195351 ggattgcaga cggagtctcg ttcactcagt gctcaatggt gccagggctg
195401 gagtgcagtg gcgtgatctc ggctcactac aacctacacc tcccagccgc
195451 ctgccttggc ctcccaaagt gccgagattg cagcctctgc ccggccgcca
195501 ccccgctctg gatgtgagga gcccctctgc ctggctgccc agtctggaaa
195551 gtgaggagcg tctccgcccg gccgcatcc catctaggaa gtgaggagcg
195601 cctcttccca gccgccatca catctaggaa gtgaggagcg tctctgcccg
195651 gccgcccac gtctgagatg tggggagcgc ttctgccccg ccgcccacac
195701 tgggatgtga ggagtgcctc tgcccggccg agaccccgtc tgggaggtga
195751 ggagcgtctc tgcccggccg ccccgctctga gaagtgagga gaccctctgc
195801 ctggcaacca ccccgctctga gaagtgagga gcccctccgc ccggcagccg
195851 ccccgctctga gaagtgagga gcctctccgc ccggcagcca ccccatctgg
195901 gaagtgagga gcatctccga ccggcagcca ccccgctcagg gagggaggtg
195951 ggggggggtc aacccccgc ccggccagcc gcccctctg ggaggaggt
196001 ggggggtcag cccccccgac cggccagccg tgccatccgg gagggaggtg
196051 ggggggtcag cccccacac ggccagccgt gccgtccggg agggaggtgg
196101 ggggggtcag cccccgccc gccagccgcc ccgtcgggag gtgaggggtg
196151 cctctgcccg gccaccccta ctgggaagtg aggagcccct cagcccggcc
196201 agccaccccg tccgggaggg agatgggggg gtcagccccc ccacccggcc
196251 agccgccccg tccgggaggg aggtgggggg gtcagccctc cgcccgccca
196301 gccgccccgt ccgggaggtg aggggcgcct ctgcctggcc gcccctactg
196351 ggaagtgagg agccctctg ccagccagc cgcccgctcc gggaggaggg
196401 tgggggtgct ggccccccgc ccggccagcc gcccctctcg ggaggaggt
196451 ggggggggtc agccccccc ccggccagc cgcccgctcc gggaggtgag
196501 gggcgccctt gcccgccgc ccctactggg aagtgaggag cccctctgcc
196551 cggccagccg ccccgctccg gagggaggtg ggggggggtc gccccccgc
196601 ccggccagcc gcccgtccg ggaggtgagg ggcgcctctg ccggccgcc
196651 cctactggga agtgaggagc ccctctgccc ggccagccgc cccgtccggg
196701 agggaggtgg ggtgtcagc cccccgccc gccagctgcc ccgtccgaga
196751 gggaggtggg ggggtcagc cccccgccc ggccagccgc cccgtccggg
196801 aggtgagggg cgcctctgcc cggccgccc tactgggaag tgaggagccc
196851 ctctgcccgg ccaccacccc gtctgggagg tgtgccaac agctcattga
196901 gaacgggcca ggatgacaat ggcggtttt tggaatagaa aggcaggaaa
196951 ggtggggaaa agattgagaa atcggtggt tgccgtgtct gtgtagaaag
197001 aagtagacat gggagacttt tcattttgtt ctgcactaag aaaaattcct
197051 ctgccttggg atcctgttga tctgtgacct taccaccaac cctgtgctct

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

79 / 338

```

197101 ctgaaacatg tgctgtgtcc actcaggggtt aaatggatta agggcgggtgc
197151 aagatgtgct ttgttaaaca gatgcttgaa ggcagcgtgc tcgttaagag
197201 tcatcaccaa tccctaattct caagtaatca gggacacaaa cactgcggaa
197251 ggccgcaggg tcctctgcct agggaaacca gagacctttg ttcacttggt
197301 tatctgctga ccttccctcc actattgtcc catgaccctg ccaaattccc
197351 ctctgtgaga aacacccaag aattatcaat aaaaaataa atttaaaaaa
197401 aaaaaaaaaa aaaaaaaca aaacagtaag cactgccttt tttattttgg
197451 aaaatattat aagtattata aaattttatt atataaaaca gctctttggt
197501 atttctactt agtcaacata cactaaataa tctttttttt ttttttttag
197551 atggagtctt gctctgttgc ccaggctgga gtgcagtggc acaatcttgg
197601 ctactgcaa gctccgcctc ccaggttcat gtcattctcc tgcctcagcc
197651 tcccaagtag cggggactac aagcaccgcg caccacgccc ggctaatttt
197701 tatactttta gtagagacag ggtttcactg cgttaaccag atgggtctga
197751 tctcctgaac ttgtgattcg cccacctcag cctcccaaag tgctgggatt
197801 acaggcgtga gccactgcat ccggcccagt aatcttttaa accacactca
197851 ttgtctaatt ttgctagcaa ttcaatataa actttatgct tgaaaattaa
197901 attgattcca ttttgaagac ttatcagtag ctactgatct ttatttaaag
197951 cattgtgtta aggtttttca acaaattcct attcctctga ttttcgaatg
198001 gtccaagtat aagattgtaa attgtcaaaa ctcataagct ttctttgtca
198051 atccatttat tccctcacaca gaatcactgt cttttttgct atctatgaaa
198101 cttaaaaaaa actcactata ttttaaagaa tactaggcaa atccatagag
198151 gcagaaagta catagattag taggtattag ggcctggggg agagggaat
198201 aagtaatgac tactaatggc tccagggttt cttttgggag tgatgaaaat
198251 gttctagaat tagatagcgg tgagttgcaa aactttgtga atgtactaaa
198301 aaccaatgaa ttgtacactt taaatagtga attatatggt atgttaattt
198351 ttaatatctc aatttaaaaa tctttaaaat taatataggt aggaaaggag
198401 agcagattaa tttagttaac aatttgtctg aatattttta agaaatatac
198451 tttcattact ttttaagtata atattgtaat cattataaat gaagaaggaa
198501 atgagtagaa taaggcaaat tacataaaaa taactcatgg tagcatgatg
198551 caacttttgt tattttattta tttttatttt tctctagttc tgcttcttgg
198601 gtgacgctac ttttatttat ttgtttattt ttaagatgga gttttgctct
198651 tgtcaccgag gctggagtgc aacagcacaa tctcagctca ctgcaacctc
198701 tgcctcctgc gttcaagcga ttctccggcc tcatcctccc tggtagctgg
198751 gattacaggc acccaccacc gtgcctggct aatttttgta ttttttagtag
198801 aggcgggggt tcaccatggt ggccaggctg atctcgaact cctgacctta
198851 ggtgatctgc ccacctcagc ctgcggaagt gctgggatta caggcgtgag
198901 ccactgcgcc tggctgacac tactttttaa aagtaatttt tcatatcctt
198951 aatagcctga ctgaagcaat ccttaatgta ctaaagaccg gaagcatctt
199001 aaattgtgag atatatccac agaagagtgc tttaaacata catggagagt
199051 atgtttaaga gagagttaag gataataata aaggaaacat ctttatgacc
199101 atcaccagat caagaaacag gacattttca gcaccagga gtcacctgaa
199151 ggcccttttc agctcagatg taaatatttt tatatctctt gtgacaaaca
199201 tgtctttaca tttcttatta ttcctatttt atagatgaga aaacttaggc
199251 tgaaacaata tagcttagtt ccactgattt tcaactttat ggatcagtac
199301 attaccctt catgacttgc ttctttcatt caacattatt tttagaat
199351 gcatctatac tgttgcatgt aggcagaagt tctttaattt ttatcacttt
199401 ctaatgttcc acactaatgc ctataccaca acttttttat tggttctact
199451 gttcaaggac attgggttgt ttccatgaaa ggatttttat taacaacaat
199501 gctatgaaca ttcttgtaaa tttttcctgg tgcagatgtg caagaatacc
199551 tctagagttt ataactagga gtggcactgc aggcacatgc atatcttcgt
199601 atttcacaga taataaactg gttttcaaag cagttacatc aatgtatatg
199651 tcatcatcca cagttaatga aagtcctcat tgctctccat ccttgtcaac
199701 acttaacatc atcacacctt ttcatttttg ccaagacagt agttgtgtaa
199751 tctgaattta ttgtgggttt agttggcctt ttcctagtta ctaatgaaa
199801 tgtgtaaaaa ggtttttttt tcttttttct ctcttctacc atttagattt
199851 atacttgcaa aaaagccatt tttcttctat ttgggccaag atttggctca
199901 atattacaaa gtgtactaga attagaataa gctatttcta cacccttgt
199951 agaattcaat attgtatcat ttactggaat agaaggatac tatgaactcg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

80 / 338

```

200001 tgtatttctt ttatagatat cttgaatctt gccataaact ttagagagaa
200051 atcgaatata taggattcaa tatccctttg aaggaataac tagcattcct
200101 atgaggaagc cccacttaat aagaccttaa aaccgtatga aaatgagatt
200151 cactgtaaca gaaactatca gtcaatcttt aaataaaaac tttttacctt
200201 tcatgtaaat gtaacattac acaccagtat aaccttttag atctttaagc
200251 tgtgtagtct agagggatcc ggtgtggtca gagtctctag agagtgaacc
200301 taaagttcat cacaacagac taaataataa tcagttgcat aaaacctgaa
200351 atcaacttaa atctatttat agagggtcta tgtgcacatc acagaccata
200401 ttttgaattc ttcattaagc ttttacattg gtttttggca ttgcatgca
200451 tgtactttta tcataatggt actgttttag ctcttacctt gtctgtcttt
200501 ttgtcttgct tttccaaaat ggccaaattg tctttcagga ttttcacaat
200551 ttctgctgga tttttgtgtg atttactaaa caaaggcatt tttttcatgt
200601 gtagaaatct cttcttccaa tatggaatgc taaaaacaaa taagccaaca
200651 aaaattataa ctttaactct taatatgctt aaatttttat accaatgtct
200701 tataagtttt caataacatg aattcagtaa tctgaaacat taaaagtgat
200751 caaattaaaa tgagtttcaa gttttatgcc aaattttaa atatatattt
200801 ttaaaaagat atttttaaag ttttgcttga aagtttttat acaaagtta
200851 aaatctttcc tgcaatagaa acataaggat tatacaagaa ataatttttag
200901 agtccaagtt gatatgtaaa actagatatt ttgaccaaag aaagtgataa
200951 taataataaa tatattctat aatgttttag tatatgtatt ctataatgct
201001 tagctgctat tattacaaga agttccatga catagttaat gaactatttc
201051 acaaaaagaga aaggcacagt agtttagata tgattctatc ttaaagtcc
201101 tagacatttc tggctctttg agtcaattat acctttttcc attattttta
201151 aaaacataaa cttattctct gaatgcataa taatcaatga tcaaatattt
201201 tgcattaaag tagaatttta aaaagaagcc aaatgcattc atgtatagac
201251 atacctagga gatactgtag gttcagttcc agaccattgc aataaagcaa
201301 atttcccaat aaagtgagtc ataaaatgta tttggttttt cctagtacat
201351 ataaaagtta tatttacgct atactgcagt ctattaagtg tgcaatagta
201401 ttatatctaa actgatgggt gcagcacacc aacatggcac atgtatacat
201451 atgtaactaa cttgcacatt gtgcacatgt accctaaaac ttaaagtata
201501 ataaaacaaa aacaaaagca aaaacaaaat gaaaacaata tgtataactt
201551 gatttataaa aatattttat gcctgaccct tcagtgagtc ctaatctttt
201601 tgctggttgg agagtcttgc attaatgttg atggctgctg actgatcagg
201651 ttgttggctg ctgaaggatg gagtagctgt ggcgatttct taaaagaaga
201701 caataaagtt tgctacgttg actcttcctt tcatggaaga tttctctata
201751 gcatgtgatg cagtttggtt gcattttact cacagtagaa ctgctttcaa
201801 aattgaagtc agtcctctca aaacctgcca ctgctttatc agctaaattt
201851 atgtaatat cttaaaccct tgttgtcatt tcactctcag caggagtaga
201901 ttccatctta agaaaccact ttctttgctc atccatagaa gcaacattcc
201951 tcacctgttc aagttttatc gtgagattgc agcaattcag tcacatcttc
202001 aggctctatt cttaattctt gttcccttgt tatttccacc atattggcag
202051 ttacttcctc cactgaagtc ttgaaccctt caaagttacc catgagagtt
202101 agaaccaact tcttctgaac tcctgaaaat gttgatattt tgacctctc
202151 ccatgaatca caaatgttct taatggcatc tagaatgatg aatcttttac
202201 agcaggtttt tctattaagt ttgccagat ccattagagg aatcactatc
202251 tatggctgct tgcactttat gaaatgtatt tcttttgttt gtttttttaa
202301 cttttattag aacaatatga acatatgaaa tgtatttctt taacaagtct
202351 ggaaagtcaa aattactcct ttatccatgg gctgcagaat ggatgttaac
202401 aggcataaaa acaacattaa cctccttgta aacctccatc agagctcctg
202451 gatgatgagg tacattgtca atgagcagta atattttcaa aggaatattt
202501 tattctgagc agtgggtctc aacagaaggc ttaaaatatt cagtaaacca
202551 tgctgtcatc aggctttgtt gttccattta tggagcacag gccaaataga
202601 tttagcataa ttcttaagag cctagggttt ttggaatggg aaatgaatat
202651 tagctcctac ttcaagttac cagctgcatt agctcctaac tagagagtca
202701 gcttgtcctt taaagccagg cactgactcc tcctttctag ctatgaaaat
202751 cctagatggc atcttcttcc aatacgaggg tgttccatct acactgaaaa
202801 tctgttgttt tgtgtggcca ccctcaccaa tgatctcagc tagatcttct
202851 ggataacttg ctgcagcttc tataaatagc acttgctgct ttttcccctg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

81 / 338

```

202901 cacttttatg ttctggagat ggcttctttc tttaaacctc atggagcaat
202951 ctcttttagc ttcagacttt tcttctgcat cttccttacc tctctcagcc
203001 ttcacagaac tgaagaaagc tggggacttg ctctggacta ggctaaaggg
203051 aatgtgtgtc tggtttgatc ttctatccag accactgaaa ctgtcttcgt
203101 attaacaatt agctgttttg ttttcttatt atttggtgtt tcaactggagt
203151 agcacttttc attttcttca agaacttttc ctttgcatcc acagcttggc
203201 taacttactg atgcaaaagg cctagctttc agcctacctc cgctctggat
203251 atgccttcct cactaagact aatcattttt ccatcttttg atttaaagtg
203301 agagatatgt gactcttcct tttccttgaa cacgtagagg ccacttatag
203351 ggttatgagc cagcctaatt tcagtattgt tgtatcttag ggaacaggga
203401 ggcctgagga aagtgagaca ggggaacggc cagtcgatgg ggcactcaga
203451 acacatgcaa catttatcga ttatgggcac agtctgtggg gtcccaaaac
203501 aattacaata gttaacatca gagatcactg atcacagatc accacaacat
203551 atgtactaac aatgaaaaag tttgaaatat tgtgagaatt aacaaaatgt
203601 atcaagagat acaaagttag cacatgctgg tgaaaaaaat ggcaccaata
203651 gacttcctca atgcagggtt gccataaacc ttcaattttt caaaaacacg
203701 gtgtcttcaa agcacaacaa aggtgaaaca caataaaata cggtatgcct
203751 gtaattgctg tctttctccc tgtagtctta tagcactaag ggaaagatat
203801 ataactgtag gaatttttaa tactccctga catcaaaaca gagtacaaat
203851 tataacatgg tatcatagat atgatatgat tttttgtcca ttattacttt
203901 gcttgggttct cactgtaaca agctaagtct aatttactta aattaaaaac
203951 gttttcaggg tttccatgtc aatctggtga taagcatttt ctgattcact
204001 atctcccctt ttcactctgat ggtgggtttg ttcattttatt cattgaataa
204051 ataactctgag taattactga gcacaggcac tttgctaaat actagggata
204101 gagccacaaa caagaaaaac acaatccctg ttctttgaag cctattatta
204151 agtggaaaaa gcaaacattt tagggcaatg gggttatata atggggaaat
204201 aacacacagt atactgcctc aatacaatct cttttaaaaa ttactttcat
204251 attttactat acctacttat tgtaataagt ataatatgat tagtttaaca
204301 atgtttttaa atttcatctt atcattattc ttctattttg ggatccatat
204351 tttgaaggaa atcaaagttc atgctcttaa actatgcttg agttccagca
204401 cccagacccc ctgcaaatta aggcagaact ctctgcctc tcccagttct
204451 tctcagacca tggccagccc cactccattc ccagactaaa cacctccccc
204501 actcccagac taaacacctc cccactccc agactaaaca cctccccac
204551 tccaagacta aacacctcct ccatcacctg gaaacttgag gctgcctttc
204601 tcacactctg ggcgaccatg ctggctacta tatatacatc tactccaatc
204651 acatcattta gccactggg ggtcatttaa gcaatgaagc aagtagcact
204701 caaaccttct acacaaacac aagacacgta aactccctct agttgattgt
204751 aactgatctg ctgtatgatt caaaagaagt taatcacccc cttctagggtg
204801 tcaattgttc tatctgtaaa acgaagttgt tcttaaagta agattgagca
204851 tcagggtctt aggttattca ccactgtccc acaccattc tgagtcttta
204901 acccccagta tcctatcatg ataaagataa agccaaaaat aaagtgccta
204951 agctgggaac aaaaggaatg gagaggcctg acaatgggtg cttgtgggga
205001 taaggtggca ggaaagtaat ttttccataa agtctacctc agagttttta
205051 gaacatacat tctgtttcag caaagcaggc agtggggaca ggaaaagacg
205101 catgttagtc cagaaggctg aactagata aatgcctcct aggcattgaa
205151 aacggtgttg agaccacgca catcaacgtg ccctcagcat taatgctgac
205201 agcaggccat gcagcacaga aatgttagtg gactgacaat ggccctgtta
205251 tacttttcct ctccagcag tcagtaagca gaataaaca caaatagggtt
205301 gtttattatt attaaaggaa cacaatgaaa ggaaataaat gccctgcaga
205351 cttgggcaag aaagggtgct tctgaaatta attctctata aagctagaac
205401 agatataaat ttaagaaaag aagaaaagga gacaaaaagc tcttttagac
205451 aaaaaaaga gctagccaag gtaaaagact gaaaatacac acatatatgc
205501 acatataaat acacacatgc ccaagatgca gactgggaat cccaaactgc
205551 atagagcaga ataacaatac agaaaatggg tctggggcaa cttcaaggta
205601 caaaattagt tagtgtgcat gtattcattc gaaaagtatt tactgagcac
205651 ttataatgta ctaggcactg aacaaggaaa tacgaaacaa agaagcctca
205701 aagggtcac gatgtagtga gagacacaga cacgtgcaaa attttccag
205751 aaggcgagaa aaggctgaaa aaactaaaat gatgaagaaa agatatagag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

82 / 338

```

205801 tgtgtatgga tacatatctt tatatctata taggtatfff atagcgatat
205851 gaagaaaatg gagtgtttat ccctaacaaa caggtgtttac aacaatggag
205901 gggggaggat aggaagccaa aaacagcaaa ggcattaaaa ctggaacaga
205951 atcaaagata taacagcgta aacagaaaaa caatctaaac ttgatcattc
206001 gaacgatttt tctagttgag attcatgata agaccaaca ttcagtgtct
206051 tgcagctttt aaaataaaca ttctctctc agatcacatt ccaacaaaat
206101 gaccttaaaa aaacaaacga aagcataaaa atcaggttgg ttttagactt
206151 ccatgaacca aatgccccaa ggccatggag aaaacctaga gttctgataa
206201 gtaaagtcta taacaccata attaaatcct tagccaatat accatttatg
206251 tgtgaacaga tagtgtatat ttactaaaaa tggaacaaaa agatgagatg
206301 gaatgaggcc cacaagagc tcaacaaaat taatgctaaa aaatcagaaa
206351 tagttcttga aaaggagcct gtatatgtt ggcagaacat gtgggagggg
206401 gagaatctac aattataact cattcatata ggaataaaaa taaataagga
206451 ttcaactaaa gaagttaaaa aggaaactgc ccaaaaaatc tccaagaaaa
206501 gatggatgga aataatgata gaagtagaaa taactcaatc agagaagtaa
206551 aagaaaagga agaaaacctc tggtagctat ttgggtccggg tttcttctgg
206601 tgatagatgt gtctgcccta ctcccatcatt cacctcacc ccaaaaaagc
206651 gggggaacat gaccaggtt tggccacagt attccctgtc ctggatgcag
206701 caactagcta gtaaatagat tgtgacatag ccaatcaaaa taaaaaagaa
206751 gaaagaaaag tgttgatgag aatgctgaga aaagggaact cttgtacatt
206801 gttggtggga aggtgaatta gaacagccac tataagaaac ggtgtggatg
206851 atatgccaaa aataaaaatg gaactaccac atgatccagt aatcccactt
206901 ctgggtatat atccaaagga actgaaatca gtatgtcaag gaaatatctg
206951 cacttccgta ttcattgcaa ccttattttac aatagccaag acatggaacc
207001 aacctaagtg tccatcaaaa gataaataga taaaaaatgt agtacaggct
207051 ggggtgcggtg gctcagtcct gtaatcccaa cactttggga ggccaagatg
207101 ggtggatcac ttgagtcag gagttcgaga ccagcatggc caacatgggg
207151 aaaccccgtc tccacaaaaa atacaaaaat tagctgggtg tgggtggcagg
207201 cacctatact cccagctact caagaggctg aggcattgaga atcgcttgaa
207251 cccagggggc agaggtttca gtgagccaag atgtgccact gcactccagc
207301 ctgggtgaca aaacaagact ctgtctcaaa aaacaaaaca ctgctttaaa
207351 atagattcaa agcagagaca aaagagaaaa tggctatatc ttcattcgat
207401 atagccaaat tgcttttctca agttttttatt ccagttttata ctttcacagc
207451 tgtgtagtgt gagttgcagt tatcaccat ccttcctaac atttgacatt
207501 gtcagaattt aaaaatttcg ccagtatgac agctgtaaaa ggttgtccca
207551 ttatggttgg agtgagttg tgtaataacc gcttgctgca gtcttgacct
207601 gttgggttca agcaatcttc ccacctcagc ctcccaagta gctgggacca
207651 caggcatgtg ccacctatgc cgggttaattt ttgtatffff agtagagacg
207701 ggggttgcca tgttaccag gctggcctcg aactcctggc taattttaat
207751 tttatgtaga gacatggtct ctgtatgttg cccaggctgg tctcaaaactc
207801 ctgagtttaa atgatcctct caccttggcc tcccaaagtg ttgggggttac
207851 aggtgtgagc caccacacct gaccatact agctttttaa ctttcttatt
207901 ctgtacattt cctaattcta tactttgccc atttcatatt taaaaaaaat
207951 tttagagaca agttcttgct ctgtcaccta ggctggagtg cagtggcagt
208001 cacagcttac tgcagcctcg aactcctgac cttaagtgat cctcccacct
208051 cagccttaca aagtcctggg ataataggcg tgagccactg tgcccagcta
208101 ctttgcccag ttctttaagg tggctgaaga aagtcataat agctgccaat
208151 accaactagt acagtccctc gctaataaat ataatcacg tgcaagaatc
208201 atgaggtgtt tgatgaaaat caagaatata aaagagaaat gtaaaaataa
208251 atagagcaaa ccctgggggg gatggtaaaa attatattat atttatataa
208301 ccaaaagata tactatgcta tcacatccat aaaataagaa caggctgcta
208351 tgaaaaagaa gtaaacatg aatgagaaaa cattcttggg actaagaaca
208401 tgcaatgcaa tagaatagct gattggtaga aggttataga attgaaaaac
208451 aaatccacaa tttaaagacc aagccatgga aatctggaat gaagagtaaa
208501 atacaaagaa aagcaaagaa ctaattcaca gaaaagttgg aaatatacag
208551 ggtagagctg gagagccaat attgattgaa tataaatgct taaaggaaaa
208601 gaaaaaaca gataactgat gagagagtaa caatacatc aacaaataaa
208651 aaggaagcaa aattcctaga gctgaacatg tcttcagatt taagtaaact

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

83 / 338

```

208701 aatgggttatt acacagaggg aatgcaaaaa ggcctattcc aagatacact
208751 gtgaaatttc tgaactctaa agcgaaatcc cacaaacttc cataaagggg
208801 aaaaatctag agtggcacct aagaaccaga ctgtcagagt ggaatcagga
208851 ttagtaactt cacaccaaat gacagaaggc agtgaaacac tgtttacata
208901 gtttctaggg aaaaagattt ttcacctaga attctatact ttaccaatta
208951 tgcagatgtg agggcaaact aaaattacct aaggacaaag atggtgaagg
209001 agtaggggga agagaaagga agatggagga gaaacagaaa aatgagaaaa
209051 cagttgaaaa gtaagcagtt gagcaaagaa accaataaaa tacatggcta
209101 aatctaagta aagggttgata atgtgtctgt gatgcttaat atgactgcta
209151 aaaatgtatt cctgaagtat tttgatagag gcaaaatggt ttttaaaaaa
209201 tccaaccatc tggaaaaata caactaaaat tcttttatag actttgttca
209251 aggaaaagga tagaaataat gattaaatca taataaaatt tatatgggtt
209301 tgtcatgcca aactaattta agtctctggg ttttctataa tcacatcata
209351 cacaatttaa gataaacctg tttcttgaat tgtttattaa acatttaatg
209401 atgaatatta gaataatgga agtaggatgc aaccaccaga agggggaaaa
209451 caggaacaaa aataatttga ccaaatcagc aaaaatcagg aatgaaaagg
209501 aaagtataaa caaatagtaa acagagaata taaaacaata tagaaggaat
209551 aagagcaacc aataattaca atacatacaa atgtgtttaa ttctactact
209601 aaaaaaccaa gactctcaaa ctctcaaatt gggttcacac acacacacac
209651 acacacacat ttctgctcta aattctgcaa gagccataat agaaacaaaa
209701 cgacacaaaa atgttcagaa taaaaggatg cataaatata tatcaagcaa
209751 tattacaaca tgaatataag aaatgcagag ttcattgagaa attatacaca
209801 cacacacaca aagcatttaa tatatgtatt tagttgtcat gaagagaata
209851 tatagagggtt attatactac atatacagtg tatgtaatag acataatcat
209901 acatataaag ccaattaccc ttgcaaattt aatactattt catatgtata
209951 ttaggtacaa taaaggctat attaaatagt ttttaatttg tgacctaat
210001 atgctctagg tagaacaagg aagtcattgc ttgaaaggaa acagaggaac
210051 aggcggtggt tcacgcctgt aatcccagca ctctgggagg ccgagggtggg
210101 cagatcacaa ggtcaggagt ttgagaccag cctggccaac atggtgaaac
210151 cccatctcta ctaaaaatac aaaaaaaaaa tagctgggca tgggtggtgca
210201 tgccagcaat cccagctact caggaggctg aggcaggaga atcactggaa
210251 tccgggaggg agaggttgca gtgagccgag attgtaccac tgtacttcca
210301 gcctgggcca cagagcaaga ctctgtctca aaaaaaacia aaacaaaaca
210351 aaacaaaaaa cagaggagtc tggtagggaa agagataaaa gatagctact
210401 gacagaaatg agaacaggag ctactgggaa agtgatctac attattttca
210451 gtttaaataat gttcaataca gaccctaagt aaaattctgg ccaataaaaa
210501 tcaaaagctg tgtttacaaa acaaaatacc aaatcagggt ttttaataata
210551 gaaaattgat gaatataata aattatatca ataagtcaaa taaaaattat
210601 ctcatggaac tctgaaaaag ttatctaata aaattaaaac caagagagat
210651 acaaacttta gctcaattta caaaaaaatg gttaatggag gcatacttac
210701 taaaaggagg tataaaacia aggtcatcac aatcacgcta tcattaccat
210751 atgttgtgat caatgcacta aaatataaaa cataaataaa tgctacaaaa
210801 tttgggaagg atgtgacaaa attgtaatta acagacaata tgattatata
210851 cctaaaaata tgaacaactg aaattagtag aaattagggt aagtagtcaa
210901 atacatgata aatatacata cagctttcac atataagaaa ttgccagtca
210951 gaaaacataa tgaaaagcat attttgatca tactgccaac taaatatgta
211001 caaatctat accagatctg tatttttaaa aactacaaaa ccttaatttc
211051 gaaaatagga taattactct tcctgaaata gaaaactaac aaataaaaca
211101 gagaaataga agatgtactt atagatgtat gtgtctatct atctattcat
211151 cccttcagct agccatcctt ttaatcttat agtcacagaa tgattctaga
211201 atgtggctta gctaacttta atgacattat ctaaattatg agatttgtga
211251 tggtttaact ttcttcatgt aggtattttt ctgcattatt tataatgagc
211301 acattttctt tttctgaaat aataaagaga ctgtggagaa aacctacata
211351 attagatag gaaagatttg aggttaaaaa aaactactta ttttgttctt
211401 gaatagacag aataaatatt atttaaatgt cagttattct taaagtccac
211451 agtttgatac agttccaatc aaatgtccaa aaaaattttt ttggtatcta
211501 aatttagtca agaatactaa ataagcaaga ataacaaatt ttaaaaagga
211551 aaattaggag gaaatgaaat gaaaagtgtt ataaagtact gtaacacagt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

84 / 338

211601 aatagcacaa gaaacaaaca catcaatgaa caacacagct cagatataga
211651 tgttaatat agtgactttc aaatttctgg atgtgaaata gtttctgtaa
211701 ttttataagt gataaaataa atttcaaaga aaaagaccaa caaatcaaag
211751 ttaatacgaa tatgccacaa acacaaaaat ttgaatttct atagataaat
211801 aataaaaaaa attataggca aacaacaaac tagagaattc tgtgatatga
211851 atctgaaaga tggagggcta atatcattac aaaagatctc ttttaagacaa
211901 ttaagaaaat cattaaggaa acatacagat aagtgaaaac cataaatgag
211951 gaattacagt taatgaacat attagtaaat gtttaaccat tctctataat
212001 aaaaaaaaat gcaaaactcaa agtgaaagac tattttgtcc attatgttac
212051 taagtTTTTT gttgttttga caaactcaat tctattgatg gtattttgca
212101 acaggctctc atttcttact ggtgcagata taaattagac aataatttga
212151 caaatatgaa tctagaacct taaaatgttc acaacctctg gctttatagt
212201 aattccattt ctggtaatct gtcctaggaa aataaactaa aataaaggat
212251 tatctttaca tgcaaaaatg tttactgcaa ttttttatca taaaaaactg
212301 agaaatatct aatctaacag agggaaataa ttaaattgtg atatacccag
212351 ttgatggaac attagcatat gtcacagatt ttttaaactt ttaaactttt
212401 tacaattatt ttacatttta acattttcaa agcttaggtg tgtcttacia
212451 ttgttggtgc cttacactaa caggcagatt cttttcttct tcggttgtag
212501 ataaagtaac catatgtctt aaaaccagcg acttattaaa tttgatgaaa
212551 tatgtctagg aaaatatttc caaagaatgt gaaatagaat ggaaatgtta
212601 atgttaaaaa caacatccca aattacagag cataactaca actatgtaaa
212651 gcaaacaaaa acacaaacac acaaaaccta tgtatagaaa aaataatttt
212701 gaaatgttaa cgggtgattgc ctctgagtaa tgtagtttgc ttgtggatgc
212751 ttaatttcct tctttcttca aatgttctgt tttttccgaa gcttgataaa
212801 tagatcatgc aaatgctttt atagtagaaa tgtctctctt aaatggattt
212851 ttgaatgaat aaacaaataa cctttttttt ttaagttcaa actgtggaat
212901 atctgattgt catgtctttt ctttcttttt ttttttttct tgagacggag
212951 tctcactcta ttgcctaggc tggagtgcac tggcatgac tcggctcact
213001 gcaacctccg cccccgggt tcaagcgatt ctctgcctc agcctcccga
213051 gtagctggga ttacaggcac tcaccaccac gttcggctat ttttgatttt
213101 tagtagagac agggttttac catgttgcc aggctggtct ggaactcctg
213151 accttgatgt ctgcctgcct cagcctctca aagtgtggg attacaggca
213201 tgagccacca cgcctggcct gtcattgtct ttc aaagcat tattcaaaca
213251 tgattttctt ggctataaag tttcataaag agtagtactt ggctcagatt
213301 ctggagagaa agccaaaaaa gatcatccaa ctctgctccc agggaaactca
213351 caccctgtag atttttagt agattttggc agcattctct ttcctaatac
213401 acagtaaaat atttcatatt cctaacttgt gtgtgagcac cattgaagat
213451 ggcccaaaat caaccaccca attgagtcac ctgaatatgt tcagtgcacat
213501 aaatggaaag gagagttggc agggggcagg ggggtaggag aggacctagg
213551 ggaagagggg aatagccact tggagcatta aatgcccttg ttgttatccc
213601 acttaaaata tttcaaaggg aaaaatgtct aatatctaact ctctaactat
213651 gctattcaat aataatttga ggccagggtg ggtagctcac acctgtaatc
213701 ctaacacttt gggaggtcaa ggctgcagtg agccatgttt gtgccactgc
213751 actccagcct gggcaacaca gtgagactct gtctcaaaaa aaaaaactta
213801 aaaaaataac attttgaatg tcaaagtttt cccaggaaaa ctgaaggag
213851 tgggaaattt atatctgaag ccaaaagaga tgtctcaaca tttccagagg
213901 tataaccaa ctgctaactc attttaagaa agacaactaa aaaatgaacc
213951 ttcttttctt cacataagtt tatttttcaa tcaacaatga gttagacagg
214001 aacatttcca aaatgatttc ttaagagctt gtttaattta cttaggcac
214051 aggcaccttc tgttaaaact aaaaaattaa aataaaccta ccaccacata
214101 aaaaaaaatt tcagggccag gcgcggtggc tcacacctgg aatcccagca
214151 ctttgcgggg ctaagggtgg tggtacacat gaggtcagga gattgagacc
214201 agcctagcca acatggtgaa acctcgtctc tactaaaata caaaaattag
214251 ccgggtgtgg tggcaggcgc ctgtaatccc agctactcag gaggtgagg
214301 caggagaatc acttgaaccc agaaggcgga ggttgagtg agccaagatc
214351 gcaccactgc actccagcct ggggtgatata gcgagattcc atctcaaaaa
214401 aacaaaaaaa aaattcagaa aaggtcagg atgctattcc tttacctgta
214451 ttccaaatag gattcacaga tagaaagaaa tgaaatcaag tgtacatggc

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

85 / 338

```

214501 aaaaaattgt gcctgtaaga ttcattttttt aaaattaaat gggatggagg
214551 ttacatgagt acatacatat gtcaatacta attgaaccat tctcctaaaa
214601 tgggtgcatt tgattatatg aaaatcctaa aacaaaaaag tgcaccttaa
214651 agttctactg tatttgctac tgtatccaag aagactctcc cccaaaaaac
214701 ataatttaga attgccttca cagagatggg taagttacaa agcatatcat
214751 tatatatgta ataataccat atcattatga accatattat atatgtcaaa
214801 gaatcttcca atcagtatct tctatgcttc aattttttcca ttttaaaata
214851 tgcacccctaa atgtaattac aaagcaccac aactgaattt tgtacttgaa
214901 aacctataga tatgagtga acaataaagt ataaataaca actttcactg
214951 acaatccctt tttcagttaa aaatgactaa gaataacttg tttttataag
215001 ttttattaac caaatttgag ggagaggcac tttctaaaaa tgggcaattt
215051 acacagaaat ggaaaagtgt tgaggagctt tttatgagtc ccattcatct
215101 ggaagcctca gtcagactta catcagaaga aaaactcttt tataagagaa
215151 actcatgtcc cttgttaatt actctttatt tctaattgtac agtaacactg
215201 aaatacattt ttaaaaaata ttaacatata aagttaggaa tatatacaac
215251 tactactaca tttattatct aaggatccta ctaggctatt gtagttccag
215301 aaaaaaaaac tagtaacttt attcattacg ttcacactga tgtttctgtt
215351 gacagctcca gtcatttgtc agagctaaaa tttccacctt ttattagcta
215401 ttaataattg tcaatgattg aaaattttat attagaattt tacaatctca
215451 acttatagca gcgatctgaa ccaaagtcag tattctcaaa aactggtaac
215501 tatcattaaa gcattagatc ttactgaaat taacaaatgg ttactcttta
215551 aaaaacagaa ttatcaaggg agactcataa ttcagttttc attctttctt
215601 gtaagcacat acatattaca cataacaaat tttggttagt tactgttatt
215651 gatattaaga catggtttat acaaatagtg tgaaatacaa ctatttcata
215701 gcttcagtaa gccctgtgcc tgtctatgac ctgtcaatct ataaaaacat
215751 taacatgaga gaatagagat gaaagtgatt ttgctaaagt tatctgttat
215801 ccccaagctg ttcaaagttg attcggtttt tctggctgag taatttgata
215851 taatctttca tccttccaaa gttggaaggg actatatgag tttctgctag
215901 aagtttgaga catttaagtc aaaaactgc aaagtatgtt atctcactta
215951 taagcagtaa agatctctgt ttaaactaat taattagtga aataccaact
216001 ttgactataa ttaatagaca tgctaataa gttttaatag atttttcttt
216051 gttatgtgac tatcagctaa atataatctt taagccacat tacgaatata
216101 tatgtgcatg taaacacagt catatatata tcccagaaat ggaaaattgt
216151 ccaaactctac ctgtatccat tcagtaaata cttgttaaga acctattata
216201 taccatttag gaccactcaa aatcattact ttttacataa gatttacaat
216251 agactaaaga aagtatttct tgatcaaagt caagagtttt tacgccatta
216301 caaatcatcc aagataacca aaacctgcat ctactgtatt gtttatttca
216351 ttattatttc attacatatg catattgcat tactgacttt taaatttcat
216401 atactggcaa ttcacagaga ctttcaggac cagtaaagtt aacttgata
216451 gaccaagac aagttttcca aataagtcac atttcttcat atgggtccta
216501 gtaaacattt gcaaatacat aatccttctg agttaagtt gacacctgac
216551 tttagaatgt cccatgtact caagatacct aaccttgtaa attgcctccc
216601 ctcagcacca ttcctactca ttcaaggcag caaccaagtt ataccatggg
216651 cttttcttgt tctcttcaga gttagacctt ttctatctta cttttgcttt
216701 gttcacatct cacaattcag tcaattcttt tcaggccatc tctttctcat
216751 aaggaaaaac gtgtgccctt aagcctcttt cctttattgg atatcttgga
216801 aaataacca tttcaatttt tgtgaaccaa agaaacagtt tagtcctcat
216851 gcaataacta ttatcaggta cctactatgt gccacacact gggctagacc
216901 cttaggaatg gctaagtaca aactcaatgg ccagaaatat tcttgtagca
216951 agaaaaagag aaatcactga tttcaatgtc agattagatc tcaaaaacag
217001 tgcaatcaac cttgaaagct catgaaagca cccagaaaac ccataagcat
217051 ccttccaaat acctatccac ctattaaact tgcttttctt taagcattca
217101 tattttagaat aaaaataata tcttatccaa cataattatt ttatatttag
217151 tttcgtcatt ggaattgact ttcttatatt tttcaaggta gcaatggttt
217201 ttctacagca tgggtaaaat acatgcttag actataataa acgccaaca
217251 gtcacttgat aaactgtttc ccagggaata tgggttctaa atttccaaca
217301 acccattcac aagtaaactt ctcaaataca aagtgtttgt aaattgggaa
217351 tgcattattc tttatttcta tatttacatt cctatgggac tgggaaatgg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

86 / 338

```

217401 taccatcact aaggtaacac agtgaatgat tagtttaaaa taaaaaatta
217451 ttctgaagag tgtgaagctg tatgcaaata attttccacc agtctaagaa
217501 ggactgagca tgggaaaatc tataaagaag taaaagtaag tttgtgatat
217551 tatctctatg atgtttactt ttaagtgcaa gatactaact agcccagaaa
217601 aggttcccac agaccagttg agctgcttct tatacatagg tcaacagtct
217651 aaaaaaaaaa ttaaaacctg caaaatccca caaaacaaaa cctgttttac
217701 aggcttctgt acacgtagag gaaatgttag agaaattaca gccattttat
217751 ggtctatcta ggttacaagc ccttctaata tgtttactga tactctgcag
217801 aagttttcat ttcagttggt ttgccttaaa ggattcactt gaatcaataa
217851 ctaaagacat atatattttt tgaggctagc agagggtaga ttagaaactc
217901 tgcttagagt ggtgtatcct catgcagtga ctcaatttca cagttaacaa
217951 catacacttt cttcctccta cagaacaatg attacatgcc tccctccatg
218001 cctttaaaaa gatatatata attggcatac actctcctat tttaagatta
218051 taaaaaaaaa gttttattgg aatgtgaata gatattttta agagtttatt
218101 tttctttgct ctattgctta tacaacaca aacacacaca cacacacaca
218151 cacacacaca cacacatggt tatattagct cttcaacaga ataagattat
218201 acgagaggaa agcttggtat aaactgtaag aacaaaataa ctgctttatt
218251 ccttacttag aaacccaaat gcattcattc attttacata aagtaggaaa
218301 aatcaggtgt cacttattgg gtctaaaaga agcagtcaac atttaaatta
218351 tatatccttt gaagtaacag tatcaacatt tttattttaa ttatgagaga
218401 atgctgtaat ttataatata aaacagtgat aattcaaaat ttactaacia
218451 tagacagaaa gagataactt tctaattttc atgcagttga aagagaaaca
218501 tgaaaaaagg tatactgtac tgccactatt ttatttttgg aaactctttg
218551 taaataaaaa cccatttcca aaataagata ttccatgaac acagaatagt
218601 tggtaatggt tcaagtgcct taggcaacag agaagtattg ttttgtagtt
218651 tttttaaac tctcctagta acagcaattc attatgcaca aagaaacaag
218701 gtaacagcat ggtttataat gcatatataa gtaataactg cagaacctca
218751 attaaaacta aagtttacca tattccttcc atttctataa accagtatag
218801 ataaccttgt tgatactcac caaatgttac agaaatgcct aggcctttct
218851 aagcaacaaa atgtagacac atggtgaggt gctgaagaca gctctttctt
218901 gagctcaaag cacttttagat gaagtagcct ttatcgcca tttaatagag
218951 gttgcctcct attaccaagc gtggcagaga aaagagtttc cacaattagg
219001 tcttgacttt ctgtccctct ttttgaagag taacagttac cactggaaaa
219051 cgttaccaga aaatgatcac ttgaacactc acatagggca gctgtaaatt
219101 tccactctct ttgcttgctc tcagattcca agccttgctt gtctcttaat
219151 ctgtcacagg cagttctggt tctggcctaa ccagcttgct tatgcgttct
219201 ccactccctc tctaactctt gctttcagat acgtaccaca gtcacagctc
219251 ccttttactt cctccctcct cagtcctgta acgtcacaa gaaatgcgtgta
219301 aagctgaggc aaaataaatt cttgggccaa aaaagaaaaa agtctagaga
219351 taaacaaaat tttttctcat cacttttttc tgtcttaagt cttatacttg
219401 ttcattgcat gggttttgtc aactgattaa actggctgga ccaccttggt
219451 taaaaatgta aataaagggt attttttaaa aagtcattgt gatagtaata
219501 ataacagatt cacctgctaa tatgctagct cctgaaggaa gatgctattc
219551 ccaaccataa gaaagtggag caagtaaaca cacaagtact tgtattagaa
219601 acttaattctt aacattttaa aagcaaggaa ggttttagag tacttataat
219651 ttaaactgtg caattttatg aaaaaaatgt atttcttaat acggtatatt
219701 ttgaaacttg gaccaaattt tgcagttata aaagggaata ttataaagaa
219751 catagaaaaa tattgacacc aaaaacaaaa gagcagttta atcatgtatg
219801 tgcaaaccaa atgtaattat tgctgttgga aagaaggttt tttttcccc
219851 taaacattac cggtcagaat gcataacacc tcttataaga attacaaagt
219901 ctaaaggcta caaaaaatta ttaaagtgat tatacacata caattataga
219951 gtaaagtatc ttaaaattac gaaactctct gtaaggtttg gggatgagga
220001 attaggtaga aagctgagtg ggctcgtggt tggcaggttt agatggcatt
220051 tgtaggattc tttggaatta ggaggcaatg tatgcagctt ggaatacgtg
220101 ctggctctgt atgaatgcta gtcagatcct gctttggagt tctgttccag
220151 ttccttagcc cagaacactt ttaggttctc catctcccac tatgtcccca
220201 gtcaaaagtc ttgggccctt ctactgacgg atcttccaag tacagaagga
220251 acagaagtag ttattagacc tattattaag taacacattc ttattctctg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

87 / 338

```

220301 cagaattaaa atctctctaa gaatataagc ttaagtaagg tgaaaggtaa
220351 acatctataa acagttgttt atatccctta agaaaaataa gtcagtaaaa
220401 gtcggcctta aaatataggt gttttgatct cgtttattta aagtagaatt
220451 aaaatttaac tatattatac agttatttgg ttatttctta gcacctatta
220501 aataggatc aaagacgact agagattagt ctgccaattt ttctttcaat
220551 tagtagtttt ataattttta gagttttatt tctccttttt aaagagatgt
220601 taaatggaaa taattctaaa tcactgaggg tatgaagtgt ctagtacctt
220651 aggttatact ccgagagttg tagtataatt aaagaaattc agaatttata
220701 aaagtggttc ttaggataac tgcaaggtta atttaaaact gggagactgt
220751 atatcaatct atagtggatt caaaggcaca aagtcaagtc aaggacttta
220801 aaacatataa ttactaagat tatttatgat tgtttgata tttaattcct
220851 attaaatacc attccatttt ccaacagcaa gagtgcagaa atctcataat
220901 atacaggaaa ctgggttgag tattcagaag gatattgcct cagtagcgga
220951 accaaattag ttttagatta aagggtgttc tggtcctct taatagagat
221001 taaaagtaag ccccgaaagg atcgaattac ttccaaataa ctgcaacca
221051 gagtaaaatt ttaaaatatt tatataaatt ttttaaaatc tagcacacaa
221101 taacgtaaaa ttcacaatat ctgacatcca gtcaaaaatc accaggcatg
221151 caaagaagca ggaaaacata atgcataagg agaaaatcga tcattagaaa
221201 aagactcaga aatgacacaa ataatagaat tagtatataa agacattaaa
221251 actattaaaa atatcttcca taggttcaag aaggatttag aaagataaga
221301 atgttaagga gagacatggc agatataaaa aagatctaca tcagatttct
221351 aagaattaaa attacaattt ctgagaaaac atttattctg tttcatggaa
221401 tgaagtgttg cctaactcta gaatcacaaa taaggccaac taagatcttt
221451 aaacaacagc aacaacaaca aaaaaaccct ataaactctg gaatgaaaat
221501 tacaccaaat gagatgaata gcagactgca caccgcagaa gaaatgatta
221551 gtaaacctgg agacacagtg acagaactta tcaaaataaa gcattgagag
221601 aaaaaaagtt taaaaaata aaaatgaaca gagaatccct gaactatggg
221651 gaaacttaaa agaacctaat gtatactata tatactatat ttagtctttg
221701 gaccttgaat aaacatcagc agtagccaag aaatagttgt tacaggcctt
221751 gggcataacc cagtactgtg ctggcttcac gtgtgacca gcattgacgc
221801 agtatagtcc tagcagtggg ggtcacaaga gggcttgac catccctccc
221851 cgaactgtag gcagctcagc aaggagagac agagaaagac tcagtaaggg
221901 aagagaacac gagactgtct ggtaatccag ggaattctcc tggatcttac
221951 ccaagaccac caaggcagta tctcctcaag tctgcaagtc acaacattac
222001 tgggctttga atatcgcta atgcaaattt ggctgcagtg accaaagact
222051 tagatcacaa cactcaattc cctttgaata tctggaaagc cttctcaaaa
222101 aggacagata cattcatcct tgagaggtct ggaaaaaaa aaaaaagaca
222151 agtacaaata agctcggagt gtgaagatta gaataaatac ctaactcttc
222201 aatgcccaga caatgacaaa catccagaag catcaagacc atccaggaaa
222251 ttatgacctc accaaaccaa ctaaataagg aaccagtgc caattctgga
222301 atgacagaga tatgcgacct ttaagagaat tcaaaatagc tgttttgagg
222351 aagctcaaag aaatccagga taatacatag aaggaattca gaatcttatc
222401 agataatata acaagagac tgaaataatt aagaatcaag cagaaattct
222451 ggagctgaaa aatttaattg acaaactgaa aaatgcatca gagtttctca
222501 aaagcagaat tgatcaagca gcagaaagaa ttagtgagct tgaagacaga
222551 ctatctgaaa tacacagagc agtcaaaaga aaaaagaata aaaataatgt
222601 agcatgccta caggatctag aaaatagcct caaatggca aatctaagag
222651 tcattggcct taaaaaggag gtagagagag agatcggggg agagagtta
222701 ttcaaagaga tagcagagaa cttcccaaat gtagagaaag atatcaatat
222751 tcaagtatga gaaggttata gaacactaag cagattttac ccccaaaaa
222801 ctacctcagg acatctaata ctcaaacaat gaaaggtcaa ggataaagaa
222851 agatcctaaa agcagcaaga gaaaagaaaa gaataacata taaaggagcc
222901 ccaacacatc tggcaacaga tttctcagtg gaaacatcac aggccaggaa
222951 agagcagtaa gacatatgtg aaggctctgaa agaaaaaac cttttatcct
223001 gaaatattat atccagtga aatatccttc aaacatgaag gagaaataa
223051 gacattccca gacaaacaaa agctgaggga tttcatcaac ccagacctgt
223101 cctacaagaa atgctaaagg gagttcttca gtctgaaaga aaaggacatt
223151 aagggtacaat aagaatcatc tggctcatctg ggccaggcac ggtagctcac

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

88 / 338

```

223201 atctgtaatc ccagcacttt gggaggctga gacaggagga ttgcttgagc
223251 agagaagtcc aagaccagcc tgaataacat agcaagacct catctctaca
223301 aaaaatcaaa attagccaga attgctggca catgattgaa ccactgcact
223351 ccagcctggg tgacagagca agaccctgct gaaagaaaga aagaaagaaa
223401 gagagagagg aaggaaggaa ggaaggagg aaggaaggga gggagggacg
223451 gagggacaga gggagggagg gagggaggag ggagggacat atactcaatg
223501 gaataatatt cagctataaa aaagaatgag atcctgtcat ttgaaacaac
223551 atggatagaa ctggaggaca ttatgttaag tgaaataagc caggcacaga
223601 aagacaaact tcacatgttc tcattcattt gtgggagtta aaaatttaaa
223651 caattgaact cacagagata gagaggagaa tgatggtggc aggaagcagg
223701 gcaaagggga tagttaatcc actaatggga tgagtataaa aatatagttt
223751 aatacaatga ataagatcta gtatttgata gcacaacagg atgactacag
223801 ttagcaataa tttgttgtag attttagaat aactgaggga atacaattgg
223851 aatgctcttt tttttttttt tttgagatgg agtcttgctc tgtcaccag
223901 gctggagtgc agtggcgtga tcttggtcct ctgcaagctc cgcctcccag
223951 gttcacgcca ttctcctgcc tcagcttccc aagtagctga gattacaggc
224001 atccgccacc atgccagctc attttttttt tttttttttt tgtattttta
224051 gtagagacag ggtttcacca tgttagccag gatggtctcg atctcctgac
224101 ctcttgatcc gcctacctcg gcctcccaaa gcaactggat tacaggtgtg
224151 agccactgca cccagcctgg aatgttctta acacaaaaaa ttgacgaata
224201 gttgagatga ttggataccc tatttaccct gaggtgatta ttacacattg
224251 catgcctata tcaaaatata tcatgtatcc tataaatata tacacctact
224301 atgtacccta aaaattaaaa ttttgaaaat taaaagaca acaccttaat
224351 tgaaaaaaa gtcactccaa aaaaatagtt tgttttgatg cttttaattc
224401 taatctatca ttacagaatt ttaactctac tgctttgctc ttatattcac
224451 cttcacttat accacaaatc tttgttctaa taacacagta acataatgat
224501 atatttgcct actctttcaa tatgtctaata atagattcaa aataacagta
224551 ccaaaattac taaaaataaa atcactgaat gaagtttaaa gaattccttg
224601 ccgttaacta atgaagtggg cagcatataa ctgtcagtag tgagtcctaa
224651 tgttaaaatt taattatttt acgtgttata aaaacaaaac tattttacat
224701 tgttattcac aattgaaaga aatttcataa aacaagattt caatttcttt
224751 aagtagagac tttaacaacc tataaatggg ttagttcaat ggagttgtct
224801 caactattaa gaaaatcaca ggaagaaaaa attaaatgat gtatatagat
224851 caagttacag tcaaatggca tcatggcatg ctaaatatgc aatgattcta
224901 cagttatttg aatacaaaaa aatggtagga aaattattta tcacttaaat
224951 gtggtagctt tggtagctta actatgcaga attccaagtt acctcctcca
225001 cctcagcagt catatttaca ttattgagtg ttgtaaggct ttgaatccat
225051 cttggcatac tcgtactata acaattcact agcaataagt cctataacta
225101 gccaatgaat gtttaaggta cattattgaa ttgattagtc cattaaatta
225151 aaacattagt ggttaaaaaa gagttcattg tcaacaataa aaacaatggc
225201 acaaaacctg gtttgtcatg atcccccccc aaaaaaatca agactctaac
225251 atgtaaaata ctcaatacac aaatacataa ttatatgatt aagtgccacc
225301 tccacaattt agtgctatat tttgaattaa ataattatta ttttacttta
225351 ttggttttac agttatttat atttaattaa catatttggt tttatttaaa
225401 tatataacag ttgtaagaaa aagtgtatta aggccaaggc ccagtggctc
225451 atgtctgtat tcccagccct tatgggaggc tgaggcaggt ggattgcttg
225501 agcccaggag ttcaagacca gcctgagcaa catagcaaga ccccgctca
225551 aaaaaaaaaa aaaaaataga agaaacaaaa atttagtatg ccagaagcaa
225601 atgctatgtg aatgataata gtataaaaaa actagaaatc caggttgcg
225651 tcagattatg gagagacgga gtgctagaca aaagagctaa ataatttgcg
225701 gacaaaacag gccatgatca gaactttctg taatgaatgt gaatttggca
225751 gaagaatcaa agggcaaaga aacagtaggt gatgaaatta aaggtaactc
225801 agtagtctag gatgacagtg agggtaacca gacagtggga ataaaaggac
225851 tacaagagta taatagagaa taggtttggc aactgaaaaa atatggatag
225901 taattgagag acgagtcaag atcacaaggc attcccagtc ctgtgtgaca
225951 gtaagcaggt tataccttta aaacatatag gaaccacagg aagaaaaata
226001 aattttatga aatagccagt tagttgatat ataacaagtc cgagatgcca
226051 gcaaggcttc tggatataaa tgcccacagg cagctgaaca tacagaacta

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

89 / 338

```

226101 gaacttggag agaaaacaga ctggagcaat atatctgggg gtcattccatc
226151 ctgccactgc agtacgagag agacccaaaa gagagccaag gacaaaactt
226201 caagaaacat ctacaggtgt tggtagaaaa agggcaactg gctgggcgta
226251 gtggctcacc cctgtaatct cagcactctg ggaggcagat cacttaagcc
226301 cagaagttca agaccagcct ggacaacatg gcaagacccc catctctacc
226351 aaaaaaatac atacaaaaat tagttgggtg tggtagtaca ctcttggtgt
226401 cccagctact cgagggggtt agctgggagg gtcatttgag ccctggaggc
226451 agaggttgca gtgagctgag attgcaccac cgcactccag cctgggcaac
226501 agagtgagac cctgtcccct cccccccaaa aaaaggcaac taaataaaca
226551 gtgggttagag agggagagga gaaactgaaa agtatgttat cgtgtgacca
226601 aaaaaacca gaccttcaag aaaaagaagc atttaaaagt acttactacc
226651 taaccctgta gtctaatttc taagtcaccac tttcaattct taaaaagcaa
226701 aggtattagt gggaaagggg ccttttagaga accacttggc ccagagaaag
226751 ggacttttaa gaattcatat tccctaaatt gctaaagaca taggctggta
226801 gtcagcgaga caaaagacag gcagggacca tcagagcata cagcagtaca
226851 gcaaagcatg aggcaggcag aggactccag gccagccctt ccgggaaact
226901 ggtaacactg gctctgattc aggcagcatg cataacccaa ctctgccatg
226951 ccatgcctag aacactgtat gggagattgg agacttagta gtacctgaca
227001 caacaatagg attaggatta taagaggtta ggaatgaggt aatagagaaa
227051 tgaacgtata ttactgtttc caagtgttgg atataaagac tagaaggaca
227101 gcttgaaggg cttaataaaa gaggtttttg tttgctttaa aaaaaaaaaa
227151 aaaacctttc aactcttggt agattgagtg ggacagacag gaggaaggta
227201 gaagatgaga aagggataat taatggggca tgatctttga gccacaatg
227251 ggagggatca agaacataag tggaataata tatatttttc taaaatgaga
227301 aggaggagaa agcattagta gagactgccc agggaaagag gaatgaagtt
227351 aggaagcaca ggtttacttc aattttctca gaaaagcagg actcaccatc
227401 atctgaagag aacaaaggta gagtaaaaga atatgtgttt gagcagagtg
227451 aaaattggtc ttatcagaaa acccacatgt ggctgggcac agtggctcat
227501 gcctgtaatc ctaagcagtc tggcaggaag taggaggatc ccttgagtcc
227551 aggagttcaa gaccagcctg ggcaacatag ggagaccctc tctctattta
227601 aaaaaaaaaa aaaaatccac ataaatacag taagaagaaa agctaaaagg
227651 tgtgactcat gtacaccaaa tcctaagttt aacagttaaa gttccgctta
227701 tatccacaca attccactta tatctaaca atataacaac gctaagtaca
227751 tgctatgctt ttccaccaac tgcccaattt aaggaataac aaaggatgag
227801 gttaagaaac agatcttgga gcccgaagat tcgatataca gctagtatca
227851 taacaacaaa atgggcttag tgccataacc acaggcagat ggtgatacta
227901 ataattctca tatttccctg tccttctttg ctggatccat gttctgtttt
227951 ctccacaact ggtacgctta tgaaaagttc ttgctcaagt cagttaagaa
228001 cataagatac ctttttagtaa aagaacaatt cccaccctgt tgagaactga
228051 tgtacattct ctttttatga ggtgtgtcat actccaattt tccaagtttt
228101 taaaattttt cacttttcta caaattattg aaaccagaac tatacaaaaa
228151 ttttatgttg gagaatcata ttattactgt tataaatctt taaaagtaca
228201 acttgtaagc tgggtgctctg aagccaagaa gaaaaacagg atctaaagag
228251 aacacagaaa gaaaggacaa agaaagaagc aggctgagtg aagggacaga
228301 aaaccttgag ttataaataa cttgggtttta aatgtcaaga gaaactagtc
228351 tcaaagtatc tctttctaca gagttataat gctttttaat aatgaaagta
228401 cttcacatga caattttcaa agtcaaagcc atttatggca aacaaacaca
228451 tagcatttgc aatataacat attcaggtaa tttactgaat ggaaaaatct
228501 ctatggaatt catccagtaa ttatagtggg ttccatttat aaaacatatt
228551 ttaccacaaa tctgaagact tataaaacat gatctagtat aggagaaatg
228601 attataatcc tttaataact attaatcaca gaacaattag ttttaataac
228651 tataaccaca gaatggcatc ttgtttttaca aataaaatac aaaccagtgc
228701 actgttctag ctgtactcat tctaaacatg tctttttatc ttttaatttt
228751 aaattaaatg tccattaaaa aagtattttt tattttctat gcttctctat
228801 tgttttataa tcccagcccg gtgtggtgac ttgtgtctgt aatcccagca
228851 ctttgggagg ctgaggctgg tggattgctt gagtccagga gtttgagacc
228901 agcctgggca acatagttag acctcgtctc tatcaaaaat acaaaatatac
228951 agctgggcat ggcggtgtgt gcctgtaatc ccagctactt aggaggctga

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

90 / 338

```

229001 ggtaggagaa tctcttgagc cttggaggcg gaggttgagc tgagccgaga
229051 taacgtcact gcactccagc ctgggcaaca gagagagact ctcttgagaa
229101 aaaaaaaaaa aaaaagaaaa tccccacct ccctcttctc taattcccct
229151 cccaagatt aagcactatt caaagtgcata tccttccaga ccctttttcc
229201 aggcatacgt agatgtatgt atttgtttga atacacacca agataatttt
229251 ttaaattgaga taatactata cacactgcat tataatttat tttatttctt
229301 tatagtagat cttggatttc tctacatttg gtagctctat ctcatctttt
229351 taaaagtgtt gcatggttgc acagtagatg cacttggcac tgaaaactcg
229401 acttaagtat atccccagga tgaccctgaa tgtggttcac agttttgagc
229451 taaggaatct gggataagct ggagacccat tccttatcta tgaggaacat
229501 tcgagccccc agcctggctc atggaacaca gggcatagaa gggatcgagg
229551 tcctttgttt tgggttaaat gaaggttacc aggtggagggt tgttagggag
229601 aaggcattaa gtgaaaatgc tatgtaaact gcatgactgt tgcaagcagt
229651 tggttctctt gcctagccca ctgccactgg actctcttcc ctgtatgtaa
229701 actcccccca aaaccctctg tctcctttgc tggctctggg tctccttggc
229751 ctctagaacc tggtgccatc cccactggag ttgatagggg ttcagcacia
229801 attggtgttc cttaattatt ctgtactaca gtttgtttta ccacttctct
229851 atatatagac atacaggtag gtgaggggtg tgttttttgt tttgttttg
229901 ctatcttata atctatttta aaattagtca ctgataacat aaacaaatca
229951 gaatttaaaa acacaatgtt aattctcctt ggaaaaaaag ccataaagtg
230001 attatttgta ttattctaata aatacagata aataaaaatt acctttgcca
230051 tttaaaaaaa aaaaaatggc aaaaaccaca attacttttg caccaacctt
230101 ataataagca tttttttcat tttaaatatt ttggtttctc acagttgata
230151 aacatgcaaa atctgtcatt gttttcaata caatgttatc aataattctg
230201 aaaatttaca catgcaactc attttcaaat taactgcaca ttatggcctt
230251 tggatatgca ttggataccc aatgtgtttg agggctaaat ctactaatt
230301 ctccactatt actcaattac gttaagccag cagtcccca cctttttcgc
230351 accagaggat ggttttgttg aaagccattc ttccacggac ctggagggtg
230401 ggatgcaggg gatggtttcg ggatgaaact gttgcatctc aggtcatcag
230451 gcattagagt ctcataagga gcctgcaacc tagatccctc acatgcacag
230501 ttcacagaag ggtttgtgct gtctatgaga ctctaattct gccactgatc
230551 taacaggagg cggaattcag atggtaatgc ttgccagcca gccactcacc
230601 tcctactgtg ctgcccgggt cctaacaggc catggacagg tacagggtctg
230651 cagcccaggg gtaagggacc cctgcattaa gcaactcttg attggtgttt
230701 tcagaagcct agtgtgatac taggttctct aaggaattca aaagaggtct
230751 gtgataaaag atctgtcttc aaggagcttg tacaactttt gtgaaaacaa
230801 aacaaaacaa aacaaaacaa aaaaccttag ctatctatat aaaatcatta
230851 cacctgaata caaagttttg aagaaaatac aaaaggaaga agaaatatgc
230901 aagggaccaa ggtatatatt accgtatttt atcataaggt aaaatataga
230951 gattacctaa gtgaggaaag aaaaggagta agtgaaagaa atgggacttt
231001 ttttaattgta caaaaatcat agactttata aattcttcta aaacaacata
231051 tttcctgagg atttgttagc aaatacctaa gaaatgggaa tttagatgca
231101 ctttgaaaaa gtactaggat ttggatatag tgagatagaa aaaggaacaa
231151 tatcccagca taggaaaatt ttttagcaaa aatgcaaaga ctggaatgaa
231201 agtagaaaag ggacggaaag agaggtaggg aaatgggaga aaagaaaatt
231251 gtggttaaaa gggaaataca tagggaagtt tttgagggtg agtgggtggc
231301 agggagggca catatatatt ttgtcaaagg aagaagcctg gagagaggta
231351 aaaagctatt ccctgtacac ttggcccaac acgttttggg ccattttcaa
231401 ccaatactca cccttttaac tggcttctac aagaaatcca gatacaccaa
231451 gtatttctct gcttttgtaa gtttttatat gtgaggtcac agtgaagtgt
231501 cacaatacac gacatagcat ttctccagag ttcctattcc tttcctgctg
231551 gattttccct gtgcctttca agtttttctt ccctttttta aacagaaaat
231601 ttaaactcta tctcttctag ttccaaatat gtattcctaa ctcatcctaa
231651 actgcaacaa aacagagact cttccaacgg caaggacata cctccttaaa
231701 aggcaattta acaaccgtct ccaaatactt gaacaaaccc tttgtggagt
231751 caacattcat cacaatgaa ttatccatgc ttttcttcca aacaaattct
231801 gcattttcta tacaattctt aatgcttact aaaagattaa caatttctcc
231851 attgggatag agtcaaaact gcagatgaaa gatttgcctt agtaaaaaga

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

91 / 338

```

231901 agcataatgt tataaaaaat gaatcattct tttcaagaaa tagaggcagc
231951 aacagttctt aaaattaaat aagaactaga agaatgtagt gagacagaat
232001 cttgtatact gctgagtaga acaaaatccc caggaacctt tctagaaaac
232051 aattttaccag aatattcatg cttttttaaca tatcaattct actaacaaaa
232101 agctatcctg agaaaataga gatggctaga tggtaaataga tgttattgca
232151 atgttattta caaaggaaag ccaagagtat ctacaaaagg gaaacagttg
232201 aataaattat gttatgctac catcttagaa tattatagac atataaaaaat
232251 attttaagtg ccatatatag tcacataata aaatatgtta aataaaaaatc
232301 aagaaatagg actaatactt caaattcatt ttaaaatcat aaatattata
232351 tatatacaac tatgtgtgtg tgtacagaga catgcataat tttatataga
232401 taaaagacta gaaggaaata caacaaaatt ttaacagtaa ttttctctgg
232451 gtagtaagac tacagattac ttttttcttc tttataattt tctgtaacaa
232501 tcaaattttc tacaatagca tttataagtg gaaaatttgt tttaaaaaag
232551 gagcagcttt gtttcgccat taagtaggca ttaaaaaaaa atgtaggctt
232601 gctgggcacg gtggctcatg cctttaatcc cagcactttg ggaggccgag
232651 gtggaggtgg atcacttgag gtcaggcggt cgagaccagc ctggccaaca
232701 tggtgaaatc ccatctctac taaaaatata aaaagttagc tgggtgtggt
232751 ggtgcgtgcc tgtggtccta gctacttggg acgctgaggt gggagaatca
232801 ctgaagcctg ggaagtcgag gctgcagtta gccaagatca tgccactgca
232851 ctccagtctg ggcaacacag tgagaccctg tctctagaaa ttttaaaaaat
232901 aaaaataaaa aataaaaaat gtggccaggc gcggtggctc acacctgtaa
232951 tcccagcact ttgggaagct gaggtgggtg gatcatgagg tcaagagttc
233001 aagaccagcc tggccaatat ggtgaaaccc cttctctact aaaaaaaaaa
233051 atacaaaaat tagcgggggtg tgggtggtaca cacctgtaat cccagctact
233101 caggaggctg aggcaggaga atcacttgaa tctgggaggc agaggctgca
233151 gtgagccaag atcgtgccac tgcactccag tctgggtgac agagcaagac
233201 tctgtcttgg aaaaaaaaaa aattaaatta aaataaaatt aaaaatgtgg
233251 gctctgatat atttatgatc tatacactct acactatggt actggtgaag
233301 cctatagact tctgagtttc cattataacc ccatgttgag taaagtttta
233351 agggcacagg aagggtgctg atttggacct catacagaac aacttttagtg
233401 acactagaat gtgagctttg tgagggcagg atgttggtgt gttttgctca
233451 ctgcttcac ctcagcacct aaaataatgc tttgtacacg gtaggcactc
233501 aacaaatatt tgtaataaaa tctccaacta atttttttaa aattataaat
233551 tactttcctg ttttctacta tgccttttgt ctctaatacat aaggaaaaac
233601 agagaggaag tgctgacttt tagatgatga gtggggaagc tcataaagac
233651 agaactggag ttttttggtt ttcatttgtt tttttgtcct acaaagcaaa
233701 taatgctttc tctcagaaag aagctcactc aggccttactc tgacatgttc
233751 aactttacta ctgactttcc taacaagcaa agagcattta tgctgaacca
233801 catcttctgg aaagtcttgc ttttacccca actgtctcac tgttcatgga
233851 tggggagggtg caactaaact ggggtgtagt gaggacagaa catgtcactc
233901 tgttactggc tttagaaaaa gtagagccag tggcctatga ttccaaatag
233951 aagaactatt gcccttctac agaatgtgct ttcaaacctt gccctgacc
234001 cacaacaaaa aatacggcta acacaaaaac cccagtaaca agctaacatg
234051 tgtgcaagta aagcaaaagt ttcacaaaac aactgctctt accacatctg
234101 atgcagtctg atattgtcta tgctattcaa tttaatattt ttaaaactgtg
234151 gattacagct cagcaaactg attttatgac ctactagtga gtggaaagcc
234201 acagtttgaa caatgctgac aaggagacag tgctttcttc ccctggacct
234251 gtaggcacta tgtaacggag tatctagtca tgaagaaaac tggctctgga
234301 gcctcctacc tgacttcacg tactgcctct gcaacttaca aggtgcctgg
234351 acaaattact taacctctct gggcccctat ttcctcatat gtaaaatgga
234401 aataacatac ctatgtcata ggattattat aaggattaaa tgaattaatg
234451 tataaagtac tcagaatagt gcctggtaca cagtgagcac tgtataaata
234501 ttagctaaga ttattattat taatgtgcct actgaggagg aaaaacacac
234551 actgagaatt aggtaagatg taagagaagg tcaagaggtc ctacgtatcc
234601 tgatgctctt gttagaagca gaaaaagaaa actgataatc tcaaaatctt
234651 ctacatagaa ccaagcaaat gttagtctat agtaatttgg tgtttctctt
234701 tgatgcctaa atagatattt gaattagatc tcacagttta tgttggcatc
234751 taaaatctca ctggctctta tctgaaccca atccactcct gattaagata

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

92 / 338

```

234801 atggttggat agtaatccat tcctgattag tggtgaatag ttaattttga
234851 gatagtgggc actttatatt ccaattttta aaatagcctt attgagatat
234901 catttacata ccacaaaatt tcattatttg agtataccag ccaatgattt
234951 taggggattg aggagagttg tgtaatcaac gctgcaattc aatttcagaa
235001 cacttccttt actcctattt gtatcatctg cctacttgca gtctgcctat
235051 tttaaatgag gaaaacaatc atgcattgcc aggccatcca aaaaccccaa
235101 ctaattcccg caaatatgac taacataccc aacttaacta tttaacacta
235151 ctgtaccaga tagaaattac attttccttc tacagtgaag ccaacatgtc
235201 ctgtaatgta aataaacaat agaataatat gttaacgata ttaaaaatat
235251 tatctaaatt ggactcaggc acctggcaga agcaaataac agaagcaaat
235301 aacggaagca aaaaccttca gggaaaggaa agagaaaata acaataaaat
235351 acacctttgg gagcttaaga ggatggggat attctatcag gggaagactg
235401 aaataaaaact gtaatagcct cttatgtttt cccaagaag ttttcagcag
235451 tgcttacagg cagaattctt atcccatgtt ttcaatccag aaattaaaat
235501 ctgagttaaa aaaaaccctg caagtcatta tgctaaatat tcagaaagtg
235551 agaataccca ctagggatgg ctataatgaa aaagacatac taagcactgg
235601 caaaaatgta gagaaactgg aactctcaaa cattgctggg aaaaatgtaa
235651 aatggagcag ctgctttaga agcaggtcaa tagttcctca gaaattaaac
235701 acagccaccg tatgaccag caatcccact cctaggttta tatccaagag
235751 aaatgaaaac atacacccat acaaaaactt atacatgaat gttcaaagca
235801 gcattatcca taatacccca aaagtagaaa aaaaatgtc cattaactgc
235851 tgaatggata aatgtggtac attcataaaa tggaacatta tttggcaaaa
235901 aaaggaatga agtcctgata cataatacaa tatgggtgaa aacactatgc
235951 taagaagcca gtctcaaaag gtcacatatt gtatgattcc attcatataa
236001 aatgtccaga ataggcaaat ccagagacat aaaatagggt catagtgtgc
236051 tagagttagg agggttgaga ggaaagggga agtgactgct aagggttaca
236101 gagctgcttt gcaggaagat gaaaggggtc taaaataatt gtgaggatag
236151 ttacacaact ctgtgaacat actaaaaact actgacttgt acacttcaat
236201 ggggtgttcta gaattctagg atacattaat tctatctcaa taaagcaaac
236251 acattttgtt tatttatatt tttgagacac agtctcgctc ttgtcaccga
236301 ggctaaagtg cagtggcatg atctcaactc actgcaacct tcccctccta
236351 ggttcaagcg attcttctgc ctctgagta gctgggatta caggcatgtg
236401 caaccatgcc cggctaattg tagtttttagt acagcccggg gtttcaccat
236451 gttggccagg ctggtctcaa actcctgacc tcaagtgatc tactcaccta
236501 gacctcctaa agtgctggaa ttacagacat gagccaccac gccagccaa
236551 gcaaacatat tttaaaagca tcattttgcc atgtgctttt tactctttca
236601 cctcatgtat atttgaaaag aaccttatgt ttttaattaa ttacatttt
236651 attcatcaaa atgttttggt ttttgagatg gagtctcact ctgttgccca
236701 tgctgggtgc agtgggtgcg tctcggtca ctgccacctc tccctcccag
236751 gttcaagtga ttctcttgcc tcatcttcct gagtagctgt gattacaggt
236801 gcatgccacc atgcctggct aatttttgta tttttagtag agacgcagtt
236851 tcaccatggt agccaggctg gtctcgaact cctgacctca agtgatccac
236901 ccgcctcggc ctcccaaagt gctgggatta caggcgtgaa ccacccttag
236951 tcatcaaaat attttcaaag aactattcga taaatatcaa gtctttcaaa
237001 agttcttcaa aagcttattt tcctcctttg aatcataaag ttctattcca
237051 ctaaaaaata tgaaattcca gcctgagcaa catggcaaaa ccctgtctct
237101 caaaaaaata caaaaattag ccacatgtgg tggcatatgc ctgtagtccc
237151 agctgctcag aggactgagg tgggaggact gcttgagccc gggaggtcaa
237201 ggctgcagtg agtcaagatc ataccactgc actgcagcct gggcaacaga
237251 gagaaaagaa accctgtctc aaaaaatagg aagaagaaga aatgaaattc
237301 aaaatgtaaa atttccagtg cttgaatcac agttttcaaa ttcagcttca
237351 gtactgtcaa ttggcaaaac aacaacaaca aaaaccccaa actttattat
237401 tttaatctat ttggttcata ttttgcaaga gatggtggat ctagaaaact
237451 ttaaccggga ttttatgacc ttcccctccc caccgcgcca aatctgaaca
237501 aagagctcaa actacttttt ttcttctttt tattccatat catatagaag
237551 aatgccacag ttgcaaaaga gcaagctatc tctaaaatcc agggccaaga
237601 tcagcaatcc cagtacttaa gtcaaaagaa tcaataaaca gtaaatagga
237651 ttaattaaat tcattctatg tttcaatttg tccaggtttt aaacacatta

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

93 / 338

237701 ttcaatcaca gccatcataa aataagaaat attatattaa acgcattaac
 237751 tttagattag aggatgacaa gtttaaggaa gttgcagaca tccatttaga
 237801 tatctgtgaa aggacaatta ttttaatat ctttaatgta caagatttta
 237851 ttaatatattc tacagcactg tcaagaaaaa aaggaggccc caatgaactg
 237901 acaagtaggc taacatatag atttgtcttg ccatatttct ctatgtaagt
 237951 aaattcagtt ctgaaaaata atgcataaat atactttaat gatacaactt
 238001 catttatcct caccttggtg actttttcat cttatgttcc caaatctact
 238051 cctctgctgg gttattagca ttttgtagtt atagttatat attttatcaa
 238101 tgtattagag acagctaatt gccttccaat atctgttctc cacttcttcc
 238151 ctaacaaaac gctgtttatt tcatcacttt gccaaacagt ataaaagctc
 238201 aattttccag gctgtcgcct cagcttccca agtagctgga atgtcagcta
 238251 aaggagtcag tgtgacttag tcctggacaa taaaatgcaa gtaggggctt
 238301 ctgggtagac atatttttct ttattcttct aagtaaaacc aaaagccatg
 238351 tacattatgt ttattatata aaatgtgttt gctttattga gatagaatta
 238401 atgtatccta gaattctaga acaccatta ttctaacttt attagaaatg
 238451 ctaagcatca gtattactgt tggaattacg agaatttgaa agatagctgc
 238501 atataaggtc aagaatcagt aagtagaact acaaagcaga aaaaaatta
 238551 ttacatttaa tataacagta aattctaagg gacttagaaa taaatttagc
 238601 aagcgaagaa cacatctgca tgaagaaaaa aataataatc atatctaagg
 238651 gcaaagaata agatctgaac tagtgagcaa aatatctgta cattatattt
 238701 caactaaaac caaaaggatt ctgaaagggt gagagacgac aaactggcta
 238751 gggacctcag gacccaggag aaaacatggt aatgatatcc tgaattttct
 238801 tatttttgct ttctatatcc cactctggat actggtgaag ccagcaaccc
 238851 aggaacacca agtgcaaaga aactgcctcc cctctctgcc cgccctgga
 238901 aaaagactgc tttctctagc caaaggaaca tgaaaggggc agcaagacag
 238951 aaaacttaaa ggcaataaat aactccagac aaacaccaca gaaaaagtg
 239001 aaactccacc cgacccccac cagcaaaaac caagtggaaa gcctagactt
 239051 ccatccctgt ctggctgtaa gaggaggcac cccaagctct ttccctaat
 239101 ggggaacaag gggaaagttg ggacattcat ccccttgag catgatctaa
 239151 tatccccctt cccatctgcg ctagtgagga ccactttagg agcctggact
 239201 tgcagccac gcatcagtca caaggtgctc ctccccgac tgcaggagtg
 239251 gtgccagagg agacttggtg agtgctggac tttcaccacc acttagcagt
 239301 accaaggcct cccctccaca tgggtgtcagt ggaggtccat cagagagcag
 239351 taataaggca ctctctacc tcctaattag aggggtacca gtggaggcct
 239401 agtggagagc ctgaacctcc tcctctaccc agcagtaaca agcaaaccac
 239451 ctccccctag tggtaactg agaacaggga gagaaccaag cccctctggt
 239501 ggtaattgagg caacctgtc tacccccagc agtagtggtg gaggggtgct
 239551 gctaaaacac agatttaagt aagaccaga gtcttataac ataatacaca
 239601 caaaaaataa taataatata caaatgtcca agtttcagtc aaaaatcact
 239651 tattttaatca caaagagata taccatttgt ttgatggggg cggggagaga
 239701 gggataactt ataccaagaa ccaataaaga tctcaaactg aatgattaaa
 239751 gacaatcaaa agatgtcaac actgagatga aacagcttga ctgtgcaaca
 239801 attttctttt cctctcaaaa tcttctggcc cttcagatta aactccact
 239851 gacattgcac ttatacagta aaagccttta ctaatttata aattataaac
 239901 tttgtgataa aggaaagagt taagtatttc caaggaattt tagcccaagg
 239951 aaaagtcggc atttaaaaat ttatttctgg ccgggcgtgg tggctcacac
 240001 ctataatccc agcactttgg gaggcccagg tgagtggatc acttgaggct
 240051 aggagttcaa gaccagcctg gccacatgg caaacctta tttctactaa
 240101 aaatacaaaa agttagttgg gcataatggc attagcctgt cttccagct
 240151 actcaggagg ctgaggcaga agaattggct gaactgggag gtggaggtta
 240201 cagtgagctg agattgtgcc actgcactcc agcctgggag acagagcgag
 240251 actctgtctc aaaataaata aataaatata attttaaagt gtatttctcc
 240301 cttaattttt tttttttttg agggatgagt ctcactatgt cccccaggct
 240351 ggtctcaaac tcccagggtc agtgatcctc ccacctcagc ctctgaata
 240401 gctgggacta taaatgcacc cggttccct tactttttta tttcttaaac
 240451 ttaccgttga ttagaagcaa ccggaatgaa ttccttgac ttctcaaatt
 240501 tattattctc taatattagt taccgtgcaa ttcttacaag accaaaagca
 240551 ttttaaaagt caatctttaa gtattaaaaa atatactgga aagactcacc

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

94 / 338

