



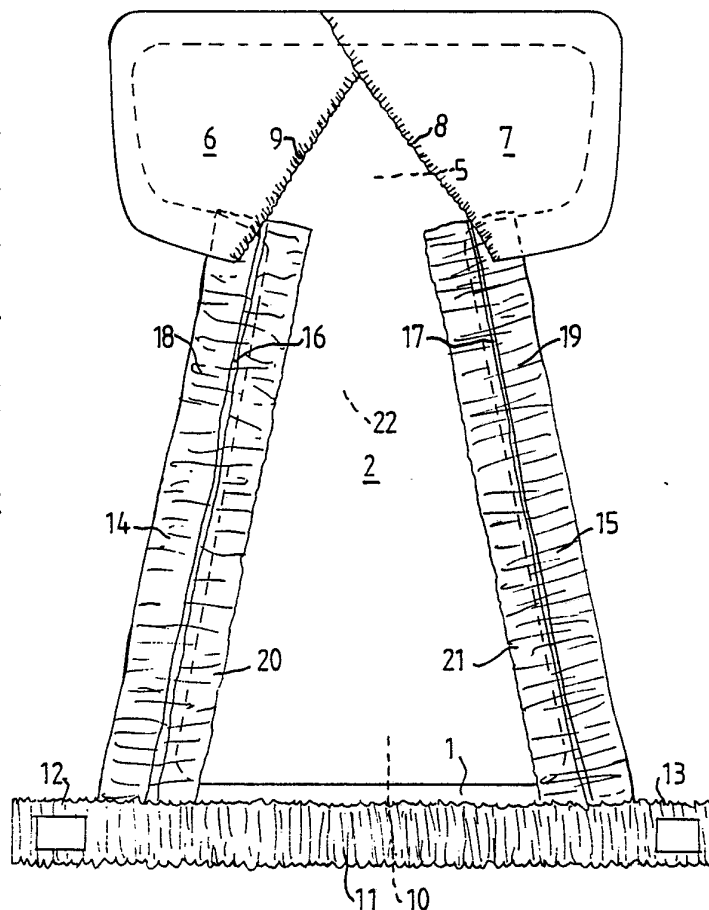
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/SE91/00802 (22) International Filing Date: 26 November 1991 (26.11.91) (30) Priority data: 9003773-0 27 November 1990 (27.11.90) SE (71) Applicant (for all designated States except US): MÖLN- LYCKE AB [SE/SE]; S-405 03 Göteborg (SE). (72) Inventors; and (75) Inventors/Applicants (for US only) : HEDLUND, Gunilla [SE/SE]; Musselvägen 5 A, S-459 33 Ljungskile (SE). MAGNUSSON, Ing-Britt [SE/SE]; Oxelvägen 22, S-435 37 Mölnlycke (SE). (74) Agents: KIERKEGAARD, Lars-Olov et al.; H. Albihns Patentbyrå AB, Box 3137, S-103 62 Stockholm (SE).		(81) Designated States: AT (European patent), AU, BE (Euro- pean patent), CA, CH (European patent), CS, DE (Eu- ropean patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European pa- tent), GR (European patent), HU, IT (European patent), JP, LU (European patent), NL (European patent), NO, SE (European patent), SU ⁺ , US. Published <i>With international search report.</i> <i>With amended claims.</i> <i>In English translation (filed in Swedish).</i>

(54) Title: A CASING FOR AN ABSORBENT ARTICLE

(57) Abstract

The present invention relates to a casing intended for an absorbent article, such as a disposable diaper, incontinence guard or like article. The casing (1) includes a front-part (5), a rear-part (10) and an intermediate crotch-part (22) made of flexible casing material. According to the invention, an elastic band (14, 15) is provided on each outer edge of the casing sides, at least within the crotch-part of the casing. The elastic band is attached, in a stretched state, to that side of the casing which lies nearest the skin of the user when the absorbent article is worn, by means of a narrow, elongated join. The elastic bands also include parts which extend transversely in relation to respective joins, in a direction from the joins in towards the central part of the casing.



