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(54) **Ballot sets and method of printing ballots**

(57) A set of ballots (10 to 16) is provided, each ballot (10 to 16) having a number of names (A to D) marked on it. In one embodiment, the positions of the names (A to D) vary from ballot to ballot so that each name (A to D) appears in a given location (22 to 28) on generally an equal number of ballots (10 to 16) in the set. In another embodiment of the invention, the sequence of names (A

to D) also varies from ballot to ballot so that any name (A to D) appears adjacent another name (A to D) on generally an equal number of ballots (32 to 42) in the set. Methods are provided for producing such sets of ballots (10 to 16, 32 to 42).

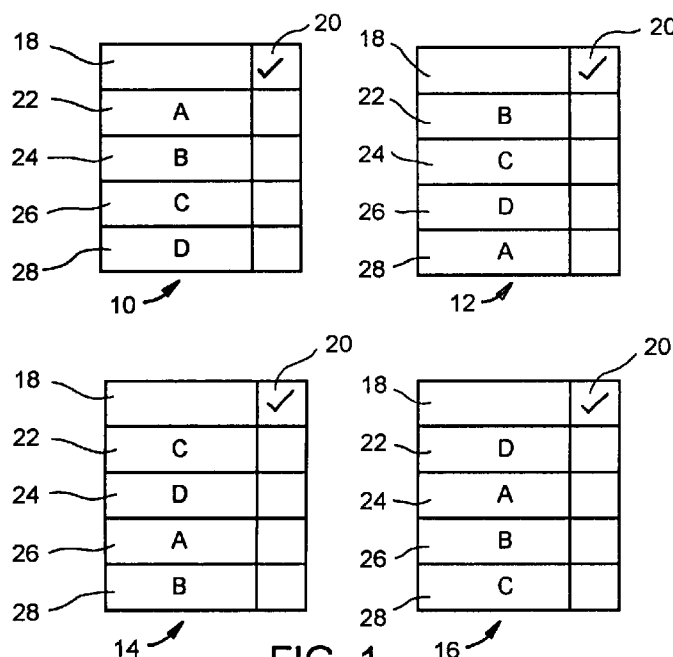


FIG. 1

Description

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

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.

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.

According to a first aspect of the present invention there is provided a set of ballots, each said ballot having a plurality of names marked thereon, each said name being in a discrete location and each said name appearing in each of said discrete locations on generally an equal number of ballots in said bundle.

According to a second aspect of the present invention, there is provided a method of producing sets of ballots in which the names of candidates appear in different arrangements, said method comprising the steps of:

- i) generating the desired arrangements of names;
- ii) printing ballots corresponding to each of said arrangements of names;
- iii) collating said ballots into groups having one ballot representing each of said arrangements; and,
- iv) compiling a desired number of said groups of ballots into sets of ballots.

According to a third aspect of the present invention, there is provided a method of producing bundles of ballots in which the names of candidates appear in different arrangements, said method comprising the steps of:

- i) generating the desired arrangements of names;

- ii) printing ballots corresponding to each said arrangement of names;
- iii) putting a ballot corresponding to each said arrangement into a bundle; and,
- iv) repeating step 3 above until said bundle contains a desired number of ballots.

According to a fourth aspect of the present invention, there is provided a method of producing sets of ballots in which the names of candidates appear in different arrangements, said method comprising the steps of:

- i) generating the desired arrangements of names;
- ii) printing a ballot according to one of said arrangements;
- iii) printing a ballot according to another of said arrangements;
- iv) repeating step 3 until all of said arrangements are exhausted;
- v) repeating steps 1 through 4 until a desired number of ballots has been printed; and,
- vi) compiling said ballots into a set.

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 according to the present invention;

Figure 2 illustrates six ballots of a bundle of ballots according to a further embodiment of the present invention; and,

Figure 3 is a diagrammatical representation of a system for carrying out a method according to the present invention.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

