

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 726 165 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
20.10.1999 Bulletin 1999/42

(51) Int. Cl.⁶: **B42D 15/00**

(21) Application number: **95300833.1**

(22) Date of filing: **10.02.1995**

(54) Ballot sets and method of printing ballots

Wahlpapiere und ihre Druckverfahren

Papiers de scrutin et méthode pour les imprimer

(84) Designated Contracting States:
DE FR GB

(43) Date of publication of application:
14.08.1996 Bulletin 1996/33

(73) Proprietors:
• **Tenenbaum, Harvey**
Maple, Ontario L0J 1E0 (CA)
• **Tenenbaum, Judith**
Maple, Ontario L0J 1E0 (CA)

(72) Inventors:
• **Tenenbaum, Harvey**
Maple, Ontario L0J 1E0 (CA)

• **Tenenbaum, Judith**
Maple, Ontario L0J 1E0 (CA)

(74) Representative:
Sanderson, Michael John et al
MEWBURN ELLIS
York House
23 Kingsway
London WC2B 6HP (GB)

(56) References cited:
CA-A- 1 334 985 **US-A- 4 807 908**

• **PATENT ABSTRACTS OF JAPAN vol. 13, no. 519**
(M-895) 20 November 1989 & JP-A-01 210 395
(MARUKEI) 23 August 1989

EP 0 726 165 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] This invention relates generally to improvements in ballots for use in the electoral process and a method for producing such ballots.

[0002] Studies have shown that a large percentage of voters who are ill-informed as to the candidates in an election tend to mark the names listed toward the top of the ballot, rather than those listed toward the bottom. This frustrates the democratic process as persons whose names appear at the top of the list are preferentially selected over those whose names appear at the bottom. Since many elections are won or lost by only a few votes, the bias introduced by this effect can be major. Furthermore, candidates names are not infrequently listed alphabetically on ballots. Accordingly, persons whose last names begin with, for example, the letters A or B would have their names appearing toward the top of the ballot and would tend to be preferentially picked by ill-advised voters over persons whose names begin, for example, with the letters T or W.

[0003] Ill-advised voters further tend to be influenced not only by the position of a candidate's name relative to the ballot but also relative to the other names on the ballot. For example, if there is one outstanding candidate, voters tend to prefer candidates whose names are adjacent that outstanding candidate. Similarly, if there is a particular candidate which a majority of voters would tend to avoid, ill-informed voters would tend also not to choose a candidate whose name appears adjacent to the one being avoided.

[0004] The prior art, including US Patent No. 4,807,908 for a ballot for use in an automatic tallying apparatus, fails to address the potential bias described above, since every ballot lists the candidate's names in the same sequence.

[0005] It would be desirable to be able to reduce or eliminate this bias.

[0006] According to a first aspect of the present invention there is provided a method of producing sets of ballots, said method comprising the steps of:

i) receiving in each one of a plurality of discrete locations on each ballot the name of one candidate, and

ii) repeating said step (i) so as to produce a said group of ballots,

the method being characterised by:

iii) the candidate name received in each said location in each ballot of said group being different from the candidate name received in said location in each other ballot of said group, and,

iv) producing a desired number of said groups, said groups together forming a set of ballots.

[0007] Preferably, a sufficient number of groups of said ballots is produced so that, in the ballots of said set taken collectively, each candidate's name appears sub-

stantially an equal number of times in each of said discrete locations.

[0008] Additionally or alternatively, a sufficient number of groups of said ballots may be produced so that, in the ballots of said set taken collectively, each of said names appears adjacent each other of said names generally an equal number of times.

[0009] The sets of ballots may be produced by programme means, computer means and printer means.

[0010] According to a second aspect of the present invention there is provided a group of ballots in which each ballot has a plurality of discrete locations in each of which is received the name of one candidate, a number of said ballots forming a group of ballots, characterised in that the candidate names received in said location in each ballot in said group is different from the candidate name received in said location in each other ballot in said group, and there are a number of said groups of ballots forming a set of ballots, said number being sufficient so that, taken collectively, the name of each candidate appears generally an equal number of times in each of said discrete locations, whereby to reduce the effect of possible voter tendency to check a particular location such as the top of the ballot when a voter marks said ballot.

[0011] Preferably each of said names appears adjacent each other of said names on generally an equal number of ballots in said set, whereby to reduce the effect of possible voter tendency to avoid or prefer names adjacent to a given name.