```

240601 aaaataattt atgaatgaga tgatactagg tcatttttaa gaacactaga
240651 aaatggttatt tttacattct cagtgtacag aattttttcc aagttatacg
240701 taaaaactag gaaaaaacia aatccacaga cctaattgcag aaatgtgata
240751 cagcttgggt gaggataaaa agaggaagaa acagctgtgc tactcatgaa
240801 ggactatacc atagatcatt gatgctctat cattagtatc atcaggatca
240851 cctggacggc aggtgaaaca gattactggg tcctttccgc agaatttcag
240901 attaaataaa tctagggcag gtgagaattg gcatatcaaa caagtcccca
240951 ggggacgttg attctgctgg tccaatgacc acattttgag aaccactgcc
241001 ttaaagagat gatgcctgtg cagatcacaa aatataataa taaaggtcag
241051 ctactggaag cctaactcta gtgaagcaag cagaacagct gtacctaat
241101 ctgaattaag agtaagaatt agaggccagg gacagtggct cacatctata
241151 atcccaacac tttgggaggc caaggtggga ggatcacttg aggccaggag
241201 ttccagagca gcctgggcaa cagagaaaca ctcccatccc taaaaaaat
241251 aaaataaatc atttttttaa aaaagagtaa aaattagtag gagagaaagg
241301 gaagtcagac cctaagttgc tgtaaaggta aaagttcata aaaaccagaa
241351 aataaaaaaca agtaagcaac tctcttccca tacacgacaa ctttattaat
241401 gcattttattc aacattttatt gaacaagaac tatataccag gtacaacaca
241451 tggagaacac aaacataaat aagcattaac tgctaaagag ctcatcatct
241501 ataaggtgaa acagaacaaa aagtaattgt agacctagaa aagttaagga
241551 atttaactaa aatgacaaac acagaaaaat ctgttcggca aattttctaag
241601 ttataacttc aatggcattc ttattccttg gtgacaggaa agaaaaagg
241651 agcaacttca ctctattaac aataaaaaatc tctaaaaata gaataacaag
241701 tccatactga cataagctat tgaataataa ataaacggga gagaagagac
241751 aatctcctgt gcagaagaat tccaagtaat tagcagggtg aacataactc
241801 cccactccct gagtgtaagt tatagatcgt gacttctttc cagagagcag
241851 catgaaaaga ggggtaatgg aaacctgact gtggagaaac ctcaccaaca
241901 ctacctcacc ctagtgatca aggtcaacat caacagtgat aagtcacatt
241951 gacagtatgt gatgaaaatg gcactgcgct tctgcgatct tcctcaaac
242001 tcgtaacccc agtctaataa agagaaaaac atcagacaag ttcaaattga
242051 ggaacacttt taaaaagcac ttaaccaaca cttctgaaca ctgtgaagg
242101 cataaaaaac aaggaacgtc tgaaaaactg tcacagccaa aaggagccta
242151 aggagacatg atgactacat gtaacgtggc atcctggaac agaaaaggct
242201 cattaggtaa aaaccaagac aatttgaaca aagtatggac tctaattaat
242251 gataatgtaa aaatgtatca gtattagttc attaatgtga acatgttaat
242301 atgtaacagt taataaactg gttgtaggat atatgggaac cctctgcacc
242351 atcttcgcaa tttttctgta aatctagaat ggttttaaga aataaaactt
242401 atttttaaac ttgagaatta acttctcaga acactaatat agttttttaa
242451 agtcaaaaaa ttccaatgat ggaaaaataa ggaatacatg aatatattat
242501 ggaataaata agtatatgga gatttgctcc tgacaggaat ttctaataa
242551 gtttaagtga tattttataa tgagaggatg ggaatatcaa attatatatt
242601 tttaagttaa tggtagtgag ttcatttcac cagaattaca ccattataaa
242651 gctacgattg acaaaatcca caagaatgca ttaagcagaa aacacggcca
242701 aaaacttttc agtagtaaaa ctaattttaa atgtaacaag cacaagcaa
242751 ttccaattaa ataaataatg aaataggatg tcagtttaga aaagaatgaa
242801 tctgaattaa tatttcacaa tgcacatggg aatatatttc aggaggttaa
242851 aaaagtaaac ctaagaaaag tcaaaaaata actaaacagg agaacatttt
242901 tttactttac cttagaagaa aaatttgagt cctgaagaaa aagacaattt
242951 caatattgaa aactttttatt tttacatgaa aaataaaaaac tttttatgca
243001 atcaataaaa caaaaattat aggaataaat gtaacagact aggagaaatc
243051 attacaaagc ttgctaccca aaatatccat atacaaaaat ataggcatat
243101 gtagaaaaat acatatgtct atacacacgt atatagagat gagtataaaa
243151 gttcagttgt gcattgccaa gggaataatt tccaagtagg aatacaataa
243201 atgaatcaag acatagcaaa atgcatagct ctggtagcaa aattatttgg
243251 taaactatgc aaaaacaggc acaaagctaa aaatatttac tatttggtt
243301 tttacagaaa aggttttgcca acccctgggc taaagaagca agttaattca
243351 ctgaccacaa caatttttag tgagggttgag atagtcatta cagacaatcc
243401 ttttcaaaaa aggagggaaa tgcaaagtac atagaatcag gttactaaaa
243451 tacagaggga aatgttgga atctggaaat tcgttaagac tcagtcctat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

95 / 338

```

243501 ttccatcggg aaatgattct ccatggctct gggatccatc ttccagggttc
243551 agccctctga gacactcttt ctttttaatg aaaggtagca cttgctttct
243601 gctaagcagt tttctcatca tgcttcctac ttgtagaagt ttgggggtcc
243651 aaaggcatct tttcattttg tactctctga cccctttaat ccaaactagt
243701 agtgatcctt aaaatacatt cctcttaaag ctttgtgggg gtcctaggaa
243751 tctcactggg gttctttgca ttaaacaaaa gccacacgca caaatctttt
243801 tcagataagc cctcctctac cttgagattc tgctgaaatg gctgcaggat
243851 aaggaccatc cccttaagtt tcttggaagc gctattgttt gattgaatgg
243901 attggtcagt cacaccatta gtctttcttt agaggccctt ttatgtgact
243951 gaaaagtact ctgaggcaga aacttagatc tttcttaaat ttaacaaag
244001 gattttacag ccacactctc aactttgtcc ttagttttcc tgacaatgcc
244051 ttggatctat ctgatccttg ttcaagaagg aaaccagaat atttcaccct
244101 aaaatatgct tctttaaaat attttttttt ttgagacgga gtctcgctgt
244151 gttgtccagg ctggagtgcg gtggcatgat ctcagctcac tgcaagctcc
244201 gcctcccggg ttcaagccat tctcctgcct cagcatcctg agtagctggg
244251 actacaggcg cctgccacca caccggcta atttttatat ttttagtaga
244301 gacgggggtt caccgtgtta gccaggatgg tctcgttccc ctgacctcgt
244351 gatctgcctg cctcggcctc ccaaagtggg gggattacag gaggtagcca
244401 ccgcgcccag ccaatttatt gctctttatt gaagattttc tatgagctgg
244451 gattctaaac cactctaagc cactcttgag ttacttttct ctcatgtgaa
244501 ctgcactgca gcattactat acgtgtttgt ttctctcttg ttcactctgt
244551 ttttgctgca ggagtctgtc ccaactacga acttatgaag gttgaggaaa
244601 attattattt ctccctttca cttagaagaa gccatttctt aatttagcat
244651 catttactgt ttggagaggc tgacatggtc aaaactatca agtctcagca
244701 ccttcagggt tatcaatcct ttcttttagc tacttgctcc tgtcactctt
244751 taggcacaaa ccagggtggc ccttcaagtc tagttggaaa tcttcttagc
244801 tacgggtact agttcattat gtgcattcta gtttctacat tactacagg
244851 gacagtgttg cattataaag cttatgctac tatattagaa ggatcccctt
244901 tctccagtt tctaaaaaga ttctcccatt ttcctttaag cccttcttgg
244951 caacctcacc aaaaaaacat gagtctacag tttctccaag atactttaga
245001 ttacactga cagtgtcttc aatgtccatt cacctttcat ccactacgaa
245051 gttccaaagc catgcccact taaaatatth gttgctgggc accatggctc
245101 atatgggatt gttcccaaag caatcccagc actttgggag gccaaagcagg
245151 aggatcactt aagcctagga gtttgagacc accctgggca acacagtaag
245201 accatatctc tacaagaaat aaaagaatta gctgggctgt gtggtgcaca
245251 cttgtaatcc cagctacttg ggagactgat atgggaagac tgcttttagcc
245301 caggaggtca agtctgcagt gagctgtgat agcatcactg cactccagcc
245351 tgggcaacag agcaagaccc tagctcaaaa aaaaattggt gacatcactt
245401 atcttacttc atttgaactg ctatatcaga ataacataga tgggtggctt
245451 ataaacaata taaatttatt tctcacagtt caggaggttg ggaagcccaa
245501 gatgaagggt tcagcagatt cagggtccag tgagggccca cttcctgggt
245551 cacagatggc catcttttct ctgtatcctc acatagtgga aggcgaaaca
245601 agctctctca ggactcttac aaggacacta atcttattca tgacagctac
245651 accctaata cttgatcacc tcctaaaggc cccatgtcca aataccatct
245701 cattagggat taagtttcaa cataggaatt ttgtggggac acaatcagtc
245751 tactgcatca atcaacctct agtgccagta tcaaattagt tgtctactgt
245801 gtaacaatta tccaaaactt gtaagcttaa aacacatagc ttaagatcta
245851 ttatttcaca tagtttctga gagtccaggaa tccaggagta gttagctcaa
245901 tgggttctgac tcaaagtca gcctcaggca ggaatgcaat catcatgaag
245951 tttgactgga gctggaagga ctactggcta ctggctagag gctttgggtc
246001 tttgctgttt gggcctctcc atagggatgc tcacttgact agcttctccc
246051 agagcaagtg atcagcaaaa gcgtgataaa gatggaaact gcaatgtctt
246101 taataatcta atcttaaaat taacattctg ctgtttttta ttggtcacac
246151 agaccagtct tggcacagta tggaagaaga atgaatccac agggcgcaaa
246201 taccagcagg tgggtggggc catcttgagg gctggctgct gcagtggctt
246251 ggcaattcca ggcagagtct catttacaac acccaaataa ggaaggaaag
246301 aaacagggag ggaaagggg aacttcttca cataacttct cttttcttag
246351 ggggaaaata ttgttcaggg agctctccaa taaacttcta tatctctttg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

96 / 338

```

246401 gcctgaagag aataaaacag ttacccacta agtgccaagg agcctagaaa
246451 aataagtatg tggcattttt tgcctcaatc ataaaaagaa agcaggaaaag
246501 taggagggtg gtatgacttt tgcatagaca acgggtctacc acaaaagtta
246551 agtaaaaagc atagcaaaga taaacaagtc aatgattaca atcacatatt
246601 ttgaatatat atttctaaat tccagaaatt aaatgggtta cttcaaagat
246651 gtctgaaaat ttgtttttta gttgatataa atgtaaaca aaaatgctaa
246701 attaatattc ctactataa ttatatagca ttttataata tccagactgt
246751 tcatatgtat tctttacaat agccttgaaa gaaaactaaa gcaaatatta
246801 ttatgtagc cccactttac agataagaaa catgaatcaa tggtagacc
246851 atagctcact gcagccttca actcccagac tagagtgatg ctctgcttc
246901 aaccttccta gtagctggcc ctacaggcat gccaccatac tggctaattt
246951 ttaaaatttt tttagagatg aggtcttatt atgttgccca agctgctctt
247001 gaattcctga cctcaagcgg tcctcctgcc tcagcctctc aaatagctga
247051 aattacaggc atgagtcact gcaccagca aaaaattatc atttttgaca
247101 aactaatac tacagtaatt tgcttaaccc tctatcactg acattagggt
247151 atttcccatt tgtcactctc atagtcaatc ctatcaaaat attttcatgc
247201 attatttttc ctccttact tagtttattt tattaggaaa aaataccaca
247251 aattggctga ctgggtcaaa acatacatac attttttaga accttgctat
247301 atgctgattt ctaaaagcaa tttaatatag tttagttaac taaagatgct
247351 accagcatga gtataccatg aggttcacca aaacctcacc atccccaagt
247401 acctcggtga attcctgctt atttagaatg aaataaaatg ttctcttata
247451 gttttaattt gcatttattt gattacttgt gggattgaac actccttttt
247501 gtgtttttca ctttgcttct atgagaacta taaattcata tctgtatttc
247551 atttactata gtcttgagat ttttcttata aaatttaata agttatttct
247601 cataaacatg ctttgttatt tgggtcaaat atttcttcta atgttacctt
247651 ttttattttg gtttaaccaa cattcatttg tacaacaaaa gttatataat
247701 aattctattc tataaaatgc tcttcagtgt tttgttttgt ttttctactc
247751 caaaatggaa aagttactag ctgtccaaaa agttgataaa catgctacca
247801 gctataatac ttattctcct tttaatcagc ctgggggtta ttttgatcta
247851 tgatattcaa tttaaattta gttgcacaat tcaaaaattg cacttaacta
247901 aagatgccct tttgcatgct gctaactgct atagatagtt gggcggatta
247951 agataacca aataatgtgg aactactata aataatataa atgctgtgaa
248001 tttaactata aaatttgcca taggaaatca gtaaggcata cgtaaacatt
248051 acctaaaaga gacaaaacag ctcccagacc cacacaaggt ggctataacc
248101 taattgaaag tgctctaaca ttatctattt tagaagacaa atgggtcatt
248151 cagaaggggc actggtcagc cactggcgta tagggcaggg aaaaaagtta
248201 ctgggttttt ctcctttttc aattaattct tcctactaac tatacatttc
248251 ttttttcacc aatcattttc aagagttttt tagcttcctg tgcttggtat
248301 gtggtactcc cactctcctt tatttaggaa gttaatgatt ttagttattt
248351 cttattttat cctagagact aaactttttc tcaagtacac tctaggtgag
248401 ttgtctggtc tcagggctct gatgtttctg atctggagggt gagactggta
248451 tcgacatggc tgccaaaggc tatctttgct gatgttatca aatctttgaa
248501 gcctaattcg taattcctgt taataccgca agtgtcatac ctgttctctt
248551 cctattttca tagaattgca ctgaaaggct taatagtcac ataatccaaa
248601 tagaaactca atctgcaagc ctttcacatg aattattatc aagacatgtt
248651 cctctattca ctgtttctat tttctggctt tgtttcttta aaaagtgttc
248701 tgtaagaaa taattaacaa taagctgcac atatttaaag cgtacaactc
248751 aaaaagtttg gacatatgtg tatttacctg tgaaaccatc atcacatcaa
248801 gatagtgaac ctctaaatc tttcctgtcc ctttgaattc ctttctccc
248851 tttccttggt gtctcctctg catttgatat gcttccattg caatacagca
248901 cttatatttt tcagaacttt taataagtgt aatatattct tttttgtctg
248951 gcttctttca catagcgtaa ttgttctggg gttcatccac tttgttacia
249001 atattgctga ggagtattcc attgtataga tataccacaa ttttgttatt
249051 caattacctg ttaataacta ctttggaata cggttttagc agcttcttaa
249101 aaaataaaaa aaggctgggc gtgggtggctc acgtctgtaa tcccagcact
249151 ttgggagggtc aaggcgggtg gatcacttga ggtcaggagt tccagaccag
249201 cctggccacc atggtgaaac cccattgcta ctaaaaatta aaaaattacc
249251 tgggcttggt ggcacactcc tgtaatccca gctacttatg aggctgtggc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

97 / 338

249301 aggagaattg cttgaacctg ggaggtggag gctgcagtga gccaaagattg
249351 caccactgca ctccagcctg gacaacagag tgagactctg tcttaaaaaa
249401 aaataaaaaa caaaaaataa aataaaaaaac aaaaagttaa aaaaatctac
249451 ctaccattcc attcccagga attcactcaa aagaaaagaa tgcataatgtc
249501 catataaaaa cttatacatg aatattcata gtatctttat ctgtattagc
249551 taaaaattag aaacaattca tctccatcta cacagcacag ataaacaaat
249601 tgtggtatat tcataaagtg acatactact tggcaataaa aaggaataaa
249651 ctattaatat acattacaga caatacagat aaatctcaga ataactaagc
249701 tgagtaaaag cagaacaaaa aaacgagtat ttatttcttg ccaattcttt
249751 ttttaaatgta cctggctact ttatagcccc ttactcttta tttattttat
249801 aatccctatt ttatttattg aacatattaa actatgtaca tatatacata
249851 tttagacata catacaagct cttgatctgt tgcccaggct ggagtgcagt
249901 ggtgtgacca tggctcactg cagccttgac ccccaggctc cagcaatcct
249951 cccacctcag cctcctgagg tacgcaccac catacccagc taattctatt
250001 tattgtagag acagggtttc actatattgc ccaggctggt cttgaactcc
250051 cgggctcaag cgatcctctt gcctcagtct cccaaagtgc tgagattata
250101 agtgtgagct actgcaactg gccataaaca tatttatttc atgtaatgta
250151 tatttctaat aatcgaaatc tctatagatc tctttcagtt gtttgctggt
250201 tctgctgact cttgctcttg gtgttttgat gttttctccc ttgttacatt
250251 ttgtaatttt aaaaaatgtg tatgagctta tttgttagaa ttttaactac
250301 aattatttga tgaatgcatt gatcgtacat tcctccatgg aggatttttt
250351 tattgttctt acaaggtagc tgagagtatt acagactgag gtccaattta
250401 aattaaaatc ctccacttgt ggagtttttag aaactgtaaa aattgtgtaa
250451 attaaaggccc caaattcaag tgaatgtgag ctgataacca agaattatta
250501 gggaagattt taagtctacc cagaactgaa tatctttgca agatgggtctc
250551 tgaccaggct tcttaccttt atatgggacc cagggatctt tttctctagt
250601 cctcatcctg ctccctacac aaagcttcaa tgccaacaga aatccatgga
250651 tgcccccaaa gtattcaatg acttcagcac ctgcttatct cacaggatat
250701 attatacttg ttttgtttct agccccagaa agtttccctt attttcttaa
250751 tgggctcatc cattcatggt aaaggatatt ttttatactg aatctagtac
250801 tttacatggt tgggtggagg aggaattcag gctctctagt ctatcatatt
250851 gctacaaatc agtctactat ttctgcaact gctttataac atttaaacac
250901 aatattatat ttattcctga tacattttat tttgggtatg tgagcatagt
250951 ctacacgtct gtcgagagca cttaaaatct tgattgagtc atcatactag
251001 cttaccttag aagttgtata tcatttgcaa atttgtttga accttcttag
251051 ctttcaccaa agtcaactgat caccacagct tctgacaaaa agaaaagctt
251101 taaaattaat ttttaaagtc tttatagtaa atccaacata ttttcttatt
251151 gctttcaggt atacagaatt acaaattaaa tttccatcat aatcaaatac
251201 taatacatca aattaaaaca ggtaaatttt catatcccaa taactcaagt
251251 ggcagacctt tcaaacagta gtattgaaact gaatgaaaaa tatattttatc
251301 atcaagggaa accagtggaa acataaagcg ttagtttggg taaagggcgc
251351 tctagtacct ctgaaatctc caacagcccc catcttcaaa aggaagaaac
251401 acaattttatt taaactagta tcttaaaggc cagtgtttac aaaaaggctg
251451 tgggaaggct ttcctgactg aaggatgctt tcttcccctt agatgttcag
251501 taaaattttta gctctttcat atttctattg tttcctagca caaaacatag
251551 aagagcactg aagggtcata aagggaagct ttgaagggtt tcttgctttt
251601 aacaacatca tgaaaacca tgcctgctag attttttctt ttctactcca
251651 ccacttttag ttcgcacctt tactaatttc agtcaccagc gacaatttct
251701 gtaaaatcta tctccatcac aagagtgtgt atgcgtgtgc ttgtttcccc
251751 atcagaaata agagaaaact tacgcttctc tccttttagt cattgctctt
251801 gcatgaagaa tgaacaaacc actgatttgg ggttcgcac tttacgttct
251851 gaacagcaac ttagaacact ttgctcctga tattctttct tctcaatatt
251901 tgatggatat cctgcaataa tgtaggaaaa acagcacagg ctttggagtc
251951 acatcaatct ggttttaaat ctcaatcttc tacttagtaa ctggctaatac
252001 tgaagcaaat ttttaatctc tctgaacctg gtgggaaaat aagatgggtc
252051 tcaatgtaca gctgcaagaa acaaatgata tagcatatat atatagtgtc
252101 agcaaagtgt ctaccatata acacaaactc tattatgtta gctttcctgt
252151 gtaattttat gcttcatttt cactttactc agtcaaacga atttccagac

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

98 / 338

252201 taaattttct tacgttatag ccttgataaa ttttatgggt ttgtccaaca
252251 actatcaaca ttttaggcca ggtgtactgg ctcatcactg taataccagc
252301 actttgggag gccgaggcag gaggattagg cctgggagtt tgggaccagc
252351 ctgagcaata tggtagacacc ttgtctctac aaaaataaaa ttaaaaaaaa
252401 taaaaaataa aaacattttg caacacttaa tgccttcaaa atagcagcac
252451 atcaatacta ctactactac tgaatatatc ccaccaagaa agtacatttc
252501 aaaatctatg ttctagagcc actagaattt gtcccttttt gtgtgtgggt
252551 atgtcaccaa aatgcgatat agatgtgtaa acttgtttca tttccttttc
252601 agatttttct ttcattctac ttttttattt aatcccactt ttgaatatgt
252651 agacatacat gatgatttag ggttaaaact atagaaacaa cttccattta
252701 gagaaatctc tcttctgttg ttggcacctt taccctgctc cttccttctg
252751 cggatacatt gcatactttt ccatgccttt gttttttcca cttcctattg
252801 tattctacag atcattctct attggtatat agagactttc tcccttcttt
252851 tttatgacct ctatggaaag acggtgactt ggaaggggca caatctacct
252901 gcagactggt gtactgtctg gatgcacctt agtttatgca atcagttctc
252951 tattaatggg catttttagtt atttccaatc ttttgcaaag gcaagtaata
253001 tgctgctatg actaacctcc ctttgactat tccctcccat gcagtttatg
253051 cttatgtatc cttaccagca atgtatcaaa gtgcctattt cccacagtc
253101 tacagggcct attgtataac ttttgatttt tggtagaaaa tgctttaaca
253151 tagctttaat ttatattttt ctttgatga ctgaagggtg aacatctttt
253201 atttttgaga tgaagtcttg ctgtgttgcc caggctggag tgcagcggca
253251 tgatctgggc tcaactgcgc cccgcctcc caggttcaag caattctcct
253301 cctcagcct cccagtagc tgggattata ggtgctcacc attacacca
253351 gctaattttt gtatattag tagagggtgg gtttcacat gttggccagg
253401 atggtctcaa actcctgacc tcaagcgatc tgcccacctt ggccctccaa
253451 agtgctaggg ttatagggtg gagccaccac gccagctctg gaacatcttt
253501 tatatgtctg tcatgtgcat ttctttttca tatctttggc ccattttcct
253551 actgggttga tggcttact tgcctggaat tttacgaagg tgttttcatc
253601 caggaggtta gctctttgtg atataagtcc aaatattttt cccgccttg
253651 tcgcttgccct tttgactttg ctctgtggcat ttttactat ttaaatactt
253701 ttttattaat atagtaggat ttatcatggt ttttctttaa gaatgagtca
253751 tagttataaa atctttggct tatactttcg tagactttaa acatgttggt
253801 ccatggctgt tttgctttgt atgttgctgt ttagaagtct gttgctaacc
253851 tctcctttct gtctggaagc ccagaggaat ttttcttcat cattttgaaa
253901 gtccaactgt tttactagga catgacttgg aactgacat tctggatcaa
253951 ttttcccagt acacaatgag ccttttcaac atgtagattg gagtcactc
254001 ttattttccag aatgttttca tggattgaaa cttaactatt agctttgcta
254051 ttgttttttt cttcttagga actctacttt tacttatttt ctatatcaat
254101 cactttctat tactttttta cctttcttca ttttaattttc attatcttgg
254151 ttgttttcat accttttctc aatgctcctt atattcagtc caatcttttc
254201 ttatgtacct tggaatttag cttcatttct ttctttatga cttttttttt
254251 tttttttttt ttttttttga gacaggagtc tctctatatt gccaggctg
254301 gcctcaaact cctgggctca agcctctcaa atagctggaa ctacaggcat
254351 gcaccactgc atctggcttt aacttcattt taaaagctga ttttctttt
254401 gattttatttt atttcctgag ttcagtaaat tcaactttca tatcttctc
254451 tttttgtcca tttgttttgc agttttgaat ttggatttga gactttttat
254501 ctctacaaat gttagttaa ggatatttta aattctggta ggagtactgt
254551 gctgtagttt tcttttagtgc tatagttgga tgtttcggga agacttttca
254601 tcagctaaaa ttttttaaaa acttttttcc ttattttttg tagagactag
254651 gtctcactat agtgcccagg ctgggctcga actcctgggc tcaagtgatc
254701 cgcccacctt ggccctctca agggctggga ttacagctgt gagccactgt
254751 gccagccca gttgaaatgt tttgactatc attttgtttt ccagctaaag
254801 taactttata tggatgttgc ctgccatctt ctgttcatct tgaaatatat
254851 tatttttctt aaaccagata tagttgtgta taggcagaag caaggaattt
254901 agatgactta actggatttc ttagtaata gtacctaata aagtgttttt
254951 ttgtttgttt gtttttaatt aatgactcct ttttgggtgg gagaaatgag
255001 tatctatttt ctattctggt tcaccaagat ccttaatttc tactaccct
255051 tctctctatc accaagcctc caggtagatg gtgacccttc caaggcacc

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

99 / 338

```

255101 tcttttccttt cccagaagc agtactttca tgagactgcg tctttgggtct
255151 catttttcttt caagtctctt attttgtcta atggatctta cacctcttct
255201 cacttctcta tccaggggtg ggctttctct ttctgggaat tatctgtatt
255251 ctgctacccc taggtcctgc aacctctcct cttttttttac agtctccacc
255301 ttgcttgcca cttctccatg gattctgcta gactgcagtg ttgatttccc
255351 tgcattgcca tagacatttt gctagctatt aatgtatgct tacatatcaa
255401 taaatttgta tgggttttct cttgttaacc tactgttagt ttagttcagc
255451 caactcagtt atcaaacctt cagaagcgaa atttaagctt ccctgcaaat
255501 tgctgggttat tatttaatat tttttgaca cagggctctca ctctgttgcc
255551 caggctggag tgcagtggcg caatcacagc tcaactgtagc cttgacctcc
255601 tgcgttcaag agatcctccg acctctctca gcttcctaag tacctgggac
255651 tacagggtgtg tgccactacg cccagttaat ttttttattt tttatttttt
255701 ttaagagaca agctttcgcc atgttgccca ggatggctgg tctcaaaactt
255751 ctgggctcaa gcaatcttcc tgcctcagcc ccgcaaagtg ctgggattac
255801 aggcattagc caccgtgtcc agctgggtatt atttttatta gtgttctatc
255851 ttgcacttct gagtatgttt aagcttccac ctgtcagctt caagggtctt
255901 tttctcccag ctaatgccta aaaggcaaac aaccttattc tacttctcat
255951 tcacctcct cttttctctc catttttttg cgggttatat tatttctaca
256001 atgtcagacc atgtaatat tatatactat tctatcatca ttatcctcat
256051 cttttaatct tgatgctaca cacaaaatat atttgatttg ctcaccacct
256101 gaccttatgt tgaagatttt ccaatcattt cttggttgtc tgaaatttgt
256151 tctctagtat acgcttcaga aggattcatg ggaacaatta tagccatttt
256201 ccttgaatta tttcatgttt ataaatgttt gtcaatgccc tgaattcttg
256251 aagggtagtt tggtagata ggaattattt tatttctttg aataaatact
256301 ttcttaatat ctgacataaa atgttgccac caaaaatcca atctgatttt
256351 ctttgcaagt gacctgctct ttttatttcc cccatcaatg caagaagggt
256401 ttatttttaa aaatccaaca attttacagg accacatctc agtgtaaact
256451 gttgtgggtt gatttctcca gggttacagt atgcctttca acatatgtta
256501 catttaaacc tactttaatg ttaagcgttc ttgaattaca gtcctaatag
256551 ttgttctggt ccattgcttt ggcttgcttt gttttactgt agtaaaataa
256601 ggaacataaa atttactgtt ttaaagtatt caataagtgg cattaagtat
256651 attcagtgtt acataaacat caccactatc cttgggctta catttgggga
256701 actccattta tatttattct ggctctcttt gcctgtcttg tcacctcttg
256751 actccttttt aaaaatcttt ttattttctt catttttcca ttttcttat
256801 cgtactttct gtgatgtata ttcactcttg gtttctaata caatcatcac
256851 tttaaactgt ctttttctta atcttttatt gagttttgtc tgctctcatt
256901 gcacctcctt ctatgggtcta gccatctcat ttcttttttt cccctgaaaa
256951 catagaaaga ggtgaatttt atttactttt ttataatttc aagttctctt
257001 ttagatttgg gggtacatgt gcagatttgt tacatgggta tactgtgtaa
257051 cgctgaagtc tggagtatga cagatcctgt catccaggta ctgggcatta
257101 tactcaacag ttagtttttc aacacttatt gcattccttc cctgcatagt
257151 attccacggt tcatatgtaa ccaatctatc cctgatggac acatagggtg
257201 attccacatc tttgctattg tgactagcac tatgatgaac atatgagtgc
257251 atgtatcttt ttggtagaac aatttctttt ggatatacac ccaataatgg
257301 gattgctggt caaatggtag ttctgagttt tttgagaaac cttcaaactg
257351 atttccacag tggctgaact aatttacact cccaccaacc gtgtgtaagt
257401 gttcccttta ctctgcagcc ttgcccacat ctgttggttt ttgacttttt
257451 agtaagagcc attctgactg gcgtgagatg atgtctcatt atggttttga
257501 tttgcatttc tctgatgatt agtgatgtgg aacatttttt catctgttta
257551 ttggccactt gttcttttga gaagtgtctg ttgatgtctt ttgaccactt
257601 tttaatgggt tttttttttt tttttttttg cttgttgaat taacttcctt
257651 atagattctg gatattagac ctttgtcaga tgcatagttt gcaaataatt
257701 tctcctattc tgcagggtat ctgtttgctc tgttaatagt ttctcttact
257751 gtgcagaagc tctttagttt aattaggtcc tacttgtcaa cttttgtttt
257801 tgttgcaatt gcttttgaag acttagtcat aaattctttc ccaaggctga
257851 tgtccagaat gtttcctaga ttttttctta ggattcttac tgtttgagtt
257901 cttacattta aatctttaat ccactctgaa ttgatttttg tatgtggtgt
257951 aaggtagaag tccagttttg tatgtggtgt aaggtagaag cccagtctta

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

100 / 338

258001 tacacatggc tagccagtta tcccagcacc atttattgaa taggaagttc
258051 tttctccatt gcttcctttt gtcaattttg ttgaccagat ggctgtgggt
258101 gtacagctta atttctgggc tctctattct gctccattgg cctatatgtc
258151 tgtttttgta ccagtagcat gcttttttgg ttactgtagc ctcaaagtat
258201 aatttgaaac aagctacaca ttcagtagca ctgaatgtgt agcttgtttt
258251 gggcagtatg gcgattctaa tgatattgat tcttccaatc catgagcatg
258301 gagtgttttt ccatttgttt gtgtcatcaa tgatttcttt cagcagtgtc
258351 ttgtagtctt tgtagagatc tttcacttcc ttggtagag gtattcctag
258401 gcagtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtatg
258451 gctatcgtaa acaggactgc attcttgatt tggctctctg ctccaacatt
258501 attggtatag aaacgctact gatttttgta cagagtttgt atcctgaaac
258551 ttactgaagt tatcagttcc aagagccttt ggtggagtct ttagggtttt
258601 ctagggtatac aatcagatca tcagccaaga gagatagtct gacttctttt
258651 cctatgtgga tgccttttgt ttctcttgcc tgattgctct ggctagaact
258701 tcctacgtat ctcatgtctg agctcttatt tctgaattta tgtggttctt
258751 tcaaagattt catcttttcc ttaaattctc ttagcttact ctgaaatatt
258801 tagattgtca ttttcatctg ctttgtggcc acatttttgg ggtatgtttt
258851 cataatctcg tgcaatgttt tatggcttat tttgatgatt ttcttataat
258901 gatttagtgt atatatatat atatatatat attccctttt cccatatatt
258951 tatataacta tataactaaa ggaggttccc ggctaggtag agtggcttat
259001 gcctataatg ctagcacttc ggggaagcaa agcaggagga tcactggagt
259051 ccaggagttt gagaccagcc tgggcaacat agcaagatgc catctctcca
259101 aaaaattagc caggcatggg ggcacatata tatagtccca gctactcttg
259151 aggctgagga gggaggttca cttgagcctg gggggtcaag gctgcagtaa
259201 gctgtgatca tgccactgta ttccagcctg ggcaacatag cgagatccca
259251 tctctaaaga aaataaaaag gaggttccta tgttactctg tatggacatg
259301 ctggagttta aaaaaatcta tttcctagtg gaatctgggt gtttccagtt
259351 ttggccatta caaataaaat cgctataaat atttgcagag cagccaatat
259401 aggttttcat ttcacttttc atcagagaag catacaatca tcaaagggga
259451 aattaaaacc acaatgagat accccatcat acctcatata aaggctaaat
259501 attttaactg ataatgccaa gtgctgacaa ggatgaaaaa ctactggaac
259551 tctcttatct tgggtggtaaa tttcaatcta gagtgggctt gccagatcat
259601 gtgataagga tatgattaat ttataataaa actgtcaaat tgtcttctag
259651 gtggctgtac tatttgcagt ctcaccagca agactaaggt ttctccttgt
259701 tttgcacctt tgccaggaaa tgtattgttt gttttgacat tctgagtaag
259751 aggttgtgta gtatctcact gtggttttaa tttgcatttt tccaatgacg
259801 gtggttttaa tttgcatttt cccaatgact attctatact tctttcattt
259851 aacacaaaat ggtaaccact ttcctatgtc attcaacagc ctatgccact
259901 actctttgaa aacgttcctt ttaaaaggct gaaaaatata atgatgggat
259951 gtgtcataat ttataaaacc attcttctac cattagatat ttgttatctc
260001 caatttttca caagaacaaa attacactgt gattataaag ctttgattct
260051 atctctatct ctttacaagt ttcttagaaa aggtcaaaaag gtatatgaac
260101 ttttgtttct ccatgcattt tgacaagcca actggaagat acaagtcaag
260151 tggaagatac aagcatggaa tcaagtaatt aagaaaaatg attctcaggc
260201 cagggtgccgt ggctcacacc tgtaatccca gcactttggg aggtggaggc
260251 gggcagatca tctaaagtca ggagttcaag accagcctgg ccaacatggg
260301 gaaaccccat ctctactaaa aatacaaaaa ttagctgggc gtgatggccg
260351 gtgtctgtag tcccagctac tcaggaggct gaggcaggag aatcgcttga
260401 accacggagg cagagttgca gtgagccgag attgcacat tgcaactccag
260451 cataggcgac aagagactcc atctcaaaaa aaaaaaaaaa aaaaaaaaaa
260501 aaaaaaacat caattatttt gctgtttggt ttgttttttg gtattcctga
260551 tgcgagatgt ctttatcatg tattgttgat taggttggtc atcagttaat
260601 cttgaataac tgaaatctaa gctgaaggca ataatacatc ggctttcttt
260651 tcatgcaagt caaactgcta aaatctacca caaatatta gcctttctatc
260701 agcttggtct tcagatccaa tacattttcc cctcaaatga aagacaatgc
260751 aatgccatcc acaacaatgc taaaaaaaaa aaaaaaaaag gaggagggaa
260801 acaagggtta gtccctgtct cttcctccta ccccaaaaag agctcagaaa
260851 ttaagggtgct ttccctaaca aagcctcctc ctgctccatg aagtgaccaa

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

101 / 338

```

260901 gcatgtcatg gcagacccag agatttataa tcttcaacat atcgttatcg
260951 gggaaatcaa gatttgacaa aattcttcct tcacgccccg tttctgcaag
261001 accaccactt tctagcttaa aataaagaaa aaaaaaagac agctgcagga
261051 atgcttggct gcccgctaata gtacaatttt gcccaaacgc agaacttgac
261101 gccactatt accaaaggat ggccttagta aagtaacccc cgcaagagc
261151 aaactgttta gcagccgctc cctcgaaaag gacggaagag gaggtctctt
261201 ctgaacctga ggatagtaga gaggcactcc ccttccacta ctagctttgc
261251 tcctttctca atcaggcagt tcatcagcta gcctcctttg tcaaaggggg
261301 ttgatggcca gaatctttgc gagacaaaaa ttactaaaag agctcccagg
261351 aaccaatgtt aaggcatcaa agggcccgcc cagccccac aatgatcaac
261401 aaacccaaac ctgggatccc tactattacc accaccacaa ccatcaccac
261451 caccaccacc accattcctc gctctctcta gccagggatg agactcaggc
261501 ccaggaaacc catcctttcc gcaagtagga aggcgctggg tctcctcctt
261551 taggcctctc ctttacccca ttgttctctc cggaccctc cactacggcc
261601 aggcgctatg tatgttttca accccaaga agcccagtcc cagccacaca
261651 caagatggca gcctcacacc taccggagga aacagctgcg ccaccactcc
261701 agtgatgccg gcctctcgac tacgagtaac tccattggct cagctacagt
261751 gcgcgagaca agccgagagc gctagcagtc aatcgggagg cggcgcgctc
261801 gggcgccact gcggtgccag cggtaagtgc gccgagctc tgaggcgtga
261851 accagtgggg agtgcgacca atcaatgggc tcctggctgg gtggtgggac
261901 ggccggcgct cgactcctcc catgtagtga tcggtttagg taggtcggcc
261951 tgggtccccg cggaggttac gccttccctc atccccggta gaggcagggc
262001 gggactgttg tggttgagat gaaggctagt aaatggtgaa gtacttcccg
262051 gccagagggc acctgcgctc gggaggtttg ggcggcttgg cgtcggagga
262101 gagccccacc cgcggaggaa cccagccttg ccaacggagc tggcggagct
262151 cactcctcag gtcaggcggg cggcgtagaa aacgcagcgg agccaggtga
262201 aaccaaggca ccgccgtggc tggccccga cagttcctct agccgggagg
262251 ttggaggagc tgaaaacgcc gcggagccct cggccgcccg agcaggggct
262301 ggaccccagc ccttgacgcc tcccttctcc tggcacccaa gtgcagtcct
262351 ggctgcagaa ggggccgcgg gcgcactgag tttccaacct ccatttcagc
262401 ctgtctgtct caggggtcag ccttaatgag aggtgattcc taagctgctg
262451 ggaacctgag gttgtcaaag gggcggcagg aaatggacag cagtataaaa
262501 cccagaagca gaacttgaag gttaaaccac tagcccatth cacaggtgaag
262551 attacacgag cccttaaata cagcaagttc agtcattcat ccaagatcat
262601 ggagttcaga ttagatagta acacttctga ctgcctatca gccacagccc
262651 aataagtaat taagtaagga aagatatgta attaaactgt ctctttggca
262701 tgtggaaacc tgcagtgagc tctgtaaaata ctaacacatg aggccaaagga
262751 gaggagtaaa tttgaagagg tcaaattggag taaccaaagc ataggctctg
262801 aaacctgct gcctgggttc ttatttctgt tctgccactt acggtatggc
262851 attccttagc ttcctcatca gcaaacgagc tgctaattta acccatatga
262901 ctgttagggg gattaaataa gaacacgtga agtagttaga agcgtgacta
262951 acccggtggt cttaagcgtg acttaaccgg tggttctgtc gttacaatta
263001 aaacgtaagg agccgagagg aaatggtaaa cgtgttttta aagcctgttt
263051 tagaaacgaa aaggaacat acattgaagc aaagcagact ggcttaatta
263101 tttttctacc aaaatgaaaa agtgagaagg ggaaaaaagt tttttaagcc
263151 catttactct ctgaaatatt aacaccagtt gtctctggat gatgggatgg
263201 tgttttaaatt ttctccttta tgctttattg tattttgcag attttctcca
263251 ggaaacatgt tttacttgtg cacgttcagt tttcaaattt tcagggtgta
263301 acgctggtga gagctgctta aaaacaaagc tatgggcccg gcgcggtggc
263351 tcacacctgt aatccccaca ctttgggagg ctgaggcggg cggatcacct
263401 gaggtcagga gttcaagacc agcctggcca acgtggtgaa acccgtctc
263451 cactaaaaac acaaaaatta gccgggcgtg tgggtggcgg cccctgtaat
263501 cccagcttct cgggaggctg aggcaggaga atcgcttgaa cccgggaggc
263551 agaggctgca gtgagccgag atcacgccac tgcaccctc tcaactgact
263601 ggtgacagag cgagactccg tctcaaaaaa aaaaaaaaaa tctatggccg
263651 tgcgcggtgg gtggctcaca tctataatcc cagcactttg gcagatcact
263701 tgagcccaga gttcaagacc aacctgggca acatagacct catgtctaaa
263751 aaaaaataaa actattactg agtgtgctta ggtggaagta taaattggta

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

102 / 338

```

263801 gaacctttct ggaagagagt ttgacaatat gctataaaaa gctttaaaat
263851 gaattccttt ttgaacattt atatatactt aattttttaa aattaagtac
263901 actttttacat tcttttacag aattgggtacc ttgtagataa agagcacaat
263951 ccagattttg accttgagtt ttttcttgcg tgtcaagggt atacttataa
264001 aaacagttga atagcttccc gtatttttcc ttcttgaaag ttcgtatatg
264051 ataaaaattc tccgttcttt gaaagttttg tacaaggaat gttccctcac
264101 tcctctccct ccctactccc gctggagact ttggtacaga gctttcaagt
264151 gttttttaat acttacacct ttttaatactg ttacatatc tatatagggtg
264201 aatatataca tttgtaattt tttagtggaa aaatactata ctacatcatt
264251 ctgtagcttt atttcttgac attgtttttg cagcctgtac atgttattta
264301 tagctcatta tgttatttat ggatcatttc ttttacctgc tgcatagtgt
264351 tccagtgtat gactgaattg atctgttaat ataaaacatt tctttgtctc
264401 ttttattggg cttgttggtt aatcctattt tgtttgatgt gtgctgtata
264451 gcacatttta ttgccattct ctgagaacat taggtttcca gtttttcacc
264501 atacaacaat gctgcaagga aaatccttgt gttttcttgt gcacatgtgc
264551 tatttctcta ggatatatac ctaaaagtgg aattgcttgg ttttaagttg
264601 tgagcatttt tagttttaat aggtcatgct aaatttgcct ccaaaaatac
264651 ctctactaat ttacatgttc cacaggtagt ttatgagagt taagtttctc
264701 tacagtttag actaacatga gatattatct tcttcatttt tgcctagtga
264751 tggctgcaaa ttatatTTTT aattttaatt ttcattctgt gatctaagat
264801 tgaagtgtct attatgtttg ttaacctata atttatatgc atttctatag
264851 ttttttaaaa acatgtttaa gttctttatg tgtcctcgat actgtatttt
264901 tagaagtctc tttgggtgtg atgggtaatt atgcctcctt tttgttgcta
264951 ttgttaaaa atgttaaaaa cttttctctt tagcttcttg cttggctttt
265001 gactttttgt taacttattt gttctacaga tggattttcc tctgccaatc
265051 tttaggcctc tttttatctt actgaatttc tctaagactt ccagtacagt
265101 attgaataaa aacagtgata gcaactgtct tcatcttggt cctaataaaa
265151 attctccgaa tgtttcatca ttgagtatga tgtttgctgt cattgagtag
265201 gatgttttgg tagatagcct cgatcagaat aagaaagttc tcttttttcc
265251 taatttgcta aggggcccc ccacctcca tggataaatt ttatattgaa
265301 ttgttttgtt tttctgcatg aagtgatagt tttcctccct ttgcctgtta
265351 atataagcat tcacattgat aaacttttca tgttaaactt tttagggtatt
265401 cttgggataa actatttttg taatacatc ttattctact gctggatacc
265451 tttattcagt atttttgtgt ctaagacca gtagtgattt gggccttgag
265501 tttttttctt gcatgtcaag gttatactta tctcataaaa aaaagttgag
265551 tagcttccca ttttttctt gcttcagaac agtttgata tgataaaaat
265601 tagccgttct ctgaaagttt tgtacaattc atctgtaaaa gtttatggac
265651 ctagtgtact agcagtga aaatttcat atctcataaa aaaaaattga
265701 gtaactgctt aagaaaaagt tgagtagctt cccatatttt tctgtctca
265751 gaacaggttt gtgtttgata aaaattatct attctttgaa agttttgtac
265801 aattcatctg taaaacttaa tggacctagt gaactagcag tgaggggtgg
265851 ggatgtgtgg cacacatctc tagtaatatc ttcagtgttt tgagcctatt
265901 tggtaattta ttttttctta gaaaattgtt cagttcgtct gtgctcaggt
265951 tcattgacat aaaactgtct gaatttttaa atgtttaaaa tctcttcagt
266001 agctagagat ctatcttcat ttgttattat ttattttgtt gcttttttcc
266051 cagcttcttt aattgaatgt ttaagtcaat attttcattt tgctaataaa
266101 atttatttaa ggcctaaata tctcttggca tgctgctttg gcaaaatcct
266151 tcaggctttg aaatgtatta cttcaaccga tcaccatttc taaatgttct
266201 taaatttctc ctttgatttc ttctgtaaac catatacatt atttgggaaa
266251 tttgattttt taatttccgc aggtagtatg ggggtggggg ttgatttact
266301 acattcagtg actatgctct gtgtaaacag tcttttgtaa tttgttgata
266351 attccttttg gtctcataat agtttttgta aatttcatgc tttcctccc
266401 acaagaagta ttttctgttg ggtgcagggt tctatatatt ttttgatta
266451 agcttggtta tttgtcattt aaatccttta tactctggtt ttttaccac
266501 tttatctcag ttccttagat ttgttacttc atcaccaa atgtggatctg
266551 tgcattttcc ttttaatttt gctttatata tttcagagtg atgttatttg
266601 tacataaagg gtcataaata ttaaactctg tgaattgttc tgtcagcata
266651 aaatatttgt gtcttttatt gattttcata ttcaactctt atttgatacg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

103 / 338

266701 tttcttctta taattgcaga tgtctttttc cagtctcttc gttttcagcc
266751 ttgctgtgac attttgtgta atttaagtgg gtctcttatt ttaaaatata
266801 atatctgggt tttgcttgcc atccaatctg agagtctgcc ctttaatagg
266851 taattcacct ttattgtgat tattgacata ttttggcctt attcttgtca
266901 ttatttaaca agcttctctt tgtatctttt atatcttatt tttccacctg
266951 ttttttggaa cagagtcttg ctctgttgcc caggctggag tacagtggcg
267001 tgatctcggc tcaactgcaac ctctgcctcc caggttcaag caattttcct
267051 ccctcagcct cccaagtagc ccagattaca ggtacacacc accacacca
267101 gctaattttt gtatttttgg tagagatggg atttcgccat gttggccagg
267151 ctggtcttga actcctgacc tcaggatgac caccacctc agcctcccaa
267201 agcgctggca tcaactttat ttttaattga ggttagcccc aagttttctt
267251 tgttcatttt tttttaagtt gattaacttt acatttcaca gttcttaaat
267301 ttatgttttc ttaacaaagt gtacatttag tcagttttga taaggcccct
267351 gtaaagaaga agttagcatg cttctacttt gctttctctc atcttgaaac
267401 aatcccttcc atctctctc cagaaaagaa cataatctct catgatctct
267451 ttaagaattt ttctttcatt tgttattaaa ttcagtttac atttaacatt
267501 aatgtgtttt actcatttat ttgctcacta ttgctacgta tacctcagtg
267551 ctttcttata ggttcatttt tcatcatcag atacttattt ctttcacagt
267601 ctctgagtga ctctttgaat gtctgcaaat gtcttttttt catctttagt
267651 atggaaagat agcttggctg gatataagat tctgggttca tactgacttt
267701 gctttaacat tttgcatctg acatttctga tgagaaatct cattactagt
267751 ctaatacacc ttccttttag ataactctaca tttttctgga aacatctaag
267801 actttgtgtt tttgatattc tgaagttagt cacggtttgt ctacgatgt
267851 gtgttaagaa ttttatcctg gttggctactc agtggattca gtttgcttat
267901 gtgttttcca gttctgagaa attcttgctc attattgcct cctctccatt
267951 ttctcaattt tttgcctcct cttgtttcct tgctctgtgt tcttggtgaa
268001 ttactcaact cagtcttcca gcttactaac tggctcttca tgttagtctg
268051 ttctgtcatt cagtcactta ttgagtttat ttcaacaact gtttttatat
268101 ccaagatagc taactggctt tttttcaaaa ttgtgtgtta tttcatggat
268151 gagatttcct tcttttagctc agtctctttc atagtgtagc cttcttcaga
268201 tatttgagga ctctcagttg tgcattaatc tctctgaga ggattcctgc
268251 ccatcgtttt gctgttgtga ttgtgggttg catcatctct atagcttccc
268301 atctgtttcc tttccccaga agggccttac tgacttggcc cttagagagt
268351 tccctttttg ttttcagcat ggctatatat atatatttta aatctcctaa
268401 catttccatg gtttgggtgt gaagtggcag aagaatttac agtatcttga
268451 ctaacatctt gagaattaaa attgttgatc tatttttgac ctattattct
268501 acctccagat atgttatcct agggaaattg ccagagatat gtataaagta
268551 tatttatattt agcattattt attatactaa aaattaatct ataaaggaaa
268601 acaatctaaa tatcgaatat agaggtttat attattaatt aatattttta
268651 ttaaaattta attattaaaa tatttaaatgt actataatgt atgcgttatt
268701 gaccaaagta tgttatacag ccagttgtat tatacaaaaa tattagtgat
268751 ggaggaaaat gcaggaaatg tttttaatga aagattataa aaaattaaat
268801 atactacaat ccaaattttt gttttaaaac tacattctga aagaataaca
268851 ataattggta gtattccttg aatctttcgt atgtcaggca cattatatgt
268901 aattaagtct tgtcctcaga acaacctgtg agatagttag tattatcccc
268951 tttttaaaag gtttataaaa gacttataaa atggagatag taatataaat
269001 acaaataatat taaatatggg tgataggatt ggggtggcct tctctattat
269051 ttctaatttt gatactttac atattttttc cagataacat aatgtttttt
269101 tgtaattggt catgctgttt taaaagatca agctgttata acaatatctt
269151 atttccttat atatacatat atatatatat atatatatat atatgtggtc
269201 ctttacaaat atgcactatt ctttattgtt ttccttacag aatgtttcat
269251 ccatttgttg accaaaagat ggagttgggt tttattttta aaaagataat
269301 gttaatgatc tgataccact acaaataatt acgtgagaag attcatggac
269351 ttgtcttttg gttggactgt cactcatttc tgaaagtttc ttcagccaca
269401 atttctattt gaaaattcaa gtatcaaagg ataccagggt tagaatggta
269451 taatgatgta ttttgtctga ggactgcaaa ttttatagag accacagttg
269501 gattccagtg atattctgca atcaaagtga tttgataaac ctaattttga
269551 agcattttat atttataagc gacatcaaaa gatgggagaa aaaaatggta

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

104 / 338

```

269601 gggtgaagaa cacactgtta cactttatat ctaaaagtat aaaagtatat
269651 agacaatgta agctgatgtg gaattgtcaa ggttttgcat tgcgaggaac
269701 ttttctgaat tagagggaat taagggttta ttcttgata gccaccaatt
269751 ttgactgtct ttatcattag ttgtgaaaaa attgactttt ttgtaaactt
269801 tttttttttt cttttttttt ggtgatggag tctctgtcgc ccaggctgta
269851 gtgcagtagc acaatcttgg ctactgcaa cctctgcctc ctgggatcaa
269901 gcgattctcc tgccacagcc tcctgagtag ctgggattac aggcatgtgc
269951 caccatgccc agctaatttt ttgtattttt agtagagatg gggtttcacc
270001 atgttggtca ggctggctct aaactcctga cctcatgatc tgtccacctt
270051 ggcctcccaa agtgctagga ttacagcact tgcacctggc caaaataggt
270101 gagccactgc acctggccaa aatactttta gtgttacaga aaaattgaga
270151 ggattgcaga gttccagtaa acctgggtact tagctttatc tatgattaac
270201 attttacatt tggatgctac atttggtaca attaatgaac caatattggc
270251 acattattat taactgaagt ccatagtata ttcacgttag tttttacctg
270301 atgtcttttt ccattccaag atcccatcca ggacaccaca ttccatttac
270351 ttgtcatgtc tgcttaggct cctcctagct gtgatagttt ctgagacttt
270401 tcttggtttt tatttttttg ggattttgta tccaaatatt ttgtaagatg
270451 cccctctgtt ggaattattg tctgatgttt ttccataatt tgactggagc
270501 gatgggtttt ggggagtgtg atctcagagg taaaatgtca ttttcatcac
270551 atcatatcaa gggtagatgc tgtcagcatg atttctcaga gttgatattg
270601 aacttgatca acagagcttg agctggctaa tgtagggtgt ggtatcaaat
270651 ttctccactg taaagtactt ctttttctcc cattccctgc tatactcttc
270701 ggaaataaat cactataggt agcccacagt taaggagtgg ggatttatgc
270751 tccccctcct taaatgtgga atatctacgt taattatatt tggaatattt
270801 ctgcagggga gatttatctc tctctcttct tccctgttta tttattcagt
270851 taatcattta tatcagcatg gactcatggc tatttatatt atactttttg
270901 agttacaagc cagtactact ttatttatatt tgtttttcaa attgtcccg
270951 gtttggtctat tgggagctct ttcagttggc tctttttttt cttttttttt
271001 ttaagatggc gtctcactct gttgcccagg ttcattgtga gcagcgcaat
271051 cttggctcac tgcaacctct gcctcctggg ttcaagcaat tctcttgctt
271101 cagcctcctg agtagctagg attacaggtg tgtgccgcca cgcccagcta
271151 atttttgtat ttttagtaga gatgggggtt tcaccatatt ggccaggctg
271201 gtctcgaact cctgacctca agtgatccac ccgccttagc ctcccaaagc
271251 gctgggatta caggcatgaa ccaccatgtc ctgctcagtt ggctcttggt
271301 tccctttgat ataccgtcat cagtgtaggt attttttatt tgtctttgtt
271351 ttatagcact tcccttttgg cactcgaaga ttgctctaga ttgctctcgt
271401 atatttctta cgcactcttag agtgagccat ttcttgaata acctgtcaat
271451 attttttattg gaaaatggta ttagaaacca aggtctgaat gatagggtgta
271501 tttgttggtta ctggagtgtc cttgtttata ggccctttca gctggcagag
271551 caatgaagta tatatatata tactaactta tatatacaca actcatggct
271601 ataaatattt ctatatgtaa ctgtttgtat ctgccttaag ctaaccatga
271651 aattacgctg atgtttccaa ctctaactta ttaccacgtg gatcatttta
271701 gtctcctcac cttatctgta tgctccact ccagtagtaa aaaacttagt
271751 tcccatcacc caccatccat ttacttaatt gttcaattcc agtatatata
271801 tgtagcagta tcagaattgt taacccttga ctgggcaccg tggcttatac
271851 ctataatccc agcactttga aaggccgagg ccaggagtta gaccagcctg
271901 gtaaacaatg caaaatcctg tctctactta aaaaaaata ataatagtaa
271951 tacaagtggt cacacgccta tatgtaatcc cagctattcc agaggctggg
272001 gcatgataat tgcttgaacc caggaggcag atgttgcatg gagctgagat
272051 tgtgccactg tattgcagcc tgggtgacaa agcaagacta tctcaaaata
272101 aataaataaa taaaaataga attttaacct atccccaggt aggaaaatac
272151 tttatcaact agagtacagt aagtaagtaa gtatatgcag ttacttttgc
272201 ctttattttt acagactcca ctcatctcca aagttactta ggctcagtag
272251 ttttccaccc agcccttggg gaagttgttt atacatttgt aatacagtta
272301 gattctcttc atagtctgca ttccttactg agatccctga cgtcctaaat
272351 gattttttaa atttgcatac gttattagtt cattgtttac tctttaaatt
272401 ctgtgggttt ttacaactgc ataatgtcat gcatctataa ttatagtatc
272451 atacacaata gtttcgggtgc ctttaacata gttgtaattg atggattgtt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

105 / 338

```

272501 atacagatca tagtactgat ttcaccaggc tgtgatctaa gccagtggtt
272551 ctcaatTTTT tttttggtct caggatgact ttatactctt tagagtattt
272601 aaaaccgcaa agagcttttg tttatgtggg taacatctgt tgatacttac
272651 tgtaatagaa attgaaacta agaagtttca aaaaatatta attggcttat
272701 ttttaagaaa ataataaatc caacatgttg aaaatataaa tagaaactat
272751 tttctaaagc aaaaatatta gtgagaagga taacattgtc ttaccttggt
272801 agaaatatct ttaataactg gcttattaga ttcttatatc tgcttctaca
272851 ttcagtcttc tgtgttatat tactttgggt gaactgaata aaagacaagc
272901 ttcacacaga caggaagctg aagaaggaag agtatttcaa tagcctttca
272951 tctaattgtg gatatttttc tttgttgact ccaaaactca acaggtagtc
273001 attccttaaa ggtagttgg agtgtggagt ctgacatatc attgagtatt
273051 tttacaatgt tacattaaaa tccattgggt tatcttgcac tttgagtaga
273101 tctttttacca tgtatgattt tacatgtatt gaccacttgt aaaatattgg
273151 ctcagtgaat tatgcagatc ttccaaatgt tgacacattt aatcatataa
273201 ttttaaaatc acatttggtt atatagctac tgatctcatt ttaaaagtgg
273251 ttaactcttc agaaactttc aggtttgcc aaggcagatac aaggttttca
273301 aaattctcat tttcattctg tagcttgaat tttgtcatta gcaagaaata
273351 ttgttagttt tgtccttcaa gtgataggct cactttgctc atatgccaaa
273401 cactcaagtc tggaaaacta cagttttatc agtggttctt ttaagtaaaa
273451 atgggttttca tttaaaaaaa aacaaaaaaa aactagatag tttagtttac
273501 aagttgaaca atcccactag tattttttct tgagacagcc attgtactat
273551 aatggctgta caaatgattg taataactta tgttgtttca ttaaagggtg
273601 acttagatga aattggtggt gaagatcaca atagtaagtg aactatcact
273651 tactgatagt ttgatgccac taacttgatt catgctaagt cactagcagt
273701 tttactcacc agtgcctttg tactatcagt tgtcaatata ataaaaacag
273751 caaatgtcct aatattattt tttaaatagt ttgtccttgt gtattctctg
273801 aatgatttg gggagtccta ggggtccaca gaccacattt tgctaattac
273851 aggttcaaag ataccttaga gttcctctag accaatacc tataagcccc
273901 ttactacata tgtttctgtg tactgaggtc attattaatg tatttggtaa
273951 gtatttcata aatacttggc tagcaaata attcagatca gtattattca
274001 tgagcattgt ctgtttacaa agactgtcta gagtgagatt ggtagacata
274051 gtataactat accatgtact tggcgtcctt cattacaagg ctgctacact
274101 tcttgccctca tggttatagt cttgcaatga atagtcataa ctggctaaat
274151 aaaaaagaga gtttgaacag ataataaagt taccagatgg tattcttcat
274201 ttctgggggc aaatagcagc aatattagta tgctgaattg atcttcaatt
274251 caggtagctg ctccagtatt ccttgtaaata atcttctagt aaaatatacc
274301 gaaatattta gttttagggt ataatgctga gcatgcatac aatgccgaaa
274351 gaagtgaaga tcaggagcaa gaaactaaaa ttgtttgat tgtagtaact
274401 atgtctacag tcgaaaccaa agtctccag atgtttcttg tgatactcat
274451 ttagtctcct tgtgcacaga agttgttaac tggatctatt agtttcattt
274501 atcagaaagt ttggttacct cttttcttat tactgtgggt aagggttcc
274551 atagcaagaa gacaaagaaa aatgatcaag aaggaagaca tgaggaacaa
274601 gtgccatttt aatgaaaatt aaacctagca atatgagata ataaggaagt
274651 cataaggaac aacatattta tttaaaacc agaacaata aatatgaatt
274701 gcttagttac attcatttat tgtagaagca gattcagtat tttctttgat
274751 tggctttgtg tttttaaat atattaccag tgtccttttt tttttcaaaa
274801 tcatttccaa gattgatcat ttactctgtt tactttttaa ataactcatt
274851 ttaagtagtt cctaccagaa taatttagta gcatgtattg gcatttctaa
274901 gacttttttt ttttttttga aagagtctcg ctctgtgttt tattaatcgg
274951 ttccaagatt gagcatttac tctgtttact ttttaaata ctcattttaa
275001 gtatttccta ccagaataat ttagtagcat gtgttggcat ttctaagact
275051 tttttttttt aataactcat ttttaagtatt tcctaccaa taatttagta
275101 gcatgtattg gcatttctaa gacttttttt tttttttttt tgaaagagtc
275151 ttgctctgtt acccaggctg gaggcagtg gcgcaatct aaccactgt
275201 aacctccgcc tcctagggtc aagcaattct catgcctcag cctcccaggt
275251 agctgggacc acatgcgtgt gccaccacgc ccagctaact tttttgtgtt
275301 tttggtagag atggggtttc accgtgttgg ccaggcatgt ctcaaactcc
275351 tggcctcaag tgatctgcct gcctcagcct cccatgaggt gtggtggcac

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

106 / 338

```

275401 cacacctagc ctctaaaaca attttaaagt ataaaaaaaa caaaaattca
275451 ttgagtcttg attgttgtct ttcagcatca cagctttttt ttcctcagtc
275501 caggacaaaa ttttatgtga ttccagaata ctttaatggt accaaaagct
275551 atttttaaat acttccaaaa tacttgaaaa tacttcaaaa tacatctcaa
275601 tgtccacctc taataaagat aaatccctag taagagggtat tgactcatat
275651 ctgtgaaggg aaacttaaca ataactctat aagtgccttg aaaaataatt
275701 ttgcctaaaa gtgggtttttg ttgattatca gtgaaaaacc taatgatttc
275751 aggcaccctg agaaagccct gcttcacaaa atattttcct cattaagctg
275801 attgttctct aaaattccac agtgaaagat gaattccttt tgttcactgc
275851 agcctcgaac tcctgggctc aagcaatcct ctgcctcag cctcctgagt
275901 agctcggact acaggcatgt accacctcgc ctggctgatt tttttgtaga
275951 gaggaggtct tgctatgtta ccaggctgg tcttgaactt ggctcaagt
276001 gattctcctg tctcggctct ctaaagtgtt gggattacag gcctgagata
276051 ctgtgcccag tttgttatct ccattttata gatgtggtca cacagttaat
276101 aaatgggtca gaactagtat tcaaacccaa ctacacttga actccaaagc
276151 ctagggtgtt aatcaccact ctttttcttt ccttggcttc tgagatacta
276201 ctctcctggg tttctcttcc acctcagtct ctatagttcc ttttccttgt
276251 attgttgatg ttctacataa gacccttctt attctgtatg ttctccctat
276301 ggaattacat ctactctatg gcatcagcaa gtatttgtag gttaatgact
276351 ccaatttgta tttctgaacc agatcttact ctagagccta tgcattcagt
276401 ttgttcggag agcctcttac tacttgaatt tgccacctgt ccctctacct
276451 ttattcatac cttaatgaat agcattattg tccatatgat tgcctgaggc
276501 aaaaaagtgg agatcattca tgactcctcc cactgctacc tgagtgatct
276551 ttctgaaaaa cataactaat cacatcataa gatccttata cctcttgggt
276601 agctttccat ataaaagggt cttagcatgg cacatagggc cttegatgtc
276651 atgccctacc tgccttttaa gcaccagttc tcatccattt tgcctctta
276701 cattgctctt gtttaaaatc ttgaaatttt gtttgagctg tgctatgggg
276751 aattaaaagt aagcttagtc ttacatagta tacatcagtc cagagtatta
276801 gtagtaaaac aacaccctc cagaggccac tatgttggca gcagcactaa
276851 ctagccagaa gtcccctttg ggaaagggtga ctttcccagc aggaattgag
276901 actttgatac ctaagccctt tatgcagatt ctcccttctt tgccaaactt
276951 ggaggttctg ggtttaattt gtgttaggga aaatgtattt tttgtaagcc
277001 atctggactg tctactcatt aatcctccct gtgcctactc cagtgcctt
277051 tctaaaatgc aattattacg atgtctttcc tttgcttata ggccctatta
277101 gttaatttta aataatttta tacattgtaa cattgtataa atatgcttag
277151 catttttaggt atttttgtta cttttaaacg cgaagtgaga tttagctttt
277201 gacaacttat aattgttttt cttatatatt caattttgaa aggattgttt
277251 ctttaggaaa attttgaagt attagcttac tgggcatcag aaatgttggc
277301 tcatttatgt aactttctct gtacaacttt aaacattaat ttgcttcatg
277351 caattaaaca tatagaagac ttttttaaaa agcagtattg ttggacattt
277401 agttatttca gcagccattg agttgtctca ttctgaaacc aactcgggtg
277451 gagattatac cactgagact ttttaaagtg catgtataat ctatacatat
277501 accccacaac cactctccag tgaagtcttc cttctgtttt ctagtcaaga
277551 aagtgtcact aaaattttca atatatattt taaaaattaa cagaaatggg
277601 taagatactt agatcatatt gtttctagct ctttgaagg aaacattact
277651 aaaatatatt cctcaaggaa aatgatagac cagatgagtc ttgatcttgt
277701 ttagaaacca agtagattgt tctataacat gttcttagat aaattatagt
277751 atttttctat tagctcttag gctagtcact tatttttatt ttaggcgatg
277801 caaaaacttt ctggatggag ctagaagatg atggaaaagt ggacttcatt
277851 tttgaacaag tacaaaatgt gctgcagtca ctgaaacaaa agatcaaaga
277901 tgggtctgcc accaataaag gtatgaagca ataaaaactt tgaatatgtt
277951 taatactaaa tatttctctc tgacagtaca gtatcattct atttccaata
278001 ttgctgtttg taaaagtaga tggatgtaat tacttttgaa taatacctac
278051 tgaatttctt tttatctcaa gctacttttt tccctcattt atcttttttt
278101 ttaggggaat gttgcaaaag taacatctgc tcattatata acatttggca
278151 cttatagaaa aatataacaa ggaaaaatta ttccacattc agagacaact
278201 agttttttca tatgtatgtg taaaagtaca tataacttta ttttgcttgc
278251 tttaaacaga acttactcta ccagtcttct gaaagcaaaa tttgtgttct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

107 / 338

```

278301 acataggcag ttagttcagt aatccaagtt tttatTTTTt ctatttgttt
278351 gttgtcaacc ctggttggtt gtagaacgta agacttgaag atgaaatcct
278401 ccttcaatcc atcaggacat acggttttga agcaaatttt tctccagatt
278451 atttttagta ctttctggat ggtcttatga cattattatt atgtgtttat
278501 caaaaaaat tggcactggt tttcatTTTa atcttccttg tcaatccttc
278551 atgagtcaga taaatctaga ttctaatacca gttgtactac ttcttagctg
278601 aatgtcctgg aataaatagc ttaacctctg agcctcagtt tcttttgtct
278651 ctaatgcaga tagtcctatt aacctctcag aggaatagtg aagattaaat
278701 gagataaaat atgtaaattg tttagcacag tagctggcac cataaataaa
278751 ggtaatggtg atgctgtttt tctgtcttta acagaataca tccaagcaat
278801 gattctagtg aatgaagcaa ctataattaa cagttcaaca tcaataaagg
278851 gtatgtacat ctctattccc attgtagagt attctctgat attttcttgc
278901 catgaagcag gatagcttta atatgttggg ctaattaaag ataatttaaa
278951 ataaaatcta acatccacat ttctaagtta cataaatcac agtttcctct
279001 gttaaatgaa aagtcctacc catctagaga tagtaaatgc acatccaact
279051 aagcagccta gggaaagaat taacaaatgt gtgtcgtctt tgggggaaaa
279101 aaagactttc ttatataaag agggcaaata gaattctaac tttaaacac
279151 tatatatccg ctttctgtga agaacaatac ttgaaagata tattcttgta
279201 tagataagtt ggtgggtaaa tcttttattt ctagattgct ttagaccat
279251 cagtcttcca agctctaaat cagcttagaa ggatcaaaga taatgtacta
279301 aagaaaaact gtttctcttc tcacaaagct tctgacacca aatgtgggtt
279351 ttccatgcca tgcaattctc cagtattctg tggacaccaa tggatgttgt
279401 attctaaaat ttaattcagt tctgacacta ctaccagag ttagcacaga
279451 tcccacagat taagggtcct tcccaccaa cttgctccca cttcagacac
279501 tggtcacaat gcctgggcct cctgtacttc tgactgactg ctacaaatta
279551 gaggttccca caacccctc ctcagattcc atgatttgct ataatggctt
279601 atagaactca cagaagtatt tactattacc agtttattat aaaggatatt
279651 ataaaggata caaatgaata gccagatgaa gaggtacaaa gggcaaagtt
279701 ggggaaggcc tgagaacagg agcttctgtc cctgtggagt tttggggtgt
279751 accaccctcc cagtatgtag atacattcac cagtctgaaa gctctctgaa
279801 ccctgttggt caggggtttt gtggaggtct cattacatag gcatgattca
279851 gtcacagcc cattggtgat ttgcttaate tgcctcttcc tcttccctgg
279901 atatgggggt ggaaagagta gggatgaaag tgcgaactca ttaaccatgc
279951 ctttgtcaga agtgcttggt tctttctgac aaccagcccc cattctgaag
280001 ctgtctaggg atagctcacc tctcaacagt catctcatta gcatacaaaa
280051 gacactctta tcactactgg agattccaag ggtctcagaa gttcttatgt
280101 caggaactgg ggattaagac aaatattata acagaagggt ctcctctcat
280151 acctgttact tgaaattaga agggtttttag gaattagggtc aggagccagg
280201 gcagaaacca aatatgtatt tcttatgatg ttacatgtac taagacttta
280251 aaaagaaaaa ctgagaagtt attttaacag gatcaatcac cattccataa
280301 atcttagtct gtcacatttg ctgaagtttt aaggaagtac aatatttact
280351 aggtttgtat taatgctgtt agatgttgct aataaatgtc aataattttt
280401 gtcttttata atttgagacc ttaaggcttt taaatctctg aaaatatagt
280451 ctagcatcac cagtctattt taagtaaacc atttggtatt caaagtatcc
280501 tcaatttcag tgctacagta tagctttaga agagtagttt cttgaagaaa
280551 acagtcttcc tttcacagta tccttcagta acactcggaa ttgtagggga
280601 ggaaaaattt tatctcagtg gctgggggat gagggctgta acaaaagata
280651 gaagacaggt taacaggaga agagacataa acaaatgtgt taattttttt
280701 ttctttttct tgagacgaaa tcttgctctc tctcccaggc tggagtacag
280751 tgggtggtatc tcagctcact gcaacctccc cctcccaggt tcaagcaatt
280801 ctctgcccc agcctcccgat gtagctggga ctacgggcgc atgccgccac
280851 acccggtgat tttttttttt tgtatttttag tagagagagg gtttcaccat
280901 gttgcccaga ctggtcacga actcctgagc tcaggcaaac tgctgcctc
280951 ggctcccaa agtgctggga ttacaggcgt gagccaccgc gcctggtcaa
281001 cttttaattt tatatgcaca agtggtgcgg gaattaggag gaccagagag
281051 accttcgggt gaatacagga ggatctttat tgagtgcact cagaccagc
281101 agacttaaca tccaaaaact tggcccgaga caaagacagc acttgacttt
281151 tatacacaag ggggtgggct agcctgaaac aagcttacag tggcatgaag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

108 / 338

```

281201 cgtagtggca tgaaagggta cagaggcaga acaaagacag ttaatcaaat
281251 tgtgacaggt tcataactca gcattacacg tttgctatgc agcccagatg
281301 tctgttatct aggtttttct ctagtgccca gcacagctta ttccatgacc
281351 ttcactgtgg tgcccagggt gccataattc aggccctgctc agatggctca
281401 tgaccttcac tccaccactg cttagataaa acagaatact tgaagttact
281451 agttacagag aacaggaatc tatacactca taccataaga gaaaggaaaa
281501 tttgtttttc tcctctctat gttgagggag tgctgggaga gtcccagagc
281551 acattccttt gtgtcctggc ttcttagata gtattaacaa gactttttct
281601 ggggtctggg tgtgcctatt gctgcctctg ggataagtca tcctaataca
281651 ggaaagctta tttctctttt taattttatt tttctttctt taattccctg
281701 cctcacagga gcatcacaga aagaagtga tgcccaaagc agtggtgaga
281751 tttgagagca cattatacca ccctaatagg tgaaagggag gagcagaggg
281801 gcacttctgg aagaacacat gacttcaaag ataaatgggt cctatgagaa
281851 taagtgaag atttgtaaca gtgtctgtct gagtatagta ctgacttcct
281901 ctgctctccc tgattagatg aaatcattcc tggttgatga aacttctggg
281951 aggggattta tgacaattga gtttcttttt gggaggatcg attttttagac
282001 agataaggga actccagaga caacttcttc ctgtatttgt tcattctcag
282051 atgtcttcaa ttcaaaataa tctttatgtt actatatctc atctggacaa
282101 tccttaaggg attatattta gttttgcaag agagaggctt ttaacctcac
282151 ttgttaccac gaaaaatggg aacaactaat tctaaacatt tcttttcttt
282201 ctgaagaacc tttttttccg taaaaagtaa gttggttttt gtttggggtc
282251 ttttaaggaa ataattttat caatagaaat gccgaatatt ataatttcat
282301 atttttatgt agttgggtcca tctgaaatgt aacaaatgca tcaagataag
282351 agtatattta tttgctagca gtgaagtgtt tttaagtaaa cagttgggga
282401 gagttatgta actgacactg ttggcaaagt taaggattga aaacctttgg
282451 taataaagggt tcatgtgggc tgaatacagt ggctcaggcc tgtaatccaa
282501 gcactttagg aggctgaggt gggaggatca cctgagccca ggagtttgag
282551 accaacctgg gcaacacagt gagacctcat ctctacagat aataaaaaaa
282601 aaaattagtt ggctgtgggt gtgtgtgcct gtgattccag gtactcaaga
282651 ggctgcagtg ggaggatcgc tgcagcccag gaaatcaagt ctgcagttag
282701 ctgggatcac actactgtac tccaaccttc cagcctagga aagagagtga
282751 gaccctgtct aaaaaaaaaa aaaagtttca cgctagcatt tattttaaaa
282801 agaaggttgg gaatgagaga aacaaaagaa ctttgtgttg aggtcaaaac
282851 aagctgtcct ggatccaacc tagactcccc aggctgtcat caaaccgcta
282901 attatgttta tttttcttga tgttgtgtta ctctcagtat ttgctctgtc
282951 tccatatgaa ggactggata gtgttttctt gagagaaatt atttcccttt
283001 cctctttttt ctaatgacta atgttaaata ctcatgtttt tgagtaaata
283051 ctattttcaa ctatgcttga tatacatttg ttttgttcat atttgttaat
283101 atagatttat ataactcatg caaataaatt agctggagga aaagtcagaa
283151 actcttatta tttgtaaaat taattttctaa tcagttatag ctgtgaacca
283201 aaaataatca aaagggtcag aatctaattt tttttttttt tgagacgaag
283251 tctcactctt atccccagg ctggagtaca atggcacgat ctttgctcac
283301 tacaacttcc gcctcccggg ttcaagcgat tctcctgcct cagcctctcg
283351 agtagctggg attataggca cctgccacca cacctggcta atttttgtgt
283401 ttttagtgga gacagggttt cactatgttg gccaggatgg tctcaaactc
283451 ctaacctcag gtgatccacc cgccttggcc tcccaaagtg ctaggattac
283501 aggtgtgagc cactgcgccc catccagaat ctaattttaa gagagtttat
283551 tcagggtgca agtgtaaggg tagccatctg aggaccagtg ctacacccaa
283601 gaatactgat aagtgttctt ggtgtgggag aaatgaggat tatttatata
283651 ggcaaaacag aggtgttgaa caggattaca gcatttttgt acaaagggta
283701 acatacagat atttgattgg ctactgttga ttacactcta agtgggttgt
283751 ccaacattct gttgtaaaac ggtaacagtc acaaggtctt ctttctccat
283801 atcatttaga ctaggttttg ataaagaata gggagtcttg actgggcgtg
283851 gtgtctcagg cctataatcc cagaaccttg gaaggctgag gtggcaggat
283901 cacttgagtc caggagtcca agaccagcca ggcttgaggt agagattcta
283951 cctctacaaa agaattttta aaatcagtca ggtgtggagt tgcacacctg
284001 tagttctagc tactctggag gctgaagtgg aagggtagct tgagcctagg
284051 agttcaaggc cacagttagc ttatgatcac atcaacgtac tccagcctgg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

109 / 338

```

284101 gtgacagagc aagaccttgt gtctttaaaa aaaaaaaaaa aatgtggagt
284151 ctagttaatg tgtaacatct caacacagaa gtcagaaagc aatgggtcatg
284201 caccaaagaa aaaacaatca tgttacatga gtcctctttc agggcttaac
284251 ttttcccttt ggcataataa atttggaagg tcctaaattt ttattttctt
284301 ttacatagc tctcttcaac tatcagactt ttatttatcc atttatttta
284351 gagagagggg cttcctctgt cgctcaggct ggagtgcagt ggtgcaagta
284401 tagctcacta cagcctacgg ttcctgggct taagcagtgt ttccacctca
284451 gttcctaaat agctagaact acaggcatgc gccaccatgc ctggctaact
284501 tttttttttt tttttttttc tgtcgtagag acagggcctt gttctgttgc
284551 tcaggggggg cttaaactcc tggcctcaag taatcttccc actttatcct
284601 tccaaagtga tgggattaca gggatgaacc ttgtgcttgg ctcagctatc
284651 agatttttaa ctttctttta cttggaaaat taaagacaga tatttgtttt
284701 tcagttagcc aaggagcaac cttgaaatac aatatccttt tattaaactt
284751 cttttgaggg ggaaagtaag ttataatttt tttattagaa aataaatata
284801 ctggggccagg catggtggct catacctgta atcccagccc tttgggaggc
284851 ccaggtgcac ggatcacttg aggtcaggag ttcgagatca gcctggccaa
284901 cataaaatcc tgtctctact aaaactacaa aaattagccc agcatggttt
284951 tgcattgctg taatcccaac tactggagag gctgcggcag gagaatcggt
285001 tgaacctagg aggtagaggt tgcagtgagc caagatcata ccactgcact
285051 ccaccctggg cgacagagtg aatgagactc tgtctcaaaa aaaaagaaat
285101 gtgaacaact agatcaaaag agataccagc atacttcac cctccctaa
285151 aatagtgtga gagcaatagg aaaacaaaag gtacataaat ttttcatttt
285201 ctgactttta tagagccttt aagaattatg tgatttctct ataaaatgca
285251 tgcagaagta gggatactca atgtccacct taaagattgg ttaagcttca
285301 aatcaagttc aggccaaact agagtttcta cagtagaaat cttttctgtc
285351 ctcagtattt taccctagtt tattcatatt tttgaaaata ttgacactta
285401 atcttttgcc tcaatcttga aaccttacta tgtttgcaaa ttttagggat
285451 ccatatgggc agactctagt caatgaacat attacttggg tacttatagc
285501 aaatggtttt taacttggta tatttgttgc tcacattatt tttttgtgta
285551 gatcctatgc ctgtgactca gaaggaaacag gaaaacaaat ccaatgcatt
285601 tccctctaca tcatgtgaaa actcctttcc agaagactgt acatttctgt
285651 atgtatataa attctttgtt attaatgctt ttgctcctac agatttcttc
285701 tttataaatc acttgacatt agaatagatg aaatatacaa aaaaattttt
285751 cccattaaag ctttaaaagt tgtatatatt agtattttat gtaagataga
285801 atttcatgag tctctgaata ggttattgaa tattcctagt taatcaagtc
285851 tttttataaa gtttagctta agatgtcttt gtgtatttta ttaatacact
285901 gaaatctacc aagtagtggt tttttgtttt gttttgtttt ttgttttact
285951 gcttagatta tctggagaat ttaaaagtgt caaaatgttt ctttcagtat
286001 cagttgagtt ttcaaaatgc gtaacagctc ttaagtagtg tctaaaagtt
286051 tatgggaata gactaaattt ttctgacctt ccctttctca ttttatcatt
286101 actttccata aagattcttt ggcataaagg agatgtgcgg aagagtgaat
286151 ctagatactc tgacacgtag tctttatttt tagtaggtaa tacctgggcc
286201 taacccttca agtactaatt acaggggaagt ttctgaaagt tctctagagt
286251 agagaacata gtttcaaaaa acaaagaagt atcttttagaa agaaacttct
286301 ttgttaccct aatttcattt gttctttcag cttaatatta aattgactaa
286351 gaaaaactat ataattattt ttttgatttt catgcctgtg agagttgtag
286401 atagacactg tttcatataa tttggattta caaatattag agatgtcatt
286451 gcagtttgag tgggtctcaa aaggcccata aaattacttt aaaatgctca
286501 cagagaaagc taagttcaca ctttagctcc ttaattggcc atttcagtgg
286551 ctcacaaaac attttttttt ctagaaattc tgacctttga atatacagtg
286601 taaaattttg taagttttta ggaacaaatt cactcagtct aaatctaaat
286651 taaattttca tgtaaattac caccaaaca gctctctacc aaacagttat
286701 ctatatattt agatattata ttttaaactt aaatgcagga gtgggtttatt
286751 cctgtgaagt atcatttttt gctttaagtt cattatacca gcttatcaga
286801 atctttttga attttggaat attttttgtc ccttttagct tatcatcttg
286851 tacaaataaa taagctttct aatcttcatt atggctactg aaaacaatat
286901 tgaacaggac atgaccaaag ataaaaacct tgtggctggc tcaactactag
286951 acattctttt tattacgctt cagaaagaac gctttaagca actgtgaatt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

110 / 338

```

287001 tacttctact gttgtcccg cctacacttct cacttacaaa gtgggtcatga
287051 aaaatcaagg ttcactgcca tagcattctg tggcattgcc agacattatt
287101 cagacttatt gaaaacgttg tcaaaaaaga aaattcagtt aatttggtatt
287151 tttctcacct acttgtaa cagcaccta gtgttggttg gccttttaaa
287201 ttcaaaatat ttagaagcca cacccttgat gccttcttct agagattttt
287251 aagagaccag tgtaaagcta acctttctat attttctgta gcctgtcctc
287301 cttccctttt taaaaatcag ggcagctaga acttgaggat aagtgggtcaa
287351 agaaaaaatc agggcagtat tattttatatt ttaatttttc tatatttgaa
287401 gttttttttt ccagaccttg agatttaatt tgtagagtct tctatatgct
287451 taaataaact tgagttctag taccctctct ttaactgtca cagacttcag
287501 tttcttttta tttttttcct cttgtttcca acttgagagc cataactaaa
287551 gatggaaaag acaaaggcag aattgttttt gagaaactct tccttctctt
287601 tgttatcagt taaccttatt tttctcctaa cagattatct tcttggtcta
287651 agcatagctt tagttgtttt ttgttggtgt tattttatta gcacttttgg
287701 aaacctcggg tcttactagg ctttgtgata cttttcttac agtttcgtac
287751 caatgttgcg tattcataat tagctgtctt cttttgtatg tatactttta
287801 aaaatccgag cttccaagaa aaattgagtt ggtttcttta actgttttcc
287851 catctcttta ggactgttta tgattatata atcagaattt catttcctta
287901 atctcccatc tctcttgtag tgtgttgaca ctgagaggct ttttttgaga
287951 ttatacctaa cttttgagtt gagcattctg agatcttttc agatgaaggg
288001 acatgtctta ttaggcttag gattttcttc ctttgccatt aagaattcca
288051 aggaagcatt tcattcttga ctggaattat gtttaaataa ttccttttat
288101 atttcctctg caggccagaa gtttatattg ttattttatt ttcagtactt
288151 aaacctctt agcagcccag tggtcacata gggtgcctag taaactaac
288201 attcaataac ttaagccagg aattcttagc cccagctaaa ctgctcaaga
288251 ttaggctgag catggtggct cacacctgta atcccagcac ttcgggaggt
288301 tgaggcagga ggatcacttg agcccaaat ttcaagacta gcctgggcaa
288351 catggcaaaa ccccatctct acaaaaagta acaaaaatta gccgggcttg
288401 gtggcacatg cctgtggtcc cagctacttg ggaggctgag gtgtatcacc
288451 taagtccaga agatcaaggc tgcagcaagc catgatcgcg cctccgact
288501 ctagcttggg tgacagagtg agaccctatt tcaaaaaaag attatacaaa
288551 ctatcaacgg caaaccccag gatgaaatct tgggtctaag aggacacagg
288601 cttcaggctt ttgggtgttt tttgtggggg ttttttggtt tctttcttct
288651 tttctttttt tttttttttt ttgagacagc aggggtctcac tgtctcgctg
288701 ggtggactgc agtggcacat agccacagct cactgtaggc ttgacgccct
288751 aagctcaagc gatccttctt cctcagactc tcaagtagct aggactacag
288801 gtgcatacca ccacacctgg ctaattttta acattttttt tttttgtagc
288851 gatgtggtct cactatgttg cccaggcagg tctggaactc ctagtctcaa
288901 gcagtcctcc ctctcagct tcccaaagtg ctgggattac aggcattgagc
288951 caccacaccc agccagtatt ctattcttga gttgaactga atttctactc
289001 cacataagtg agttatgaca taggtaaatg taaaaacaaa agtattactt
289051 cagtataaat tcttttaaaa ggatatttac ttttggtgatt ttagaagtct
289101 gaattccctt tttttttttt tttttgggtc agtataaact ttggtttgtc
289151 aggagtacat acctattcaa gctagcttaa gtagtggaat ttattagaag
289201 tgtacgaggt gtgcagcttt ggtagcata ctgggtgaca ctgggcttgc
289251 accactgctt aaagacacag gtgtaaatat aagccattaa atttttatgg
289301 ctttttacat gacatgcaca caaacccaaa agattatttt taaaaacatg
289351 cacacacatg tacctacaca tacatacaca catatataaa taaaataggt
289401 cttgaagaac agaaaatgta acacagcagg ccatgtaaac actaaaatag
289451 gaacttaaaa gtcaatacct aaggtcaggg ttgacacagt ctcaactcta
289501 cttctctctg ttaccagtag gtttcttctc ttcccatg accaaacata
289551 gctgccccag ctaaaactcta accttctagt gcaagtgtta tctcatgtga
289601 catatatata tatatatata tatttttttt ttttttttaa tagagacagg
289651 gtctagtcac gttgcccagg ctgatcttga tctcctgggc tcaatgaatc
289701 ctcccacctc ggctgccac agtgctggga ttacaggcat gagccaccgc
289751 acccaaccat tttttttaat atcttaattt aaattattga aagagacagt
289801 ataaaaagcc cagtatgtat acaagacca acatctttga gtacactgaa
289851 attaatatac ctgcctttca gaagaggatg actaaagaag ggactgagca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

