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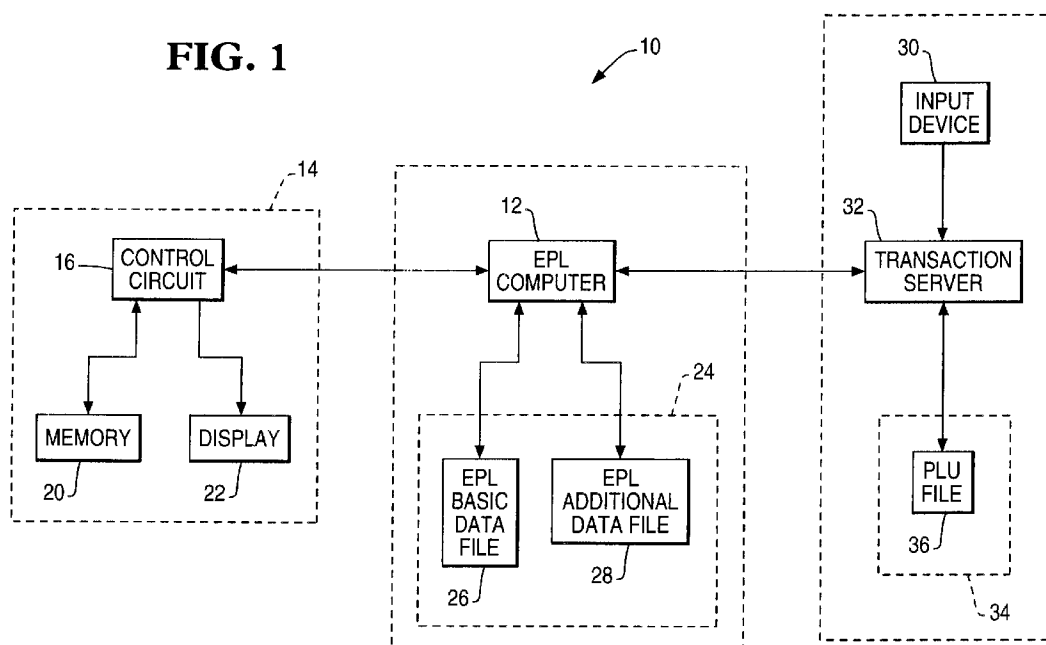
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NL PT SE**(30) Priority: **07.10.1996 US 726594****07.10.1996 US 726595****07.10.1996 US 726596**(71) Applicant: **NCR International, Inc.****Dayton, Ohio 45479 (US)**(72) Inventor: **Goodwin, John Coker, III****Suwanee, Georgia 30174 (US)**(74) Representative: **Irish, Vivien Elizabeth****International IP Department,****NCR Limited,****206 Marylebone Road****London NW1 6LY (GB)**(54) **Method of displaying a product information message by an electronic price label**

(57) Product information messages 38 relating to product promotions, sale restrictions of products or products eligible for government subsistence programs, are stored in an EPL additional data file 28 in the memory 24 of an EPL computer 12, together with product information indicators 39 which uniquely identify each product information message 38. When a product information message 38 is to be displayed by an EPL 14 associated with a particular product, a product information indicator corresponding to the message 38 to be displayed

is input by an operator to the record for that product in a price look-up (PLU) file 36. A control message addressed to the EPL (14) associated with that product is generated by reading the product information indicator 39 from the PLU file 36 and the corresponding product information message 38 from the EPL additional data file 28. The control message is transmitted to the EPL 14 and the product information message is displayed by a display 22 of the EPL 14. No paper labels, tags or notices need be installed in order to convey the information message to a customer.

FIG. 1

Description

The present invention relates to electronic price labels, and in particular, to a method of displaying a product information message by an electronic price label (EPL).

EPL systems typically include a plurality of EPLs, each associated with a particular product on display in large retail establishments such as supermarkets or department stores. The EPLs are typically attached to a rail along the leading edge of a shelf on which items of the associated product are stored and display the price of the product item. In large retail establishments, thousands of individual EPLs may be used in order to display the prices of all products which are available for purchase within the store. Each EPL within a retail establishment is typically coupled to a central EPL computer in which information relating to the EPL is stored in memory in an EPL data file. Price information displayed by the EPL is stored in memory in a price look-up (PLU) file.