[0012] According to a further aspect of the present invention, there is provided a method of producing sets of ballots, said method comprising the steps of:

i) printing in each one of a plurality of discrete locations on each ballot the name of one candidate, and
ii) repeating said step so as to produce a group of ballots,

the method being characterised by:

iii) printing a first ballot in which the names of the candidates appear in said plurality of discrete locations in a given sequence;

iv) printing a second ballot in which the names of the candidates appear in said plurality of discrete locations in a different sequence from the first ballot;

v) repeating step iv) until all the permutations of said different sequences are exhausted thereby to produce a group of ballots;

vi) repeating steps iii) to v) until a desired number of groups of ballots have been printed, and

viii) collating said ballots into a set of ballots.

[0013] For a better understanding of the present invention, and to show more clearly how it may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, which show preferred embodiments of the present invention and in

which:

Figure 1 illustrates the front of four individual ballots of a bundle of ballots provided according to the first aspect of the present invention;
 Figure 2 illustrates six ballots of a bundle of ballots produced according to the further aspect of the present invention; and,
 Figure 3 is a diagrammatical representation of a system for carrying out a method according to the present invention.

[0014] Referring to Figure 1, there are shown four ballots identified by reference numbers 10, 12, 14 and 16. Each ballot is divided into two adjacent columns, 18 and 20 respectively. The columns are divided into four rows, 22, 24, 26 and 28 respectively.

[0015] The rows 22 through 28 of the columns 18 each contain one of the letters A, B, C, or D marked thereon. Each of these letters denotes the name of a different candidate on the ballot. Each row 22, 24, 26 and 28 of column 18 on each ballot 10, 12, 14 and 16, represents a different discrete location on the ballot. Rows 22, 24, 26 and 28 of column 20 are left blank for insertion of a mark by the voter to indicate which candidate they have selected.

[0016] Comparing ballot 10 to ballot 12, it can be seen that the last three letters of ballot 10, namely, B, C and D, have been shifted one row upward to the position in ballot 12 and the first letter, A, has been shifted from the top row to the bottom row. This pattern of shifting the last three letters upward one row and moving the letter occupying the top row to the bottom row is further repeated in going from ballot 12 to ballot 14 and again from ballot 14 to ballot 16. In this manner, each of the letters A, B, C and D appears once in each of the discrete locations defined by rows 22, 24, 26 and 28 of column 18 in this group of four ballots. Each bundle of ballots would contain an equal number of ballots according to ballot number 10, 12, 14 and 16 arranged in sequential order. As each candidate's name appears on the top of a ballot, an equal number of times, the names in effect rotate on the ballot. This eliminates any bias caused by the unconscious tendency of the ill-informed to select the candidate whose name appears at the top of the ballot.

[0017] Although only four letters, each of which represents a candidate's name, are illustrated on the ballots of Figure 1, it will be appreciated that this system is readily adaptable to any number of candidates' names.

[0018] Referring still to Figure 1, it can be seen that despite the rotation of names, the sequential order of names remains the same. For example, the letter C is always adjacent at least one of the letters B or D and is never adjacent the letter A. Similarly, the letter A is always adjacent one of the letters D or B and never adjacent the letter C, and so forth. Accordingly, if the candidate whose name is represented by the letter A

would be particularly undesirable to a large number of voters, and if ill-informed voters are disinclined to select a candidate whose name appears adjacent the name of this undesirable candidate, then such ill-informed voters would be more inclined to pick the candidate represented by the letter C over either of the candidates represented by letters D or B respectively. In this manner, the candidate represented by letter C has an unfair advantage over the candidate represented by letters B or D respectively.

[0019] Figure 2 illustrates six ballots, 32, 34, 36, 38, 40 and 42 respectively, each of which has a different sequence of candidates' names represented by letters A, B, C and D, thereon. In the six ballots, the letter A appears adjacent each of the remaining letters B, C and D two times.

[0020] If each of the six sequences shown on ballots 32, 34, 36, 38, 40 and 42 is rotated four times as discussed above concerning the ballots of Figure 1, twenty-four ballots will be produced in which each candidate's name will occupy a given one of the four rows 22, 24, 26, or 28 of column 18 an equal number of times and as well, each candidate's name will be adjacent another candidate's name an equal number of times. The set of ballots will contain an equal number of each of these twenty-four different ballots.