111 / 338

```

289901 aaataccaga tttacctact gcagtcttta gatgaataca gtatacattc
289951 ttgtttttaa atatgcccc ttaatgggtca tagaggatag aatgacttct
290001 tacttttagcc ttgccaaaag ctagataatc agttggcagc ctctaagcca
290051 tgctccactt tgatgttcag agtgactaac aacaccctga acaattgtca
290101 aatcatatgc aaactgagaa atccttacct agaggctggc aagcagggtcc
290151 agacagccgt ggacttctcc ttctcactac ttactcctta tcctgtgttt
290201 acctctagca cttttaatca atgactgggt ttacaatact gtgcatagaa
290251 ttggttttat ttctatTTTT tttttcagta atgtatcttc acacctaaat
290301 aaagttaacc ctctctcca taaaattggg atgaaattag gttactttat
290351 acttaagact tgtaagttgg gtttttctct tctctttagt aaaatgaagc
290401 acagataaga aattaatctt ttctaagggt cacactagtg ttttattttt
290451 atgcttttct ctctctcttc tgtttttttc tcttctcttc ccactctctc
290501 ctaactcttc ttaaatgtaa aacatgtatt tctcagtgtt aattgctcag
290551 taactagagt cttgtatctc ctagttttta ttagtcataa ggagaatact
290601 tttaatctag tttggctttc ttgaaatgta aattccaaat tacaagtttt
290651 accagcatat ttactattac aaatttttagt cctaagtagt tctaattgta
290701 tattgttcca gtagtggcta acttggaggt gtatttggtg tgcatatga
290751 ggaaattatg taaaggacat taaactacta ttcaaataat agtagttact
290801 taagaactaa ggataaccca gatactttct ctctcacata tatcctgaat
290851 taatcccttc atattccaag aaaaattttat tgagtcatct acattaatat
290901 ttaatgttcc ctttctcca aagagcaaaa caggaaccaa aaaattcata
290951 cccgaggcca ggtgcggtgg ctcatgcttg taatcctagt actttgggag
291001 gccaaggcag gcagatcact tgagctcagg agtttgaggc tagcctgggc
291051 aacatggtga gaccccatct ctaccaaaaa agcaaaaaat tagctgggct
291101 ttgtgacgca tgcctttcgt cccagctact cgagaggctg aggtgggagg
291151 attgcatgag cccaggaggc agatgttggt gggaaccaag attgcaccac
291201 tgcactccag cctgggtgac agagtaagac cctgtctcca aaaaaaaaaa
291251 aaaaaaaaaa attcataggc aaaatgtcaa atgacattta cagaataata
291301 tactacagaa tccagtttga aacatattta tttggttaag tcaagttgaa
291351 aaggacaaca gaacagttta ctatctctat aaatctgtaa gtgtataagt
291401 aacttgagag tgagtaacct atatcaaaac aaagaacaag gccatgagaa
291451 cctaaggaat gtattacagt gaattctgaa tgaaagaaaa taggggtgtt
291501 tatctcagag agacaaataa atagaaaatc cagagttcag gttataccat
291551 aattccttat aagaaaaagt ggtaagaagg aacttgacac ctaataatag
291601 ggaacaagta ggttccaggt accacctttg aaaaacagga agatactgga
291651 tactaaaata aatcaagggc caggcatggt ggctcacacc tataaccca
291701 gcactttggg aggccgaggt ggggtggatca cttgagggtc agagtttgag
291751 accagcctgg cccacatggc aaaaccctgt ctgtactaaa aatacaaaaa
291801 ttagctggat gtgggtggc acatgctgtaa tcccagctac ttgggaggct
291851 aaggcacaag aattgcttga agctgggaag cagagggtgc agtgagctga
291901 ggtcatgcca ctgcactcca gcctgggcaa tagattgaaa ctactctct
291951 ctcaaaaaaa aaagatttct aaataaatta tagtatatcc ttttacctgt
292001 tagactctga aatccaaaag catcaagatc cacctgattg atgaaactct
292051 gtgaaaacag gcactctcat ttattgctga agaaactgac actatggaga
292101 acaatttggc aatattaatg aaataactaa cccatttgcc ttgtgacct
292151 gcactccac ttctgggaat atgttctgca acagtatcta acagtatctt
292201 tacgtgtatg aaattgttat taatagattc ataattttat agcaaagatt
292251 attacaataa aattacttat taaaagatca ctgtataagt ttactgtata
292301 cgttctaaaa gatcactgtg taagttaact agtccattat tgtgggtctag
292351 cctatactac atgttatgga aaattgtcca ttattgcagg ctaggtaatt
292401 aaattgtgga cttacgcaa ggattactat acagtcggag aaaggatgag
292451 gaagctccat atctgcacat ccagtatggt agccactagc tgcattgtgc
292501 tgttttaaata tgaattaatc aaaattagat aaaatgtaaa aattcagttc
292551 tttggctcgt ctagctacat ttaaaagtgc tcagtaacca catgtgcca
292601 ctggctacca tatcggacag cacaggtata gaccatttct atcaatggag
292651 gaagtttttt tggatggcac tgctttatat agtgtattag tccgttttca
292701 cgctgctgat aaagacatac ccaagaccag gcaatttaca aaagaaggag
292751 gtttaatgga cttaccagtt ccacatggct ggagaggcct cacactcatg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

112 / 338

```

292801 gcagaaggca agcaagagca agtcacatct tacatagatg gtgacaggca
292851 aagagcttgt gcagggaaac tcccccttac gttaccatca gatctcgtga
292901 gacttattca ctatcacgag aacagcacgg gaaagacctg caccatgat
292951 tcaattacct cccaccagggt ccctcccaca acacgtcgga attcaagatg
293001 agatttgggt agggacacag ccaaaccata tcatagagca aatacaacgc
293051 atctctaaaa tacctgtatt ataatacata acagacacct aaagatagaa
293101 aattctatgt aaaacaaaac tcagattatt tgtgaaagtt taaaacttga
293151 tttccaaaca aaaggaagct tttcacggat tttttttttt ttaagacagg
293201 atctcactct gtcacccagg ctggagtgcg atggtgtgat catgattcac
293251 tgtagcctca acctcccagag tccaagtgat catcccacct cagccccgca
293301 agtagctgga actacaggca tgcaccacca taccttacta atttttttta
293351 cttttttagt ggatgaggtt tctactgtgt gcccaggctg atcttgagct
293401 cctgagctca agcagtcctt ccgtcttggc ctctcaaagt gctgggatta
293451 cagttgtgag ccatcacacc ctgccgactt ttttttttat tttattaata
293501 accaccccat tttctcctat cagtttgcca ttttttcaga tgtatcaata
293551 tgattgtgag gtagattaca tattatggaa agaattaagt tggactatt
293601 gttgaaggca aacagtataa aggattcttg atgaattaat aagttttcag
293651 ccagcctttg tttttttgca tgcaaagagc ttgatctcag catgcctgaa
293701 gaagtaacct tcttcagtgc tttattgatt catgctctaa atgaactcta
293751 aatttgctag gtgctatgaa atacctaaca gaaagttaca gctgtaatca
293801 caacttcctg gaatattctg aaattaggta taaggcagac ctggtgcgtg
293851 cctataccag ctatttggga agctgaggca ggaggatcac ttggggacaa
293901 gagttcaagg ctgctctgtg ctgtgatcac acctgtgaat ggccactgca
293951 ctccagcctg ggcaacatag gaagacccca tctccgagaa aagtttttaa
294001 aatagatata atctttgtat ggctgtagaa catcttaaaa tgtgtatctt
294051 agagtctggc ttattttaat attgtctaag aaggtagaaa ataatcatag
294101 ttttttttaa atgaggaatt gaactataaa tttgagatac taatgaataa
294151 tttattttta cagaacaaca gaaaataagg aaattctctc tcttgaagat
294201 aaagttgtag acttttagaga aaaagactca tcttcgaatt tatcttacca
294251 aagtcatgac tgctctgggt cttgtctgat gaaaatgcc a ctgaacttga
294301 agggagaaaa ccctctgcag ctgccaatca aatgtcactt ccaaagacga
294351 catgcaaaga caaactctca ttcttcagca ctccacgtga gttataaaac
294401 cccttgtgga aggagtctac gaaacgtgga ggaagttttt cgttacctgc
294451 ttgagacaga gtgtaacttt ttattttacag ataacttttc tttcaatacc
294501 tatgttcagt tggctcggaa ttacccaaag caaaaagaag ttgtttctga
294551 tgtggatatt agcaatggag tggaatcagt gccattttct ttctgtaatg
294601 aaattgacag tagaaagctc ccacagttta agtacagaaa gactgtgtgg
294651 cctcgagcat ataatctaac caacttttcc agcatgttta ctgattcctg
294701 tgactgctct gagggctgca tagacatgtg agtagaaaaa catggcgttt
294751 caaaaaaatc ttctgaatgt aaggacgctt gttaagaagt cttgctatgt
294801 attaatattg ctatctaaaa cctgttcaag agttacagta agactgggcg
294851 tgggtggcca cgtgtgtaat cccagcactt ttgggagacc gagtgggagg
294901 ccagcttgag caaaggagtt tgagaacagc ctgggcaaca tggcaaaacc
294951 ccatcttaac aaaaaattta aaaattagct gggatatggt gtgtgcatct
295001 atagtcccag ctactctgga ggctgggggt ggagatctgc ttgagcccag
295051 gaggtcaagg atgcagtgag ctgtgatcac acactgtacc agaggcctgg
295101 acaacaagc aagacctgt ctccaaaaaa taaaaataaa aataaaagag
295151 tctacaatgg gaaaatgaac tctgtcacta gcagtaggaa aaaaaacctc
295201 taattatttg ccaaatatgg taatttgaaa catttcttcc aagaatgcat
295251 atttccttta atctagtact aatacattaa aagataatca atggcattac
295301 aacaaatgat atttaacagt gccagacact gtgacaagta cttcacattc
295351 attctcttaa tcttcacaaa aacctatgag gtataggtaa tatctcagtg
295401 ttatacatga ggaagttgag cctcagagaa gtcaatttgg agaggtcata
295451 gaacaaattg tagagacagg atttgaaccc atgttcttaa ccattggggt
295501 atatgttgca ttttactttt aaaaatcatt tgctggctaa tgtgatgctt
295551 ataactagta ttttcttaat catagaatag tattaacatc ccatgaaaaa
295601 atgaaaacat gttctaatat attaagactt tgaaaaacat ttaagggtg
295651 tgtagtacac atacattcgt aggtatacag atgtagagtg gtgttgcat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

113 / 338

```

295701 atatgtactt ttaatttaaat gcaaatttag ctaccatac ttggcaaaaa
295751 aagaataaga gaatgataaa taatttaaat agtataataa tagttttcac
295801 catcctctaa gttaattgga gtgtaaaatg agagctatat ctactgttac
295851 ctcagtttgg ctcagttcct tgaggcctct catagaggaa acctctcact
295901 gtgctgtttt attctgttta aaaatatgta ttttattttg taaagattac
295951 ctctaaatgt aacccaacta cctcatctgg ggacttggct cttcaaagga
296001 atagaaacag gtacctgcac aagactagga actaggccag tatctcacag
296051 ggcttggaat tgtattaatg aaaaccttgt taacagctgt aaaaccaatg
296101 gggtcagagc caaagcgttg gagaaagcac ccaatgtaga gcagcacaca
296151 ggactaaacc ccacagaagg tatgatttca aacaaacatt tacagcacac
296201 aaagatgttt aggaccatga aggcagcatg agtcccgaca agtagagaga
296251 attaacacct gaggaatcag aggtaaatgt tgaatctaata tgaagggat
296301 tttaaaacag gtataattaa actgtcccaa gaggtgggc acagtggctc
296351 atacctgtaa tcctagcact ttgggaagct gaggtaggaa catcatttga
296401 gcccaggagt tcgagaccag cctgagcaac ctagcgaaac cccatctcta
296451 caaaaataca aaagttagcg tggcgtggtg ggacgccctt gtagtcccag
296501 ctagtcggga gtctgaggtg ggaggatcac ctgagtgcag ggaggtcgag
296551 gctgcagtga gccaaagattg cgccactgca ctccagcctg ggcaacagag
296601 tgagaccctt tctcaaaaaa gaaaaactat gaattgtata tgaagtgagc
296651 aatacctaata ccagtagaaa agttaaaagg aattaactag atttgtatat
296701 agcatggatg ggtctcaaaa acattatatt gaacaacaaa aaaagcaagt
296751 tatagaataa tacctatagt aaatttttta taatgaaaaa tacacaatat
296801 attgtttgta gatacatgtg tatataaaag cataaaggat gccacactaa
296851 atctcttgag agtttagtta tatctatgtt ttacttttta acttttttta
296901 agaagaccat atatatgttg tgtatatgtg gtgtgtatat tttgaattat
296951 atatacaggg aagagaacta gacaaaatgc tgacaactaa ttctggatgg
297001 tggaaatatg ggtgtttatt attatctgta tttttctgta ctttttaaac
297051 tttgcacaca aaatcacatg ggaaagaaca attatagatt ttcatatctg
297101 taaacagaat ccaaattaat gaatttgttg attgttgcg ttgttctttt
297151 ctcttgcaaa cagcagccac cattctgatg tgtattaatt aatacagaaa
297201 atacagaaga gaatcataga ggaaaagacc ttaaagtcac ttgttcagca
297251 aaggagacta agatccagag attttaacca gctcaccagc agtcatttac
297301 ctagttacac agctagagtc cccaagttcc ttactttgta tcaaattatg
297351 gttccctatc aagttagtta gtcactctgaa tagaggggaa agtacatgaa
297401 gttttatggt tgcaagcttc ctgcctcgca acagtatgaa aaaaggattc
297451 aataatagta ggcagatacc cggcatcaat ctccccagtc tgtttctgtc
297501 actggagtga gagagaactt aagacatctg caaaactatg tccttacaaa
297551 tttgacatat ttaagtttat ccattgtaaa agagcagaac tagcagaatt
297601 ctcacaaaca agcttctgtg ctgaacaggg aaattaaagg aattgatttt
297651 ggaaagctaa actcatatag ttaagtattt catgagcaaa tagagttgca
297701 gtgcagttta taattattta taaacttttg ggaggatttg tctttcaaag
297751 agatctattt agggaaaaag ctgatagtgt tcatgagcca aactattcta
297801 aatgctatta catcttttat tacatcattt acacatttat caagacagtc
297851 tcttgacttg acttgctgct ttttcattct ttctccatcc attgcctgcc
297901 ttttagaaca aaatgtgcat gtcttcaact gacagcaagg aatgccaaaa
297951 cttccccctt gtcaagtgcac aaaataacca ctggatataa atataaaaga
298001 ctacagagac agattcctac tgggtaagggt accttgagga tttgttgagc
298051 ggtgtgtata tctttgaagg tgggtacttt ttattgtgggt ccaaaatctt
298101 atagatgtta aatctgggtt aatttggttc taataccaaa aatctaaatt
298151 attaggaat aaaaatcctg tgtattgttc gtggaaatgg tagtcagaga
298201 ccacacatac atcatgcaga gtgtacttga acactcatct gctttgagtc
298251 tggctcttac ccctctagta tcagcctact ttgggcagcc atttctccgt
298301 ttaaaaataa ctgtctagaa ctcatttgag aattgggaat tttcaacctt
298351 tcaagggtact gactcactta atcttcacaa agcagcccta tgagggaggt
298401 attgtcatat aatccccatt ttaaaaatgt gaagataaag cacagaaaag
298451 ttaaataact catccaagat aatacagcta gtaaattgtg aagctgtgat
298501 gggaaccag gcactctacc tctaagagct ttcacattta gcctgcttcc
298551 ctcagtagtt atcagtgtca gtgaagtgtc aataaactgc tttttgagat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

114 / 338

```

298601 gtctgatttt ctcttttgca tattttgttg acagcattta tgaatgcagc
298651 cttttgtgca aatgtaatcg acaattgtgt caaaaccgag ttgtccaaca
298701 tggtcctcaa gtgaggttac aggtgttcaa aactgagcag aagggatggg
298751 gtgtacgctg tctagatgac attgacagag ggacatttgt ttgcatttat
298801 tcaggtaaag caaaagttta ttttcaaatt attctagagt agaatccact
298851 tttctaaata tccattttcc tagccagggc tgttgagagc ttacagcaag
298901 gtaaagagta acagtatcta agaggaacat cagagaaagg caggtaaact
298951 gggaacttga gcactaaaga gatgagatgc ttaggaggta ctttcttcaa
299001 gaaaagaaag gttcagagat gacacttggg tttttgtgtg agggcctgtt
299051 acgtacaagg cacatttgtt ttgtctgcat ggctacaggt actttggggt
299101 aagggaataa aacttgtaa aagtaaaaaa aaaaactaaa tgactggctt
299151 gccaaggtaa agatgaccag tcaaaaactt tcttattcaa tgttttgagc
299201 tattattaga atttaacaag ttaattatgt aatatctgca tgttataatt
299251 cagtcagtga ctttaggcaa ctactctat tttggggact gcagagagtt
299301 gtccatgctg cagagcaaaa cttcccgagc agtgtgttac agtcatgcaa
299351 ttactgattc tttagggcca cagccccag ggccaaacac atcagtcttc
299401 agtagtctta cacatttacc tccagcatgt caggcaaaat cccttatttt
299451 ctgtgcacat cttctgtgta gaaagtttg gaaacacggc tttagagcca
299501 gtctaaagga attgtccttg acttatttta gcagttaggc atcagggaaa
299551 agaacaacca ggttctgaaa attactcatc tgaaaaatca ggtttaatct
299601 gtttacctga ccatgtgctt agaaaagaaa tatcagggtc acatcaggga
299651 gggcaagaag aagcttgacg agttcagagt agtcacacgt atggatccct
299701 gccactcccc atttacagat ccacattcta cacatcctgc ctagacgttc
299751 atctctcata cttctcaaaa taactcttgg atgaaagcta cctgtaaaat
299801 gccagggtgg gtccaggaag tatcattggg tttatcgttg ttgctggaaa
299851 atgtaactaa gatatgtctc cgatctaaca atgggtaaga atatcctgct
299901 attaatttgg acttggaac tataatattg aatcccttga aagaaaatgc
299951 atgaacttta gaccaagatt ttagtgttat gcagaactta atatgacaac
300001 actaagaaca tatcaccaca tatttaaata ggtacttttg ttaaaaattt
300051 taagtttcag atgataacgc ctttttaact agacataaaa gctacaattt
300101 tatggctaga gtcattcttc taattttcta gagtactttc tcatccatat
300151 ctttttgtat cattctagct aaatctcttc tcttttgtat tataccaaaa
300201 cagacaaatg gttttttttt agataccctg ttttttcata tactggaaga
300251 taagaaatat cacattgggc tttgtcttgc aacagttttg taggatgagt
300301 taatgtgttt atcttcattg tagaatgtgt gggttcttta gtcattggag
300351 agaaatagag atgtctgttt atcattagca attatcttct gtgttggtca
300401 aactctttaa cattttcctt ttaggaagat tactaagcag agctaacact
300451 gaaaaatctt atgggtattga tgaaaacggg agagatgaga atactatgaa
300501 aatatatttt tcaaaaaaga ggaaattaga agttgcatgt tcagattgtg
300551 aagttgaagt tctccatta ggattggaaa cacatcctag aactgctaaa
300601 actgagaaat gtccaccaa gttcagtaat aatcccaagg agcttactgt
300651 gtaagtaaca gctgaggaac ccagagtaaa tctaaattat tatcaatcaa
300701 ttggttcttt ttcatcctt cccctctttc ttttctcctc atttgatttt
300751 atcattttgc ttcaaagttg ttaagtctaa cactttgaga aatccaggac
300801 atgtaaaaat ctagccaata taccatcctc agtggtccag ttttggaatt
300851 ttaccttata tgactttagt caggtttttt atggatgtca taagttttgc
300901 tgttttttaa aattttctat cattttatct gcaaagtttt cataggttct
300951 cttccttttc caaatgtact tcaaaaatta tttatgatta tatttccttt
301001 ctctagggaa aggaataaac atagatgttc ttacttaggt taatttataa
301051 taattaagga tatttatgta ataattgata ttatctgtac ttgagtaaag
301101 agaatagaaga gaatttttag tgatacagaa taactttttt ttccttttta
301151 gggaaacgaa atatgataat atttcaagaa ttcaatatca ttcagttatt
301201 agagatcctg aatccaagac agccattttt caacacaatg ggaaaaaat
301251 ggtaaaaaat gcaaaatgta gttgggaccc ttcttttctt ttttaaat
301301 tttttttttt tttttttttt tttttttttt ttttgacgca gagtctcact
301351 ctgtcaccca ggctggagtg tgggtggcaca gtcacagctc actgcagcca
301401 caatctcctg ggctcgagta tcctctccc tcagcctccc gaatggctgg
301451 gactacaggt gcacaccacc atgccagct cttatttagt agagatgggg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

115 / 338

```

301501 tctcactata ttgcccaggc tgggtctccaa ctcctgagct ctagcagctg
301551 ttgtgcctca gcctcccaaa gttctgggat tataggcatg agccaccgca
301601 cccagctgct ggggcccttc tgagatgtaa actattgcct tcctatcctt
301651 tacttagctc aaaatgtttg tgttacttta tagtgtgtag aattttctttt
301701 attgttttgg aatgggtggac ggtggaaatg ctaggaccat gttctgttta
301751 cttagtatca tccacggcag ttgacatgtt tccagcttgg ctgtatgagg
301801 agaatgctgg tcatgatctg acagtgtgct ccactgagac cgagaggtat
301851 cccattctga gagtttgtgg gagaagctaa agtcttcagg agttaatagt
301901 gatataataa aaaagggaca aagtaattta ggtgaaggag aacaaggttt
301951 ttgttttttg ttttgttttg ttttgagatg gagtttcact cttgttgccc
302001 aggctggagt gcaatggcac gatctcagct tattgcaacc tctgcctcct
302051 gggttcaagc gattcccctg cttcagcctc atgagtagct gggattacag
302101 gtgcctgcca ccatgccag ctactttttt gtatttttag tagagacggg
302151 gtttcatgat gttggccagc tgggtctcaaa ctcctgacct caggtgatcc
302201 acccactttg gcctcccga gtgctgggat tagaggcgtg agccactgcg
302251 cctggctgaa ggttttaaga tgtatgagaa agaagagatg caattttatg
302301 aaagaatcat ccagaaaaca gtattttatg tggtagcctc tgagggtacc
302351 ctttgcatg tgaactaaag attagtcaga gactgaaacg tagaagcaga
302401 gaaagagaaa agagaacaaa gagagacata atggtagctt actttagggc
302451 ttgttgatga agagtaaaaa ctctgcttta ggtgttatgc aaatatttgc
302501 cctctgcctg gtaatggtac agtagctacc tccttaaggt cagagaatta
302551 tgaaaagatt ggccatggtg tcacacagac ccagggtgaa cctccagctc
302601 tgctgcgtgc tagctgggtg gtatctccat acatacattt cttttatctg
302651 taaaaaggta atagtatatg tttcagaatt atgaggatta aatgagataa
302701 gcatcagcaa cttgcttagc atccaactaa gtgctcaata catgttgacc
302751 attcacatgc tgagaacttt catagtaata atatggtcaa tgtgtattga
302801 atacttagtt gggtgccaag cattgtgctg agtatatacg cctcttttaa
302851 agttatcatt actacttaaa gtgactgcag tgtctacaat gtgtaagcat
302901 tatcacattc gttaaccttt ctttgaagta gaaactagcc aatgagtgtt
302951 tttcatcttt acacaactta cagttgaagg caaattttata atctagtaat
303001 aacactttct aagtactgag atgattagaa ttgggggata cagacaggga
303051 tgcattaaga ttttaattcc caaagaattt cttgacagtc tttatagctg
303101 tggcttaata aagcacctag aagtagaaca gagtcaaagg ggatgacact
303151 tgttgactcc attagtctaa agactcctta tgatatcagc tttgaggctt
303201 ttcaaaacga atctagtaca tatagcctat gatgattgac acttgatgaa
303251 agaggcctaa ctgctaaata cttttgcctg acctggaaag taaagacatc
303301 ttccttgttt ttttaaggaa tttgtttcct cggagtctgt cactccagaa
303351 gataatgatg gatttaaacc accccgagag catctgaact ctaaaaccaa
303401 gggagcacia agtaggcttt gtttcttctg tgaatgccta cctcttctgc
303451 ctgtttctct gtctcttgct caatacctgt agctcatttt cttagattcc
303501 ataataaaca tgctgcattt gtcagaaagg ttacaacttg tctacataag
303551 agatcagcaa aatatcgtgt gtgggccaaa tctggccctc tacctgttca
303601 gtatggcatg tgagctaaga atgatattta tgttttttaa tagttgaaaa
303651 aatcagaag gtgataatat tttgacactt gaaaattata tgaaattaca
303701 attttagtgt ccagaaataa agttttggcc aggtgcagta gctcacgccc
303751 gtaatcttag cactttggga agccaaggca ggagggtgc ttgaggctat
303801 gagtctgggc aatgtagcaa gatcttgtct caacaacaac aaaatagcca
303851 ggtgtggtgg tgcacacctg aggtcttagc tactcagggg gctgagggtg
303901 gaggattgtt gaggtcagga gtttgaggtt acagtgaact atgattgtgc
303951 cacggtactg cagcctgggc gatagaacaa gaccctgtct caaaaaaaaa
304001 aataaaatgt aagttttatt ggaatacagc caatttacat tatatattgt
304051 ctgcttcaac attacagcaa gagttgaata atcacaacag agaccaccac
304101 atggccagca aagcctgaaa tatttgctat tttgccttct gcaggagaac
304151 tttgctgacc tctggtctaa ttgccagtag tgacttgatg catgacaaga
304201 ggggtgggct ggaaaactct tgagtctttg tgggtgcacag gtgttgctcg
304251 tggctttgga accattgtgc aaagcagcca ctttcaaact cttttagtag
304301 gcctttaaaa ataaacacac atcactttcc tgcaattgcc tagccaatac
304351 tgccgcagag catactcagc ttgactctgg caaaaggcta aaatattgcc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

116 / 338

```

304401 accctgagtc cttgtgtttc agagttacta gtccttgcca tagttaatat
304451 tacaactgga caaacattgt ttttggtact tttgcatttc actgtgtcct
304501 tcacaaggag acattgctga gagatatccg tttgtgaaga attggtgagc
304551 cactgctgtc tcttcccccc tgcaaccgca gctctccacc taatattaaa
304601 ggatggagat tggaggagac atggcagttc cttgatagaa aaggtctatc
304651 aaaaaagggg attttgtgta ttatatattt tttatcatgc atgtgagcca
304701 cagtgcatac cgttgctttt gggtcttttg cccttttcat tgactgctac
304751 aatatatata gcgggtactc caaaagtcaa aagctacata ctttttgtat
304801 aaaaaaatcc aaagttgtat tatggcttac acgtaacca tgattaaaat
304851 ataagtacat ataggaacag cagccagcaa caacagtgat gattaaatca
304901 agagcctcaa ttttagacaa gtataatttc tttgcgccat tgaattaggt
304951 ggtccaaata gctttgtggc tcttttaaaag taagtaattt atacttactc
305001 catctgacat gcattcatat cttttctttt ttttttaaag agagacagcg
305051 actcattctg tcaccaagc tggagtgcag tgggtgggatc atagctcact
305101 gtaccttcca attcctgggc tcaaacagtc ctcccacctc agtctcctga
305151 gcaaacagga ctacaggcac acaccccctt gttggctaata ttcttttttt
305201 taaaattttt tgtagagatg ggggtctcact ttgttgccca ggctgggtctt
305251 gaattcctgg cctcaagcat cctcctgcct tggcctccca aagtgtctggg
305301 attacaggca tgagccacca tgcccagcca tattcatact cttgaatact
305351 ctcaaaaaat tattttcctt attggataag aaaaacgatt aagcagtgca
305401 tctgctttta aaggattatt gtttacaag gtgtaattat tgaatggtca
305451 tctagtaaaa caccaaacac taatatgtgc aaaacccta gcaatacagt
305501 tgtcactgct gggacttgtg gaaggtgtct ctgtcagggt taggcctttt
305551 attggcagca taaaggccta gagtgccctc aaaacaccca ctctgttaca
305601 tttgtttaga atatacttaa gtgcagattc cagaattaaa gagaagaaag
305651 tcagtttatt atgagtagag attaaatata ataatgaaga agcaagatgt
305701 agattcataa aaaggcattg ttacgtagta gaaagaaggc agactttggg
305751 attcaaacat ttctaggttt gttacccag ttctcgttat tgtgggtcag
305801 atgaattcct taatccctca gagaaagttt cctttataca attaaaataa
305851 tactacctgc ctaacacatt gtaaggatcg ataattaaag cacctagcat
305901 ctaattagtg ttgttaattt cagcactatt gctcagcaag tatatttcct
305951 gatgtttcct tccaaaatgt ctattagagg actcaagttc aaacctgtt
306001 gatgagtttg aagataatct gctgattgaa tcagatgtga tagatataac
306051 taaatataga gaagaaactc caccaaggag cagatgtaac caggcgacca
306101 cattggataa tcagaatatt aaaaaggcaa ttgaggttca aattcagaaa
306151 cccaagagg gacgatctac agcatgtcaa agacagcagg tattttgtga
306201 tgaagagttg ctaagtgaac ccaagaatac ttcatctgat tctctaaca
306251 agttcaataa agggaatgtg tttttatttg atgccacaaa agaaggaaat
306301 gtcggccgct tccttaatgt gagtataagg gctgagattc ctatttctga
306351 acaactgttt ttttctatgc tacttaacaa aattatgagg aaaataaaca
306401 gactctaaag tcagaccatc tggttagaat tccagtcctc cacttgtata
306451 cagttggatg ttttacttga cctctgatac ctcattttct acctctgtaa
306501 tacagggata aatgataact gtctcaggat gttatgagaa tctaataaat
306551 taacattaag tgcttagaac agtgccctagc acatagtaaa catttgcttt
306601 taaaaaactg taagaaatgg tgtataagaa aagtatttaa atatatcaga
306651 tttaaataag ctcacttacc tgagttgaaa aaaatgtatg gctaggaagt
306701 tatcagtga gttaaatggg ggcagatatg tccaaagaat actgcaggga
306751 tttaatgggt tattaatatg gaaagattgc cacaatatac tgggtttttg
306801 gtttttattt tttgtttttt ttgagacaga gtctcacttt gtcaccagtg
306851 gcacaatctc agctcactgc aacctccgct tctgggggtc aagcaattct
306901 catgcctcgg cctcctgagt agctgagatt acaggcggtta atgaatcaca
306951 tgatgaatgt gtggagatgg cggctagtgg gcaacagagc aatactggaa
307001 tagtgctaata atgaggaaat ggtatcatct atttagaagc ctcggaacga
307051 cgatacataa tggctatctt cagcaaagaa atttgttgct tacaatatct
307101 cctctccaaa aggcttgttt gttacagtga tgtaaaaatt aggttctgta
307151 catcttcata ttaacttac tttgtgaaaa ctttttgttt aaaaaaaaaa
307201 aaaaaagcca taccttgaga agtactgtgc tcctgttccc atgccccgac
307251 tccaccttct ctctgtaggt catcatattt attctttttt tttttttttt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

117 / 338

```

307301 tttgagaccg agtcttgctc tgtcaccagg ctggagtgca gtggtgtgat
307351 ctcggccac tgcgatctcc gcctcctagg ttcaagcgat tctcctcatc
307401 agcctcctga gtagctgaga ttacagggtg gcaccaccat gcctggctaa
307451 tttttgcatt tttagtagag acacaatttc accatgttgg tcaggctggt
307501 cttgaactcc tgacctcaag tgatctgcct gcctcgcctc ccaaagtgtc
307551 gggattacag gtgtgagcca ccgcacctgg ccttatttct cccgcccccc
307601 cccccttttt tttttcacat aaaacatagc atattatatt cactgttcta
307651 tactttgttt ttcaaattaa cagtatatgt ggccaggcgt gatgtgactc
307701 atgcctgtaa tcccagcact ttgggaagcc aaggcaggca gatcacttga
307751 ggtcaggagt ttgagaccag cctggccaac acggcaaaac cccgtcacta
307801 ctaaaaatac aaaaaaatt agccgtgtgt catggcacat gcctataatc
307851 ccagctactt gggaggctga ggcatgagaa tcacttgaac ccaggaggcg
307901 gaggttgcag tgagccagga tcatgccact gcactccagc ctgggcgaca
307951 gagtgagact ccgtctcaaa aaaaaaaaaa aaaaaaaaaa tcttgtggca
308001 attccatatt aatacccaga gcttctcaaa ttgtttttat ttgtatgctt
308051 ttgtttatag ctgcatagaa ttctattgtg taccaaagtt tatttaacca
308101 atctgcttta ggcaaattt tgggttattt ccaaaccctt agcactaaaa
308151 acaatgctca atgaataatt acacatggaa acatatacag atgaatctgt
308201 ggaatacaat tctagatatg agattgcaga atcaaaagac aaatgcattt
308251 ataataatga taaatattga catattttat agggatttgt cccatttttg
308301 catttctgcc agcaacatag aagagcgtca gaacagggct tttctgaatg
308351 ggttcccact attaacagga gctgtgataa tttatacatt gacaaaaaaa
308401 gaacaaaatc agtgtgatat attaaaaaca gaatggtttt ctaatgcaaa
308451 agcacaaggc atcagacttt atgctatttc taacctttgt gtttattttt
308501 atttaacagc atagttgttg cccaaatctc ttggtacaga atgtttttgt
308551 agaaacacac aacaggaatt ttccattggt ggcattcttc accaacaggt
308601 ttgaaattga tttcgcttac ttaattctga aattgtgact ttaaaaaata
308651 caatagaggg ctgagtgtcg tggctcatat ctgtaatccc agcactttgg
308701 gaggccaagg tggggagact gcttgagctc aggagttaa gaccagccag
308751 agccacatgg cgaaaccctg tctttactaa aaaaaataga aaaagttcac
308801 caggtttggg ggccagctac tcaggaagct ggggtaggag gatcacttga
308851 gcccaagagg tagagtttgc accctgtctc aaaaaatgat aattataata
308901 gaaaaatatt ttttaaagat atatactata gcccacaata tctggtactg
308951 tagaatattc aattatccta aactgttcct attcaataag attttgcaca
309001 cctgaaattt tgactcttat tcccatttag aatgaatgcc tgaaagggct
309051 gaagatatca ggtatcacc agttccactc gggataaatg atgcagagtg
309101 ctacataatc tttaattcag agctattccc cagctacttc cacactgcag
309151 gcctcaacac atgactgggt cccactgttg gcaaaataca cttcttctc
309201 atattgatag gttccttctt acttaacatt ttagtagatt tgaaataaaa
309251 ctcaaattgt tattcttaat aaaaggctcat tcctaattgg tggatgttgg
309301 gtgagagAAC agatcatatt tttgaggatg gttaatgtta atatgaaat
309351 tgatataatt tggttcattg gtagttattt agggattttt atgattcttt
309401 tcaaatttct actttctagg tatgtgaaag caagaacaga gctaacatgg
309451 gattatggct atgaagctgg gactgtgcct gagaaggaaa tcttctgcca
309501 atgtgggggt aataaatgta gaaaaaaat attataaata tgtaactaac
309551 gcctgtttgt gaaattagct tatcaggctg aaattaaagc catgcaaaag
309601 aaggcttagg tccatcaagg aaattcccct ccgttttcct ttgtcatggg
309651 gtttatgttt tatttcagat tttatttgtg tgacttagaa attccaggaa
309701 cacaattagg atattttcat acacataggg tatcttgttc actgctgtgc
309751 tactttacat gagtaggatg gaagtgtata ttttatatga aataccactg
309801 tacaatttat aatttattta caaattatat attaaagaga acaaatgtca
309851 taacagaact cagctgtttc taattgcttt tgtgactgtt accttttagt
309901 tcatgcccc ccaaagagct aaatttcaca tttttaccta caaaattgat
309951 ttttaattcc tggcaaataa ttaccatta tgagctacaa ggtgggcaac
310001 agcgctgag gatctaattt tatgcatatt actccaagt attttaacac
310051 ttgttgagaa agcaatatct ggatcgataa aacactgtcc catcaaccat
310101 ttgagtgggg agaggagaa gctcttctgt aagtaagatt ctggcaagct
310151 ctttgaaatg agtcttcttt cccacagatt ttctctactc tttctataca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

118 / 338

```

310201 aacagatagg agaagagggga atagaaacct ggaggaactt gaatatTTTT
310251 gttctagata gagatacagt tactgaaaag gaaacctaga aagtagtcac
310301 acgttgctta tttaggccag aagtaattgt actgggcaaa aatttcactt
310351 aaaaaacaca agaagtccag gtatgggtggc tcagacctgt aatcccagca
310401 ctttgagagg ccgaggcagg tggattactt gagcctaggg gttcaagacc
310451 agcttgggca acatgtcaaa accctgtctc tacaaaaaat acaaaaatta
310501 gcctggcatg atggcatgtg cccgtagtct cagctactca ggagtgaggt
310551 gggaggatca tttgagctca gaaggccaag gctgcaatga gacataattt
310601 caccatagta cttccagcct gggcaataga gcaagactct ctctcaaaaa
310651 aaacagcaca cacacacaca cacgaaaaca attctgaact atgaaatctg
310701 aaacagcccc ttggtatctc ctgggcatga tttgcaaata tttttttttt
310751 acagaaaaaa ggcaaagagt aagcactttg ccatagggtta cttggccgtg
310801 atcatctatc tagtggaata ggggactggg aagcccaagc agactgggaa
310851 accagacagc taggaaaagg agcaaaacat agcccagcaa cctacagatg
310901 aagaaagttg agaaatccat ttattcacca tagagacgca ggaatttcag
310951 gcaatgcact aaaatgaaat gggggaaaaa agcttgatca gtatgggaac
311001 catttttgtg caaaagggaa tattatggat cagccagtat ttctttgagc
311051 tctgcctgtg gagtccattt gacctttaga aatatgaggt attctgtcag
311101 ttttatcttc ttggagaaat ttctcctaaa atcttgattt gcttttagtct
311151 ggactggttc atagccatca tcttccatca gtaccccaga gattcacttt
311201 gtctcttatg tgggatctgt ttccagttag atgccattat ttcccttttc
311251 cttgggtttac tcttccacat attggtaaaag ctcttccaat agcttttgga
311301 aaggaaaaat gaaaagtaaa tgttttgaat ctctgtgtgt ttgacaatgt
311351 ctttatttta cccttatacc tgattgctgt tttggttggc aaggatatagg
311401 attcttttagt ggtctccatg cccagttttg aagacatctg ctagctttca
311451 gtgctgttgc tgtggagtct gaaaatctgt cttctggctt ccagggtgac
311501 tactggaaat tgaatgccat tctgttcctt ctcttttgca tatataatcc
311551 atttttatct ctcttgaagc ttataggttt atctttgtct caatgttctg
311601 tccctgttaa gagtccattt tcatcctttg tactaggtgc ctggtgggat
311651 cattccgtct gaaactaatg atttcccatc tcttcaactgt ttctggaatt
311701 cctgttttcc agatgttaga cctccagaat ttgatctcta attttcctat
311751 cttttctctt aactttcagc tctgtcttct tgctaggacc ttttcctagg
311801 agcattttct aatttaatct tccagtccat ctggtgcatt ttatttttct
311851 agtctcatat tgtctcatat ttttaatttc taagagctcc cttctccga
311901 atattctttt tttttaatag catcctattt tggctcatgg ttgcagtatt
311951 ttatctcctt gaagatgttt gtgtgtttat gtatgtatat gcacacacgt
312001 atacatacac atacaggcat gcatctctgt attctttcgg cataatctgt
312051 gtcctccagg gtttgtttct ttgtttcccc tgtatgtttg ttttggtcgt
312101 tcacattata ggctttcctc agagttaatg gtcttggtag tctactcata
312151 tttaagtgtg gaacacaaaa aagcttacta taagctgaga gtgtggtaaa
312201 gggctctttg ttttactatg acctacctga gctatcttgc tggggaacac
312251 cctaattgtc gtctctttat aaagggcctt tcattttggc ctggcaagaa
312301 atactctttc atcctcctgc atggagggca aaaaaaaatt taaaaattgg
312351 ctgctagggg ctgtctgtct acttccctgt tttgcagacc ccacactctt
312401 ctgcaattca tttcatagtt gtcaagacta tacaaattgt cttttttaat
312451 gttctctctt ctgctatccc tagttggcag tcttctctt tacaacctgc
312501 tgaaagtgga agacctccag ttttccttta attcctcagc aaaccaccaa
312551 ctattatatg tcttttttcc agaacaactt attttttaac tataattata
312601 tgcatttatg ttagattcac tgaaaacctc atcttgtag gtgctctgta
312651 ccctatgggt gctaaataaa ggcttgctac tggcaactgg atttaggata
312701 ggctaattct gcgtcctttt aagatatgct tatttaagcc aaactcggta
312751 tgataatttt tttttttttt tttttttttt tgagagggag tctggctctg
312801 tcgcctaggc aggagtgcag tggcgcgatc ttggctcact gcaacccccg
312851 cctcccgggt tcaagcgatt ctctgcctc agactcccga gtagctggga
312901 ttacaggcgc ccgccaccaa gcccggttaa tttttgtatt tttagtagag
312951 acgggggttc accatgttga ccaggctggg ctcgaactcc tgacctcgtg
313001 attcgcccac ctcggcctcc caaagtcctg gaactacagg cgtgagccac
313051 cgcgcccacc cggccagtat gatagttttt aggaggaacc ctgaggagag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

119 / 338

```

313101 tgattgtttc tcccgtgtg ttgtggggg tggagtaggg aagcctggcg
313151 tttgggggttt ttttgtttgt ttgttttttg tgtgtgtttg tttgtttgtt
313201 tgttttgaga cggagtcccg ctctgtagcc caggctggag tgtagtggcg
313251 cgatctcggc tcaactgcaag ccccgctcc cgattcaagc gattctcatg
313301 cctcagtgtc tggagtagct gggattacag gcacccgcca ccatgcccag
313351 ctaatttttg tatttttagt agagacgggg tttcaccatg ttggttaggc
313401 tgggtgttgaa ctctgacct cgtgatccgc cctcctcggc ctcccaaagt
313451 gctgggatta caggcgtgag ccactgctcc cggcgttttg gttttttaag
313501 ctattcaaat taagactaga ctggaatctg gagcagtgtg tgtgacaacc
313551 cctctctgca cacccaactt tccccgggcc ggctagtgc tcaaagcgac
313601 agcccagatt taagaaaacg aaacctagt cagctggggc acttccggga
313651 tctcgctatc cggccgccac ccgcagctgc agcacagtca tggcccaggc
313701 gtcgccgccc cggcccgaga ggggtgctcg cgcagcagc ccggaggccc
313751 ggcccgcgca ggaggcgctc ctcttccca ccggtgtgta ccgcgggggc
313801 gggcgggchg gcgggcgggg ctgggcagcg acgggcccgg tcaaggggch
313851 tgccttcchg tctggccgc atgggggccc gacctgccc tactccgggc
313901 cggggcccta gacgcgggg cggcgctgga cgaacttggc tcaccactcg
313951 cgtgcctgtt ggtgggggag ggggccagag gacaggcgcc ggcccaggcc
314001 agttccacag gtggtcttga ctgcccattg tttcgcgca gtggtgggca
314051 cgcttcgggt tacctcccc gcgggtgaca gccagtgct tccaccacaa
314101 ccgatgtcaa ctctcctagc gccctccgc tcaccggtaa accaggacag
314151 tggaggggch ccctgatgch gtgaggcagg gggcgccct gagggaagag
314201 ctgggtctca cgttcacgga ggacgtgact ggaaccgct tccccttctc
314251 cagtcgttcc agtcctcccc ggccctctac ttgagtgggt gggctctctg
314301 atgggttcct gcccttgct gtgtgtatag ctccaaacgg tgtgccaggc
314351 tcagggcaag gtcctgagca tacaagatg agttaggcag accctgccct
314401 agagactcta ctaggcaact ttaatgagga ggtcagaacc acagaggtag
314451 agatgagaga ctctgactc ccagtcttca gggaaagctt tttgaggaga
314501 ggatggctgg gcttaccctt ttttttttt tttttttttg agaggagttt
314551 cactcttgtt gccaggctg gagtgc aaaag gcgctatctc ggcccactgc
314601 aacctctgcc tcccgggttc aagcgattct cctgcctcag cctcccagct
314651 ggatgggatt acaggcatgt gccaccacgc ccagctaatt ttgtattttt
314701 agtagagagg gtttctccat gtttcatggg cttaccttta aagggaaga
314751 ctacagcaaa ggtggaaaag ttgaagggtt gttcccagca gagaggatga
314801 cacaaaggca ccaaaccaca aaacgtcaca cgtaaacatc atacgtggca
314851 accacaagcc aatcagttgg atatttcatt cattggtata catatggact
314901 gtaaggtaag tcacgggaga tgcgttcca tcctgacctc tctcctcaac
314951 tccagactgg tataaccaac ttcttccatt tctgaaatga tctcaaactg
315001 agtatgtccc aaagagaatt cttgtttcct ccactgtatt caggtagctc
315051 aaacctgctc aaccaccagc ccattccatt cggccagggt ctccttgcaa
315101 aaaccttagt ggctcctcag ggcctctctt tcctccggac accccttcta
315151 atgcatcagt cgggccagcc agttctgtgt tcagcctgac tgtatctgga
315201 gcctgactgc ttctcaccac ttccattact gccacccaag cctacgccat
315251 catgatcttc tgtctggact attgctttcc tggcttctat tctagccttt
315301 aatacaggca ggcctgcaga gcggccaaaa tgctttttga aaaacaaaaa
315351 gcaaatgtga ttctcctact caaaaccac caatagtctc ccatgactct
315401 cagaacaatc tatgagcctg gcctgcagtt taccocatgt ccttatctga
315451 tttgactcct gccatctta atgactctgc taccctgcta ccttgtaggt
315501 cctctaagcc accaaagctg tccctgcctc aggatcttct catttgctat
315551 tctctgcaag gaaaactcat tgccacatta tccattttc agttcccat
315601 catattcagg tgtctgctca tatacatctt ccctcaacct tgccctgcca
315651 tcctgtctaa aagagcacc cttgcccctg ctctgtcac tctctacctc
315701 cttctgctct attctttctc tatagtactt atcactacct ggaaaacaaa
315751 acaaaaactg tttaatgcct gtctctacca ctggccactg gcatgtaaat
315801 tctgttact ctcttctatc cttagtgct agactgggtg gcctagtagt
315851 agtagtagga catagtaggt actcattaaa tattaaataa tagtaagtcc
315901 tcattaaata tttgttgaag gaatgaatgt acttgatat aacactacgg
315951 agcttgactt ctgtaggtga tggggaaata tgagcagatg tccatttcag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

120 / 338

```

316001 gtagatcatt ctgacagtaa catagtacat ttccggtaga tcattctgac
316051 agtaacctag cacatttctg gtaaatacatt ctgacagtaa ctagtacat
316101 ttccggtaga tcattctgac agtaacctag tacatttcca gtagatcatt
316151 ctgacagtaa ctagtacat ttccagataga tcattctgac tgtaacctag
316201 tacatttccg ttagatcatt ctgacagtga cctggtagat ttccagtaga
316251 tcattctgac agtaacctag tacatttccg gtagatcatt ctgacagtag
316301 catagtgcatt ttccagtaga tcattctgac agtaacctag tacatttccg
316351 atagatcatt ctgacagtaa tataaagaat gcagtgggat catgacaggg
316401 aaaatagaga caaggacaag agatcactgg aatagactag gtgaaagacc
316451 ctgagggtaa ggcagtcacc cttccacacc gctgccagca ctgtcttctt
316501 cttaaacaca catgggcaca cacacatata aacatgtgag tgcacacaca
316551 cagatcaagt aagtcattgg ccttccagtg ttaataagca cgtactggct
316601 gcaagtacta caaaaacaat ttgatgtaat ttaagcatga gggatgctta
316651 gtagtagtaa gcaggaaaac cagactcaca gacccccaga gcatggatac
316701 tttagcatct tacagaaagg gctgaggact aggacctgag aagccattat
316751 aaactttgac aacactctcc tttatctctt atttctgcat ctctcagtgt
316801 atctgctttg ttcttctctt tctctgggtc agttttcctg gtgatgggat
316851 agaagatggc tgcccttgca gcctctcagt ttttacatct tctttaagaa
316901 accagcccaa tctgaactga aatcttctat cctgaattct gtatatctga
316951 gagatgagca ggtcctctgg gactatcagc tatgtctaga ggaatgaagt
317001 acaaacatgc ctgctggggg tcattgtgta cgcattcatt tgagctgaac
317051 agatacccta aaggagtcca ttgaatatcc tatccttagg ctccccatgg
317101 tccctcctct ataacacaca catccttatt cctatttata cattctaaag
317151 atattcccag tgatgcattc tgttcccagt aatgaattct agctatacca
317201 aaaccaaatt cagtcacact taacttctgc caaagtcata tctagccact
317251 tcatcctgag ataattgtat ggaaccattc attctccaag gccattacca
317301 agttccttgc caagcctcta ggtaattgtc actgttttgg tctgtatcca
317351 gttcaggtag gcattcactg gaccagtgat aaaattggct tctacacatc
317401 cagcaaacag tggaagaact aaaatagtaa attgcaataa acactaatga
317451 taaaaggaga agaaaggagg aaatctccaa accagcacca taaattagtt
317501 acctaccagt ccagaacaaa tctatactgg aaggggatcc taaatgaat
317551 gataggatta gtgaatccca ttccaactgt ttcacccatt tcttttagtg
317601 cagaatgtgt tccttgacca cgcttccctg ctaccccaga ttctgtgccc
317651 tgggtggatt acccttggct ggagggtctt aagagtagaa gctagagcct
317701 cggcaatcca tttccacatt gaagagggcc tgcagattgc cggagagatt
317751 aagaatcact gtgttggttg aattagtcac agttcttata ttccaggctt
317801 gtgatctttc tgtggtttca ttctgtataa actttcttgg ctctcagttt
317851 catttgtgag aattctaaaa ttctgcaatc ttgtcgggtc aggcctctgtg
317901 agtcctcagg gttgctaaac ccccttagaa aggagcctgg aaagccctgc
317951 tgactattct tgggtcccagc tactgatgaa aaccaatggg ctcttcccta
318001 aaatacctca gccttcatga cacaccttta ggtatccctc cctctctgaa
318051 tctgtacagt tcctgagttc agatggtagg ggataccaaa ctgtccaaat
318101 gtatgtgggt catgagtttc ggataacaca tagcaagagt tcagatagtg
318151 agagatgcct gtctgtgtaa aagtcctcag tgtgactccc atagttagag
318201 atgcctgtgt aaaagtcctc agtgtgactc ctccaactgc agagaattac
318251 acacttcctc cagtctagaa gatcaaaaga gctagaagag ccgaaatcca
318301 ttaagacact gtgatatggg gggatttagc aggaaaaagc cactagggag
318351 aacctgtggg tcccacccca tgtttttaat ccatctgcac tgaagacaaa
318401 ctctgggtct agcacagcag tgtgtcagc atatctgtct tgtctgtctt
318451 gttcttctct gtattccccg ttgtcagaga atacaaacca cctctgtatt
318501 cccagatgcc aagactcttg gaaccaagt acttgggagc tcagctcagg
318551 tatcagtgc ttgacagctc tgcccagtgc acagaaacaa gcaatgttgt
318601 acaaaaatgt tcagccctta tacaacaaga ggcagctgca tatcctgtca
318651 gatagtatcg cttttaattt gggagtcacc aacttttgtt tttttttttt
318701 tttgggtttt ttttttctga aatggagttt tgttctcatc gcctaggctg
318751 gagtgcaatg gtgcgatctc ggctcaccgc aacctccacc tcccagattc
318801 aagcgattct cctgcctcag cctcccagat agcggggatt acaggcatgc
318851 accaccacgc ctggctaatt ttgtattttt agtagagacg gggtttctcc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

121 / 338

```

318901 atgtttgtca ggctgctctt gaactcccga cctcaggtga tccgcctgcc
318951 tcggcctccc aaagtgctgg gattataggt gtgagccact acgcccagcc
319001 ccactggctt tttttaagcc tgtactttac aagttttaat gtctgttttg
319051 agtgtccttt aataagaaca cagtattcta tcaaagtaga ttttgggtct
319101 gaggtaatta gaatattggg atgtttttcc cccagtttca tcctagggca
319151 ggggactttg tgttgctaaa tattaacata tattctaaaa cattgaaaat
319201 ttttaagtga gcattgttca atggaataaa acagaagcac aggaggaaca
319251 gatccaacta tatgaaaagg agatttttaa ttagtggcta accattatga
319301 atataagtta gattcccatc tcatacatta caaaacaatt tattctatgt
319351 tcatgaatag ttttaattctt tttttgtttc attttgtttt gtttttttga
319401 ggagtttcgc ccttgctgcc caggctagca tgcagtgggt caatctcagc
319451 tcaactgcaac ctccctctcc caggttcaag tgattctctt gcctcagcct
319501 cccgagtagc tgggattata ggtgtccgcc accatgcccg gctaattttt
319551 gtaatttttag tagagacagg gtttcaccat gttggctcagg ctgggtctcga
319601 actcctgacc tcaggtgatc caccgcctc ggccctccaa agtgctggga
319651 ttacaggtgt gagccaccgc gcccgccaa tattttaatt ctaaaattaa
319701 attaaggcag gacatggtgc ctcatgcctg taatcccagc actttgggag
319751 gctcaggagg gaggatcact tgagcctagg agttcgaaac catcctggac
319801 aacatggcaa gatccctcct ctacacaaaa atttaaaaaat tagctagatg
319851 tggttgcatg cacctgtaat cccagctact ttggaggctg aggtgagagg
319901 atcacttgag ctggggagggt tgaggctgca gtgagccatg atcatgccac
319951 tgcactccaa gcttgggtga cagggaaga ccctgtctca aaataaataa
320001 attgattaat taaaataaat taaaattcta gaagaaaaca gaggtaagtg
320051 ttttctatgt ccatctcacc caagagcaga aatcataaaa taaatgattg
320101 ttgtaatttc atcaagtaaa acatttaaat attctgtata tcaaagaata
320151 ttataaacia agttaaaaga ccacatatat gactaaciaa gggttaatac
320201 cctgactgtt ataaaccaat aagaaaataa taattcaaca gaaaaatggg
320251 ctaaggacat gagtgcctta gagaagaaat gggattgtga ccttactgca
320301 tgttacattc gtaagtccag attatgatcc acttctctct gcatttcgtg
320351 ttctttcctt tgacttcata atctaacctt ctgtcctaac tgtacctga
320401 taatacgttt atttgtttgt ttgttttgag acggagtttc actcttggtg
320451 cccaggccac agtgacgtgg cacattcttg gctcactgca acctctgctt
320501 cccaggcca agggattctc ctgcctcagc ctcccagata gctgggataa
320551 caggcatgca ccaccacgcc tagctaattt ttttttttaa thtagtagag
320601 atggggtttc accatgttag ccaggatggg ctcgatctcc tgatcttggtg
320651 atccaccac ctcggcctcc caaagtgcag ggattacagg cgtgagcacc
320701 gtgcccagac aagattgacc ttcttaaaaca actttgtcat catgtgcttc
320751 tcctgctcag acatcctcct tggcagcctt tcaacacggt tctcaaatcc
320801 tttcccagct tcctgtgcag cctttcctcc tcagcctggc tgccttactg
320851 tctcagctcc gatctctggg ccttttccca tatggctgct tccctctaca
320901 gtgttcctcc tagcccatat cccaaccac cccaccttcc cctcctctcc
320951 aggttgtagc agttccaggc ccctgccctt gacaatactc cttcccacga
321001 ggagcacttc ctcggtacc tccttagcgt gtattggaat tcccactcac
321051 ttggcagttg cactttgtga cacttaattc tgccatttta ttttcctaac
321101 tgctatttag tctccctgtt tatttcgtaa gcttcttgca gacaccagtt
321151 ctatctcacc acatttcttt acgtcctctg ctctactatt cactagagga
321201 gcccctcacc acagatagct gttgagcacg tacaatgtga ctggctctat
321251 tgagacatgc ttttaagcaca gaatacacac tggacttcaa agactctgta
321301 caaaagaatg aataactttt atattgacta aatgttgaaa ggatgtaagt
321351 tctttgacat atttgggtgc ataaagcaca ttattagctt cacctgtttc
321401 ttttttgggt tttttgtttg tttgtttgtg tcgtttttga gacagagcct
321451 cattctgttg cccaggctgg agtgacgtgg cacaatttca gctcactgca
321501 gcctctgcct cctgggtgca agcaattctc gtgcctcagc ctcccagata
321551 gctggaatta cagggtgtgt ccaccatact gggctaattt ttttgattt
321601 ttagtagtga catgttggtc aagctggtct tgaactcctg acctcaggtg
321651 atccaccac ctacgcctcc cgaagtctct ggattatagg cgtgagccac
321701 taggcccagc ctcccttttg atttttttaa tgaggctcct agaaagtttt
321751 cagtgatata tgtggctcac atttgtgtct tggtatatgt ttcttggtgg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

122 / 338

```

321801 acagcatcgg tctagagtgc acaacatagt gactcaaaca caagaaatgc
321851 tctcaggctg ggtgcagtgg ctcacacttg taatctcagc actttgggag
321901 gccaagcagg ctgatcttga gcctaggagt ttgagaccag cctgggcaac
321951 ataatgggac ccctgtctct aaaaaaaaaa ataacaaaaa ttagccagac
322001 atggtggcct atatctgttg tcccagctac tgagggtggga gactgaggtg
322051 ggaggatcac ttgagccctg gaggcagagg ttgcagtgag ccatcattgc
322101 gccactgcac tccaacctga gtgacagagc gagactctgt ctaaaaaaaaa
322151 agatactccc cagccccccg cccgggccag cggccccgtc gggaggtgag
322201 gggcgctctt gcctggccgc ccctactggg aagtgaggag cccctctgcc
322251 cggccagccg ccccgctccg gagggaggtg ggggggtcag cccccgccg
322301 gccagccgcc ccgtccggga ggtgagaggc gcctctgccc ggccgccctt
322351 actaggaagt gaggagcccc tctgcccggc caccaccccg tctgggaggt
322401 gtaccaaca gctcattgag aacgggccag gatgacaatc gcggctttgt
322451 ggaatagaaa ggggggaaa ggtgggaaa gattgagaaa tcggatggtt
322501 gccgtgtctg tgtagaaaga agtagacatg ggagactttt cattttgttc
322551 tgtactaaga aaaattcttc tgccttggga tcctgttgat ctgtgacctt
322601 accccaacc ctgtgctctc tgaaacatgt gctgtgtcca ctcagggtta
322651 aatggattaa gggcggtgca agatgtgctt tgttaaacag atgcttgaag
322701 gcagcatgct cgttaagagt catcaccact cccaatctc aagtaccag
322751 ggacacaaac actgtgagaa acaccaaga atgataaata aaaaataaat
322801 aaaaaataa taaaaaata aataaataa aatgaaaaa aaaaaaaga
322851 tactcccaa tttttggtt ttagacatga atgaaaaaa cagctagctc
322901 attccgtctg agcagttttc actctatctt accctttttt cttgcttggt
322951 gggagctgg ggactgttaa tttgtgtccc cggtaggtgg gacccaaac
323001 caagaaacag aaattaaaga agaaactgat cagaatgtga aataaacgct
323051 agctccaat gcagccttct gacttggtga aatgaaagac ctaacttaa
323101 gagacagaga agagatctgg ataacagaag agacttaggg atcacttaag
323151 cagttaacct catctaaatt gaaaactttt cccattaaat ggtaaaata
323201 atctttctt caaaactaaa atttgaaaat tataaataa agctgttttc
323251 tactacagaa aatcaaagga agtaagagga tgaacattgc aatgggcaa
323301 aaaatcttaa acgaattctt gtggccaaat agcaaataac cagttcaaaa
323351 actttgcctc ttactgacac atgggtggag atctcaacag ctggctttct
323401 tctccctctc tctgcctctt gccttttctt cctacctctt cttcccttag
323451 atttctttcc ttttttccat tcttcgcctt aaaaaaaaaa tctacttct
323501 accttcatgt atctttccta atcatgatat tgaattaaag cacacttaa
323551 gtacattgct catttatgtc tttaattctc atagaattta tttttgaata
323601 cagtatggca ttaggattct aacttttta atagataatt aaccagagca
323651 ctatttctta atatgccatt gttttcttct tcattttagt tgacaataat
323701 gattattatt gagagcttgc tatgggcaa gcagtgtttt gagaggtttg
323751 cctgtattta aattcctggt tgtgtttctt gaataaagg cttcctcatt
323801 ttggccaggc acagtagctc gtgcctgtaa tcccagcact ttgaaaatgc
323851 caaggcagaa ggatcacttg aggccaggag cttgagaaca gccttggcaa
323901 ggtagcaaga ccccggtctc taaaaaaaaa aaaaaaaaaa ttagctggct
323951 ttggtggcat gcacctatag tcccagtgac ttgagaggac cacttgaggt
324001 tgggagttca aggctgcagt gagccactgc actccagcct ggtcaactga
324051 acaagcctct tgtctctaca ttttaaaaag aagaagttat cctcattatt
324101 aggcatttag aagtgaactc attaatctt ttcttctatt agcatagtaa
324151 aaaataaaaa ataatagct ttttcaactt ggtccccaat attttgtctc
324201 tctgggaatt aagactctct cataaaaaa agtgccctgc cttccacttg
324251 aagactggaa gaggagttag tgagaccaag aaattccact tttccatttc
324301 tcaccaggga tattacttat aggtgtcttt cagggtgcag aaaagatgga
324351 aaaaaggaca tgtgcactct gcccaaaga tgtcgaatat aatgtcctat
324401 actttgcaca atcagagaat atagctgctc atgagaattg tttggtaagt
324451 tacttgaaaa catacttcaa agtacatgag tacttttagt gtaggacaca
324501 taagaataga taaacaacac tttggacaca aagaataaca agttggccat
324551 ggtttgagct tttaggtgaa gattggggag catttctttt ttttttttt
324601 tttttttttg agacggagt tcactctgtc acccaggctg gagtgtggtg
324651 gcgcaatctt gaatcactgc aagctccgct tcccgggttc acgccattct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

123 / 338

```

324701 cctgcctcag cctccccgagt agctgggact acaggtgccc gccaccatgc
324751 caggctaatt ttttttgtat ttttagtaga gatgggggtt caccgtgtta
324801 gccaggatga tctcgatctc ctgacctcgt gatctgccc cctcggcctc
324851 ccaaagtgct gggattacag gtgtgagcca ccacgcccgg gcctggggag
324901 catatttttc tgactttgaa ctgtttcaga tttaaaatat aacagacact
324951 gatagacctt ctaccaggt ataatttcta tcaaagtcta cagaattctg
325001 agatttatcc atgttggtta acatagctct aagtccttca ttttaaatat
325051 gatgttcgat ttcatgacta tattaccatt aactgttctg tgaatgggca
325101 tttagttttt ccagtattgt tttctatgac taacaagtcg tcatgaacat
325151 tcttgtctag gtctccttct catgtgagaa tttccctagt ctaggctata
325201 cagctaagag cagaattggt aggcacagga atgggggtgt ttgtacttga
325251 ctaaatacac caaattgttc ttcaaagaga ttgtaccatt taatacacct
325301 aacttaccaa acatcatagc ttagtctagc tcaccttaaa catgttcagg
325351 acacttacgt tagcccacag ttgggcacat catctaagtc aatgcctgtt
325401 ttataacaaa gtcttgaata tctcataaaa tttattgaat actgtataga
325451 aagtgaaaaa cagaatgggt tatgggtact atacaggagg atgtgtgtag
325501 gttatatgaa aatgctatgc cttttagata agggaactga gcattcacgg
325551 attttggtag ccttgggggt tcctggaacc aatcccctgc agacactgag
325601 ggacgactgc actatggctt tattactagc cttggctttt attttggcac
325651 tttgaatttg tggatcagct tttcatgttt gaccaaata ctttttgaa
325701 ttttgattgg aattgcattg catttataga tgaatttggg aaaaaatat
325751 acacattcat atattataat atattataaa taattaatat aaataattag
325801 agagacaaaa cctgttaatg gatgggaaaa agatgcattc atatattata
325851 tgtattaata tattattaat gcagtatgta ttaatatatt attaattgtt
325901 tatgtattaa tatattattg tgttatgtat taatatatta ttaattgttt
325951 atgtattaat atattaatta tatattatat aaatataaat aatatgcatt
326001 ttatataata tattactata ttcatatatt actatattca tatattcata
326051 tataatatat tactatatta tatattataa tatatgaatg tgcctttttt
326101 ttcccatcca ttaacagagt ctgtctctcc aattatttag gtcttttata
326151 aattttcaaaa ctgttaaata atttttatct gtagtcatat agaacttggg
326201 gttgggcata ttcttgggca agttttttgt tttgttttgt tttgttactt
326251 ttttctaaaa gcttttttaa tgaactatta tcagtatata taaacactat
326301 ttatttttat ttattgatct catccagcaa ccttaccaaa gtcttattag
326351 ttctaaaact tctctagatt tacctggata tattgtatgt ggacaatcct
326401 catctttaaa taagaacaat tttatttact tacctttaat tcgggggact
326451 cttaatctct ttttcttgtg tttttccaga acattcaatt atagcgggtg
326501 ttacaagcaa ttaaatttgg aagccctgtc ttgcttctga tattaatggg
326551 atgctccaaa aatcttatca tttaaatttgt gtatgtttta cattcttaat
326601 gatctcattt aattaaaata aggaagttac ctttatctct aatttgctaa
326651 aaattatagc gtattgaata ttactaaatg cttgttctgc atctattgaa
326701 atgatccggg ttctttttct ctctctggcc acaaacagtg ctaaattgctt
326751 tattttattt cactttttta tatacataat ttgatgttta ttttaaatta
326801 caaatttatg gaaaagtgtc atatacagta caaagaactt ttttgggtca
326851 gaaccatttt aaattaaatg atatgcaatc tatcctgaat acttttagtat
326901 gatttttttt tttttttgag acagagtctt gctctgtcgc cccaggctgg
326951 agtgcaatgg tgtgatcttg gctcactgca acctccactt cccagggtca
327001 agcgattctc ctgcctcagc ctccaagta gctgggatta caggcacatg
327051 ccaccacgcc cagctaattt tttgtatttg tggtagagat ggggtttcac
327101 gtgttagcca agatgggtct gatctcttga cctcgtgatc caccacctc
327151 agcctcccaa agttctggga ttacaggcat gagtcactgt gccagcctt
327201 tagtatgtat tttctacaaa taagggtgata tgctttggct gtgtccccac
327251 ccaaattctc ctttgaattg taataatccc cacgtgtcaa gggaggagcc
327301 aggtggagat aagtgaatca tgggagcagg tttttcccag gccattcaca
327351 tgatagtgat agtgaataaa tctcatgaaa tctgatgggt ttataaagag
327401 gagttcccca aaaatctctc ttgcctgctg ccatgtaaaa catgactttg
327451 ctccccctta ctttcttccg tgattgtgag gcctctccag ccatgtggaa
327501 ttgtgagtcc attaaacctc ttttcttta taaattacc agtcttgcgt
327551 atgtctttat tagcagtgtg agaactgact aatacacaa gacattctct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

124 / 338

```

327601 ctcacactat aacaatataa acgtcaaaat caggaaattt tggtatacta
327651 ctaccgtcta ttccctcaaac cactgagggt tcacctgttg tactaataac
327701 gtgtgtgtgt gtgtgtgtgc tttttttttg agacaagggt tcactctgtt
327751 gcccagggct agagtgcagt ggcaccatca tgccctactg caactttgac
327801 ctccctgggt caagtgattc tcccactctca gcctccagag tagctgggac
327851 tataggcatg tgccactgtg cccagctaat gttttgtact tttttagagag
327901 atgggggttt gccatgttgc ccagggttgg atccaacccc tgggctcaag
327951 caatcctccc acctcagcct cccaaatgct ggaattacag gtgtgagcca
328001 ccatacctgg cctaataaca ttttttataa caaaagattt tagctcatgg
328051 gttgcatttg gttatcatgt cttaagtttt ttcattttat tctgttagta
328101 atgtgtgttt tacttatata ttttttctgc tgtgaaacca ttcttagatt
328151 aacaccattt aatggtgatg ttttattttt acttatttat ttgagacaag
328201 gtctccccag gctggaatgg agtggcataa tcatagctca ctgcagcctt
328251 gaactcctgg gcttaagcaa ttctcccacc tcagcttggg ctacaagcac
328301 gtaccacat acccagctaa ttttttattt atctttttgt agaaatgggg
328351 gtcccactat gttgctcagg ctcatctcga actcctggcc tcaagtgatt
328401 ctccctgtctc agcctcccaa agtggtggga ttagaggcgt gagctaccgc
328451 tcccagccca atcgtgatgt ttttattcta atatactgtt gatgttgatt
328501 tgctactatt ttttagttaa ctttattggc ataatttaca taaaatcaaa
328551 tgtaccattt ttaagtgtcc aattcagaaa gttttgagac atgttgagac
328601 ccatgcaacc actaccacca tcaagatata aacatttcca ttaccccaa
328651 gggtttcctc aatgttctgt gcaatcaatt ccttcctacc ccaagtccct
328701 gtagatttgt cttatctttt ctgagatttc atatgaaagg aatcctatag
328751 ttgtcctcct ttgtgtcact tcctttgctc agcatactgt ttagatgca
328801 tctatgttgc atgtatctgt atcttgttcc tttatcattc ttcacagtac
328851 ttaattggta tgcattgtat acaatttgct tattcattca tctgttggtg
328901 gacatgtgtt atttccagtt tggagctctt atgataaaaa tcagctataa
328951 gcatctgtat atgagctctt gtgtctttat ttaggccttt cataatttca
329001 aaattgttca atggcttttt tttttttttt tgagacggag tttcgctttt
329051 tttgcccagg ctggagtgtg atggcgcgat ctgggctcac tgcaccctcc
329101 gcctcacagg ttcaagcagt tctcctgcct cagcctcgcg agtagctggg
329151 attacaggca cctgccacca tgcccagcta attttttgta tttttagtag
329201 ggatgggggt tcaccatgtt ggcctgactg gtctcgatct cctgacctca
329251 ggtgatccac ctgccttggg ctcccaaagt gttgggatta caggcgtgag
329301 ccaccgcacc cggctattca gtaattttta tctgtagagg tatagaactt
329351 ggggttaggc atattctggg cttgtttttt gttttgtttt gttacttttt
329401 tctaaagtat ttttaaataa gctattatca gtatatatga acactattga
329451 tttttattta ttggtctcat ccagcaacct taccaaactc ttatcagttc
329501 taaaaagtct ctagatttac ctggatatat tgtatgtgga caatcctcat
329551 ctttaaataa ggacaatttt aatttggggc actcagctct cttttcttgt
329601 ttggttatgt ttgtcttggg taaatagcta gaagtagaat tactgagtca
329651 taaagttagt gtatgtttta ccttaaaagt gattgcatta ttttacattt
329701 ctaccaataa tatgtaagaa tttcatttgc tccacatcct catcaacact
329751 gggctcttgt attttaggca gtctagtaga tatatattgc atctcactat
329801 ggctttaata tgcctaaggg ttaatgatat tgagcatctt ctcatgtgct
329851 catttgccat tcataaacct tctttcatga agtgtctatt caaattttgt
329901 gcccactttt aattgaattg tcttattatt gagttgtaag tgttttctaa
329951 aatctggata caagtctttt gtcagagata tgtattgtga atattttctc
330001 ccagtctctg gcttgccctt ttgttttctt agcaatgtct ttcaaagaca
330051 atttttattt tgatggaatc caacttactt tttctttatg ctttctgatt
330101 tttataagaa atcttcgcct atgccaatgt caccaaaatt tactcttatg
330151 tttctcatgc ctttttggtt tttgagtgtg atatgtgaaa cattgatctt
330201 caattcagat ttggagtctt ctgggttcaa gtagcacata gagacttgag
330251 ccagcctaaa cataaaagag ggtttatgat aagggttttg gggcatttca
330301 tgtttcctaa aggcaggcat gcagggtggg gtaagaaaca gctagaaagc
330351 cattgggaac ctagaatgtc ctctttctag cccttgtttt tctttctttg
330401 cagactgact tgctctaacc acgtggcttc agctattgct caaagcccat
330451 tccacacttt taggataggg gatcagactg acccagcttg gcatcagggt

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

125 / 338

```

330501 tccacccagg tcaatgagtt attagaggtc aggattacaa agtataaaac
330551 atgcccggaa accaggggtca ttcccagaga aatgggatgg cttatgggtct
330601 gctcatccac ccccaaagtt gccactgttt tacccccagt ccatttccca
330651 ctccctggttt gattttccac ttttggtatg attttctgac atgtagcttt
330701 caatattact ttgtgcatac tctggatttt tttttccaat ctgcagctgt
330751 attcttcagg acttgtggaa tgtgaggatc aggatccact taatcctgat
330801 agaagttttg atgtggaatc agtaaagaaa gaaatccaga gaggaaggaa
330851 gttggtaagt gtaaatgatg ttatttctta tactggatga acagaccctc
330901 aaggaaatgca ttccaaagga gtctatttga ctgatacacc agggatagag
330951 aagcatcttg gagagctgga agaagtagga actgtattgg aaacctcaat
331001 tcaacttaac atttaatttt tttttttttt tttttgagac ggagttttgc
331051 tcttggtgcc caggctagag tgcagtgaca cggctctcagc tcaactgcaac
331101 ctccgcctcc tgggttcaag cgattctcct gcctcagcct cccgagtagc
331151 taggattaca ggcacgggcc accatgctcg gcaaattttt gtatttttag
331201 tagagacagg gtttcaccat gttggccagg ctggctcgca actcctgacc
331251 tcaggtgatc tgcctgcctt ggcttcccaa agtgctggga ttacaggtgt
331301 gagccaccac gcccggccaa catttaatat tttaaaataa actaccatat
331351 acttcaccag taaagtgatc tgagttagaa tgcttttgct gtaagtagaa
331401 gaaagctcaa gtcaaacaga cttttacaaa gaggatactt actttttcac
331451 ttgatcagag aaaacacctg ctttccaagt tggttgattg agtggcttga
331501 taatgtcatc aggggccag gttcttcctc tctggcctcc tgtcccaac
331551 atcagctggt ccattgttg tcatagggtg gccgcaggca gcaactgaag
331601 catcaggctt tcttgttcat acccagtgaa agacaaaggt catccataca
331651 catggaataa gcccccttct gaaagtttca ttaggttgca cccctcttct
331701 tgcaccaact gctgggggtg gccataacta atcaggggtc agctcctcat
331751 gggtcataag ggggctattc aaggaggaag aaatgctgag aagtcattcc
331801 actgggctta ttgcagcgac atcctctcaa ggacccttca catcttagca
331851 agcaggacag caagtgtgag cacctcacat tctgactaca accacagggt
331901 taataaccag ggacaaatgt atagttagtc tttgcaaggc atcagcatca
331951 gcagcatcct gtggtagggt tgttacatac attgctctag gtaaaactccc
332001 agctataggt aaaatgatgc ccattttaat cgaagaaatg gaaagtgcag
332051 ggtgaaaggc aacagtccag atggaattct gcaaattatg ctatcttagg
332101 cagtgtacac aatactgtag taggtcctga agcaagccat aaaaatggac
332151 tgtgtgtggc ccgggcatgg tgctgcatgc ctctaatecc agcactttgg
332201 gaagccaagg cagttgagga ctgcttgagc ccaggaattt gagaccaacc
332251 tgggcaatat agtgggaccc tgtctttacc aaaaaagaaa aaaaaattag
332301 cccgacacag tggcatatac ctgtagtccc agctacttgg gaggtgagg
332351 taggaggatt gggtagcctt ggaaagtcca ggctgcagtg agctgtgatc
332401 acaccactgt actccagcct gggcaacaga gtgagactct gtctcaaatt
332451 aaaaaaaaaa aaaaagagtg tgtggatcct gctctcaatg tctatgctat
332501 tactaattaa tacttggaac gactggctgc tgacatcatt agtgctgaca
332551 atgccacatc cctaggattt tgggtgtgat gagatgggtg aactgattag
332601 aaagtagcag acagacctca actggaatat ttttttgctc ttcactaatt
332651 ggatttgagt ggggagacac agagttaaag aaatctctgt gaaattctag
332701 tagccatcca gttatgaaga gaccaggct gagaaatgag ggcagttgat
332751 tggaggcata atatttgggg gaaagcaggt acctgagggt ttctgcggac
332801 cttgggatgc agacttcctt actgggaagg ctttgggatg ggttggaagt
332851 ggaggataaa ggagagaaga gaggaaagtc acctgaggta atagttaccc
332901 tctcacagca tttatggaac tcttggaacta tgtgggcaga tacatggcac
332951 acaccagggt tggggacagg ccagtgtgtg ggtattttca gtaagctggg
333001 caagtacctt gaggggtgagc agcaggggcc ctcagcaagc aggctcctcc
333051 ctaggattca gactaccaat ctgacagagc cacatggaca tccaatagca
333101 tttcagagta aagtggccaa aaaagtacag ttccatctcc tatacacaca
333151 cacacacaca cacacacaca cacacacaca cacacacaca cattctccat
333201 ctaaatctgc tcataaaaac agcactatca ttatccattt gcccaagcca
333251 gaagtctaag gactctcttt tctcgtcaa cctcccagcc caacaccaag
333301 cccatgggca cgaactccta ggtgcattct gcattcatcc acccacttct
333351 ctcagcgtca gtaatccacc atagcggagt caccatctt gttctctaaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

126 / 338

```

333401 gcgagtactg acactcgccc gactgtctct cctgccatcc ctaccccagc
333451 ccgtagttct ccacccagca gcagcccagc agcctgagtg atctttcaat
333501 aatgttaatc agtttatgtt ccccgtagcag aaagataaaa cccaactcct
333551 tactctggca tgtaagtcct acgtgaccca gcccttactt acccctttga
333601 tcatectgag acttccctgt gccacttcg ctgctccaac agcactggcc
333651 atctgtcttg tctcgtctgt agcttgccaa tggggaagct cattcttgcg
333701 gccaagaccc aaggccctct gcttagaatg tctttcctcc tcctttttgc
333751 atctgggagc tcttactatt attcagatct cagcttccat atcacctcct
333801 tagaggtgac ccattttact aactgcccag tctgaagtag ggacccagtg
333851 acactgtcac ttcaccctat tttaattcga tataatgtgt atataacttt
333901 gtgagacgtt ttaaaactttg ctttatattga tcattgtacc ttgtctccaa
333951 tagaatgtaa gcttcacgtg gacaggcatc ttttctgctt tgtccactac
334001 tgttttccct tatectaaaa ccatgcctgc cacatcatag ctactgcatg
334051 ctaaataaat actatatact catgtatttt taaatgaata aatgtttatt
334101 agccatttgt attttttctt ctgtaatttg ccagttacca tttttctgca
334151 ggttatcaga atcttaaaac tttatctagt atgctacaaa cattcttctt
334201 tcaatctttt cttgtctttt taaatatattt gaatgccctc actataaaat
334251 ggaagttaa aatttttgta tagtaggttc tgtcagtttt tgtttttgaa
334301 acagattctc cgtctgtcgc ccaggctgga gtgcaatcac agctcaccgc
334351 agccttgatt tcctggcccc aagccatctt ctggcttcag cctcccaaat
334401 agctgggact acaggagtgt gccactatgc cccgctgatt tttaaagttt
334451 tttgtagaga tgaggtctca ctgtgttgct caagctggtc tcgaactcct
334501 gggctcaagc aatcctcctg cctcagcctc ccaaagtact aggattacag
334551 gcatgggcca ccatgccag cctgtcagag ttttcatttg tggcttctgg
334601 gttttcttcc tgccttagac agccttcctt gcctccatac tacgcttttt
334651 ttctttctcc tatatttcct aatctttaag agttttttgt ttaacattgt
334701 tatctggttc gagctttaat ccatgtacaa cttattcagg agtatattgt
334751 gaggtaggga tctaacttta tttttttcct atatacatag ccagttaccc
334801 tcctcccaaa ttaaatgata gttcttgat gctctgattt gaatttcac
334851 cgttatcata accttatttc ttgcctatat ttgaatttcc tttaaactgtt
334901 tctatgcttg cttgtgccga ccctgggcta tgggtgtgagt gacctcctgt
334951 tctgcaaggc aatttcactg tgccccacg tcattcagcc agagtatcat
335001 gctgatcagc cttggtcctg gctggattcc cctaaaccag ttaggctgct
335051 gtggccacac actgcctagc catcatgaca ccactgtcac atataaaata
335101 ccagatagat aaatacaagc cagggatcaa ataaattgaa ccaagaaaaa
335151 actgttaata gagttgtaga atttttaaaa atttttggcc ctactaccta
335201 gattccctta ctttatctca cattatcctc aatggcaact ctgtaagaca
335251 gatattatca cccacagcag gttctgagtc cgaaagagaa atcacaccac
335301 tctccgtggc acagccagcg accaatctcg cctgtctcaa agggccccct
335351 agtggggccc cttgcctgga gctggacaag tttgccact ctgcttttta
335401 gaaaattctt tttaaaagac agagactgtt tttttgaaac aaaaagcatt
335451 tttctgcttt taatcagatc attacaaaac tgtctgtcca agcattccgg
335501 ttagctgagg tttcgtgaa attcccaaat gagcagccaa atataagtac
335551 tgtaccctaa tgtttgtaac gggatggaat cttgctgatg atgccagga
335601 taaaatgcag ggcttctgga acttaataaa catttaatga tatctttgaa
335651 ttttaacaaa taacaacaaa caggtaactta ctcaagtaaaa tctattcttc
335701 tgtagaaatg caaattttgt cataaaagag gagccaccgt gggatgtgat
335751 ttaaaaaact gtaacaagaa ttaccacttt ttctgtgcca agaaggacga
335801 cgcagttcca cagtctgatg gagttcgagg aatttataag tatttaataa
335851 aacattttta aaaccacatt tgggggattg ggataaggaa tggttggatt
335901 aagacaagga gactttgaag actaatttta tgtaaatggt tttcaaatga
335951 gaacaaagcc agtttggggg atgcacaggg gttatgtgaa ttttgaattt
336001 cagtgaaaaa tctatatata tatatatatt attttagtca caatatcttg
336051 aataatgaga tcaatgttag gacagcatgt ttttttaaat atgatttttg
336101 tgagctatgt tacattcgta agatgatttt taaaaattcc attcagaggc
336151 tgatgttttt cctgccagtg ggcataatatt cctaattttc ccatagtgtt
336201 ccaggcacta ttttatattt ttatttaata accacttgct ttatgccagg
336251 catagttcta agtgctttac aaatgttaac tcatttaatc ctcataatag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