+ DESIGNATIONS OF "SU"

Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

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A Casing for an Absorbent Article

5 The present invention relates to a casing for an absorbent article, such as a disposable diaper, incontinence guard or like article.

10 Such casing normally include leg elastication which, when the article is worn, embrace the wearer's thighs so as to prevent the occurrence of gaps between the article and the wearer's thighs and therewith provide a seal against lateral leakage. The leg elastication will often consist of elastic threads or elastic bands which are enclosed between the two layers or sheets from which
15 such casings are normally made. It is also known to use elastic devices in so-called all-in-one diapers which function to gather together those side-parts of the casing material which lie outside the absorbent pad in a manner to lift these parts in at least the crotch-part
20 of the article, so as to form barriers against lateral leakage. Although this design will normally function in the manner intended, there is a danger of the upstanding side part of the casing being folded inwards over the absorbent pad when the diaper is placed in position on
25 the wearer. Further, when narrow elastic threads are used, there is a danger of the threads chaffing against the wearer's skin.

30 One object of the present invention is to provide a casing for an absorbent article having leg elastication which, in addition to satisfying the demands normally placed on such articles, will also form a barrier which prevents lateral leakage of liquid and which will also afford a high degree of comfort to the wearer of the
35 absorbent article without risk of chaffing of the skin, and which will enable the absorbent article to be

readily positioned correctly on the wearer.

According to the present invention, this object is achieved with a casing for an absorbent article, such as
5 a disposable diaper, incontinence guard or like article comprising a front-part, a rear-part and an intermediate crotch-part of flexible casing material, which casing is characterized in that an elastic band is disposed on each outer edge of the casing sides, at least within the
10 crotch-part; in that the elastic band is attached in a stretched or tensioned state to that side of the casing which lies nearest the wearer's skin in use by means of respective narrow, longitudinally extending joins; and in that the elastic band includes parts which extend
15 transversely on relation to respective joins, in a direction away from said joins and in towards the central part of the casing. The narrow joins function as a hinge about which the elastic band can swing freely, therewith facilitating correct positioning of the absorbent article of which the casing forms part. Since the
20 elastic band is manufactured separately from the casing, the band can be made from a material which is friendly to the skin and can be readily dimensioned to provide an optimum effect. Furthermore, the elastic band lies
25 directly against the skin, which eliminates the risk that the article will become less proofed against leakage and also that the skin will not be subjected to the chaffing that folds of casing material between skin and elastic threads of conventional leg elastication can
30 cause. Because the manner in which the elastic band is connected to the legs in the crotch-part of the article enables the band to pivot around the joins to a substantially vertical position, those parts of the elastic band that are swung away from the joins will function as
35 liquid barriers. When the inventive casing is intended for repeated use and is therewith intended to coact with

loose absorbent, disposable pads, the elastic bands will assist in holding the absorbent pad in position in the casing.

- 5 These and other features of the invention, and advantages afforded thereby, will be apparent from the following description of a preferred embodiment of the invention, made with reference to the accompanying drawings, in which
- 10 Figure 1 illustrates from above an absorbent article provided with an inventive casing, wherein that side of the casing which lies nearest the wearer's skin in use faces towards the viewer;
- 15 Figure 2 is a cross-sectional view of part of the crotch region of the article shown in Figure 1, with the article shown as worn; and
- Figure 3 is a perspective view of an absorbent article provided with another embodiment of an inventive casing.
- 20 The absorbent article illustrated in the drawings comprises a T-shaped casing 1, in which a T-shaped absorbent pad 2 is placed. The casing 1 is intended for repeated use, whereas the pad 2 is intended for one-time-use only. The casing 1 is preferably made substantially of skin-friendly, liquid-impermeable but air-
- 25 permeable material, and the absorbent pad is preferably comprised of a core 3 of absorbent material surrounded by an insulating layer 4 of good liquid-permeability. This combination of casing and absorbent-pad material is
- 30 suitable when the absorbent pad, as seen structurally, is homogenous or has a symmetrical structure in relation to a central transverse plane, such as to make no difference how the absorbent pad is turned when placed in the casing. In other cases, the insulating layer 4 of
- 35 the absorbent pad should have an appearance which is pronouncedly different from the appearance of the layer