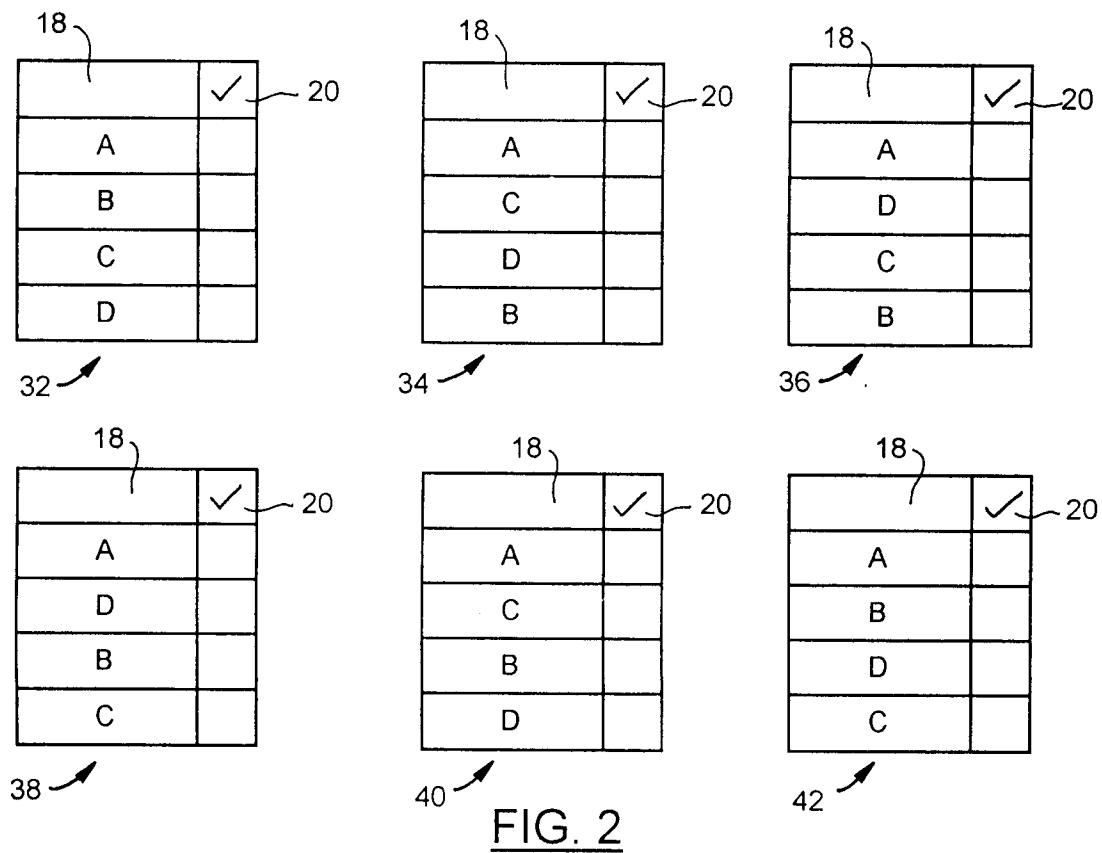
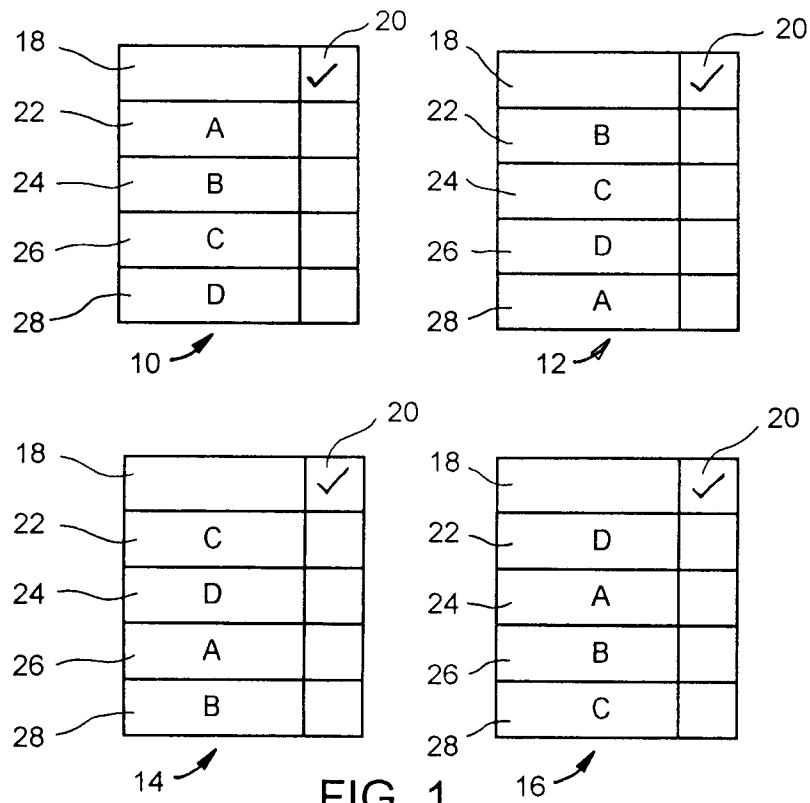
The computer then directs the printer 54 to print sets of ballots meeting the above explained criteria. The sets of ballots emerge into a paper tray 56 and are repeated until a desired number of ballots has been printed.