127 / 338

```

336301 tcaactgagg tagatactat tatctccatt ttccagagga ggaaactggg
336351 gccttgagac actcagtgac ttgtccccag gttacacagc tggtcagtgg
336401 cagagctggg ctgcaggact tccaagtcct cgctctttgc caccttgttg
336451 tcttcaggta tggggactat atattctaaa acaagagggc aagcctacca
336501 ttgaaagaag cttgctaaat aatTTTTTTT tttttttttt tgagacagag
336551 tctcgctctg tcgcccaggc tggagtgcag tggcgcgatc tcggctcact
336601 gcaagctccg cctcccgggt tcacgccatt ctctgcctc agcctcccga
336651 gtagctggga ctacaggcgc ccgctaccac gcccggttaa ttttttgtat
336701 ttttagtaga gacggggttt caccgtgtta gccaggatgg tctcaatctc
336751 ctgacctcgt gatccgcccg cctcggcctc ccaaagtgct gggattacag
336801 gcgtgagcca ccgcgcccg gctaaataat tttaaactctg atttcgagca
336851 agttccgtaa gtattttgtt gctaatacaga catgaaatgt gtaaatatgt
336901 aaatttcgta ctgcacttct ttttatattt gattcactaa gaaactcaca
336951 gggtgttata gtctcagagt ttcattttta ttatttacct taccaaagag
337001 ctcgtttttag tatgaccttt acaatgacct taaacacaag atcaaatgaa
337051 aaggaatgtc cctgctatag cttaaagttt gaaaaaatat actgatcaca
337101 cccattagaa gaactaacia atagggactc aataaaacag tcttcttgca
337151 ttgtttttatc aaggaacagg tgaattttta cgcattttta aactgaattt
337201 aaaccttcac gcctatcata catgaggcac cttgctaggt gctacgagat
337251 acaaagaata aaatatagat tgaacctcag agaagttatc acctggtggg
337301 aaggccagaa gaaggggtcaa tgcaaacaga agcacatggg ataacgagag
337351 caggaggggt tacatgaaag gagcttggcc ttgagaattg ttgacactgt
337401 ggaatggatg gggacatggg ggttcacccct gatattttca acactgtttt
337451 atatgtttga aaaaatttaa gtacttggga agtgaaagtg ctgagagata
337501 ccagaatcaa agtgggatga gattaacttt gtttgggtgt tgctgggaag
337551 actgcatgga ggaggtggga actggtataa gatgggaaga aacggtattc
337601 ccctaggcaa ggaggccact gcttccctgag agtcagcgcc atctgaagag
337651 gaagggagat gaagctgggt gccgaggagg aggaaagggt agaaagtggc
337701 ctgagcagct ctataaaacg attcacttca tttcttttgt tttgttttgt
337751 ttttaagacag agtcttgctc tgtggcccag gctggactgc aatggtgcga
337801 tctcagctca ctgcaacttc cagcctcctg ggttcaagcg attctcctgc
337851 ctcagcctcc tgagtagctg ggtctacagg cacgtgccac catgcccagc
337901 taatttttgt atttttagta gaggcgggggt ttcacatgt tgccaggag
337951 ggtctccatc tcttgacctc gtgatctgcc cgcctcgcc tcccaaatg
338001 ctgggattac aggcattgagc caccgtgcc ggctcactt catttcttca
338051 tcatagcctg ctatgctgct gctttctctt ggaagatact aatcagttct
338101 aggcccttg taggtcaaat ctaagatctg gggcaaatac ctgttttcat
338151 cgaaaatgac ttttccctta aattaatgct tgcaattttg tgctatttat
338201 tgttgaaaac cagcagaatc ttgtacagtc agatggaaat ctgcatgtct
338251 tagattgtgg atcttttaggt atctttatac agtaaaatct cactgaccac
338301 tgtatatgaa ctagtatigt tcataatact tcatcagtac tcatccttg
338351 aaagaacata atcatcttcc taagtcctg agggcataaa agacatctaa
338401 ctgagtctcc atctgcactc agtgtgggtc actaatttta cacagggtct
338451 caaaaaaaaa aacttttagtg tgacgccgtc atgaaaagta gggtgttacg
338501 tttttaatca caaaaataga cataatatTTT gaaacctgta aataaaaaata
338551 ttttacaatt ctttgaaatt aaatatTTTca gactgctttg ccagcaacat
338601 gctcaattcc cgatcatcgc tcaaagtggT aagtttctaa aatttagcac
338651 tgtgggtttt aaagaaaggT aaacatttat gtaacataag gaatagtcta
338701 attttctagc ctcgttgaat taaaatacaa atgtttgagt taaaatttta
338751 cacatctaga aaattgacaa cttctttgtg tactatgtga tatgactgac
338801 taattttttc ttctttatga acaagacctt ttctctttga accattccct
338851 ggtatctttc attctcccta cgctcacaga accaaactaa gacatgggaa
338901 aaagccttga cttttgggac tgcttctctt ccataagaat tttcagtaga
338951 taaaatttta aaagtgtgct accttccctg agtgaaaatt ccctaaggat
339001 gcatggttag catttcagtt ctaattaagg cagactggat cctggctaac
339051 tggagtcatg gggataactt tcattcatga gtggaacagc agtgtcttag
339101 cagcactaca tctgcaatgt tcattgtgaa gtggagtcag gacctcgttg
339151 gaagacttcg ttctgcgtca tgccaactgc attttatggt gataacattc

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

128 / 338

339201 tccaaatagc acctctacaa tcattttttca gtcggttacc ttttaactca
339251 gcaggaaagg ctattacaga tacttcttta aatcagtgtt tattgacagg
339301 gaaaagcacc agcaatacac acttaaccaa atccttgcaa atgtcatcta
339351 ttaaatatct tcctccttat tagtctgttt tactttgaat atcttctgag
339401 tgaaattgag tgcattccca tatctttttca ccaattatat ttgttttcct
339451 atgacccaat ttgttcatth ttctattcaa tgaaccctct ccccagagag
339501 ttccccatgt gccaatthtt ctactcaatt atttacctgt tttgcattaa
339551 acttataata tcttttttta aaattaaccc tttatcataa gtgctgcaaa
339601 cacttagttg aagtttgcca tatctttttga ctttgtaaaa acttttgcca
339651 tatgagttgt atatttcatg tagtcaaaca gtaatctttt cctttatgga
339701 ttccaattht taaatggtht atatttttag ctaaatthtc aggagtgaag
339751 agaaaaagag gaaggaagaa acccctctca ggcaatcatg tacaggtaat
339801 ttgacttagt ttttatagct ttgcatttct tcatacagag tccttattta
339851 aaccagtctg aatgtcaggt gaaaggtagt ttccaatctg tccaaacaga
339901 gagcctttga agaacttct tcatttgtgt tctcagctaa ggctgctcct
339951 gaggttgctt ttttaggaag aatcccatag tcgggaagct cttagataat
340001 tcctagatga tagaatcatg atgagatgag catgaaaatg aagctggaag
340051 ttccaagcac ataacttca ggaggtgaca ttctccgagc tcctataaat
340101 tccctggcac caaactagt agagcatctg accccacagg tgcttacagt
340151 taaaacgggc agaggggtgca gtcaaacatc cttatggagc caagtatttc
340201 ccagctgcat gaccacacc tgaccaaatc tgtagctctt ataaatttct
340251 ggattatgta taaaatgtat gaaaatattt tggggatttg agtttttaca
340301 catcagcaca tataagctaa attcatatgc gccagcaacc ttcacctcct
340351 cctgtttata caaggggtgc ttgtcaaaca cctcttaatg ttttataata
340401 caaaacaaaa atatatthga tgtttacatc taaatatgaa tatggggtht
340451 ttttgttttt tttttttttt gagacagagt ctctctctgt caccaggat
340501 ggagtgcatt ggtgtgatct aagctcactg caacctctgc ctctggatt
340551 caagtgattc tcctgcccc gctcctgag tagctgggat tacaggcatg
340601 caccaccacg cctggctaatt ttttgtattt ttagtagcaa caaggtttca
340651 ccctgttgct caggctggtc tcgaactcct gacctgtgta tctgcccac
340701 ttgccctccc aaagtgtga gattacaggc gtgagacacc gcgcccagcc
340751 agggcatgat ttttactgta ggcataatc ttagttatgc acagcaaaag
340801 actggttttc attttatgca atattaaaat caatgtaatg caatcttgat
340851 tttctctcct agccaccga aacaatgaaa tgtaatacat tcataagaca
340901 agtgaaagaa gagcatggca gacacacagg tttgcgctaa gtgttgctg
340951 taacaaatat ggcctacaat acttataaaa atgtcaacc acctgtttca
341001 aacttggtat cccgcctaaa tctttattct tctaggcttg tggttaattaa
341051 tgagtataaa tctttatcgc aactgtccac tctattgtaa tcccagcata
341101 tcaagataac ttaggttgga atgggtccatt gcattcagta ttaagaaaag
341151 atagacttct attaataaag acacagacag gcttgccctga gctcagaatc
341201 cagcaatgtg tcacccctca cactgtgacc cctgtaactg tagttctctg
341251 ttcttttaaag aaatagacat tccactaaca acacatacaa actgtgacaa
341301 gaagtgcag gggctgttat gtcaaagact taagggtaat ttttaaaaat
341351 cctcttaatt caactacata tcgggtacag tgtacactgc tcaggtgaca
341401 ggtgcaccaa catctcagaa atcaccactg aagaacttat ccatgtaacc
341451 tgaaaccacc tgttcccaa aaggtattga aatttaaaaa gttacagttt
341501 tatatgttta aaaaagcctc ttaattcata tagttattgt aagcagagaa
341551 attttcatth ttactttttg taacatttht ttcattgttt cagctggcca
341601 aaaaaaatga ggtatgatga aattataatt aataaaaagg gtgaagggtg
341651 tgtattattt tactaagtat gtgcatccac cactaggcaa ggtctgaaga
341701 aataagcata aagtaattta tgattagctg ccctaagact atttccttct
341751 caaatgtttg tcttattctt agatgcaact gtgaaagttc cttttcttaa
341801 gaaatgcaag gaagcaggac ttcttaatta cttacttgaa gaaatattag
341851 acaaagttca ttcaattcca gaaaaactca tggatgagac tacttcagaa
341901 tcaggtactg atgaagagca atatttcgaa gtatagagac ttctcccaga
341951 tctagattta aaacaaaaca aaccaagaa aaaaaaaaag gccattttc
342001 ttctataact acttttttct tctatcagct tttggaaatg cttactattt
342051 atttcactth ttggttttgc cctatagaaa ataactccat tcaaataaac

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

129 / 338

```

342101 attttttata ttgttgcccta caatataagc tgtccagctt gtcattcttt
342151 acctttacct cattcttttt ttttttttta agacggagtt tcgcccttgt
342201 tgcccaggct agagtgcagt ggtgcgatct tgccctactg cagcctctgc
342251 ctcccaagtt caagcgattt tcctgtctca gcctcctgag tagctgggat
342301 ttcaggcaca cgccactacg cctggctaata tttctgtatt tttagtagag
342351 acaaggtttc accatgttgg ccaggctggg cttgaactcc tgacctcagg
342401 tgatccgtcc acctcggcct cccaaagtgc ttggattaca ggcatgagcc
342451 accatgcctg gccctttacc tcattcttta ataaaataat tggaccagat
342501 ctactatcct tcataaatca acaggatgtg ggtaattttac aaactcagta
342551 atttagtcaa aagtaacctc atgccctgag agttgtggta cattttccag
342601 aggtgtctaa caggttggcc actaagagaa tgtgccattc agagattgat
342651 tcggtcacat atgctcccct gccaccgcc tgcatctctg ttgctaagat
342701 ctgagaacag tgttatgtta cagttttgat tttggaatcc aattctattc
342751 cttataaagc caagtgtcct tttttaataa aggttaactc aaactttaaa
342801 gtatagaaga aggaatttta atgttttgac tgatgtttgg tttaaagatg
342851 tactttgtta aagaagtttc tttcttaagg gctctttggg aagtcaaagt
342901 tccatttgta tgtgcaggta tatagctact tagctttttg tttgtttgtt
342951 tttgaggcag agtctcgtc tctctcccag gctgaagtgc agtggcatga
343001 tctcagctca ttgcaacctc tgcctccagg gtttaagtga ttctcttgcc
343051 ttagtctcca gagtagctaa gattacagac atgtgccaac acactcggct
343101 aatttttgta tttttagtag agatggagtt tcaccatgtt ggccaggctg
343151 gtcttgaact cctgatctca tgtgatctgc ccgccttggc ctcccaaagt
343201 gcggggatta cagggtgtgag tcactgtgcc cagccttact tagctttctt
343251 ataacttata tcccatgagt ttaaaacctt tattataaat atagtatttt
343301 tacaaggaca agctggacag cttatatatt aggcaacaat ataaaaaatg
343351 tttatttgaa tgggattatt ttctataggg caaaaccaa aagtgaataa
343401 aatagtaagc atttccaaaa gctcatttat tatactattt tattcattta
343451 tttcctctag accaagcact tcccaaacag tgtgcctgag aaccacctgt
343501 agggctgggtg aggacacaga tagctgggcc tatcccacag agattctgat
343551 tcagtacaaa taccaagaat tggggggccag gcgcggtggc tcacgcctgt
343601 aatcccagca ctttgggagc ccgagggtgag tggatcatct gtggtcagca
343651 gttcgagacc agcctggcca acatggcaaa accctgtctc tactaaaaat
343701 acaaaaatta gccgggcgtg gcggtgcgcg cctgcaatcc caactacttg
343751 ggaggctgag acatgagaat cgcttgaacc caggaggcag aggttgcagt
343801 gagccaagat cgcaccactg cactccagtc tgggcaacag ggtgagattc
343851 tgtctcaaaa aaaaaaaaaa aaaaaaaga aaaaagagaa atgccaagaa
343901 ttacatttct gacagcttcc ctgtagtgct gctgctgctg ttgccatcta
343951 acattaaagt tccatggcac atgactgctc tctttccttt cccctgtttt
344001 ggattacata tataaatgga ggagtttctg cctatacaaa ctgtttaata
344051 ttgaaaatgt ttctctccct ccagactatg aagaaatcgg gagtgcactt
344101 tttgactgta gattgttcga agacacattt gtaaattttc aagcaggat
344151 atgagttata taacatctga gcagcatagt tttgagaaat atttatcacg
344201 atattgaaac aatatactgt acagggtgata aaaatatattt agaagaatgt
344251 tcattgtttt cttaaatgag aaaagccaat tacaaaaaca gtatgacccc
344301 gccacactgc ccacacacac aggaaaaaaa tatcgaggta catgtgcaca
344351 gacaaaagct gcacctgggtg gagacagtag ttggttgtag gtagttggaa
344401 tatagtgatt tttgtctgtt cttttactgc tatattttcc agattttcta
344451 tatacacaca aatactttta taatgagaaa aactcattaa aaaagtagag
344501 acaacaaaaa attgattcaa aaattggagc atattttggc ctgtgtgtgg
344551 cccaggcagg agctggtaaa gcttctctgc gcttctctgc tcttgggtgg
344601 cgaggctatg ataaaccatc cctccgcttg cctccctctc gcttgggtgag
344651 ataggtcaaa attttaattc tcccactatt aatcctcaa tctaatttaa
344701 tttcttatca gggagggtta cgactgattt aaagtctatc agaaaaaaa
344751 aaaacaaaaa caaacaaaca aaaaatgagc aagtaagaat agccaagaaa
344801 tgtttgagct agaaaatctc gtttgggttg gaggaggag atttaacctt
344851 cctattaaat atcaaccatt tattgagtga gtcctccttt cagcattaag
344901 atgccctcaa gacaggctac acctccactt gtttatgagt ctggtctgac
344951 ttctctatca aggctgccac acacagctgg gcaggccggg cacagagtca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

130 / 338

```

345001 aacagcattg gtggatggct cccctgaag ttgcacaaca gagtgagtgc
345051 cctccacact ctgcatttcc acagatgcat ctgtctctcc agcatatggc
345101 aggaagacaa taagatttcc ctgtgaagaa atcattagtt catatccctg
345151 tctcaacata cacaaccttt ctcatitttg cttctatatt atacatttct
345201 atttgaattt ttactacat ttataaccag caggaaaaat actttgaaaa
345251 atctaccaa aagagtgtct gtcttaatag tcttttgagg atgtctgcta
345301 atatatagca gtatccatat ttttttaaag cagccttaaa aatttttttc
345351 taaaaagagt tattttgtag gggacttcca tgtgtgtttt tctttcatgt
345401 aagggaacat gtcacacatc actacttgga tggattaggt gggagtacat
345451 atattatagt gtagtatggc gggggtgcca ctacttagaa ctgcatgaga
345501 ttcaacttaa aaggcttaag ttgggtttca ctaccctggc tgataaaaaac
345551 ttgcttaatt tagccttact catattttta gttaactata cgtatgcagt
345601 tattctgaat aaagtttgta tatgtgtgta actgttcgat tttgaggctt
345651 ttaaaaatta cattgccatt gactactatt tgttatttat aaagcctaag
345701 tatcttcctc ctaagctttt ctaagtttcc acaattaaaa gccttcctat
345751 ttctaaatga aaccaaagc ctttatgtaa cattaaaaat tggacacatt
345801 tttaggaagg atttgtcctt aaccttggtt ttctagccac attctccaat
345851 tatcatctct caataaatgg atatagtata gcatgaaggc tatacagtca
345901 ctgttttcaa gttctcaaag atatacaaag ggacttggtc tgctataaat
345951 gtgcacaaaa tcttaagggt ttactgaaca gctttgtgta tgataaatgt
346001 tagaattctg tcctgaatta gaaggaggaa gtgaaggcat aaagaaacca
346051 gctcctgccc ataaggctct ggatcctttt caccagaggc acgaggattg
346101 tgtatctgta cctgcaagtg aaaggggcta gaaatggtag attatttcta
346151 ataaaactac tgaataagct gaaataattt tatttcttct tttcatagca
346201 atagagaaaa aaattcatgc atctcaacaa aggtggcagc agttgaagga
346251 agagattgag ctacttcagg acttaaaaca aaccttggtc tcttttcaag
346301 aaaatagaga tcttatgtca agttctacat caatatcatc cctgtcttat
346351 tagggattac cgtttcctaa gccaaagagtc atgtcaaatt gcaatcaggc
346401 tcaaaaccag agaccaggct gtgaaatcca cacatcttta gaactagtcg
346451 tctcctcttg gcctcagcag ctcttccttg ttcttactgg ttgacatttt
346501 gatcactctt tgcacactct tgtgtttttt gctcactgtc acattcccag
346551 cacctagtat gctcagtaaa tgtttgtgga ataagtgcac aaaatgttct
346601 taacctttga ttctacttac agcccatgat agcctcttag atataataaa
346651 tttggattat actactttac ttgtaccaaa tttgcctgtt ttcgtgtcac
346701 aaagtctgct tttgaaaagt ctcttttcag ccacagttat cacgtggaga
346751 ttcattcatc tcaaaacaga cacctaaatt ttaaattgga ctctgaataa
346801 gaacattatc gggagtatgc aagaatgaaa aaaaaaattg acagttacat
346851 ttttctcaat ctaatatagc attctgggtt ttatgcccac actatcacgt
346901 ctgacccttg aaaacttaac attcacagtt ctcatTTTTT accatggtac
346951 tctgattttc aataatgctg cgtctcaaaa tgggttttaa ctgagtctcc
347001 aagcatggtg tctgacatgt aataaataag tactggaaaa atatttgcag
347051 gagatgaaaa agaacagtcc attccagttg taatggcagc cctagcctaa
347101 gttcttatat cttagggaca aaatctaaac cagtggattt caaatccggc
347151 cgcacatcag aatcatgtgg ggcactttta aaactacaga agtgaagacc
347201 ccatccaaca ccctctgaac agatttccgc tagtctagat gattattgat
347251 tactgtagct tcagcttcct atcctgatat taagtcttag caaagttttt
347301 gggtgtgtgt ttgttttgtt taagacggag tctcactttg ttgccaggct
347351 ggagtgcagt ggtgtgatct cggctcactg caacctctgc ctcttaggtt
347401 caagcgattc tcctgcctca gcctcccaag tagctgggac tacaggcgcg
347451 caccaccatg cccagctaatt ttttgtattt ttagtagaga tggggtttca
347501 ccatgttggc caggatggc tcgatctctt gacctcgtga tctgcctgcc
347551 tcggcctccc aaagtgtctg gattacaggc gtgagccacc acgcccagcc
347601 atcttagcaa agtttatctg actaatcatt ctgatgtcat gatctttatt
347651 taaaaaaaaa aacctttgtc cccacttta ctttcacgtt taacctgtga
347701 ctcacacagc atgtaactgt gcaccatgga gcaccatgtg tttgggtggc
347751 atgaggctgg ctactgggca aaccgagta tgggttcata aggcggagcc
347801 gagtatgaac ttcagctatg tcaactactga aaaacttgaa tccgattatt
347851 taatctgaga atgctgtctg ctaccttatg ggacaaaata tggacaagta

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

131 / 338

```

347901 agtaaaatgt gaagcagaga gcacaatgtc tggcactatg ggaaataaat
347951 gttaaaacac acccatgcac gcacacactc cccttgctaa catttctgtc
348001 ttattttctc cattctaacc aaacttaatt atgataagct ctggaaggct
348051 cattagcccc catctcttgt gcctcttttt gttttggaga tgagctaaaa
348101 ggacacttta tattttcccc tatccaacac aagcgttatc ttcagaacaa
348151 ctaactgctt gtcatgttaa ccctattaac tgtattagtc cgttctcaca
348201 ctggtatgaa gaaataccag agactgggta atttataaag gaaacagggt
348251 taatggactc agttccgcat ggctggggag gtctcaagaa acttacaatt
348301 gtggcggaaa gggaagaggc ccgtcttacg tagtggcaag taagtgaag
348351 cacgcaaagc ccagggggaa ctgccattta taaaaccatc agatctcata
348401 agaactccct caatagcatg agaacagcat ggggaaaccg cccccataat
348451 ccaatcacct cccaacagggt ctccctcaac aactgaggat tacaattcaa
348501 gataagttgg gtggggacac agagccaaac cacatcatcc tatttggttt
348551 tctctcactg actgttatga aaagctcttt ataagtatct cattgtgttg
348601 ttaattccta aacctatctc cctctctcct aataattcat atgttctttg
348651 aggataggga atatgccttt cccttcaagt acccccaaag gtacagacac
348701 atttttctac tgtgccagtt caactgtact acccttcagc aggaataaaa
348751 tccaaagatt tctatgatgt ttgttttgtt atagttgaga atcaagcagt
348801 tgacatgttc atgctggtac ctatttttag cctgataccc attaagaatc
348851 acaccactga ttttttttat tatggtaaaa tatatatata acctaaaatt
348901 tgccatccca atcattttta aatgtatggt tcaatggcat taaacattca
348951 tttttgtgca accatcacca ccatgcacct aaagcagcag tccccaacct
349001 ttttggcacc agggactggt ttcgtggaag acaatttttc cacggaccat
349051 ggggatgggg cggttggtca ggggtgggga ggatggtttt gggatgaaat
349101 tgggccacct cagatcacca gtcattagat tctcatatgg agcacacaac
349151 ctagatccct tgcatactca gttcactgta gggtttgac tcctatgaga
349201 atctaattgt ctaatgttgc cactgatctg acaggaggca gaactcaggc
349251 agtaatgctc actcatccgc cactcacctc ccgctgtgcg acctcttctc
349301 aacacgccag ggatgaatat gggctctgtg cccgagggtt ggggacctct
349351 gacctaaagg actcttcac tgggaaaact gaaactctgt atccattaaa
349401 caagttcccc attctctct cccctcagac cctggcaatg accattctac
349451 tatgtctcaa tgaatttgac taagtatatc acacaaatgg catcacatag
349501 tatttttctg tgagtggctt atttcaccca gcataatat ctcaagttca
349551 cctctgtgca ccatgtgtca gaatttcttt cctttttaag gctgcagact
349601 actgattttg aaggaaaaaa acaactctat gtgcctgttt taatgttact
349651 ttgtttatta acatgtcgtt ctaaataatta cataaataca gcttacatac
349701 tagagtatca aacattgttc cagtaagaag ttcaagagta catttagggc
349751 tatcttaaga aatatgaata ctttggtctt cattattaca ttagatgaaa
349801 aaatcaattc aaataagagt tgtcatatcc tgctatgatt aacaaaaaaa
349851 caagtagaaa aataagagag tgtatttaaa aaaaataatc aaatgctttt
349901 tgaaagacct gttctcttca ctgccacaca tattcataca aatgacttag
349951 taatctaata tgagaagtgg tccttcactt atattaggaa cttggtaaat
350001 atttgttgaa tgaatgaact atctatggat atgaatttac tactttaatt
350051 tgtgcttttt ttgaaaaaaa gttttcaagt aagagcaata gtaaatacac
350101 tgaagttcac attttgctca gatcataagc ctatagaaca gtgattgtta
350151 caaacaccac ccatcatagc acaaatcaat gtgcatttct gaagctagta
350201 agaaaagtgc tatcatgttg tagaacgaat tctaaccgac taattcactg
350251 ggcttcaatc acttgtgata tgggtcaagaa aagggggctg gggctcctag
350301 gcttgtatct atttcagcta tcagtgaatt cctatcttta gggcctcact
350351 ccccttccca cccaataga cacaaattta aaaacattgc taaaaatagt
350401 agttgtagca tgtcttcacc cacttgtaat ttggctctga aaatgtattc
350451 aggctccagg ttcagaagag agactttcca agcaggagac aaaattcact
350501 aagggaactc actcaaatgg aaatgagttc atggaccaga gagcaaagca
350551 aaacattgct cttaaaagca agctcaacgg acacacatga tgaaactcac
350601 agttgaacac tcttacatcc caaagtcacc ttccataacc agttcaaata
350651 aactactgtc ttttaatagg atcttttcag gaacaccata attttggtgc
350701 tttttcaagg tgaaattgtg ctgttatacc taagatgttt aaaaacagag
350751 gaaaaccaa agtgaaagat gataaagttt cacataagcc aatgtgtgat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

132 / 338

```

350801 ggatttgGCC taaagtagat aaagcaaatt ccactaagtc ttgtaagagg
350851 gttgacttga agaaccactt cttccagtca tatatagtag atatgatgat
350901 tcagcagtca taatttagga aggcaagagt atactataca tgtcattatt
350951 ttcctcttaa gtttgcatTT atagaagaag gtggtggggg acaattttaa
351001 cttgagttct caagttctac cttaatgaaa taaaacacca ttggataagt
351051 agtggagatt ctaatttata aaatattcac cttcatcaaa tttctttcat
351101 tatcaacttt tcacggatac ttctaaatta ctattcttta tgcacttaaa
351151 tcttaagaga aatcttgact aacctagaat atttatcttt acataattat
351201 catttcaaca ggtttaatat acgttaaact tattactttg atttatcttg
351251 aagttaaaaa agtcatcaac gcaagcacac aaacaaaagt ctgaaacaat
351301 ctttaattatt ctttcacagt aaggctacta aactagcaac taaggcagca
351351 cttacaatc cccagggtcag catctttaat tcacgatggg gcctctccat
351401 tcatctcaca attccccaac tatcactgct cctgctgtca gaagattgtt
351451 gatacgtggc ccaggagagt tgctgccaac ttcccctttc caagttcaga
351501 agttcctcta atcaaaaatg aaaagaagac caaaaacgac taactttcac
351551 cctttttacat gttccagccc aaatttacga aaggtcacat ttaaaataca
351601 cttatctgga aacaagggtt gtttaaaatg ggctcaagaa aagccgtaca
351651 cccttgttat gttcctacac aaacaactgt gtcccagatg tggaaaaaaa
351701 caacctgatg gtctttttacc tgcagaatca catcacccgt agagcacaaa
351751 ctggacacat cctcaacagt gcccagagc actcacacag aaccagcag
351801 ccttgcgctt cagttcttaa aggctccaca tttactggct ttagcaatga
351851 attccttttag cagagggcca tccatttgcc aaaatgctgc agtctgtgta
351901 acttctgtca aatgattgat gcaaaactta aagcagaatt cttctaaatc
351951 ctggacacac aacaaaaata aaaacaaaaa tggctttttt aggcaacttt
352001 gattgaatta cttctctctg agccctttac cccaaatctc tcaccctccc
352051 ccagaaaaga tatttgagag gccagatacc taaaactagg caaaaagggtg
352101 accacaggta ggtgtgagaa aaacacatac tatttattca acgcagtaaa
352151 agcaatggtc ctctaactca aagtacgact cttcaaaaca cacacgcgcg
352201 cgcacacaca cacacacgca agatctacaa gggaaagaat ttcctgcacg
352251 attatcacat aatctagtta tgctcaaaga cattgttgta aaaggcagaa
352301 tgccacttta gtctgcagaa tgtgttttgt cacgttcaag acatcagaga
352351 aaagaattaa gatgtgggtt agtttaagaa acagaaagggt aatgaagaga
352401 tatgggtcaac ctaaagtggc acattaaaaa gaaaatccca gccgggcacg
352451 gtggctcacg cctgtaatcc cagcactttg ggaggccgag gcgggcggat
352501 cacttgaggt caggagtctg agaccagcct ggccaacata gggaaacccc
352551 gtctctagta aaactacaaa aattagccgg gcgtgggtgt ggatgcctgt
352601 aatcccagct actcaggaga ctgagacagg agaatcgttt gagcctggga
352651 ggcagagggt gcggtgagcc gagatcgcac cactgcactc tagcctgggt
352701 gacagagcag aggctctgaa agaaaatccc aaaaattca ccttaaatc
352751 acttttatgc tctcctaata atgactttat ttttaaagcc ataaagaata
352801 ataacactac aacttccacc acactaatat ctcagaacat cccccca
352851 gaagtatatt tacacagggt agttttcagt caaacagaag tcaccaacta
352901 ccaacattca ggggagtaac atccacaagg ggtaaaccag aaccatttca
352951 aatcaatcc ctgcctatgc taatccaccc tttcatcccc tgccaaactt
353001 taatatagtc tgtcccttag gatgttgga tatatatTTa ttaaattcgat
353051 taggcacctg gaatgcatac aaagactcaa tatataaaag gaaatcacac
353101 taaaagctct tatcacaaat agcttgactt tattacaact tggttagctg
353151 gtacattgaa ggtcagcact ccgggttcta tcgaaccaga agctcaacat
353201 ttcaactgca ggttttgacc gcacatttcc agctaccacg aggtgggaat
353251 gttagacaga gtggaagggg cccacacaaa catggagaga ccccttttct
353301 gctctcagca cagacctctg caaacaatga tttccttggt ctaagggtcc
353351 tcctgtccct ggctaaaaga tgccctagag taaactccag aaacccatcc
353401 agtcacataa ccattaagag ataaaccaca ggccaggcgt ggtggctcac
353451 gcctgtaatc tcagcacttt gggaggctga tgcgggcaga tcacgaggtc
353501 aggagtttga gaccagcttg accaacaatg tgaaaccccg tctctactaa
353551 aaatacaaaa attagccagg tgtggtggca agcacctgta atcccagcta
353601 ctcaggaagc tgaggcagga gaatcgcttg aaccaggag gcggagggtg
353651 cagtgaagcc agatcatgcc actgcactcc agcctgggag acaggagtga

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

133 / 338

```

353701 aactccatct caaaaaaaaaa aaaaaagaac ttttatacac aatataaggta
353751 taaaaatggt gccactaatc acaattcact ttatacactc atgaaaatgg
353801 ttctatcaaa ctgccttccc tttccctcca attagtttga actactgagg
353851 tatctgggta tgcaataaat attcaaaagt tccaaacatt aaaagccaaa
353901 ctagagaatt ctgaaaacaa tctaaatctg ggttggtgtaa gtaactaatt
353951 aaaccttggt tgaggcgagat ctatgtaaaa ggaagccctg aacgcatgtg
354001 gtgagggacg tttgaatttg caagttcacc agagagtcgc acagtcaagc
354051 tgaaccactt agcaaccagt gccagggtt ggtttgcctt tgatgagcaa
354101 gttagacaaa cgcccttccg acttgacctc tctttagtat tataagaatc
354151 tacataatct gttcctttca ttctgcaaag gatcaaactc tcaataacag
354201 gcaagaaaat gcaactcctg tccaagttag aagtcaacta taacagggct
354251 gggttatagtt gacttcttac ttctaactgg gctttaaata aaacagttcc
354301 aaggaggacc agaaggatca tgtgaccagg agatgaacaa agttcccgcg
354351 agaatgaaag tcctcttata gcccatggaa tagggaagtg gagagtataa
354401 aaacagaagg gtctaataca gtcttcttgg tattagaaac taaactctgt
354451 ttatgacgtt atgtggcaga acaattataa agtggttctaa ggcaaatgag
354501 ataaaaatacc agattttattg tcattagcaa agaagacaaa aataaaaaact
354551 gctcttctga agtaatttat aaatcattcc aaatctttca acattgaaac
354601 tattccaatt caatatatat actctgaaaa taagctgttt ttcctttcca
354651 caaattttct ttagtaacaa aacaaaacac agagcattga tgggtcttaat
354701 atcctcattt taaaaaatgc taatgccgcc tctaaggagg ttcttaccct
354751 gtcctaaaac tccaaagcta aactagttga atgttaataa tttgaagacc
354801 acctaaccag ggtgagcagg tgcctcggca tcacagctcc ccacaagaca
354851 cattccagat gacacaagat cacgaaccac acctaactct gtccaacctg
354901 ttgttaaagt aactgcaaga caaaacccca aaactgtcag tctataattc
354951 atgttatagc acatcaagta caaaatattc caaatcaaag aagttttgtt
355001 ttgttctcaa aatgtactta aacattctac catatggaga aaacataatt
355051 tatcccatta cgcaaaaaac atttgtcagc ctactgctga tcaaagactt
355101 ttcattttggc ccaccaaaaag aagaaaaaaa cgctggccac caagccttaa
355151 caccaagctg tccaatactc ataccccaga ccaacttcag aattagattc
355201 ctgggctcac gtttatcgct tccctccaaa agcaagatcg taagatataa
355251 gttgcttagc acacaggatt tctggaaagt tctctactct gggttaaaca
355301 ataatacttc ccagctgttt ctcttaacgt tcaaatacac ataaaaataa
355351 aaaatttcct gaaaagaatc agtttgcatt gtgcaactga tctatcttga
355401 aacaatgttt tatccacatt ttctccctga tgtcaatatt tattcaggctc
355451 tgtaccaaag gagtatctgg gtgctccttt gtgaagtcct tcttaataaa
355501 acttgtggac agtttcataa cacgttcata gcaagggatc cacaatcatc
355551 aacttacttt tgaaactccc tgtaactact gagtccatac atttttgttg
355601 ctttaatgtg tgtacatttg cttcaaagct atcttgtcaa aacggggcat
355651 ggaggaacct caggtacttt cgtagaaaga caagaaacat tggagcagg
355701 tagtctccat cttcctagca ttttggccca cagcacgaag gcaaagtcac
355751 ctagcatccc caagttgagc tctaaaaata atagtttttg cagtcaattt
355801 ctaacctgac tcatcagtag cctccaatca actaataaac acagtaagag
355851 ggctttcttt ttaagagatg gcagttctac tatgttggtc aggctggtct
355901 caaactccta gcctcaagca atcctcccac ttcagcatcc tgagtagcta
355951 gaatacaggc atgagccact gtgccagct atggatttta attttgtagt
356001 ccagaacttc attcatgtac tctactgtatc ttgtagcatt caggaaataa
356051 aatgtaaaag cacattagtc aattacgtaa cttgtattgt aacctaagaa
356101 atacacccta gaaagaggcc tggcgagtg gctcatgcct ataatcccag
356151 cacttttgaa ggctgaggtg ggagggacac ttgagcccag aagttcaaga
356201 ccagcctggg caacataatg aaaccctgtc tctacaacaa ataaaaataa
356251 agaaattagc tgggtgtggt ggcacacatc cgtagtccca gttcctggac
356301 tgggaaggaa ggaggactac ttgagcccag gaagttgagg ctacagttag
356351 ctgtgatcac accactgtgc ttcagcctgg gcaacagAAC aagaccctgt
356401 atcaccagga aaaaaaaata catacaaatt atgaatatat atatatacac
356451 acacacacac atatatatat atgccctaga aataaagagg tgagtctttc
356501 tttttgtctt ctttctattc tctaattttt ctacgttgaa tctgtaatat
356551 ttgtaggatt ttaagttttt ttttaactttt tttttttttt tgagacagag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

134 / 338

```

356601 tcttgctctg ttgcccaggc tggagtgcag tgggtacaact tctccctccc
356651 agattcaagc aattctcctg cctcagcctc ccgaatagct gggattacag
356701 gtacgcacca ccacaccag ctaatttttg tatttttagt agagacaggg
356751 tttcaccatg ttggccaggc tgggtctcaaa ctctgatct caagtggccc
356801 accttggcct cccaaagtgc cgggattaca ggcgtgatct ccaagcctgg
356851 ccattttttt ttttttaagc acaccttcat ggtgaggat ttcaaagtgt
356901 ttcactcatt tatttaattc aacatgcatt tttgagcgcc agctccatgc
356951 ccacactgtg acagactctg gggaaatcaca cttatttgga gtctttctaa
357001 aggaagtgtt tatcatgttt atacttaata tgagaaaaat gaaaactagt
357051 aaaggaaatg acctgctggc acaggaagca gcagcagagg ctttttctgt
357101 aaacttccta ggacagatct tagctaaaag tgaggaagaa gtttccagca
357151 acttgagccg agacatctgc ctctgcccag gttgttctca ctggtgttag
357201 tcagcaaggt ctgatcctga gtatggaact cgttaacaag gaggaggagc
357251 gtggagaggc ccagagagga ttctaacatc cgtcaccaaa tggacagaaa
357301 aggcactaac ccaatttaaa attatatcac cgggtggaaa taaaatctaa
357351 agaaacagct tttctaataa agaggttcag ggtgtcacag gaaggacagg
357401 aaaaaaatca taccctattt tctattagaa atgatttact ttgatcatca
357451 ttccatctgt tgtcgggctg cagacaaagt cagctacatt tgacctatc
357501 aatatattat aatcagaata tagcctcaaa caaaaataag atacattttg
357551 aaaacatcgt ggtcaacttt gatccctatg tgtgatgaag tgtgtcctct
357601 tatacctcaa aggacacagc tgcagatctt tgcaggtgtt tgataaactc
357651 cttgatacca gatattctgc tttgtcaaat gacaaagtat ctgcaaggat
357701 aggctaattg taacattcta catgcacaac ttagctagat attttgaaac
357751 tccaaggcta ttgctctcta ccttttatct tctctgaatc tgtgaaacca
357801 accatacccg ccttcagctc actgatcatc cttaatgctt cctttaagggt
357851 actatcttca tccagttcaa catttatcag gtgcctaata tgtgccaggc
357901 actataggggt atacagacga atgagacagt tcctgctcac gaggagctta
357951 cagtctgatg ctttggttct tcaaaaaaat gcacacaaac tttcagactc
358001 cccaaagccc attaatcac aggtcaaca gatctgtgaa tctcagatta
358051 agaactcaac ccagtgcaca aacaaaagga gtccacagca agttcttaac
358101 aggtaaataa ctgtgagctg taattagaca ctaatagaat tgcagagcgt
358151 acacagatac aaatcataca catccccagc ttatgacagg gcagagggtg
358201 aaagacagca aggtaagtct cgaaataaac acatatgctg acattaagaa
358251 agacttgaaa ctaaaatatg ctgtttgtta gtccaattag ttgtggcacc
358301 ttatgttcca acctgcagca cagctgctag gaccttggtt cgtttcctgt
358351 cttacttaga aatgaaagta gaggaacaac gacttttgaa acaatgaaca
358401 gggaaattaag aagcaagggc agatttcagt tttcaatggg ttcactgatt
358451 ccctaaacag aagtggagtg actcatcggt ttccatgcct cacgcaagaa
358501 gcgggggaga cgagcacaaa gggagttaaa ggtggtctgg tttctgtttg
358551 ttgtttaagt tacctctgca tcatatctga ctgcagcaga gaatagcgaa
358601 aaggcattct ccacagtaat tcctctcttg ataatgtgct gacaaagttt
358651 tttcagtctg ttttcacagt aagatgtcgc caaatccaga agacctaaaa
358701 gtaaaatatg tgaaagggtt aatcaaagt ataataattt ccaatacaca
358751 gagattttgt tttggtgaac agaggtgtac aggtaaatta gaagtttctt
358801 agtggataag attctgaatt tgagtaaata aattctcttt ttactgtct
358851 gcctcctcca cttccacacc tctcctatat ttactttata caatttcttc
358901 aatagtgcaa agaaagagca aaaaatgcaa tttcaatcct cattttgttt
358951 ctaaaacgct aaatgcatta gcaacttata cttcactact agaaaattaa
359001 aataagccca tagcttaata cctaggtgat gggttgacag gtacagcaaa
359051 ccaccatggc acacgtttac ctatgtaaca agcctacaca tcctgcacgt
359101 gtaccccaga acttaaaaat aaattaaaaa aaaaaaagtc cttcagtaac
359151 attagaacaa aaaagcctat ggtcataaac taggtccaaa actattaacc
359201 ataataacta cacaatacta cttttaaaga tacttacttc aaatcttttt
359251 taagcaccaa attaaagcca atacacctga agctttttac atttcaggac
359301 taagaatatg aggggatata ttctccacca tgcggctcgt ccatcccaat
359351 gctaccacag tacctatagc atcttctggc ggcaggtcga ctgtgtctgt
359401 gtagaggtag tggagaaagg cacgatacac tgggtaagaa aactgatcga
359451 tttctatcac ttccttcatg tcttcattcc aatacgactg gaacatggat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

135 / 338

```

359501 cgaaaatgct cacacctaaa acagcaaagc aaaagtctta tttgttcagc
359551 agcaattttt aaaaaagaaa aaaaaattac ctaattaagt tgataaaatc
359601 agataaacag aagtatcctt gggccgggcg tgggtggctca tgcctgtaat
359651 cccagcactt tgggaggcca agcgggtaga tcacctgaga tcaggagttc
359701 gagaccagcc tgaccaacat ggataaaccc cgtctctact aaaaatacaa
359751 aattagctgg gcatgggtgg gcatgcctat aatcccagct actcaggagg
359801 ctgaggcagg agaatcgctt gaacccggga ggtggagggt gtggcgagcc
359851 gagattgcgc ttctgcactc tagcctggca acaagagcaa aactccgtct
359901 caaaaaaaaa aaaaaagtaa gtatatatac tactatctgg gcctgaacac
359951 accaggatca cagaccttta gttagcacc aaaaaacatt ccacatgcaa
360001 gtggtttttg tacatgcctt ttacatacac tcactttcat tttttgtaac
360051 tcctattaaa tactaatagg tatacataga gcctggaagt acctagcact
360101 tccactactg tttccatttg atgggtccca agattttttt gctcctttgt
360151 tttttttaaa atgatgtaca gaaatgcatt ttaaacaata aagtgaagaa
360201 aattcagaaa caagagttca aaacttttga ctatgtatca acattaaaat
360251 gattcatttg ttttttgttt tacataataa gcatattctt aaaactgttt
360301 tatatgttaa ctggattaca tcaagctgat tattgtctga ttatccgaca
360351 atttttcttc ttttctgact tatcgtcaaa acagccatca ctctttttt
360401 ttttttgcat tgcctgttcc ccttcctctc ttcccaggcc tgctacaagc
360451 ttattttataa aacactcaca tccactagga tagtcagata tttcaagaaa
360501 acctgagcag ctctacact gtatttacat gtacaaagcc acctgcacaa
360551 gaaactgatt tctgaatatt ggattttctt atgtataaca cagttgtatc
360601 tttctaaaaa tcatattttt aaattatttt aaagtgagat acggcacaaa
360651 gagaaaaagt attctgaggt gcagtggctc aagcctgtaa ttccagcact
360701 ttgggaggcc gaggcaggtc agcctcaatc acctgaggtc aggagtttga
360751 gaccggcctg gccaacatgg cgaaactttg tctctactta aaatacaaaa
360801 attagctggg cgtgggttagt gcacgattgt aatcccagct acttgggagg
360851 ctgaagctgg aagatcgctt gaacacagga ggtggagggt gcagtgagct
360901 ggtattacgc cactgcactc tagcctgggt gacagaatga gtctctgtct
360951 caaaaaaaaa agaaaaagaa tccattcaga atactaaaaa aatagtttca
361001 cttacataaa aaattacctg agaaataaaa aagaaatagt tgtctaagaa
361051 agaatcatgg atttcatggg cagaaaactg tacatgaaag gaatagactg
361101 gttgaccaca ggtgcacaga cagaaacagt tccagttcat cttttcaatt
361151 aatactgtgg ttcagatatt tactccctta ggtaagggaat gacatagggc
361201 ttttctgttc ctttcaaattg tatttctttg ccaatagggt tttacctaaa
361251 tttccaaaaa gacttgtaaa tggccacttt aatgggtctta gcttatgtgc
361301 ctttttctgc aatggcaacc tttgtggcaa acagttacta ataaacgcat
361351 aggtccctca catttataca aggaactata tcttaaaaaa ttttttttct
361401 atttttgaga taagatctca ctctgtctcc caggatgatc acagctcacc
361451 acagccttga tctactgggc tcaagcaatc cttccacctc agcctccaga
361501 gcagctggaa ctacaggaat gcaccaccac acctggctaa ttttttctat
361551 tttttgtaga gacagtgtct cgctatatgt cctaggctgg tctcagactc
361601 ctaggatcaa gtgatattcc cgccttggcc tcccaaagtc ctaggattac
361651 aggcagtagc caccatgctg agcctagaac attcttcaat tggtaattgc
361701 atgtccctta gaaacagaag cacagcattc ctatgagagt tttctgctta
361751 atctataatt aaaagagggc atatacactt ttcaataaca accttttgta
361801 ttttctttaa ccacgtaaat aaattttctg atggaaatga gtattcacca
361851 gattcttaat ttaaaaaaca atataagctg ggcgtggtag ctcacatctg
361901 taatgccagc actttgggag gctgaggcgg gcagatcacc tgagatcggg
361951 agttcgagac caacctgacc aacatggaga aaccccatct ctattataaa
362001 tacaaaatta gccaggcatg gtggcgccct cctgtaatcc cagctactca
362051 ggaggctgag gcaggagaat cacttaaacc cgggaggcag aggttgcggt
362101 gagctgagat cgtgccactg cactccagcc tgagcaacaa gagtgaact
362151 ctgtctcaaa gaaacaaaca aacaaacaaa caaacaacaa caaaaaacca
362201 atatggacaa atacttaaat tcctacatta cactttttct aaaacgctcc
362251 atgagtgtac acaaaaaact ctttgacatg aaatggactg atactatctg
362301 caaaaatatt aagtagtgac atttctctct actaccaagg ctatttttta
362351 tcagtactca ttttgtggaa taacaaagaa agaaaagtca agttattgat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

136 / 338

```

362401 gtctctgagc tcatgcaaaa atacctgatt ttcaaaacag ctttatggac
362451 atgaatatat ttcccatcaa ttcgaaactt cagatcagca gtttctggac
362501 tatcaaattc tttcttcagt gactctgcaa ctgttaaaaa gtcttcatgc
362551 tctgaaggca acaaacatat attaatatgg caagttcaag gaacagattg
362601 aagattcaaa agacttcaaa aagatcatca tgaccgtgat ggataattcc
362651 acttgttttt ttttcaagag ttcatacctt gtttgacaaa tcaattctac
362701 ggtattaaag taagtatcct gcatctataa actaccaaaag aaaaccacca
362751 aaagatggta tttagaaagg ctaaatacca tcttatatgc ctagttatac
362801 attagaaatg tatattttta aagaaaaaaa ttataggtac ttcatgataa
362851 tataataacc ccctctcaaa acgagtgggt ctcttctaag actaagaatt
362901 tgtttccctt gactgaaaca ctaagaatat cttttttctg ctttggggta
362951 ctttcaaggg gtcagcatac ccaactcaag gaggtgcaag aaacaaactt
363001 accacttaaa tggtaatgct aagcggctcat gttctcaagc agagaaactc
363051 tttcctaagt atctggaatc taaacatctc tgттаaccct aaaaatcact
363101 atatgcataa tccttactca ctgtctaaac acagagcaaa ttcacttaga
363151 aacaacacct acatgaaggg aacagtttta taagaacaca ggatcacctt
363201 acctgataag aagaattgct gttgtgggta tatgttaagt agaactgtgt
363251 tactacaagg aaaagtaaag gcacttgtag aaattcccgg aatgctttct
363301 tgtgttttat atgtatgaaa gaagaaaaga agcagaaaag ggctaattgg
363351 gaaatttttt taaattccag agatcctgac caggcatcga atcaagctgc
363401 tatggataca cgaagcaggt ttcaactgcc cacagctgag ttaataatca
363451 gtgtcttaat caaagacctc ggcttccaag cctgggatga accattttcc
363501 cttggtagcg tgctgttacc agagcaactc ctagaggagg gacaacagct
363551 aaaacctagg ctgaaactca acaaatgagc ttatctgcaa gctttatcat
363601 cagactctcc cccaaggcat tacctttcac ctaagccctg tgaccttaac
363651 tgacagccct ccctccaccc catgcaatgc agagctctcc tggctacaga
363701 ggaaaggtag aaaacctctc aaaagtcagg cttcccctga ccttgcaacc
363751 tggatcactg gtgggtaaaa gaatacaaat gactaagatg ggccaagagt
363801 ccaggagtct agattgctac cccacccat ccaaaaaaaa acccacttct
363851 catcagtgtc tcaacttctg catccagtct taggctgaaa tgactctttc
363901 tcctctttgc tcctggcaac aagtatagta catcctttca gagaagaaat
363951 cctcctcaaa ggggtgaatt caccatgtga ctttccgtct aacactcaga
364001 tgagatcaca aagtgagagg gaaaaaacac ttttgacttt cagtgggtgg
364051 aagggaaga agttatctag gacagcagtc cccaaccttt ttggtaccag
364101 ggaccagttt tgtggaagac aatttttcca cggaccgagg cggggaggag
364151 gatggtttgg ggatgattca agcacattat gtttattgtg cacttaattt
364201 ttattattgt tacactgtaa tatgtaatga aataattaca caactcacca
364251 taatgtagaa tcagtgggag tcctgagctt gttttcctac aactggacgg
364301 ccccatctgg gggatgagg agacagtgac agatcatcta ggcattagat
364351 tctcataagg agctcgcaac ctgtatccct cgcagtgtga gttcacaata
364401 gggcttacgc ttctttgaga atctaatacc gctgctgatc tgatgggagg
364451 tggagctcag gcggtaatgt gagtgatggg gagcagctgt aaatacagat
364501 gaagcttcgc tcaactgccac tcacctcctg ccgtgcaacc cagttaataa
364551 caggccacgg accagtacag gcatatggcc tgggggtgtg ggaccctga
364601 tctaggagga tatagtcaat gaccatattt tttccaaact taacatttaa
364651 attgttagga catttggtct gaaaagaatg cctgtgccat tttaagatat
364701 aagaactggg ggaagccttt tataacaagt ccaggttaag tagtatatac
364751 aatctgaag atgtgtacag aagtgttca gctgggtatg ccatacatgt
364801 gcaattctgg ccaaatagtc ccattcagtg aaccaattat tttccaatca
364851 caatactcac tgcaaaaaaa aaaaaatact gtattatacc taaagaacat
364901 ggcaaaaata aagtgaagg gagtattcaa ttggtttcac tttaaggcaa
364951 gcttaactct tcctaagcac ccttgccctc atgcccatga ctggtcacct
365001 aattgggaca actccacctg tctgacacac ctaagcatga cgttttagaa
365051 aattaacctt caatatcaat tgctgaacaa cccaaacacc ttaactgcca
365101 agaactacat taattttcaa gcacagagca tcatgacca cttattccct
365151 ctgcttataa ataaaacaac ttaaaagaaa tatgctagca aaaaggcaaa
365201 cataaacaag aaataaaata aaaagattaa agtcaccttg taaatggcta
365251 ctcagtttta agacatccta gctttttcag ccaataatgg actcttaag

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

137 / 338

```

365301 aagacaatat tcagaaaagg tacagattat gtaaccaa atcaccccaa
365351 attccactac cttttataat acctctgttt tgatgccctt ctgaaataaa
365401 agaatttgaa atcagttgaa agacaaagat agaaagaaag aagatgggggt
365451 taatgtgtca ctttaaaaac cacaagttgt ttgctttttt tattgagaca
365501 gggctctcgt gtgtcaccca ggctggagtg cagtgggtgcg accacagttc
365551 actgcagcct tgacctcca ggctcaagca attctccacc tcagcctcct
365601 gagtagctga tactacaggc aggcaccacc actcctgggtt attttttgta
365651 gagatgggggt ttcgccatgt tgcccaggct ggtctaaaac tcctgagctc
365701 aagcaatcca cccaccttgg cctcccaaag tgctgagatt acaggtgtga
365751 gccaccacac ccagccgggtt cttcactttt ttgaaagttc atttttggac
365801 caggcgagct ggctcacgcc tgtaatccca gcactttggg aggctgaggc
365851 gggcggatca cgaggtcagg agttcctgac cagcctgatc aacattgtga
365901 aactctgtct ctactaaaaa tataaaaaaa ttagccaggc atgggtggcac
365951 gcgcctgtaa tcccagctac tcaggaggct aaggcaggag aacttgaacc
366001 tgggaggcgg aggtctcagt gagccgagat cgcgccattg caccacagcc
366051 tgggtaacag agtgagactc cgtctcaaaa aaaaaaaaaa aaagaaaaga
366101 aagttcatct ttgattggta ttatatcaag ttctgtaaga aatctagtat
366151 aacagaagtg cttagaaca ggctacccaa aaacttatac aagaacagtc
366201 atgacagcac taccacagag agtcaaaggt gggaacaacc cacatgtcca
366251 tcaacagtta agtgacaaac aaaatatggg gtatatatat ataatggaat
366301 attattcagt cataaaaggg aatgaaatac agagacatat tacgtcaatg
366351 ggcctcaaaa acattaagta aaagaagcca gacacatggg tcacatattg
366401 tatgcttccg cttatatgaa ctctccagag tcggcaaata catagaaaca
366451 aaaagcaaac tagtggttgc taggggttgg ggggagagga gaatggagtg
366501 tgactaatta acgtataagg gctttcttct ggggtgatta aaacaattta
366551 gaatttgaca taaaggttgg atgtaggcca ggcacagtgg caggtggatc
366601 acctgaggtc aggagttcga gaacagcctg gccaacatgg tgaaacccca
366651 cctctactaa aaatacaaaa attagctggg tgtggtggct ggtgcctgta
366701 gtcttactac ttgggaggct gaggcaggaa aatctcttga actcgggagg
366751 tggaggttgc agtgagccga gattgcacca ctgcactcca gcctgggcga
366801 cagagtgaga ttctgtctca ataaaaaaa aaaaaaaggg ggatgtacaa
366851 cattatgaat gttctaaacg caactaaact gtacccttta caatggttaa
366901 ttgcatgtta tgcgaatttg atatcaattg aaatgaaagc acttatgaga
366951 gaaaatttaa agttcatggg aatattttat aatatatgaa tacatttgat
367001 tatgcacatc tattttgacg gaacgtatga aagctaatag agaataaaac
367051 attctgagag atcccaaaac cagcaaagac acaggaaaac tggtcagttg
367101 gtagtaccat tcttcctggg tggaggtggc cctgcacttt cttaccacac
367151 gacaggaggc gccacgagac ggcgggagtg gcaaagcagg caaacacgtc
367201 gtcggtgcag gagaagtggg tgaggtgcgg gaggatcacg gactgacccc
367251 ggcactggcc ccacatgtac acgtgcccac cctgcgtctt ggctgcagac
367301 gtgtgggcag agtgacaggc tgcaatctct accaccctga aaagttttta
367351 gaaaaatgca tgttacttca tgatcacaga agcccacagc acaccacaca
367401 aggcaattta aaagttcatg cttgcaatac ctcaaaaaac agtccaagtt
367451 ccagggacac tagctgccaa gtcacagcaa caaaagcaac agatcagggc
367501 aagagcactg ttctcctttc ccaaagtccc acttctcatc ctcaagctac
367551 tgtgagttag gatagatcac acagaccgcc gaggaaaact tggaaaacag
367601 accagcaaat ccaagcaaat gaggaaagtg gacactgaga aaatgcccta
367651 acaaattgta tggcttaaat accatttctt ttttttttct tttttgagac
367701 aggatctcac tccgtcacc aggttagagc gcagtggcat gaccatggct
367751 cactgcagcc tcgacctccc aggtcaagc aatccttcca cctcagcttc
367801 ccagaccaca gctgcaccac cataccggc taagttttgt attttttata
367851 gagacagagt ctgcctatat tgccagggcc ggtcaccaac tcctgggctc
367901 aagtgatcct ctgccttcgc ctcccaaagt gctggggatt acaggtgtaa
367951 gccatcgtgc ctggccatt tctttataaa tgtaactttt tctctcatct
368001 cctaccagag ctcaaacac tcattgggct gataagcatt ggctgggggt
368051 cacggactct gaacgttcca atccaaaagg aaaacaagcc aaacttacta
368101 tatttctcag tagtatgctt cttgggtaag gtctcataat cagaagtcag
368151 cactccagga cataggaggt aagaccttac aattaggctg aacaacatca

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

138 / 338

368201 agcatctatt ccagtaacac atatttatatc aaatcaatat ttaaacagat
368251 aatgtccttt caagagcaga tttattttaa agttgtttta cttgggtcaa
368301 agtaaaagtt tatattacac cataaacatc aacatggcca tagaccttac
368351 ttgtcttcca tactaaaagg gcaacagcaa gactgcagta attataccaa
368401 gatgcattca cacctatcaa tcacaggtgg ttatttcaga gagctacata
368451 agaatcatat caacctcatg ttcattctgg ctactactca aaacactttt
368501 gcataggcca ggcacggtgg ggctcatgcc tataatccca gcactttggg
368551 aggccgaggt gggtagatca cttgaggcca ggagttcaag accagcctgg
368601 ccaacatggc gaaacctgt ctctactaaa aaatacaaaa attagctggg
368651 catggtggta cacacctgta atcccagcta ctcaggaggc tgaggcagaa
368701 gaatcacttg aaccacgaa gtgaaggttg cagtgcgagc agatcgtgcc
368751 attgcactcc agtctgggtg acagagactc tgtctcaaaa aagggaaggg
368801 aagggaaggg aaggggggag ggagaagggg gaagggggaa gcaggagggg
368851 agaaggagga agggggaagg gagaagggaa ggttatctct tttgtccaaa
368901 atgagaatgt taataaacag aagaatcaca aagccaaaca ccacagctct
368951 gccacacaca gcccgaaggc cacatcgcac acacagtccc aagacgtggc
369001 acagccaagt tacctttctt tctccaccat gatgtgtgct gggcttagca
369051 ggttatTTTT attgccagtt cccagctgcc catatgtgtt agctccccag
369101 gcatacagca agccctcatc tgtagtgct agagtatgtg cgtaaccgca
369151 gacaatctgc aagtaaattg aaacggttac cattagcagg aaaacaggaa
369201 gggcagggag aacatctact taaaggctat agccagcttc tgcagaatgc
369251 caaatcatca tcaggggtgg actgacattt gctggaacat taaaaaagca
369301 ttagaaggcc gggcgtggtg gctcatgcct gtaatcccag cgctttggga
369351 ggccgaggca ggcagatcac aaggtcagga gattgagacc atcctggcta
369401 acacggtgaa acccgtctc tactaaaaat acaaaaaatt agccaggtgt
369451 ggtggcggcc atctgtagtc ccagctactc gggaggatga ggcaggagaa
369501 tggcgtgaac tcgggagggc gagcttgca agagctgaga tcgtgccatt
369551 gcactccagc ctgggtgaca gagggagact ccgtctcaaa aaaaaaaaaa
369601 aaaaagcatt agaaaagcct aaaccttagg ctactgaatt tttccatttt
369651 tttttttttt tttaacttgt cgagcctgtt ttgccaacac catagtcttg
369701 cttctcctcg tgggaaatta gggagatat aatattaaat atggaagatg
369751 aaggcacaga gtattgccag aaaagactga ctgaagagta aacctccaat
369801 atttctccaa gtagagcaa ggaaggtaga tgggaagcca ctaactgaga
369851 gtgcaccaca cgtacctggt tcacacacac gctgtgcaaa gctgccactc
369901 tcacaggggt cagctggttg ccattgtttc ccaggcccag ctgaccgttg
369951 ccattgtaac cccagccata taccttagag aggacagaag ggagagagtg
370001 agatttttaa actgctggta agaaggaaga gacaaaaaaa ccagcccatc
370051 taaacaaatc agatacttcc aacacctata ttctactcta tgctcctgca
370101 actgatctcc aaacagaagc ttttttgag aaggggatga cagaattggc
370151 atcagtttct actccatgac ttactagtta gatagtctgg ggcaagtcac
370201 tctttcctgt ttaatacatg aggaagttga gcctcactaa caattattaa
370251 gtacctactg tatgtcagaa cactctgaaa ggtactagtt tttggtcaca
370301 gtttaacagg cgaaatagat acatgcaaat tttttgctga tgggtagcaa
370351 gtgctacaat aggtataatc aaggcgtgc agaacagcaa ggaggaaggc
370401 tttagctcta ggaagaaaga ttaaggaaga cttttcaaaa agtgagatt
370451 ggagcagagc tgaaggatga aggagagcaa aaacattcca agcagaaggt
370501 attgactgtg ttagaagcta gtttagaaga taagtaggtg ggcttggctg
370551 gacacaactg cggtagtggg agtagaaaga ctagaagaag gctgggtggg
370601 gtagctcacg cctgtaatcc cagcactttg gaaggccagc gtgggcagat
370651 caccaggtca ggagatcgag accatcctgg ccaacacagt gaaaccccat
370701 ctctactaaa aatacaaaaa ttagctgggc gtggtggcgc gtgcctgtaa
370751 ccccagctac tcaggaggct gagacaggag aatcacttga acctgggagg
370801 cagaggttgc agtgagccaa gatcgtgcta ccgtactcca gcctggcaac
370851 aacaacaaca aaaagactag aaggaaaggc aagagctcag agggaaagtg
370901 acaaaaaacc taccagggaa agtgcaatac atctataaat ttctcattga
370951 aatattaatt taatttgtat ttttgaaaga taatgctggc cacagtatga
371001 aagatgatgg agcatataag gctagaggca ggaagaacct ttaggaggtc
371051 atttcttccc tcgttagcaa ataggtgagc tctgatgagg ctctaaacta

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

139 / 338

```

371101 aggagtgata gggggatcat gagagggaaa gcagaggaaa gaggattaaa
371151 aatagaagac ttcccagaac gtgacagtcc cttggatata gagtgagagg
371201 aggcccatct gctgaaagta acagagctag gcataggttt gacaggagtg
371251 ttaaaggttc caaatagcca taggaaaaag tactgaccag gaacaaataa
371301 aggccttgct caaattacaa acccaagatt tgtggtggca tcgagcccca
371351 cagcaatgta gggcggcaga catagactgg ggcttttcag ggtaacatga
371401 tggagcggaa agggggaatg gactttaagg gcctggggag agatgggttaa
371451 aggcactttc acccagtgcc agaagtgtaa cagacatgaa ctttctggag
371501 agaaatttgg caatggctat cagtatttca aatggcatac ttcttgaccc
371551 agaaattcct tggaaattta ttctatagaa atacttgat aagtgtacaa
371601 agatacacat acacagagta acatagaaaa tcaccacaac tctgtctata
371651 acagcaaaaa attagaaaac tgacatgttc atcagtagag ctctgtatgt
371701 gggtcattca cagaagccaa agtcagcagc cataatgatg gaaagccgca
371751 taaatggtct gatcacagac acagataaac acaggatgct atacagggga
371801 gcgggaagca ggctgaagaa tagcagagaa aagctgcagt aggtataatc
371851 atcccathtt tttaaaaaaa gataattata ctcaccata tataattggt
371901 taagggaaaa gtccaaaaag atatgcatga aactattaac aagattggga
371951 aaaggatttc actttttatt ttatctgttt cacttgctct cctttacttt
372001 gttaaaataa ccatataata ataacctaaa aattaaactt atttttaaaa
372051 ataagagaag aatactggaa tggaggatat tcaacggcca tccaaggaa
372101 ttctgaagtc atttcatgat actgagattg attttttaaa aaataagtta
372151 acataaggtc tatgcataaa ctctaaagca ccctagcaca ggggtcccca
372201 gtcccccagct catgagccgc aggcgggtac cagtcctgct cctgttagga
372251 accgggcccgc acagcaggag gtgagcagcg ggcaaggag tattactgcc
372301 tgagcgccac ctctgtcag atcaatggca gcataagatt ctacaggag
372351 cacgaacccc attgtgaact gcacaacaag gcatctaggc tgtgcgctcc
372401 atatgagaat ctaactcatg cttgatgatc tgagggtgaa cagtttcatc
372451 ccaaaacccat gcccccaaca ccgcatctg tggaaaaact gtcttccatg
372501 aaaccagtcc ctggtgccaa aaagggtggg gaccactgcc caagcacacc
372551 aatgcatgat gccaaaacat ctgtgtccag ggtaatatct ttgtataatt
372601 ttcatgcact aaaatatgca taggtagtaa atagcctatt taagtggaag
372651 ctgcatccag agactaattt cacagaaata accatcagct caaaagtgac
372701 cacagtaggg ggtaactaaa gggacagttg ttaaagtag ctaacaacag
372751 tcaggacccc acaaaaaatc tgcttttgca agttgcttcc tcctgtgaac
372801 attcaagata taggtaggta gttctacaag gacttcatca gtttaattta
372851 aaatgtacag ttgacattgt ttcattggaa gagaaaggta ggattaaatt
372901 ctttaattcta ttacattaaa tatcacgaac aaatagctat aggcattagg
372951 ctctttggat cttgcaaaaa atacaactta gacatataga atctttactt
373001 tcaggtaaat cctggaattt agaaaagtca tactgaggag caaaaaacct
373051 ccagctcctc agtcagtaat cagttaactt tcaatggagc taccaaaaca
373101 aagcactctt ccttcttcca tctgatacat tcaccttggt aagaaactga
373151 cgtgtaattg aaaaagaagg tagaaaggga aatgggagtg gagacacctc
373201 acctcgccat tgtccagaac agccatggat gaagtctgac cacaggcaat
373251 gccaaactacc ctcttaatat gtaaacagtt tgtaactttt cgaggagttg
373301 gttgatttgc tgtagaacct gatcccaact ggccacagtt gttataaccc
373351 caagcaaaca cctacaagag aaagaaaaag gaaaaggaaa gaatagtcag
373401 ggtgaaaatt ctacccaac acaataatc ataaaaatta aaattatcct
373451 acttaatgag tacttaagat gtgctaaacg gttctatatg ctttacacac
373501 attaacctat ttaacctgcc tagtaatcct gcaaagtgac cctagagtag
373551 gtagtaccce ctttatacat ctccgtttta tacatggaaa ctgaaacatg
373601 agaggttaag tgacttgctt gaggtaccaa agctggtaag tagcgctaag
373651 agaatttaac cccaagcagt ctagctatgc tcttgaccac catgctacat
373701 tccctctata atttgtgtgt gtgtgtatag acacacaact acacatacac
373751 acatacgaat gtggcatcaa taggaaatgc ggtatatgcc acataagtat
373801 tagtgatgta aaacatttgc tcaactcttt gggcataaat attcattggt
373851 ttccatggaa accattcttt ttgttttgct ttggtttttt tttttttttt
373901 ttgagataga gtttcactct gtcccccagg ctggagtgca gtggtgcgat
373951 ctcagctcac tgccagcccc gcctcccggg ttcatgtcat tctcctacct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

140 / 338

```

374001 cccaagtagc tgggacgaca ggcgcccgc accatgcccg gctaattttt
374051 tgtattttta gtagagatgg ggtttcaccg tgtagccag gatggtctcg
374101 atctcctgac cacgtggtcc acccatctcg gcctcccaa gtgctgggat
374151 tacaggcgtg agccaccatg cccagcctca tggaaaccat tctaaacaag
374201 actataaaca gagagatgaa ttagggaggg aggtgttggc agtagaggaa
374251 ataatttcct ccaacattag gaaatgtcta agccccgct cccaccctg
374301 cttcacgtgg ctgcaggagg tgggccacgt atatactgag tgtggcttcc
374351 atgattcttg tctgatgctg gccaaaggca caacagtaga gccctctggt
374401 atatgtgtta caggttcatt tcacaggtag aaaacaaata acctgcaaca
374451 cctcctcaaa gtatattcac ataaatatct agtttaatta tgcaaatatt
374501 aatattcagt ataattattc aaagtaccat atgcttaaga ttaaaataaa
374551 tcaggaaccc agccggcata aattagcaag tttgagctaa tttcagcaat
374601 cattcttctg gcacttctca aatacatcac attcccttgc agtgctgctg
374651 actcttggtt aaaaactggg gctatagtcc cactaaccaa gaaatggact
374701 aggaaacagt ggatctgggg catgaggcct gtgtgctatg cctggctcca
374751 gcacatccca gtcataaat cttggtctcc ctgagctttt gggttgttc
374801 acttataagt tgcctactt aataaaatct ctgtaacatc actgagggac
374851 ttcaaagaga ggaacagtat gatctaact gtgttagaaa ccagagagga
374901 cagcaaagca agactggaca gacggatcaa cttaaagat agggaataga
374951 agggactatg gcagtagtct aggcaggaaa tgacaagact tgaccaaagg
375001 caatggaaat ggagaggaa aaaatggagg acaaaaagg caaaggaaat
375051 ggagaggaaa tggagatggg acaaaagatt agaagacaga atcaatagga
375101 tgagtgacct ttaagataag cacaacttgg gggcttaaca agtgttacag
375151 tacctactag gaggatagta aagttatttt ttccaaactc attacatata
375201 ctgaaaaata aaatagacct taaggatggg gtcactaaaa aaaaaagtac
375251 agaacactgt cacacatctg agctatagtc ttagcaaaga gcatgggact
375301 cagctgcctt aaaaaatgaa ctctaggttg ggtgcggtag ctcacaccta
375351 taatcccagc attttgggag gctgagacag gaggatcgct tgagcccagg
375401 agttcaagac cagcctgggc aacatagcca gattcttgtc tctacaaaaa
375451 aaaatttttt ttttaaaaga atgaattcta ctgccatcaa aagtgtaatc
375501 ttgattatac aatacacgtt atgctagaga gagagtgcac tcccacaagg
375551 ttttttagcta catgcacagg gctacaatat tcacaccaca tcaagtacaa
375601 atatggtcat taaaatcaga ggattttcac aatagccaaa agtggaaaaa
375651 atccaaacat ccatgaacag atgaatagac aaacaaagtg tggcttacag
375701 caggtccttg aaaaacgtca tttcattcaa catcattttg ttataacact
375751 aatgagaaaa aatgtcaatt cccggccagg gccactgtct gtggagtctg
375801 catgtcccat gtctgtgtgg gttttctctg ggtactctga tttcctccca
375851 caccceaaag ctgtgcagac tagtttgtgt ctaagctgta tacatgtctc
375901 aatgattcta gtgagagtga gtgtgggggt atacatgagt gcaccctgta
375951 tcctgtccag ggctgcttcc cacctgggtg cctgcgctgc cagaagaggc
376001 tgtggccaca tgcaaccctg aactggaaca aacgggttgg aaaatgaatg
376051 aatgaataaa tgaatacaaa ttattagaaa ataaaaattc acaaagtagg
376101 cttgtcatgg tggctatgcc tgtattccca gcactttggg aggccgaggc
376151 gggaggatca cctgaggtca ggagttcgag accagcctgg ccaacatggt
376201 gaaaccccggt ctctactaaa aatacaaaaa aattagccag gcatggtggc
376251 aggcgcctgt aatcccagct actcaggagg ctgaggcagg agaatcactt
376301 gtaccagga ggcagaggtt gcagtgggcc gagattgtac cattgcactc
376351 cagcctgggc aagaagggtg aaactctgtc tccaaaaaaa aaaaaaaaaa
376401 aaaaattcac aaagtagaca ataaccatac aaatgcataa caataaaca
376451 cacagtcaaa caccctcagt gagctgtcac atttgtgatc gtttgctttt
376501 gaactgtgtg gcagtaggag gtgccccttg taatttttgc tttgcaaca
376551 tttattcctt gacttaaccc accaccacta tgatcacccc aactcagtga
376601 ttcaccataa attgggtaaa taattctctt attgctttta ttaatctttg
376651 ttaaataatat gtattagttt gcatttatatt aaatgtttta gaagtgggtt
376701 gggctcttcag aagtttgggt atgtctttgt gaccagaaat ataccatagg
376751 aacttaactc ttgtttttat caattagcca atggtaaaac tggtttcatt
376801 acatgtcttt ttgcttaaag ttgtagtttc caagaatcta tcaatgacat
376851 tatgtgggca cttactatat gtatccaatg gaatattatt cagccctgaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

141 / 338

```

376901 aaggaatgaa gagaatccta tcatatggta caaagtggat gaaccttgag
376951 gatattatgc taagtga gat aaaccagtta caaaaggaca aacattgtat
377001 gattccactt acgtgaggta cctagagtaa tcaaactcaa agaaacagag
377051 tagaaagttg ttggctgggc acggtggctc acgcctgtaa tcccagcact
377101 tttggaggcc aaggcgggca gatcacgagg tcaggagatc gagaccatcc
377151 tggctaacac ggtgaaaccc tgtctctact aaaaatacaa aaaattaggg
377201 ggggtgtggtg gtgggtgcct gtagtcccag ctacttggga ggctgaggca
377251 ggaaaatggc gtaaaccggg gaggcggagc ttgcagtga cagagatcgt
377301 gccactgtac tccagcctgg ggcacagagc gagactccat ctcaaaaaaa
377351 aaaaaaaaaa gaaagttgtt gtcaggggct gggggaggac agaattggag
377401 tgaatgttta ccaggacag cgtttcagtt ttgcaggatg aaacagttct
377451 gtgggtgcat gctggtgaca gttgtatgac aaggtgaaca tacttaacac
377501 cactgaacta tacacttaaa actggtgaag ctggtaaatt ttatgttaag
377551 tgtatttact atgatgaaaa aaaaaagaa taaagaataa aagcagcata
377601 cttacctctc catcagctgc cagagccatt gaatgatgtg agccacaagc
377651 tacttccacc acttgcttga tcaagagatt ggtacagacc tggacgggag
377701 caatgccttg gttggctgct ccattcccaa gctggctata tccattgtgg
377751 ccccaggcat aaaccactcc atctgtgcac acaaagcaca caaaaaatca
377801 gctccaaaaa gaaatagtaa ccctgtactt tcttccccag aacttcgtac
377851 agtccttctt ccaaccttca tttctctccc attgccccct cctctctatt
377901 aagtaaccat ggacagagta aaggagagag agatgggtga cagaacggga
377951 tagacagatg caaaatcttt aaagaaaaaa cttggtaata acatagaaag
378001 atcagttttg tgatcaaaag caaagtttac gtatgcaaga attaggcttt
378051 ctaaaagctt tgattcatct caatagtttc tgtgtcagat gccaaagaaa
378101 aggcagatga taagaaagct cgatgttaat gtttaccatt gcttaaccaa
378151 ataccaagtc acggggaacc cacagggggc gtgtggctac tcgtcacca
378201 agtatagggg aaagagatag actgtttaca aaggaaacaa aagtctcagg
378251 gcttctttga agcagactat tttattttag tggcatgaaa tctggctgaa
378301 tttttttttt tttttacata aagcaacctt ttttttacgc tcatttatc
378351 tgtgtcagga atttggacag gggacaatga agatggcttg tctttgcttc
378401 acagtgtgtg tgatctcagg aagattaaaa ggctggagat gacttgagag
378451 ttgaggacta gcaacacctg gaggcattgt cactcacact gctgtgacta
378501 tctctggaaa gcataatcag cttattctaa cagattcaac tcaggaacag
378551 ccaaattggg gagacacaca gggtaaggta tgcggggatg aggggtgcac
378601 ggagctccca tgccctccct ggcattgccac cccctcccag cacctcgatg
378651 tggtcaccaa cccggaagct cctctgtctg aatttttttt ataatgactt
378701 tatcttttct gagattctga tgaagacaac ttttcttggt ttatctcttg
378751 aagtatcatc gtttcaggca tttctttcca cagcaccccc gagtgccaag
378801 ggcaggtctc ccagagttac acattctcct cttatctttc ccatggtaat
378851 aaaacatcct gacctattaa ggacagtctg cctggcaaca acactcaagg
378901 gcaacagcag aaatccaagt attacagtta ggctgctggt cactcacagc
378951 agtccccagg caaccagggg aaacagactt ctacttgtct actgtagaac
379001 gaagacagcc cacacaaact cagagtcctc ttccagggtg catgtggctc
379051 acaagagcca ttcctccta cagaaattat gacagaaacc ataatggga
379101 aatttcatcc tgagaaagat gaggcttaag actgaaagaa agagtataaa
379151 acacaaaaag tatgatccat gatatttgtt taaaagctac ggcaggtgaa
379201 agaaatgtcc aaactaatga gtgttttaac ccctgaaaac agaaaaatag
379251 acttaaatag agaaatgcat accttgttct tagatgggaa aattcagtat
379301 cataaagatt ctagtttttc ctacataaac ttataaagtt taaatagcaa
379351 taaaagctta aagttacttt ctggaggtag acaaattgat tagaaagttt
379401 aatgggaaga ataaacaaac aagaataaat aggaaaaccc taaaaaaa
379451 aaagcaagaa ggtagcta at tctaccagtt actaaaacct ataacaagtt
379501 tctatgaggc tgggcttgcc tgtaatccca gcactttggg aggccgaggc
379551 aagtggattg cttgaggtca ggagttcaag accagactgg ccaacacagt
379601 gaaacccac atctactaaa aaaaaaaaaa aaatacaaaa atcagccagg
379651 catggtagcg cgcacctgta atcccagcta ctcaggaggc tgaggcacia
379701 gaattgcttg aaccaggag gggagggttg cagtgggctg agattgtgcc
379751 ttgcactcca gcctgggcaa aaaggactct atctcaaaga aaaaaaaaaa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

142 / 338

```

379801 aaggttaatt ttaaaataac ctgtaattct aaataatctc aaatagaaga
379851 cgctgaatcc atgaaacaat agcaacaagt tctggaaaga aacattttaa
379901 gatcaagaaa gaacacttgg aaataaaaaca atgggaatgt taaaaatttg
379951 acataagcgt tgtaagataa agttgaagaa atttcccaga acacagatgg
380001 gagagaacat ttttaaaaaa tcatgaagat caggccaggc atggtggctc
380051 acacctgtaa tcccagcact tttggaagct gaggtgggag gattgcttga
380101 gcccaggagg ttacagggtg gaaccacctg ctcacacagt gaggtgcag
380151 tgagccaaga ttgcaccact gcactctagc ctggacagag agaccctgtc
380201 tcaaaaaaaaa aaaaaaaaaa aaatttggaa gatcactcca gaatctctaa
380251 ctttctaaga aaaattccat aaaggagaaa acaaagaaga aaatttttct
380301 ttttttgaga tggggtctca ctctgacct cactctgtca caaaggctgg
380351 agtgcagtgg cgcaatcata gctcactgca acctcaaact cctgggctca
380401 actgatcctc ctgcctcagc ctctgagta gctgagacta cagggtgcgtg
380451 ccaccatccc cggctttttt tttttttttt tttttttttt ttttaagaga
380501 catggcctcg ctatgttgac caggctggctc ttgaactccc ggctggagc
380551 aaacgtcctg ccttggcttc ccaaagtgtc gggattacag gcatgagcca
380601 ccacacacag ccaacaaggg aaactattca tgaaatatta caagaagaaa
380651 tttccagaaa tgaccaatac aataaattaa aaattacacc agagtacaga
380701 atcatgatta tgtcacaata cttaaaaaaa taaaaataaa aataaaaaaa
380751 agatccttga agcttccaaa gaggaaaaaa cagtcacata caaatagca
380801 aaagttgcca ggcatagtgg ctcacacctg taatcccaac actttgggag
380851 gccgagccac aaggatcact tgagcccagg agtttgagac cagcctaggc
380901 aacatggtga gacctcatct ctacaaaaaa atttaaaaat gaggtgggaa
380951 gatcgcttga gcccaggagg tcaaggttgc aatgagccat aatcactcca
381001 ctgtactcct gcctgggtga cagagagaga gagaccctgc ctcaaaaaaa
381051 aaaaaaaaaa aaaaaaaagg ccaggcacag tggcttatgc ttataatccc
381101 agcacttttg gaggttgaga tgggtggatc acctgaggtc gggagttcaa
381151 gatcagcctg gtcaacatgg agaaaccctg tctctactaa aaacacaaaa
381201 attagccagg catggtagca tatgcctcta attgtacttc ggaggctgag
381251 gcatgagaat tgcttgaacc caggaggctg atgttacagt gagctgagat
381301 cgtgccactg cactccagcc taggcgatag agcgagactg tctcaaaaga
381351 aaaaaaagga aagaaagaac cagtgtgatg ccagaaggca tgattacgca
381401 aggcaaaagt gagataatca cctcattatg ctcaactcca gttatattca
381451 taccacatga tgatgctcag atttggattt cacagctctc ttgagaaaga
381501 tgcagagAAC ttgaagtaga ttcagttagg agttacaggc acttagaagg
381551 ctagatacta aaacctgtga cagcattcta ggaagctgtg attcctcagt
381601 ctagacaaag aaaggccggg atgcaaatca tctcccaaat gccaccctag
381651 acaattatcc aacaaaaagc tgaggacctc agagaaagag agcaagagtt
381701 aatgtatcta aagtataaaa ggaagcattt aaatagataa tgaattttca
381751 gagagtgttg ggtgcccaca gtacagatcg attacacaca catacaaaat
381801 gtccactctc ccttagtgat cttgaagagg cagagtaaaa aaggacaaga
381851 acctatcaac ctgcatcccc ggttctttca atatggcaac tacatgaatg
381901 ccagagaaca gatgaagatt tcccgattca agatgcaagc aatgcacaaa
381951 gaaaggaaag ccaggtagca tctatgttta gaaaaatgta ccggccgggc
382001 acagtggctc atgcctgtaa tcccagcact ttgggaagcc aaggtgggag
382051 gatcacgagg tcaggagttc cagaccaacc tggccaatat gatgaaacc
382101 agtctctact aaaagtacaa aaattagccg gggcgtggtg gcacgcgtct
382151 gtggtctcag ctactcggga ggttgaggca gaagaatcgc ttgaaccag
382201 gagatggagg ttgagtgggc cgagatcatg ccactgcact ccagcctgga
382251 gacagagcga gactccttct caaaaaaaaa aaaaaaaaaa aaaaaaatgc
382301 cgggcgcggt ggctcacgcc tgtaatccca gcactttggg aggctgaggt
382351 gggcggatca cgaggtcagg agatcgagac catcctggct aacacggtga
382401 aaccccatct ctactaaaaa taaaaaaaaa tagccgggca tgggtggcggg
382451 cgccagtagt cccagctact cgggaggctg aggcaggaga atggcgtgaa
382501 cccaggaggt ggagcatgca gtgagccgag attgcaccac tgcactccag
382551 cctgggcgac agagagagac tccgtctcaa aaaaaaaaag aaagaaagaa
382601 aagaaaaacg taccaaagga accctgaaag ttgcattgca gaacaaagac
382651 cagtgaagta ttaaggaata ggattgcagc tgtcccgtc cgcctcccat