surrounding the underside of the absorbent pad, said
insulating layer 4 then extending solely on the upper
side of the pad. It will be understood that, to a
certain extent, the choice of casing material is depen-
5 dent on the design of the absorbent pad 2. For example,
it is not necessary for the casing material to be imper-
vious to liquid when the layer surrounding the underside
of the absorbent pad is itself impervious to liquid and
extends beyond the edges of the absorbent core. It will
10 therefore be obvious that the invention is not restrict-
ed to the aforesaid choice of casing material and that
the casing can be made from any appropriate type of
material when practicing the present invention. The
casing may also comprise two or more layers of mutually
15 different materials.

Although not necessary, the illustrated parts 6, 7 of
the front casing part 5 will also preferably include
liquid-permeable materials which, as illustrated in
20 Figure 1, are disposed on top of the T-shaped layer from
which the casing 1 is essentially constructed, in the
laterally extending parts of the T, and fastened along
the outer edges of these parts on the inside of the
casing, i.e. on the side of the casing facing towards
25 the viewer. The parts 6, 7 form together with said
laterally extending parts of the T-shaped casing mate-
rial pockets which function to hold firm the T-shaped
part of an absorbent pad 2 inserted in the casing 1.
Elastic threads or bands 8, 9 are provided along the
30 edges of the pocket openings.

Provided along the edge of the rear-part 10 of the
casing 1 is a waist elastic 11 in the form of an elastic
band which extends beyond the side edges of the casing
35 1, so as to form elastic fastener tabs 12, 13 which are
intended to be fastened to the outside of the front

casing part, so as to impart a trouser-like configuration to the article when fitted for wear. The tabs 12, 13 include, in a conventional manner, means which enable the tabs to be fastened to the outer surface of the front casing part. Examples of such fastening means include self-gripping devices (Velcro-fasteners), snaps (press studs) and adhesive means.

Broad elastic bands 14, 15 extend along the side edges of the casing 1, from the rear casing part over the crotch-part 22 and slightly inwards on the front casing part 5. The elastic bands 14, 15 are fastened in a stretched state to respective side edges of the casing 1 by means of respective narrow, elongated joins 16 and 17, said joins either being in the form of welded seams or in the form of an adhesive join. It is also conceivable to sew the bands 14, 15 onto said side edges. The elastic bands 14, 15 include respective transverse parts 18, 20 and 19, 21, which extend transversely on both sides of the respective joins 16 and 17. In the case of the described embodiment, the elastic bands 14, 15 and the waist elastics comprise foamed elastic material enclosed in a casing of skin-friendly, heat-meltable nonwoven fabric. Those parts of the nonwoven fabric which extend on opposite sides of the elastic band are connected together punctilinearly through openings provided in the foamed material. Naturally, other elastic material can be used, such as rubber, instead of the elastic foamed material, and neither is it necessary to surround the elastic band with casing material. However, that side of the elastic band which faces the wearer will preferably be coated with a soft, skin-friendly material when the band is not manufactured from material which possesses these properties.

Figure 2 illustrates schematically a part-section of the

crotch-part of the diaper shown in Figure 1 with the diaper in its position of wear. The contours of the legs and crotch of the wearer are illustrated in broken lines. As will be seen from Figure 2, the elastic band 15 lies tightly against the wearer's legs and adopts a practically vertical position. Because the band 15 is relatively broad, the band can be given a degree of elasticity which will ensure that the band will only be tensioned to a relatively slight extent around the wearer's legs, without jeopardizing its effectiveness against leakage. Because the tightness of the band around the wearer's legs is limited and because the band is relatively broad, the risk of chaffing against the wearer's legs is relatively small, even should the band 15 be moved relatively to the wearer's legs as the wearer moves. Because the casing can pivot freely around the joins 16, 17 relative to the elastic bands 14, 15, the risk of movement of the band as a result of leg movement is also reduced.