In retail establishments, there are frequently special promotions where certain products may be offered at a lower retail price than usual, or where special offers or prizes may be associated with the purchase of the product. Other merchandise products may have legal restrictions imposed on their sale. For example, in many countries, the sale of alcohol is not permitted to persons under a certain age or is not permitted during certain hours or on certain days. Laws may also require that identification be presented to a cashier on purchase of products such as alcohol, cigarettes and some solvents. In some countries, various products may be eligible for government subsistence programs, for example, where government-issued food stamps may be used towards the purchase of a product or where a product can be bought at reduced price under an infant children scheme.

Traditionally, in all of the above instances, the individual product items which are subject to the promotion, sale restriction or government program, have been marked with special tags or labels, or sometimes large banners or notices have been installed on or adjacent the shelves on which the product is stored, so as to convey the information regarding the product to a customer. These tags and paper price labels, banners or notices must be printed or marked with the appropriate information and are then installed manually by store personnel. This procedure is time-consuming, inefficient and costly.

It is an object of the present invention to provide an efficient and cost effective manner of displaying product information that avoids the use of paper products such as tags, labels, banners or other notices.

In accordance with a first aspect of the present invention there is provided a method of displaying a product information message by an electronic price label (EPL) of a retail system, characterized by the steps of:

storing the product information message to be displayed and a product information indicator associated with that product information message, at a first location in the retail system;
 storing a product information indicator for a product at a second location in the retail system;
 generating a control message addressed to the EPL associated with the product, including the substeps of
 reading the product information indicator for the product from the second location; and
 reading the product information message associated with that product information indicator from the first location;
 transmitting the control message to the EPL;
 receiving of the control message by the EPL; and
 displaying of the product information message by the EPL associated with the product.

In accordance with a further aspect of the present invention there is provided a retail system comprising a electronic price label (EPL) associated with a merchandise product, characterized by

first memory means for storing a product information message and a product information indicator associated with that product information message;
 second memory means for storing a product information indicator for a product;
 control means for generating a control message addressed to the EPL associated with the product, the control means including means for retrieving the product information indicator for the product from the second memory means and for retrieving the product information message associated with that product information indicator from the first memory means;
 means for transmitting the control message to the EPL; the EPL associated with the product including receiving means for receiving the control message and display means for displaying the product information message.

Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of a retail system according to the present invention;
 Figure 2 is a perspective view of an EPL displaying a product restriction message;

Figure 3 is a perspective view of an EPL displaying a product promotional message; and
Figure 4 is a flow diagram illustrating a method of displaying a product information message by an EPL.

Referring to Figure 1, the retail system 10 shown therein comprises an electronic price label computer 12 which is associated with a memory unit 24 and which communicates with a plurality of electronic price labels 14 (EPLs), only one of which represented in Figure 1. The retail system 10 further comprises a transaction server 32 which is associated with an input device 30 and a memory unit 34. The transaction server 32 communicates with the EPL computer 12.

Each EPL 14 includes a control circuit 16, a memory unit 20 and a display unit 22. The control circuit 16 controls the internal operation of the EPL 14 and receives commands from and transmits response commands to the EPL computer 12. The control circuit 16 also controls the operation of the display unit 22 to display price and additional product information. The memory unit 20 stores product information and other data necessary for the operation of the EPL 14. The display unit 22 is preferably a liquid crystal display (LCD) and displays the price of the product with which the EPL 14 is associated and other product information.

The EPL computer 12 records, schedules and transmits all commands including price change commands and diagnostic commands to the EPL 14, and analyses status commands from the EPL 14. Communication between the EPL computer 12 and the individual EPLs 14 may be by remote communication such as radio or infrared communication, by cable or by a combination of both.

The memory unit 24 of the EPL computer 12 includes an EPL basic data file 26 and an EPL additional data file 28. The EPL basic data file 26 contains records for all the EPLs of the retail system 10 in which general product information, identification data, product price verifier data and status data for the product with which the EPL is associated, is stored. The EPL additional data file 28 stores product information messages 38 and associated product information indicators 39 which uniquely identify each product information message 38. The product information messages 38 may be related to a product promotion, a product restriction or a product which is eligible under a government subsistence program, and may include text and or special graphic images.