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

Claims

1. A method of producing sets of ballots (10 to 16) in which the names (A to D) of candidates appear in different arrangements, said method being characterised by the steps of:
 - i) generating the desired arrangements of names (A to D);
 - ii) printing ballots (10 to 16) corresponding to each of said arrangements of names (A to D);
 - iii) collating said ballots (10 to 16) into groups having one ballot representing each of said arrangements; and,
 - iv) compiling a desired number of said groups of ballots (10 to 16) into sets of ballots.
2. A method of producing sets of ballots in which the names (A to D) of candidates appear in different arrangements, said method being characterised by the steps of:
 - i) generating the desired arrangements of names (A to D);
 - ii) printing ballots (10 to 16) corresponding to each said arrangements of names (A to D);

- iii) putting a ballot (10 to 16) corresponding to each said arrangement into a set; and,
iv) repeating step 3 above until said set contains a desired number of ballots (10 to 16).
3. A method of producing sets of ballots in which the names (A to D) of candidates appear in different arrangements, said method being characterised by the steps of:
- i) generating the desired arrangements of names (A to D);
 - ii) printing a ballot (10 to 16) according to one of said arrangements;
 - iii) printing a ballot (10 to 16) according to another of said arrangements;
 - iv) repeating step 3 until all of said arrangement are exhausted;
 - v) repeating steps 1 through 4 until a desired number of ballots (10 to 16) has been printed; and,
 - vi) compiling said ballots (10 to 16) into a set.
4. A method according to claim 1, 2 or 3 wherein each ballot (10 to 16) has a plurality of discrete locations (22 to 28), one for each name (A to D), and said desired arrangement is such that each name (A to D) appears substantially an equal number of times in each location (22 to 28).
5. A method according to claim 1, 2 or 3 wherein each ballot (32 to 42) has a plurality of discrete locations, one for each name (A to D), and said desired arrangement is such that each name (A to D) appears substantially an equal number of times in each location, and in addition each of said names (A to D) appears adjacent each other of said names (A to D) generally an equal number of time.
6. A set of ballots (10 to 16), each said ballot (10 to 16) having a plurality of names (A to D) marked thereon, characterised in that each of said names (A to D) is in a different discrete location (22 to 28) and each of said names (A to D) appears in each of said discrete locations (22 to 28) on generally an equal number of ballots (10 to 16).
7. A set of ballots according to claim 6 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.
8. A set of ballots, each ballot (10 to 16) having a plurality of discrete locations (22 to 28) for names (A to D), one location for each name, and a name in each location, characterised in that each name (A to D) appears generally an equal number of times in each said location (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 a said ballot.
9. A set of ballots according to claim 8 wherein the order of names (A to D) in said set is varied such that each of said names (A to D) appears adjacent each other of said names (A to D) generally an equal number of times in the 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.



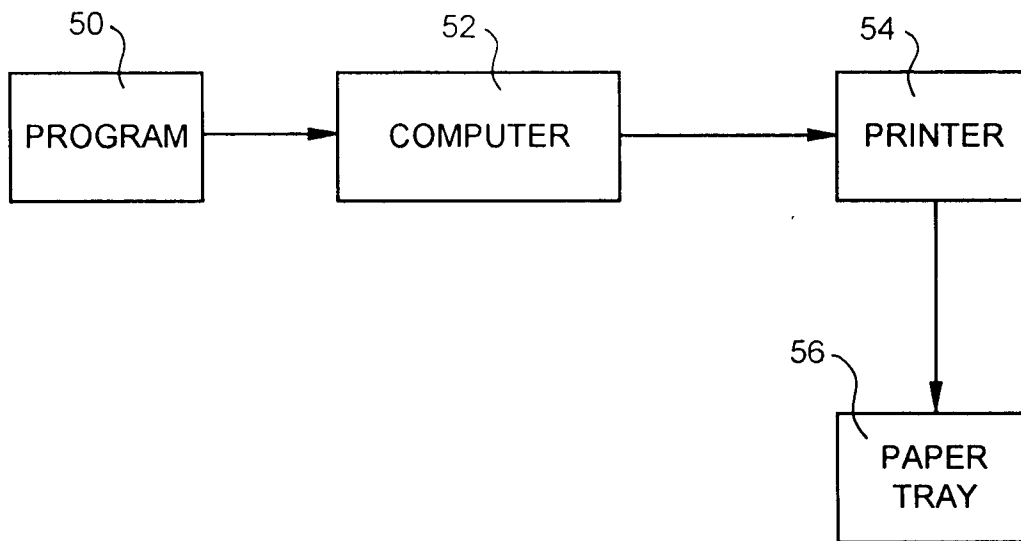


FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 0833

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US-A-4 807 908 (GERBEL) * the whole document * ---	1-3,8	B42D15/00
A	PATENT ABSTRACTS OF JAPAN vol. 13, no. 519 (M-895) 20 November 1989 & JP-A-01 210 395 (MARUKEI) 23 August 1989 * abstract * ---	1-3,8	
E	CA-A-1 334 985 (TENENBAUM) * the whole document * -----	1-9	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6) B42D
Place of search THE HAGUE		Date of completion of the search 6 July 1995	Examiner Evans, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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