Furthermore, the provision of band-parts 18, 20 and 19, 21 respectively which extend transversely in relation to a longitudinally extending join facilitates correct positioning of the absorbent article on the wearer. When the article shown in Figure 1 is positioned for wear, the outer edges of the outer transverse parts 18, 19 of the band 14, 15 will come into contact with the wearer's legs first. The elastic bands are more rigid than the flexible casing material, which means that the upwardly directed movement (when the wearer stands up) or the upwardly-forwardly directed movement (when the wearer lies down) to which the crotch-part of the article is subjected will cause the elastic bands to pivot around the joins until the two transverse parts 18, 20 and 19, 21 of respective bands lie in abutment with the inner surfaces of the wearer's

legs. This ensures correct positioning of the article.

That end of the elastic bands 14, 15 which is enclosed in the front casing part 5 is not attached to the casing 1 at its inner, transverse part 20 and 21 respectively and is therefore able to follow unhindered the upward swinging of the band around respective joins 16 and 17 initiated when putting on the article. On the other hand, the respective elastic bands 14, 15 at the rear casing part are attached to the casing through the intermediary of the waist elastic 11 included in the casing 1. Since this attachment is remote from the crotch-part of the article, it has no appreciable effect on the upward swinging of the respective elastic bands 14, 15. This manner of attachment is beneficial, because the elastic bands 14, 15 in the rear casing part positively hold the rear-part of the absorbent pad 2 to the casing 1, since upward swinging of the transverse parts 20, 21 is thereby prevented in this part.

Figure 3 illustrates another embodiment of an inventive casing 101, which differs from the casing illustrated in Figures 1 and 2 in that the elastic bands 114, 115, which form the leg elastication, extend transversely in relation to the joins 116, 117 solely in towards one another and thus solely on one side of respective joins. Those component parts of the Figure 3 embodiment which correspond to similar components of the Figure 1 embodiment have been identified by the same reference numerals with the addition of one-hundred.

Similar to the casing one of casing 1 of the Figure 1 embodiment, the casing 101 of the Figure 3 embodiment coacts with an absorbent pad 102 inserted in the casing. The length of the absorbent 102 is such that the elastic bands 114, 115, and therewith the casing 101, must be

stretched-out in order to enable the whole of the absorbent 102 to be inserted into the casing. Subsequent to insertion of the absorbent pad, the elastic bands 114, 115 are allowed to contract so as to deform the composite article 101, 102 into the curved configuration shown schematically in Figure 3. As indicated in Figure 3, this contraction of the elastic bands 114, 115 will cause the parts of the casing 101 located in the crotch-part laterally outside the absorbent pad 102 to lift. The elastic bands 114, 115 will also be lifted to form the desired liquid barriers. The elastic bands of this embodiment will also lie directly against the legs of the wearer, and consequently there is no risk that folds of casing material will lie between the wearer's legs and the leg elastic.

In one variant of this embodiment, the elastic bands 114, 115 are also fastened to the casing 101 at the front edge thereof, more specifically to the material 106, 107.

As will be understood, the inventive casing can also be used for all-in-one diapers. In this case, the elastic bands which form the leg elastication are attached along the edge of the casing layer which encloses the absorbent pad and on the side of said casing layer which lies nearest the wearer's skin in use. In this application, said elastic bands may include transverse parts on both sides of the narrow joins, or alternatively only on those sides of the joins which face towards one another.

In the case of the illustrated embodiments, the joins between the elastic bands forming said leg elastication are disposed on the outer edges of respective casings. It is conceivable, however, to extend the casing material beyond the joins so that when the elastic bands are

swung upwards, the casing material will be folded downwards and therewith not disturb the function of the elastic bands. For aesthetic reasons, however, it is preferred to form the joins precisely at the outermost edge of the casing. In the case of the illustrated embodiments, the parts of the elastic bands extending transversely relatively to the joins are of mutually equal lengths, although it is, of course, possible to vary the size of these transverse parts, either by varying the width of the elastic bands in their length directions, or by placing an elastic band of uniform width obliquely in relation to the outer edge. Neither need the longitudinally extending joins be straight along the whole of their extension, since they need only be straight within the crotch region of the article in order to form a hinge. Consequently, the elastic bands may also conform, to some extent, to the contours of the casing with non-straight parts, if so desired.