Promotional messages identify products which are for sale at a reduced price or which are subject to other special offers, e.g three items for the price of two. Product restriction messages identify products such as alcohol, cigarettes, solvents etc, the sale of which is restricted by law. Such laws may require that the product may not be sold at certain times or to customers under a certain age, or that identification be presented to the cashier on purchase of the product. Government program messages identify products eligible for sale under special government programs, such as a food stamp program or infant children program.

The product information messages 38 and product information indicators 39 are stored in table form in the EPL additional data file 28. Examples of such tables and the product information messages 38 stored therein, are shown below; Table 1 illustrates a product promotion data file, Table 2 illustrates a product restriction data file and Table 3 illustrates a government program data file, respectively.

TABLE 1

Indicator	Promotional Information Message
00	(No information)
01	(ICON)
02	BUY ONE/GET TWO (FLASHING)
03	LOW PRICE
04	Both 01 and 03 information displayed simultaneously)

TABLE 2

Indicator	Product Restriction Information Message
00	(No information)
01	ID REQUIRED
02	NO SALE BETWEEN 15.00pm and 18.00pm
03	NO SALE TO PERSONS UNDER 18
04	(Both 01 and 03 information displayed simultaneously)

TABLE 3

Indicator	Government Program Information Message
00	(No information)
01	FOOD STAMPS MAY BE USED FOR PURCHASE
02	INFANT CHILDREN PROGRAM
03	(Both 01 and 02 information displayed simultaneously)

The transaction server 32 is a host computer and communicates with a plurality of individual transaction terminals (not shown in Figure 1) within the retail system. The primary function of the transaction server 32 is to communicate price information and product information to the transaction terminals from a price look up file (PLU) 36 stored in the memory unit 34 of the transaction server 32. It should be understood that the EPL computer 12 and the transaction server 32 may comprise a single computer. The PLU file 36 also contains product information indicators 39 for pre-selected products. These product information indicators 39 may be manually input to the PLU file 36 by an operator via the input device 30. The input device 30 may be a keypad or any other suitable input device.

Referring now to Figures 2 and 3, an EPL 14 is shown in more detail. In Figure 2, a product restriction information message 38 informing customers that identification must be presented to the cashier in order to purchase this product, is being displayed in the display unit 22 of the EPL 14. This product restriction information message 38 is associated with product information indicator "01" in the EPL additional product data file 28 (Table 2). In Figure 3, a promotional information message 38 informing customers that the product is for sale at a reduced price, is being displayed in the display unit 22 of the EPL 14. This promotional information message 38 is associated with the product information indicator "03" in the EPL additional product data file 28 (Table 1).

The method of displaying a product information message will now be described with reference to the flow diagram of Figure 4. The method begins with step 40 and in step 42, all EPL product information messages 38 are stored in the additional product data file 28 in the memory unit 24 of the EPL computer 12. In step 44, an operator enters a product information indicator 39 for a particular product in the store for which a product information message is to be displayed, via the input device 30 of the transaction server 32. In the case of a product promotion, new price information for the product may also be entered during this step. In step 46, this product information indicator 39 and any new price information is processed by the transaction server 32 and is stored in the record associated with that product in the PLU file 36 of the memory unit 34.

The PLU file 36 is read by the EPL computer 12 in step 48, and the product information indicator 39 and any new price information is retrieved therefrom. This product information indicator 39 and any new price information is stored in the record of the EPL 14 associated with that product in the EPL basic data file 26 of the memory unit 24 of the EPL computer 12. In step 50, the EPL basic data file 26 is periodically read by the EPL computer 12, in order to retrieve any product information indicators 39 which have been entered therein. In step 52, EPL computer 12 creates a control message addressed to the EPL 14 associated with the product, by reading the product information indicator 39 in EPL basic data file 26 and retrieving a product information message 38 corresponding to that product information indicator 39 from EPL additional product data file 28.