[0021] Sets of ballots, according to the present invention, can be produced by separately printing batches of ballots corresponding to each desired arrangement of names and subsequently collating the ballots into groups. In each group, each ballot representing a different arrangement. With this method, any desired number of groups can be compiled to form a set of ballots containing a desired number of ballots.

[0022] Alternatively, the ballots can be printed sequentially with each subsequent ballot having a different arrangement of names thereon until all of the permutations have been exhausted at which point the cycle would again be repeated. One way of accomplishing this latter method is to program the sequence of names into a computer which controls a printer, such as a laser printer. The computer would then drive the laser printer to print out the ballots in sequence.

[0023] A further refinement of the latter method is, as diagrammatically indicated in Figure 3, to enter an appropriate program 50 into a computer 52 which is connected to a printer (e.g. a laser printer) 54. The program 50 functions such that when a series of names is entered into a computer, the program arranges the names in all possible combinations, as shown in Figure 2, so that each name appears adjacent each other name an equal number of times. The program then causes the names to be rotated so that in addition, each name appears in each location generally an equal number of times.

[0024] The computer then directs the printer 54 to print sets of ballots meeting the above explained criteria. The sets of ballots emerge into a paper tray 56 and

are repeated until a desired number of ballots has been printed.

[0025] Variations and modifications to the present invention may be apparent to one skilled in the art without departing from the scope of the present claims.

Claims

1. A method of producing sets of ballots (10 to 16), said method comprising the steps of:
 - i) receiving in each one of a plurality of discrete locations (22 to 28) on each ballot the name (A to D) of one candidate, and
 - ii) repeating said step (i) so as to produce a group of ballots,
 - the method being characterised by:
 - iii) the candidate name (A to D) received in each said location (22 to 28) in each ballot (10 to 16) of said group being different from the candidate name (A to D) received in said location (22 to 28) in each other ballot (10 to 16) of said group, and,
 - iv) producing a desired number of said groups, said groups together forming a set of ballots.
2. A method according to claim 1 wherein a sufficient number of groups of said ballots (10 to 16) is produced so that, in the ballots of said set taken collectively, each candidate's name (A to D) appears substantially an equal number of times in each of said discrete locations (22 to 28).
3. A method according to claim 1 or claim 2 wherein a sufficient number of groups of said ballots (10 to 16) is produced so that, in the ballots of said set taken collectively, each of said names (A to D) appears adjacent each other of said names (A to D) generally an equal number of times.
4. A method according to claim 1 wherein said set of ballots (10 to 16) is produced by programme means (50), computer means (52) and printer means (54).
5. A group of ballots (10 to 16) in which each ballot (10 to 16) has a plurality of discrete locations (22 to 28) in each of which is received the name (A to D) of one candidate, a number of said ballots forming a group of ballots, characterised in that the candidate names (A to D) received in said locations (22 to 28) in each ballot (10 to 16) in said group is different from the candidate name (A to D) received in said location (22 to 28) in each other ballot (10 to 16) in said group, and there are a number of said groups of ballots forming a set of ballots, said number being sufficient so that, taken collectively, the name (A to D) of each candidate appears generally an equal number of times in each of said discrete loca-

tions (22 to 28), whereby to reduce the effect of possible voter tendency to check a particular location such as the top of the ballot (10 to 16) when a voter marks said ballot.

6. A set of ballots according to claim 5 wherein each of said names (A to D) appears adjacent each other of said names (A to D) on generally an equal number of ballots (10 to 16) in said set, whereby to reduce the effect of possible voter tendency to avoid or prefer names adjacent to a given name.
7. A method of producing sets of ballots (10 to 16), said method comprising the steps of:
 - i) printing in each one of a plurality of discrete locations (22 to 28) on each ballot (10 to 16) the name (A to D) of one candidate, and
 - ii) repeating said step (i) so as to produce a group of ballots (10 to 16),
 - the method being characterised by:
 - iii) printing a first ballot (10 to 16) in which the names (A to D) of the candidates appear in said plurality of discrete locations in a given sequence;
 - iv) printing a second ballot (10 to 16) in which the names (A to D) of the candidates appear in said plurality of discrete locations in a different sequence from the first ballot;
 - v) repeating step iv) until all the permutations of said different sequences are exhausted thereby to produce a group of ballots (10 to 16);
 - vi) repeating steps iii) to v) until a desired number of groups of ballots (10 to 16) have been printed, and
 - viii) collating said ballots (10 to 16) into a set of ballots.