Claims

1. A casing for an absorbent article, such as a disposable diaper, incontinence guard or the like, said casing
5 (1; 101) including a front-part (5; 105), a rear-part (10; 110) and an intermediate crotch-part (22; 122) made of flexible casing material, c h a r a c t e r i z e d in that an elastic band (14, 15; 114, 115) is provided on each outer edge of the casing sides, at least within
10 the crotch-part; in that the elastic band is attached in a stretched state to that side of the casing which lies against the wearer's skin when the absorbent article is worn by means of a narrow, elongated join (16, 17; 116, 117); and in that the elastic band includes parts
15 (20, 21; 120, 121) which extend transversely in relation to the respective joins in a direction extending from said joins in towards the central part of the casing.
2. A casing according to Claim 1, c h a r a c -
20 t e r i z e d in that elastic bands (14, 15) include transversely extending parts on both sides of respective joins.
3. A casing according to Claim 1 or 2, c h a r a c -
25 t e r i z e d in that the elastic bands (14, 15; 114, 115) have a greater rigidity than the material layer or layers from which the casing is formed.
4. A casing according to any one of Claims 1-3,
30 c h a r a c t e r i z e d in that the elastic band (14, 15; 114, 115) is made from an elastic, foamed material which is provided with a skin-friendly material at least on that side of the elastic band which lies nearest the wearer's skin when the article is in use.

5. A casing according to Claim 4, c h a r a c -
t e r i z e d in that the band of elastic foamed mate-
rial is enclosed in and connected with a casing of heat
weldable material; and in that the joins (16, 17;
5 116, 117) between respective elastic bands and casing
material have the form of welded seams.
6. A casing according to any one of Claims 1-5,
c h a r a c t e r i z e d in that the elastic bands
10 (14, 15; 114, 115) extend from the rear casing part
slightly inwards on the front casing part; and in that
the rear end of each elastic band is connected to the
casing.
7. A casing according to Claim 6, c h a r a c -
t e r i z e d in that the forward end of each elastic
band is connected to the casing.
8. A casing according to any one of Claims 1-7,
c h a r a c t e r i z e d in that the casing is intend-
ed for repeated use and coacts with a disposable absor-
bent pad (2; 102) which is intended to be inserted into
the casing.
9. A casing according to any one of Claims 1-7,
c h a r a c t e r i z e d in that the casing is intend-
ed for one-time-use only and includes two casing layers
between which an absorbent pad is enclosed.

AMENDED CLAIMS

[received by the International Bureau on 24 April 1992 (24.04.92);
original claims 1, 8 and 9 amended; remaining claims unchanged (2 pages)]

1. A casing for an absorbent article, such as a disposable
diaper, incontinence guard or the like, said casing (1; 101)
including a front-part (5; 105), a rear-part (10; 110) and an
intermediate crotch-part (22; 122) made of flexible casing
5 material, c h a r a c t e r i z e d in that an elastic band
(14, 15; 114, 115) is provided on each outer edge of the
casing sides, at least within the crotch-part; in that the
elastic band is attached in a stretched state to that side of
the casing which lies against the wearer's skin when the
10 absorbent article is worn by means of a narrow, elongated join
(16, 17; 116, 117); and in that the elastic band includes
parts (20, 21; 120, 121) which extend transversely in relation
to the respective joins in a direction extending from said
joins in towards the central part of the casing, said parts
15 (20,21;120,121), when the article is in use, constituting leg
elastics as well as upstanding barriers preventing lateral
leakage of liquid.

2. A casing according to Claim 1, c h a r a c t e r -
20 i z e d in that elastic bands (14, 15) include transversely
extending parts on both sides of respective joins.

3. A casing according to Claim 1 or 2, c h a r a c -
t e r i z e d in that the elastic bands (14, 15;
25 114, 115) have a greater rigidity than the material layer or
layers from which the casing is formed.

4. A casing according to any one of Claims 1-3,
c h a r a c t e r i z e d in that the elastic band
30 (14, 15; 114, 115) is made from an elastic, foamed material
which is provided with a skin-friendly material at least on
that side of the elastic band which lies nearest the wearer's
skin when the article is in use.

5. A casing according to Claim 4, c h a r a c t e r -
i z e d in that the band of elastic foamed material is en-
closed in and connected with a casing of heat weldable
material; and in that the joins (16, 17; 116, 117) between
5 respective elastic bands and casing material have the form of
welded seams.
6. A casing according to any one of Claims 1-5,
c h a r a c t e r i z e d in that the elastic bands (14, 15;
10 114, 115) extend from the rear casing part slightly inwards on
the front casing part; and in that the rear end of each elas-
tic band is connected to the casing.
7. A casing according to Claim 6, c h a r a c t e r -
15 i z e d in that the forward end of each elastic band is
connected to the casing.
8. A casing according to any one of Claims 1-7,
c h a r a c t e r i z e d in that the casing comprises means
20 (6, 7, 20, 21; 106, 107, 120, 121) for releasably holding a
disposable absorbent pad (2; 102) which is adapted to be
inserted into the casing.
9. A casing according to any one of Claims 1-7,
25 c h a r a c t e r i z e d in that the casing includes two
casing layers between which an absorbent pad is enclosed.

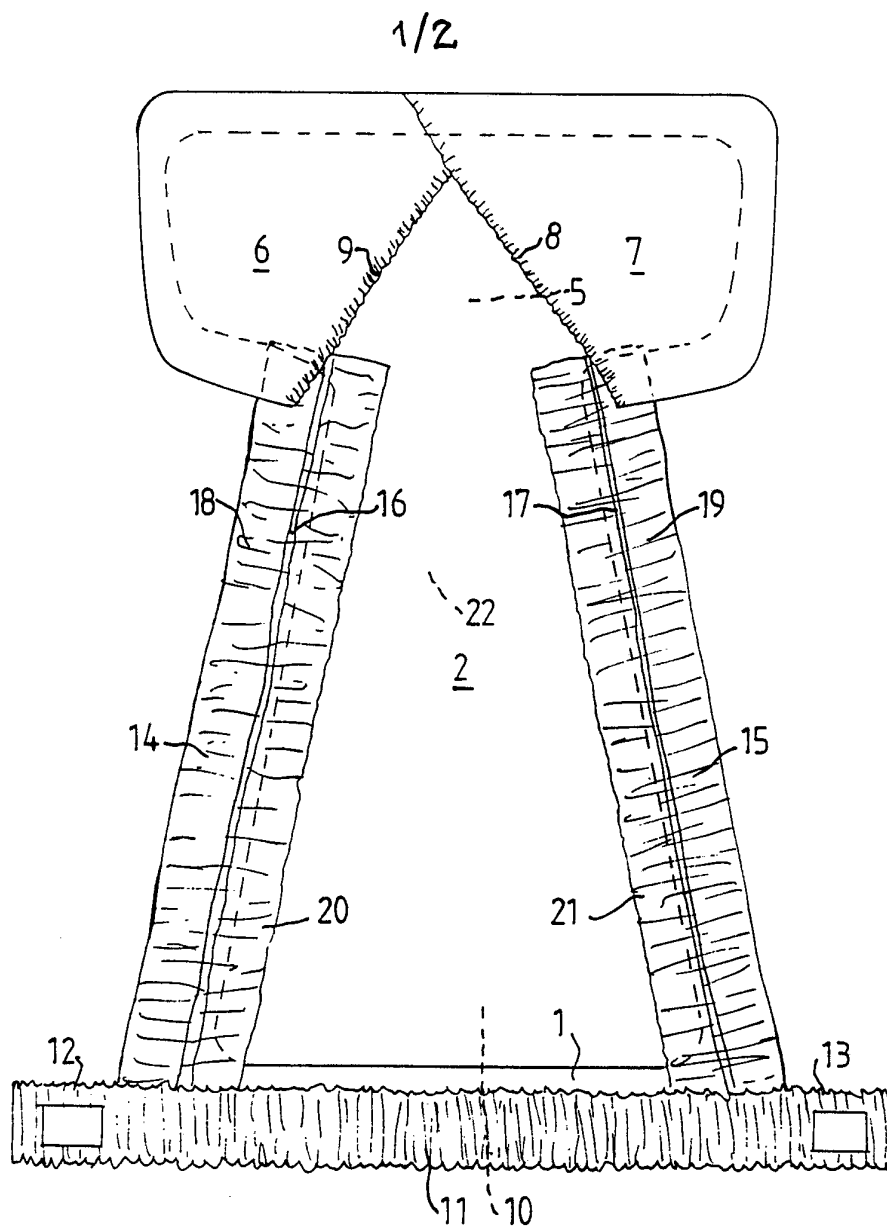


FIG.1

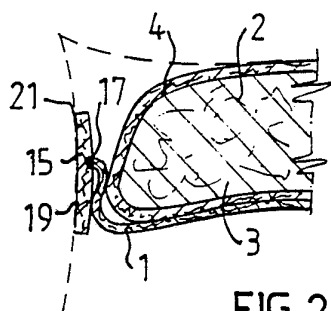


FIG.2

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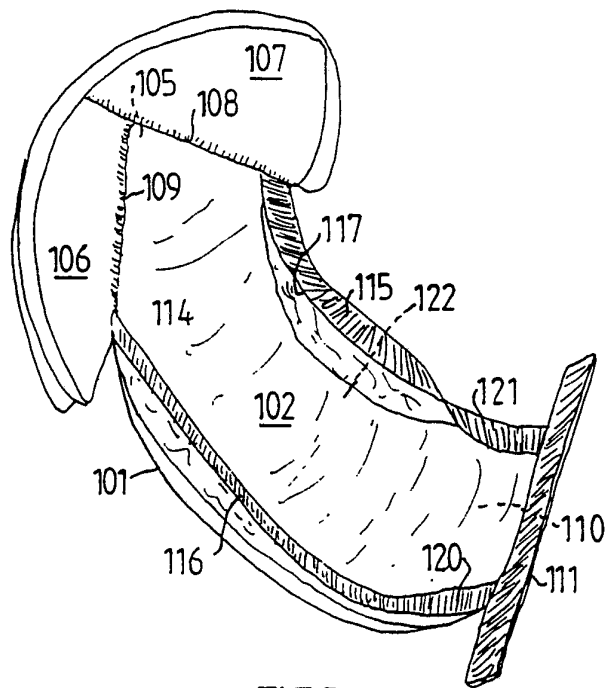
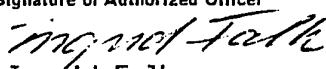


FIG. 3

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE 91/00802

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC5: A 61 F 13/56		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC5	A 61 F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched ⁸		
SE,DK,FI,NO classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP, A2, 0219326 (THE PROCTER & GAMBLE COMPANY) 22 April 1987, see the whole document --	1-9
X	SE, A, 182446 (S. OHARA) 5 February 1963, see the whole document -- -----	1
* Special categories of cited documents:¹⁰ "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
24th February 1992	1992 -03- 03	
International Searching Authority	Signature of Authorized Officer	
SWEDISH PATENT OFFICE	 Ingrid Falk	

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. PCT/SE 91/00802

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the Swedish Patent Office EDP file on 30/12/91. The Swedish Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A2- 0219326	87-04-22	AU-B- 579080	88-11-10
		AU-D- 6369186	87-04-16
		GB-A-B- 2181336	87-04-23
		JP-A- 62250201	87-10-31
		US-A- 4695278	87-09-22
		US-A- 4743246	88-05-10
SE-A- 182446	63-02-05	NONE	