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

143 / 338

```

382701 tcccactccc gctccctctc cctctctttc caccgtctcc ctctgatgcc
382751 gagccgaagc tggactgtac tgcctgccatc tcggctcact gcaacctccc
382801 tgccctgattc tcctgcctca gcctgccgag tgccctgcgat tgcaggggcg
382851 cgccgccaca cctgactggg tttcgtattt ttttggtgga gacgggggtt
382901 cgctgtgttg gccgggttg tctccagctc ctaaccgcga gtgatctgcc
382951 agcctcggcc tcccagaggc ccgagattgc agacggagtc tcgttcactc
383001 agtgctcaat gttgcccagg ctggagtgc gtggtgtgat ctgggctagc
383051 tacgacctcc acctcccagc tgccctgcctt ggcctcccaa agtgccgaga
383101 ttgcagcctc tgcccggccg ccaccccgtc tgggaagtga ggagcgtctc
383151 tgccctggccg cccatggtct gggatgtgag gagccctctt gcccggtgc
383201 ccagtctggg aagtgaggag cgcctcttcc cggccgccac cccatctagg
383251 aagtgaggag cgtctctgcc cggccgccca tcgtctggga tgtgaggagc
383301 gcctctgccc agccccgacc ccgtctggga ggtgaggagc gtctctgccc
383351 ggccgccccg tctgagaagt gaggagcccc tccaccggc agccaccg
383401 tctgagaagt gaggagcccc tctgcccgcc cgccaccg tctgggaggt
383451 gtacccaaca gctcattgag aacaggccat gatgacgatg gcggtttcgt
383501 cgaatagaaa agggggaaat gtggggaaaa gatagagaaa tcagattggt
383551 gctgtgtctg tgtagaaaga agtagacata ggagactcca tttgtttctg
383601 tactaagaaa aattcttctg ccttgggatg ctgttgatct atgaccttac
383651 ccccaacctg gtgctctctg aaacgtgctg tgtccactca gggttaaatg
383701 gattaagggc ggtgcaagat gtgctttggt aaacagatgc ttgaaggcag
383751 catgctcgtt aagagtcac accactccct aatctcaagt acccagggac
383801 acaaactg cagtaggccg cagggtcctc tgcctaggaa aaccagagac
383851 ctttgttcac ttgtttatct gctgaccttc cctccactat tgtcctatga
383901 ccctgccaaa tccccctatg cgagaaacac ccaagaatga tcaataaaaa
383951 aataaaataa aataaaataa taaataaata aataaaataa taaaaagtt
384001 gcattgcaac acaaatccac tgaaaaatta ggctggaagg accatcattt
384051 gctatatcta atcatccaca gctttatgga ggcagtcgaa aacctcagaa
384101 gtttgcctaa tttgcaagac atcctatagc ttttccagag ttagcccgaa
384151 gtgtttaact ttcacctgct ttatgtactt cctctcagaa attaagaagc
384201 aaacaatcca aaatcagtta tctggtatag ccctatctcc cctaagctta
384251 gaattaaccg gtcaatttct tacaactga aaagttagat gggttccctc
384301 cttaccttcg gtgctgagaa gaacatgtgg tccactcccg taactgaggc
384351 ttttaatctt ctttccacat aagccttcta gctttttggg tacaagtgtg
384401 ctctggttat ctccagttcc tagacagtta ctatagttca gtccaaatac
384451 aaagacctag aaaatagata gttttttttc tgagtctttt gaccgaaagc
384501 tgtattaaaa gctcccttct ctcctctgaa aataagacat ttcaactaca
384551 gagctcagga ggtgaaaaga gactgatatg gttgttaaga aaaattcaac
384601 ctctgtggac attgcttacg tttcagaatg tttgtctata ttatgaaact
384651 cagagtgtca tggagtagac ggggtattaaa tcaagaaact gaaaaaagag
384701 aaactatcaa agccatagtc ttcctgaact tcaggatctc tttatttata
384751 ccccgccctt tctccatctt tgaactggac actttgaaga ccaattgcca
384801 aataagtcct aaaacgaaac taggtttcaa gagactctta cctcatcatt
384851 gtcagtaacg tacagtgtt cactggctga ggtgccgaag acacacgcct
384901 tccgaataga cgcgatctct tgaggggaga gtagagtga gatgggccac
384951 tttccgacat ccacctgac tctggcttca agcaattcct ataaataagc
385001 cgacatctct gctggaacag aaaggattcc agaaaaaat taaatagtca
385051 ctgagctaac tttcaaaaaa aagacctgtt aataaatact aacaaaagct
385101 gattctagaa taaatgaact acctttggtt acatggatca ctactttcc
385151 cccagccatg tgtgcaatcc ctcctccacc ttcaaaccg ggactttcct
385201 acaagagaat aacgtgcaag aactagctgt ttgtcttgcc cacttcctag
385251 tcagtgttta tctgttccac atgtgttcc aactcaccct cttcttagac
385301 ctctaaaaac agccaaagca gcagggtcaag accaagttct ggctccagca
385351 cctccaacag cacacacaga gggcgctgc agctggagca tgcttagcca
385401 aagccttgct cccaccacc agagatatc tttccaccag caccaacttg
385451 gatgacaagg atcagcttca gcccaggta tcataccaca aattcaatga
385501 ggattaaacg ccgtcaaata aggctattca ttgtcactgc atagccagac
385551 tactggaata acatttggtat gtcttgacaa atgtgtgtgc aggtggaggg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

144 / 338

```

385601 ggaggtatgg gtgaggacaa gtaaaagatt tgacagggga gtaatacatg
385651 aaaatgggaa aaaaactttg gtttcaaagt gacaaaaggg gataagaaag
385701 aaagtctcct tatcatccct ccctgaccct ctccctcaaag gccaccactg
385751 ttcccagtgga tctgtaattc cttctggaaa cagtgtcat ggaagcacta
385801 catgtatgca taggtgtatg tgtatcttta aaaacagaag cacaaatgga
385851 agtttttttt ccctacttaa cagtacatcg gggaaatcat tctatattag
385901 cacacataga cctgctacat ttctttccaa tgggtactatg gcattccatt
385951 acatcgattt agcaatttac cttattttct actgagagac atttaagtca
386001 attccagtct tttgctagaa caatagtgcg attgttgcct gcacattatt
386051 gtattgacat gtcttgTTTT atacagaaat ttctaaaata aattcctaaa
386101 aatgaaaatt gctaggtcaa agtctaatag ctattttact gttactagct
386151 attaataatt caaacagtct tctattgaag tagtggccat atataaaatc
386201 accatggatg taggatggca cctgtttaca cacacccttc ccacacagcg
386251 tactctcacg gcatttcagt tttgtttaaa ctggcatttc cctgtgatga
386301 gtggagttgg atgtcactta aaaaaataat caggccgggg gaggggggtg
386351 gctcacacct gtaatcccag cactttggga ggccaagggt ggcagatcag
386401 gaggtcaaga gatcgagacc atcctgacca acatggtgaa accttatctc
386451 tactaaaaat acaaaaatta gctgggcatg gtggtgtgtg cctgcagtcc
386501 cagctactca ggaggctgag gcaggagaat cacttgaacc cgggaggcgg
386551 aggttgagct gaactgagat tgtgccactg aactccagcc tggtgacaga
386601 gcgagactct gtctcgaaaa taaaaataaa tgatcagaat aattgcaaca
386651 ataacaacta acttactggg cactatgtgc caagcactat ttttagaaaa
386701 tttatattta ttcattcatt taatcctcac tttaccaata aggaaatgga
386751 gaaaaagaga ttttaagaag tggcagagtc gggatctgca cccaggcaac
386801 ctgaagcctg agtctgaact cttcacctct cactcacatt ttaagagccc
386851 actgtcagcc ttttgtgcaa agtgcctatc tttttctact ggatcattgt
386901 tctttttctt gttcttgatt tataagtatt ctttgtatgg taagatgatc
386951 ttaaagctt ttaaaagttt aaaaataaaag gctgggcgca gtagctcacg
387001 cctgtaatcc tagcactatg ggagcccaag ccggaaggac tgcttgagcc
387051 cagcagtttg agaccagcct gggcaacatg gcgaaacccc atttctacaa
387101 aaaatacaaa aaaaaaaggc caggcacggt agctcactcc tgtaatccca
387151 gcactttggg agaccaaggt gggtagatca cttgagggtc agagttcgtg
387201 accagcctgg caaacatagt gaaaccccat ctttactgaa aatacaaaaa
387251 aaattagcct ggcggtagtg gcgcatgcct gtaatcccag ctacttggga
387301 ggctgaggca ggagaatcac ttgagcccg gaggcagagg tggctgtgag
387351 ccgagactgc atcactgcac tccttgtctg ggtggcagag tgagagaccc
387401 tgtctcaaaa aaaaaaaga aagaaagaaa gaaaaagaaa aattattagc
387451 caggcatggt ggcgcatgcc tgcagtctca gttactcagg aggctgaggt
387501 gagaggattg cttgaaccca ggaagtcaag gctgcagttg agccgagatc
387551 acaacgctgc actctaacct ggggtgacaga gggagaccct gtctcaaaaa
387601 gattaataaa ataaacaaaa aggaacaaga tgcccctcaa acgacctctt
387651 gtgcctctta caaacacagat ggagaaagga gtcataagaa gtcaagccat
387701 ataaagccat acaagcaggt aagtaaattt caagaaaatc cagaagcagg
387751 ttttcttgga attatgaacc atatcaagtt agccttcaaa atgtttaatt
387801 ttacatgaca cagaattagc caaaaatatg actcaccacc tttaaaatta
387851 caacacaaaa ggtaagacat tcaaaaccac acaacttcct gacagcagca
387901 caattattct aaaatcatta aacaaatatg ggcaactctg ccctaagggt
387951 ttggtaatct actgcaagat caagctaacc ttcataatga tggggcatta
388001 ttatacgcac tgacttcacc cagtgtctaaa tcacatgaag ctttatttta
388051 caaggtatct ctccaaagac ttgtcattta agagtcaatt caagaaatag
388101 gtcattgtatc ttacatgtcc atacccatca taaaagaaaa aggcattccc
388151 aacaggcttg gtaggggtgt aacaacagag tgctgaggcc tgtgtcccag
388201 gtttgctttt aaaatcagtc agtatgacag ctgtttgctg ttttgagcct
388251 gggtttcccc caaacctaga aatttgtcat tttatgttca agatataatg
388301 aagaagctgg gggatttctt gaacagataa gaacaacaga ggcagtaata
388351 ttggccaagc aagtaattat ccctagcaag acaatcaagc aaagctaaca
388401 gcaggaaaga agaaacgaat aactatcctg aacctgcctt gtcgtagaca
388451 ctgttaatta ggtagcttcc atacattatt tcatttaatc ttcgtaatac

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

145 / 338

388501 tcttgtgagg aggagactgt aaaccatttc tgacagatga ggactgaggc
388551 tcaaaggtga aatgacgcca aggtcacaca gcagaccctt ctaatttttc
388601 ttatggagaa tatcagtcct ggcccttgaa gggctgaact tcctcaacaa
388651 cttcagtga cttcctaaag tcaacttctt ctgactttat cttgccttgt
388701 aaatgtacag cagcatctgt ctttaaactg ttaccaatat aaaaagtatc
388751 caggccgggc ggggtagctc acacctgtaa tcccagcact ttgagaggcc
388801 gaggcgggcg gaccacctga ggtggggagt tcgagaccag cctgaccaac
388851 atggagaaac cctgtctcta ctaaaaatac aaaattaacc aagcatggtg
388901 gcacatgcct gtaatcccag ctactcaaga ggctgaggca ggagaatcgc
388951 ttgaacctgg gaggtggagg ttgcagtga ccgagattgc accactgcac
389001 cccagcctgg ggaagaagag cgaaacccca tctcaaaaaa aaaagaagta
389051 tccactctcc caataaaaag cattccgcaa aatgcttctg cctagatttg
389101 cctgggttaa cctcatgaat gtcatttatt cctgcacttt tgcataacc
389151 attgagaggc aggcctagag aacacatgtg acctctgtcc tcggagctca
389201 caacatacaa ggtgcatcct tgggctggag actgctaagg cacaaagtgt
389251 gtcttcatta gaccatgcat gctcaacctg ggcagctgag aacatgaact
389301 ggcaccttg gaattcagac aagggtccct gagaggtttt gtggggctat
389351 gtgccaggca gaacaacaga acagggtcct taacttgggc gcgtggcatt
389401 tccctcctaa ggcagcagag cgtaactgta aataccacca aaactttcta
389451 atttactcaa aattaccacc atcctcatta taatttgact attgtggtga
389501 ggtctttaat tattccattt tcctggaggc agtggcacct tttactactg
389551 ttaagaaaac cacattaagg atcataatta tatcaacctt aagaagaatt
389601 aatgtgtata cactatcaat ccaataaact aaagcagggtg caatctaaaa
389651 attaatgagt atttcatctg tgataaaatc tacgtcagac ttaagaactg
389701 tgcggttaac aatgactcaa aaatacagga tctgccagggt gcagtggctc
389751 acacttgtaa ttccagcact ttgggaggta gaggcaggca gatcacttga
389801 gtccagaagt ttgagaccag cctagatgac atggtgaaac cctgcctcta
389851 caaaaaatac agaaattatc caggagtagt ggcagtcacc tgggtgtcca
389901 gctacttggg aggtctgagg ggaaggatcg tttgaacctg ggaggtggag
389951 gttgcagtga gccgagatca tgccactgca ctccagccta ggcgacagag
390001 cgagactctg tctcagaaaa aaaaaaaaaa atgcaggatc cattgcaagg
390051 aacagcaaca ttatttagga cagctctgat atcatgacat ctattaaatt
390101 tgcctaaaca tgaaagaaaa gtattaacag acttattcta actatggatt
390151 tcatttcaaa ggaatataaa tgtagttcaa ctaaatttca tttaaataat
390201 cattccaggc tgggcacggg ggctgacacc tgtaatccca gcacttttgg
390251 gaggtctgag caggcagatc agttgaggctc aggagtttga gaccagactg
390301 gccaacatgg caaaaccctg tctccactaa aaatacaaaa attaccccg
390351 gtgtgggtgg gcacgctggg aatctcagct actcaggagg ctgagggtgg
390401 aggatcatct gagcccagga ggcagagggt gcagtgagcc aagactatgc
390451 aactgtcctg agtgataaga gtgagactct gtctcaaaat aatagtaata
390501 ataataatca ctccagaggg ttgcacaata atttagatgc ttcaaataag
390551 aagatatgaa gtgattctat ttgtgttcta ttctgtatg aaggaggcac
390601 tgctaattga aagaaccttc aactggccta ttcagcccag gccttccctg
390651 acagtcaagt accttggtaa gtacctgag caaggtagcc caactctctt
390701 ccttcccatg gtgctatggg ttgtccaaat tataagcacc cccaaggaa
390751 gcatcccaac agaagctgcc acccaaacac gtcatacagc taaactatgt
390801 gcacatccca aattcaaaac aaaaccacaa aaataaatgt accctgtaag
390851 acttagttag ctagctatg ttataaaaca atatgtcctg tatgattaca
390901 atttttctaa agtataatat atacagaaat gtataacca aaatatatct
390951 ccatggagag attacagggt gcatcatttt ctttctttgt atttttattc
391001 tattttttgg cctgccatcc ccacttcttt agtttggttcg tttgtttgtt
391051 ttcgtcagca gggttgtggc cagaaaacaa gtctatcag tctcctacct
391101 cacttcccct ttagaaatta gatacaattc ctcatctttt tttttttttt
391151 tttgagatgg agtttcgctc ttgttgccca agctggagtg ctgtggcacg
391201 atcttggtc actgcaatct ccgcctcctg ggttcaagca attctcctgc
391251 ctcagcctcc caagtagctg ggattacagg cgcccaccat cacgcccggc
391301 taattttgca tttttttagt agagacgggg tttcaccatg tttgccaggc
391351 tgggtctcaa ctcccagcct caagtgatcc acctacctcg gcctcccaaa

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

146 / 338

391401 gtgctgggat tacaggcgtg agccaccgca cctggccttc tttgtatatt
391451 taaaatatag tcccaaattt ctctcttttt tttttttttg agacagagcc
391501 tcgctctgtt gtccagtctg gagtacactg gcaccatctt ggctcactgc
391551 aaactccccc tcatcagttc aagcaattct tgtgcctcag cctcccaggt
391601 agctggaatt acagggtgtac accaccatgc ctagctaatac tttgtatatt
391651 tagtagagaa ggggtttcac catgttggcc aggctggtct caaactcctg
391701 acctcaagtg atccaccacac ctgggcctcc caaagtgtct ggattacagg
391751 cgtgagccac cacacctggc cttctttgtg tttttaaaat atagtcccaa
391801 atttcttttt ttgggggttg ggggtggaca gagtctcact ctgttgccca
391851 gtctggagta cactggcacc atcttggctc actgcaacct ccacctcccc
391901 agttcaagca attcttgtgc ctcagccttc tgagtggctg agattacagg
391951 tgtgcaccac cagcctggc taatttttgt attttttagt gagacgggtg
392001 ttcaccatgt tagccaggct ggtctcaaac tcctgacctc aggtgatctg
392051 cccacctcag cctcccaaag tgctgggatt agaggcgtga gccaccatgc
392101 tcggccagtc ccaaatttct ataacaaca ctttgtgacc aataaaatga
392151 acaaatattt ccaatgaaaa taaaagttca attatttgaa ttatgtttta
392201 cccctaggct gttagaagtt ttaagatgta ttcttgcttt agattcataa
392251 cgtagagtgg cagaatgttt caggcaaaat ctggaaaaat gaattattaa
392301 tataaaatta aatgtagatg gtagaaatgt aagatgatac agctgctata
392351 gaaaaccaga tgggtattcc ttaaaaaaaa aaaaaaacat tagaattata
392401 ttatctagat aaactccatt tctagcatat accccaaaga actgaaagca
392451 gagacttgaa cagatagttg tataccaacg gtcaaagcag cattattcac
392501 aatagccaaa atgtgaaaat aatccaaata tccatgaaca gatgaatgga
392551 taaacaaaat gtggtctaca catacगत agaatatttc acccttagga
392601 ggaaattctg atacatacaa caacagggat gaaccctgaa gacattatgc
392651 taataagtta gacaaatatt gcatgattcc acttacatga ggtacctaga
392701 acagtcaaat tcatggagac aaagtagaat tgtgggtgcc aggagctggg
392751 gggaggtagg aatggggagt tactgtttta tgggtacaga gtttcacttt
392801 ggggtgatga aaaagttcta ggcaacaaat atgtgaaaaa atattcaaca
392851 tcactaatca tcagagaaat ccaaatcaaa accacaatga gatactatct
392901 cacaccagtc agaatggcca ttatcaaaaa gtcaaaaaa aaagatatgt
392951 gcgaggctgt acagcagagg caacactata cactgttagt gggaatgtaa
393001 attagttcag ccactgtgga aagcagtttg gagatttctc aaagaactta
393051 aaacagaact accattcaac ccaggaatcc caagactggg tatacatcca
393101 aaggaaaata aattgttcta ccaaaaaaaa aaaaaatgca cctgtatgtt
393151 catcacagca ctattcacaa tagcaaagac atggaatcaa cctaggtgcc
393201 cgttgacagt agattggaaa aagaaaatgt ggtatatata caccatggaa
393251 tactacatgg ccataaagaa gaacaaaatc atggatgcag ctacaggcca
393301 ttatcctatg tgaattaaca caggaacaga aaaccaaata ccacatgttg
393351 tcacttagaa atgggaacta aatatagggt acacgtggat ataaagacag
393401 gaacaacaga cactggagac tactacaggg gcaggaggag aggggtacac
393451 aggctaaaaa actacctatt ggatactatg ctactacct gggtgacgga
393501 attattcgta ctccaaagct cagcatcaca cgctataccc atgtaacaaa
393551 cctgcatatg tactccctga atctaaaata aaagttgaaa ttgggtcagg
393601 tgtgggtggc cagcctgtg atcccagcat tctgggaggc caagacgagc
393651 agatcacaa gtcagagatc gagaccatcc tggctaacac ggtgaaacct
393701 cgtctctact aaaaatacga aaaaattagc cgggtgtggt ggcgggcacc
393751 agtagtccca gctactcggg aggctgagga aggagaatgg catgaacctg
393801 ggaggcggag cttgcagtga gccaaagatt caccactgca ctccagcctg
393851 ggcgacaggc gtcgcaaaaa aaaaaaaaaa aaaaaaaaaa aaaagttgag
393901 atgatttttt ttaagtagtc tagagattga tgggtggtgat gattgtacaa
393951 caatgtgaat gtacataatg tgactaaaat gtgtaattaa aaatcattaa
394001 aatggtaaat ttacactat atacctttta cccaatttt ttaaaatcaa
394051 ataatacatc tgtgggcttt tatcaagact gcattaataa actcaaagat
394101 acatttctaa aattaaatat agaaagggtt cagtcctaaa aaatgtgttt
394151 ggaaaagtaa aatcatactg ttttaatcat gtcttgagaa tataagttca
394201 gattagggaa attctcaacg gagcatttat aaaagaaata tagccttctt
394251 agaattttcc agtgcataca gcaatttaaa ccagaccaa caaattgcta

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

147 / 338

```

394301 agatgacagg tccttccagg gcttgtcatc ttgataatta taaaaatgat
394351 gagctgtaat tagaatgtca gtcattcttta aatagttact tctgaagtac
394401 ctcactaaga tagtaatttt tttgcaagcc ttccatgttt tatttaggaa
394451 atactttctg aaaaacaata ttaatgtgtt gcagcctgaa ttaccactct
394501 ttatgagtta ttattaggtg aatcaatgac tttttttttt aactgtataa
394551 agataaaaca aggggtgcaag gaaagaaaag aggaacgcaa aaatgcaagc
394601 agaggtagaa agagtgtaac gtccttaaag ataatatgcc aaccacttg
394651 gctcttcgta ttttctctgg cacttgaaaa tacatcctgt atccccactg
394701 cacttatcct acgtccatta gtcctacaga tcaatatccc attccctggg
394751 atggcttata ctagctattg gcactgtccc tcagagaact tgtggcatga
394801 ggaagaaaag gttattttac tttatactct gaaagcaaat tcagtcagga
394851 caaacacagg ccttccaatt ttagaaatct acatttagaa ctggaaggct
394901 gaaggagtaa tgtagcaact aatcttttaa ttcccctaag agcacattta
394951 ttttactttc cccaaggaac aaatatataa gaaaggctaa ttttatttta
395001 gtttatttta ctgatctagc aaaaatatat ttcaacatgc ttatggagat
395051 tttaaaaaca acaggaaatg gagagaaatg gtacaggaaa actggttttg
395101 atgaaataat gttctcaata ttaaacaaca gtggaaattt agggttgatc
395151 tgtaagcaca tggcttccac acagacctca actaaccaga atgtatttgt
395201 ttgggctagt ttaaattgct gttatgtact ggctttttaa tgccaccaat
395251 agggatttct acctttagat ctggcttcta ctgaccttag agctaaggaa
395301 aagagtggga aaagagtaag caatccttca gcattggcga gcaccaagat
395351 tctgacgctt ctgggtgtcat tttagaagca tgaaatgagt ttgtgtcatt
395401 ctttatttat gaagccgata gccagaggaa actggaaggg ctctgaatgt
395451 tggaacaatc attttaagta gcctaaacat tcttcagcat acaagctaca
395501 gcaagcttta aactactcaa aacagcaact tctaatatgc aaaatgatat
395551 ttttaattgc aaaaactttg aattaaagca tttacacata cactgaaaat
395601 tcctaataga ggtttctcta tttttgtaaa ctgaatgggt gatgatttta
395651 tttatcagtt taagttgcta agctgtctta cgaaaaaaat ttatttatag
395701 ttaatgagct agtgataaaa tctaaagggc cttggaaaaa agtactattg
395751 tatgctaata tgaacaaaat ccagttgtcc ctcagtatct gtgggggacc
395801 ggttccagga tctcctgcag atactaaaat ccacagatgc tcaagtccct
395851 gatagaaaat ggcatagtat ttgcacataa cctacacaca tcctcccata
395901 tactttaaat gatctccaga ttacttataa tacctaatac aatgtaaatg
395951 cttggtaaat agttgttaac gtttattgct tggggaataa tgacaagaaa
396001 aaatactcta catgttcagt acaaatgcaa tttttaatat ttgcaatttg
396051 aggctggttg aatccacaga tgtggaatcc atggatacag agagctgact
396101 ttaatagcat acattaattc ttcttctgca atgaccccag ataccaacaa
396151 tgccagggac atcataaaga atacaatcat ggtctctgcc tctgaggaac
396201 tgaaggctta atggaaagtc agatcctaag taagtggaaa actagaatgc
396251 aaatacaact ggaataatta aggaaatgaa tgtatcatgc aagtatatgg
396301 tccatgtgac acatgttaat atgtcaaata ggaaataatt atgtgcaaac
396351 tagtgacaac tatataaaaa ttgtatataa cagaaaacaa ttacacgaaa
396401 tcccagaaac caaattctcc atattccagc agatgataaa atgtgagcct
396451 ttctcagtg aagatcatcc agtttcctag aagaacaaag tgttcttcat
396501 agccttcttc ctttttttagc aataaatgtt ccatttgagc acaaaagatt
396551 gaagggtatg acaatcttta tttctgaatc catttaattc cagaaaaaca
396601 ttcaaataag agagctctac ggtttggggg aaactttggg atacaacatt
396651 acaacttaat gtcttccatc tatgctacag caaaagcaat tcaaaaaccc
396701 tctcaaggta caaacagcca aatgttactc ttaccaattt cttacatata
396751 attctgatgg gctttttgag actgagcaaa tgctgtctca ttgagatacc
396801 aaatgtattt cccagggtcca gataagcctc taagaatcag cctcaaacat
396851 ttttaaataa aaataaaaact taaaaccatt tcaccactc tatggtataa
396901 gggctgcaaa tcacaggcaa agtttcgaag atgtgctgag aactaatat
396951 gttattgccc cagctgctag aacagctgtc atccacgtct ctcttctgca
397001 aacacacagt actacaagaa tgaaagggag gccgggctg gtggctcaca
397051 cctgtaatcc cagcactttg ggaggccgag gcaggcgat cacgaggtca
397101 ggagatcaag accatcctgg ctaacacagc gaaaccccgt ctctactaaa
397151 aatacaaaaa aattagccgg gcctggtagt gggcgctgt agtcccagct

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

148 / 338

```

397201 actctggagg ctgaggcagg agaatggcgt gagcccagga ggcacagctt
397251 gcagtgaacc gagatgggtgc cactgcactc cagtttgggt gacagatcga
397301 gacttgtctc agaaaaaaaa aaaaaaagaa tgaaagggaa aggaagaatg
397351 ccctgaatgc ttgactaagg agtctgagaa tgtagccttc tcccaaagta
397401 gtttgtcatc cttcaagctg aagccacctg tacagggtgag tgaagataat
397451 acccccacct tcatttagag aacagtatga ctagtgtttt agaattctct
397501 gattgtgcct accctttgtt tcataagttt tgttcaaatt catcactaat
397551 tttagaggaa aatgtaagtt cctacaactg tcatttccca accactaata
397601 agttatttga cttgaagcac aatttgcaat aatggcctct gtaagcattt
397651 ctttagcccc atcatccaag gggctgcttt catctcattc atttcatctc
397701 gtctcacttc taacctcagc catgtgctcg aaaagcaaac gaaccaagtg
397751 gcaatagcat tagcagtga aaaaataaca tatctagggt tgtgcagctg
397801 actgagatct tataaaagta ttgcttttat aggatactgt tgttttcaaa
397851 aggaaaccag aaaagaaata tcgatgatta gaaataatgt tttttctgta
397901 agtttgttct ttgttaaacc aaacaaacag gtgtcacaaa acagaacaaa
397951 aaaaccaatg atgggtcaaa gtttaaagaa atggatagat ggctgggtga
398001 agtggctcac acctgtaatc ccagcatttt aggaggcgaa ggcaggagga
398051 tcacttgaac ccaggagttc aagaccagcc tgggcaacat ggcgagactc
398101 catttcctta aaaataaaaa gattagccag tcataatggt gtgcgcctgt
398151 agttagtccc agctactcaa gaggtgagg tgggaggatc acctgagtcc
398201 aggaggttga ggctgcagtg agccgtgttc acaccactgt attccagtct
398251 gggcaagaga gcaagatcct gtctgaaaaa gaaaaaagaa atggataaaa
398301 cataatactt cattttattt tccaaatgaa ttcaaggctg gaattggtgg
398351 gtcaaattca aatctaaata tggtttcatg aatctttctc atgtggatac
398401 cccaaaagtg atttcatcta ttagtcccca gttgtatgaa agtatcaac
398451 tgtaccctgc aatgacctaa agccaaactg aaattccagc aatggactgg
398501 cagaaccata cactattaat tcaataaatt ttcttaggta aacaggacac
398551 agagccaaca ccaacagaaa ttacatgggg ttgggggatc tagacacata
398601 aacagatgct cacaacagtg tggctggtca gatgctgtgg aggcaacaga
398651 attgggaagt atgcttcagc tacctaaaga gaagcaggcg cctgcaacag
398701 tgagcactca tgccaggtaa ggctctggtg gaggaactga aagaaagtca
398751 gcatggctgc agccaaacaa ctcaggcttt atcctaagag caccaggtaa
398801 tccctgaagg gtcttaagca ggggaagtggc ataaacagat gtaggtctat
398851 gaaagattac tttggctgac cacagagaca tgagacgaca aaggagtgtc
398901 tagaggaagt ccagatggct atggtaagcc agaaaagaag ggattgaagc
398951 ccacactagg gaaatggaga aaattgaaca agaaggaaaa tcaagaagat
399001 tctgcaactg gctgaatggg acaaggagca ctggataagc agaaaggcag
399051 agccgaagat cacaggcaga cgctgagctt gagtgagaga gaactgtgct
399101 gccactcact acagcagaaa gcacagcagg cctcaggggt gatgagtcct
399151 actatggaca tttgtgccag gtacctgtgg gatattaaag tggacaagtc
399201 ccaacagatg gatttagaaa tctgaagctc aagaaaggtc tggattggag
399251 atttggaaat ctggcatgaa atcaccagg aaaaaagcaa gtgaaataag
399301 gagagcagag taccttaaga agaactctaa gaaactccaa cgggaaaggg
399351 acaggagagta cccctagaa gggactgtga aggaagaggt agaccaggag
399401 gaaaaccagg agacagagtg tcacagagat ctggggactt gagcatcaca
399451 ggcaagaggc atgctagtgt cgaatgctgc tgagacacca aacgagggaa
399501 ggggtggagaa acttccattg gatttaacaa ggagaattat cagtgacctt
399551 aacaagaaca gtttactga ggttgtgggt ggaagaggcc aggttgcagc
399601 aggttgaggc gtatgtgaaa ggtgaagaaa aggaaaccat gagtataaac
399651 aacttgttca agaaatttca ctctgaagga aaaatgagaa atcgcatagt
399701 aatcacagaa tgtgatagag ttgcaggacg ttttctgtta acctttttaa
399751 tgtaaacatt gttagaggct tgaacatgtt tgaattaatg ggaaggagcc
399801 agtagaaaca tcaaagagga gaggatgtaa caactcaatg ggccttaaga
399851 aagtagcagg gaatgggatc tgaagcagaa gtgcaacaga agcgccgggc
399901 gcagtggctc atgcctgtaa tcccagcact ttgggaggcc gaggcaggtg
399951 gatcatctga tgtcaggagt tcgagaccgg cctggccaac atgggtgaaac
400001 cccatctcta ttaaaaatac aaaaattagc tgggcatagt ggtgggtgcc
400051 tgtaatcgca gctactcagg acctgaggc aggagaatcg cttgaactcg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

149 / 338

400101 ggagacggag gttgcagtga gccaaagatca caccactgca ctccagcctg
400151 ggcaacaaaa gcaaaattct gtctctaaat aaataaataa ataaataaat
400201 gcaagagaaa ctgtagaaaag gagcaagtct tccttttctt ccttccacaa
400251 gaggaggagg aaaggggtgaa tgtgaatgaa agccagttta aaggttagga
400301 atccagatgc tggagacata ctcatctctt cattctcatt ctctctcccc
400351 gctgagtctc cattttacat gccaccggc aatgtacaac agtgctgctt
400401 tctccagtat ttactgtctt ttgtattata cccatcctag tggatgggag
400451 gtggtatctc atggttttga ttggcatttg gagaccattc tcttctgagg
400501 tcacctattt ttcccctatg aagaaagagt taggcttttt gctaagagta
400551 agaggggagg tagcaataaa cagtggagtg gaggccgggt gtggttgctc
400601 acgcctgtaa tcccaacatt ttgggaggcc aaggcgggag gactgcttga
400651 ggctaggtgt tcaagaccag cctgggcaac atagggagac cctgtctcta
400701 caaaaaataa aaaaattagt cgaatgtggg ggtgcgacc tgtggtccca
400751 gctacttggg agtggggagg atcacttgag cctgggagtt tgaggctgca
400801 gtgagctatg atcacatggc aactgtact ccagactggg cgacatagtg
400851 agaccctgtc tcaaaaagaa aaaagtggag tggagcaatt gggggtaaaa
400901 tgggtgaagtc tgaagcagtc accagggagg atgggaaaga gcaactgagca
400951 gagaaaccta gcaggatggg aagaccaagc ccagagaaaag ctggagaccg
401001 taagtcttta gaggtacca tctggtctcc tctgtgagct tttctacccc
401051 aggaaagaag tgtgcttttg tgtatgtgtg tgtgtgtgtg tgtgtgtgtg
401101 ttttaaatgt gatctaacac acagttgact tatataatta tttcattaac
401151 tgatctcctc tactaagtct attctggcta aattcagaca acactcatca
401201 taccctctct gtgcattctt cagcacgtac acaacatgta cttttttttt
401251 ttgagatgga gtctcactgt gtcgcccagg ctggagtgca gtggcacaat
401301 ctcggtcac tgcaacctct gcctccccag gtcaggtaat tctcgtacct
401351 cagcctcctg agtagctggg actacaggcg cacaccacca cgcccagcta
401401 attttttgta ttttttagtag agacgggggt tcaccatgtt ggccaagctg
401451 gtcttgaact cctggcctcg tgtaatctgt cgctcaatc tcccaaatg
401501 ctgggattac agatgtaagc cactgcgcct ggccaatatg taacattttt
401551 aactttttgt aaaaccagag aatatattga aatgtgtccg aatgccctgc
401601 ctagattcta gactctgtga ggccccagcc tcctttccta tgcattgactt
401651 actgtttaat gtagtacaca cagaagggat atcatcatca taataaaggt
401701 cctcactttc cttcacagtt tcatctaccc cacaatgact cccaggaaaa
401751 ggagggtagt gtttcagact tcccagctcc cgtatattag gtggagccaa
401801 gttcttgctg cagcatagcg gcacgcttta aaattttcaa atcatttttt
401851 aaaagctaca agcttgacag ctttgggttt ttatggctac ttgttttctg
401901 aagttcacag aactttatca tttggatcac acacttaaaa aaatcacttg
401951 caaaaatctc tttaaagatg aatatgcttc ctcttcaaga gaaacagact
402001 agcgggtaga agaaaaagga cccgtctaga gtattaataa atagactgat
402051 attcacacaa tggattaaat ggattaaagt ccatcccaca gatgaactgt
402101 tatattaata gaatccaaat atacagttac atcctcgacc ctgaaagcag
402151 tttaaacggg tgaaattcac ccagtgtca cttgaaatga gtactctaaa
402201 gtttaaagca cctataaact gccctcagga ttcaatcatt tttccattcc
402251 ttccggcatt atatactttg atgttttaat gttattagcc cacaatacac
402301 accagtttca gaaactcagt ttttgtcctc taagggtttt tagtcctccc
402351 aaaaaaagaa tagggcaaaa gcaaggaaga tcatgaatct ggttttctaa
402401 aagcattatt acaagactgc tttataaaat tgtaatcccc agctgcagag
402451 ttccgcagat ggcttgaaag tgtcttacat gcaaataaat aaaaacaaaa
402501 ggccacttat gcgagcagaa cacagcgtgc tcgatagtca tcttaaacgg
402551 agcaggtagg tactttatca gaggcagaca agggaaacgt cacttattta
402601 gagttcaccg cacgcctgga taaaagtcct cactaacaaa atccctgcct
402651 ttgtggattc tgtgtcgga agggaaacga taaagaatac ggtttgtgac
402701 agcactactc tcaggagacg aaggagagat gctaagatct tggaaaggag
402751 agagaatagg aagagtcgga ggggagatct cctctcagta aaacggcacc
402801 cacagcagtc agacttcagc tacgagcaaa atcgagtccg tgcacctcaa
402851 aaaagagagg gaggcaggga aaactttccc tcgcctctcc ccatccttcc
402901 ctctcctcg caggagagca cattagctga ggtgctggcg ggggccgggc
402951 cggggacccc atccctcgcc ccggacgcag cgcccgcagg gactgcccg

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

150 / 338

```

403001 gagcccgagc gagggaggcg ggaggtacag gagtaacggg gcactcccgg
403051 cccggcctgc ggggaaggga agcaggggca gggccgaggg ggaagaggcc
403101 tccgcgagct cgaccccgcg cccacacgct acctgcgagg tcagctgctg
403151 ccgcgccgtc ccgcgggacc gcagggatct ccgaagctcc aatgggcgca
403201 gaagtgcgag cgagcggcgg tgcccaccgg cagcgaagag gaggagcgcc
403251 agggcgccgg gcccgccggg tcacgtggcc ccggccgcct cacgtgaccc
403301 ggtgcagcgc gcgcccggga cgctaccag ccgagcatcc cgcaccgcc
403351 cggccccggc cccggccgaa accctgctct tcgggcccta caaccgact
403401 tctttagaag ccgattggcc gtctcaggcc cgccccgagg ccctgccact
403451 ggagtgtccc catgaaatcc ggtggctgct gccgggactt agaggctttt
403501 gtgtctgagg aaccaggaac gcgcgaggca cgggctcctg ctctgctccc
403551 cgagatggct tggctgtggg gagggctcggc ctaccacccc agagacctag
403601 gacggaaaag cgaccgagaa acttggtccc ctgcccactc tagagcgct
403651 ctggccccgg ggcaccaccc aggtggtgct gcctgggagg aaaggcggcg
403701 gagctgggac tagtttgttt ttactggaga cgcgcctccc tccctccccg
403751 cccctcactt cctgattgaa agtacctgag gcaggccagg gactagggaa
403801 ggtggcagct ggacaaaggt atgaaggaag gacgagatga ggcacaggtc
403851 ctggtattgg aaagaggcag aggtacctcg gaagcatgcc atagaggtta
403901 gacgggacct aagagggcag ctggtccaac cggattcgtg ttaccagcga
403951 gtaaactgag gccaggagag ggactgctac gagctgctcc agcctatcac
404001 ctataaagac tacagtcctt ttgtaaaata ccatacagct ctcggagAAC
404051 tcccagttgg cgctgcagga taaaatccaa acttggtggc atagcattcc
404101 agccacttgt tcacttacct ttcccatttg agctcctagg aataaacaga
404151 aaaacatttc attttctaaa tatcaccaga taacttact tttggttaact
404201 tgaattatta aaaaagtcct accgtccctc atctcttgcc acttccccaa
404251 cattactgga ggctctggct acaaataatt tgttttcctt gactactcaa
404301 ctttctttgg attatttact ttttctctaa gtttctttac tcctttttgc
404351 tttgttcatt cttttgtctg tatctgaaat gtcctgaatc accacctccc
404401 ccacttaaag aaaaccaggg ccaatgatta aaaaaaaaaa aaaagggtatt
404451 aagaaactaa tgcaataaga gaattgagct tagttctgta tctattctga
404501 ggtctcgctc ctggtgcaact agttcctgaa taaaatgttt ttaccacttc
404551 aactactgtt tggctctggt tttcttcaac agcctccaaa gtacacatca
404601 gtttccctact catctttcaa aatccaggtc aaatgccgcc tactcttgct
404651 ttcccagcat cctcttccct gatttttttag caattgaagt tcatccagac
404701 agtgtcagct gcaacttctt ccctgatttc cagaatacta tatatattct
404751 gatacacctc acactgcca gaaatagact gcgcatttcc tgtaaaagggt
404801 gaattgtcta ttgctgtctt ctcccttaga ttataaactc tttgaaacag
404851 gattcttctg ggtttagaac agcgctggc atgtgataga cccttaatac
404901 tcaactgaatg aagtggcttg cccaaagtag tggcagttga gtgaatttac
404951 tagaagaggc ctgttttgct caaagaaact aaaatcagtt tcttttggtt
405001 gcaacccgat caaaagaact tgtgtaaaaca tgtctgagag aaaaacgagg
405051 gcatggggtg tgagcaatca aatatgtcct gagccctcac tgcttatgtg
405101 tcagatgcca tacttgaggc atcttgagg attaaaagct gaatgagaca
405151 tggttgctga taaggaatgt gtagtctggt tcattattcc agtacagggt
405201 gaaaagtatt atgatacaag gtgctaagtg aacacaaacc agggaccaca
405251 aatcaggagg tcagggagaa acttcatgag aaggtcagtt ggacaggaag
405301 tagataagaa gaaagaaaaa gacattccag gagagagcaa tgtgttcaaa
405351 agtagtgaca catgaaacag tactatttgt ttaggaaaaa acaaacagggt
405401 aggtgcagtg gctcatgcct gtaatcccag gccaaaggcag gcaaatacact
405451 tgaggtcaag agttcaagac cagcctggcc aactttggaa aaccctgtct
405501 ctactagaaa taaaaaatt agccagctgt ggtggcacgt gcctgtaatc
405551 ccagctactt gagaggctga ggcacaaaaa tcacttgAAC ccaggaggca
405601 gaggttgtag tgagccaaga tcgcatcact gcattccagc ctgggtgaca
405651 gagtgagact ctgtctcaaa aaaacaaaaa caagtaaccc tatattgatg
405701 ccttgatgac ttcattcaca tctaggataa aggaaaccaa attagggttaa
405751 ttttaataata cttgaaagaa tgacataatt actggtattg gtgttattta
405801 ttgtattgaa taactttcta tcaggcacat cataggctct gcatctaaaa
405851 ttggcctagg ccaggcacag tgggtcacgc ctataatccc aatgcttttg

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

151 / 338

```

405901 gaggccaaagg taggtggatt gcttgagccc aggagttcaa gaccagcctg
405951 gacaacatag caagacgctg tccctataaa taaataagaa taaaactggc
406001 ttggactaac gcgaggtgat t'ttttacctt tttttccagc ctcaaaagct
406051 ttctatgatt attatgtaaa aataccaaaa ttacttggtc caaagaagat
406101 gattttttttt attttttgag acagcgtctt gctctgttgc tcaagctgta
406151 ctgcagtggc atgatcataa ctactgcag cttcaacctc catgggctca
406201 agtgatcttc ccacctcagc acctcagcct cctgagtagc taggaccaca
406251 ggtgagggcc atcaggctgg gctaatttat attttctgtg gagacggggt
406301 ttgccatggt ggccagcctg gtctcgaact cctgagctca agcagtttgc
406351 ctacctcagt ctctcaaagt gccaagatta caggtgtgag ccacctatgcc
406401 tggcccaaaa gaagattatt ttagagcact ccaaaccttt cctttagagc
406451 aaaataattc aattaacagg tagtacttta agacagaaac tgggcttaac
406501 ctccagcatg tgaaaaggga gaaccactcc acttaatgct aacacatgat
406551 tacgttggga aaagtacctg tcaagaacct aataaaatat cataaggttt
406601 gtccggacat ggtggctcac gcctgtaatc ccagcacttt gggaggccaa
406651 ggcaggtaga tcacttgagg tcaggagttt gaaaccagcc tggccaacct
406701 ggtgaaaccc tgtctctact aaaaatacaa aagttagctg ggtgtggtgg
406751 tgggcacctg taatcccagc tactcaggag gctgaggtgg gagaatcact
406801 tgaaccttgg aagcagagat tgcagtgagt cgagatcatg ccactgcact
406851 ccagcctggg caacagagta agagtcctat tcaaaaataa aataaaaaata
406901 aaaaatgaat aaaattgctt ctttgtcctt tggcaggcaa aatagctttt
406951 ttattttttt atttttat'tt tttgacacag ggtctcgccc tgtcacccag
407001 gctggagtgc agtgtcatga tctcagctca ctgcagtctc cacgtcctgg
407051 acttaagcga ccttcccacc tcagccgccc gagtagctag gactacagat
407101 gcataccacc acacctggct acttctgttt attgtttgta gacacaggat
407151 ctactat'tt tgtccaggct ggtcttgaac tcctgaaccc aacggatcct
407201 cccacctcag catcccaaag tgctgggatt acaggtgtga gccactgtac
407251 ccagcccaag agagcttctt aattatggaa tttcttctact gtccatgtca
407301 gttgatgggtg aaatgtttat tttttattca ttagcagtgg tccttggtcc
407351 acctgcattt agctgtggta gcacctatggc ttattaggag gtcaccaact
407401 tctgggtggga gatacgcagt ctctagtctt ctgagacata gaagttctga
407451 ctgcaattga ctatgaagca ggactgg'tcc tctgaatgtt aacatgcac
407501 ttgaagactt cttagagtga ccctgggatg atgatggagg tagtaagaat
407551 attctcagat ggggcttgac tcactcattt ggaatattaa aggtgaagtt
407601 acctgggaca aactcagtga ctttatgagg aaacaatcag agaaatacat
407651 aatagcggac aagaaccttt ctagccttgg tttcctcaaa aagttaaatt
407701 tagggggaag gccaggcacg gtggctcaca cctgtaatca taacactttg
407751 ggaggccaag gtaggcagat cacttgagg't caggagt'tcg aaactaggct
407801 ggccaacatg gtgaaactcc atctctacta aaaatattttt aaaacgttag
407851 cccagcgtgg tggcaggcac ctgtaatccc agctacttgg gcggctcagt
407901 caggagaatt tacttgggag gctcagtcag gagaatcact tgaaccaga
407951 ggcaaagg'tt gcagtgagct gagatcacgc cattgcactc aacctgggc
408001 aacatgagca aaactccata tcaaaaaaaa attaaaattg aaaaattagg
408051 ggg'ttaaaaa aaagagggggg actgttctag attaaaagag actaaagaaa
408101 catgaaattc aaatgcagtg catgaacctt aggtagaatc ctggttccaa
408151 ttttat'tttt taagagatgg ggg'tctcact ctgtcaccca gcctggagtg
408201 cagtggcacc atcacagccc actgcagcct caaactcctg ggctcaaaag
408251 atcctctggc cttggcctcc taaaagg'ttg ggattacagg t'tgagtcac
408301 cacgccagc cccttggttc caattttttt aagctataaa taatattttg
408351 taaagaatca gaaatttaat atggactgga tattagatag tattaggaga
408401 ttactgggtt ttttagatgt ggtaatagta atattaagaa catcctggct
408451 gggcatgg'tg gcttatgcct gtaatcccag ccctttggga ggctaaggcg
408501 ggaggattgc ttgagcccag gagtctgaga ctagcctggg caacatgacg
408551 aaacctatc tctacaaaaa attagccagg caagatggca cacagctgtg
408601 atcccagcta ctcggaagc tgtgg'tgga ggattgcttg agtcaggag
408651 gtcaaggctg cagtgagcta tgattgcacc actgcactcc agtctgggca
408701 acagagcaag acctgtctc aaaaaacaaa aaaacaaaca aacaaaacaa
408751 aaaaacaaag aaagaatgtc cctattttta tgagatgtgt accagaataa

```

FIG. 5 CONT'D

SUBSTITUTE SHEET (RULE 26)

152 / 338

```

408801 ttaaggacag agtgtaatga ggtctgcaaa tggttcacac aaaaaattaa
408851 tactgtatat atccatgtcc ataaagaaag agaaaatatg gcaaaatggt
408901 tgcaattggt aaatcgagga gctattatgt atacttttat ttaaactttg
408951 aaattttctt tctttttttt tttttttttt tgatatggcg tctcgctctc
409001 ttgcccaggt tggactgcag tggcgtgatc tcagctcact gcaacctcca
409051 cctctgaggt tcaagtgact ctcatgcctc agcctcccca gtagctagga
409101 ttacaggtgt gcaccatcac gtctggctaa tttttgtatt tttagtagag
409151 atgggggttc actatgtgtg atccaccac tttgacctcc caaagtgtg
409201 ggattacaga tgagagccac cacgtccggc taaactttga aattttcata
409251 gcaaaatggt gtaagggtgg atgagatgtg ccctttatat ttcaaactaa
409301 gaaagcagga tatttcagta atttatttat tcataaagat cttttgaatg
409351 cctgccatgt gctaggcact gtaataaggt ctgggtgtac cttgggtgatt
409401 aaaacagtaa tgttctcttt tataaatggt atgctgcatt acccaatctc
409451 tcctttaaga ctgaaggatt tattcccca gcttttggga agcttgtatg
409501 ctgacagcct tcttcagtga ctgtcttgct aaagaaagct gccttattca
409551 aggtccagtc accttatagg ggcagcctgc aacaaatgac tagtcgcgcc
409601 aggcctaatac tttaatattca atgcaattac cttttttct tgttttcaaa
409651 acttaacaaa attattctaa tgtttatatg tgagaagagc caggaaatac
409701 caaaaaagaa ttctagaaaa gaagagtgat ggctatgaag agacagagta
409751 ggagcaattt actaatccat catagtgtat tcaagagttg agtattgact
409801 gctgccttct aagaacttaa aaggccctct ccgctctccc ctctcccctc
409851 tcccctctcc cctctcccca cggctctcct ctcatgcgga gccggagctg
409901 gactgtactg ctgccatctc ggctcactgc aacctccctg cctgattctc
409951 ctgcctcagt ctgccgaatg cctgcgattg caggcacgcg ccgccacgcc
410001 tgactggttt tgggtggagac ggggtttcgc tgtgttggcc gggccggtct
410051 ccagccccta accgcgagtg atccgccaac ctcgccctcc cgaggtgccg
410101 ggattgcaga cggagtctcg ttcactcagt gctcaatggt gccaggtctg
410151 gagtgcagtg gcgtgatctc ggctcactac aacctacacc tccagccgc
410201 ctgccttggc ctcccaaagt gccgagattg cagcctctgc ccggccgcca
410251 ccctgtctgg gaagtgagga gtgtctctgc ctggccgccc atcgtctggg
410301 ctgtgaggag cccctctgcc tggctgcca gtctggaaag tgaggagcgt
410351 ctccgcccgg ccgccatccc atctaggaag tgaggagcgc ctcttcccag
410401 ccgccatcac atctaggaag tgaggagcgt ctctgcccgg ccgccatcg
410451 tctgagatgt ggggagcgcc tctgcccgc cgcccatct gggatgtgag
410501 gagegcctct gcccgccga gacccgtct gggaggtgag gagcgtctct
410551 gcccgccgc cccgtctgag aagtgaggag accctctgcc tggcaaccac
410601 cccgtctgag aagtgaggag cccctccgcc cggcagctgc cccgtctgag
410651 aagtgaggag cctctccgcc cggcagccac cccatctggg aagtgaggag
410701 cgtctccgcc cggcagccac cccgtccgga agggaggtgg ggggggtcag
410751 cccccgccc ggcagccgc cccatctggg agggaggtgg ggggtcagcc
410801 cccccgccc gccagccgtg ccgtccggga gggaggtgg ggggtc

```

FIG. 5 CONT'D

153 / 338

ANGE

Exon1

ATCCGGCCGCCACCCGCAGCTGCAGCACAGTCATGGCCCAGGCGTCGCCGCCCCGG
CCCGAGAGGGTGCTCGGCGCCAGCAGCCCGGAGGCCCGGCCCGCGCAGGAGGCGCT
CCTCCTTCCCACCG

Exon2

GTGTCTTTCAGGTTGCAGAAAAGATGGAAAAAAGGACATGTGCACTCTGCCCCAAA
GATGTCGAATATAATGTCCTGTACTTTGCACAATCAGAGAATATAGCTGCTCATGA
GAATTGTTTG

Exon3

CTGTATTCTTCAGGACTTGTGGAATGTGAGGATCAGGATCCACTTAATCCTGATAG
AAGTTTTGATGTGGAATCAGTAAAGAAAGAAATCCAGAGAGGAAGGAAGTTG

Exon4

AAATGCAAATTTTGTCTATAAAAGAGGAGCCACCGTGGGATGTGATTTAAAAAACTG
TAACAAGAATTACCACTTTTTCTGTGCCAAGAAGGACGACGCAGTTCACAGTCTG
ATGGAGTTCGAGGAATTTATAA

Exon5

ACTGCTTTGCCAGCAACATGCTCAATTCCCGATCATCGCTCAAAGTG

Exon6

CTAAATTTTCAGGAGTGAAAAGAAAAAGAGGAAGGAAGAAACCCCTCTCAGGCAAT
CATGTACAG

Exon7

CCACCCGAAACAATGAAATGTAATACATTTCATAAGACAAGTGAAAGAAGAGCATGG
CAGACACACAG

Exon8

ATGCAACTGTGAAAGTTCCTTTTCTTAAGAAATGCAAGGGAAGCAGGACTTCTTAA
TTACTTACTTGAAGAAATATTAGACAAAGTTCATTCAATTCCAGAAAACTCATGG
ATGAGACTACTTCAGAATCAG

Exon9

ACTATGAAGAAATCGGGAGTGCACTTTTTGACTGTAGATTGTTCGAAGACACATTT
GTAAATTTTCAAGCAG

Exon10

CAATAGAGAAAAAATTCATGCATCTCAACAAAGGTGGCAGCAGTTGAAGGAAGAG
ATTGAGCTACTTCAGGACTTAAAACAAACCTTGTGCTCTTTTCAAGAAAATAGAGA
TCTTATGTCAAGTTCTACATCAATATCATCCCTGTCTTATTAGGGATTACCATTTT
CTAAGCCAAGAGTCATGTCAAATTGCAATCAGGCTCAAACCAGAGACCAGGCTGT
GAAATCCACACATCTTTAGAACTAGTCGTCTCCTCTTGGCCTCAGCAGCTCTTCCC
TGTTCTTACTGGTTGACATTTTGATCACTCTTGCACACTCTTGTGTTTTTTTGCTC
ACTGTCACACTCCCAGCACCTAGTATGCTCAGTAAATGTTTGTGGAATAAGTGCAT
AAAATGTTCTTAACCTTTGATTCTACTTACAGCCCATGATAGCCTCTTAGATATAA
TAAATTTGGATTATACTAAAA

FIG. 5a(i)

154 / 338

ANGE Protein Sequence

```
1  MAQASPPRPE RVLGASSPEA RPAQEALLLP TGVFQVAEKM EKRTCALCPK
51  DVEYNVLYFA QSENIAAHEN CLLYSSGLVE CEDQDPLNPD RSFDVESVKK
101 EIQRGRKLKC KFCHKRGATV GCDLKNCNKN YHFFCAKKDD AVPQSDGVRG
151 IYKLLCQQHA QFPIIAQSAK FSGVKRKRGR KKPLSGNHVQ PPETMKCNTF
201 IRQVKEEHGR HTDATVKVPF LKKCKEAGLL NYLLEEILDK VHSIPEKLMD
251 ETTSESDYEE IGSALFDCRL FEDTFVNFQA AIEKKIHASQ QRWQQLKEEI
301 ELLQDLKQTL CSFQENRDLM SSSTSISLS Y
```

A third alternative transcript of this gene has a different initial exon and is then assumed to have the same structure of exons 2-10 as ANGE and BCAP. Exon 2 starts at base pair 247. The 5' sequence only of this transcript is shown:

FIG. 5a(ii)

155 / 338

NY-REN34

Exon 1

CACAAAGGCACCAAACCACAAAACGTCACACGTAAACATCATACGTGGCAACCACAAG
CCAATCAGTTGGATATTTTCATTCATTGGTATACATATGGACTGTAAG

Exon 2

GTGTCTTTCAGGTTGCAGAAAAGATGGAAAAAGGACATGTGCACTCTGCCCCAAAGAT
GTCGAATATAATGTCCTATACTTTGCACAATCAGAGAATATAGCTGCTCATGAGAATTG
TTTG

Exon 3

CTGTATTCTTCAGGACTTGTGGAATGTGAGGATCAGGATCCACTTAATCCTGATAGAAG
TTTTGATGTGGAATCAGTAAAGAAAGAAATCCAGAGAGGAAGGAAGTTG

Exon 4

AAATGCAAATTTTGTCTATAAAAGAGGAGCCACCGTGGGATGTGATTTAAAAAACTGTAA
CAAGAATTACCACTTTTTCTGTGCCAAGAAGGACGACGCAGTTCACAGTCTGATGGAG
TTCGAGGAATTTATAA

Exon 5

ACTGCTTTGCCAGCAACATGCTCAATTCCCGATCATCGCTCAAAGTG

Exon 6

CTAAATTTTCAGGAGTGAAAAGAAAAAGAGGAAGGAAGAAACCCCTCTCAGGCAATCAT
GTACAG

Exon 7

CCACCCGAAACAATGAAATGTAATACATTCATAAGACAAGTGAAAGAAGAGCATGGCAG
ACACACAG

Exon 8

ATGCAACTGTGAAAGTTCCTTTTCTTAAGAAATGCAAGGAAGCAGGACTTCTTAATTAC
T TACTTGAAGAAATATTAGACAAAGTTCATTCAATTCCAGAAAACTCATGGATGAGAC
TACTTCAGAATCAG

Exon 9

ACTATGAAGAAATCGGGAGTGCACTTTTTGACTGTAGATTGTTCTGAAGACACATTTGTAA
ATTTTCAAGCAG

Exon 10

CAATAGAGAAAAAATTCATGCATCTCAACAAAGGTGGCAGCAGTTGAAGGAAGAGATT
GAGCTACTTCAGGACTTAAAACAAACCTTGTGCTCTTTTCAAGAAAATAGAGATCTTAT
GTCAAGTTCTACATCAATATCATCCCTGTCTTATTAGGGATTACCGTTTCCTAAGCCAA
GAGTCATGTCAAATTGCAATCAGGCTCAAACCAGAGACCAGGCTGTGAAATCCACACA
TCTTTAGAACTAGTCGTCTCCTCTTGGCCTCAGCAGCTCTTCCCTGTTCTTACTGGTTG
ACATTTTGATCACTCTTTGCACACTCTTGTGTTTTTTGCTCACTGTCACATTCCCAGCA
CCTAGTATGCTCAGTAAATGTTTGTGGAATAAGTGCATAAAATGTTCTTAACCTTTGAT
TCTACTTACAGCCCATGATAGCCTCTTAGATATAATAAATTTGGATTATACTAAAA

FIG. 5b(i)

156 / 338

NY-REN-34 Protein Sequence

```
1  MEKRTCALCP KDVEYNVLYF AQSENIAAHE NCLLYSSGLV ECEDQDPLNP
51  DRSFDVESVK KEIQRGRKLK CKFCHKRGAT VGCDLKNCNK NYHFFCAKKD
101 DAVPQSDGVR GIYKLLCQQH AQFPPIAQSA KFSGVKRKRK RKKPLSGNHV
151 QPPETMKCNT FIRQVKEEHG RHTDATVKVP FLKKCKEAGL LNYLLEEILD
201 KVHSIPEKLM DETTSESDYE EIGSALFDCR LFEDTFVNFQ AAIEKKIHAS
251 QQRWQQLKEE IELLQDLKQT LCSFQENRDL MSSSTSISL SY
```

FIG. 5b(ii)

NM_016119.1 (NY-REN-34) Protein Sequence

```
1  MEKRTCALCP KDVEYNVLYF AQSENIAAHE NCLLYSSGLV ECEDQDPLNP
51  DRSFDVESVK KEIQRGRKLK CKFCHKRGAT VGCDLKNCNK NYHFFCAKKD
101 DAVPQSDGVR GIYKLLCQQH AQFPPIAQSA KFSGVKRKRK RKKPLSGNHV
151 QPPETMKCNT FIRQVKEEHG RHTDATVKVP FLKKCKGSRT S
```

FIG. 5b(iii)

157 / 338

FIG. 5c(i)

Homo sapiens CLLD7 protein mRNA, Exon sequences

Exon1

CTCCTCCTCTTCGCTGCCGGTGGGCACCGCCGCTCGCTCGCACTTCTGCGCCCATTTGGAGCTTCGGAGATCCCTG
CGGTCCCGCGGGACGGCGCGGCAGCAGCTGACCTCGCAG

Exon2

ACAGGATCTTGCTCTCTTGCCCAGACTGGAATACAGTGGTGTGAACACGGCTCACTGCAGCCTCAACCTCCTGGA
CTCAG

Exon3 (start codon boxed)

AGATGTCGGCTTATTTATAGGAATTGCTTGAAGCCAGAGT**ATG**GTGGATGTTCGGAAAGTGGCCCATCTTCACTC
TACTCTCCCCTCAAGAGATCGCGTCTATTCGGAAGGTGTGTGTCTTCGGCACCTCAGCCAGTGAAGCACTGTACG
T TACTGACAATGATGAG

Exon4

GTCTTTGTATTTGGACTGAACTATAGTAACTGTCTAGGAACTGGAGATAACCAGAGTACACTTGTACCCAAAAAG
CTAGAAGGCTTATGTGGAAAGAAGATTAAAAGCCTCAGTTACGGGAGTGGACCACATGTTCTTCTCAGCACCGAA
G

Exon5

ATGGAGTGGTTTATGCCTGGGGCCACAATGGATATAGCCAGCTTGGGAATGGGACGACCAACCAAGGCATCGCTC
CCGTCCAGGTCTGTACCAATCTCTTGATCAAGCAAGTGGTGGAAAGTAGCTTGTGGCTCACATCATTTCAATGGCTC
TGGCAGCTGATGGAGAG

Exon6

GTGTTTGCTTGGGGTTATAACAACCTGTGGCCAAGTGGGATCAGGTTCTACAGCAAATCAACCAACTCCTCGAAAA
GTTACAAACTGTTTACATATTAAGAGGGTAGTTGGCATTGCCTGTGGTCAGACTTCATCCATGGCTGTTCTGGAC
AATGGCGAG

Exon7

GTATATGGCTGGGGTTACAATGGCAACGGTCAGCTGGGCTTGGGAAACAATGGCAACCAGCTGACCCCTGTGAGA
GTGGCAGCTTTGCACAGCGTGTGTGTGAACCAG

Exon8

ATTGTCTGCGGTTACGCACATACTCTAGCACTAACAGATGAGGGCTTGCTGTATGCCTGGGGAGCTAACACATAT
GGGCAGCTGGGAACTGGCAATAAAAATAACCTGCTAAGCCCAGCACACATCATGGTGGAGAAAGAAAG

Exon9

GGTGGTAGAGATTGCAGCCTGTCACTCTGCCACACGTCTGCAGCCAAGACGCAGGGTGGGCACGTGTACATGTG
GGGCCAGTGCCGGGGTCAGTCCGTGATCCTCCCGCACCTCACCCACTTCTCCTGCACCGACGACGTGTTTGCCTG
CTTTGCCACTCCGGCCGTCTCGTGGCGCCTCCTGTCTGTGG

Exon10

AGCATGAAGACTTTTTTAACAGTTGCAGAGTCACTGAAGAAAGAATTTGATAGTCCAGAAACTGCTGATCTGAAGT
TTCGAATTGATGGAAAATATATTCATGTCCATAAAGCTGTTTTGAAAATCAG

Exon11

GTGTGAGCATTTTCGATCCATGTTCCAGTCGTATTGGAATGAAGACATGAAGGAAGTGATAGAAATCGATCAGTT
TTCTTACCCAGTGTATCGTGCCTTTCTCCAGTACCTCTACACAGACACAGTCGACCTGCCGCCAGAAGATGCTAT
AG

Exon12

GTCTTCTGGATTTGGCGACATCTTACTGTGAAAACAGACTGAAAAAACTTTGTCAGCACATTATCAAGAGAGGAA
T TACTGTGGAGAATGCCTTTTCGCTATTCTCTGCTGCAGTCAGATATGATGCAGAG

158 / 338

Exon13 (stop codon boxed)

GATTTAGAAGAATTCTGCTTTAAGTTTTGTCATCAATCATTTGACAGAAGTTACACAGACTGCAGCATTTTGGCAA
 ATGGATGGCCCTCTGCTAAAGGAATTCATTGCTAAAGCCAGTAAATGTGGAGCCTTTAAGAACTGAAGCGCAAGG
 CTGCTGGGTTCTGTGTGAGTGCTCTGGGGCACTGTTGAGGATGTGTCCAGTTTGTGCTCTACGGGTGATGTGATT
 CTGCAGGTAAAAGACCATCAGGTTGTTTTTTTCCACATCTGGGACACAGTTGTTTGTGTAGGAACATAACAAGGG
 TGTACGGCTTTTCTTGAGCCCATTTTAAACAACCCTTGTTTCCAGATAAGTGTATTTTAAATGTGACCTTTCGTA
 AATTTGGGCTGGAACATGTAAAAGGGTGAAAGTTAGTCGTTTTTGGTCTTCTTTTCATTTTGGATTAGAGGAAGT
 TCTGAACTTGGAAGGGGAAGTTGGCAGCAACTCTCCTGGGCCACGTATCAACAATCTTCTGACAGCAGGAGCAG
 TGATAGTTGGGGAATTGTGAGATGAATGGAGAGGCCCCATCGTGAATTAAAGATGCTGACCTGGGGATTGTTAAG
 TGCTGCCTTAGTTGCTAGTTTGTAGTCCCTTACTGTGAAGGAATAATTAAGATTGTTTCAGACTTTTGTGTGTG
 CTTGCGTTGATGACTTTTTTAACTTCAAGATAAATCAAAGTAATAAGTTTAAACGTATATTAAACCTGTTGAAATG
 ATAATTATGTAAAGATAAATATTCTAGGTTAGTCAAGATTTCTCTTAAGATTTAAGTGCATAAAGAATAGTAATT
 TAGAAGTATCCGTGAAAAGTTGATAATGAAAGAAATTTGATGAAGGTGAATATTTTATAAATTAGAATCTCCACT
 ACTTATCCAATGGTGTTTTATTTTCAATTAAGGTAGAACTTGAGAACTCAAGTTTAAATTGTCCCCCACCACCTTCT
 TCTATAAATGCAAACCTTAAGAGGAAAATAATGACATGTATAGTATACTCTTGCCTTCCTAAATTATGACTGCTGA
 ATCATCATATCTACTATATATGACTGGAAGAAGTGGTTCTTCAAGTCAACCCTCTTACAAGACTTAGTGGGAATT
 TGCTTTATCTACTTTAGGCCAAATCCATCACACATTGGCTTATGTGAACTTTATCATCTTTCACCTTTTGGTTTT
 CCTCTGTTTTTTAAACATCTTAGGTATAACAGCACAATTTCACCTTGAAAAAGCACCAAATATGGTGTTCCTGA
 AAAGATCCTATTAAAAGACAGTAGTTTATTTGAACTGGTTATGGAAGGTGACTTTGGGATGTAAGAGTGTTCAAC
 TGTGAGTTTCATCATGTGTGTCCGTTGAGCTTGCTTTTAAAGAGCAATGTTTTGCTTTGCTCTCTGGTCCATGAAC
 TCATTTCCATTTGAGTGAGTTCCCTTAGTGAATTTTGTCTCCTGCTTGGAAGTCTCTCTTCTGAACCTGGAGCC
 TGAATACATTTTCAGAGCCAAATTACAAGTGGGTGAAGACATGCTACAACCTACTATTTTGTAGCAATGTTTTTAAA
 TTTGTGTCTATTGGGGTGGGAAGGGGAGTGAGGCCCTAAAGATAGGAATTCAGTATGCTGAAATAGATACAAG
 CCTAGGAGCCCCAGCCCCCTTTTCTTGACCATATCACAAGTGATTGAAGCCCAGTGAATTAGTCGGTTAGAATTC
 GTTCTACAACATGATAGAACTTTTCTTACTAGCTTCAGAAATGCACATTGATTTGTGCTATGATGGGTGGTGTGTT
 GTAACAATCACTGTTCTATAGGCTTATGATCTGAGCAAAATGTGAACTTCAGTATGTTTACTATTGCTCTTACTT
 GAAAACCTTTTTTTCAAAAAAAGCACAAATTAAAGTAGTAAATTCATATCCATAGATAGTTCATTCATTCAACAAA
 TATTTACCAAGTTCCTAATATAAGTGAAGGACCACTTCTCATATTAGATTACTAAGTCATTTGTATGAATATGTG
 TGGCAGTGAAGAGAACAGGTCTTTCAAAAAGCATTTGATTATTTTTTTTTTAAATACACTCTCTTATTTTTTCTACTT
 GTTTTTTTGTTAATCATAGCAGGATATGACAACTCTTATTTGAATTGATTTTTTTCATCTAATGTAATAATGGAAG
 CCAAAGTATTCATATTTCTTAAGATAGCCCTAAATGTACTCTTGAACCTTCTTACTGGAACAATGTTTGATACTCT
 AGTATGTAAGCTGTATTTATGTAATATTTAGAACGACATGTTAATAAACAAGTAACATTAAAATA

FIG. 5c(i) CONT'D

CLLD7 Peptide Sequence

MVDVGKWPIFTLLSPQEIASIRKVCVFGTSASEALYVTDNDEVFVFLNYSNCLGTGDNQSTLVPKKLEGLCGKK
 IKSLSYSGSPHVLLSTEDGVVYAWGHNGYSQLGNGTTNQGIAPVQVCTNLLIKQVVEVACGSHHSMALADGEVF
 AWGYNNCGQVSGSGSTANQPTPRKVTNCLHIKRVVGIACGQTSSMAVLNNGEVYGWYNGNGQLGLGNNGNQLTPV
 RVAALHSVCVNQIVCGYAHTLALTDEGLLYAWGANTYQQLGTGNKNNLLSPAHEKERVVEIAACHSAHTSAA
 KTQGGHVYMWGQCRGQSVILPHLTHFSCDDVFACFATPAVSWRLLSVEHEDFLTVAESLKKEFDSPETADLKFR
 IDGKYIHVHKAVLKIIRCEHFRSMFQSYWNEDMKEVIEIDQFSYPVYRAFLQYLYTDTVDLPPEDAIGLLDLATSY
 CENRLKKLCQHIIKRGITVENAFSLFSAAVRYDAEDLEEFCKFCINHLTEVTQTAAFWQMDGPLLKEFIAKASK
 CGAFKN

FIG. 5c(ii)

SUBSTITUTE SHEET (RULE 26)

159 / 338

FIG. 5d(i)

Homo sapiens CLLD8 protein mRNA, Exon sequences

Exon1

CCTGCGCTCGGGAGGTTTGGGCGGCTTGGCGTCGGAGGAGAGCCCCACCCGCGGAGGAACCCAGCCTTGCCAACG
GAGCTGGCGGAGCTCACTCCTCAGGTCAGGCGGGCGGCGTAGAAAACGCAGCGGAGCCAGGTGAAACCAAGGCAC
CGCCGTGGCTGGCCCCGACAGTTCCTCTAGCCGGGAGGTTGGAGGAGCTGAAAACGCCGCGGAGCCCTCGGCCG
CCCGAGCAGGGGCTGGACCCCAGCCCTTGCAGCCTCCCTTCTCCTGGCACCCAAGTGCAGTCCTGGCTGCAGAAG
GGGCCGCGGGCGCACTGAGTTTCCAACCTCCATTTAGCCTGTCTGTCTCAGGGTGCAGCCTTAATGAGAGGTGA
TTCCTAAGCTGCTGGGAACCTGAGGTTGTCAAAGGGGCGGCAGGAAATGGACAGCAGTATAAAACCCAGAAGCAG
AACTTGAAGGTTAAACCACTAGCCCATTTCACAG

Exon2 (start codon boxed)

TGCACTATTCTTTA:TTGTTTTCTTACAGAATGTTTCATCCATTTGTGGACCAAAGATGGAGTTGGTTTTTAT
TTTTAAAAAGATAATGTTAATGATCTGATACCACTACAAATATTTACGTGAGAAGATTCATGGACTTGTCTTTTG
GTTGGACTGTCACTCATTTCTGAAAGTTTCTTCAGCCACAATTTCTATTTGAAAATTCAAGTATCAAAGGATACC
AGGTTTAGAATGGTATAATGATGTATTTTGTCTGAGGACTGCAAATTTTATAGAGACCACAGTTGGATTCCAGTG
ATATTCTGCAATCAAAGTGATTTGATAAACCTAATTTTGAAGCATTTTATATTTATAAGCGACATCAAAAGATGG
GAGAAAAAATG

Exon3

GCGATGCAAAAACCTTCTGGATGGAGCTAGAAGATGATGGAAAAGTGGACTTCATTTTTGAACAAGTACAAAATG
TGCTGCAGTCACTGAAACAAAAGATCAAAGATGGGTCTGCCACCAATAAAG

Exon4

AATACATCCAAGCAATGATTCTAGTGAATGAAGCAACTATAATTAACAGTTCAACATCAATAAAGG

Exon5

GAGCATCACAGAAAGAAGTGAATGCCCAAAGCAGTG

Exon6

ATCCTATGCCTGTGACTCAGAAGGAACAGGAAAACAAATCCAATGCATTTCCCTCTACATCATGTGAAAACCTCCT
TTCCAGAAGACTGTACATTTCT

Exon7

AACAACAGAAAATAAGGAAATTCTCTCTCTTGAAGATAAAGTTGTAGACTTTAGAGAAAAGACTCATCTTCGAA
TTTATCTTACCAAAGTCATGACTGCTCTGGTGCTTGTCTGATGAAAATGCCACTGAACTTGAAGGGAGAAAACCC
TCTGCAGCTGCCAATCAAATGTCACTTCCAAAGACGACATGCAAAGACAAACTCTCATTTCTTCAGCACTCCACGT
GAGTTATAAAACCCCTTGTGGAAGGAGTCTACGAAACGTGGAGGAAGTTTTTCGTTACCTGCTTGAGACAGAGTG
TAACTTTTTTATTTACAGATAACTTTTTCTTTCAATACCTATGTTTCAGTTGGCTCGGAATTACCCAAAGCAAAAAGA
AGTTGTTTCTGATGTGGATATTAGCAATGGAGTGGAATCAGTGCCCATTTCTTTCTGTAATGAAATTGACAGTAG
AAAGCTCCCACAGTTTAAGTACAGAAAGACTGTGTGGCCTCGAGCATATAATCTAACCAACTTTTCCAGCATGTT
TACTGATTCCTGTGACTGCTCTGAGGGCTGCATAGACAT

Exon8

AACAAAATGTGCATGTCTTCAACTGACAGCAAGGAATGCCAAAACCTTCCCCCTTGTCAGTGACAAAATAACCAC
TGGATATAAATATAAAAGACTACAGAGACAGATTCCTACTGG

Exon9

CATTTATGAATGCAGCCTTTTGTGCAAATGTAATCGACAATTGTGTCAAACCGAGTTGTCCAACATGGTCCTCA
AGTGAGGTTACAGGTGTTCAAACCTGAGCAGAAGGGATGGGGTGTACGCTGTCTAGATGACATTGACAGAGGGAC
ATTTGTTTGCATTTATTCAG

Exon10

GAAGATTACTAAGCAGAGCTAACACTGAAAAATCTTATGGTATTGATGAAAACGGGAGAGATGAGAATACTATGA
AAAATATATTTTCAAAAAGAGGAAATTAGAAGTTGCATGTTTCAGATTGTGAAGTTGAAGTTCTCCCATTAGGAT
TGGAACACATCCTAGAACTGCTAAACCTGAGAAATGTCCACCAAAGTTCAGTAATAATCCCAAGGAGCTTACT

SUBSTITUTE SHEET (RULE 26)

160 / 338

Exon11

GGAAACGAAATATGATAATATTTCAAGAATTCAATATCATTTCAGTTATTAGAGATCCTGAATCCAAGACAGCCAT
TTTTCAACACAATGGGAAAAAATG

Exon12

GAATTTGTTTCCTCGGAGTCTGTCACTCCAGAAGATAATGATGGATTTAAACCACCCCGAGAGCATCTGAACTCT
AAAACCAAGGGAGCACAAA

Exon13

AGGACTCAAGTTCAAACCATGTTGATGAGTTTGAAGATAATCTGCTGATTGAATCAGATGTGATAGATATAACTA
AATATAGAGAAGAACTCCACCAAGGAGCAGATGTAACCAGGCGACCACATTGGATAATCAGAATATTAAAAAGG
CAATTGAGGTTCAAATTCAGAAACCCCAAGAGGGACGATCTACAGCATGTCAAAGACAGCAGGTATTTTGTGATG
AAGAGTTGCTAAGTGAAACCAAGAATACTTCATCTGATTCTCTAACAAAGTTCAATAAAGGGAATGTGTTTTTAT
TGGATGCCACAAAAGAAGGAAATGTCGGCCGCTTCCTTAAT

Exon14

CATAGTTGTTGCCCAAATCTCTTGGTACAGAATGTTTTTGTAGAAACACACAACAGGAATTTTCCATTGGTGGCA
TTCTTCACCAACAG

Exon15 (stop codon boxed)

GTATGTGAAAGCAAGAACAGAGCTAACATGGGATTATGGCTATGAAGCTGGGACTGTGCCTGAGAAGGAAATCTT
CTGCCAATGTGGGGTTAATAAATGTAGAAAAAAATATTATTAATATGTAACCTAACGCCTGTTTGTGAAATTAGC
TTATCAGGCTGAAATTAAAGCCATGCAAAAGAAGGTCTAGGTCCATCAAGGAAATCCCCCTCCGTTTTCTTTGT
CATGGGGTTTATGTTTTATTTTCAGATTTTATTTGTGTGACTTAGAAATTCCAGGAACACAATTAGGATATTTTCA
TACACATAGGGTATCTTGTTCACTGCTGTGCTACTTTACATGAGTAGGATGGAAGTGTATATTTTATATGAAATA
CCACTGTACAATTTATAATTTATTTACAAATTATATATTAAGAGAAACAAATGTCA

FIG. 5d(i) CONT'D

CLLD8 Peptide Sequence

MGEKNGDAKTFWMELEDDGKVDFIFEQVQNVLQSLKQKIKDGSATNKEYIQAMILVNEATIINSSTSIGASQKE
VNAQSSDPMPVTQKEQENKSNAFPSTSCENSFPEDCTFLTGNKEILSLEDKVVDFREKDSSSNLSYQSHDCSG
ACLMKMPLNLKGENPLQLPIKCHFQRRHAKTNSHSSALHVS YKTPCGRSLRNVEEVFRYLLETECNFLFTDNFS
FNTYVQLARNYPKQKEVVSDVDISNGVESVPISFCNEIDSRKLPQFKYRKTVWPRAYNLTNFSMFTDSCDCSE
GCIDITKCACLQLTARNAKTSPLSSDKITTG YKYKRLQRQIPTGIYECSLLCKCNRQLCQNRVVQHGPQVRLQV
FKTEQKGWGVRCCLDDIDRGTFVCIYSGRLLSRANTEKSYGIDENGRDENTMKNIFSKKRKLEVACSDCEVEVLP
LGLETHPRTAKTEKCPPKFSNNPKELTMETKYDNISRIQYHSVIRDPESKTAIFQHNGKKMEFVSSESVPEDN
DGFKPPREHLNSKTKGAQKDSSSNHVDEFEDNLLIESDVIDITKYREETPPRSRCNQATTLDNQNIKKAIEVQI
QKPQEGRSTACQRQQVFCDEELLSETKNTSSDSLTKFNKGNVFLLDATKEGNVGRFLNHSCCPNLLVQNVFVET
HNRNFPLVAFFTNRYVKARTELTWDYGYEAGTVPEKEIFCQCGVNKCRKKIL

FIG. 5d(ii)

161 / 338

FIG. 6

bA101d11.01116