Patentansprüche

1. Verfahren zum Herstellen eines Satzes von Stimmzetteln (10 bis 16), wobei das Verfahren folgende Schritte umfaßt.
 - i) das Aufnehmen des Namens (A bis D) eines Kandidaten in jeder einer Vielzahl getrennter Positionen (22 bis 28) auf jedem Stimmzettel, und
 - ii) das Wiederholen des Schritts (i), um eine Gruppe von Stimmzetteln herzustellen, wobei das Verfahren dadurch gekennzeichnet ist, daß:
 - iii) sich der in jeder Position (22 bis 28) auf jedem Stimmzettel (10 bis 16) aufgenommene Kandidatename (A bis D) der Gruppe vom in der Position (22 bis 28) auf jedem anderen

Stimmzettel (10 bis 16) der Gruppe aufgenommenen Kandidatennamen unterscheidet, sowie

iv) durch das Herstellen einer gewünschten Anzahl der Gruppen, wobei die Gruppen zusammen einen Stimmzettel-Satz bilden.

2. Verfahren nach Anspruch 1, worin eine ausreichende Anzahl von Gruppen der Stimmzettel (10 bis 16) hergestellt wird, so daß auf den Stimmzetteln des Satzes zusammen genommen jeder Kandidatename (A bis D) im wesentlichen gleich häufig an jeder der getrennten Positionen (22 bis 28) aufscheint.

3. Verfahren nach Anspruch 1 oder 2, worin eine ausreichende Anzahl von Gruppen der Stimmzettel (10 bis 16) erzeugt wird, so daß auf den Stimmzetteln des Satzes zusammen genommen jeder der Namen (A bis D) in Nachbarschaft eines jeden anderen der Namen (A bis D) allgemein gleich häufig aufscheint.

4. Verfahren nach Anspruch 1, worin der Satz Stimmzetteln (10 bis 16) durch Programmmittel (50), Computermittel (52) und Druckermittel (54) hergestellt wird.

5. Gruppe von Stimmzetteln (10 bis 16), bei der jeder Stimmzettel (10 bis 16) eine Vielzahl getrennter Positionen (22 bis 28) aufweist, an denen jeweils der Name (A bis D) eines Kandidaten aufgenommen wird, wobei eine Anzahl der Stimmzettel eine Stimmzettelgruppe bildet, dadurch gekennzeichnet, daß sich die Kandidatennamen (A bis D), die an den Positionen (22 bis 28) auf jedem Stimmzettel (10 bis 16) in der Gruppe aufgenommen sind, von dem Kandidatennamen (A bis D) unterscheiden, der an dieser Position (22 bis 28) auf jedem anderen Stimmzettel (10 bis 16) in der Gruppe aufgenommen ist und eine Anzahl der Stimmzettelgruppen vorhanden ist, die einen Stimmzettelsatz bilden, wobei die Anzahl ausreicht, damit zusammen genommen der Name (A bis D) eines jeden Kandidaten im allgemeinen gleich häufig an jeder der getrennten Positionen (22 bis 28) erscheint, wodurch die Wirkung der möglichen Tendenz der Wähler verringert wird, beim Markieren des Stimmzettels eine bestimmte Position wie etwa die oberste des Stimmzettels (10 bis 16) anzukreuzen.

6. Stimmzettelsatz nach Anspruch 5, worin jeder der Namen (A bis D) im allgemeinen auf einer gleichen Anzahl von Stimmzetteln (10 bis 16) im Satz in Nachbarschaft eines jeden anderen Namens erscheint, wodurch die Wirkung der möglichen Tendenz der Wähler verringert wird, beim Markieren

des Stimmzettels Namen in Nachbarschaft eines bestimmten Namens zu vermeiden oder vorzuziehen.