In step 54, the product information message 38 is transmitted by the EPL computer 12 to the control circuit 16 of the addressed EPL 14 (i.e., to the control circuit 16 of the EPL 14 associated with the particular product for which the product information message is to be displayed). In step 56, the product information message 38 is received by the control circuit 16 of the EPL 14 and an acknowledgement signal is transmitted to the EPL computer 12. In step 58, the product information message 38 is stored in the memory unit 20 of the EPL 14, and in step 60, the control circuit 16 controls the display unit 22 of the EPL 14 to display the product information message 38 associated with the product information indicator. The product information message 38 may be displayed as a permanent message (i.e. not flashing), or as a flashing message and may be displayed integrally with or separately from the price information normally displayed by the EPL 14. In step 62, the method ends.

The method of the present invention is advantageous in that it is no longer necessary to print or mark special tags, labels, banners or other notices with the relevant product information and to install the paper tags, labels etc, on or in close proximity to a particular product, in order to convey special product information to a customer. Hence, considerable savings in time and costs are achieved.

It should be understood that the EPL computer 12 and the transaction server 32 and their associated memory units and input devices may be a single computer which functions to control both all the EPLs and the transactions terminals in the retail establishment.

Claims

1. A method of displaying a product information message (38) by an electronic price label (EPL) (14) of a retail system (10) characterized by the steps of:

5 storing the product information message (38) to be displayed and a product information indicator (39) associated with that product information message (38) at a first location (28) in the retail system (10);
 storing a product information indicator (39) for a product at a second location (26, 36) in the retail system (10);
 10 generating a control message addressed to the EPL (14) associated with the product, including the substeps of reading the product information indicator (39) for the product from the second location (36, 26) and reading the product information message (38) associated with that product information indicator (39) from the first location (24);
 transmitting the control message to the EPL (14);
 receiving of the control message by the EPL (14); and
 15 displaying of the product information message (38) by the EPL (14).

2. A method according to claim 1, characterized in that the second location is a price look-up (PLU) file in a memory unit (34) of the retail system (10).

3. A method according to claim 1, characterized in that the second location is an EPL basic data file (26) in the memory unit (24) of an EPL computer (12).

4. A method according to claim 2, characterized in that the step of generating the control message addressed to the EPL (14) further includes the substeps of copying the product information indicator (39) read from the PLU file to an EPL basic data file (26) and reading the product information indicator (39) from EPL basic data file (26).

5. A method according to any of claims 1 to 4, characterized in that the first location is an EPL additional data file (28) in the memory unit (24) of an EPL computer (12).

6. A method according to any preceding claim, characterized in that the product information message (38) is a promotional message.

7. A method according to any preceding claim, characterized in that the product information message (38) is a product restriction message.

8. A method according to any preceding claim, characterized in that the product information message (38) is a government program message.

9. An electronic price label (14) having display means (22) for displaying a product information message (38) according to the method of any preceding claim.

10. A retail system (10) comprising an electronic price label (EPL) (14) for displaying a product information message (14) associated with a merchandise product, characterized by

45 first memory means (28) for storing a product information message (38) and a product information indicator (39) associated with that product information message (38);
 second memory means (26, 36) for storing a product information indicator (39) for a product;
 control means (12) for generating a control message addressed to the EPL (14) associated with the product, the control means including
 50 means for reading the product information indicator (39) for the product from the second memory means (36, 26) and for retrieving the product information message (38) associated with that product information indicator (39) from the first memory means (28); and
 means for transmitting the control message to the EPL (14);

55 whereby the EPL (14) includes receiving means (16) for receiving the control message and display means (22) for displaying the product information message (38).