```
1 atcctttccc cctaccaatg gggtaatcag aaagtgggtca atactaaatc
51 caaatgaagt cctttaattg caccatcaga agcagaaagg gtgatttgag
101 aataacccag tgtattccgt ggctacataa aaaagatgat ttgagaataa
151 ccagtggtat tccgtggata cataaaaaag atgatttgag aataatccag
201 tgtattccgt ggatacattt gtagtgaagt ttggtggctt gcttagaatc
251 ccagctcagc gtggccaccc ggtttgtgaa gcgctgagct ccttggctca
301 ggacacgctc cttcacctca gaccactca tgtctgtttc ttctgcgcct
351 ttttctccgt cccatagacg gtggcatttc tcagggcttt gtcttcaacc
401 cccttccctt gccactcaac ctgcctccct ggggccctca cccaggcatg
451 tggtttctgc ttcttccagc gctgacagtg cccttccctg gagtgctggc
501 tgtgggcaga gcctgtgcgc ccgtgcgttt gtgcctcgcc tgtttggtcc
551 tcaggcagtg tggcgggcag ggcatgaaac agcccctggt atgcaagtgg
601 agacagaggc tgggagagag ccggtgccct gcctaaactc acgcaagcag
651 gaagaggtaa gaccaggatt tgaacccggg agggcgagat gccatgtctg
701 agctcttttt ggagttttgt ctctctggat gttctgcaca ggcacagccc
751 gtgtggggag aaccccgccc tagaccctc cctgacttcc ctcccaacgc
801 ccacttccct cttggactca accaccagcg tctccacatg catccaatca
851 ccgtgaccaa aactccattt ctcttctctc cctgcagacc gagcaccctc
901 tgggccctgt tctgtttccc cccaaggtag tcctgtcatc tgtggatttt
951 tctgtttttt tgataaagca ttctgaaata aatcaaagcc accatagaat
1001 ttcagatacc atcatcacac ttttcaatac gaacaataat tcatctaata
1051 ctctgcttca cattcctcca attatcctag aaatactgtt tttcctgttc
1101 atttgctctg tttttctgga atggcttttt gtgcccctgt gactatttga
1151 gtctgtgaca ccaggtgacc ccaccctaata gtgtgctaag aatttgatgt
1201 agaaaataaa ataataattca aagcaaaggg atataacctt atgccagtgg
1251 ttctcaattg gggacaattt tgtctctggg gatacttggc aatgtctgga
1301 gacatcttac attgtcacgg tgcaaggagg ctcttggtat ttaattgtag
1351 aggctgtgag gtgctgccaa acgtgccaca aagtacaggg caggcctcgc
1401 aaagactcat ccagcccacg atgtcaattg tgcagaggct gggaaactgg
1451 cctagaagtg tcacaggaca ctggccacaa gccacacaa aggaggacct
1501 ctctctactt ttgttggttc tactgtttgt tgaacattta ctaaatgcca
1551 gtcagtatcc tacacactct ggatacaaca cctcatttaa tcccaaaaca
1601 actctgagag ccatgtattc cataccatta ccccatttt atagatgaga
1651 aaattggagc ccagagaggg taagcccatc gtccagggtc accaagctca
1701 ggacaagaga ttacaacact ggcctctgaa aagactcact accaccttag
1751 gagcaagtgt tagaggaagg cgaggaggag ggtgaggaag aacacgagct
1801 gactgcagga ggcgtcaggc tgagctcctg cctggagggg ggcactgcag
1851 cctgggcagc agcaggagct ggtgctgtgt gtgtatgagt gtgtgtgtga
1901 ttgtgtgtga ttttgtgatt gtgtgtgatt ttgtgattgt gtgtgtctgt
1951 gtgtatatgt gtgattgtgg gtaccgagcc gaattcgtaa tacagtgata
2001 ttttcccccc ag
```


162 / 338

FIG. 7

bA236m15.00303

```

1  gaccctctgc ctggcaacca ccccgtttga gaagtgagga gcccctccgc
51  ccgacatttg ccccgtttaa aaagtgagaa gcctctcctc tcgcccggcc
101 ccccttttgg gaagtgagga gcctttctgc ccggccaccc ccccgttcgg
151 aaaggaagtt gggggggtca gccccccac ccggccagcc gcccgtccg
201 ggagggaggt gggggggtca gccccccgcc tggccagccg ccccatccag
251 gagggaggtg ggggggtcag cctccgccc ggccagccgc cccgtctggg
301 aggtgagggg cgcctctgcc cggccgcccc tactgggaag tgaggagccc
351 ctctgcccgg ccagccgccc cgtccgggag ggaggtgggg gggtcggccc
401 cccgaccggc cagccgcccc atccgggagg gaggtggggg tgcagcccc
451 ccgcccggcc agccgcccc tccgggaggg aggtgggggg gtcagccctc
501 cgcccggcca gccgcccgt ctgggaggtg aggggcgcct ctgcccggcc
551 gcccctactg ggaagtgagg agcccctctg cccggccacc acccgtctg
601 ggaggtgtgc ccagcagctc attgagaacg ggccaggatg acaatggcgg
651 ctttgtggaa tggaaaggca ggagaggtgg ggagaggatt gagaaatcgg
701 atggttgccg tgtctgtgta gatagaagta gacatgggag acttttcatt
751 ttgttctgca ctaagaaaaa ttcctctgcc ttgggatcct gttgatctgt
801 gaccttacc ccaaccctgt gctctctgaa acatgtgctg tgtccactca
851 gggttaaatg gattaagggc ggtgcaagat gtgctttgtt aaacagatgc
901 ttgaaggcag catgctcggt aagagtcac accaatccct aatctcaagt
951 aatcagggac acaaacattg cggaaggccg cagggtcctc tgcctaggaa
1001 aaccagagac ctttgttcac ttgtttatct gctgaccttc cctccactat
1051 tgtcccatga cctgccaaa tccccctctg tgagaaacac ccaagaatta
1101 tcaataaaaa aataaattta aaaaaaaaaa aaatgactag tcaatgtcag
1151 aatgttaaga cctgatccac ggtggttcat gcctgtaatc ccagcacttt
1201 gggaggccaa agctggtgat cacttgaggc caagagttca agaccagcct
1251 ggccaacatg gtgaaagccc atctctacta aaaatatgaa aaattagctg
1301 ggtgtggtgg ctggtgcctg taatcccagc tacttgggag gctgaggcag
1351 gagaatcgct tgaacccagg aggcagaggt tgcagtgagc caagactgca
1401 ccactgcact ccagcctggg ccacagagca agattccatc tcaaaaaaaaa
1451 aaaaaaaaga aaagaaaaga aaaaaaatac ctgtcccttt cacctcctca
1501 ggggacatct ctgaagagtc atcccagctt tagaactccc cacagggttg
1551 gctgagggct ggttgtgact aactgcagc ccactttctc tttctgccag
1601 ttttgcttcc atccttttcc tccacaggtc ccaagagcat ctaccattga
1651 aaaggcatta aataaccaag tggaatgact cagccagttg atgtcagcca
1701 gctttttcat cagccaccct agtcctggca caatggattc atagaggaga
1751 catggaagca aaggaggcta tccatgggcc caactgcatg atgtcccact
1801 taccattggt aatctagcta ctgtcacagc caaataatca ccctgacacc
1851 aacagaaact gttgctgaaa ctcagtacaa caatatccct tgaagatacc
1901 aaccagccac ttgatggcaa gttgacccta ttgaactctt tccataatga
1951 aaggagcagc cattcatttt cacaggaata ggcaggtatt ctgtgtatgg
2001 gtttgccctt cctgcctgca gtctcatcaa acatgaccat ccaagggctt
2051 agctgcattt aatccaccaa ggtggcattc cacatatcat tgcagcagac
2101 caagggacca gctttacaac aaaggacata tagcattggg cacatgacca
2151 tggaatccac tggacctatc atatggcaca ccaccaagc tactggccta
2201 ataagcaatg gaacagcctg ttgaaagctt ggctaaagtg ccagcttgga
2251 aatgataccc tgtgaggata aagcttgga tgcctttata ctggttggtg
2301 gagtgtaagt tagtttgacc actgtggaag acagtgtggt gattcctcaa
2351 agatctagaa ccagaaatac catttgacc agcaatccca ttactgggta
2401 tatacccaaa agattataaa tcattctact gtaaagacac atgcacacat
2451 atgtttactg cagcactatt tacaatagca aggacttgga accaacccaa
2501 atgtccatca atgatagact ggataaagaa aatgtggcac atacacacca
2551 tggaatacta tgcagccata aaaaagcatg ggatcatgtc ctttgagggg
2601 tcatggatga aactggaagc catcattctc agcaaactag cacaggaaca
2651 gaaaaccaa tatcacagtt ctactcata agtgggagtc gaacaatgag
2701 aacacatgga cacagggagg ggaacatcac acaccagggc ctgtcggggg
2751 gtgggggggca aggggaggga gagcattagg acaataacct aatacatgtg

```


163 / 338

```

2801 gggcttaaaa cctagatgac aggttgatgg ctgcagcaaa ccaccatggc
2851 acatgtttac ctatgtcaca aacctgcaca ttctgcacat gtattccaga
2901 acttaaaatt taaaaaaaaat ttttttttaa aagcactacc ctccaggatg
2951 cagtaatgcc tgaagtcagt caccattata tagtgcagta tccccaagag
3001 aatacctggg agatgaatcc atgggtgtgg agcagcagtg tccccacttg
3051 ctatcagtc cagtgaacca gttaaagaat ttatgttttc atcctcacia
3101 atgtagccca cagggtcgaa ggtcttggtt tccaacaggg aaacatttcc
3151 accagggaac acagcaagag tcttcattga actttaagct acctcatcat
3201 gcaggcactt tgggcctttc atgccaaagg ccagcaggca aggaaaggat
3251 cccagttggg gtgattgact cttatcatca agaagcagtc cagctgttgt
3301 tacacaatgg aggcaggag catatgtttg ataccagat cattgacttg
3351 gacatctgtt agtaccagct tggccaattt tgatggcaaa tggacaagtg
3401 cagcagctac accctgagaa ggtacggcaa atgggacaga atgcctcagt
3451 tttgagagtc tgagtcacct cactagaaaa gtcacctaaa ccttcacagg
3501 gacttgctga gcagaggggt gggggatgaa tatcagctat agcctcaaga
3551 ccagctgcag ctgcagggag gctgtagttc atcctacca cctcctttt
3601 acaagtcata cccaggaaga gagggccacc agtgtccaa aggagccact
3651 cccagaattc ttgtaaagaa agtagatctg agtgacactt gctgtattag
3701 gctgttctca cattgctata aagaaatata tgagacttgc taatttataa
3751 agaaaagagg tttgttggt tcacggttct gcaggcttta caggaagcat
3801 agcgctgttt ttccgttatg gtggaagggt aaggggaaac aggcaagtca
3851 catggtgaaa gcaggaggaa gtgaagggaa tggggtagat gccacacact
3901 tttaaaactg ccagatctca tgtgaactca gagcaagagc tcacttatca
3951 ccaagaggat ggcgcaagcc attcatgaag gaccaccgc accctcccc
4001 gtgatcccaa cacctctcac caggctccac cttccaacat tggggattac
4051 atttcaacct gagatttggg tggggacaaa tatccctatg ctatcacgtg
4101 ctgtggactg ccttgcttgg gttgtagctg tcatccctct ggggatggct
4151 tcagctgaag agagctgcct cagcgtaagg cctgtgccga acagctagtg
4201 tacggcgact gagtgatgcc caatcctatt tccttttgtt caatgggtgt
4251 tgattagagt gccccctcgt aaacttccta tgtgctaate tccatctcgc
4301 agttggcttc cggggaacat cttatctgtg acagtctgtc cagtgtagat
4351 tacagtttgc agaagacagc aaacaagcaa agtagatttg tgatttgtac
4401 actgaaggaa atgaacaaga tgcaatgata gcagataaca gggagggtga
4451 cctggaagag gtgacactta agccaagaac tataaacaga tagatgccag
4501 ccatgtgaaa agcaggtagg agagtgtgtc ccagaaagag aaacagttct
4551 gataaaagcc gatcgcaaag agtcaggcat gtttaagtac caccagagc
4601 tttgtaatct ttttaaaagt ttttctgtgg ccaggcgcgg tggctcacac
4651 ctgtaatccc agcgcttgg gaggtcaagg cgagtagatc acctgaggtc
4701 aggagtttga gaccaacatg gcaaaaccct gtctctacta aaaattttaa
4751 aattagccgg gcatgatggc gcatgcctgt aattccagct actcagaagt
4801 ctgaggcacg agaattacct gaacctggga ggtggagggt ggagtgaacc
4851 gagatcacgc aactgcactc cagtgggtgt atcacatctc actgccgctt
4901 tgacctcccc aggttcaggc gatctcccac ctcagcctcc caagtaactg
4951 ggactacagg catatgccac catgccccac tagttttttt ttagagagcg
5001 gtttcacat attgtccagg ttggtctcaa acttctgggc tcaagcaatc
5051 catccacctt ggcctcccaa agtgctagga ttacagatgt gagccacct
5101 gcatagccta aaaggtttta tttcaaatgc aatggaaagc cttcaaaagg
5151 ttttaagaca agagagtaac atgctatgat ttacattttt aaaaaattct
5201 gtctggatac tgtgtggaaa acagattgga tggggggaac cattaagaag
5251 gttatttgca ggggtgggtg tgggtggttc cacctgtaat cccagcactt
5301 tcggaggcca aggtgggttg atcacgagat caggagatcg agaccatcct
5351 gaccaacatg gtgaaaccct gtctctacta aaaatacaaa aatcagccag
5401 gcgtggttgt gtgtgcctat agtcccagct attcaggagg ctgaggcagg
5451 aggctcactt gaatccagga ggtggagggt gcagtgaacc aagattgtgc
5501 cactgcactc cagcctgggc gacagagcag gactccatct cgaaaaagaa
5551 atagaaatta aaataaaata aaaatgttat tgcagtatca aggaaagatg
5601 cccacccaaa gtctgtccct tcgcactaaa ccatagtcca aatgcccaag
5651 accttggat tccatgcccc gacaactcca acccacttcc aagatttgca

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

164 / 338

```

5701 tgggcctctt ccctaggtcc ttctcctcaa cagcagactc cacacaccta
5751 gagccatggg gtggcctgtc tgtttgtggg gaatgtggac agagtttgga
5801 agagaagtat ccacaagcat gtgggtgaag ccccttgca gtcagatga
5851 agccaagatt ggaatggagg gagatgaggt gaggggaaag gggccagggt
5901 ggtaattgtg gggaaaagca agagagatca gattgttact gtgtctgtgt
5951 agaaagaagt agacatagga gactccattt tgttctgtac taagacaaat
6001 tcttctgcct tgagattctg ttaatctatg accttactcc caacctgtg
6051 ctctctgaaa catgtgctgt gtcaaactca gggttaaatg gattaagggc
6101 ggtgcaagat gtgctttgtt aaacagatgc ttgaaggcag catgctcggt
6151 aagagtcatc accactccct aatctcaagt atccagggac acaaactg
6201 cggaaggcca cagggacctc tgcctaggaa agccagggtat tgtccaagg
6251 ttctcccat gtgatagtct gaaatatggc ctctgtggaa gggaaagacc
6301 tgaccgtccc ccagcccagc acccgtaaa ggtctgtgct gaggaggatt
6351 agtataagag gaaggcatgc ctcttgca gtagacaaga ggaaggcatc
6401 tgtctcctgc ccgtccctgg gcaatggaat gtctcggtat aaaacccgat
6451 tgtacgttct atctactgag ataggga aaa accgcttag ggctggagg
6501 gggacatgcg ggcagcaata ctgctttgta aagcattgag atgtttatgt
6551 gtatgcatat ctaaaagtac agcacttaat cctttacctt gtctatgttg
6601 caaagacctt tgttcacgtg tttgtctgct gacctctctc ccacaattgt
6651 cttgtgacct tgacacgtcc ccctcttaga gaaacacca cgaatgatca
6701 ataaatacta agggaactca gaggctggcg ggatccctca tatgctgaac
6751 gctgggtccc cggtccctc tatttctttc tctatacttt gtctctgtgt
6801 ctttttcttt tccaagtctc tcgttccacc ttacgagaaa caccgcagg
6851 tgtggagggg caaccacccc cttcagtaat cactccctac actgccaagt
6901 tccaatatgg aacccttagg atttctaaat tcaaggtag gccatccaag
6951 tcactaaaaa gctgtatctg tcaagatagg aggataggct ggggtgtggt
7001 actcacacgt gtaattccga tgctctggga ggctgaggct ggaggatcat
7051 ttgagcccag gagtttaaga ccagcctgag ttacatagcg agaccccat
7101 ctctaagaga ataaaaata taattcgcca ggtgtagtgg tgcatgcctg
7151 tgggtcccag tactcaggag gctgaggcaa gaggattgct tgagcctggg
7201 aagttgaggc tgcagtgaac tgtgattgtg ccactgcact ccaacctgat
7251 ggatgacaga atgagactgt gtcttaaaaa aaaaaaaaaa ggaggataga
7301 acatatttta tttaacaagt tattcgcttg atttctgact taaaaatttt
7351 tagacatatg gtatccccca tttgtaattt tgcactgggt gctacggatg
7401 ttcaggatag ccccgaaagt cacgtcatct ataaagaaac aacaagagac
7451 cgaaagctgg tttcttattt caaacagtag ataatgcaca gaggataatg
7501 cagtatcttc aaaatgaaag ggaaaatttc tgtcggttta gaattccctg
7551 tctagttaaa ctggtattca aaagtgagga taaaataaag acattatcaa
7601 accaagacta agagaatttc ccactcacag acccttgctg aaagaagtcc
7651 tgaaagatgt agtttattta tttattttga gacagagtct tgctctgtca
7701 cccaggctga agtgcagtgg tgcagtcttg gcttactgca acctccgct
7751 cctgggttca agcaattctt ctgcctcagc ctccagagta gctgcgacta
7801 tgtatgcacc accgtgcctg gctaattttt tcgtattttt agtagggacg
7851 gggtttcacc atgttggtcca ggctgggtct gaactcctga cctcaagtga
7901 tctgcccgc tcggcctccc aaagtgctag gattataggc atgagccacc
7951 acgcctggcc aggatgtagt ttagaaagag gaaaaataaa cccagcagaa
8001 aggatcagta tgtgaggctt aatgatgagc aaagaaatta ctgattttta
8051 gaggataagc acagagtgga actagactag tacctagcaa tcaagtga
8101 ggtgagaggc aagattcaca gttaaaacag tctaagatct ttatgatgta
8151 aggtatacaa tttaaaactt ttcagctata acttttttagt ttttttttat
8201 ctcagaaaaa aatatggaat gcttcacgaa ttttttattt ttttgtgtgt
8251 ggagatgacg gggctcact atgttcacca ggctgggtct gaactgctgg
8301 cctcaagcaa tccttctgcc ttggcctccc aaagtgctag gactacagat
8351 gtgagccacc ttactgggtc tcagctataa attttaatat ttttaaagta
8401 actatgttaa gcaaatatgc aaaaagaaag aaaaaaagtg aatagttagg
8451 atgaaagacc cttcccccga gaaaagcaaa acaagtttag ttgttagtac
8501 atataaaata gtcctcattt caatatgaga aaaggcactg attttttttt
8551 tttttttttg agacggagtc ttgctctgtc gccaggctg gagtgcagt

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

165 / 338

```

8601 gcataatctc ggctcactgc aagctctgcc tcccgggttc acaccattct
8651 cctgtctcag cctcccgcata gctgggacta caggtgcccg ccaccatgcc
8701 cggctaattt tttgtacttt tagtagagac ggggggttcac catgttagcc
8751 aggatgggtct tgatcccctg acctcgtgaa ctgcccgcct cggactccca
8801 aagtgcctggg attacagggtg tgagccaccg caccggcct actaatttat
8851 tttttgtaaa actcctctaa cccaaaccac tggctataaa atactaccac
8901 ctctgccatc attgtccccc aaatacaagt tatttttcat ctgtgaagga
8951 agcttttatga gagctattgc actttattct tataaaactc catgaaagat
9001 agacattaaa atgtttgcag aaatctcata aacttggtt ttaaataaat
9051 gagtcagtca tcaacagcta tttgcacaaa actttactct tttctctgag
9101 caatacaaaag aaaacaggac agtccctccc atgaaggagc ttaaaatctg
9151 atttggcaga cgcaagctgt ataaactcac ctggaaataa aacctgggat
9201 agaagacagc aaatagtaaa aggctgcaat tgggtataacc cttacatatc
9251 ttggaaggct ttgactcaat acatgaaatt tgagctttaa gagaggtaga
9301 atttcgttag agaaaactgg ggactggcat aagcataaag cactaaaaca
9351 gagaaagggtg ttagagccaa gacagaagat attttcaaaa aagaagggtg
9401 gctgggtgtg gtggcacatt tctgtagtct tgtaactgcc cagtgggttc
9451 gttttccttg ctgcccagat agagctgatt tatccagaca ggggagtcac
9501 gatacagagt ttaactcaca cagagctggc tgacaggaga ccagagtttt
9551 attattactc aaatcagtct cttcaaagat ttagagacta gggtttttca
9601 aagacagttt ggtgggtaca gggccagtga gtcgggagtg ctgattggtt
9651 ggatcagaga tgaaatcata gggagtcaaa gctgtcctga gctgaattgg
9701 tttctgggtg gggcccacag gactgggtga tgagtccagg tggaccatt
9751 gttcatcaga aatgcaaaaa cccaggccgg gcgcggtcac tcacgcctgt
9801 aatcccagca ctttgggagg ccgatgtggg tggatcaciaa ggtcaggaga
9851 tcatgaccat cctggccaac atgggtgaaac cccgtttcta ctgaaaataa
9901 aaaaaaaaaa ttagccgggc atggcgacgt gcacctgtag acccagctac
9951 tcaggaggct gagacaggag aatggcggtga acccgggagg cggagcttgc
10001 agtgagctga gatcatgcc a ctgcactcca gcctgggcga caaagcgaga
10051 ctccgtttca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggcaaaaacc
10101 cgaaaagaca tctcaaaaagg ccagtcttag gttctacaat agtgatgtta
10151 tctgcaagaa taattgagga agttgcta at cttgtggcct ccacaataat
10201 gggttggtaat attttagcta agcctgtatc ttaatagaat ccaggcccct
10251 cccatcctcc taacttgacc ttccattagg tttacaaggg cagttagt
10301 ttgggggagg gctattatcg tttaaactat aaactaaatt tgcccaaaag
10351 ttaccttggc ccacatccag gaatgagtga agacagccag cctgtgagac
10401 tggaagcaag atggagtcag ccatgtcaga tttcttttac tgttgtaatt
10451 ttgcaaaggc agtttcagcc cgagctactc aggaggctga ggcttcactt
10501 gagtccagga attcgggctg tagtgacta tcatgggtggc tgtgaatagc
10551 tgctgtactc cagcctgggc aatgtagcag acccagtctt taatttaaaa
10601 aaaaaaaaaa aaaggacata tcctaactctg tcatgggagt agagttaaaa
10651 aaaaaggggg gggggtaatc attatgtgaa atactgagag aaatcattta
10701 atgaatcata atatggactg aagtaaacac aaggatgaaa taattgaaaa
10751 tactgttttc aatatgacac caacttcagt attttatctc atttcccttc
10801 ttgtatatgc cattaaattt tcaaaaaatg tagcaaatat aaatacaaga
10851 tgttgacttt ctgtgagtta catatatgaa tagcttacag ttttactgct
10901 tctacataca actttatttc ctagactttc tctagcttaa aaaaatcctg
10951 cagacaagat caccattata ttgcttgtgt ttaagtta gggctgtagg
11001 cttctggttt gtaatactga gagaaacgct attaatagta ttcctaaagg
11051 cataaagctt tcctccaaac catgactctc ggaccaaggc tcctttcatt
11101 ttgtggccct gccatcttca acaagtggct tccagggtct ttgcagaagg
11151 ggaaagaaca aggaggacca ccgtgggaga gctgcgtgtg agcttagcct
11201 ggaaatagca cgcttctctt ccttttggtta cagtaggtag taggcagaca
11251 tgagcagggc aggaaagcac cccctacca caaccaggaa tgtcaggaaa
11301 ccatcaggta atggtcaggc ggttggttaac tgtctctcta aaataataat
11351 tggttgcagc cagcgccaga gaaaggcagg ctctcaataa atagaaaaca
11401 cccgaaactg gtgatcagca gcttcctggg aagatctcag gagttgggtg
11451 agtgggctca agcatgaaaa ctaaggcaaa atggcagagt ttaaccagta

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

166 / 338

11501 tatgaccttc ctctagaaca ctcaactggt aagggaaaaa cgcctcaagt
11551 gagcatgtgc acagcttcag taaacacact gcacatgcgg ctccctccaa
11601 gtgctggcag gccagtgca atgcagacag cccaccccaa aggaagaact
11651 gggagaagag atgttaccca ctggaagcat gccagtgtat aaagccccga
11701 gtcaaaggtc aaactgtaca cttgaatctt tcacgttacc tgcttggccc
11751 tcttccaagt gtactttttt aaaattcctg ctctaaaact ttttaaagac
11801 tttcactcct gctctaaaac ttgcctcagt ctctccctct gccttatgcc
11851 cctcagtcaa gttctttctt ctgaggtggc aagaattgag gctgctgcag
11901 acctgtacag attcactgct gctaacactt tcacattcca ctgatcagga
11951 ctcagttgca tggccacagc taacttaagt gaagatggaa aatgtggttt
12001 aactgtttgc tcaggaagaa aaagaaacag tttagtaaac agttggccag
12051 tctctgccat acatacgttt ttcccattha atcctaacia ccctataaga
12101 tatgtgcagt aacttatccc actttatgga tgaggaaatt gaaatctttt
12151 ttacgtgtac aaatttatgg ggtacatgtg aaatttagtt acatgtatat
12201 aatgtggact aatcaagtct cgtttttttt gttttgcatt tttttttgtt
12251 tgttttttct tttttttgag acaggtctt gctcatggct cattgcagcc
12301 ttgacctccc aggcttcagc aatcctccta tctcagcttc cctggtagct
12351 aggactataa gtgcatgcca ctgtgcctgg ctaatttttt tattttttgt
12401 aaagacggag ttccaccatg ttgcataggc tgggtctctaa ctctaaact
12451 caaaccatct gccacctgg gtctcccaa gtgctgagat tacaggtgtg
12501 agccaccatg cctggaaaga aactgaaatt ttgataggct gagtaccata
12551 cctaatacct cacagttaat aaatggcaga actcaaactc aaacctaggc
12601 agtccaactc cagaaaccat attctttaa aagctactgt aacatgactg
12651 atattccttt tactgaagaa gaatatthaa gccttttttt attgtaagag
12701 gggatgata attatggaac tttaagtaaa tacaaacca tcatttttga
12751 gaagatgata ctgagattta gaggcggaat gttctactga aggttaaact
12801 attgctgcct atgtaccata cgatgtaaag taacattttt tttaaagaaa
12851 tgcaatcttg gccgagcgca gtgggcctgt aatcccagca ctttgagagg
12901 ccgaggtggg cggaccactt gaggtcagga gttcaagacc agcctggcca
12951 atatggtgaa acccgtctc tactaaaaat aaaaaatta ggccaggcac
13001 ggtggctcac acctgtaatc ccagcacttt ggaaggtcaa ggcggttga
13051 tcacctgagg tcaggagttc aagaccagcc tggccaacat ggagaaaccc
13101 cgtctctact aaaaatacaa aaaaaaatt agccaggtgt ggtggcacat
13151 gcctgtaatc ccggtactt gggaggctga ggcaggagaa tcacttgaac
13201 ctgggaggcg gaggttgca tgagccaaga tcatgccatt gcaactcagc
13251 ctgggcaaca agagtgaac tccgtctcaa aaaaaaaat tagccaggca
13301 tgggtggtgg cgctgtaat cccagctatt cgggaggctg agacaggaaa
13351 atcacttgaa accaggaggt agaggcttca gtgagccaag atcacaccac
13401 tgcactccag cctgggggac agagcaagac tctgtctcaa aaataaaaaat
13451 aaaaataaaa aaaagaaaat acaatcttca caacttaata acttatgtta
13501 ttctttctaa aaattaattt cctaaaccat gtagtttaat gtgatttaat
13551 gtagttaaat actagcatta aaacttgttt cttgaagggc gcagtggctc
13601 acacctgtaa tcccagcatt ttgggaggct gaggagggca gatcgctga
13651 agtcaggagt tcgagaccag cctggctaac atggcgaaaa cccatcttta
13701 gttaaaatac aaaaattagc tgggtttggt ggtgcatgcc tgtaatccca
13751 gctgctcggg aggttgaggc acaagaattg cttgagcccg ggagatggag
13801 gttgtagtga gccgatatcg caccactgca ctccagcctg ggctacagag
13851 actctgtcaa aaaaaaaga aaagaaaaga aaagcagaaa cttgtttctt
13901 gatgaagttt gttttcctgg gatcacacac agatctccca cgggtggctc
13951 tcttgttctt tctccttctg caaagaccct ggaaaccgct tgttgaagat
14001 ggcggggcca cagaatgaaa ggagccttgg tccctgagtc acggcttga
14051 ggaaagcttt atggcgttta ggaacactat tgtttggttg tcctgaagag
14101 gaagtacttc acagagcaag cctgccacca tgtggcgcg gcccacact
14151 agcatcagtt aaaggttcat tctcatthac ttggttgctt ctggttact
14201 tactaaccia tctagattta atgctgtcta ataagaaatt aatacccagg
14251 tgtattctat aggttttaagt agtttttaat ttcaagatac atttcttcaa
14301 ttctgaaatt attgcaatat ttccaaactg gctacaggag tgaccacaac
14351 atttataata tgatccaggc acattcacia gaggactact tcagtgcac

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

167 / 338

```

14401 acaaacatgg aaacaaactc agcaatttgt aggatttata tcagttcact
14451 caaaagttgg tcaatgagcc agattagaag gcagaattcc ggccagggtgt
14501 ggtgggtcat gcctgtaatc acagtgcctt gggaagctga ggtgggagga
14551 ttgcttgagc ccaggaattt gagaccagcc tgggcaacag ggtgagacct
14601 tgtcgctata aaaaataaaa aaataagagg cagaattcct tggaatggaa
14651 acaggtagtg tgaaggactg ccaaaaatgg atgaaaaacc ctcatggaag
14701 gagagtcaga acttaacagt ttcctagagt tttaacaccg tataagctca
14751 ctatgttcta gcatgccagg ctgacgtttc ccagaactct ctctacattt
14801 atcaagacag gaatgacatc ggaagtgtgt tgcaagacta taggtctagc
14851 aggtggctaa gaggaagtct ggtattgctg ctgctgtctat ttttatgtat
14901 ttattcattt attttttaag acgaagtctc actctgttgc ccagccagga
14951 gtgcagtggg gcaatctcag ctactgcaa cctccacctc ctgggttcaa
15001 gcaattctcc cacctcagcc tcctgaccac ctcccagggt caagcaattc
15051 tcctgcctca ccctcccag tagctgagat tacagggtgc tgccaccaca
15101 cctggctaat tttgtatttt taatagaggg gttttaccat gttggccagg
15151 ttggtgtcga actcctggcc tcaagagatc tgcccacctc agcctcccaa
15201 agagctggga ttacaggcat aagccactgt gcctggcctt ggtatagctg
15251 ctgcttctaa cacttgcttc taatgattgg tgggtggagg cagcagtact
15301 cacattctga tacagttatt aaatgttcct ttttttcttt ggtcctatta
15351 ctacttcttt ctttttctac cactgcaaac tctgaaatat ctattacaca
15401 taaaatgtca actataactc acctgatttc actgtagaaa gcaattaaaa
15451 gggaaaaatt gtatttactt gagggtgaaa aaaaaaacc acatcatcct
15501 tttctttatg ttcctttttt aactgatata ataaacttgt tatttccacc
15551 taactaaatt gattcattta atccagtgc tgtgggttaa ttgaaaaaag
15601 gtttgaaaag aggggggtgc tatggaaacc caaacttctt cacactccag
15651 ctttttctac accttctcac ctcccagct tccacatttt cgcaagcatg
15701 ggtatatatg tccaaggct gtggttccca ggggccaaaa gtatatgaat
15751 aagcctatat tatgtaaacc tttcatcttt taggacatgc tgtgccttcc
15801 atttagagca tttatcatct ccattctgat caccatgtaa ccagatatga
15851 tgggccaggt gatagcttcc ctagaagcct catcactcct tgttctagaa
15901 aggtcagggt cagatggcct gactcagccc agctctagag actgggacac
15951 atctctggtt cttgttcatt cttctctttg gcctatgtgt tacaatcag
16001 ccttccttat cattgaagta gtatgtatgg gcttaggaaa gagatcactt
16051 ctttttctt aaagagctca ccatatgggtc taatctaaac tagctcagca
16101 ggattctata gtgggatctg aggttttagt gaaattaaat gtgctattta
16151 gatgaatatt gtctagattc cctatttaaa ggaaaaatgg ttcctttcca
16201 tataaaataa atgtattgtt tctgtaagaa atttcttaca ttcttttctc
16251 taatcatctc tttgcaatat gtgatggata ttgctttttt ttttttaaga
16301 ggcaaggctc tgcctgcatg atcatagctc atgggtggcct ctacctcctg
16351 ggttcaagtg atcctccac ctgagcctag ctgagactac agcctacctg
16401 ggactacagg tgtgtgccac catgcctgac taaaaaaaaa attgtttttg
16451 tagagacagg atctcactat gttgcccagg ctggtctcaa actcctggct
16501 tcaagcaatt ctctgtctt ggcttcccag agtgctggga ttacagggtg
16551 gagtcactgt gcctggccaa gttattgcta aatattaact gaattacaat
16601 tgataaaaaa taatatccca cttatgttct aaaatattcc agactaaaat
16651 ataacatcct taaatattat ttgctattgt atactaacct ttacctatgt
16701 agccagattt cacaaatctt acaatataaa ttttcccaa gtcttctcca
16751 tgaattatat tcctttgtat atgaggaaaa acaaatggca actgctgttt
16801 ctttgtatgt gtcataatt gaatttaagg ggtcctcaa cttataaagg
16851 atatctgtca agaacctaga gaaaatatta catttaatgg taaaacatta
16901 gaaacatcac cactgaagtg atgtatggat ttttcaaaa tatggtcaca
16951 aattcttttg caccacccc attgagagggt ggcattcttg taccctcctt
17001 ttgaattcgg atagacttaa cgatttgctt gcaaacaata aaatgcagaa
17051 taagtggtag aactgagaa gtgtggcttc tcaggctagg tcagaaaagg
17101 tgacacagat tctacttgt tcaactggaat acttggtctc agatccctga
17151 gcctccacat aagtggctct actaccctga gaatgccatg ttggaaagag
17201 gccaactaac atgtagaggc catctgtaag cactccagtt gctagtctca
17251 ctgagccccc agctgacagc agcatcaact gtcagccatg tgagtgagcc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

168 / 338

```

17301 attctggaca tccagcctag gtgaaccgct aggtgacttc atccccagct
17351 gacatctgac tgcagctgct tgagataccc taagtgagaa caatgtgatc
17401 tagcccttct tgaaatcctg accctcaaaa tcataagcaa aaaaaataa
17451 ttgttttaag ccactaaatt ttgaggtaat ttgcttcaca gcaatagtaa
17501 caaaaacaga caaggattag gaaagtatgc cctctgtcac tgctgttatt
17551 taatattcaa ctagaactta tggaccaata agtaaataaa acgggaggcc
17601 taatgttgga aggaattaaa caccgaccatc gtttgcagac aatgattgtc
17651 tccatagaca agtcaagaga atccactaaa aaaacaatta gaacaaagaa
17701 gagttcagta taagtttaat ttaatatagg aaagacatat aaaaattaat
17751 aactaattag aaaatgtatt tagacaaaag cgccattacc aataacagta
17801 aaaaccctaa aatacttagt aataaagttt aaaaatacat aaaggctata
17851 tggagaaaat gtctaaagtt cactaaaggg cagaatttct aggaatagta
17901 tcatagaaga cattgggcaa tttcttccat agataatgat tataaaaact
17951 ggacaaatth cttaaaaaca actatttgtt ggtgtttttg ttagatgact
18001 cttgagaagg gtttactctt gaatgacgga tactgcatca ggtaaaaact
18051 aagagtttgt gacccttaag caggggggtca ctccccaaca ccctccagct
18101 ctagtggcag aaaaccacag ccataccagc ttgaggtgtc agagaataaa
18151 gtttaaggca gcagacaact ggatattcaa ggggggaatc ctgtaaaaat
18201 gagagccaga gccacagaag gactgaattg aaaagctgag tataagctcc
18251 gctcaaatec ctgcctgcct gctaaactgc tgagacacac aagagacccc
18301 aggcagccca gtgaaaaagc aagcagagac tagagaggca tctacccttg
18351 tgagacagaa ctgctcctgg tgaggtttgt gagtttgctg cactgttgac
18401 ttaacatgca caaagctcag gtcttgacga aagcaaaaac cttattggct
18451 tgaggtgcca ctgggcagaa cttggggctg gcagagcaac tggatattta
18501 ggaagaaagc aagggagctg tacagtaggt aagcttcaat acctgaatat
18551 aaattctttc caaatctgtg gctgacccta aactacacag gctcaggaaa
18601 gactcccagg cactaggcca aaaaagaagc aactggatcc tgagaaaact
18651 gtgcagaaga atacatcaac tactataaat tgctggggac agatttttca
18701 gtttaaatgc aggcaggtta actgcctact agaacaatat ggcaacaacc
18751 ctcagaagaa caaaacagaa tcttgagtgg gtataacatt actacaatgt
18801 ccagtgtttt ttgttttttg ttttcttgtt tttttttttt gagacggagt
18851 ctggttctgt cgcccaggct ggtgtgcagt ggcgtgatct cggctcactg
18901 caagctccgc ctccctgggt caccggcattc tcctgcctca gtctcccagg
18951 tagctgggac tacaggtgcc cggctaattt tttgtatttt tttagtagag
19001 acggggtttt acctgttag ccaggatggt cttgatctcc tgacctcatg
19051 attcacctgc ctcggccttc ccaaagtgtc gggattacag gcatgagcca
19101 ctgcacccag cctacaatgt ccagttttta accaaaaatt actagacatg
19151 caaagaatca ggaaagtgtt actactctca ggaaaaacaa aatcagtcca
19201 tagcaactga atcatagtgg gctcaaattg ttgattcaac agacaaagac
19251 ttcagagcag ctattgtaaa tatgttcaag agttagtaag gcacatgttt
19301 aaagaacata aggaaagtat ggcattactg agtgaacatg taggaaatgt
19351 taatagagaa atgaaaattc taaaaatgaa tcaagtagaa attctcaagc
19401 tgaaaagtat aatagctgaa agttccatga agaatacaaa ggaagacttg
19451 cataaatgga aaggcaacac atatttctag atgagaagtc tcaatttgtt
19501 aatgatgtca attctccaca aatcaatcta ttaaaagcta cccaattac
19551 aattccaaca ttatttttcc accaaagtgt ttaatgaaat ttgaaaacat
19601 gatcttaatg ttcatatgaa aaagagagta cagactgggt gtggtggctc
19651 acgcctgtaa tcccagcact ttgggaggcc aaggtggagg atcacctaag
19701 gtcaggagct tgagaccagc ctggccaaca tggcaaaact ccatctctac
19751 taaaaatata aaaattagct cagtgtgatg gtgtacacct gtaatcccag
19801 ctactaggga ggctaaggca ggagaatcac ttgaacctgg gaggtggagc
19851 ttgcagtgag ccgagattgt gccactgcac tccagcctgg gcaacagagt
19901 gagactgtct caaaaaaaaa aaagtacatt aaaatgacca caagattttg
19951 taggtaaaat atagagggca ggagactttt cctatcaaata acaataacat
20001 taaagatatt cattaaacta atgtgatatt agcaaaagat ccacagatag
20051 aattgtggaa tggaatatag aaggcagaaa catctaaacc cacacatata
20101 tataaatata tgaatttagt gtacaataac agcgatactt caagccagaa
20151 aaaaagatag ctcatthaat aaataatgct tattaaattc atctaagttg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

169 / 338

```

20201 tttgtttatat cggcataaag ttttctataa tatkctcctt gtcagctttt
20251 ctccagcttt actgaggtat aaactgtaca tgattcatgt atacaatttg
20301 gtgagtttgg acatatatat ccactcatgt taccataacc acaatccagg
20351 taataaatat atccatcact tcatcacctc caaaagtttc cttgtgtccc
20401 tttgttttatg ttttttgttt ttctgtggta agaacactaa atttgagatc
20451 caccctttta acacaatcct aagtatgcag tatcttattg ttaactatag
20501 gcaatatgtg tacagcagat atgtggactt actcagcttg aataaatgta
20551 actttatact tttaaagtac ttcccatgtc cctctcccc gatcctctgg
20601 taaccaccat tctgttgtct acttctacac cttcaactat tttcaatgtc
20651 tcacataagg ggaatgatgt agtatttggt cttccgtgac agacttactt
20701 cacttagtat aatgtcttcc aagtccattc atgttatcac aaatgatagg
20751 gtttccttct tttttttttt ttttttagat ggagtcttgc tctgtcacc
20801 aagctggagt gtctcagcct cccaagtagc tgggattata ggcagcgcc
20851 accacgcctg gctaattttt gtgcttttag gagagacggg gtttcacat
20901 attaggctgg tctcgaactc ctgacctcag gtgatccacc agcctcggcc
20951 tcccaaagtg ctgggattac aagcataagc caccacgccc agcctgggt
21001 tttcttcttt tttaaagctg aatatgccaa gtgcagtggc tcgcacttgt
21051 aatcccagca ctttgggagg ccgaggtggg cagatcacga ggtaagagt
21101 tcgagaccag cctggccaac acagtgaac actgtctcta ccaaaaatgc
21151 aaaaattagc cagatgtggg agcacgtgcc tataatcca gctactcagg
21201 aggctgaggc cggaaaatca cttgaaccca ggagaacaaa aatgagccct
21251 tggacattta aaatataaca gcagaagtaa atattgtgat ggaaggattg
21301 gaagataatg ttgaagaaat ccagaaagta gagtgaagag gcaaagggtg
21351 aagaaaggaa agaaaatatt tttaaaatta gagactaagc agaatgcaac
21401 aatcaaataa taggagttcc agaaaaagag aacattaaaa atggagtgga
21451 ggccagggtg gatggctcac atctataatc ccagcacttt gggaggccga
21501 ggatggtgga tcacctgagg tcagaagttc gagaccagcc tgggcaacat
21551 ggtgaaaccc caactgtact aaaaatacaa aaattagccc cgtgtggtgg
21601 agcatacctg tagtcccagc tactcaggac gctgaggcag gagaattgct
21651 tgaacccagg aggcagaggt tgcagtgagc ttgatcatgc cactgtacac
21701 cagcctgggt gacagagcaa aaaagctatt actgattaag cacattatac
21751 attatatcta cattaattta tttactcctc ccaacacctc tgagaggtaa
21801 tttttttgtc ccattttata gatgtggaaa ctgaggctac ataagattaa
21851 gtgccttgcc tcagactagt tttgttggtt ttgttttttt aataaataga
21901 cacagagtct tgctaagtca ccaggattgg tctcaaactt ctggccttaa
21951 gcgatcctcc tgcctcaggc tcccaaagtg ccgagactat agacataagt
22001 caccacacca accagcttag tttttttctt ttcacttcta aatattatat
22051 cattttgtca agaactactt ttatatatgt gaaaagggat caatacaaaa
22101 gctaagaaag aagcaagcac aactctattt ttatttattt atttatttat
22151 tttgagatgt agtcttgctc tgttgcctag gctggagtac agtggcacga
22201 tctcagggtc ctgcaacccc cgcctcccgg gttcaagtga ttctcctacc
22251 tcagcctcct gagtagctgg gattacaggc gcctgccacc acgcccact
22301 aatttttgta ttttttagtac agttggtggt tcactatggt gcccaggctg
22351 gtctcgaaca cctgacctca agtgatctgc ccaccttggc ctctaaagt
22401 gctgcgatta caggtgtgag ccaccacacc cagccagcac aactctttct
22451 agaagggaag aatgacattg ccactattgg atgaagactc ccaggagaag
22501 atgatgaggt gaagagagtc tctgggtcag agtctgaatt tcaactcctt
22551 gggagcctta caagagcccc ttctggggag gaccgtggac aaagccatat
22601 cttaggaagg ataggcctca gcatattggg gcaatattga cagaccttta
22651 gtgcaggccc agctctatcg tccagcagga atatggcctt gggaatgaac
22701 tactgtgcgc gatctacttc aagacacagc tccagtctca tgagtgaagc
22751 aatcagaata cgtcttgctg gttgaaggga gaatccttag ctggtcgtgg
22801 ctgtggggcc tggatcctgt gctgatgaag tttctccctt ccccttcctg
22851 caaaataaat actttgctca ttgatgcaca gggtaatggg aagtcactct
22901 ggaaatccag ccaagtcaca agcactaatc ttagtttcta actatgaagt
22951 gaccttccaa cctccttcct aatcaagtta ggtttttttg gtttggtttt
23001 ctttttcttg caaagtaaaa atatccagtt caggaaatgt ggctgattga
23051 atagcagctg ccatggagga cctactttgg atattgaaac aaccttgga

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

170 / 338

```

23101 gaagatcaga aactcactcc catcagctcc tgttttgagg caggcctgga
23151 gctcatcacc cagattagtc ttggcctcca cattgtcctt cctgtatatt
23201 tttaggagaa agtatctggc cactgtttct ttttcctctc aatgctagga
23251 aacttcctgt aatattggaa aagtagaagt tgaagcggct tcagtgcaaa
23301 actaacattc tctggatctt tctcacgctg ttcggaaagt agatcaccca
23351 ctggtatttc cttttcctgg cttttttttt tttcctaaca gacaaagaga
23401 ggcactgcca cgatactatt tctgttcaga gggggagaga gagcaaaaag
23451 agacaggcag aaacattttc cccagccttg ccacattctt cactcagtta
23501 taaagaaacg cattgccaat aaaatagaaa acagaaatag caggaaaatt
23551 ctgaaagatg agctgtgctg taaatgtaaa acacaagcca cttaatgcat
23601 aatcattcaa aggacagttt gtaatgaaaa taaagacatt tcaaaagagc
23651 ccataatttg cttacattac attctgtatc taattgttat agtatgtttt
23701 attcctctta tacaagaaaa aatgttgacc tccctcattc atatggcatg
23751 cagatgcatt tgagcagggg tttttgggtt taataatgtg atagactggc
23801 tgggcactca tgcctgtaat cccaaccctt tgagaggctg gcaggcagat
23851 cacttgaggc caggagtctg agaccggcct ggccaacatg gtgaaacact
23901 atctctacta aaaatacaaaa aattagctgg gcgtgggtggc acatgcctat
23951 agttccagct acccggaagg ctgaggcagg aggctgagct tgggaggcag
24001 gaggctgagc ttgggaggca ggagactgag tttgggaggc agagggctgc
24051 agtgagccga gatcatgcca ctgcactcca gcctgggtga cagagtgaga
24101 ctccatctca aaaaatatat atatgtatta tagaatatta gagctttaga
24151 catcacctag tgcaaacttc ttgctttaca gattagaaaa ttgaggctta
24201 gaaagtctaa gtaatggcca agcacagtgg caaatgtctg taatcccagc
24251 cctctgggag gccaaaggcag gaggattgtt tgaagccagg agttcaagac
24301 cagcctgagc aaaacagaca gaccccccca cccaatctc tacaaaaaaa
24351 aaattttaat tagccagggtg tgggtggcatg tgcctgtagc cctagcccta
24401 gctacttggg aggctgaggc aggaggactg tttgagccca ggaatttgag
24451 cctgcagtga gctatgattg caccactgta ctccagcctg ggcaacagag
24501 cccgacccta tatctaatta ataataacaa aaagattaaa taacttaacc
24551 caggcaacac agatggaaag tagcagagct gggggctaga atccagatct
24601 aaatcttcag cctgcattct tcctaattta tgtggagcct cacactgtct
24651 tgccctgtcc catgtgcaag atagcagccg agaatgacta ctgcagcatt
24701 ccttctgatt tccttatttc tgacttgaat atgctacacc agtaacaaaa
24751 ctatgagcac ccaagacaca accacacgca tgtgcacaca cagagacgca
24801 cacacatact gttaacagat actgagacaa agatcttgga agacagcatt
24851 gtcttctgaa aagagaatct tctgctatgg aatgtctggg aaggaagtgt
24901 gacagacgtt ttcactcacc caacaccttt ccactttct tcttgctaca
24951 agtagcataa ttttattcag atagcatgga gtgggggagc acaggggtggg
25001 ggcaatgcgc tcagagaagg tagaccacgc ctggccaagc caagtaattt
25051 tattctcctg gtcaggaaga tgtatggaga aattggctgg taggctttag
25101 gaaaacattt cattttttat tacacaaatg cacacacatg cacacaagca
25151 gccaaaaaca cttacacctt tccctttctt cctgcctttt ttttttcttt
25201 gagatggagt tttgcttttg ttggccaggc tggagagcaa tgggtgcaatc
25251 ttggcttact gcaacctctg cctcccgggt tcaagtaatt ctctgcctt
25301 agcctcccaa gtagctggga ttaccgggtg ataccacat ggccagttga
25351 tttttttgta ttttactag agacgtgggt tcaccatgtt ggccaggctg
25401 gtctcgaact cctgacctca agtgatccac ccactttggc ctcccaaagt
25451 gttgggatta caggcctgag ccactgcacc tggcctcttc ctgcctttca
25501 attcagtttt gtgagaataa gatatttgat gttgctgcac aacattgctg
25551 gggagtcac acacctaagt tgacagtgtc gaagcagaaa catggaaaga
25601 gaccggctct ttgatgacac ttgagctgcg aaactgacct ggaatgacct
25651 ccttccagat gtattgtcat gagagagaat aagacaatct cattgtttca
25701 gccacttgca gtgggtgttt tataacttgc agctgaaagc atagttacct
25751 ctctgagcct cagttttttc ctttagaaaa tggcgataac actacttacc
25801 cagcaggtcg taggaggaaa tgggtataata caatgcctaa cataaaggaa
25851 ctcagtaaat cgtagctagt catatcataa tcatgataac cctcatagca
25901 aaatcctcag tgggtgggaat gttttctcca ctccgccagt gtcattggcat
25951 cgggttgctt ctccctacag tgggtggtctg gagacagttt gccccgctgc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

171 / 338

```
26001 cacctcttct ccaagtgtctg aggagctcag gcatgggagc tttgggcctg
26051 ggagcttttg gccggggagg tagggagtc agtctgtaaa ggaaaacaat
26101 aaaaatgaaa agcaagcatg taaaatcata ataacatatt gaataatctt
26151 agcaagccac aaagtgttct ttatttttta tttatttatt tttttgggac
26201 ggagtctctc tctgttgccc aggctggaat gcagtggcat gatctcagct
26251 cactgcaacc tccccctccc gggttcaagc aattctcctg cctcaacctc
26301 ctcaggaact gggattacag gtgcctgcc ctgcacctag ctaatttttt
26351 gtatttttag tagagacggg gtttcacat gttggctagg ctggtcttga
26401 actcctgacc tcgtgatctg cccgcctcag cctcccaaag tgctgggatt
26451 acaagcatga gccaccgcgc ccagccaagt gttcatttct tatgtcccag
26501 aagtcccaac tctggcaatc tagcccatag aaataatcca aatgaagaga
26551 gaaattttac tcaccaaatac ttttaattcag atttttttgc agcctttaga
26601 agtaaataat aatatatccc cttgatataa tataattatg aagccaacac
26651 agtaatgttt attagaaact atgtaggggt ggcccggcgc ggtggctcac
26701 gcttctaata ccagcacttt gggaggccga ggccggcgga tcacgaggtc
26751 aggagatcga gaccatcctg gctaacacgg tgaaaccctg cctctactaa
26801 aaaaatacaa aaaattagcc gagcatggta gctgtagtcc cagcgactcg
26851 ggaggctgag gcaggagaat ggcatgaacc cgggaggcag tgtttgagct
26901 gagcctagat tgcaccactg cactccagcc tggacaacac agcgagactc
26951 cgtctcaaaa aaaaaaaaaa aaaagaaact atgtaggaat aaggcaatgt
27001 aattcttaat ataaattaaa tgaaaacaaa atcagaatac aaaattgtat
27051 gtgtgctctg cttacaacca cgtggagcac agctataatt aaagcgggct
27101 atacttggca cactgattgt taaataagt cagcgaacac aggaaataag
27151 ggggctgcgg gttgttgaa aaactggcca gaaaacggaa cgaagaggag
27201 agaagctaac ggtgctcatc gtgtggcacg caggtgcgtt gttttctctc
27251 cactaaggct gctgggtggg gccaaaatag tccaggcagc caagtgcaga
27301 ggcgttgggg gcggcaaaga tgcaaaggat cccactgtg gctgcacccc
27351 gaggaggagt ccgtggcagg agggccacac ccaggacccg gcgccaacag
27401 tgaggagacg aacctggaag acatcccgtc gtccagacac cgcgaggagg
27451 gcgagtgggt ctcgcagcct gggacttagg aacacaggga aacagcttcc
27501 acatgccatt tgctgaataa atatttcttg caggatgttt cctatggatt
27551 cattctctat catgaaagct ttatttgtgg tcagcgtcct aggaaagcag
27601 aggcagacag atttctgttc tagggagtcc tgtggagggt tacagatcag
27651 caatattcca ctgaaaccaa atacctagga aaagcatgga aggacacaca
27701 gaaatcacia attattatat tatattatac tatactatac tatactaata
27751 ttatattata ttatattata ttatattata ttatattata ttatattata
27801 ttatatattt attttttgag acagggtcct gctccgtcat ctaggctgga
27851 gtgcagtggc gcaatcatgg cttactgcag cctcaacctc ccagggtcag
27901 gtaatcctcc tgcctcagcc tcctgagtag ctgggactac agctgcatgc
27951 catcacaccc gactaatttt taaattatat agttgtagac atgggttctc
28001 tctatgttgc ccaagctgat cttgaactcc tgggctcaag caatcctcct
28051 gccctggcct cccaaagtgc tgagattaca ggcatagaac accgtgcctg
28101 gccaaaatgt atattttaaa aaacatataa aaatagagtt ggctgggcgc
28151 ggtggctcac gcctttaatc ccaccacttt gggagaccga ggctgggtgga
28201 tcactaggctc aggagatcga gaccatcctg gctaacacgg tgaaaccccg
28251 tctctactaa aaatacaaaa attagccagg cgcggtggcg ggcacctgta
28301 gtcccagctg ctggggaggc tgaggcagga gaatggtgtg aaccggggag
28351 gtggagcttg cagtgcgccc agatcacgcc actgcactcc agcctgggca
28401 acagagcgag actctgtctc aaaaaaaaaa aaaatagagt taataaatat
28451 atctatgtgt tatagatata aataaaatgt gtttgcaatc attatctact
28501 gtgtcctata actaatatag atcttcaccc ataaaaatcc caaccctatt
28551 atgaatttgg agtactttct ggtggtggac tcacactttt tcatgcaagc
28601 tcctttgccc cctatgcaac cactgcccac gttgtgctcc agggcagacc
28651 atagttcaca ggcggaagca ggtgccatgt aggaatgaga ccacatgtac
28701 catgaagcaa cggagctcac tgattcagag gcaagatgct ggcccctctg
28751 gctgtcacca tggatgactg ctgatttaag gtctttcttg gtcacccac
28801 ctggcaccac cacttctggt cccttctctt cagtttctc taccagcta
28851 tgcctcctc tactgataag ccctgaaaca gagcaagtgg cctctttttt
```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

172 / 338

```

28901 aatgtaacaa atattttaca atattcattt gtaaagtcta gaaatgaaaa
28951 taatacacaa tagcatctac ctagccacac aatcttgaaa aacaatcagt
29001 ataatgctgt aactataacg taagaaataa atgaaggat ttttttattt
29051 atttatttat ttatttttag agacagagtc ttgctctata gccaggctg
29101 aagtgcagtg gtgcaagtgg tgcagcctcg aactcctggg ctcaaagtat
29151 cctcctgcct cagccttctg agtagctggg actagagggtg tgcaccacta
29201 tgcctagcta atttttaact tttttgtaga gactgggtct tgctatgttg
29251 cccaggctgg tcttgaactc cttgttgagg atcagtggga gatgaaaggg
29301 aggagagaca gtgaggaccc cttggcacta cccaccttcc ctaccaccg
29351 gcaagtcccc aatgagtgat gtccagtatg ggtctgggcg gggcaagtga
29401 tcctcctgcc tcagcctccc agagtgccta aattacagat gtgagccact
29451 ctaccaacg gaaggtaatt tgaaataaaa taatacatgt tcccatacat
29501 aagtgtctcag gacaatcaca ttaatgaagt tgtcacgttc ttgcatctaa
29551 atttagaatc cacatgagca ccatggcagt ggatcgccgt tttggtgcgt
29601 cttatcagca acttaaagtc cacgctgtta ttcaaagcgc tgctgtcagt
29651 gatgtgattt tccaaaataa tgagcagctc ttggaaaagc tccaaacaga
29701 acaaagtgc aactttcctc aatgcataca gtagttgtgt ttctggaaag
29751 tgtagtgtat atgaaaacca catgaaaata gtctgcggtt acatataaaa
29801 caaaattagg ttctaggatc agatagtttt tattttattt tattttattt
29851 tattttattt tattttattt tattttattt tatttttag acggagtctc
29901 cctctgtttc ccagcctgga gtgcagtggc acaatcttgg ctcaccacaa
29951 cctctgcctc ccaggttcaa gtgaatctcc tgcctcagcc tcccaagtag
30001 ctgggactac aggcacgctc cactatgccc ggctaatttt tgtattttta
30051 gtagagacgg ggtttcacta tattggcgag gctggtcttg aactcctgac
30101 cacgtgatcc acccgcttg gcctcccaa gtgctgggat tataggcttg
30151 agccaccgag cccagcccag atacttttta aatggtgttt tttttcttta
30201 aactactaca taaatgtttg ggacattcaa aagtgaatt caaatttaag
30251 aaacattttt ttcttgcaaa aaatattctt ggggtgtata ggatgtctag
30301 catctctagt cccactcac tgaatgtcag gcacatgctc aaatcaaact
30351 ctccaagagt ggtcattgag aactactctt tcctgtatat gagtagacct
30401 tgtactctct gtccactttt ctccacatct ggggaaagct gaatcatggg
30451 cataagtacc tgtaaacagt cactgataca catgttacat ctgtagcaac
30501 caccctaat tcagatatat agcttagggc cccatgggtt gcctaataca
30551 tgatggtcat agagggagga aatttctcgg agaatttcat tcaaccttca
30601 gcatgattgg agcattggtt ctcaccacag taccacaaa ggtaacttgt
30651 accccaccca gcccatctt gtacatcact cactggggac ttggtggtgg
30701 gtaggaaagg tggatggttc ctagggttcc tggctgtctc tcctcccctt
30751 tgtctccac tgatcctcaa cacagctcat ggctgagaac ttctgattga
30801 gagatttata caagaaattg cattcctcaa agtaagtgat tattgaggga
30851 aaaaaaaagg aaaaccatga aaaaaacccc aatgcaccct acttgcttat
30901 atgtgcgtag aatatctctg gaaaaatgtc taagaaacca atggtgtgag
30951 ctgtttccca gggagggtct ggcatggctg gagcactgag gtgaaaggag
31001 aacgtccttg atgctctact cttttgtacc ttcagaattt tgtatggatg
31051 gcttgaaaaat agaaagaaat agaatttgat ttttaaaaga ggcagtccct
31101 ggaaaaaagt tattaatttg catattgcaa gttgagaaag tgagagacca
31151 gagcaagagg aggtcacac aagataaaaa ggtgggggccc gttatggagc
31201 ccagggaag gagggctgga caagagactc cgtccatgtt tctctagcac
31251 tttccaggag aataaagctc ttgttctagc actctcctcc tttggacctt
31301 tctgtagaga gcagaaaagt gaccacgagg ctctgttgca tgataaacia
31351 ccccttaaaa accaccaact ttccatggtc ttccagcaac ccatttgat
31401 gtcgtcccta cagttgactc cttcagctcc tgtgtgtgtc ctctgcgtgc
31451 ccctggcccc ctgccttccc ttagctgtgc tgcacagaaa accgccccag
31501 ctcttggttc aaacagatcc cataagaaac atcagaagaa gcatcctggc
31551 ttacaagtta ttttttggtg agtgcaatgg gcgtgccgtg ctctccagg
31601 cctgaccacc tgtatgagag ttggcaggag gacatttcta aactcacact
31651 cttagggcag tagagatggg gcctaagacc tttgtctctc ctggtatcag
31701 tgagccccgt gtagccctt ttccttatte caggctctga agctgcagtc
31751 acagacacac aaaggtgctg gggcttgac attcaccagc gtcactttct

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

173 / 338

```

31801 ccagccacac cactacgttt gagggctctc ctgtccttct ctaacagaac
31851 tagtctggga ctagacgcca ggctttgggc taagtacttg atgtgtcttc
31901 acttattaaa tccttccaat aacccttcaa gttagggtacc attattatcg
31951 tcatcaacct cattttatag agaaggaaac tgagggtgcag agaaattcag
32001 gttgaggttc acagcaaata agcagtggag gccaaagtgtg ccccaggtg
32051 gacccaaatc aaagccacac tgttaccttc tgctctgcgc tgcctcccgg
32101 ggcagtagcc ctggtgagcc tccccacgtt ggggtgtcta atgaaaagct
32151 tccctgctgg ttgagctgaa ggggtcaggg tcggggctgt acagagaaac
32201 tcaggccaca agggcctttg ggcagaactg gggtcacaaa gtaatcatgg
32251 tttcccagcg aacacaagac tttggccctc aggcaaggct ccttgatgtc
32301 tgggggagcc tgtgcccccc agcagtgtct acagatccac ccctgactgc
32351 cagccggccc cttgatggcg gtgcctgtct cagattctgt ggtcagtgcc
32401 acgcagctac ctccagaggc agcctgcagc ctggccatgt ggccccaagc
32451 tccaggctag aggccaaggg gagtgtccct tctctctctg tgtcaccag
32501 ggcataagtc acccaggcag cctggcatgg tgcctccaag ccactgtgct
32551 aatgcttcta cagcttctgc tccctccctg cctccatggg gcccaaacct
32601 agccctggtg ctgctctggg aactgggtca gagcagcacc ccagctcccc
32651 cccccccagg agccctcaa ccttggcctg ctgtcatcct cgtccggccc
32701 caatcttcct gcaaatcggg cccttgacag attcctgctg actcagcagc
32751 tgggcccggg caggacttag tcccagcgtg agccgatccc gctgcagttt
32801 gggcgagaaat gacaagccct ccaccagacg attctttatt gctctgagac
32851 ttccctggga taattccacc cccaggagca ctctatctgt ttctgtctcc
32901 tccccacaca cccctgggcc ttgaaaaagg atgatcactg accacaggca
32951 ctgaaaagag caaaccaaga gcagcatcaa taccctcaca cagtgggtgca
33001 cataacacac tttgagtttc tgacttttcc taatcagttc ttctgctaa
33051 aatacagtag cttaacaaaa acaatgacaa caacaatctg gtgtttgcca
33101 tttacaaggc actttctgtg tgagtagcat gacatggtaa aagagaaaga
33151 gatgaattat aaaacgcagc aagatcatga gtcaatgatt caccctgtcc
33201 cagcctgctt cttttttttt ttttttgaga cagagtcttg ctctgtcacc
33251 aggctggagt gcagtggcgc gatctcagct cactgcaacc tccgccttcc
33301 gggttcaagc gattctcctg cctcagccac ccgagtagct gggactacaa
33351 gtgtgcgcca ccatgcccag ctaatttttg tatttttagt agagatgggg
33401 tttcaccatg ttggccagga tgggtctcgat ttcttgacct tgtgatctgc
33451 ccgcctcggc cttccaaccg agcctgcttc ttttcttgta aaatggaaga
33501 gtcataacat ccaacttgag tcttgatatt ttaatgaaat aatgcatggg
33551 aaagcagaaa acagcacaaa gattactggg tataagagct aaatcactgt
33601 gactccatat ccaaattcaa tacctactga atcagtgggt tctgactagt
33651 caattttttt tctttttttt tttttttttt tgagacagag tctcggctgg
33701 gtgcagtggc tcacacctgt aatcccagct ctttgggagg ccgaggcggg
33751 cagatcactc gagattagaa gctggagacc agcctggcca acatggcaaa
33801 accctgtctc tactgaaaat aaaaaaatta tccaggcatg gtagcacgtg
33851 cctgtaatcc caggtagctg ggaggctgag gtgggagaaat tgcttgaacc
33901 taggagggcg aggttgagct gagccgagat tgtgccattg cactccagcc
33951 tgggcgcccag agcgagactc catctcaatt aaaaaaaaaa aataggagag
34001 agacagagtc tcaactctgt ttctaggctg gagtgcagtg ctgtgatctc
34051 agctcactgc agcctccacc tcctgggctc atgcagttct tgggcctcaa
34101 tctcccaagt acctggaact acaggcacac atcaccatgc ctggttaatt
34151 tattattttt ttagagagcg tggtttcacc atattggcca ggctggtctt
34201 gaactcctga gcttgagcga tcctcctgcc ttggcctccc aaagtgtctg
34251 gattacaggc atgagcccc atgcccggcg actagccaat tttttaaaaa
34301 ttacattttc tagaggtgtc atttttactg ggaaaaacac agtgacacca
34351 ttcaagaaaa aattgaacgg taactttaat cactacatta acacaatttt
34401 aaaggttgat ctgcatcata catacctttt aaagaatgtt ttcacatat
34451 gtagacagct tttttgttt tttgtttttg tttttgtttt gaggcagagt
34501 ctgctctgtt caccaaggct ggagtgcagt ggtgtgatct gggctcactg
34551 caacctccgc ctcccgggtt catgccattc tcctgcctca gcctcccaaa
34601 tagctgggcc tacaggtagg tgccaccacg cccagctaatt ttttgtattt
34651 ttagtagaga cggggtttca ccatgttagc caggctggtc tcgaactcct

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

174 / 338

```

34701 gacctcgtga tccacccacc tcagccccc aaaatgttgg gattacaggc
34751 ctgagccacc acgccctgcc ataggcagct tttaaaagaa cacatgtgca
34801 gcctggccat catggtgaaa cctgtcttta tgaaaaatac aaaaatcagc
34851 tgggcatggt ggcacctgcc tataatccca cttgcttagg aggttgagga
34901 gggaggatcg cttgagccct ggaggcggag gctgctgtcc agcctgggcg
34951 acagagcaag actcgggtctc aaatagaaaa caaaacaaaa caacaacaac
35001 aacaacaaca aaccatgtgt gattccaagc aaatcagaga atctctagcc
35051 accagaaaaa ccttgaggca tgtactgaaa ggaagagggtc agaattctct
35101 gcgaggagct cagaggatcc tgaggggaaga gagaaggcgg ctgcgcttgg
35151 acacagctcc gagctcgtgc tccctccttc aggcacccaa gtctgagttg
35201 ctaaaaaatg gagctgtcac tgggccttgc tctgccagga cctgcagagc
35251 cggggacctc tctgtggcaa gccagcaag atgactgctc tgaggcgccc
35301 tagggctgag ggaggggccc tgacaccagc cccgcccccc agccacctgg
35351 gaaaaggaag caaaaaagg agaagcagca acggctgctc tgcttccttc
35401 ccatctcgct cttgggtcat gcctggccag cagaaagcag ctccataggg
35451 gaggagagcc acgcaggatc tcacagctgc agtctaatag taacacagag
35501 gtaattttta ctttttactt ttctaccctt gggagtaggg atgagtagag
35551 gcttacctcc ttccagaggc agctcatatc cccccacccc cattcccga
35601 agttgagatg tctcttctct gttccacgca ggcacgtctc aagttgggaa
35651 caggtcttat gtcttaaaat ttgggattct ttaaaaacat atgtggctgg
35701 gcacagtggc tcacgcctgt aatcccagca ctttgggagg ccgggcaggt
35751 ggataatttg aggtcaggag ttcaatacca gccaggccaa catggtgaaa
35801 cctcgtctct aatataaata caaaaagtag ctgggtggta gtagtagctg
35851 taatcccagg tactcgggag gctgaggcag gagaatccct tgaacctagg
35901 aggcggagggt tgcaggagg cagaggttgt gatgagccaa gattgcacca
35951 ctgcactcca gtctgggtga cacagtgaga ccctgtctca aaacaacaac
36001 aaaaatgtgt gatggcacat gcccatagtc ccagctactg gggaggctga
36051 ggtgggagga tggcttgagc ctgggaagtc gaggctgcag tgagctgtga
36101 tcatgccact gcagtccagc ctgggcgaca gagtgagacc ctgtctcaaa
36151 aaaaaacaaa aaaaaacaaa aaaaaaaac caaaaacaa aaaaaaagc
36201 acatgtggag tgtttagtaa gtcattgacc ttggtaagac agtggaggaa
36251 actgctttgc tctgactcat aaatttgccc ccagtaaaca gtatttataa
36301 atagccccag tcaggcactg catgaagaca tttcagtcaa cgacagacca
36351 catatacaac ggtggtccca taagattata acagagctga aaaattccta
36401 tttttcagct tagtgttgtg gtgcaaccac taccttttct atgtttagat
36451 acacgaatac ttagcactgt gttacaatag cctacagtac ccattacagg
36501 aatgctgtac cgggtgtgtag ccagggagca atgggccata ccatatagcc
36551 taggtgtgga gtagactaga ccatccacgt ttgtgtaatt acaatctatg
36601 attttgtaaa atgatgaaat tgcctaatag agcatttctc agaatgtgtc
36651 cccgtcatta agtgacacct cactgtgttt ccaagacata gtactggctc
36701 ttgggaagct ctaaagagag gtcaccgtga gctgaacat ccttctcact
36751 ctgtgcatgg aaccagctt agcttccatt tcagcattta ggcttatagg
36801 aggagaagag gttagaagcc acagaccagc aagaattgaa gacatcgctc
36851 tgtaatttct actgaaccag ctctgtctga ctggaacttc attttgctc
36901 tttgctttta ctctcagga atgtcttcca ggaggcccct gatcttctct
36951 gctcagggac cactcttata tgaccagag acaggttagc tgatggtgac
37001 tcacacatcc tcacttcctt caaagcccag gcatctgttt aaaatctgac
37051 cctgtgaaga cttttcctgt tttggaaaa ctcttcctgt gtttgctgc
37101 acagatttgt gctccatttt taatttcaat ttttgtagag aaggcgggtc
37151 cttgctttgt tgcctcggct tgtttgaaac tcctgggctc aagtgtcct
37201 cctgccttgg cctcccacag tgctgggatt acaggtgtga gccactgcac
37251 caggatggat ttgtcttcct tcagaagaca gtagctgatg tgtgccctgg
37301 cctttctccc ctaggattca gcagtggcca ccatgggttc tgtgaattcc
37351 agaggtcaca aggcggaagc ccaggtggtg atgatgggcc tggactcggc
37401 gggcaagacc acgctccttt acaagctgaa gggccaccag ctggtggaga
37451 ccctgcccac tgttggtttc aacgtggagc ctctgaaagc tcctgggcac
37501 gtgtcactga ctctctggga cgttgggggg caggccccgc tcagagccag
37551 ctggaaggac tatctggaag gcacagatat cctcgtgtac gtgctggaca

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

175 / 338

```

37601 gcacagatga agccccgctta cccgagtcgg cggctgagct cacagaagtc
37651 ctgaacgacc ccaacatggc tggcgtcccc ttcttggtgc tggccaacaa
37701 gcaggaggca cctgatgcac ttccgctgct taagatcaga aacaggctga
37751 gtctagagag attccaggac cactgctggg agctccgggg ctgcagtgcc
37801 ctcaactggg aggggctgcc cgaggccctg cagagcctgt ggagcctcct
37851 gaaatctcgc agctgcatgt gtctgcaggc gagagcccat ggggctgagc
37901 gcggagacag caagagatct tgatccagac agagcagcat atctttgctc
37951 atacaaacta gaagaaccag ctgatccctg agaaatttac gcttagtcta
38001 tcaaacaaga aatgctggct tggcccgggt gctcatgcct gtaatcccag
38051 cactgtggga gaccacgggt ggggaatccc ttgagcccag gagttggaga
38101 gcaacatcac aacaccccat ttctactaat aatcaaaaaa ttggccgggc
38151 atggtggcat gtgcctgtag tcccagctac ttgggaggct gaggcaggag
38201 aatcgcttga gcccaagagg tagaggttgc agtgagccaa gatcgcgcca
38251 ctgcactcca gtctgggcaa cagagtgaga ccctgtctca ataataataa
38301 taataataat gatgatactc taagaaaaaa atctcaacat acttcattta
38351 atagctcggt accaagtgtg aatgaagcaa tatgtcataa tagagtagcc
38401 actggttgca taataataga gacctaaatt ctcaaatagg gaaagagggt
38451 ttaaaatcaa atttgaggcc aggtgcagtg gctcatgggc ggaggagggc
38501 agattacttg aggctaggag ttcaagacca gcctggccaa catggtgaaa
38551 ccccatctct actgaaaata caaaaattag gcatagtggg gcacgcctgc
38601 agtcccagct actcaggagg ttgaggcaga agaatcgctt gaaccagga
38651 agtggagggt gcagtgagcc gagattgtgc tgctgcactc cagcctgggt
38701 gaaaaagaca ggctgtgtct ccaaaaagaa aaaaaaagt caaattcaa
38751 tatcatctgg acatgtcaca atggatcgcg gatccttatg agtgattttc
38801 cccagtggcc cctggggatg tgccactgtc actcagaagg gcaagctagg
38851 cagggcccat acaacagcag gggctctgcag gttagacgtt ccctgccctg
38901 ggacgctcac ccctgggcaa gaggctggaa gttcacacca tccaaaattt
38951 atccttggtt tttttctgat gctaattagc ctctcccgat tttatgacat
39001 cttgtgttga tctttttcaa aaactcattt tctttttttt ccttctcttt
39051 tctccttctt gtagcacata tctttcgtta aagatcagat caataaaata
39101 ttttatattat tcattaattt aacaaaaaaa acagagcatt tagtttgtgg
39151 caaaaacact gagctttcga atatgaatca tgtgcttttag gtgggaattg
39201 tgaattctga agatacagat gacagtgcag aatgccttct gtctcatgat
39251 tgacagggaa aaggaagggt gaccatagca tcctagaagg ctcatcaggt
39301 gatcattacc tagcatccat gaagcacctg aaattatttg caaaatgtta
39351 cgctttggac catttttccg ggggaaggaga tccagaactt tttaccagat
39401 tttcaaagac atctgtgact cccaaaagtt aacaatcact gatgtggttg
39451 ttgtatccct catccaaccc cagaacactt tctgtaatct gagtttttta
39501 atggcaagtg gcctatatatt agcacctgtt ctcatgttaa acagctctga
39551 atggttagata ttctttctta tcctggactg gttctctcta tctctggagt
39601 aatgcagtat aaattggcca tcagtaccct cctaaaatct gagatctgcc
39651 aggcccctct tctaacacca ggttaggcat gcttggttat ttccagtact
39701 tgtcagtcaa catgtttcaa gacgctgtgt tagacactag ggatgcaaag
39751 atgaatgaga taaggcctca ggcctcatgg aaggtgagac agtaaagaca
39801 ttactcccat aaaaatgtga ggagagagac tcagttcagc aactgtttat
39851 tctgtttatt gagcacttac ttggaccaag cactgtggtc ttggtgtttt
39901 acatagactg tctctaattc tcacaactct gcaaaatata tatattccca
39951 ttttataaaa ctacaaactg aggtcagag aaggtgtgac ctcttggtgc
40001 ttgaggcaca gagttataaa gtaacatatc tggaatttga aatcagatct
40051 gtttagggct aatgctgcat ttttctacaa catcatgcct ctagaagggt
40101 taagctagggt aggctttcag ccagcagaca tgatggggag agccttctaa
40151 taagagggaa gagactgctt ggaagcatga agggagggtg aagaaagata
40201 agtaagtcag tgtacttgca acagaggctt gggatgaagg gtgggtgaag
40251 ttgacatcac gatagaaaac aaaactggaa tgggagttta ggtccaattt
40301 gggcaagggt gtttgaattt caataatcag gggtttgggt caaggaagaa
40351 aatcatggg acttgccatt taggaggata attttgtggt agtgtggagg
40401 tgaaataaag agaaaaggga accttgagc tgggaaggca ggaaaccggc
40451 tagatgacca tcacacagca aaggagggag tggaagagag atgagaaaat

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

176 / 338

```

40501 tgagagctat tattaagaaa aacagttgag agaggaagaa tttgaagagg
40551 gctcaagatt ttgagtccac atgacagaag gactggaatg ccatgaactg
40601 gagaaggtga gcgctgaaga accaggatgg gacggggctg gaacagctgg
40651 gttcagcttt tgcagggtgg gtacgtgttt gggtatagct gctttcagat
40701 tgttccatta tctgtactcc caacaaccct gccggatata tttgttggct
40751 ttcactcatg gaggtcatt tccttgcatt atttgtcact tttgattgtg
40801 agctcatctg cagtaggagt tgtttatcct gtgtgactcc catgtgccct
40851 ggtctgtaac aacatttcta cagagtggta tctactagga tcctggggat
40901 ttcaattatt ttagacaaaa tattatgtca gtttctctgc ctggggctac
40951 tggacctcag aggtagtata catctgaact gtgtacccat tcaatgcaca
41001 ggccttaggg attccatatg tgacaggatg ctttttttcc ttgcctttat
41051 gttgtaagac agacagcctg cctcctcaga cttccctgag ctgggtgggca
41101 gcattttttg aaccctcttt taaggagggg tcatctctct gatgctcttc
41151 ttttttgctg agctcagatt aacattttct acctgggtgc agtggctcat
41201 gcctgtaatc ccagcacttt gggaggccga ggcaggcgga tcatgaggtc
41251 aggagatcga gaccagcctg accagcatag tgaaaccctg tctctactga
41301 aaatacaaaa aaattagccg ggactgggtg cgggcgctg taatctcagc
41351 tacttgggag gctgaagcag gagaattgct tgaacttggg aggcggagggt
41401 tgcagtgagc caagattgca ccactgcact ccagcctggg caacagtgcg
41451 agactccgtc ttaaaacaaa caaatgaaaa aaccattttc tctcctccaa
41501 gcaagcctaa ggccacatgt cctattctca cacagggtgt ttaatttcag
41551 cccagtctct agagcctaaa tttggctcct ctgcaatttc catgggctct
41601 aggtttccag cttatactta ctgctttggc tgtgggttct ctcttccatt
41651 tctaccacgt gaggatttcc ttttattttg tttaaagaca gcacacatta
41701 aaaaaaactt ttgttggtat cgtttaccca acatttctat gttttttttt
41751 catgggaagg ccatctgcca taatgctaga agtcctgaac ttgttttgat
41801 atgtgacct gagccttccc ggggtgctgg cagaatgggtg acatgattag
41851 atctgttctt aggaagatat caggggcagc agcatttggg tagaggtagc
41901 atcctgaagg caaggagaca ggttaaagaa agaccagagg tgtcttttga
41951 cccaggtaga cactactgac acattgggtc gcgcaaacag ttcaccacag
42001 ctgccctttc atgccatagg ctcgattttt cctgttctct tggcaatccc
42051 tctggttcag ccaggacagt agcctcctct ctgacaccaa gatggaccat
42101 gctcttcccc agctccaaat gtgtgctcct tgatggaata gacacagtgg
42151 acaagaggac cctcaggtgg ctttgagtat ttgcctcaag cccatcatcc
42201 ctgaaggcag atgtgcttga tcttaacaga gccaggaag tctccctca
42251 gatacaattt tggaaaaagg acaatgaaaa caaaaagtca taactgtcta
42301 ggttctttgc attttgaaca aagaattgga caaaaagcac aaacaaagca
42351 acaaaaagaaa agcacagatt tattgaaaca aaagtacgag acacagagtg
42401 ggagggggct cgagcaagca gctcaagagc tttgggttaca gaattttctg
42451 gggttttaat accctctaga ggttttccat tggttacttg gtttacaccc
42501 tatgtaaatg aaatagtggc ccacgatcag tctgattgat tgcagaaagc
42551 aactaatcag aggctgaagt gaagatacaa agttacaccc tatgcaaagt
42601 tctgattgat tgcagaaagt gaccaatcag aggctgaagt gaacttacia
42651 agttatactc ctctgcaaat gaagacttgg cctgtgacca gcctgactgg
42701 ttgcaggagg ggaccaatca gaggtacttt cagttttcat ctgcaatgca
42751 ggggaagtgt gggggttgca aaggagtag cctctgatcc ttttgttatt
42801 tgggtgtgga gaggtgggct tttctttttg attcagttct aggaattcgg
42851 cgcgaaatcag ccttaggttc cctgcctcca gaccctactc tcctgcctca
42901 atagccatgc ccagttagtg ttaactgtaa ctccctgctg gtctgcctcc
42951 tgctaggagg gactgaacat caaatcactc gcatcgaatt actcagcagg
43001 tgagtctctg ggatgataac cacacaattc tctctgcacg aaagatgggt
43051 ttgagagcct cagagtctgg gggaaagctc gccagccatc cacttactgg
43101 cttactgttt gcctgaagta agcatgggaa tcccacaggg tacaagggtcc
43151 cgcataccct tctgggattt ccgatgccct ctttgcatgt gctctgggtcc
43201 atcaagctcc catgccagat gcagtgtctg tagttgcagc agtgaccata
43251 gcagtggcaa cagttctaca gggtcacaga actttaggga agcctcctaa
43301 caccctgct cttcgtagg ctgcagctgc tttcctgtcc atgatttaag
43351 catccttaga tccagctgt ccaggaagct ctcccacgc acctcagcct

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

177 / 338