7. Verfahren zum Herstellen von Sätzen von Stimmzetteln (10 bis 16), wobei das Verfahren folgende Schritte umfaßt:

i) das Drucken des Namens (A bis D) eines Kandidaten auf jede einer Vielzahl getrennter Positionen (22 bis 28) auf jedem Stimmzettel (10 bis 16), und

ii) das Wiederholen des Schritts (i), um eine Gruppe von Stimmzetteln (10 bis 16) herzustellen, wobei das Verfahren gekennzeichnet ist durch:

iii) das Drucken eines ersten Stimmzettels (10 bis 16), auf dem die Namen (A bis D) der Kandidaten an der Vielzahl getrennter Positionen in einer bestimmten Abfolge aufscheinen;

iv) das Drucken eines zweiten Stimmzettels (10 bis 16), auf dem die Namen (A bis D) der Kandidaten in der Vielzahl getrennter Positionen in einer anderen Abfolge als auf dem ersten Stimmzettel aufscheinen;

v) das Wiederholen von Schritt iv), bis alle Permutationen der verschiedenen Abfolgen erschöpft sind, so daß eine Gruppe von Stimmzetteln (10 bis 16) hergestellt ist;

vi) das Wiederholen der Schritte iii) bis v), bis eine gewünschte Anzahl von Gruppen von Stimmzetteln (10 bis 16) gedruckt worden ist, und

viii) das Ordnen der Stimmzettel (10 bis 16) zu einem Satz von Stimmzetteln.

Revendications

1. Procédé de fabrication d'ensembles de papiers de scrutin (10 à 16), ledit procédé comprenant les étapes consistant à :

i) recevoir sur chacun d'une pluralité d'emplacements discrets (22 à 28) sur chaque papier de scrutin le nom (A à D) d'un candidat, et

ii) répéter ladite étape (i) de manière à produire un groupe de papiers de scrutin, le procédé étant caractérisé par :

iii) le nom du candidat (A à D) reçu dans chaque emplacement précité (22 à 28) sur chaque

papier de scrutin (10 à 16) dudit groupe étant différent du nom de candidat (A à D) reçu dans ledit emplacement (22 à 28) dans chaque autre papier de scrutin (10 à 16) dudit groupe et

5

iv) produire un nombre recherché desdits groupes, lesdits groupes formant conjointement un ensemble de papiers de scrutin.

2. Procédé selon la revendication 1, où un nombre de groupes suffisant desdits papiers de scrutin (10 à 16) est produit de façon que, dans les papiers de scrutin dudit ensemble pris collectivement, chaque nom de candidat (A à D) apparaît sensiblement un nombre de fois égal dans chacun desdits emplacements discrets (22 à 28). 10
3. Procédé selon la revendication 1 ou la revendication 2, où un nombre de groupes suffisant desdits papiers de scrutin (10 à 16) est produit de telle sorte que dans les papiers de scrutin dudit ensemble pris collectivement, chacun desdits noms (A à D) apparaît de manière adjacente aux autres desdits noms (A à D) généralement un nombre de fois égal. 20
4. Procédé selon la revendication 1, où ledit ensemble de papiers de scrutin (10 à 16) est fabriqué par un moyen de programme (50), un moyen d'ordinateur (52) et un moyen d'imprimante (54). 25
5. Groupe de papiers de scrutin (10 à 16), dans lequel chaque papier de scrutin (10 à 16) présente une pluralité d'emplacements discrets (22 à 28) chacun recevant le nom (A à D) d'un candidat, un nombre desdits papiers de scrutin formant un groupe de papiers de scrutin, caractérisé en ce que les noms des candidats (A à D) reçus dans lesdits emplacements (22 à 28) dans chaque papier de scrutin (10 à 16) dans ledit groupe diffère du nom du candidat (A à D) reçu dans ledit emplacement (22 à 28) dans chaque autre papier de scrutin (10 à 16) dans ledit groupe, et il y a un nombre desdits groupes de papiers de scrutin formant un ensemble de papiers de scrutin, ledit nombre étant suffisant pour que, pris collectivement, le nom (A à D) de chaque candidat apparaît généralement un nombre de fois égal dans chacun desdits emplacements discrets (22 à 28), en réduisant ainsi l'effet d'une tendance éventuelle d'un électeur à vérifier un emplacement particulier comme le dessus du papier de scrutin (10 à 16) lorsqu'un électeur apporte ses marques sur ledit papier de scrutin. 30
6. Ensemble de papiers de scrutin selon la revendication 5, où chacun desdits noms (A à D) apparaît comme étant adjacent aux autres desdits noms (A à D) sur généralement un nombre de papiers de 35

scrutin égal (10 à 16) dans ledit ensemble, en réduisant ainsi l'effet d'une tendance éventuelle d'un électeur à éviter ou à préférer des noms adjacents à un nom donné.