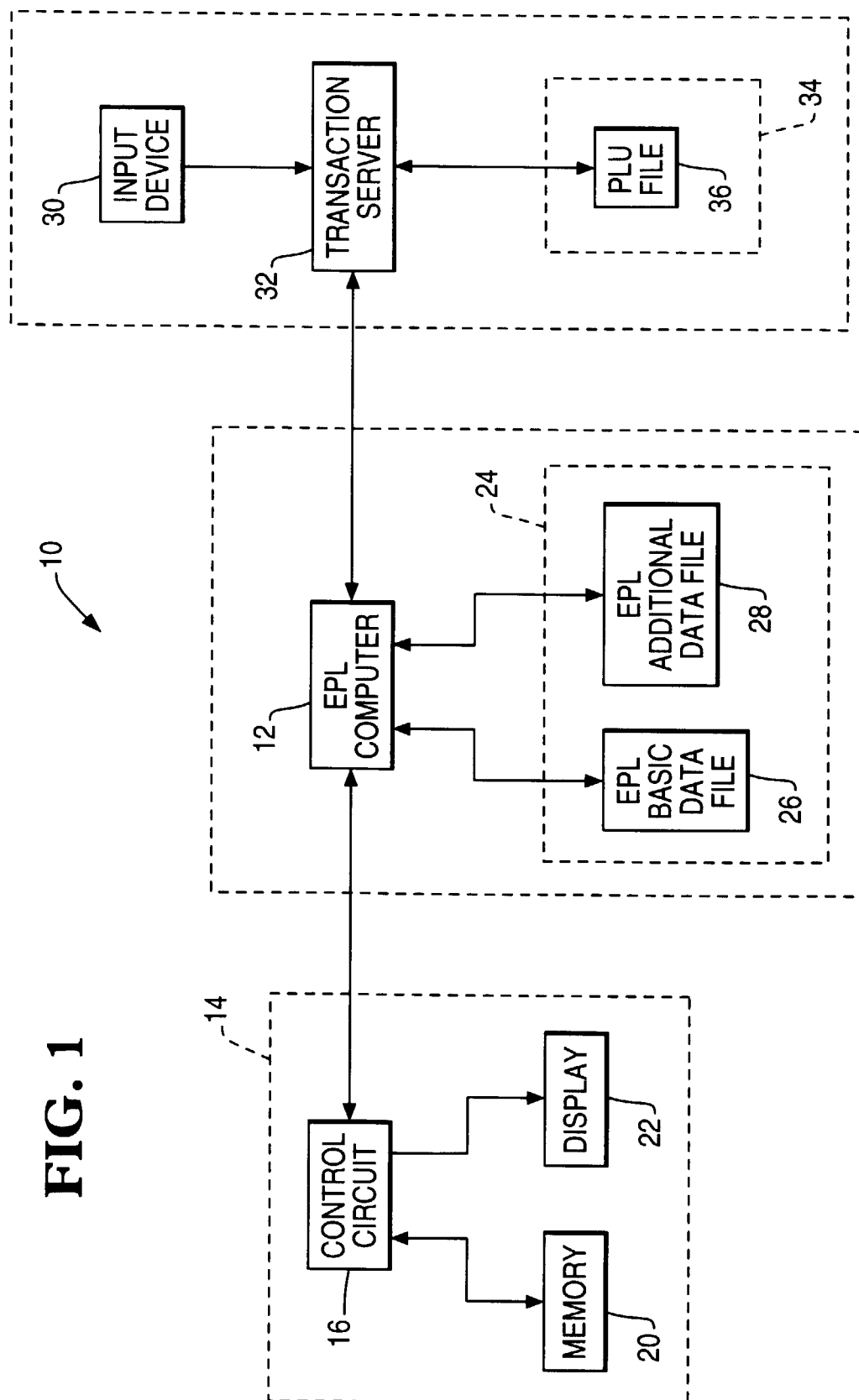
FIG. 1

FIG. 2

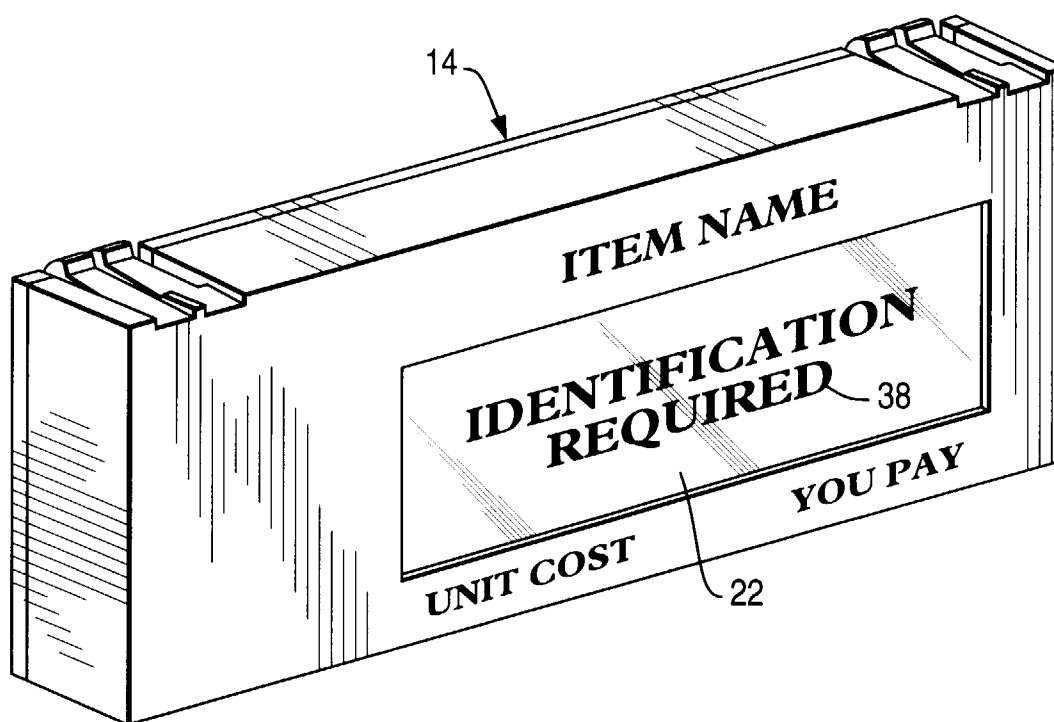


FIG. 3

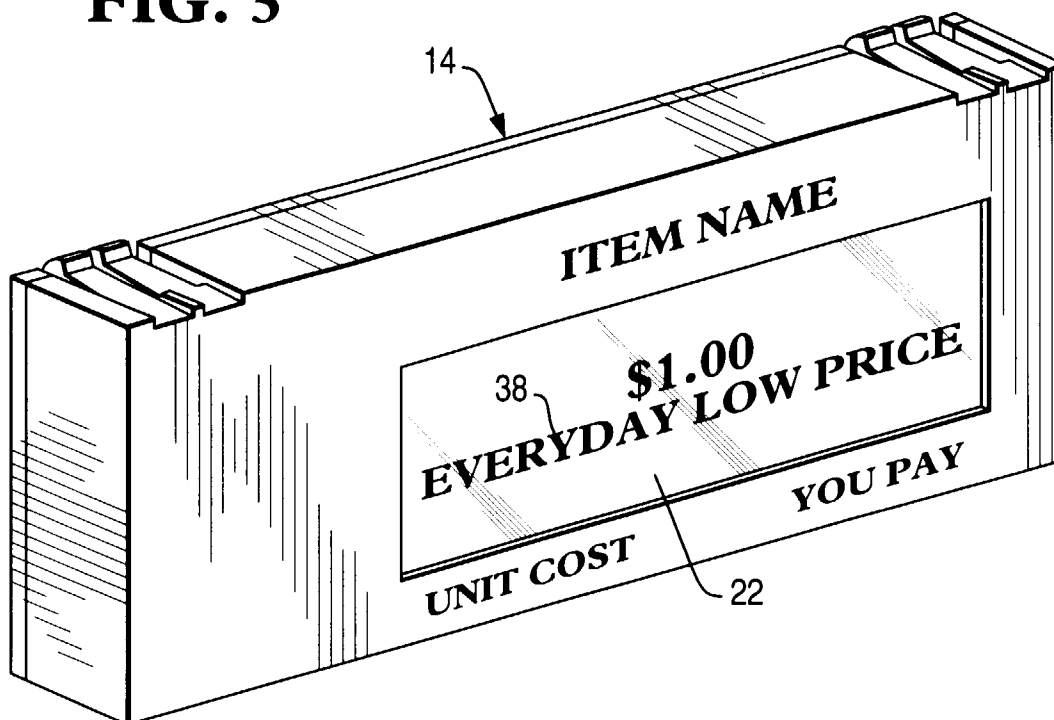


FIG. 4