```

43401 aagtccagcc tcccactgag ctcccatggc atgactgtcc aggccccagc
43451 gcccttgtgc cctaaccggg gctgttccat gttgatatgt ggtctcctca
43501 ggcattggtgt acactactag agaggagggg ccaagtcttc catccttctg
43551 accctcttca aagcctggaa caaaattaga tattgagagt tgttcattaa
43601 gtacctgagt gaataatgaa taattgatta aagccagaga atcgggtatc
43651 acagtaagga gtccctgggt cctccgaact ttccagaata aaattccaaa
43701 atgagaacac caagagggtc cctggcttga gagccaaaat ggcggcacag
43751 acctatatct caggcacact ttgtggtaaa aacaagaagc cagacacact
43801 ctttctagac acacgtcaca cccagaatga cttagctttt agtctgtgga
43851 ggaaaagggg tggaaagtgg agacctggaa ccagatgaga agtcaacggg
43901 agcagtaagt tcagtgtgtg cctcctgtcc cagcacctgg gtcaacatgg
43951 gcaagacctg atgggggtgg ggagatgctg acctttgctg ctgcctcttg
44001 ggctgttaag agcaaataca atttaaaaaa aaattttttt ttaatttttt
44051 tttgagacag ggtctctctc tgtcactcag gctggagtgc agtggtgcga
44101 tcttggtcct ctgcagcatt cacctcctgg gctcaaatga tcctcccacc
44151 tcagcctcct gagtaactga gactacgtgg agtagccacc ccactcggct
44201 catttttaat tttttgtaga gacatgggtt tgccatgttg cccaggctgg
44251 tctcagactc ttggcctcaa tgaatcctcc tgccctggcc tcccaaagtg
44301 tggggataac aggcattgag cactgcgcct agtctgcaa ttcacattga
44351 aagaagaggc ctgtttgata gatcagtagg gtgactataa ttaacattaa
44401 tctaataatgc atttcaaaaa agctacaaga gaataatttg aatgttccgc
44451 tgcataaaga aaggataagt gtttaagggt atggatattc cagttgccgt
44501 gatttgatta tattaatgtt accaaattat tacatatact tcaaaagtat
44551 atacatctat tatgtatcaa ctaaaaaaat aagagtttta attctccttg
44601 tggaaaataa gggaagagac ttcacctccc tcccttttct tagagatttt
44651 actttaggaa acttcaactt ttaagttctt tcctctgtct ctttgagatg
44701 tatgtaaatc ttttaaaaag ctaaataagg gccagggtgag ggggtcacg
44751 cttgttatcc ccagcgcttt tggaggctga ggtaggagga ctgtttgagg
44801 ccaggagttc aaagttacag tgagccatga ttgcatcact gcactccagc
44851 tgggcagcaa caggggccct gtgcttttaa ataataataa ataataaatt
44901 taagaagcta aataagcctc ttggcagctt taggacttag aaatatcttt
44951 ttcaaggacc aaggagccaa ccttttgaaa cgtagtcac cagagtttca
45001 atgggagggg aggagcctga cctggcaggt gcctcgctct aagttgcaa
45051 actacctcct gtcctaaagc tatgagaggt ttgtttttcc tttgaataaa
45101 gccaattagc taacatagat ggtgacatca gttaccaggt gaatctgtgg
45151 taaactctgt gcaacaaatg gggctgtcaa gtcctcttac ttgaggactg
45201 actagctatt gtctatgtgg agaacctgtc tggaataggt cacctctgca
45251 tgactctata aaagggtgag gtctctttct gtctttgtag tctcttaggg
45301 gattgtgtgg gatgtgcatt acatttttag tgagtgttta ttcactaatg
45351 aaacagtttt ctttctccac tccctttgtg gagagatttc ctgggttggc
45401 agaggttgac ttttaataat attttctcca caggcccatc gtcccctgac
45451 tctgtgagct ttcagccaca cccaggatca gtcagatcaa ctgctcaact
45501 caaaggcatc ctagtgagca agggaaaact caagggtggt tttggagggt
45551 gcttagttag gaaatgatga acacagttca acatgacttg cggccctccc
45601 catgggcaag agtatgaaca cctgtgactg ttcctgaact cactaaggaa
45651 agtcttttac agtgtgtgaa ggggtgacct gagtttcctt cccacatggc
45701 tcataagagc agcagctcag gaaaaacaaa acaagtattt atttatttat
45751 ttattttatt atttatttat ttattttatt ttagagacgg gttctcactc
45801 tgtcacccag gctggagtgc agtggcacia tcatggctca ctgcagcctc
45851 aacttcgtgg gcaccagtga tcttcccatg tcagccttct gactggctgg
45901 gactacaggc atgcccccca tgtctgggta ttttttaaaa atttttatta
45951 gaaggccagg cgtggtggct cccgcatgta atcccagcac tttgggaggc
46001 caagggtgga ggatcacctg aggttgggag tttgagacca gcctgaccaa
46051 catggagaca cctcgtctct actaaagaaa aaaaaaatat tagctgggca
46101 tgggtggcgca tgcctgtaat cctagctact cgggaggctg aggtaggaga
46151 attgtttgaa cctgggaggt ggaggttgtg gtgagccgag atagtgccat
46201 tgcactctag cctgggcaac aagaacagaa ctccatctta gaaaaaaat
46251 gtttttatta gagacaagtt cttgcttttt gccaggctg cttttgaact

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

178 / 338

```

46301 cctgggctca agtgatcctc ctgccttggc ctcccaaagt gctgggatta
46351 caggggtgag ccaccatgcc tggccacaaa acaatttttag aaaagaaaaa
46401 agccttttat tttcacttaa ttgtcttgat ttccactcct ctgagacatt
46451 cacccccagg aaacttggct gtgtagctat agatgataag tattttttaa
46501 ttctccttga gaaatggcat tattctgcct tagatctcga actagaacct
46551 gacaatgagt cctcctgctt gcccttgatc tggggcacac tgatattttt
46601 gcaggttcct tcaagcatga aattgcaaac ctaaacaacac tggttctcat
46651 aaaagcactt ccaatccttc aaataaaagg aggcagccta attataaata
46701 atctctggat tagaaacatc acacaccaca tctcttgcaa tttttatttt
46751 acctcgtctt tgaattccat gaacttcaat ttcattgtgt gttaagtgtc
46801 ggcttaacct ggagagaaaa tataaaggat ataaagaaat gtatataaag
46851 atttctcaga gttataaaaa tacttctgtg agagaattgc taaaaaagg
46901 gagatgcaag accacccttt gtccaaactg gcattgtcta aatgcagttg
46951 agtgtcttgc cttagagtct gggcttgaag tcagtcagaa ctgactagaa
47001 caccagccct acccctcacc aatagggtag ccttgggcca attatttaac
47051 ccttctaagc cgtaactacc tcatccgcag aatggaaatg atgctaggaa
47101 gtacctgaca aggttcttgt gagaattaag tgagatcctg tgttcatcta
47151 gtcaacttgt atttctttat ttttaattgt attatacatt tttagagatg
47201 ggggtcttgc tctgttgctc tgggtggagt gcagtgggtg gatcacagtt
47251 cactgtattc tcaaactctt gggcccaagg gatcctctgg cctcagcctc
47301 ctgagtagct gggacaacag gtatgggcca ccatgcctgg ctaattaaga
47351 tttttaaaaa atagaaatgg ggggtctcacc atcttgccca ggttggctc
47401 cacctcctgg gctcaagtga tcctcctgca tcggcctccc aaagtgctag
47451 gattacaggc atgagccact gtgccaggcc ttgactcgtg tttcttgagc
47501 aatcactga gctatgttta aaagatacac agatgaagga catataaacc
47551 cagtccttgc ccttaactta cagccgagct ttcaataagg gagagctatt
47601 aatattaagt cccactgatg gatgttaaaa tgtaaataaa gcatagagtt
47651 cttagggcct aggtctcttct tgatgttccc ttccaccatc cttggaactc
47701 tccagaacga gacttgtttt gggggaagga ggggtgcctg gctgatggaa
47751 agtgcggggg tggggggcga aggaagtgca gggcctaaga ctgttgttct
47801 taagcattct ggaggctgct ggacatttag ctcccagcct cctctctacc
47851 acaatgaaca cttctatccc aggacttctc ctctccccct ccttagacca
47901 aagctcttgc agtctgagta ctggaaagcc cagcatgagc ctctccacgc
47951 acttcgaatg caccctcctc cagcaaaggc tggttaagttg aaaagacagg
48001 aaggatttca gaagactgga aattgaatcc cacactcagc tcctctttga
48051 aactctacaa tgagtgttct attccttgga cttcagcttt tcaaagaaaa
48101 catccctaga agaaggacag cagggatagt catttacctt ttaatgagaa
48151 tgaattatcc agcccttttc aggacagcgt ttgtgaggca gcaaagctaa
48201 atgttgagaa gggcctgaaa gaatgatgga ctgacgctgc caaaaagaga
48251 aagggcggga ctttcacagc tttgcctaag gccattatga atttggaaca
48301 aataggtatt atcatccaca caggcaggac ctctgggta gggggctgcc
48351 accttttcca ggcacttggg aggggtggct ccagctgttg agccacagaa
48401 ctaaataatta tagctggccc aggagcaccg gtttaggcta gggaaggaa
48451 aataatccgg cttctccttc ctctgaccct gagatttcgg ccaagtctcc
48501 attagagatt ggcctcctag agtgtaaaac aggggtggaca agtttgagaa
48551 atggatctgg gatgggggtg ggaatggcaa atggaaaaaa ggcagcacia
48601 actctttatt gtcattcaga gaatgctgag gtccaaggca caaccagcca
48651 gaggggttgc tcagcctttc actggaaaag ccacattttc ctcagttgta
48701 tcctcacttc gagtgaggct tctccaaatg cagaaggaca gcatcatgac
48751 ccaggccgag aaagtatgat tgcaaaatc catgggccta accctagtgg
48801 gggagggaat ccattctttt aagccagggt ttaaaactct tcaagcaagt
48851 catctgcaaa ggtaccgctt ctaccatttt aaagatagga ttatgttccc
48901 taggacaact ggatgagccc taggaaccaa gaaccctgtg cagctggggc
48951 agaagcctga gggttccttt gttccccccac agctgtaggt cacaagggtc
49001 ttacacaagc tttgggggtg cccaccccca cacccttctt tcccctcagt
49051 cagtgatgac tcaagagggt ttgggaagga gctcagggaa cactcaagca
49101 gcaggctcag cttacggcac ttctgatgca ttttctagat aacattagtt
49151 gctggttcca gacaggactc agaagtatgg acattcactc cccaggcttg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

179 / 338

```

49201 gtcattcagtg ccctgtgagt tcaggaatac actacctaaa ggagatcttt
49251 aggaaggaga aggagaaaag aggagaagag ggaaggaagg aaggcaggaa
49301 ggaaggaagg gagggaggga gggaggagg gaaagagaaa gaggaagga
49351 gagagtgagg aaggaaggaa ggagagagaa agaagaaaga aagaaataga
49401 gaaagcaaga aaaggaaaga aaaagagaaa gaaagaaaga gagaatggaa
49451 ggaagggagg aaagaaggaa gggagggaagg aaggaaggga gggaggagg
49501 gagctggccg gacgtggtgg ctcatgtctg caatcccagc actttgggag
49551 gccgaggcag gtggatcacc tgcagtcagg aattcaagac cagcctggtc
49601 tacatggcga aaccctgtgt ctactaaaaa aataaaatta gctggacgtg
49651 gtggcagatg cctataattc cacttacttg ggaagctgag gccagagaat
49701 ggcctgaacc cgaggaggcg aggttgtggt gagccaagct cgcgctactg
49751 cactccatcc tgggcgacag ggcgagactt catctcaaaa aaaaaaaaaa
49801 agaaaagaaa agaaaagaaga gagaaagagg aaaaagaaga aagaaagaaa
49851 aagaaaggaa gaaaaagaga gtcattgaga cttgtggctt aatgttgtga
49901 atgtatatgt atgtttaact gtatatataa ccgtatgtat atgtatgtct
49951 caccagagag agaaagggat taaaaaaaaa aaaaagccaa aacctacaaa
50001 ggcaaagcag aagaaagagt accagactgg agatagcaat ataattacag
50051 aaaatgggaa gtgaccgcac agaccagaga aatcagaaac ctacatctgc
50101 cgggggttgg ggtgtgtgtg tgtgtgtagc ctcaaggatt tactccgtgc
50151 cagccactga tctaagggtt gaaggatatat tcaactttcg gatcccccac
50201 aaatgctagc aggatttgta ccctaataat ggagactagg cacagaaagg
50251 ttttaatttgc cccagggttac acagcagaat ctgaacctct ccgagggttcg
50301 gctctagaga ccacgcttga cacagcctca cagtcatgag taagccctta
50351 gggaccaaac cccaggagac ctcaggctgg cagatcagga gcaccgaagt
50401 gggcctggaa acaggactgg gggaaagtct ggaggaaaag agaccctcgg
50451 aatccttccc cattttactt aggcaggcag ctgccctctg ctcccgggca
50501 gaaggctgtg ggtttcttta ggaggctttc cccagttgag gatggggtga
50551 gacacctatt aaaacaagag aatttaggcc ggacgtgggt gctcatgcct
50601 gtaatcccag cactttggga ggctgaggcg ggagaatcat ttgagcccag
50651 gagtttgtga ccagtctggc aacataggga gaccctgtct ctaaaaaaaaa
50701 aataaaatta gctgagtgtg gtggcgggca cctgtggtcc cagctacttg
50751 gggctggggc ttaggtaggg aggatcactt gagcctggga ggttgaggct
50801 gcagtgagcc gagatcacgc cactgcactc cagcctaggt gacagagcca
50851 gatactgtct aaaaaaaaaa aagaaagaaa acaagagaat tcagtgaaaa
50901 tctgaattca gctcccatgt gttggcagtg aggcccacac accccaggcg
50951 ggggctggga gctcctctcc aggagtgtg attggctggg gagaagactg
51001 acggcactag catccgaagg tcctgtctg aattgctggt tcaccaactg
51051 acgagtcctg gccacataca cggggctcac acaaccttct gtcagctttt
51101 tgttaccttc cccttttttc ctacactttt attatggaaa aatgtaaaca
51151 tacagaaaaa caacacaaag agtacaatgt gccactccc tctgttctgc
51201 agttgttagc accttaccat atttatcttt agatatgtgt gtgttgtgta
51251 tgttgttttt cttttccttt tttttttttt tttgagacac agtctcactc
51301 tgttgcccag gctggagagc agtggcacia tctcgagtca ccacaacctg
51351 cacctcctgg gttcaagtga ttctcctgcc tcagcctcct gagtagctgg
51401 gattacaggc atgcactact agggccggct gatttttgta tttttggtag
51451 agatgggggt ttgccatgtt ggccaggcta gtctcgaact cccaacctca
51501 ggtgatccac ctgccttggg ctctcaaagt gctgggatta taggcatgag
51551 ccaccacgcg cagctgtgta tattgttttt ctgaaccatt tgaaaatgag
51601 ctgcagccat aatattttcc catacatatt tcagtatcta tcttcacaga
51651 ataaggacat tatcacacat aactaaatcc atgacacacc caagaaaatt
51701 taacacaatt ttctaattgt gtctcatgtt gaatccgtat tctagcctcc
51751 tgcattggcc ctagaatgtc ttttccatgt gcacacattg catttggtc
51801 ttatgtctct ttattctcct tactagaata ttcccaacct cttgttttcc
51851 ccacaatgct gactttttga gtaggccagg ccatttagtg gaaggagcat
51901 ctcatatctg atttgtctga ttgtttcctt gtaccgtcat ttaacttgta
51951 cctctatctc ttgtaaatcc cataaactgg aagtgagatc taaagtcttg
52001 actagattca gatcagacac ctttgacaag acacagagct caagtttttg
52051 tttttttttt gttttttttt gagatggagt ctccctctgt cacctaggct

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

180 / 338

```

52101 ggagtgcagt ggtgctatct cagctcactg caagctccgc ctcccgggtt
52151 caagcaattc ttctgcctca gcctcccaag tagctgggac tacagggtgcg
52201 tgccaccacg cctgggttaat tttttgtatt tttagtagag gcgggggtttc
52251 accgtgttag ccaggatggg ctcgatctcc tgaccttggtg atctgcctgc
52301 ctcagcctcc caaagtgtcg ggattacagg catgagccac tgcgcccggc
52351 tgacacagag ctgaagttct atccttcatg tcgcattgta tctggagaca
52401 gcgtctgcat aggtcactag cagtgaagcg aagtttgatc acttgggtgga
52451 ggcagtgact gctggatctt tccactgtaa aggcacacgt ttcccttcgc
52501 caatgacctt cgggtaacac acccgggcac agtgtgaata tcctgcgcaa
52551 tgccttactc agatatggac aataaaggat gacaggaaac ggagaaaaag
52601 ctttcaacat gaaagagtga gacagaaaca aacaggaaaa agctttcaac
52651 atgaaagagg gagacagaaa caaacaggaa aaagccgact cagaggaaag
52701 agagaccatc gcaggaagca aaagaaaact tcccctaaac aataaatagc
52751 cttaaaagtg agaatatata ttacattcat aattgacaag attgctatga
52801 aaaaaatatt tatttatatta ttttgagaca aggtcttgct ctgtcaccca
52851 ggggagtgcg gtggcatgat catggctcac tgcagcctca agtgcctggg
52901 ctcaagcaat cctcctgcct cggcctccca agtagctgga actacagggtg
52951 tgcataacca caccagcta attaaaaaac aatttttttg tagagatggg
53001 ctctcgctgt gttgcccagg ttggtcttga attcctggcc tcaagtgatt
53051 ctcccacctc agtctctcaa agtgctggaa ttacagggtat gagccactgc
53101 acctggccaa aaaaaaattt caaaaacaag atagtgtctt tgggctccac
53151 actgaaaaat ccaactgcaa atttgaagggt aaagtacaaa caaaaatttc
53201 ttataaagta gaacaaaaag atgaaaaata gaaactgagg ccagggtgcag
53251 tggctcacac ctgtaatccc agcatttttg gaggccaagg caagcggatc
53301 atgaggtcag gagttcaaga ccagcctggc caacatgggtg aaacctcatc
53351 tctactaaaa atacaaaaat tagctgggcg tgggtggcac agcctgtaat
53401 cccacctact tgggaggctg aggcattgga attgcttgaa actggaaggc
53451 agagggtgag gtgagccgag atcgtgccac tgcactctag cctgggtgaa
53501 agagcaaac accatctaaa gaaaaaaaaa aaaaaagaaa agaaagaaaa
53551 atagaaactg aaaacacagg aaactaaac aattagtcca aaagtttagc
53601 atcagaatca tggcagttcc agaaagacaa aagagaaaaa gtagagggag
53651 tgaattatca gagaaataaa gcaagaacag gccagggtgt gtggctcatg
53701 cctgtaattc cagcactttg ggaagctggc ggggagcgga tcacttgatc
53751 ctaggagttt gagactagcc tgggcaacat agtgagaccc catttctacc
53801 aaaaataaaa aagcaaaatt agctgggcat ggtggcttgt gcttgtagtc
53851 ccagcaattc aggaggctag gaggtggagg ctgcagttag ccagccatgt
53901 tcatgccact gccctccagc ctgggcgaca gagtgagact ctgtctcaca
53951 aaaaaaaaaa aaaaaaaaaa aaaagaggaa gaaataaaga aagaatgaaa
54001 ctatagtata tgagatgatg ggtatgttaa tttgcgtgac tctagtaatc
54051 agttcactat atacatcaag ataagtatat caaaatatta gtttgtgtac
54101 cttgaatata tgatatattt aaatataaaa ttacatacaa tttaaaaaat
54151 accttttaaa aaacaaacac aaaagcacaa tattgtgaac tttctgaaca
54201 tcataaaaga ggaaaacagt tcacatacaa aagatcagga atcagaatgg
54251 cattaaactt tttaacagca aactaaaaat ctaaaggata atggagccag
54301 ggccgggagc agtggctcat gcctgtaatt ccagcacttt gggaggccga
54351 ggtaggtgga tcacctgagg tcaggagttg gagactagcc tggccaacat
54401 ggtaaaaccc cattcttacc caaaatacaa aaatcagccg ggtgtggtgg
54451 cacatgcttg taatcccagc tacttgggag gctgaggcag gagaatcggc
54501 ttgaaccgga gaggcagagg tcgcagttag ctgagattgc accattgcac
54551 tccagcctgg gcaacagagc aagactccgc ctcaaaaaag aaaaaaaaaa
54601 aaaagaggat aatggagcca ggtgccatgg ctacgcctg taatcacagc
54651 actttgggag gctgaggcag aaggaaactc cgaggccagg agtttgagac
54701 caacttgggc aacaaagcga gaccttgtct ctacaaaaaa taaaataatt
54751 agccaggcct ggtgtcatgc acctacgtag tcccagctac ttgggagggt
54801 gaggcaggag gatggcttga gctcaggagt ttgaggctgc agtgaactat
54851 gatggtgcca ctgcactcca aactgggtga cagagtgaga ccctatctct
54901 aaaacaataa ataaatgggg ccgagtgcag tggctcacgc ctgtaatccc
54951 agcacttttg gaggccaagg cgggcggatc acgagggtcag gagatcgaga

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

181 / 338

```

55001 ccatcctggc taacacagtg aaaccccgct cctactaaaa atacaaaaaa
55051 gtagccgggc gtggtggcag gtgcctgtag tcccagctac tctggaggct
55101 gaggcaggag aatggcgtga acctgggagg cggagcttgc agtgagccga
55151 gatcgcacca ctgcactcca gcctggggcga cagagtgaga ctctgtctca
55201 aaaaataaaa aataaaaaat aaaaataaat aaataaataa ataaataaat
55251 aaatgataat ggagcaaagc cttctaattt ccgagggcaa tttgaacaac
55301 aaaattgtcc agtgacccat aggataaaat aaatgagtca gtgctaataa
55351 aaataaataa ttgaatgact aaataaatgg agaagaaata gctctaccct
55401 acaagagaat tccaattaat aaatgtaaaa gaaatgagga aaaaagaaaa
55451 tcactattag aacactacag taataattgt tgcaggcaag attcatcaat
55501 gaatgctata attagttggt aaaagtttga ggattaacag gatatttaca
55551 tagtctcaaa gtatgtccac taatatattt attatctgca aaaggaaaaa
55601 actttatgat ggagaaacta gcagaaacca ctttcaccac atgatcaagg
55651 ttagcatcac cagtaataag tctgatcaac atcaagcacc caacacgatg
55701 tactgagaag ggcacgttac ctccatggta ttcttgcccc aaaccataa
55751 ctgtctaadc atgaggaaaa catcaaaca atccaaattg agggacattc
55801 caaaaaaata actgaccagt ctttttcaaa actgtcaaag tcatgaaaga
55851 caaagaaaga ctgcctagga caggaagaga ctgagaagac ttagcaacca
55901 aagcaaagtg gaatctcaga ttggatcatg gaaaaatcaa acgacattgg
55951 aaacattggt tatatctgaa gtctgtagtt tagtaagtag tagcgtacca
56001 aagttatttt cttagttttg atcattgtac tatggctatg tgagctgcat
56051 aaagacatta catagaactc tgcagtgtct ttgcagcttt tctgtaagtc
56101 caaaattatt taaaaataga aagtaaaaat tcagaagagg aattatttcc
56151 aacctagaat tttataccta aactataaat caattgtgag catagcataa
56201 tgacattttc cagacatgca agggctcatt cactttctgt taggaagcga
56251 ctatagtttt gctcccttaa aagaatgaac caagatgcag acatggcatc
56301 taggcaacgt ggaattcaac actagaggga agcaaaggta tttccagaac
56351 tgtggctaag cagaggcttc cagaacaacc agtatagatg ggagcaaggg
56401 gactaattgt tcctagagga aggatgttgc aaaccaacca gctaaccaac
56451 caatcaccac caacagttta cctatctatt tgattatatt ggggaagttt
56501 tccgttttgg cagagtgtgg gattgaatta ttgataagta tgcagaaaac
56551 taagcaaaca gaaaaaaaaa aaagacaatg atcagctctt gggaaaacaa
56601 aatgttgccc tgaaaagaaa tgtaatcata gtatcctaaa tgactcactt
56651 gtggataatt tttccatagt cagcataatg taaatactaa atactcattt
56701 aactaaatat ttatattggg aggggggaag aagggaataa tgtgtgtgag
56751 tggagtatag ggataagaat taaattcttg ttttcaaagg tgagaagcaa
56801 gaaaatctct gtccaatggg ctcccagccc caaggcaagc tgcacatttt
56851 aggtatcatc tgggtgggaa tagtgagggt ggtgtggcag atgtgaacac
56901 acaggggaat cctctcttct gctgtcctag gcaaactggg ggctagtgga
56951 aggaagccaa ggctgagtgg gattagggct aggaagatgg gccaggctgt
57001 gctggctcgt gatgcaatga cctcaggttc tatttcagca gggttcagca
57051 tctaaggaga tgccatctag ggtggagtgc agccacaagt caaagcagct
57101 gatagctgtc acgagggtgc tgtggcctgg tttgggcctt gttttcaagg
57151 taggttctgt gaaacactac ttctgaagga tgtaaagaac tgacctgaaa
57201 agagggttcc ttggtccaac atgcttgaga aatgctggat tcaatgacac
57251 taaacaagtt tctccaatgc aggacatctc aaaacccttc atatgattat
57301 gggaatatcc aatctctaag gcatggcatg tgggggagat ggtgacagag
57351 tgtttgatca tgaccatgga accctttcta tgcagaactt aacactggac
57401 tagagaacta ctgacaaccc tttccagagt aggggtcggc gtcagtcagg
57451 gccggcacta acaggaaaag cacctggttc cttgtatctt cacatcttta
57501 ccatcactgc caaccctttt ccactggcta gggctaatta gggttttggg
57551 gccaacaggc aaatgaactg aggtttgaga caggctctgc tctcatgaaa
57601 aactgaagtg ttaacaagac agaaatgtag gcagaggccc agttataagg
57651 tacagaggca cccagcaggg gtgggactca gtggcccca gacctgtagc
57701 atgctgacag gccacgcaa agccaagatc aaacctacag cagcccttct
57751 ccatcagccc agcaccctga gtcgcattcc ttggtcaggc tctggaaatg
57801 gtagaggcag ctgctgtggg aaggtgaacc ccgggggttc tggcccagct
57851 tgtttggggc aaatgcagga gctgacaact tacaatcaca gcctgtcccc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

182 / 338

57901 actcacctgc tacagaggac tcagtcattt catttccctg atttctccag
57951 gtctctagtg ggggttccct ggtgccgaca ccattccatc caggagctga
58001 tgaaaacccc tcttctctga agcacaggca gaatgtatcc ttagaaagga
58051 agccaggggg ccgggtatgg tggctcacgc ctgtaatccc agcactttgg
58101 gaggctgaga tgggtggatc acctgagatc gggagtccaa gaccagcctg
58151 gccaacatgg tgaaacccca tctctactaa aaatacaaaa attagccagg
58201 catcatggcg tgcacctata atcccagcta ctcgaggagg tgaggcagga
58251 gaatcacttg aaccggggag gtggggattg cagtgagccg aggttgtgcc
58301 actgtactcc agcctgggtg acacaggagg attccatctc aaaaaagaga
58351 gaaagaaaga aagaaagaaa gaaaacacag ggttgctaag gccaaaggcat
58401 cacacactta acaccaccaa gtcattccag agtgaaagga acgcaaatcc
58451 agtctcaggc tgtctgattg acgaagcttc tggatgcaca gcttttacat
58501 ttttataattt tattctctgt gatgtgccca gctcaggagc cgcaggtttc
58551 ggccagttgt tctgctctag tcctgagcgc cctggcatgt ttacagttc
58601 tgagactgtc ctatattcag ggcctgtacc atggacagat gcaaagccac
58651 taaatgtgtg agctggaata gacaagaaca gttatattga gtgtttacta
58701 catgctcgtc ctcaaacgt tacgtgctaa gcactaggag tcgcagtttt
58751 tgggggtgcag aggctgagga tgagggcagt tacatatctt gtcaagtctc
58801 cccctggcaa ggggcagttg taactcagca cttcctgggtg gcacagcctg
58851 ggctctgggc tcccccccca acgcttcgca ggtggcctgg ctgccactgt
58901 tccccatggc actgggcagg ccgctcacct tttgttgttg ccaggctctt
58951 cgataatccc tgtccatggg gttcatgaga ttatagcgag gatcagataa
59001 tgcagtgagc agaaaagtgc tttggagtgg agtgaataca cacatggggg
59051 gccaatcaca gccagtcctt ttcctagcta cccaacaatt tggcatccca
59101 aagggatcac cctctctagc gcgtgtttat gagctgacta gaaaaaggca
59151 cgtagacgca agaagacaga agtgtgattt tgaaagtggg tacccttta
59201 cccagagctg gaaggcatga aggaggtaag ggtggagacc caccgtctag
59251 aggctttgaa ctgaaacctt ggaagagtga actctctcag acctcatggc
59301 tgccccacc cctcccaac ccttccccta aaggctttag acactaaaaa
59351 taccaccaggc acctgctgcc ctgggaggca ataaatcatt ggccatctag
59401 caccagaatc cgggccaaca tggcagcgga cacagacca agggatcagt
59451 tcccttcctc ccaccaggc caccatcaag agcctgcctg ctgctggggg
59501 tggggggggg ggggcagggg ggtggggggg ggcggggcag gggggcgagg
59551 gagtgtgttc agaggacaca ggacctgctt ggaggcttct ggggccagaa
59601 gtgctaagtg ggtgtggggg aagcgggaag gagtgagtca ctggaggggg
59651 tcctggggaa agggcggtgg cccctgtgcc gcgacagcca cctgctttat
59701 tatatagaat aaggtcatct catcaaaacc acagctgagc cgcccaacga
59751 ctgtcctact actccagggc caccagatgt cagtgttaaa gggatcatgg
59801 atattggtga tcagatgtca ggacagggac tgaatgtatg gagactgttc
59851 aaaccagggg cgctcagggg caaacctgtg aaatcggttt cctgcttcca
59901 gttcttagca attagatcct acccccaggg actgaaatca gtcccactcc
59951 caaaaggtaa ccacaaaatg ccaaagatct gttcatcttc actctcagca
60001 caataccatg tatcataaat gagaggcaaa ggcagaattt ctaatttact
60051 tattattaaa atgcatcatc aacaaacaca ccatagtggg gaacacgaag
60101 cgatgtgttg cagtgtagtg ttgctcaaat gtgaaaaagc agcgaccctt
60151 gagagtctcc tttgttttgt tacctctctc tctagaaaaa gcactgcatt
60201 gtaagtgact tggccaacc agtgaaaaat acaaacagga ccattcatag
60251 aaaaaaagt gaagaataaa attcagtggg cactcaagta taataaatag
60301 acccaaataga tcagaaatgt gtttatgttg attgttttag agcattaaaa
60351 aatccaaaaa tttgggaggc taagggtggg ggattgcttg agcctaggag
60401 tttgagacca gcttacacaa catagtgaga cccatctct acataaaatt
60451 aaaaaattag ccaggatagg tggcatatgt ctcaactact caggaggctg
60501 tgggtgggagg atcccttgag cctgggattg aggctgcagt gagctgtgat
60551 tgcaacactg cccttcagcc tgggcaacat agtgagatcc tgtctcaaaa
60601 aaaatgctat gtggccttgg ggaggtaatc tgacccatgt gcctcagttt
60651 ctatgtctat aaactggacc tctccaaagc ccctttaagt aatgtaagat
60701 tctaggattc taagtgtgac tttgagaggg tcctgtggag ttgggaagg
60751 gaatgtacaa aaattccaac ggaatgccac ccagggccac ttcagcaaca

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

183 / 338

```

60801 tagacaaaga ctgagaattc agaatgcctc cctcccaact cctcagggac
60851 ccaggggaagg cttctggaag acaagggatt acaccctat gacctaatgc
60901 tgtagcatga tcaaaatact tgatctcttt ttaagagctg ggaggtggcc
60951 agtcagatat tttaagatgt caacttgatc tgtatcatta tcagcatcta
61001 aggaaacatt ttgtttccaa aaacaaatga tctactgctat ctataaacct
61051 ctgtaagcac atgaaattct caagaatggg gccttttccg taatactctt
61101 cacagctggt tttgtgtgta cacgtagaac tgctgcttcc tgaacgataa
61151 gtttaggcca aggaagaaag aggggaagaa ggaaggggga gaaagtcttt
61201 cttcaggagt ctcccaaaa tgtaatatata tgcacagaaa aaagtttgaa
61251 aaatagaaac aatggcaagg agcagtggct cacacctgtc atcccagcac
61301 tttgggaggc ctattgcttg aaccagggg tttgagacca gcttgggcaa
61351 catgatgaag cctgtcttat ataaaaaat acaaaaatta gccgggcttg
61401 atgggtgcttg cctgtcgtcc caggtacttg ggaggctgag gtgggagggt
61451 cacttgagcc caggagggtg aggtggcagt gagccgatac catgccactg
61501 cactccagcc tgggtgacag agtgagaccc tgtctcaaaa aaaaaaaaaa
61551 aaagaaagaa aagaaaaaaa agaaactaac tttgtaacag gtaactgtgg
61601 ttctgtctga tgatactgga ggtaatcatt attatttttt gcttatctga
61651 atttttcatt tttcagcaaa gaacatgtca atttgcgtaa taattttttt
61701 taatgcaaat acatgcagga agggtaatac atcaaatcat tatccgttac
61751 taactccttg atgttagtga atgggtgtga tttgtttcct acactggtaa
61801 gaagtggatt ttgttaggtc tgggtctgc agatctcaag gtggcactta
61851 aggcagtaga aaggaagag agaagggtga gaacctcaa aaggaagtg
61901 ggtggagaag gttggctcac acctaggcc cgccagctgc tgcctgtaac
61951 cttgagggca tttatttatt tttatttaaa aaattattta ttttagttt
62001 ttgtagcaat ggggtccac tgtgttgccc aggctggtct tgaacttcca
62051 gcctcatgtg atcctcctgc cttggcctcc caaagtgtg ggataacaag
62101 tgtgaaccac tgctcctgac cagagggcat ttaataacaa ttaaggataa
62151 taacagttaa ccttttctca tgcaaggctt tgcccaatta ttctctttat
62201 aaataacttc tctttagagt caaactcaag tgttcataac aaacaagaaa
62251 aacagcacat ggattttaat aactttaaaa taatgaaaaa caaatgattc
62301 ttctccaaac tttttcattt tgatttccat caaaactttg agaaggtttt
62351 cttttacaat ttccgtattg gaatctatag acttttcttg aagctccagt
62401 gtaaatactt caggagttaa agagctcgca taattaaata caagcaaaca
62451 tcatcattta aacactttta aataggttat gctgactttt gcccataat
62501 tttctagaaa ggaagagttt gcaaaggaaa tttacagtat aaacaacact
62551 ggggaggtat cttagtccat tttgtgctgc tgtaacagaa aatctgggtc
62601 tggataattt ataaaacaca gatttatctg gctcatggtt ctcaaggctg
62651 gaagttcaag attgagggac tgtgtctggt gagggagttc tgctgtgtca
62701 tctcatggca gaagggtgga aaggcaaaag ggcacaagca tgagagagag
62751 agagagagag agactgaaag agagacagaa agagggagcc aaactcatcc
62801 ttttatcagg aagttgctct gctgtgataa ctaaccgct cagcattaat
62851 ggcattaatc cattcatgag agcacagccc tcatgaccta atcacctctt
62901 aaaggtccta cctctcaaca ctgttgacc agggttaag tgtctgatac
62951 atcttttttg ggagacacat tcaaaccaca gcaggaagga tggattcttt
63001 gcatgaatca ctccctacaa tataagctat tcaaaacca ttgcaatca
63051 ttttatatat tcatgaaagc atgccttcta tggctggctc cctggcaaca
63101 aatgtgatgg gcagaggata gaaggtaaca gagtaacaga tctctaaatg
63151 tcgaaggcaa aatgtagact tttaaaataa actctaccag gtgcagtggc
63201 tcatgcctgt aattccagca ctttgggagg ccaaggcggg aagactgcca
63251 gaaccacaa gtttgagacc agcttgggca acattagacc ccatttctac
63301 caaaaaaaaa aaaaaaaaaa aaaaaaaaaa ccaggtgtgg tggctgtgcc
63351 tgtggttcca gctacttggg aagctgaggt gggaggattg cttgagcctg
63401 gaagtcgaag ctgcaatgag ttgtgattgt gccactgcac tccagcctga
63451 ggtgacagag agagaccctg tctcaaaaga aaaaaaaaaa aaggaaaata
63501 aattccaatt gtttatcaag tagttggaga tattgaggct tgaagaggga
63551 agcaatatgg aggcagtgcc ttgttcattg aatctaagag gccgtcaagc
63601 gtaagatgta ctgtactttg gacagaaaaa actggcaggg tgtggtggct
63651 cacacctgta atcccacact ttgggaggct gaggcaggca gattgcttgc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

184 / 338

```

63701 ccaggagttc aagaccagcc tgggcaacat ggcaaaaccc tgtctcatca
63751 aaacaaacaa acaaacaaag aaaaacccaa aatgacaaaa attagctggg
63801 cgtagtgggtg catacctgtg gtcccagcaa ctctggaggc tgaggaggga
63851 ggatcacttg agtctgggag gcaaagattg cagtttaagc caagatcagg
63901 ccacggcact ccagtgaagc aagatcaagc cactgccctc aagcctgggc
63951 aacagagcga gaccctgtct caaaagaaaa aaaaaaaaaa aaagaaccac
64001 tgccaactaa attatgacat ataaactgca aaatgcatcc caattttaaa
64051 aatgttataaa tgtgggggaa agtaccacct tggatcaatg aactacagca
64101 ttccccagct ctgcttgctc ccacctcctt gtcagggtgt gacgggattc
64151 tactcacagt gcctgtggct ccttaactgc tacacgggga caccaaccct
64201 cctcccagct cacttcactg tgaaggcatt tagacgtgtc cttacttggc
64251 agtagagtgg gtctgtactc caagttcctg tcagagtata atccccattt
64301 ctctcccatt tgatactcag caaaaactca atggagagaa atcatgcttg
64351 cagtactgcc ggcaggattg gcagcccac ctttttgctc tactctgttt
64401 acccttggat tgagccagat cagcagagag caaagccctg gaaccacgct
64451 gggtaatccc tcatgggaag gcctgcgcag acgctcctgc tggcgggctg
64501 ttggcccacg ccaggggaggc tgtagaaac aggccgagtt gtcctgaatt
64551 tgctgtcaag gacacagcaa tgggtcttca tgaggaccac tggagacatt
64601 tttcacgtct tcataccaga aatttaaaaa aataaataaa attttaagaa
64651 atggaggata tgatcactac gcattacata catgcagcaa attttctcat
64701 gtatcccata aatgtgcaca aattaaataa atatgaaggt gtttttctta
64751 atgcagttgt tataatcata aaaagttgtg catggatgat gtattagtcc
64801 actgtcacat tgctacaagt aactaccgga gactgggtaa tttataagaa
64851 aagaggttta attggctcag gggtctacag gctgtatagg aggcattggc
64901 gggggaagcc tcaggaaact tacaatcatg gcggaaggca aggtgaagcc
64951 ggcacttcct acatgggcg agcaagagga agagagcgcg aaaggacat
65001 cgctacacac tttacaacag atctcgtgag agctctatca tgggacagca
65051 ctagggggat ggtgctaaac catgagaaac ccccccatg atccagtcac
65101 ctcccaccag gccctctctc caacactggg acctacaatt caacatggga
65151 tctgggtggg gacacagaac catattaggt gatgtaaaat tcaactcctt
65201 acaaaggttt ctgactatgg ttaaaacaca tcagcctgag tttggcccat
65251 ggggaagtaa agaataacta ctgataatga accaggaaat ctgactgaat
65301 aaattaccaa ataaaatgat attatgaaca aaaataaaac acaccttgag
65351 caacatagtg ataccttggt tctattaaaa atttaaatta cctgggcgtg
65401 gtagcacatg cctatagtcc cagctgcttg agaggctgag gtgggaggag
65451 agcttgagcc tgagagggtg aggctgcagt gagccatgat cttgccgctg
65501 cactccagtg acagagtga accctgtctc aatataaata aaaaagtata
65551 acatatatac agaaaagtac ataatttata aatgtacagc caaatatcac
65601 aaattataac taccctaaat gaaaaaata ggacattacc agaagcccct
65651 atgacttctc cccatcactg caccatctt gtccccaaa ggcaatttcc
65701 atccggattt cttgattttt cattttttat ttttggtttt ttatacagaa
65751 aggtctcact atattgccca ggctggcctt gaactcctgg actcaagcga
65801 tcctccctcc tcaacctccc aaagtgtctg gattacaagt gtgagccatt
65851 gtgcctggcc atcctgattt ctaacaccat cgattagttt tatgttttta
65901 aactttacat caataggatc accgaacatg tattcttctg gtctggctcc
65951 ttttgctcct cattatgtct gcaaaatttc tccatgttgt tatgagtagc
66001 agaaggttgt tcattttttg agacaggatc ttgctctgtc gccaggctg
66051 gagtgcagtg gggtaatcac ggctcactgc agccttgact tcccaggctc
66101 aggcaatcct cccactcag cgtcctgagt agctgggacc agaggcgcca
66151 ccaaacctag ctattttttt tttttcattt gtggtgtgag ggtctcacta
66201 tgctgctcaa ggctagtctt gaactcctgg gctcaagtga tcctcccgcc
66251 ttggcctccc aaagtattgg gattacaggc atgagccatc atgcctagct
66301 gggtgttggt tttcattgct gtacagtaat ccatttacgt ataacttatt
66351 catttagatt gtttccaatt tgggattatt atgaataatg ctgccattct
66401 ggtgcatata ttaagcattt ctgtgaggta catacctagg agtcaaactg
66451 ccgggttaca ggatatagat gcttggttaa gctcttgggg gtgactacgg
66501 gatgaccaca gaatggacca ccccaaggg cagcactacc agtgaggcca
66551 ccactggggc tactcagacc acagacctgc tgctcccgcc atgactgcct

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

185 / 338

```

66601 cttgataccc agggagttgg acacttggta tagtaatgcc aaactctcac
66651 atttccatga ccttacttgt ctgcacaaaa cagaaaagag ggagagagac
66701 agagagagag ggagggaaga agacaggaga gagagaggga gacagagaga
66751 gagagaaaca gtagaaaatg gcctctatat tttcaccctc caaatctctc
66801 aagtacttct gaaaggtaaa accaatttgg catctgggac cagggcctgc
66851 agcctctgca gggtaggaag ccaacctaga aggagagtgg aacacagact
66901 gagctatcag agctacagca tccgccacaa cataccaagg gcctgggtcta
66951 tgtgctgggc aaggcagaga tcagatctgt gagctcaaga gtctagtaag
67001 aaaggcaagc actgaacaag ttaacgtaag tacctgctcc ccagccacca
67051 cagaactgct aattcatctc ccagacgagt gttttctgaa acgcaatgta
67101 atcacgagtc cctcttgggtg ctgagggtaa gtgccaaatt ggtgctttcc
67151 ttctctcaat tctgtagaag gttagggtcat acattttgca tattttatttc
67201 atgctcatct tattttctctc tcactctccc tgtgttccta tttcctgatt
67251 tacttttcat cataatgtat tatgtatttc tgcaaggcat ctccaatctt
67301 cctccttgaa aaaggacaaa tataaatcaa tcatctctct gcatggggcc
67351 ccagtgttta cccatttact caggaggagt cagctcactc accagctcct
67401 atttgggttc acaaaacttta aatagtataa atataaaaac agaagctttc
67451 aattcatttc tggtttcaca ttggtaacca aaaaagactg gtgagaagat
67501 taaaagatga ggcaagaaca tttcctttgg aataaaaaat taatataaca
67551 ctgcagtatt ctaagataat tgggttttact aatgtggaac aattaatgcc
67601 agccataaaa tgtataatta aacattttat tattacaaat tcaaatttgt
67651 tctcttttcc ctatatcacc atttaattga acaacaatac aacgaaaact
67701 ggtcgcctta aaaccaatth gaaacagggt gttcaggagc aacaatacaa
67751 aaacaaagt tagactggaa tgtattacat tttggccaaa caaaaagatt
67801 tgattcattc tggttcatga agttagataa tgggtgttat ggttttgaaa
67851 gttcactgaa acttcttcac tgaactgggt tctttctgat gcattttctt
67901 gagttctagc catgactgcc acagtagcag tcctgggatc agaaccacac
67951 caccgttaaa aaaaaacagg taaagccaac agtacagcca gttgctggtg
68001 ttgaggttgg ggcttctggt gagccactct gggaggaagg tcatccagca
68051 gccatacagc tcgcacacgc acagggtgat ctgcaggaaa tgcctgttgg
68101 agagaaagaa gcccgggatg aaccaccagc ttggcacagt ttggcatcag
68151 agtcatgaca tcttgtctgt aatggcggca tcaacagtct tcgctatgaa
68201 aaccgtccta agttgggcct cagatgttgg gtggtgctat tttgatgggg
68251 gcaagtcaat ctaattaatg aaggctcatt ctttccttag aggagcaaca
68301 ctgccctttc tagattattc tcagagttaa gtaaggaccc tcagggatcc
68351 tgacccattc ttggggaaat ttggtgagat cacacctgac ttaacacaga
68401 gaggcctgac tctgaatctc accatgagcc attataaaag gggagagtga
68451 gtaataaccc cttcctcaaa cagtgtagtg cagactaaat gagatatgag
68501 gataaagggc caagcgatgg gcaagtaaaa ggctcaataa tgcaaatac
68551 acaaatgttt aaaataataa acacatgggc acacgtagta agtttgcaac
68601 cagcgtcatg gagtgaaaaa tacgtcaagg taccaaggaa aaatttaatt
68651 tttattgcca actatctctc taaaattggg tggggaagga agctttaaat
68701 aagacttctt cattacaaga tgggtgaaaa tggaatgcag ctgtgcctac
68751 ttgaaattgt tttagggtt catctcagga tagcaatcta ttcaccccag
68801 gccactctgt ccctaaggaa agaaaaggaa ggaaggagg agagtttata
68851 gtctctgagt ctgataggat ggataatttt ttcacccctt ttttttgaga
68901 cagagtctcg ctctgtcacc taggctggag tgcagtggca cgaacgtggc
68951 tcaactgcaac ctccacttcc caggttcaag caattctcct gcctcagcct
69001 cccgatagct gggacttaca ggcaccgcc accgtgcctg gctagctaat
69051 ttttgatatt tgagtagaga cggggtttca ccatgttggc caggctggtc
69101 ctgaacttct gatctcgtga tccacctgcc tcggcctccc aaagtgtggt
69151 gattataggc atgagccacc gcacctgggt tctctgcaat ccgcctgccc
69201 catatccttc acaatctgct tctgagaaga tttcctatth atcttgcaag
69251 tctgactcca aattatataa gataatttac tttttgtcaa gtgggacagg
69301 agttttcttg aatgatttgg ggggaaaagg atggacgtat tatggtttta
69351 ttctccaaag tattggtggc aaatcatcca agagcgttag caccattctt
69401 gcctctacag agtctagggt gttattaaaa taatatttct catatttttg
69451 attctgaaaa gtctgaaatg atcctagtag caccatcacc cttatctcac

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

186 / 338

69501 ataaaataat tttcatttct cttctgcttt ttttttttgg agacagggtc
69551 tatgtcaccc aggttggagt gcagtggcgt gatcatggct tactgcagcc
69601 ttgacctcct aagcccaagt gatcctccca cctctgcctc ttaagtatct
69651 gggactacag gcgtgtgcca ccacgcctaa tttttaaatt ttttattcct
69701 tgtagagaca ggggtctcatt gtattgccta ggctgggtctc aaactcctgg
69751 gatcaggtga tcctcccgcc tcagcctccc aaagtgctgg gattacaggt
69801 gggagccacc gcgcccagcc tctattcttc caccttttat ctaacaaata
69851 tatgtgggtca caacctactc caaagggtcac ctaagtgttg ggacatgtaa
69901 tgtctcccct ccttcagca ggacagaaga agggcaccta ccgtaatat
69951 ttttctttga ctatggcata aatgaggaac aatgccagag acccatccag
70001 ggcgacgggc agaatttcca cagacacaat ggttgatca aaataaacc
70051 atcttgcac agctttgcca tattctttcc ctaaagacaa aatccatgtt
70101 gttactcaaa tggcaacaat ttttatgaca gttcatggaa atgaccttc
70151 tttcctttaa ggtggagata aaatgagtaa tcgccactct ctctgcattc
70201 ttcacgatgc cttagtggaa ggcaggagaa gccctgggac caaatgcgt
70251 ttaccacctg acacaagcac tgagaacagc agcaggttta caggtgtcca
70301 atcattcagt ttccagcatg ctttcacata cacgccctcc tcagccccac
70351 cctcttcaac ataagtagca gaattttaaa agaattcaac atggtcagat
70401 tttgcaaaga caatctccag tcatgatctt ggtaaataca ttgtaattcc
70451 ttacttcaaa atttccatat aaattctgta agtataatgg agatgtggga
70501 aatttgttat gaaggacatg tttataaaaa acacgtttat ggccaggcac
70551 ggtggctcac acctgtaatc ccaacacttt gggaggccaa ggcgggcaga
70601 tcacgaggtc aggagatcga gaccatcctg gccaacatgg tgaaaccctg
70651 tctctactaa aaatacaaaa aattagccag gcatggtggc gggcacctgc
70701 agtcccagct gaggcaggag aatggcatga acccaggagg cggagcttgc
70751 agtgagccga gattgcgcca ctgcactcca gcctgggtga cagagcgaga
70801 ctccgtctca aaaaaaaaaa aaaaaaaaaa caaacaacca aaaacttgtt
70851 tcttggccag gcacgggtggc tcacgcctgt aatcccagca ctttgggagg
70901 ccaaggtggg cggatcactt gaagtcagga gtttgggacc agctcagcca
70951 acatggcgaa accgtgtctc tactaaaaat acaaaaagta gctgggcgtg
71001 gtggcgcatg cctgtaatct cagctacttg ggaggctgag gcaagagaat
71051 cgcttgaacc caggaggcgg aggttgcagt gaaccgagat cgcaccactg
71101 cactccggcc tgggcaacaa gagctagact ctatctcaat acaacaacac
71151 gtttattaat aacagaagag aaactaggtg ctgaagggac agtgggcagg
71201 gaggggagga gagagcccag actgcagaat gaatcggagt gggcagaggg
71251 gcatctccgc ccacagggac agggaactca caatggctct cacacagtct
71301 cagctgtgct gcttggggag ccagtgtgct ctcagagatc catccagacc
71351 cattatcaga gtggtttctt ctcaggaaca ccatgactca gaaagtcttt
71401 tcagggtggt aatgatggcc aggtattatg gaggccatta aaaattattt
71451 aattactttc ttaatttgta aaagtaatac atgctgggtc taagatctca
71501 aatgattaca gtgaaaaaat ggaagtgatc acacctcgtc tcccccttta
71551 atactgcctc gcattattca gaaaagggtg gaagtccaca gaggagcctg
71601 tgatctgcta ctgagcagca cacagctctt gtctcataaa gaccagagga
71651 aggatccctc agggcctggg acaaagggtt ctaacaaaag gctgtcctaa
71701 gagaaaggac aataagagga ttagctattt aatgggataa cacacaaggc
71751 acatgctgag ggaatgttct gtgagaggcc accgagagtc atcagcctgt
71801 ccttagctga ctgtctgcag tctcctgtgc cctccaataa ctaactggaa
71851 aacaatgtca tattgaaacg tttctcctct aaattttaa atacatacaa
71901 taggtgaaat gtaccagtta gtgcacctaa aatctaataa aatatcacct
71951 aagtaaaatg tcagttcttt aggaacaaaa agagatatgt accaagtctt
72001 tttttttttt tttttgagaa ggagtctcac tgttaccag cctggagtgc
72051 aatggcatga tctcggctca ctgcaacctc tgcctcccag gttcaagtga
72101 ttctccagcc tcagcctccc aaatagctgg gactacaggc acccaccacc
72151 aactcagct aatactgact gactgagacg gactctcact ttgtcaccca
72201 ggctggagtg caatggccag atcttggctc gctgcaacct ccgcctcccg
72251 tgttcaagca attctcctgc ctcagcctcc caagtagcta ggattatagg
72301 cactcaccac catgcccggc taattttgta tttttaatag agatgggggtt
72351 tcaccatgtt ggtcaggctg gtcttgaact cctgacctca ggtgatccac

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

187 / 338

```

72401 ctgctttggc ctcctaaagt gctgggatta caggcttgag tcactgcacc
72451 tggcctaatt tttgtatttt tggtagagac agggtttcac aatgttggca
72501 aggctggtct caaacttaac ctcaagtgat ccatctgttt tggcttccca
72551 aatgctggg attacaggcg tgggccaccg tgtccagcct tcaacaagtc
72601 tttttttttt tttttaagca tttggaagggt gttatggtag gccctgataa
72651 tgcagctgca agtaggacca tgttggccct tagtggccca catcctagtg
72701 aggctgaaaa ccaggcagta agtggcgggt agcgaatatg agggcaggga
72751 agaagtggca ctgaagccag actacgaact tcagggaaga cttcctggag
72801 gaggtgtttt gatcactgcc tctcttccct gttggtgagg gatggacttc
72851 tgcctgaggg ctatggtgat ggctgaacac acaagaccgg acactgggca
72901 gatgagatgg aggaggttta ttagttgcac acactgtggc ccgggaaagg
72951 aggacatctc gccatgcagg gccacatagg ggttgcacct gggaacagtg
73001 ttcgggcagg ggccacgcag gcaggctttg cagtaacaag aggagggggt
73051 gggatgagcc ctggttcccc acagaggatg tgattggctt gtctggataa
73101 ttccacaggc agactggtgg gaactgaagc ctgctactga ggggacaagc
73151 atttgtcccc tccaaatctg tgcctgctcc ccttgatagg gagagctatc
73201 tggttaggga accttatatg tggaaagcaga gtggggaggg agacttgacg
73251 tttggccatc tgaggccccc ctggatctta ccaggatatc aagcagacat
73301 aatactgaat ccagccagg gaggggtggct cacacctgta atcccagcat
73351 tttgagaggc cgaggcgggt ggatcagttg aggtcaggag tttgagacca
73401 gcttggctaa catggtgaaa ccctgtctct actaaaaata caaaaaatta
73451 gccaggcgtg gtggtgggcg cctgtaatcc cagctactcg ggaggctgag
73501 gcaggagaat ggcatgaacc caagaggcgg agcttgcagt gagccgggat
73551 agcaccactg cagtccagct tgggcgaaag agtgagactc cgtctcaaaa
73601 aaaaaaaaaa aaaaaaaaaa aaaaattagc tgggcgtggt ggcgcacacc
73651 tgtagttcca gctacttggg aggctgaggc aagagcatca cttgaactgg
73701 gaggcagagg ttgcagtga ctagacattgc gccactgcac tccagcctgg
73751 gagacagagc gagactctgt taaaaaaaaa agaaaaaaaa aaaaggcaga
73801 cataatactg aatcctaatt tcaggcctta taccacaaga gatgactcca
73851 gatctgagtg gaaaataagg gtgtttcagg gaggagcatg tgcaaaggcc
73901 tggagctgag aggtagcgtg tctgaatcta cagacagttt agcagagctg
73951 atggtggggg aaggttaatg cgtgagagga aggtagggga cggatagtaa
74001 ggggccctgg aatccaccag tcccagcgca tctccctgtg gcatctccct
74051 ctggcagtc cttctggcatc tctctactg ctaaacttta accatctctt
74101 tgcttattaa aactgaaac aataaaaagg caaacaggag cattaaaaag
74151 cctgacgatg tgatcatttc cattgattct gtgactgata actggactta
74201 ggtgaggttt acaaggaaaa gatgcaaact aagggtcggg gtagatttcc
74251 tcaaccagag ccattgttgt gtcctcaacc agacagtgga gaccaggaga
74301 tgctgagtat tcatgaggtt tatggctggc cctgcatccc agtgaagcca
74351 aggtcagaac acaggtcac atcagaagg cctgccctag acacacggta
74401 tcagaatctg catttgagta agattcccag gtgatctggg gcactttgga
74451 gtctgggaag tactacttgc ttacattat ctactggatt ttactttca
74501 tgaataataa ggacaccttc aataaatgag tttttactgc gttttggttt
74551 ttagaaatac ggtcttactg tgttggccctg gctaaattca aactcctggg
74601 ctcaaataat cctcctgcct cagcctccca agtagctggg gctccaggct
74651 cgtgccactg caccagcta gttttcactt ctttaagggtg cataatgtaa
74701 acgtgaagat gatagagaaa gcctgtgtta gacatttgca tttcatggga
74751 ttgagccaaa tctgggctgt ttgctttctc tcatgccagg cagggcagcc
74801 aggggaggag gtgtcagcat ggcactctggc aaaggggaga agaggacact
74851 cagcagggag gagccatgac tcaggctggg gtccgtcagc ctctgggctt
74901 caccagcaat ccccaggcag agtttaatgc agccaatcaa aagtgcatag
74951 ctgcattcag ctgagccctg gatctgaagt ggctctactc tggccaaggg
75001 ggctcaaact ctttggctag gacttgaggc atcaaagatg acaccttttc
75051 ctttgggaag tactaatgag cctactcaat tctctagatg tttcctaaca
75101 ctagtggtaa acaggagtcc cccacacaga tcctagctgg agatgatttt
75151 agagtcacaa agaaatgaga tatatgggcc aggcgcgggt gctcatgcct
75201 ataaccccag cactttggga ggccgagggt ggcagatcac gaggtcagga
75251 gatcgagacc atcctggcta acatggtgaa acccgtctc tactaaaaat

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

188 / 338

```

75301 acaaaaaaat tagctaggcg tgggtggcggg cgcctgtagt cccagctact
75351 cgggaggctg aggcaggaga atggcgtgaa cctgggaggc ggagcttgca
75401 gtgagccgag atggtgccac tgtgctccag cctgggggac agagcgagac
75451 tcgcctgaaa aaaaaaagaa aaaaaagaaa tgagataaat gatgcaaagt
75501 ttcagaagca aaacctgaaa gcagttatcc tgagaaaggc agttttataa
75551 agtggtaaaa aaaaataacct gttggtattg acacagtaca tggtagaata
75601 tcaatgctaa ttgaatattg actgacaatg agcatgaaga cttttggaaa
75651 ggatctacaa gaccacaaat atatatgtac aataaaaaaga aagttgatat
75701 taaaagtatg ggaaaaccac ccagtttaaa cccacaagc tcttccatct
75751 gcactcacta ccaacatttt tttttttttt ttgagaggga gtcttgctct
75801 gtcaccacaga ctggagtgcg gtggcgtgat ctgggctcac tgcaagctcc
75851 acctcctggg ttcacgccat tctcttgcc cagcctccca agtacctggg
75901 actacagggg cccgccacca cgcccagcca attttttata tttttagcac
75951 agacaggatt tcaccgtgtt agccaggata gtctccatct cctgacctgg
76001 tgatctacct gcctcagcct cccaaagtgc tgggattaca ggcgtgagcc
76051 accatgcccg gccattcact accaacattt tttattttat gtattgtttt
76101 ttagagatgg actcttgctc tgtcgcccg gctggagtgc agtggtgcaa
76151 ctgtgactca atgcagcctt gaactcctgg gctcaaaaga ttctcccgcc
76201 tcagcctcct gagtagctgg gactacaggt gtgcaccacc acacctggct
76251 catttaaaaa acttttttta aagatagggt cttgctatgt tgcccaggct
76301 caaatattgt ttaataataat agctttatta agatgtaatt cacatgccac
76351 acaatctacc tatttaataa attggtttta gtagaatcac aggtttgaat
76401 caccacaatc taattttaga acatttcatt accccaaaaa gaaatccgtg
76451 cccattagca gtcactcctc atttcccccc aacacccccca cccctaccct
76501 cattcccacg caaccagtaa tctacagtat ctctacagac tcacctattc
76551 tggacatttc atataaatga agtcatacag tatataatag aggcgtttga
76601 cagtcacact tgcaataaac ctctccaac atttcaaacg caaacgtttt
76651 taattactta cataaagaag caatcaagcc atcgggaattt gcaacgtttc
76701 ctactaaaga caagtagaca aaagggcctt cctagagagg agaaaatgaa
76751 gacatgctct aatacagcat cacaaccaca ggatggcact gtagacacat
76801 ggcattgcct ggctccatcc cccacccttc tccatggctc acatcctggc
76851 cacagcctgg aaacatccat acaaccttgt gggatacaat cttgggacct
76901 ggttacctgg accttggaag tgggtatgtc tcaccctaata gtacaattaa
76951 tgttggtttt caatgattgg cactgtaaaa gcagagatgt gttcttatgt
77001 ggaaaaagtg aaatttttgc ataagagttt aactactgta ttaaataagag
77051 taagctctag attattccag ggatcttaag tctttgcgga gaaccccaca
77101 gaagttcact tttttttaac tcaaaaaaat ctaagatctt aaagagaaag
77151 gcaatcaagt ttataccagc attgagcaat cctccccctt tctcctatat
77201 aagggcaagt ttaggaagat ttaaaacagt tacaggctac atttaacatt
77251 caggtaataa aatatctgca attacagtta gtattttccc atcactgaag
77301 tgcttctttg cctaagattt ctaaaactaa acagctagaa gccactggga
77351 tatgtaattg tcatgttgct cctttgaaca aattttgctg ctgggtcaata
77401 aaactttttt ctcatcctt ttaaacaatc atttgatga cattaaaact
77451 gggctcctgcc accccagagg tcaccactct caatcacatc tctttgcagt
77501 tcccgcggtg atttcataat atacttacac tgctatttcc ttcgactact
77551 agcaggaaaa gctattgttt gattgatact ccttcctctc ccgtttccag
77601 tccttcgagt ttctgatata ttattctatt acttacacaa atttgtaact
77651 taagtaaaaa aactgaaaac ctgagctcac tcactcatca attttgatga
77701 gtctctgggc ttctaaacca cgaaagagta tgacagcctc taccaggctc
77751 cccgcaccct gttcccaact ctcaatttct gtccagtttg cttgtgcatt
77801 gttgagactg attacatgtc ctttcttggt ctctaaacat atttgttttc
77851 cctgttttat ctgtaactgg attctaaaag ctgaaaaagc caattaacag
77901 catttacaat gttgtgatta tggaaacagc gttcactgta atgggccaca
77951 atttctttcc ttagggatcc cgtatcctga ctccctgtgc atttaaggat
78001 aatgctgcaa atgaagtatc ctttgttttc tttttctgag atagtctcac
78051 tctgaagctg aagataggct ggagtgtggg ggtgcaacct cagctcactg
78101 caacctacgc ctcccgggtt caagcgattc cagtgcctca gactctcaag
78151 tagctgggac cacaggcgtg tgacaccaca ttcagctaata ttttgattt

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

189 / 338

```

78201 tttagtagag atgggatttc accatgtggg ccaggctggt cttaaactcc
78251 tggcctcaag tgatttcccc acctcggcct cccaaagtgc tgggattaca
78301 ggtgtgagtc accgtgccag gctccaaaaa tcatatccct taaaggacat
78351 taaaaaaatc atatgagaaa aatagctgtg tttttaacaa ataagtactc
78401 cccagtccac ttactttgca acactttatt tttaccagcc aattttttat
78451 ttttagcaga gccatagggg gaaatccata ccacttcctt gctctggcct
78501 gagaactttc tacacaaagc acatccactg ggctggccag tggggcaatg
78551 gggctggact ggatttgacc ctctctaggg ctcaggccat ctatctgtaa
78601 gatgaaggac ttccttccta tagattgtaa atctcatcct aaaacgaaat
78651 gcaacctcca ctggcgacct ctttactggg acccattagt aagatgtgga
78701 gtctgacacc aggttgacaga cctttccaca gaagcaactc tgggtaagag
78751 caagatgggg aactggaaat cagtaacatg caggaaccta tgagtctata
78801 acaaatccgt ttcctttttac atctacttgt tgaagctcta ctcatTTTTc
78851 aatcccagc cctaaccccc ttcttcaaga aaccttcttt gacctcctag
78901 tgagaattaa tatctcactc tcctaaatct cccatgtggc taagtttggt
78951 tctgtaacca gcagctatct gctcgctatg gacccccagc tcccattgga
79001 tcacacatca ttgggatctg gaatactgtc atctctacct tagaatcccc
79051 aagaaacatg acatttgtgt tccgtgtttg ctaaccttga attaatgtca
79101 tacaacaaat tacttataaa gaaggatgcc ctgaagaggc ttttagactg
79151 ccctatctct tactgtatta atgtcctaaa tgtaaagata gtataataca
79201 tatcaagtgt aacgaatatt catgccttca aatgctgata aggtgtcacc
79251 tcctccagga agcaagattt tactattctc ctgctgggag gtcagtgcc
79301 tcctacacag aaacttgctc acttgctctc tcccaaaact gccagttctc
79351 tgagggccaa ttctttctct tttatctctg tattgcaaat ggctaacaca
79401 tagaacatgc taataagcgt ttcctaaaag agtaagaaat aaaagggata
79451 atagaaaaca agacagttaa aaataataat aacaataata ataacttggt
79501 tagaagatgg gcaaaagaaa tgaatagaca tctcaccgga aagtacataa
79551 agatggcaaa taagcacatg gaaagatgtt caacctcatt agccaccaag
79601 gaaacacacc ttcaagccac agtgagggtat gactgtataa actatcagaa
79651 tggctaaaat aaggttgggg gtgggtgggt acgcctgtaa tcccagcact
79701 ttgggaggcc tgggcggggc aatcacgagg tcaggagttt gagaccagcc
79751 tggccaacat ggtgaaaccc cacctctact aataatacaa acaatttagc
79801 cgggtgtggt ggtgtgtgcc tggagtcccg gctacttagg aggctgaggc
79851 aggagaatcg cttgaaccgg gaggcagaga ttgcagtgag ccgtgattgt
79901 gccactgcac tccaaccttg gcgacagagt gaaactgtgt ctcaaaaaga
79951 aagaaaagga aaggaaagga aaagaaaggc taaaataaaa aatagtggca
80001 acataaaaaa atactggcaa catcgaatac tggtgaggat gtggaaaaac
80051 tgaaacaaac acagatttct gaagggatag aagcgataca gccactaaaa
80101 aaaaccagag tttggcagtt tcttctaaaa ctaaatatgc aatgaccata
80151 cgacccagca attccacagt tgggtatttc tcccagaaaa ataaaaactt
80201 atcatcttta tacaaaaaca actacacgaa tgttcatagc agctttattt
80251 gtggtaacta aaaactgatg tccttcaaaa agccaatccc aaaagcttac
80301 ataattggtta catttatttt tatttctgta tttatttttt gagacacagt
80351 ttcactctgt tgcccaggca ggagtgcagt ggctcgatct tggctcactg
80401 caacctccac ctcccatggt aagggtattc cttgccttag cctcccaagt
80451 agctgggatt acaggaatgc accaccacgc ccacctaat tttgtatttt
80501 tagtagagat ggggtttcac catgttggcc aggctggtct cgaactcctg
80551 acctcaagcg atccactcgc ctcagcctcc ccaagtgtgt ggattacagg
80601 cttgagccac catggccaac cctgtggtta catttatata acatttttct
80651 gaaatgatag attttagaaa tggaggacat tgttagtggt tgccaggggt
80701 taagggatgg aggtgtgggg tggggggatg tgtagtata aaaggaaaac
80751 actagggatc cttgttagtg ctggaactat tcaataacct ggctgttgtg
80801 gttgatatat gaatctaccc agttgataca attatatgga acttaataca
80851 cacacacaca cacacacaca cacacaccac acaaagaaac tgacagtctg
80901 aaaaagatca gtggactgta tcaatgtcca tatgatggtt atattatact
80951 atagttttac aaaatttttg gtaccaaaat tatcaaaata gaaaataact
81001 ttttcttttt ttagacagag tcttgctccc caggcaggag tgcagtgggtg
81051 cgaccttggc tcattcaacc tccgcctcct gggttcaagc aattctcctg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

190 / 338

```

81101 cctcagcctc ccaagtagct ggggttacag gtgcccgccca ccatgcctgg
81151 ctaatttttt gtatttttag tagagatggg gtttcgccat gttggccagg
81201 ctggtcttga actcctgacc tcaggtgatc cacctgcctt ggcctcccaa
81251 agtgctggga ttacaagtgt gagccactgc acctggctga aaataatttt
81301 ttaaaaaccc accaaaatgt tagcatcgtg gaaacctggg aaaagtaaac
81351 aagggaacctc tgtattatct cttacaactg tatgtgaatc tacaattacc
81401 tcaaaataaa aagttaatta aagaaacaga gaaagacatg ggagaaagag
81451 taccatgact aaatgaatgg gctttttttt tttttggcaa ctgtcaggac
81501 ttaaaaaaaa aaatttagaa taggccaggc tctggcctca gagagcttat
81551 tgtctagttg gataacaatg acttccaatt caataaagga tggaggaaga
81601 tgaggagact gtagctgagg cagtgaggaa aaatttcaga gggaggcagg
81651 ctgagaggta ggaggacagg gatggagccc agaggatggt gtgaggcccg
81701 tgggtccagc ttttgccctg ctcagccctg tggcacaac agtagtgctc
81751 aggggtactg tgtacattaa caatgtgtgc aaccatcgcc accatccatt
81801 tccagaactc ttcattctct aaaactaaaa caatgtgccc actaaacact
81851 gattctccat ttcttccctc tctcagccca acaccagca ctctattttg
81901 tgcattctatg aatgtatttt aggtacctcg tgtaagtga atgagaccag
81951 tcatgctaag cctcacaacg gtgatacgct ctgagaaatg catcattaga
82001 cagttttgtc attgtgtgga catcatagag tgtattcaca caaacctagg
82051 ttgtgtaaca cttacctcac acgtaggcta tatggatagc cttttgctcc
82101 tgcgttacaa acctgtacgg cattactgta ctgaatactg taggaaatta
82151 taacacaatg gtatttgtgc acctaaacac agaaaaggta atgcactgca
82201 ctacaacatt atgacagcta tgatgtctct agacaatagg aatttttcag
82251 ctccatcata atcttatggg acaaccatgg tatattcagt cccttattga
82301 ctgaaatgtc cttatgcagt gatgactgta tttgtccttt catgtctggg
82351 ttattttact tagcatagtg tcttctaggt tcatccatgt tgtagcatgt
82401 gtcagaattt cgtttctttt taaggctgaa taatattcca ctgtatgcag
82451 gcactgcatt ttgtttattc atttgctggt ggacatttat gttgtttcca
82501 ttttggggtt attgtggctc ataagtctgc tgctatgaac actggtttgc
82551 aaggatctgt tggagtgcct ggtttcaatt cctttgggtg tatatgtaga
82601 agtggaaattg ctggatctta agataaatgt tcagctttct gaggagtcc
82651 cacactgctt tctgcagcgc tggcaccatt ttgcattccc accaacagtg
82701 caccacagtt caaacttctc cacattcttg gccaacactt gttattttcc
82751 tttgttggtt ttgttttttt ttttttaata gtactcatcc taacgggtgt
82801 gaaggagtat ctcactgtgg ttttgatttg catttcccct aatgactgac
82851 tagtgatgct gaacatattt tcatgtacat attgagctct ttggaggaa
82901 ttctattcaa atcctttgcc tacctttgag gtttttttta attgttaaga
82951 atgtaagttt taaaatggag atatcatcac ttggaatttg aaaccactgg
83001 gctagactgc cccatgggca agatgaacca ataattctca aagcatttgg
83051 taaagcagag caggggccat tttcataaga atctgagaac aagatctgcc
83101 cactcatcat gagggcaagg ggtctgcagt gaatcttgag ccccccctcc
83151 ctgctgcctg gtaacctcct cttcggctct taaaacccta gtgaggccgg
83201 gtgcagtggc tcacgcctgt aatcccagca ctttgggagg ctgaggcgga
83251 cggaccacaa ggtcaggaga tcgagaccat cctggttaac acggcgaaac
83301 cccgtctcta ctaaaaatac aaaaaaatta gccgggcgtg gtggcgggca
83351 cctgtagtcc cagctgctgg ggaggctgag gcaggagaat ggtgtgaacc
83401 cgggaggcgg agcttccagt gagcccagat cataccactg cactccagcc
83451 tgggcgacag agcaagacta tgtctcaaaa aaaataaaat aaataaataa
83501 ataaataaat aaataagaaa gaaaccccg tgaatccttc cttcctcggg
83551 gccacctcta ggcctggaca gtcttatcac tcaccagact gcatgacaat
83601 gatattgttt cctctctgct ttccctacta ttaaagctcc ttaaggcg
83651 ggcaagggtg attacatgca ataaacacca aatacacata cagtgaatt
83701 ttatagataa tcccaggctg attctccaga ctttccacag ctatccctga
83751 atcatgtggt attagccggg ccacctaat ccttagtcct tcctaatttt
83801 tttttagtga tagcagagat gacatgggtc cagaggtgtg acttgcaaaa
83851 gtcctttgtt gaaacattca gtatatataa aaaatgctct cgtttgattt
83901 aaaaaatagg accattgcag acatgggcag gtctgggtgg tcagtgtgca
83951 ctggcactgt ctaaatagca ggtcatcctt ttccgggaag gggcagtggg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

191 / 338

```

84001 tctacatgag gacactgccc ttgtgtttta tgtaaaaagg aagccaaata
84051 gaccaacaaa cacttgtctt ttcttcatga agtaggtaat acaccagtag
84101 caactccctg attcttcctt gaaacaatgc taagagctgg tatcccttcc
84151 ctgtatcatc acacttgtcc actcccactg cagcccacgt caatcctgct
84201 gcatcccacc ccaggaagggt cattcagatc aaagtcagaa aaagcacatg
84251 gtgaaaagga ggtgagcctg ccaatatcag agttccaagt gacatctctg
84301 aacattctgt gattctgaga ctggctggct cttaccctaa cagaactcac
84351 aaatataaat cagcaaacac agggccacca ctttaggctg caccatccac
84401 agctgattct catcaataaa gacgccatgc aaaaacaaac aaactagggtg
84451 tgggaggcag agggcccgag ttccagaatga gacctgctat tatggtttta
84501 aagattgtaa gggctggacg tgatggctca cgcctgtaat cccagcactt
84551 tgggaggctg gggcaagcag atcacctgag gtcaggagtt caagatcagc
84601 ctggccaaca gtgaaactcc ttctctacta aaaacacaaa atacaaatat
84651 tgtgtctgga attggtgggt tcttggcttc aatgacttca agaataagc
84701 cgtggaccct cgcggtgagt gttagttctt aaagatgggtg tgtcagaagt
84751 ttgctccttc tgggtgggttc gtggtctcac tggcctcagg agtgaagctg
84801 cagaccttcg cagtgttaca gctcaciaag gcaatgcgga cccaaagact
84851 gagcagcagc aaaatttatt gcaaagagct aaagaacaaa gactccacag
84901 cgtggaaggg gacccaagcc gggtgcccgg gctggcttgg gcagcctgct
84951 tttattccct tatctgacct caccacatc ctgctgattg gtccatttta
85001 cagagagctg attggtccgt tttgacaggg tgctgttttg tgcgtttacg
85051 aaccttgagc tagacacaga atgctgatta gtacatttac aatcctttag
85101 ctagacacaa cagtctctca agtcccact ggactcagaa gccagctgg
85151 cttcccctag tggatcccgc accagggccg tgggcagagc taccgcccag
85201 tcctgcgcgc cgcgcgggca ctctcagcc cttgggcggt caatcggaca
85251 ggtcgctgcg gagcaggggg cagtgcctt caggagcggg ggtggtgccg
85301 gctcgggcat ggcgggctgc aagtcccgag cctgccccg tggggaagcg
85351 gctcaggccc ggcgagaatt cgagcgcagc gcggacgggc cagcagtgat
85401 ggggaacca gctcaccctc cacagctgct ggcccgggtg ctaagcccct
85451 ccttaactgg ggccggcagc acccaccaag ccagcgccca cccagaactc
85501 tgcccgggag cgcggtgcgc agcccgggtt ctgcgcggcg cctctccctc
85551 cacacctctc cacaagcaaa gggagccgct ctggccgcgg ccagcccaga
85601 gaggggctcc cacagtgcag ccgcgggctg aagggtcctt caagcatggc
85651 cagagtggat gccgaggctg aggaggcacc gagagcgagt gaggcctgtt
85701 agcacgttgt cacctctcaa tattaataaa tacaaaaaaa taaaaattag
85751 tcaggcatgg gtggcacgcg cctgtattcc cagctactca ggaggctgag
85801 gcacaagaat cgcctgaacc tggcaggcgg aggttgagcagt gagtcaagat
85851 cgtgtgtgtc tgtgcctggg tgacagagtg agactccgtc taaaaaaaaa
85901 aaaagactat tcaggggctt ttgaataaaa tctgctctaa ccacacaaag
85951 accgaagatc aaagccactg aaaacactac ttactatttg ccaggcacca
86001 aaattatctg tggaattgta gagaatggag acagttatag ttcctcctgt
86051 gaattcatgc tttatattaa atgaactgta cagtactttc tttcttctcc
86101 cttaaaattg tttttagact ctggggcatg aagtttatgt taaataacca
86151 aataaacatg gaaggttatc agctccaaag tctttaacca caacgtatga
86201 tagagatcca gccatctgga actaagattc atgtttgagc tcaacaagca
86251 ctgaggatct aaggatcaga tgaaagggtc ctggtcaaca gcaaagggcc
86301 acatgcagga tgttgctgta attgggaagg cagggtcca ctaggtgtca
86351 ggcgtgatat ggttaagctt gagcaaaagc aagtacaaca gattgtatctt
86401 ctttcttttt ttcttgttct gtcaccagc ctggaatcca gtggtgttat
86451 cacggctcac tgcagcctct cagactcctg ggttcaagca atcctcctgt
86501 ctcagcctcc aaagtagctg ggaccatagg tgtgcacat catgccaggc
86551 tgatttttct ttttttaatt gtagagacgg ggtctcgta tgtggttgag
86601 gttggtctag aactccttgg ctcaagcgcc tcctccctca gcttcccaa
86651 gtgccaggat tacaggtgtg agccaccatg cctggccgag attgtatctt
86701 tgacattcat ggctactttc acctctccgg gcttaaattt cctaaccaag
86751 aaaaaaatag agtcaagcta tatatatata ttagtcaata tatgtctagt
86801 gaatgaataa gtaataagga gaggcaggct ggatctgcat ctccaccttt
86851 tgacagagtc gctcaccaat ttccagcctt gagcacagca cttggaagat

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

192 / 338

```

86901 gcatgttgct tactgagagg atggtgagga ccctaagcgg aggcccaggt
86951 agtgtctgtc agcagagggc caggttggtg ggaggggcct gcttcagcac
87001 cagcacttcc agtgggcatg agccatgagt tctacacctg ccaagacca
87051 cgagccacag ggaagtcaag ctcacagcga ccaccagggt agatccctga
87101 ctggacatga tgaggtcttc gaggactcct gtactgtcat ttctatgata
87151 acatgaaagg caggcacctg tccctgaaga agacctgact ttttagagac
87201 agacttactc agtacataaa cgtaaagtga catgagggtcc agatcacttt
87251 ccagtacttc agcagtaaca atgaaaaagg gagggagaga aggacaaaaa
87301 cagaagaaaa agtgacagat gggcaagtgc agcaaaactt gaaaatgctg
87351 aatctgctca ctgatactgt actagtctct ctacatttgt gaatgtttga
87401 aattgttcac tgtaaaactt aattttaaaa agatacatag gcttatgcct
87451 gtaatcccag cactttggga ggccgagggt gacagatcac aatgtcagga
87501 gatcgagacc atcctggcca tcatggtgaa acccccactc tactaaaaat
87551 acaaaaatta gctgcgcgtg gtggcacgcg actgtagtcc cagctactca
87601 ggaggctgag gcaggagaat tgcttgaacc agggaggcgg aggttgaggt
87651 gtgccaagat tgtgccattg cactccagcc tggtgacaga gcgagattcc
87701 gtctcaaaaa acaaaacaaa atacaaaaca acaaaaaaaa atatatgtga
87751 tacatgttaa agttaaaaa aaattataaa aaggtacaaa gcaaaggata
87801 aaagcctctc tccctcctga ctcccaatca cgtttcccag agatgaccac
87851 tgttaagttc catggtagcc ttcaagaatt tttcagggtt atattaataa
87901 gcagttataa atatttaaaa tattttctcc ctgctatgaa tttttctatt
87951 attaacccag aggggtgatg ggaaaatttc ataatactta ttttaagttc
88001 gtatatcaaa aaatttggtt taaaaaatac agtaaagttc ctactggaca
88051 tatgttataa aatataactg aactatatat aattgagctg ctaacaaaat
88101 cagcttaaaa attaaaatgt attatagcaa ataaagaaag gccagtctca
88151 tttttctctt aagatgtccc aggcataaaa ttttttctt tttttaagat
88201 ggtctcgtc tgctcgtcag gctggaatgc agtgggtcga tctcggctca
88251 ctacaacctc tgcctcccag gttcaagcaa ttcttctgcc tcagcctcct
88301 gagtagctga gattacaggc acacgccacc acgcctggct aattttggta
88351 tttttagtag agacagggtt tcaccatggt ggccaggctg gtcttgaact
88401 cctgacctca ggtgatctgc tcacctcagc ctcccaaat gcagggatta
88451 caggcgtgag ccaccacacc cagcccaggc atataagggt ttaacaacg
88501 tattttatag acttaaagac agctataagt caaagctcag atcaaacaaa
88551 tgattaagtt atgccagcta tttccattga taatatccaa tttaaagagc
88601 atgctcaatt tactcatttt aatccttaaa gaaaaattta gcagaaaaag
88651 tccttaaaga aataaaaaga acacatactg aggctgagtt tatatttgaa
88701 tgtatctgtt tttttgttgt atgtttgaat gaagacctag agaaaacatg
88751 gcaacattca ctttcaagag tgagagaatg aagtggagca ggaatagaat
88801 cagtacataa atcctgtcaa catttattag catttgcaaa tctgactcac
88851 aaaacctcag cctaatacaga ctggattttt gcatgtcatg acaacagcat
88901 acaacattgt ttctggaggg atcagctgcg gcagcctcct actgtccttt
88951 ggtgacaagg ctttaatgac tccataaatg tatgctgccc agctgctgcc
89001 cgcttaatta gacgatgatt tccacttgat tgaacctgcc cagcagccag
89051 ttgtcaccta acattcacag gagaccacac tggctctctt cagaactacc
89101 aggatcaaac agtcacacga gttctatggt tcctacaaca tggcagtata
89151 ctgtttgatt taggacttga atcatatttc tcccttttta agaataatcc
89201 cttctctgcc agaaggttgt tacttctcag attaaagatg tgaaaggaaa
89251 ccttccaagg ctcatcttaa ttggacatat acatcatcac tttagtatac
89301 agggatggga tgacaaatgc taatccgggt atggaatatg gcaaggagga
89351 ttcacactaa gaggacagag aagagaatta catttactga actctggcaa
89401 gtgccagggt ccttacatct ttgccattca aacacggttc atgaaccaca
89451 gcctggcact cacttgggag ctggttacca atacagaatc ttggatgatc
89501 cctggatgat ttgtgtgcat ggccaagctt gagaagcact acgctaagtt
89551 ataaggcttt atttaattct cacagccgtt tgaagaaaac attatttcca
89601 tacttcacag gtaagaaaac taagaaaatt tccttccttc ttttctcct
89651 cattacagaa aggatttgca ggggaaagg gcatgcccaa gtttctgagc
89701 tggatcatcg gaaagctggc attcaagggt gcatctgctg catcccaaag
89751 gcccttggtc tttccacctt ccccaccgc cccaggctcc ttggatgatg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

193 / 338