7. Procédé de fabrication d'ensembles de papiers de scrutin (10 à 16), ledit procédé comprenant les étapes consistant à :
 - i) imprimer dans chacun d'une pluralité d'emplacements discrets (22 à 28) sur chaque papier de scrutin (10 à 16) le nom (A à D) d'un candidat et
 - ii) répéter ladite étape (i) de manière à fabriquer un groupe de papiers de scrutin (10 à 16), le procédé étant caractérisé par :
 - iii) imprimer un premier papier de scrutin (10 à 16) où les noms (A à D) des candidats apparaissent dans ladite pluralité d'emplacements discrets selon une séquence donnée ;
 - iv) imprimer un deuxième papier de scrutin (10 à 16) sur lequel les noms (A à D) des candidats apparaissent dans ladite pluralité d'emplacements discrets selon une séquence différente du premier papier de scrutin ;
 - v) répéter l'étape iv) jusqu'à ce que toutes les permutations desdites séquences différentes soient épuisées en produisant ainsi un groupe de papiers de scrutin (10 à 16) ;
 - vi) répéter les étapes iii) à v) jusqu'à ce qu'un nombre de groupes de papiers de scrutin recherché (10 à 16) a été imprimé et
 - viii) assembler lesdits papiers de scrutin (10 à 16) pour former un ensemble de papiers de scrutin. 40

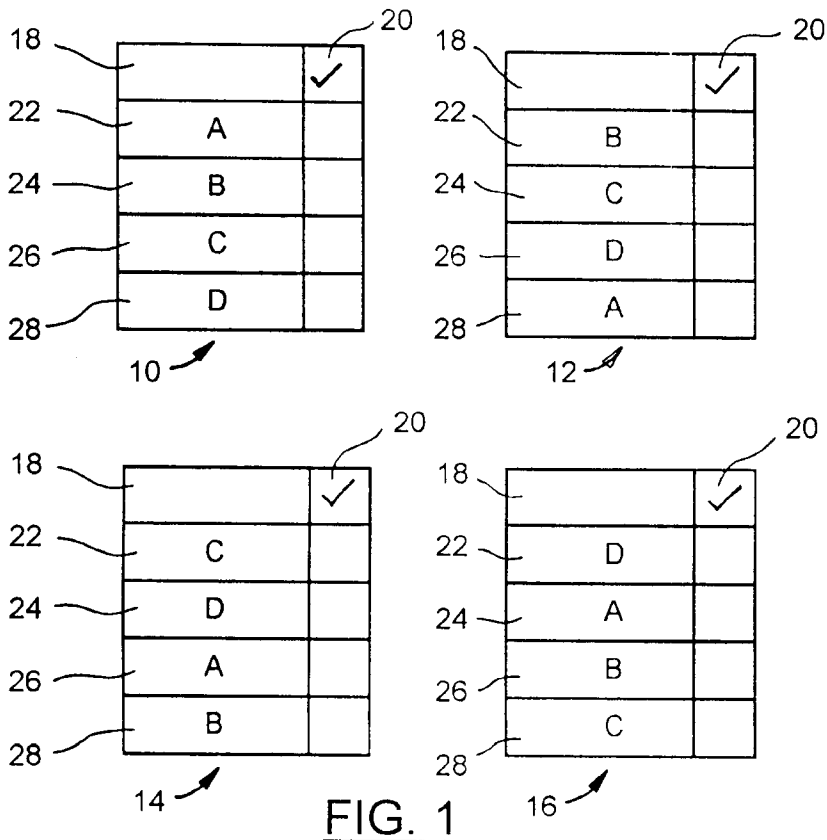


FIG. 1

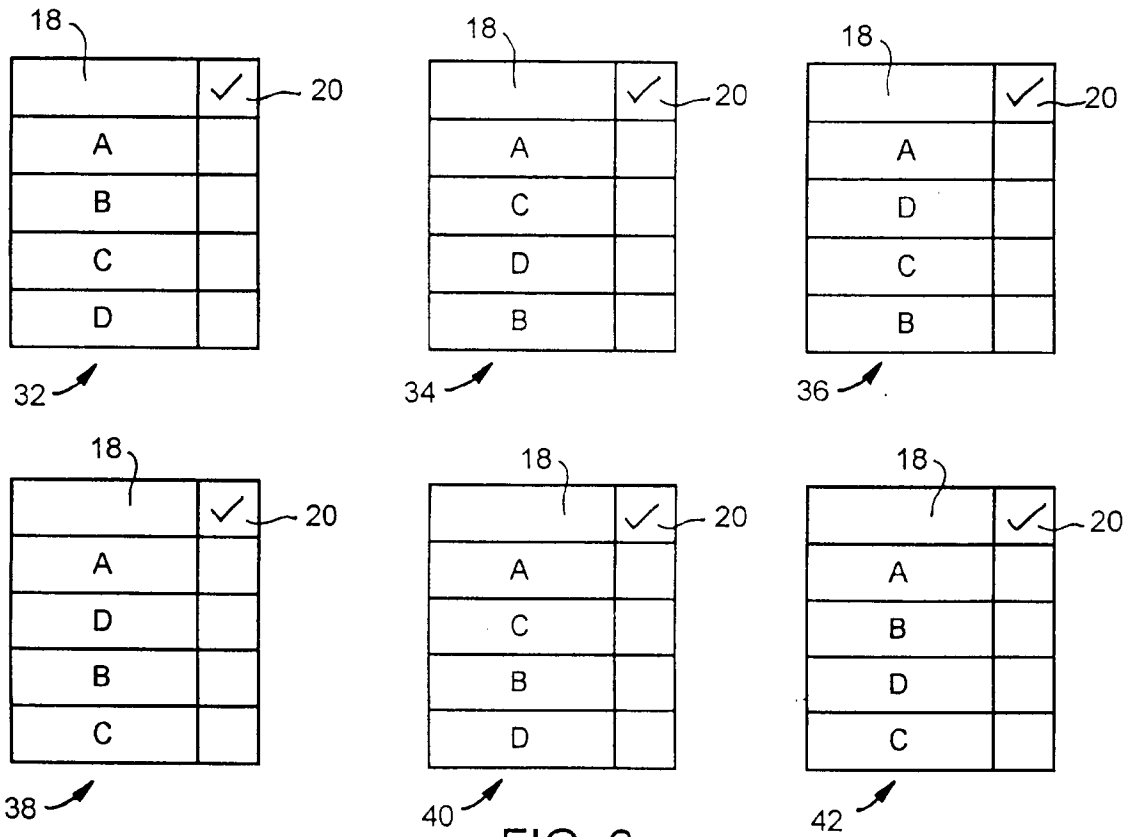


FIG. 2

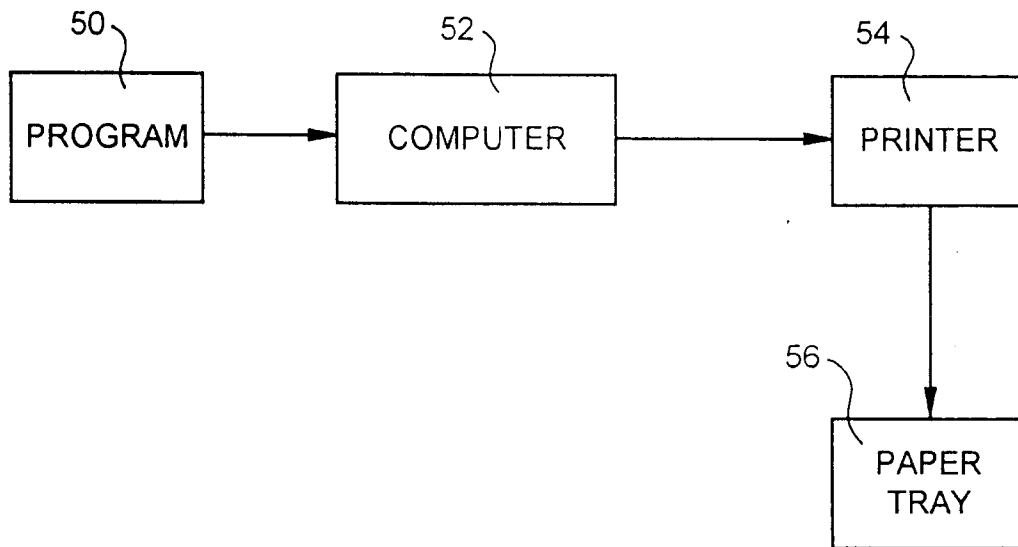


FIG. 3