```

89801 gtcagactcc acctagaacc gtgttttagga actgatactg cattcattct
89851 ttcattcatt catccatgaa tttatttgagc tagagtctcc ctctgtcacc
89901 caggctggag tgcaatggca caatctctgc tcaactgcaac ctccgcctcc
89951 tggttcaagc aattctcatg cctcagcctc ccgagtagct gggattacag
90001 gcacctgcca ccacgcccag ctaatttttg tattttttatt aggacggggt
90051 ttcaccatat tggccaggct ggtctcgaaa tcctgacctt gtgatccgcc
90101 cacctcggcc tcccaaagtg ctgggattac aagcctgagc tcacgcctgt
90151 aatcccagca ccttgggagg ccgaggcggg cagatcatga ggtcaggaga
90201 tggagaccat ccctggctaa cacggtgaaa cctcgtctct actaaaaata
90251 caaaaaaaaa tagctgggca tgggggcagg cacctgtata gtcccagcta
90301 cttgggaggc tgaggcagga gaatggtgtg aaccgaggag gcggagcttg
90351 cagtgaagcc atcgaccac tgcactccag cctggaccag agagcgagac
90401 tctgtctcaa aaacaaacaa acaacaaaaa aaaacaaaaa caaaaacaaa
90451 aaacaagcct gagccactgc acccgatctg gtactgcatt tgaaaatgca
90501 acctgtggca tgtatgaggg tgacaagttt tagtcatata catctatcag
90551 aatgactaaa aacaaaagta aaaaacacaa aaatgctaag ttttggtgag
90601 gctgtggggc aacaggaact cgcacacaat gctagtggga atgcacaaca
90651 gtacagccgc cgtggaaagc aggatggcag tttctactaa actgaaagaa
90701 tcccattcca aggcctcggc ctaggagaaa gaaaaatatg cccacacaga
90751 cttggatgca gatattctatt agcagcatta tttgtaatag taaaaaacta
90801 ggaataaccc atttgttcat taactgataa atggataaat gaattgaaat
90851 acatccatga ctggaatact actcagcaac ttacgttaaa tgaagactat
90901 gtatgtatga tttcattttt atgaaattat aggacagcaa aactttaaag
90951 acagaaggca gacgggtgtt tgttggggct ggtgatgggc actgggatca
91001 tcttcaaagg gacatgagaa aacttttact agaagcgtga tggaaacggt
91051 ctatactacg attgcaaggg tggttacaca actctacaca atcacccaaa
91101 ttcaccaaac tgtacacaga atgggtttta ttatacataa attataacaa
91151 taaagctgga gggaggaaaa ggggaattta gaaaagtggc tgataaccat
91201 acaaatatag gtatatctca acagctttca ctataataac aataatcagt
91251 ccaaatacaa aggagagagg ccaggcgtag tggctcatgc ctgtaatccc
91301 agcactccgg gaggccgagg cagctggatc acttgaggcc aggagtittga
91351 gaccagcctg ggcaacatgg tgaaacccca tctctactag aaacacacac
91401 taaaaatagc tgagcacggt ggcacgtgcc tgtcatccca gctatttggg
91451 aggctgaggc aggagaactg cttgaaccca ggaggcagag gctgtggcga
91501 gctgagatcg cgccactgca ctccagcctg ggcgaacaga gtgagactgt
91551 ctcaaaaaat aaaattaaat taaacaaaat acaaaggaga aatacagtag
91601 caatgaaaat ataaaatgtt ttgaaataaa ctttaagaga ctgtaacaga
91651 agatttaaac aaattgagac ctacccagtt cttagaaggc agactgtatt
91701 ataaagatat catttaatct caaactaatc tataaagtta agaaaaccac
91751 aatcaaaaata ccgagtatta gaacttgcca aagtgaattt attttttatt
91801 tttgagacag gatcttgctc tgtcgcccag gctggagtgc agtggtgtga
91851 tctcagctca ctgcaaactc tgcctccggg gctcaaacga ttctcctgcc
91901 tcagcctcct gaatagctgg gactgcaggc gcatgctacc acgcctggct
91951 aattttttgta cgcacctggt cagcaaagtg aattttaaag tacatctgga
92001 aggatagatc ataattttta agtgtttgaa aaagaatagt ggggagaagt
92051 ttgctttatc agatattgaa ctacattata gtgctgaaat tattaaaaca
92101 gtggctagaa ctggaaccaa aagattcctg aaacagaact aaattcaaaa
92151 atccccaaac atatccatac atataaaaata ctttagtata tgataaagct
92201 ggcactctca ataatgtggg aaagaatgga ttagtcaata aatggggctg
92251 acaacacttt cttgcccttt ctccccaaaa gcgtaataaa gtgtgggtga
92301 aattgtttgt actaatatat gaacaccttt tatagatcat taaggaaaag
92351 acaaacatcc ccattgaaaa acaggctata gaaggaggat cccaagatct
92401 acgccccaga atctcgtccc aaagcctagc accaaaacag caaagcagtc
92451 ctcttcaag aaaactgaag gcagctggtc atggtggctc acgcctgtaa
92501 tctcagcact ttgggaggct gagacaggcg gatcacgagg tcaggagttc
92551 gaaaccagcc tgaccaacat ggtgaaaccg tgtctctact aaaaatacaa
92601 aaattagctg ggcattggtg cacgtgcctg tagtaccagc tactcgggag
92651 gctgaagcag aagaattgct tgaatctggg aggcagaggt tgcagtgagc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

194 / 338

```

92701 caagatcacg ctactgcact ccagcctggg cgagagagag agagaaaaaa
92751 aaaaaaaggg acaagaatta gagactggaa ttgtggcagt gggcagtgag
92801 gaacagacgg tgatgtgaac tggagaaggg taatgccag cttcagagag
92851 ggcgtggcac agccactggg cctcaagatt tctcaacgaa aaaccattca
92901 caggtgttag gtgggatgca tggagagcca gccaaaggccc aggttttctg
92951 tgacagctgt gcttcaccct gcaggacaag gctaatacaga ctacaccatg
93001 acaaaagtgt ggaagcaaca accaggcaga ggtttattag gaaacaggtc
93051 aacctccatg gccaaagcaca catcagacag cgagagctgc ctgccgcgtc
93101 tgcactttta cccttcttct gccatcctct cgcacagacc ttcattctca
93151 aaagaaccaa gagccccag cctgccctga ggtgcctctg gagctaccct
93201 cctgctcttc ctccgcccac caccaaacct cctgcagggc tttcatctac
93251 tgcccagctt ctccctctacc tggcctataa gcctttggct tctggagcct
93301 ccctcccac aatcccactc tcaccattga cttcctgggt gccagggtgcc
93351 tcacctttta ttttcttctc ttttttttaa tgggtgctaca gcaatttatc
93401 agtgttcttg aaattccatt ctgtggatcc caggacccca gcactctcct
93451 ggttcgtggt ctttcccact ctctcctagg atagatatct taaaagattc
93501 tgctcttatt cctcagctct ttcaccttc tgtctctct agctcagcaa
93551 aagcagtcac acctggggct tcgtgctatc tcccccaact cagaaaagaa
93601 ttcccagcac tctctcttct gccctgactc tgtctctcca actcaattta
93651 catttttcaa ttgccttctg gccattctct ctctcttctt tttgagatgg
93701 ggtctcactc tgtcacctag gctggagtgc agtggcgtaa tcatatctca
93751 ctgcagcctc aatctcctgg gttcaagtga tctcctact tcagccttct
93801 gagtagctgg gatcacaggc atgcagcacc acaccagct aatttttctg
93851 agagatgagg cttcactatg ttagcaaggc ctcactatgt tagcaaggct
93901 ggtctcgcaa ctccctagcct caagcaatcc tgcctcggcc tcccaaagtg
93951 cttattacag gtgtgagcca ctgcccagca ctattctctc ttaactgcac
94001 acgaggaccc ccgactcata gttctaaagc cagattttgc tgtcttagtt
94051 aacatgatca ccattaccca tgttgctcag ggcctaagcc ccaagatcat
94101 gtccaccccc aatctacaag tggccacttt gacttaccac attctcccct
94151 ggaaagtctc tcacagttag ctttccctcc cattttaagt tccaacacca
94201 cctcagcttg cctctctctt ttttttaaat gactccccac actacagcag
94251 ttgctttttg ttgctcttct tgcccctcaa ctccatcctt tccaatccaa
94301 cctgcaccat gttgagagac aattctccat gaatatctca catcctgcac
94351 tgtctgggtc tctgagcaaa gacatttata tcaattttta gaatgtttct
94401 ataagtagcc tttccagagt agtaaacctg ggagacagct ccctccagag
94451 aggttctagg gtggtaaaga tcaagacctc accttctcct cctcagaggt
94501 ttacattcct aagataaggt ctctccagag agaagtatgg acaggccacc
94551 accagctcac aataagatgg acgcgtagtt ctggagtcc tttcttgtaa
94601 cgcacccac tgcattgaca ggcagtaaca tctggccttc attatgttgt
94651 cctgtgggtt ttgggccttg gggaatcaaa ctggactacc ttgttaactt
94701 ctaagttagg taaaatctcg gacgctagag tttctgactt aacacatcac
94751 cactaaatta tctttatgaa gatctgcttt ggccacgtga cttccctgct
94801 tgaaatcctt cagtggcttc tcactacaga atacaattct tacctgtcac
94851 ctttccagct ggtcctccca cttcttatgt aaacctgtg ctctgtcaa
94901 tctggactac aggatgtgtt ccatacacag gcattcatat cttgcctcat
94951 gtttctggcc atgcctgaat gctatacata gattgcagaa gagataaaat
95001 tttatccatg aagcaccagt gcctaggctg cccacagcga cctcagaatg
95051 gtgacccac catttccttc ttctagtatg ttgccatggc tccttccagg
95101 taggctgatg ggaagtcagc ctgccctctg ctgtagtcat aacgagctga
95151 actgatgacc agtgctgggg cccaagggtga ctgcactctg gttggacatc
95201 tgggaaatga actgcccctg ggaatgcttg gcttgaaact gtccaacagg
95251 atagctttca atttgatggc agccaaaaaa cctacagagc tcctctcttt
95301 aagaagtgtc agggggtggc caggcgagct ggctcacgcc tgtaatccca
95351 gcactttgga aggccgaggc aggtagatca cgaggctcagg agatcgagac
95401 catcctggct aatatggtga aacccgtct ctacaaaaaa taaaaaaat
95451 tagccgggcg tgggtggcgg tgctgtagt cccagctact caggaggctg
95501 aggcaggaga atggcgtaga cccgagaggc ggagcttgca gcgagccgag
95551 attgcgccac tgcactccag tctgggtaat agagcgagac tccgtctcaa

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

195 / 338

```

95601 aaaaaaaaaa aaaaaaaaaaag aagtgtcggg ttaaggagag gcaactcatc
95651 ttctagttaa caagtgaagt ttaatttttg ttctccccta agctctacat
95701 cttagtctta gcttgtccca cacttctggg tattcttgca ataaactccc
95751 aagcaaagac aacatgggca tgtattttct tgcagcctca actgcttaat
95801 tcaagtgtc tccccactga tctctgagac acatgtacaa agacgttggt
95851 agatgcattg tttgtaatga cagaaaaatg tgtccactaa tatgggctgg
95901 ttaagtgatc gtattcatca aatataagat acatcccaat ttagagacat
95951 taaaatatca atcaaattggc ctacagtagt tacatgatgt agttgattct
96001 tctaatatgt gaaaaaatgt ggggtcttaga cttggagaac taaggatatg
96051 tgtattcaca cagtggacta ctttgcagct ggggtaggta atggcacaaa
96101 aggaggtgtg tgtcgtgtta cctgtaacaa cctgagcttg aaaagtaaac
96151 agtcttaaac caagtgggtg acacacgcat atagtttaag tattttttaca
96201 gctttttgtt tgtctaaggt atgttaaaca tttttctttt ttttcccaag
96251 atagagtctt gctctgttgc ccaggctgga gtgcagtggc ttgatcatgg
96301 ctcactacaa cctccacctt ccaggttcaa gcaattctcc tgcctcagcc
96351 acccgggtag ctgagattat gggcacctgc accacacctg gctaattttt
96401 gtatatattg tacagacggg gtttcacat gttggccagg ctggctctga
96451 actcctgacc tcgtgatcca cccgcctcag cctcccaaaa tgctgggatt
96501 acaggcatga gccactgtgt ccgatatgtt atacattttt atatataac
96551 attctgatat gctatataca gttataacca gccaatatgt tacacagttt
96601 tctctactg ggcctagcaa catttttgtt atgttatata ttttgttata
96651 cattttttct aaccgggcct agcaatctgc tttatctccc ttgttctgtg
96701 ggaaaccttg tgttcaagtg atagcttaaa aatcaattct cggctgggtg
96751 cgggtggcgg gtctcacgcc tgtcatcca gcactttggg aggccaaggt
96801 gggcagatca tctgatgtta ggggtttgag accagtctgg ccaacatagt
96851 gaaacctcat ctctactaaa aacacaaaaa ttagctgggc gtggtgacgg
96901 gcgcccgtaa tcccagctac tcgggaggct gaggcaggag aatagcttta
96951 acccaagggg cggaggttgc agtgagccga gatagtcca ctacactcca
97001 gcctgggcaa cagtgttaga ctctgtctca agaacaacaa caaaaaaaaa
97051 gacaaaaaaaa aaaaaaaga attctataaa taaaggagtt gagagaaaca
97101 ttcactgtcc cttatctcta catgttgatt atcagaataa aaagaattcc
97151 agcaacatca gtcattgggca caaagccaac ccgtaaacat ttacagaact
97201 cgatgattac ccaaaactcg gcttgctttc tcaatactac tgactttggc
97251 ttcacattag ccacaggtgt gtctagagtt aaacaaggtc aactttacaa
97301 aaaaaaaaaa aaacaaactg atacttgggc atagtttaaa aaaaacttaa
97351 aagtgtgtgt gtgtgtgtgc gtgcgcgtgt gtggtggggg gcggggcatt
97401 tcaatataaa tgccttaaac acaaccttcc tggctatttt ataaaatggg
97451 ttgaatctct aaggacacat atttcctaag acctcgactg atacacagag
97501 tgcaaaactg ggagccagac tagactgcct cagaatcatg ccagctgtgt
97551 ggcactggaa agtcacctaa ttttgcagcg cctaccttca cctctgtaaa
97601 atggggaaca ataataacta atttatggat gctgtaaaga tctgaaattt
97651 taaactcagt aatgcgcctg gcacacatta gacacgggtg tttcgtttgt
97701 cttggcaaa gcttcgggtt ttgcgacaat agccttgctg cctccggagc
97751 aagcatctct ccttgcccc tctggggcat ttaaaaatga cctcaattct
97801 actctcaatt atgtccagtt caacagttac gtgcaggtta caaagccgag
97851 gaagctgagg tatcttctaa actaacatag cacgtacaga atttttttaa
97901 agtttggtgg aggaatcggc agcacaaggt aagctgcgct ctgttcacag
97951 acctgggaat cagaactccg gccgcgcgg cctccaggcg cctctcagct
98001 aacagacttc ctgcagcagg gggaggggcg gccagctcgc tgcaaaaagc
98051 cgcaggaccc cctcaccctg ccttgccgccc cccgctccca ctctctggga
98101 tggggagtg aggggtctagg cgatggcact taccagcgcg aagtgcacca
98151 gcgcgtcgta gcagagccag atgagcgccc cgcggtccgc cgccccctgc
98201 ccgcgcccca ggcgaggcc cagggcgcag cccgcccga gcagcgcgcc
98251 gcacagcagc agcgaaccgc cagcctcggc cccagctcc cactcagcgc
98301 ccatgcttca ggcttccgac gccaacggcc caggaccatg cggcagagga
98351 aagcagggag agaaacgac gggcggggct ggccgggaag gggcgagcc
98401 ggatggccaa ggaggagcgg agctgattgg ccaaggcggt ccggggaggg
98451 acggggctcc ccggccgggt cggggccaga gcgaggattc cgtgcccgc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

196 / 338

```

98501 tcgcaccctg gccagcctgc tgagtccggt ggTTTTGCCA ggtgccgccc
98551 atggagggttc cgtagaagga acgtgctcac caacttgcg c aaccgcctcg
98601 accaaacctg ttcccaaacc gagcccaaag gattggtaat agggccacac
98651 cttttgatgt tgtttcgctt ttaacaaggc tcaaacttta agccacaaag
98701 tgaagcctag gtagtggaat ttttgccagt agaccggggc agaattttag
98751 gggcaaaagg ttttaattag gctgcagcaa gccttaccag ggaggctggg
98801 ggccaaggga gttttcagcc accagccggc ttaaagcctt tatggcctac
98851 tctgacaatc ttccatttc ttaaaaatcc agaaaagtag aagggtgggt
98901 gagaggagcg gtaagtccta ttggcttggc gatagatgcg tttaacctgt
98951 ggcaggccag gtttcactat cgcaggcctc catcacaact gcttcagcac
99001 tgagtgggta aattaaatat taaaagctga ggccgggccc ggtggctcac
99051 gcctgtaatc ccagcacttt ttgccaaggc gggcggtatc cgaggtcagg
99101 aaatcgagac catcctgggt aacacggcga aaccacgtct ctactaaaaa
99151 tacaaaaaat tagccgggcg tggtgacggg cgcctgtagt cccagctact
99201 ccggaggctg aggcaggaga atggcgtgaa cccgggaggc ggagcttgca
99251 gtgagccgag atcgcgccac tgcactccag cctgggcaac agagcgagac
99301 tccgtctcaa aaaacaaaaa aaaaattaaa agctgaaaga gtcagtgcc
99351 atataccaaa gtctggaatg taacaaaagc ccaccaagag ttttgccatg
99401 gcctttcttg ggccttgaag catgacaaga taactaagga atttttaaca
99451 ggacccgttt aggattaaac aagttttatt gggggtctga agaaactccc
99501 caggcctcca aaaacaagtt tattgggagt ctggagggaat tccacaagcc
99551 tccatgattt agcaagagac aaaataaggg taatcatccc agcaccaga
99601 cctatttaga ttaagtaaat ttactgaggc tccagaggaa ggtcttcagg
99651 attagaagtt gttaatcact tacgtcttta gatgaatgca ctcttacacg
99701 tagacatata gcttagaagg tatatacgct ctggaaaaac tttgtaatta
99751 tgagtgggct tggcaataat ttccagacct tctccctgta accggttgca
99801 gaaataaaaa ctcttcttcc ccagttcatc tgcacctcat tattgggctg
99851 cccaaccccc agtttggtcc gggaaacaaac ctacattatt taacatcaca
99901 acaaccctat gaggtcgggt aaataagcca gtcacaaaaa catacttatg
99951 attccactta caggaaatat ctaaaataat caatttgtag aaacaaaata
100001 gaatgatggt taccaggggt ggggcggggc gggagtggg ggggggccc
100051 gggaaaagtg gagggttatt tattcggata gtttgatttg caagatgatg
100101 ttctggagat tgggtgcaca acaacgtgaa catactttac tgagctgcac
100151 acttaaaaat ggttaagatg gcaaatttta tgtgtatttt acagttatta
100201 aaaaaaatgc tggcactgaa cacaagaaat ttttccctta gtcacttcct
100251 ataccatttt ttatagcagt taacaccaga tagaatgatc cttgtttaca
100301 cacttattgc taatctcctg ccactataat gtaagtcttc aaggccaggg
100351 gttgtggcta gcttttttat tgctgtatcc ctggcaccta ttacagagtt
100401 tggcatatat tagctgctca gttaaataac tggcgactga gtatgggtaa
100451 tctagccacc tatgctctgg atcctgtcct gtaactaact tatcatcctt
100501 tagggaccac tcggccacc tccccttcag agcaaaatag aaacttaatg
100551 aaaaaactga tcagatcccc tgtcttcctg tcttgaccct gctcctcagt
100601 cctttctact ctgggttctg ccttatcaca ctgatatagc tctcactaag
100651 gtgactactg gcctccacat cactgaaccc caagaacagt tcattttctt
100701 agtgtagttt acttctcagc agcatccag cactgaaata ttttctctt
100751 ggttttctga gaatacagcc tccttagcca ttctgtttcc tttgcaagtg
100801 catcttcac tacaaatgcc tagtgaatgc tgcagctcca caaccagtc
100851 ctggccctg ttctcactcc agaccccaaa tccaggcagt ctcatcctta
100901 ccctctgctt taatgaccag caaaacctgc agagaactca aatctctagc
100951 ctggtcctat tctctggact ccagaccagt atttccaact gccctacttg
101001 acagtcaact ggatgtctca atataaccca aactgagctc atcactttcc
101051 accccaatgt ctgattctcc ttctatctc atgttacttc cactcatcag
101101 ttactacaac ccggaaacct agaaatcatc cccgatactt ctctctcccc
101151 aaacttgga tctaaggcat caccaactcc tctcagcag ccaagtattt
101201 cttgattcca tgcatttcat ggacctgttc accatctcgt ctgtgcttca
101251 ctactaatg tgaccagcga cctctacatc actaaatcca aaggacgttt
101301 tctgtcctta gccttaccaa ctagtgatct ttattaatct attatccctc
101351 ttgcttaatg atgatcttca tatagaatac caaaatcctt tttatgactt

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

197 / 338

```

101401 actagactgt ggggtctggc ccctccctat ctcttttagcc ctttcccatt
101451 cccctattaa tcctcctctc cattataatc tttcatctag ctatacttgc
101501 tttctttcac ttctcctcaat accccatggt gcttcccaca aggctttgta
101551 cagactcttc ccaactgctgg aaagcttttc cagtcaatgt gcccaataaa
101601 ctectgcctt ttcaccacga tcagtgaat tttggctggc actttttaag
101651 ggctcaacat tagcctggtt atcacctttc tcagtagcca atttcctcta
101701 gtatgtgtat cattgtatac ctcttttttt ctaacatttg tcaaaacttg
101751 tctttttttt tattcctggt attttttaca gtatcctgtg ccatagcaca
101801 gtacctggca cgggacagag tattcagtat tcgaatgttt ctaaaggctt
101851 agtcagaatt cttattttata taagactgaa gacatcgaaa ggatacatat
101901 gtagaatgtg atctcatgag aaaaactagg ctgaagtaaa tatgaaattt
101951 attccttatgt ttagagttga aaagggtaga tgcccaacga tttgggttaa
102001 agagagctga tgataaagag ggtgtgactt gatcacaac ctaattatga
102051 tgaagctggt aaaataactg aaagactccc cccacattaa tagaatcaaa
102101 agtccagata atggaatggt cccattcatt ccaaagtact cagaaaccag
102151 tcacaccaca ctctttattg ttggaatcct tggagtacat cacgctgaca
102201 ggaaccagggt ccagcaatga ctttataatg agaatggatg aaatgcaagg
102251 ggtgttcgag taaaagaaaag ctgattttaa aaatggatga gtctcctctg
102301 ctatctggaa ataacaaagt ctactcccaa tcaaaaacag ttaatttaca
102351 atgatggaaa ttttaagtttc tttctctttt gagacagggt ctcaactctg
102401 tggcccaggc tgaagtgcag tggcacgac tcgggtccag tgtatggcag
102451 cctcagcctc caaagtagct gggactacag gcatgtaccg ccaggcccag
102501 ctattttatt tattttattt ttttgtagag atgaggctct actatattgc
102551 ccaggctggt gtcaaactcc tgggctcaag tgatccactg acctgggcct
102601 cccaaagtgc tggcattaca ggtgtgggcc actgcacca ggttaagaaa
102651 ggatcttgta gcaagcaaag ctagccaata aatacaagct ccctcaaat
102701 gagtaccttg tttctcaagc tcttctaact tactcctgca ggaatgtttc
102751 cataaaatac cctgcctcaa aaatcagatt ttatgtttaa aatatgtaaa
102801 atgtatactt tataacactt tggcttgat taccaataaa acttttactt
102851 accacctagt aaagttgctg tcccacgaaa gtgttcctta tcttatggtt
102901 tctcacacta tttggcacaa ggccccatgc atctttgggt accacagttt
102951 aagggaattc ctcaagaagg tgtatggcaa tttgctaggg tagggaaggg
103001 ggatgctgta gaagaaattc cctgcagaga atactttctt tatggcatgg
103051 ctcgcccata gtttctgttt ttaataattt aatagatgat tgtaagtttt
103101 ctgatgaggc caatctctca acaatgcttc aagtgatctt caaactatgc
103151 tatgattttc tagtacaact ccagttttcc ctagataact taaagatttt
103201 caactacaag tgtttgaaaa aactgccat aggggtgtga gatttgggca
103251 attaacacat ttgattgttt tacaaccctg ttttttagcc acaggataaa
103301 ttttaagagg aactagtgtc tccatatttc tatttcttta tcccaagtcc
103351 cttgaaatag atgttcagta ctacctggag tttcctacag atgatttggg
103401 aaattagggt aggcctgcct tcaatttttc ctaaaactca gaatgaagaa
103451 aaggcacatt tgtgtctcct ttcttcatct tatgcatctg aggaaagcct
103501 gggactgttc atacaacaaa aaagtcatga tttaggctgt ctcatctgag
103551 tggagttttc tataggaatt gatttaggac agtggtttac aatcagggat
103601 ggttttgggc cccagatgt ttggcaatgt ctggagacat ttttggttgt
103651 cttaacttgg ggagaggaga gaggtgctac tgctatctag tgagtagagc
103701 ccagggatac tactaaacat cctacattgc acagggcaga tgacacacaa
103751 caaagaatta tccagccaaa aatgtcaata gtgcagggtt taaaaaacc
103801 caatttaggc caggcgctgt ggctcccgcc tgtaatccta gcattttggg
103851 aggccgaggc aggcggatca cttgagggtc agagttagg accagcctgg
103901 ccaacatagt gaaacttgtc tctactaaaa atacaaaaat taggtgtggt
103951 ggcaggcgcc tgtaatccta gctactcggg aggctgaggc aggaaaatcg
104001 cttgaaactg gaaggcagag gttgcagtgg gtcatgccac tgcactccaa
104051 cctgggctaa agagcgaaac tccatctcaa aaaacaaaaa aacaatttag
104101 gcctaagtta gttgagggat tttatgggca aacagtggca ttaggttgca
104151 ttcccacatc ctttttccca cacattgtat atagcacttt tggagaatca
104201 ttctatcact gtttttttagc tatctaaaca acatttatac tcacagcttc
104251 atatacagaa attatatatt ctttcccca aaaagagtta agtaaacttt

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

198 / 338

```

104301 cccagtttaa ctagggttta aaaaattaac catcactgta agacaacgga
104351 cattcatgaa tgtcagggtgc tcttgtttac ttgtttatcc gcattaacta
104401 atccccctgaa aaggatgaat gacgcttctt aaaaaatttt cttttcatat
104451 aaaaatagaa ttttttttaa gatgggggtct tgctatgttg cccaggctgc
104501 tcccaaactc ctgggctcaa gtgatcctcc tgactcagcc tcccaagtag
104551 ctggagctac aggtgtctgc caccaaccac gcccttcagg atgacccttc
104601 tgaaagaaat gatggcaaga ttgtatgagt actatcacat ttacttatac
104651 accaacttct tttaaaagta atttgcagtg gcattataca aaagtaaaca
104701 tttctatact caaaagtttg gctgctcctt tgttctttta gttaatgcaa
104751 gatttcattt agtgccataa actttaccta acaggttaaa acttttaggt
104801 ttgctctgat tactattttc catagttaca tgttttcaag gggtagccag
104851 gtcttaaagt ttgagttttt gtttcatcag tcacaatcat accatcatct
104901 caaataaatg gactttttct aagttatagt atttaaacct gagacacata
104951 gggagaatgc catgtgatga cggaggcaga gactggagtg atgcagctac
105001 aagccaagga atgccaagga ttgccaggaa ccaccagaag ctaggaagag
105051 gcaaggaagg atcatcccca tcgaagtccc cagacagagc atggctcagt
105101 catcaccttg atttcagact tctgggtctc agaagtggat gacaatacat
105151 ttctattgtc tgaaaccacc tggtttgtgg tactttgtaa tggcagctta
105201 ggaaactaat atagattttg gcaattctta tttgtcacag aatagctctca
105251 aatctagcat tattatcgat catcctggtt tgttagagtt gagatggaag
105301 aggaaccctt cttaagggcc tgccagggtgc cccaccaagc atggaaataa
105351 aggaaaattt tgagttcctt caagggaaat tccaggcacc tagctagccc
105401 tatgaataaa taagaaactt gataagcaag agagtaatag tagcttaaaa
105451 caacagccaa ggaagtcaca ggatgtttgg ttccttatag aaactaaaga
105501 taacatctta acatatgtcc ctgagttggt cttcagacac ctggaccccc
105551 accaaatggt ccaactggcca ggaagggggg aactgaggac tgagctctga
105601 ctgccattct ttgttctaaa tgtcttcctg aggggcctat aggaagtcac
105651 gcccatgggg cagacttagc attcctttct gctgacccca agttttttga
105701 caaagctttg attccttaat caactgcaaa taagaaaatc tgtgaattca
105751 cctatgacct ataagtcacc ccctgccacc ctcggttca agacagccca
105801 cctttctagg ccaaaccatt gtgtactgat gtacaattct gcctgtaatt
105851 tatgctttcc tgaaattcac ccctgccttt aaaaaccctt gcttgtaaag
105901 ccatgaggga agttgggtct taagtgtgag ctgcctcatt tttcttgttt
105951 ggtgccctgc ctgcagataa atgccctcct ttttctgct gcaaaacctt
106001 gctatgaatg tttggcctaa ctgtgccagg tgaacagact ccagtttagt
106051 tcagtaatat ggtgtgaagg agatattaaa atacagtaaa agagtaattc
106101 atgatttacc tccattgtga tttttaaaaa aataattcca aatttaaatt
106151 taaccatata gaaaacaaac aagttatttt cagaaataag ttttcaatgt
106201 tttatcatat ttgatagcag ctttttttat tggttacaaa acctaagccc
106251 atatacaaaa ttaggaacac atttagatgc ctcttttgaa agaacgtttt
106301 agtcttttta aactgagttt aaaaaaaaaa aacaatgcaa tttttaaaca
106351 ctgttttgaa aacttaaaag tgcagcaata tacttagttt cttttatcta
106401 cgaaatggtg caattccaat tcaaaactgg taaggtcaca aattgaatca
106451 aggaaatgca tacaagtgtc tgcactactt gatgctaatt ttcacttaaa
106501 tgttagtttg cactttaaaa catgagagga aataggaatc atcacagtag
106551 aggcccaatt ttaatcataa tgtgtgcaaa ttttaaaagg taactgtcag
106601 ttaagtaagg aaagtccaga agaaactaaa ctggaagggg tacggttcac
106651 aatatcaaga agatttgac ttttaagggg ttcaccgaag tttgtgacct
106701 taattagctt ttacgttggt attcctactt ttagcgaaca ccacacagtt
106751 tcaaaaattt agactatagt gtccgaacag gatgcagtta ccatatgaag
106801 ctttaactca aaatttggt aaagaaaaaa aggcacaatg aacttcaact
106851 caattttatg tgcacaagag ttgaaaaatc tgagccacct taaagagaaa
106901 ttgattctaa aatttataaa acctataaat aatcagaggc caaaccacta
106951 tattaataca gattctctag caagtaaaaa tcttgcagtt taaacatacg
107001 cttgtatcca ctttagatac aagacaaaac tcaactctta aagtggctcc
107051 accttggcag atacatatat ttgtaatgaa tgcacacctg ctatgtgttg
107101 tttatcagtg aaaacacccc agctgattca caaagctctg atggcatctg
107151 tctcatcttc atcacagtaa atacaccccc caatggataa ctaaattag

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

199 / 338

```

107201 ttagattttc tatcccttca catcaatgca ttgggaaatt ataccagta
107251 aacaagagca acaataccat ttctgtgaca gcacaaatta tttagtttaa
107301 aaatttttaa atccatattc tttcattaat aactgggtca gacaatttac
107351 caaaagcaat aacttgacat agtaataccg gattttgcag aattacttag
107401 agatcactgc aaatcagggt tatgttaaata aactgcaaat tactcctcta
107451 cacagatccc tgtctgaatc ttttaatatg tgaagatgct ttttgagtag
107501 gatctgaatt aactttccca atactcaaag aatgaactct tatgacactt
107551 ctaaatagtt gctggtttgt tgccaaccac attatcaaaa gcactggtta
107601 ctaagtaaaa aatattttta gactaaatta cagtaaacad gaaagctcca
107651 cagtttaaac ccaatataaa tcaaccatat ccaattatca aattaaaaca
107701 aagaatatta actcctgaaa gctgaaagca agattttttt aaaaaacatc
107751 accaatgggt atttttagact tttgcagttt ttttttggtt gctttttggt
107801 ttgctgtttt tcctttatac tcagggactc ttgctttcaa cttaaacaga
107851 agttcaagtc cataacaggt tgcagctcag gtaaaatacc atgcacagca
107901 tttgattact tcaaaacagc aggaacacac aggctgaaga gagtgggtcaa
107951 atagggttg ctgttctcaa aaattaggta taatggcaaa agcattaata
108001 tccatatcta aagttcttcc tccaaccctg gcttctgagg cagataataa
108051 acacatcaat tactggtaga tgaagtagtt tttttttttt tttaaactta
108101 tctgtttatt caataaccaa gtttcttggt ttttaagttac tttttttgtg
108151 tcagttccac caatgaaaat catttggtct gtacttttaa atctattctt
108201 ccacataaag aatatgaaaa tatgtttgtg gaggacaatg atggaggctc
108251 agatcacact gcacctcttt agtcttccaa cttgtatatg catcatacca
108301 aagtgtcttg atccacagcg caccattttc caaaggagta tcagtgggca
108351 gctgacatgt caccactatg gaatatattt tctaaactgg agactgcagt
108401 tgtcagcctg tggcaccagg gaacagggaa aaatagggtg gttgagattg
108451 ttaaggagag ttctaaaaca gtttaggaaa tcatgcatat gcatttacag
108501 tccatgtgat agtgactttt ggcaactgca aagtgactga gacatggctt
108551 gctttagaag catcaaaaaca aagaggcatg tgtgttttgg agccttttgt
108601 tgctgttggt cttatcattt ggtagccatc tgggtggtgct tcatattgaa
108651 tgtgggaaag atgctgcact caactgaatt taaaaattaa attcctttgt
108701 ttgaagggtg gctgttggtt caaaattgta ggtacctcct tgtgttgctt
108751 caggaatgag gcagggatct tcatcaatct gtaaaaaaca agaaaaaat
108801 ccttattagg ttatgatact atacattatg atgtaagtgg aattgacttt
108851 ttacctctta gcaataaatt ctatgtgaat gctttaacca actaaaaata
108901 ttcgagtaaa tcaataattt tattaagaaa tttacaatt taaaatttaa
108951 cacgtttcga aactgcattg ttaagtctt gtatctggga cctagattta
109001 tttaacctat ctgaacatat atcacttata taattactat ttcttcctag
109051 ttaatagatt agaaatgaaa caagaactgt ttttacaact ttacctata
109101 atgaagtttc aaagtattta agagaaagtg actgatggaa tgtctaatag
109151 aaatacagta caaacttatg tcatcctaata aataaaagga aaactcttag
109201 taaatttaca tcatgtatag gttttcattt acatgaagat acacgctatt
109251 ttaatatcta cttacatcat caccagagaa atactgatct atgatttcaa
109301 atgctaattt atatatgtct tcattttcat gttgctgtaa aacttcaatt
109351 ttctccaaac ctggtaaaaa taaaataatc aaaataactg gtttaattgat
109401 aaggagatac taatcaaaac cacactcatt ttaatcatgg agaaatccta
109451 aggaactcag aacacactgc tcccccatct aagatagtgg tttgtctaaa
109501 aaacagacaa aacacggggc tgcttctagt tggaggacca gaatcccact
109551 aattttttcc ttcttagaag cccttgagggt acccggatcc ctgaggcaga
109601 cagtctaaaa aaacacccaa acaatccatt tgacagaggg aagctgtggc
109651 ataaatatgt aaagagactt atttcaagtt atatggcaag tttgtgacag
109701 tactagaacc aactccccca cagtgtctta atataaattt actaatctat
109751 tttttttttg agacggagtc tcgctctgtc acccaggctg gagtgcagag
109801 tgcagagggt tgatctcggc tcaactgcaag ctccgcctcc tgggttcatg
109851 ccatttctcc gcctaagcct cccaagtagc tgggactaca ggcgcccgcc
109901 accacaccgg gctaagtttt tctattttta gcagagacgg ggtttcacta
109951 tgtttagccag gatgatcttg atctcctgac ctctgatctt gccacctcg
110001 gcctcccaaa gtgctgggat tacaggcgtg agccactgcg cctgggcatt
110051 ttttctttct ttcttttttt tttttttttt tgagacggag tctcactctg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

200 / 338

```

110101 tagccagggc tggagtgcag tggcacgtct cggctcactg caacctccac
110151 ctcttgggtt caagtgtctc ctgcctcagc ctcccaagta gctgggatta
110201 caggtgcca ccactatgcc cagctaattt tttgtgtttt tagtagagac
110251 ggggtttcac catgttggcc aggtgtgtct cgaactcctg acctcgtgat
110301 tcgcccgcct tggcctccca aagtgtctggg attacaggag tgagccactg
110351 caccggcca atcttattaa tcttactgcc tcataaagta attgtatct
110401 ttctctttgt tttccaaatg ttattacctt tatataacca caaatgagt
110451 ttttagaacc ttataattgg tataaaagat ataaagattt aaattttgaa
110501 aaactttctt taaaaaatga atagaggtct tatgtcctat agccacaatg
110551 aacctgggag aaaatatttc cagaacagat atcatagaat gccttcattt
110601 atatttccaa tatatttact ccacacatca tatacatgtt tatcaatttc
110651 acaccttaat attcttcctt gaaatgtctt tttgaagggt attttaaat
110701 agttgcaatt tttcttata tactaataaa ccaaagaat gggggaaatc
110751 gttgccaag tgctttatac aattataaaa tattaatatg tctctatta
110801 ctctataga caaaagtaac tatattgata aaaagctgaa gagtagtaat
110851 tctctaagtt gctcaaactt actgtgttat gaacctgact acaattttta
110901 attatcttaa tagtaagaag atctggattt taactttgct tctatcaca
110951 cctacttctg tcaccttgga caagactcct taaaatctgt gggataattt
111001 cttctcaaga aacctcccg gctgggtgca gtggctcacg cctgtaatcc
111051 cagcactttg ggaagccgag gcgggcagat caccgaggt tgggagtta
111101 agaccagcct gaccaacacg gagaaacct gccttacta aaaatacaaa
111151 aatttagccg ggcgtggtgg tgcattgcta taatcccagc tactaggag
111201 gctgaggtag gagaattgct taaacccggg agacggaggt tgcggtgagc
111251 cattacactc cagcctgggc aacaagagcg aaactctgtc tcaaaaaaa
111301 aataaataaa taaaaataa ataaataaat aaataaataa ataaataaat
111351 aaataaataa atagaaagaa agaaatcctc ccagtctgaa tattctacgg
111401 tactactgca tttgttttct cttaaaataa ataaataaat aaacaataga
111451 atattcatat aaagtagtca atgaaatgta aaatctaaaa catgacatta
111501 tgataaacta atttaagggt taaacatgtt agtacatatt gaacatgtac
111551 atttaaaaac agaattttta catatgtttc acatgtcatt aaagaataat
111601 acagtatgtc aaatcacaat tatttctcat taaaatttca aagtaactgc
111651 cacagtaata acttcaggat gtagttgtgg aaatcctaag aatcattaca
111701 agattgaaac aaaatatcta ggtgactcag aagtcagtaa cttttccaa
111751 ctatatgaaa taatatttcc taaagtgggg tccacagaat tacatggtaa
111801 taacacacaa aaaaagtgtt tcattgttaa gaagttaaag aaatgctgga
111851 ttaaataaag ctttaaaatt tatgtagtgt tgtaagggtc cttaaatttg
111901 ctgtcatgca ctgtgacttc aagagaagta ttagtgtttc ctaaaatgca
111951 atgtcaggcc aggcgcagtg gctcatgcct gtaatcccag cactttggga
112001 cgctgaggca ggtggatcac ttgaggtcag gagttcgaga ccagcctggc
112051 caacatggtg aaacctcgtc tctattaaaa acacaaaaat ccactgggtg
112101 tgggtggtgt cgcctgtaat cccggctacc tgggaggctg aggtgtgaga
112151 attgcttgaa ctcgggaggc agaggttgca atgagctgag attgtgccac
112201 tgcactccag cctgggcgac agagcaagat tctgtctcca aaaaaaaaaa
112251 aaaaagctat gttgtcaatc tctagaaggc tatacagtga ctttcacaac
112301 ctgattttgc aaagtatgga ctactgtctt ctggaaaatc ctcttggaat
112351 gcaaataatag tgaataaaga aaagcaacat actgtgatca tttaaaaaca
112401 acgtatccta gtaattttct gtctagtaag ttgactttaa agaacttatg
112451 tttcagagtt ccagtgtcct aatactcttc ttccatcaat ccactcttac
112501 ctccacattc ctctattatt tcagctattg tgcttgcttc atcaccggcc
112551 attatcagaa tgttttttag accatctaga accacctgaa ccacttgaga
112601 atctttcact gacagtaaatt tacagaacgg tggattaca ttctgctgta
112651 caaggtactc aacctagaca acaaaagaga agaaatattt ttatttatat
112701 aattatctat ttcccagtag ggtgtcgtgc tacatggaag gctgaggcag
112751 gaggtatct tgagcccagg agttggaggc ttagtgctgt tatggtcatg
112801 cctgtgaata gcaactgcac tctagcctgg gcaacatagt gagactccat
112851 ctcttaaaat aataataatt atcttttccc caaaaagaac acaatacagt
112901 cagcaactac gaaacataag agagcagcat gctttccagt attaacaatc
112951 atgacagtta caggttttca aactcacctg atcttttctg ccacttattg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

201 / 338

113001 ttaagttgct gattgccc aa gcagcttctt tttgtgttcc aaagtcccc
113051 tgaagggttaa aaatgagatc ataaaaatgga ctcttttatcc aaaaagtctt
113101 gggtattaac agattaacag acacggtgaa ctcataatat gaccaacctt
113151 agcaagctga tgaattatca taggaattaa tccagcatct attacagctt
113201 gaacttggtg ctgggtgcct gctgttatgt tggaaaggaa ccacactgct
113251 tcctataatt gaacaaaata tagggcacct ttatttgaaa aataatacct
113301 ttaatgtctt tctaatatat tttatataga caataacaaa atcacctgaa
113351 ttacgttaaa gagactgcac ctaaaaagtg attaggtata caaaatcttc
113401 catttttaac aagttataag gaaatttcca ttaattatat ttgggctcca
113451 ataacctggc atttatccat tcattaatat ataggcctac tataagctag
113501 gcattattct aggaaatggt gattttatag aaatgaacaa aacagaaatc
113551 tttattcatg gagcttacat gtctgtgcat tagcttcctc taaaagacag
113601 aaataaatat acaactgaat ttcttttttc ttttcttttt ttttttgaga
113651 cggagtcttg ctctgtcgcc cagggtggag tgcagtggcg tgatctcgcc
113701 tcactgcaag ctccgcctcc cgggttcacg ccattctcct gcctcagtct
113751 cccgagtagc tgggactaca ggcacctgtc accacgcca gctaattttc
113801 ttctattttt agtagagacg ggggttcacc gtgttagcca ggatgggtctc
113851 gatctcctga cctcgtgatc caccgccta ggcctcccaa agtgctgaga
113901 ttacaggcat gagccaccgc gccagccac tatacaactg aatttctaaa
113951 actacttaaa aactacttct aataaagggtg atttcttttt taattttaaa
114001 aaatatttac tcacaagata tagtcattca agtattccat aaaaattaac
114051 catctaacta gtctagcatg ggtctatata acataaatat tctaaaacta
114101 agggatttat aagtcataaa cacgtctgtg agctgtttac aggttagtat
114151 cacatgtgta tcttcctctt ccacaaatga atttgttttg ccatccaact
114201 gtggtaagtt gttaataatt gctgaatctg tgtttagagt acatgggtgt
114251 tcactatact attcttgac attttttgta gatttaaaaa gtttcaaaca
114301 gaaatgctga gggaagaaaa tcaagtgtgt aacttctact tccaggtcc
114351 tatgatagtc tcaaaatgca agtaacaaat tttcaaggca aaaaattttt
114401 gaagtaacta attgcttgct gaagttgaga tggcatttct atgaaatttt
114451 cctctacccc ccacgatacc ctcaactaaa agcatactac atcacaggcc
114501 ggaacctttc tctgctgact tctgcccagc ttctcactt ctcaagtgtt
114551 tccaattatg gaatatattc atttagctaa aaaaaaaaa atcacctata
114601 ttgttaaaaa tttcttttagt aaaagtaact ggcccagagt ctgaaagtct
114651 ctggcttctt tgtcttcact ggaacaaatg tatctataaa atgtgttttt
114701 tgacaccata cttttctata agaaccacac agtcaaatta tactcaagca
114751 actatacaaa tatagttatg atgacgaaga agaaatgatc agttctgctg
114801 ggtttggttg atggtagtat attaggcaga taaaacttta gtaaactaaa
114851 tgtaaattta tttctttttt ttttttcctt tttttttttt tttgagacag
114901 agtcttgctc tgtcgcccag gctggagtgc agtggcacia acttggtctc
114951 ctgcaaaactc cacctcctgg gttcatgcca ttctcctgcc tcagcctcct
115001 gagtagttgg gactacaggc gtctgctacc acaccggct aattttttgt
115051 aatttttagta gagacgggtt ttcactgtgt tagccaggat ggtctcaatc
115101 tcctgacctc gtgatctgcc cgcctcggcc tcccaaagtg ctgggattac
115151 aggcattgagc caccatgcct ggccaactaa acgtaaatat aaaccacaat
115201 gagacaccac ttcacatcta ctaggattgt cagtaatttt ttttaacaga
115251 aaataaacgt tggctaggat gtggagaaat tagaattcta gtaacactgc
115301 tgggtgggaat gtaaaacagt gcagctgcaa tggaaaacgg tttggtggtt
115351 cctcaaaaag ctaaaaccag aattaacata tgatcgagca attctacttg
115401 cagttatata tccaaagaaa ttgaaagcgg gaactcaaat aggtatttgt
115451 atgccaatgt tcaactgcac attcttcgta atagtgaata ggtggaaaca
115501 accgaagtgt ccatcaacag aagaatgtaa aaacaaaatg tgggtgtatac
115551 atacaatgga atatttatc agccatagaa agaataaagt tctgacacat
115601 gctgcaaaat gaatgaacct tgaaaacatg ctgatgaaa taagccaggc
115651 atgaagactt attacatact agtaagtaca tattacacaa ttaataataa
115701 acttgctctat gaagcttgaa atcttaaaaa gagtaatttt ttatgatcct
115751 tgaatttagg cacctcgtct ttgggtccaa actaattttg ctgggagatc
115801 aaaattttta tgatcggttt gtttaaaaaa ataccagccc attcaaatgg
115851 cagattttgt ctgcactttc aagcggctac taatttaagt attgttgcta

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

202 / 338

```

115901 tgctcagtct acttaaatag aaacacaggt agtctaaaaa tgttttttac
115951 tctgtgatga ccagggcagc acctaccaga agcgattaaa agttgaaaaa
116001 ggctgggccc ggtggctcac gcctgtaatc tcagcacttt gtggggctga
116051 agcaggcgga tcacaaggtc aggagtctga gaccagcctg gccaatatgg
116101 tgaaacccca tctctactaa aaatacaaaa attagctggg cgtgggtggc
116151 ggcacctgta gtcccagctt ctccggaggc tgaggcagga gaatcgcttg
116201 aacccaggag gcagagggtt cagtgaagcc agatcggtgc actgcactcc
116251 agcctaggca acagacagac tctgtctcaa aaaaaaaaaa aaaaaagttg
116301 aagaaaaaca tttgcagagg tgatttaaaa taattctcat cttcgctgca
116351 gtggctttta agaaaaacat acaagtagca atagaaacaa ggagacagtt
116401 aaaaatgaga cacagaaaga aatagcataa tgaggacatt atatgcctta
116451 ccttatttat cttctctttt ggggtgtgata agagatttgg gaagtgtgac
116501 aggacatcac aattgagaac aacctgggtc tgctcgctcg tgccagtcac
116551 tatgttgcca actgctctga gggctgctgt ctagggtggg gataaaatgt
116601 tttctataaa tttatttgct tataagacta attctatat tttcataatc
116651 ctgagaaaaa gtaaaaatgc aaggcataaa taacacttat ttcactcttt
116701 cacaaagcac caagcagtct gagagctatt ctgaatttta aatagtctct
116751 tgtgaaaaac tgaaacttta tgaaaaaaa aaattgtgtg aaaattgggt
116801 ggaaaaagat tcaaaaaata aaaggaaatt aaaattttag aagaagtcca
116851 gtttcttaag gctgggcatg gtggctcatg cctataatcc cagcattttg
116901 ggaggccgag gcggggggga tcacctgagg tcaggagttt aagaccagcc
116951 tgggcaacat agtgaaactc catctctact agaaatacaa aaattagctg
117001 gtgtgatggt gcatgcctgt aatcccagct actctgaagg ctgaggcagg
117051 agaatcactt gaacctgaga ggcagaggct gcggtgagca gagatcgccg
117101 caccatactc cagcttgggc gacagaacaa gactccatct caaaaatata
117151 tataatattt taataaacgc ctggaatggg cacacacttc cacctagaaa
117201 gtcactttgg taaagcagga tgaacagatc taataagtgc ctaccctaa
117251 ttagagtggg agagagaaaag aagaaatgca attaggttat tgcaattatt
117301 tgggggaaag atagagtctt gaactaaatc tgttgttcta gatagataag
117351 gagagacaga tttgaaccta tataagaaga attgaaatga ttttgtaatg
117401 gaatgggaat tgcaaggagg aatcaaaatt tctagcttag gccatgctgt
117451 tcaactgaagg tagacaagga agaagagcag gtttgtggga gatgatcggt
117501 tcatttctgt ctagttaacc acggaaagct tgaaggagtt cttagatgat
117551 atgtataaag ggtcaagaac aattggctat acaagtgtgg aactcagcaa
117601 agaaactggg tgagataaag atttggaaat caacaaaatc aggctcaggg
117651 actagcagaa gaaatgtgga agataagcac ttacagatag aattaaagcc
117701 tagctgtaca agttaactgg ttatagcaaa cacaactgta tacaataaag
117751 aaaaatttaa aaatacttac ttgaactttg acttcctgat ggctcagaag
117801 gggcacaaga aagggcacaa ctctgaatc aataaccatc tgtatctggt
117851 cattacctcc atctgtcaag tatgacagag cccaaacagt gtctacaaga
117901 atctacagga aacacaaaag aaaaaccatt ttacatattt gtttgaatgc
117951 tttacttggt caacacacct caggagtagt gacagaaaaa gtaaccaaat
118001 ttcaagtttt agcttagtgg caaaaatata tgcttagctg attaacttat
118051 taagtagaaa gtaccttatc tttctttcag tgcctacctc agatcattct
118101 tcacagaaaa tgagacacag aagtctggga aaacttctat tccaacttct
118151 gcatttatgt atcagacaga tgaatttaaa aacaggcaga aaagtaattc
118201 tccctgccct cacaaattag ctacctata atcccacaga aaaacactat
118251 ttacaagaat gaggccaaca caccatactg tttcaagttc agaagagaac
118301 agaaaggtea tctatttact ctactgggtt tccaacatat ttagcaatac
118351 aatttttcag gctactaaag taaaccaata aaagaaatga cttggcactt
118401 taacttcatc tggggaaaaa actgtttgaa aatctcctga aatgtgtccc
118451 caactgaagt ataaacctgg agtataaacc atgccctagg cctatcctaa
118501 ctttgcaact acatagaaga aaacaggctt agcgatctgg tgattcattc
118551 aaggtcaaag atcttgatgt tggcattgct tgggtgctgc acagagggaat
118601 ataagcactg gttgtagctt atgcaaaatc aagatgtttc ctattaggtc
118651 atccaaattg aagacatcac atctttttgc cctaaaataa tagcaggcac
118701 ctgaattcac atacccttca aaaaaggata tagatgaata aataaaatag
118751 aactacacat ataaccaca ccccttcagc attactaaga gtcagagaac

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

203 / 338

```

118801 actaaaaatt tccattatct gtaagaggag aaaaaattaa attctagctt
118851 ttgtctggac ctcttgccctc aagactgtgt aaaagagagg acagaagctg
118901 ggcctaagag ctgagcccac ctaccagccc atttcccact ctggaagtga
118951 ggaggcctcc ctgctggagg tgtctgcaga tgctgggtct gagaacaaag
119001 tctggctact gcccaccctg gcagtaacag taactagatt tacctagaaa
119051 caggggtctc aaagcataac accaatatgt gtaggctaca atggaaaata
119101 acccttcata ccaagatcca ggaaattctc aaaagagaaa agacagtcaa
119151 cagatgccaa tattgagatg acacacatat tggaattatc tgacaaggac
119201 ttgataagat tttaaagtaa ctatcataaa aatgcactgg tgaacaatta
119251 tgaacacatt tgaacaaaat ttaaagtggg aattctcagc aaaaaaacc
119301 gacatgatag aagggggaaa aaaaaataaa tgaacccaaa gatacatcaa
119351 tagaaatcat ccaaaactgaa taacagaaaa aaaaaaagat taaacagaaa
119401 ttaactctca ggaacttcca gcacaataac aatagatcta atattttgtgt
119451 cttcagagac cctacaagga aaggcggagc tgaaaaaaat atgaagaat
119501 atgttccaaa tttggcaaaa tagataagtc tagaatcaga ttaaaaaatg
119551 ggaggttgag gcaagaagag aaaatagaat aagctcatgc atcattgcac
119601 aggtaagaga cagaagtaaa aaaatatatc atttaaaact gtcaaacacag
119651 atagtaagag agcattaaaa aggtgtaaga ataaaggtaa ccactagaac
119701 aaaaatacaa acttcccaa ataccaaaag aaaattgaga aagacaaaag
119751 tatgcttagc agagaaaaaa aaaaacacag ggacattatt tcacaaaatg
119801 acagttcaaa tcaatctatc aacctatgtg aatgggccta actaacctat
119851 taaaaaaaaa aaaagatttt caaattggcc ctggctctca aaacaaaacc
119901 caattccacg ctgtatacaa gagacacaca taaaacaaag aatttggaag
119951 ggctaaaaat aaagggatga gcaaaagtat gccaagtaaa tgataaaaag
120001 aaagctgagg ttgtaaccct gttaaaagac gaccagtaga atttaatcta
120051 aaaagaatta caaagaaaaa aggatacttt acaaagttaa atcccacaat
120101 ttatcatgaa aatacaacag ttataaacat ctattaacca aatagccctg
120151 caatcactgt tttaaagcag agaataaaca cacacacaca cacacacaca
120201 aatatatgta aaaacatact aataatagga ggttttaaca tactactgtc
120251 atatgaggga agtcaaatag gcaaaaaata aaggtataac tcttatgaat
120301 atatattgaa ctttataccc tgataatggc aactacaact tgcacatgta
120351 caaatatcat attaggttca aagaaaacat caataaatta cctaagtcag
120401 aaacattata agcctatcac aaggcaaaaa acttatacat taataaaatg
120451 aaaacaaaaa aggcttttct atatagaaat ttaatagcct tatattaaac
120501 agctcttagg tgaaacacac acacacacac acacacacac acacacacac
120551 acacaaaaca gaaaaaccca acaacaaaat ttctattttt cttttctttt
120601 tgagacagag tctcactctg tcaccccggc tggggtgtag tagcacaatc
120651 ttggctctct gcaatctctg cctcctaagt tcaagtgatt ctctgcctc
120701 agtgcccat gtagctggga ttacaggcgc gtgccatcac agtcagctaa
120751 tttttgtgtt tttagtagaa atgggggttc accatgttgg ccaggctggt
120801 ctcaaactcc tgacctcagg tgatccaccc gcctcagcct cccaaagtgc
120851 tgggattaca ggcattgagc aaaacgcctg gcctaaactc aacaaaattt
120901 ctaaaaagtt aaaacaaaaa tgccacacat cagaatctat gacatttatt
120951 taaaacagtg attaaaggaa aattcatagc cttaaaaatt tatacaaatt
121001 tgtctgaacc catagaatgc acaacagcaa gagtgagtga acaacagtgt
121051 aaactacgga ttttgggtga ttatgatgag tcaatgaaaa atacaaaagt
121101 aatgagataa agaatagaaa aatcatagat ctaactaata aactgaaacc
121151 ctggttctct gaaaaaaaca aaaaacaaac aaaaaaaca ctaagaaaaa
121201 gtcctaccta acttaattag aaaagagcag ggagggggca caaatacaca
121251 aatcagaaa tgataaaata acccttaaaa taataaatta gaacaaaaaa
121301 ctaccctgca cactttaatg caagtaaaca tagatgcaat gaataattta
121351 ctagaacaat agtttataaa aactgacctt ctttagaaag agtgcttaa
121401 caagccaact tccatatcaa aaataaagaa aattatcatg aaactaactc
121451 cacaaaaaag taccaaatcc ccaaaggatt taagagggaa actatcaaat
121501 cttcaaaggt cagacagact tgatgctata taaattgttc cagagtacag
121551 aaaatgaagg aagcataaca ttaacacctc aactttaata aaacaataga
121601 agtataaaac ttaatacatc atgattatag caccattaac taatggtatt
121651 aacataatta aatttaatat taatatttgt aattaatgta aattattgcc

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

204 / 338

```

121701 taataaattg aacaaaagct aaactgcaaa ccaatatcac ttacgtgaat
121751 gctgatgtaa aaatctgaaa taaaatatta ttaacagaat cacatactac
121801 attgagaaac taacatataa tgatcaagtg agatgattca aagaatgcaa
121851 ggatggttca attttttaaaa atatcattaa tataagtttt attaatagat
121901 ttaaggagaa aataatagaa ttttctctac agacactgaa aaattcatta
121951 cattttttca gtgtccttga tagaacaccc aaaaaaggaa tgtatagata
122001 tttctctaac ataaaacatc tatagttcag acaaaatgta gatacaatta
122051 aaaaaaattg atgaatttga ttatatacaa aaagttcaca tggcaaaaca
122101 tcatagtcaa agacaaaaga caaactaggg aagtatttta agtatggcag
122151 aactaatatc cttaatatat aaagaactct taaaacctaa gaaaaagacc
122201 aaaaatccta cagaaaaaca gacattaaat atgactagtc tgttcgcaaa
122251 gatacaaatt aaaatggccc ttaaacaat gaaataatgt tcaacgtcat
122301 tcataaaaag taaaatgcaa attaaaactg agatactgtt tctcacctat
122351 cagatgagca aaaattttta atgtgacaac acactctatt ggcaaggata
122401 ctgagaaagt cactttcact tttgaatgca tactgcatac actacataat
122451 agataaagga gtcgaaaaat gtcattttaa actatcaaaa cagtaaaaaa
122501 gaaaagatat aagaataagg gcaaccacaa taaaggcaac cactagaaca
122551 agaatacaaa ccttcccaga taccaaggca aaatggcaca acccttacag
122601 cagggaattt ggcagtatgc aacgaaatta caaatgcatt tactctttga
122651 cccagcaatc ctgcttctaa gaatataccc tgaagatata cctccaataa
122701 tatgaaaaca cacaatagtc attggtataa tacttttaca tttgcaaaat
122751 tcaggaaatg gcctaaatgc ctatccataa tagtgtgttt aaataaactg
122801 tgtccacaaa acagaatcct gtgcaaaaaca acatgatgcc ttaagatgtt
122851 tctccattac atggtcacta ctattagcag aaaactattt ttttttctaa
122901 ctaatatat aatgaaattg tagactgagc tcaactaatg gttttcagtg
122951 ggggtctccat gacaatatct caaaggctgg gagaagataa gctacagctg
123001 ggtgttaggc accctgaaac tgcaaatact tgtagtctct aattttttat
123051 ttttagagat gaggtcccag tatgttgccct aggctgggct tgaactcctg
123101 ggctcaagcg attttcttgc ctttgatcta tattagcctt tgagctatca
123151 acctaaaaaa aaaatttgac catttattct ctggctcctt atctactaca
123201 taaaaagggg atgtagttct ttagacaaga ctatatgac tagaacctat
123251 taaatctctg ccttattttt tccccactat ttgttcacaa ttttatgctt
123301 ctatcacact ttaattttat ttaattattt ttttttaaca cagcatctcg
123351 ctctgttgcc cacgtgggag tgcagtggcg tgatctcggt tcattgcaac
123401 ctccacctcc ccgactcaag cgattctcct gccccagcct cccaagtagc
123451 tgggattaca ggcacgcac atgatgccca gctaattttt gtatttttag
123501 tagagacggg gttttgctat gttggccagg ctggtctcaa ctctgacct
123551 caagtgatcc actgtcctca gccttccaaa gtgctaggat taaaaatatg
123601 agccaccgtg cccagccatc atcatactac ttttaaaaac tcctttgttg
123651 gttcttcttc ccttgctgcc attcctgaaa cgccaggaat tcctaagtta
123701 catttttagc cctccttccg aaatacagcc tcctccaggt gatctcatc
123751 aatgccaggg ttttcatcaa tcccttaaat actgacgaat ccaaaatctg
123801 tattgtcttt tgcttttgga aaataccgcc actgaggaac aacaagttcc
123851 aagttctact cactttattt cctaacactc aaagtttttt ctcccttaac
123901 gattcctatt attgcaattt agtaatagtc catgccttca tcaacttccc
123951 taaacctatt atgatagcaa aatacatcta cctacagtca aactttccct
124001 acttcaaacc ttccatattt gtgttatatt tctgttacag ataattttat
124051 ctgtataaaa caaatatcat ttctcgattt aaaaaatcta caatgactct
124101 gcagtcatta caagataaac ttaaaactct ttaatataga atcaaaaact
124151 catataaaaa attagcaggg agtgggtggc tgcactgtaa tcccagctac
124201 tggagaggct gaggcaggag aattccttca actcgggagg cggagggtgc
124251 agtgagccta gatcgcgcca ctgcactcca gcctgggtga cagagcaaga
124301 ctccatctcg gaaaaaaaaa aaaaaaaaaa aaaaaagaat caaagactct
124351 gcaaattaac tccttagcga acgtattagg ttattatcta catgtattct
124401 cttaaacctc catgtattct tgagttctta atatcttccc ccgtgttctt
124451 gaaatgactt tctctcaacc tgtgaaaatc ctattcatcc tagttatatg
124501 acatgagaca aattacttaa gtacctctgc ttcttttaca acgtttgtag
124551 atgatggaga taatgagagt accaatctca caagaatttt gtaagaatta

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

205 / 338

124601 aatgggttaa catagcaaaa gtgcttaaaa cagtgcctgg cagatttttaa
124651 actcaataaa tggtaactat gaacactata atctttgact ctgtccccac
124701 ttctgtctcc ttataatgct cgtctcaaat gttactttgt caacgaagct
124751 ttctgcttcg ctagcaaaaat tatctgtgct tccataataa agcactttgg
124801 tcaactgctct atcttacctt ttttcttggt ggctttcata ccatgtttta
124851 tgtttatgtg cttatgggtat gatttttttt ttcactgtga gcctatggat
124901 tatactgaat atgtgatcat ggtatgaaaa agcacaggcc ttggacctgg
124951 cttcagttct cagggtatggc tctcattcat tgcattgacct tagaaagatt
125001 atttaacttt accgagtttc aatctctgta tttgtaaaaat agaagaataa
125051 aacttatctt acaaggatac tggtaagata aaaggagtct acagagagat
125101 ccagcacagc aatttcttga cataagttct ttccttttaa ctctttttac
125151 atctttaatg ttaaggtctt agaaggcatg gtctctttat gtcttatcac
125201 tgagtgtaca attcatggca caattctggc ttttaagtga ataatttggtg
125251 agtgtttgct aaacttgact aatatacctg taactacagt acactgccac
125301 ttttaataccc cagctttcac ataaacacaa ccaacagatg gtgaaagctt
125351 ttatttgctt ataattaatt ctataatggt ctgggggaaa gtcctgaggc
125401 aaacagcaga tattttgctt attccccttt taatctttgc tgtcagaaag
125451 cttacaacta aacttacctt tcaacagcaa caactaaact tctgtataaa
125501 ttttactttt tcttttacag atattatctt atatgtcttt tgttaagtca
125551 ctttatatcc attttgaaa taagacggca tataaacatg ttttacttca
125601 ttttaatgac attttaggct gtgtcaaaca cgaagtgact ttagctacct
125651 ttaaaagatt ccatcctgag agcttaaaat ctgcaaatga gctagagtaa
125701 tgtgatacaa tttttatata caaattatat tgccttgatga gaaaggtaag
125751 caaagatgta tttctttgtc ccaatgataa attacacaca attcacaatt
125801 ctgccacaca tatacacata tgtatgtaca tgttatgtgt atgtagataa
125851 agattacaaa aacacaaata tacaacaaat cagaaagaga tgtagttag
125901 aataaaagaa actggatcaa cactagtcac cgaaatttat ccactgtttt
125951 actccatgga aaagtaacaa tttaccttac tgcatttagg agaattttca
126001 gattgcctag atagtatcaa acttgccaga acgttgacag taaatgcttc
126051 actaaatctg aatataatga aaaaaaatca cctaaaaatg ccttgcattht
126101 aaaactatat attcttctat actatatcta aaaagactgt agcataaaaa
126151 ggcagcatgg ttttgtgaca agtaccacaag acctgttatg agaagacttt
126201 aatttgaata ttgactctga cccttactag ctcttccact ttagataagt
126251 catttaatct ctctctgaga gtccgtttct tcttattcta taaaatgggg
126301 ggaataatat ctagcctatc tgttgtaaga accagtgaga ttttttttaa
126351 aaagtaagggt gtttcatgag gttttaccgc tttacaaata ttaaggttta
126401 aaaacactac ttaataatga cagaaataaa ctacatatgc agtaatttct
126451 caaaagttag catttttgct gtctggctgt tactgcttac agatttaagc
126501 tataaaccta atttaagctt aatcctattht ctgaaaactg taaatacgtt
126551 gtagaaactt gacaagttga taaaatgtat gctgacactt acataaaaaac
126601 cctttctgtc ccatcaagag caaaatccca catttaagct gcttcttaac
126651 ttacgtttat atctgtatgg tatatgagga cacataaagc tggcaaaatc
126701 tgaggaaaga aaataaacia tacttaacat tagttaatta atatgtctgt
126751 aaaaatgaac aactttgaca taaaagcgg taaatatggt ttgtaggcgg
126801 agaaagacaa tgttaaattt gtctgaatat cttttaggaa aatgaaaacc
126851 tgataaattc aatctaaaaa aacaaaaaac atatctcaaa tgttaaactg
126901 aaatatgttc aattaacaag ttaaaatatc caaataaatc tggcagaagt
126951 taatgtacct taaaataaaa acatttgtht ttaataacct tctttatggc
127001 ataaaatgtc aagtggaaaa aatggagatg caaatatata gttacagcta
127051 tttaagaaaa gctacactta aaactgccgt aattgtctca cttacctgct
127101 taacgtaaaa atacgatttht acttaataag ctacttaagt caaattaaag
127151 ttttcaactt cacctttagt caagaaaatt cgaaccagta caaagtacaa
127201 agctttgctt gttaaattca ggccccagag atctcttttt aaaatatggg
127251 agaaagggag caggggggtg taggaaatca cacaaaatac ctttgcatag
127301 caacaaaaag tagcaggtac tagagaaaga tgtccattat aaagatacac
127351 agttggccaa gtgtggtggc tcatgcttgt aatcccacca ctttgggagg
127401 gtgaggtggg tggactgctt gatgccagga gttcaagacc agctggccaa
127451 catggtgaaa acccatttct actaaaaata caaaaattag cctggcatgg

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

206 / 338

```

127501 tggcacatgc ctgagacatg agaatcgctt gaaccccgga tgtggaggct
127551 gcagtgggca aagattgtgc cactgcactc cagcctggga aacagagcga
127601 gactgtctca aaaaaaaaaa aaaaaaaaaa agataacaca gtcaacagtg
127651 aataaagggtt atgtaggatt ttttttttaa atgcaaagca caaggatcta
127701 tttacatatc aaatgtaa ataaaaagttt ttactttgtt ttaattagta
127751 gatttaacaa aaaatatgtc acacttttaa gaactccaat tttgtcagta
127801 ataaattgga gttaggccgt gggggcagtg gctcacacct gtaatcccag
127851 cactttggga tactgaggtg agcagatcac ttcagggtcag gagtttgaga
127901 ccagcctggc ctacacagtg aaaccccatc tctactaaaa atacaaaaac
127951 tagccgggtg tgggtggcgt ggcctgtaat ccagctactc caggaggctg
128001 aggcacgaga ctgcttgaa cccaggaggc agaggctgca gtgagctgag
128051 atcatgccac tgcactccag cctgggcaat agaacaagac tgtctcaaaa
128101 gaagaagaag aagaaaaaaa atcaattgga cttaaagcaa actcattcaa
128151 gaacatttgc atgtaagtat actagttttg cctgtagcaa cccctttta
128201 tagcttttaa ccaacaatgc aatacagtaa taaaactttg agattgtttt
128251 ccttttgtat ttttctctct gaatttttat attttctttt tatgcagata
128301 atcaaaaaaa taggcattag gatgaactga cattctttca ggtacagtaa
128351 gacactcaac ttttatttca taggagtaat taaatatggt acgttacttt
128401 taaaatctta cacctgtggc tgggcgtggg ggctcaggcc tgcacatcca
128451 gcactttggg aggccgaggc gggcagatca cgaggtcagg aggtcgagac
128501 catcctggct aacatgggtg aaccccgtct gtactaaaaa taaaaaaa
128551 ttagccaggc gtggtggcgg gtgcctgtag tcccagctac tcaggaggct
128601 gaggcaggag aatggcgtga acccaggag tggagcttgc cgtgagccaa
128651 gatcgcgcca ctgcactcca gcctgggcga cagagcaaga ctccgttatc
128701 aaacaaacaa acaaacaaaa aactcacacc tgcaatgaaa tcagtatatg
128751 tattattttg tcccctgtat atgaattcct gaagtacaaa catagggaaa
128801 atataccatc tggcctttac aattcttcat ttacctctg aactgtctcc
128851 ataggcggcg ggggatcctt attcctgcag agattgacaa tgacctatgt
128901 gacgttccga aggaagggtg tggggatgga gggactgatg aaggacagaa
128951 gaggtttgac aactcccagt gatatgacat aatctctaca ttgaggacca
129001 tcacctacag aaatgaaaat tatattttaa aaaaacttac attcaggatg
129051 agaaagtctg aaatgtatgc aatggctcat gtgggaacac tgacgttcta
129101 tgtttcctca ccattagtca aaggcatcaa gtgttgtttc tccagatttt
129151 gatctgggga acgtaaattt aacctaccaa tgctaacagc aaactgtata
129201 tccttttcaa agagcatcat cttaagtcag tacttatgag gcaagaagag
129251 agtcaacaca cattaaattc agaggaaaca tagtatgtaa tggctatgcc
129301 aatgtaggaa aaaagttaat ttagattctt aagaggattc ctttcaaacc
129351 acttacctat aatgtttccc aaagcccata ctgcttggtc acaaacattc
129401 tgatgtggtg aacgaagaag tctcagaaaa agagggtactg catctgtaat
129451 aaagaaaaac taatatattt actagcaaca tgttgaagag tttacagatt
129501 tcagatcaaa gaaattgatc aaatacacag cctggcatat tgtagctgga
129551 agaacaaatg tggcaaatat ctttacccta aaaagaatca atttcagtat
129601 tttcccctag taatagtcaa gtaccgtaac caactggcag tatctaaagg
129651 ttgctatcat accattaact aaaagaaagc aacagcatga aatccttctc
129701 ataattccatt aaaaaaaaaa aaaaaaaaaa aagagttcct accccaaaca
129751 tgtaacctta aaatgtaatg ctttagtcta caaatctca attcctgata
129801 cggggattaa ccaagaactg gattaatctc atatcaggtc tatcttatac
129851 tttaaaataa tttctcataa tccttactct ttacagaatg tatacattat
129901 acccatttcc agcataagct agatcacttt ttaaaaattt caatcaactg
129951 tgcactacct catttttttt tttttgctgt atctgtgtat tacttgtatt
130001 atttacttaa aattttaaatt aattcagttt taacaacttt acggagatat
130051 aattacaata aatttacatt taagtgtgta attcaatgac atttcatatt
130101 tatacagagt tgtgaggaca tcgccacaat ctaattttat aacatttcca
130151 ggacctcaaa agaaatcttg gctgggtatg atggctcatg cctgtaatcc
130201 taacactctg ggaggccgag gcagatggat caccagggtc ggagttcaag
130251 accagcctgg ccaagatggt gaaacctgt ctctactaaa aatataaaaa
130301 ttagccgggc gtggtggtg gcgcctgtaa tcccagctac tttggaggct
130351 gaggcagaga actgcttgaa ccaggagagc ggaggttgca gtgagccaag

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

207 / 338

```

130401 atcgtgccac tgcactccag cctgggtgac agagcaagac tctgtctcaa
130451 aaaaaaaaaa tatcactatc agccggggcac agtgggtcac acctataatc
130501 tcagcacttt gggaagcgag gcgggcagat cacgaggcca agagggtgag
130551 accatcctgg ccaacatagt gaaaccccggt ctctactaaa aatacaaaaa
130601 ttagctggac atggtggtgt gtgcctgtag tcccagctac ttgggagggt
130651 gaggcaggag aattgcttga acccaggaga cggaagttgc agtgagctga
130701 gatcacgcca ctgcactcca gcctggcgac agagcgagac tccgtcttaa
130751 aaaaaaaaaa aaaagaaaag aaaaaagaaa aaagaaatct cactacttaag
130801 gcagtcattc cacatttggt cctctgccac acattcccca agcggcaggc
130851 aaccattaaa tatctgcttt ctgtctttac agatttgcct attctggaca
130901 tttcatacaa atgaaatcat actgtgtttt ttgggggggtc tgacttcaact
130951 taacattctt caggttcact catgtggtaa caggtattgg tacttcatc
131001 ttttttactg ctgaattgta ttccattgta tacaccacat tcactttatc
131051 cactcctcgg ttaatgaaca tttgggttag ttatgaataa cattgctgtg
131101 aatatttatg tacaagtgtt tgtatgaata tgttttcata tctcttggtt
131151 tcacctagga gtagaactgc tgggtcacat gataactttt tttttttttt
131201 tgagggtggag tctcgctttg tcacccaggc tggagtgcag cggcacgac
131251 tcggctcact gcaagctccg cctcccgggt tcacgccatt ctcccgcctc
131301 agcctcccaa gcagctggga ctacaggcgc ccgccaccat gcccggtcaa
131351 ttttggtttt gtatttttag tagagacagg gtttcacat gttagcaagg
131401 atggtcctga tctcctgacc tcgtgatcca cccgcctcgg cctcccaaag
131451 tgctgggatt acaggcttga gccactgcac ccagcctttg tttttgagat
131501 agggctctcac tctgtcgccg gggctggaat gcagtgtgca gtctcggctc
131551 actgcaacct ctgcctccct ggctcaagcg atcctctcgc ctctgtctcc
131601 tgagtaggtg cgactatagg catgcgccac catgcaatgc taatttttaa
131651 atattttgta gagacacgat tttgtcatgt cacctaggct gttcttgaac
131701 tcctgaactc aagtgatctg cttgccttag cctcccaaag tgctgggatt
131751 agaggcatga gccacctgtg ggtctggtga gaatagtatt ctcaatacat
131801 gattcaatgt aacttactgc catatcacat gctacttaaa atcaccttga
131851 ttaccacacc taaaattagc taagtgtccc atactataat aacgtacgtg
131901 gtgatatcta gtacttttct aaagagcttg tgtcagtgtc atttaacaat
131951 aattattagc ccatcttgag gaaagtaaaa tttaaaatat gtcataagct
132001 aaaaggcaga agccattcag catcttgaag atatcagaaa cggaatttaa
132051 aatcctgtta tcacagcatg atgtctactc caaaagataa aactctactc
132101 ttcttttaat aaccacaatt aaaaattttt catgataaat taatgacggc
132151 tatgaaaaag atatcgggtc tcaaaagtaa cttataaaag tcatcattta
132201 aaaaatgtta caagataaaa tttctttatt acaaaactct acttccttgc
132251 catcattaaa acacaaaaag ttcagacagt aaggaattta cttactagac
132301 tgcacaacag cttgagctctg tgcagaagtt cctgatgcta tggtagttaa
132351 tgcccaagca gcttcaaact gtaatgaagg actgtaaaaa aacaataaca
132401 catcttttta gacacataac taccacttaa ttaatgaatc ttaagactga
132451 taagatatgg ctattctttg ccttgtcctt gaatttcacc ttgttataat
132501 ccaattgcct gctagccaac cctacttttt tttttttttt gagatggagt
132551 ctccctccat caccaggcg ggagtgcagt ggcgccatct tgactcattg
132601 caatctctgc ctctgggggt caagtgatc tcgtctccac ctcccaagta
132651 gctgggatta caggtgcaca tcaccacacc tggctcattt ttgtactttt
132701 agtagagata gggtttctact atgttggtcca ggctggctct gaaccctga
132751 cttcagggtga tctgcccacc tcggcttccc aaagtgtctg gattataggc
132801 atgagccact gcaccagca gccatctcta cttaaaaaat ctctttggct
132851 cccaaagcca gtcactatga acctgcttct ttatgtccac tgggtattaca
132901 acatttagcc agtcattatt tcccttgact tcgacttctt ctccacagac
132951 acatctaata aatatatcat gtcgatttta cctcttaaac atttcttaca
133001 tttatataat caccctaata atcaagtgtc agttgaggcc ctcatcatct
133051 cactttaacc actatcacac gctctaggct ggtcttaag ctagaacccc
133101 atctgtctcc attacaccat ctgctttaca tactagggat attacaaggc
133151 tgtataattt tgttgaaaaa acaagatcat tatattttcg aatagtaatg
133201 gaagacctca caaagaaagt gacaactgaa ctagcttttc aaagatggat
133251 ttaaaaagaa aggagtgac agtgggaaat aaaacaggta tcatgcatgg

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

208 / 338

```

133301 aaggatcatg atgtgtagga acgacaagga ttagatcaag agagctgaaa
133351 ctaactaaga agcaagtaac aggggtgttg tgcattgtgtg tgtgtgtttc
133401 aggatgggag tgaggagtgt attctacaga tatgctaagg atggggcatt
133451 gaaaaaggga ggaaagaaaa taatgttcaa atcaatggta tgcagaatgg
133501 ctaaaaaagg ttaaaggctg atataggaga gacctattaa aagacatgtt
133551 ggggcttaca cctgtagtcc cagcactttg ggaggctgag gcaggcagat
133601 cgcttgagcc aaaaagttcg aaaccagcct gggcaacacg gtgagacccc
133651 attttttaca aaaataaaaa aatcagccag atgtgggtgtt acacacctgt
133701 agtcccagct acttgggatg ctgggcgggg gtgggatggg gggattgctt
133751 gagcctagga gtttgaggat tcaatgagct gtgattgtgt cactgcactc
133801 cagcctgggt gacagagtga aaccctgtca caaaaaagac ataaaggaaa
133851 gacctgttaa aaggaaatga tagatattaa gttaggatag ctgaaagagt
133901 acaaattccc ttaagtggaa taccaaggat tggggggatt tagtcagcaa
133951 aaattaagat tagacaaagg ttagggagt tgaagaaaag cctataaaca
134001 gggaagagag caagcaaggt tgttagtatt aaaagggtta agaagtccgg
134051 gcaaggtggt tcacacctgt aaccccagca ctttgggagg ccaaggcaga
134101 tggatcacct gaggtcggga gtttgaaacc agcctggcca acatggcaaa
134151 accccctctc tactaaaaat acaaaaatta gctggacatg atggtgcgtg
134201 cctataatcc cagctgctcg ggaggctgag gcaggagaat cccttgaacc
134251 caggaggcgg aggttgtggt gagctgagat tgcaccactg cactccagcc
134301 tgggcgacag agagagattc catctcaaaa aaaaaaaaaa aagaaagaaa
134351 aaagagaaaa aaggttgaag agatccaaga acaaaagggt ttaaggagaa
134401 tagatgtcag agatatagca aatagtgata tacagggtta aaagatggaa
134451 catatgagaa aatgaagtag cagagaagaa ctatgagggg actttaaaaa
134501 actcattaaa aatgtgtatt atgaaaaaaa ctccatggat ttcaattttt
134551 ttgcaccaa ataaactcat actaactttc tatacacgtc tgaacatgat
134601 ctagtttgag gcactaagag gggtaagggg taagtcatca atctgaaaag
134651 agcccctaga agagcaacat gaatcctgct aaaattaaag caaaaacaaa
134701 catcaaattt atggtgaagc ttgggtgaaa taatggtgaa ctactgatg
134751 tacttaaaac tttacgggga aaatgcccc aaagaaatca gcggtttaca
134801 aatgggttaac tccttttaag aagggacaag tcggccgggc atggtggctc
134851 acgcctgtaa tcccagcact ttaggaggct gaggcaggcg gatcacgagg
134901 taaggagatc gagaccatcc tggctaacac ggtgaaaccc catctctatt
134951 aaaaatacaa aaagtcagcc gggcgtggtg gcaggcacct gtagaccag
135001 ctactcggga ggctgaggca ggagaatggt gtgaaccag gaggcggagc
135051 ttgcagtgag ctgatatcgt gccactgcac tccagcctgg gcgacagagc
135101 gagactctgt ctcaaaaaaa aaaaaaaaaa ggacaagtcg atgttgaaga
135151 tgaaatccac agcggcaaac aatcaacaac aatatctgag gaaaagatta
135201 atcttggtcg tgccctaaca gaagatgatt gctgattaac agcagaaaca
135251 ataaccaata ccagacatct tgattggttc agcttacaaa attatgactg
135301 aaaaattaaa gttgagcaaa ctttcccctt gatagggtgtc aaaaccattg
135351 tgcccagata agccgtagac aacagcagag cttccaatga aaattttaaa
135401 ccagagggat caagatcctg aagtatttct tcaaggaatt gtaaaaggag
135451 atgaaacatg gctttcccag tatgatccta aagacaaagt acaatcgaag
135501 caaaagtgga ctggtcagga ggaaaggtaa tgactaaaaa gtttttgggg
135551 atgctcaagg tattattctt gttgaccttc tagagggcca aagaatgata
135601 acacctgctt attatgagag tgttttgaga aagtcagcca aagcttttagc
135651 agaaaaaagc ctgagagagc tttaccagag agtctttctc caccacaatg
135701 tttctgttca ttctgctcat caaacaagag caattttgca agagaatcaa
135751 taggaaatca ttaggtatcc accttacagt tctgatttgg ccatcttgtg
135801 acttcttttt gtttcctaata cttaaaaaaa caacctgtaa agggcatcta
135851 gttttcttca gttaatatca tgaaaaagac tgcgctgaca tggttaaatt
135901 cccaggaccc tcagttcttt agggatagac aatggctggt agtatcactt
135951 acaaaagtgt cttgaccttg atggagctta tgttgagaaa tcaagtttat
136001 atatttatta tctttcata attttattgt cttttgatcc cacttttcca
136051 caaactttta aaatttcccc tgtatatgat gaattctagc agaaggcagg
136101 aaataagatg gtatatcaga ggcagggaag aagtaaaaaa aacagtaaga
136151 tcaaaaacag taagacagta tatgttgctt cagactggaa ggagaaagtt

```

FIG. 7 CONT'D

SUBSTITUTE SHEET (RULE 26)

DEMANDE OU BREVET VOLUMINEUX

LA PRÉSENTE PARTIE DE CETTE DEMANDE OU CE BREVET COMPREND PLUS D'UN TOME.

CECI EST LE TOME 1 DE 2
CONTENANT LES PAGES 1 À 208

NOTE : Pour les tomes additionels, veuillez contacter le Bureau canadien des brevets

JUMBO APPLICATIONS/PATENTS

THIS SECTION OF THE APPLICATION/PATENT CONTAINS MORE THAN ONE VOLUME

THIS IS VOLUME 1 OF 2
CONTAINING PAGES 1 TO 208

NOTE: For additional volumes, please contact the Canadian Patent Office

NOM DU FICHER / FILE NAME :

NOTE POUR LE TOME / VOLUME NOTE: