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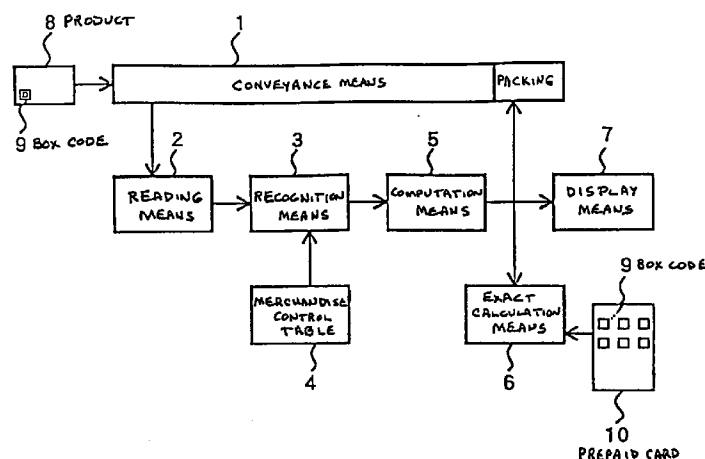
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(54) Conveyor-type fee payment system

(57) A fully automated system for the work of fee payment in supermarkets and other distribution outlets has a conveyance means 1 that conveys products 8 to be purchased, a reading means 2 that reads box codes printed on the products, a recognition means 3 that specifies the product names, quantities, and prices by the image read, referring to the read box codes by a merchandise control table 4, a computation means 5

that totals up the specified products and calculates the price to be paid, a display means 7 that displays the calculated monetary amount to be paid, and an exact-calculation means 6 that carries out the exact-calculation procedure by cash payment or a box-code prepaid card 10 according to the displayed price to be paid.

FIG. 1



Description

BACKGROUND OF THE INVENTION

The present invention relates to a system by which the sale of merchandise in large-size distribution shops such as supermarkets and convenience stores is carried out and, more particularly, to such a conveyor-type fee payment system as is completely automated in respect of effecting the several requisite activities such as product identification, calculation of product cost and tabulation of total cost of the products being sold as well as receiving payment with receipting thereof and dispensing of the sold products to the customer by automated means.

The business of merchandise distribution had made wide use of POS (point-of-sale information control) systems and other distribution information control systems that make use of computers in similar merchandise control systems.

Figure 8 is a sketch of the composition of such a conventional POS system. When the customer places selected merchandise onto a checkout counter, the checkout clerk recognizes the merchandise by using a handy scanner provided on reading unit 101 to read the bar codes printed on the merchandise, and at register 102, which is a POS terminal unit connected to a computer (store controller) 103, either the price of the merchandise corresponding to the read bar code is looked up by the store controller and the fee is charged, or, if price information is also included in the bar code, the fee is charged according to the price indicated by the bar code. At the same time, a receipt is issued to the customer, the point-of-sale information of this merchandise is sent to in-store computer 103, processing is carried out by ledger software (Lotus 123, e.g.) that automatically updates the merchandise control file of data on merchandise sales figures and inventory figures, and this information is also conveyed to head-office computer 104 in real time, providing information for the supervisory side such as chain-wide information on price mark-down information on specific products, and information about products that are not selling well.

Figure 9 is an example of a bar code used in a POS system. The example in Figure 9 is the JIS-enacted code known as the JAN symbol, in which the first and second digits are the country code, which for Japan is 49. The third through seventh digits are the standard manufacturer code giving information about the seller. The eighth through twelfth digits give product information by a product code, and the thirteenth digit is parity for error correction.

These bar codes consist of white-black-white-black... and black-white-black-white... bars, in which digits or other information are encoded by the bar spacing and thickness, which are read by a hand scanner as an analog signal, which is digitally converted and is decoded by computer processing, yielding information

on the seller, the name of the product, etc.

But in this case a clerk must always be stationed at the register to operate the machine and collect the money, so where many checkout counters are provided, such as in a supermarket, the personnel expenses and management of the clerks cannot be ignored, with the additional problems that human error is apt to occur in data entry and change-making, wasting time and detracting from service to customers.

And because the bar code for identifying products is a mechanical code requiring high printing precision to encode information by the spacing and thickness of the bars, there is the further problem of misreading for some items, such as fresh foods that are marked in the store and whose packaging has few flat surfaces; such misreading can entail the wasteful effort of requiring a clerk to enter the information again.

OBJECTS AND SUMMARY OF THE INVENTION

Accordingly, it is an object of the invention to provide a system for automated transacting of total sales price cost determination and reception of fee payment from a customer attendant sales to the customer of products at a merchandising source such as a supermarket which overcomes the drawbacks of the prior art.

It is another object of the invention to provide an automated conveyor-type fee payment system for product merchandising which by use of same improves customer service while reducing personnel requirements and costs.

A further object of the invention is to provide during system operation both visual and audible signalling to a customer of the particulars of the sales transaction so that the customer readily can confirm the accuracy of selection and cost of products being purchased.

The purposes of this invention are realized by a conveyor-type fee payment system having a conveyor means that conveys the purchase items, a reading means that reads the box code printed on the purchase item as a product code at a reading station, and a recognition means that specifies the name of the product, the quantity, and the price by reference to a merchandise control table according to the box code that is read by said reading means. A computation means totals up the products specified by the recognition means and calculates the total money price to be paid for the products, and a display means displays the amount of money determined by the computation means as well as the names and quantities of the items of merchandise. An exact-calculation means performs settlement of accounts by cash payment or a box-code card in accordance with the displayed amount, confirms completion of the settlement of accounts, and dispenses the merchandise.

The reading means optically picks up the purchase products with a CCD camera and does image processing, judging the names of the purchase products from

product characteristics such as their size, shape, color, etc.

In another form, the reading means instead of reading a price tag, attaches a radio or electromagnetic merchandise tag to the purchase items and reads said merchandise tags by a special sensor. The reading means also may use a mesh sensor to judge the name of the purchase items from the shape, etc.

Once the customer places purchases onto the conveyor means, the system automatically reads the box codes and verifies the product names, quantities, and prices, calculates the total price, and displays the product names and quantities, and the price to be paid in customer readily visually readable form. The customer, if there are any mistakes in the display, replaces the products and once again confirms their names, quantities, and the price to be paid, and settles the account, and the system confirms completion of the settlement of accounts and dispenses the merchandise, thereby automating the work of exact calculation.

In accordance with the invention, the conveyor-type fee payment system box-code merchandise control table uses a box code in which four quadrilaterals of different area are overlaid concentrically and taken as one basic code, and bit representation is done according to whether the side straight lines of the rectangles are cut or not, each box corresponding to one quadrilateral being made to correspond with a recognition item such as the name of the product, the seller, and the price, making it possible to recognize the name of the product, the seller, and the price by the one basic code.

The merchandise control table is composed using a simple two-dimensions box code, merchandise control is done in which the box code serves as the merchandise code, and a product's name, seller, and price can be expressed directly by one basic code of the box code.

A further variant of the system provides a notification means that audibly communicates the amount of the price and product names and quantities determined by said computation means. In this way, the customer can confirm by both eye and ear whether there is any mistake in the purchases selected.

The above, and other objects, features and advantages of the invention will become apparent from the following description read in conjunction with the accompanying drawings, in which like reference numerals designate the same elements.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a block diagram showing of an embodiment of the conveyor-type fee payment system of the invention;

FIGURE 2 is a perspective view of the conveyor-type fee payment system shown in FIGURE 1;

FIGURE 3 is a diagram showing an example of the merchandise control table shown in FIGURE 1;

FIGURE 4 is a simplified diagrammatic depiction of the card issuing machine of the exact calculation means shown in FIGURE 1;

FIGURE 5 is a simplified diagrammatic depiction of the card reader of the exact calculation means shown in FIGURE 1;

FIGURES 6(a) and 6(b) are diagrams showings of the corner-cut basic codes of the box code used with the invention;

FIGURES 7(a) - 7(d) are explanatory diagrams of the binary number codes of the corner-cut basic code shown in FIGURES 6(a) and 6(b) depicting how it is possible with the box code to code-express digits, characters and symbols;

FIGURE 8 is a simplified block diagram of a conventional POS system; and

FIGURE 9 is an explanatory diagram of the bar codes used in the POS system shown in Figure 8.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figure 1, reference numeral 1 is a, e.g., belt type conveyor on which product 8 purchased by a customer is carried toward a register. Reading means 2 optically reads (for example, by TV camera that picks up the image of the product from front and back and left and right, a fixed scanner that can scan it in matrix form, etc.), the shape of the product on the conveyor as well as box code 9 printed on product 8.

Recognition means 3 performs image recognition processing of the shape of read product 8 and the image of box code 9 and extracts information on the product name, quantity, seller, price, etc. Merchandise control table 4 is a correspondence table for the product names, sellers, and prices referenced by recognition means 3 and displays them by the box code. Computation means 5 totals up the product names, quantities, and prices specified by recognition means 3, the recognition means 3 and computation means 5 (as well as merchandise control table 4 in the memory) functioning inside a computer (not shown).

An LCD 7 or other display means is provided to display the amount to be paid and calculated by computation means 5. Exact-calculation means 6 includes both a payment machine from which a customer automatically receives change when the customer judges the displayed amount to be correct and the customer having inserted ordinary paper money or coins to make payment, and an exact-calculation processing unit for use of a prepaid card 10 with box code 9.

Figure 2 shows a specific example of the conveyor-type fee payment system shown in Figure 1. 20, which corresponds to conveyor belt 1, is capable of speed control (including stopping and starting) and product alignment control. 21 is a hood for product inspection. 22, which corresponds to reading means 2, is an optical means, such as a TV camera or fixed scanner, that is

installed inside the inspection hood. 23, which corresponds to display means 7, is a display panel that displays the total price for the merchandise 8 to be bought and gives audible notice from speaker 24. 25, which corresponds to exact-calculation means 6, is a payment machine by which the customer pays the fee by cash or box-code prepaid card 10 if the price displayed on display panel 23 is correct. 26 is packaging material, such as a bag or basket, for receiving the products that are discharged upon settlement of accounts of the fee.

Figure 3 shows an example of merchandise control table 4 for identifying products, basic codes of four box figure codes being pictured in the upper part of the showing. The box figure code is a two-dimensional code that consists, as one basic code, of four quadrilaterals (a quadrilateral is called a box) that are overlaid concentrically. The box figure code is of a type as described in commonly owned pending application S.N. 08/734,298 the disclosure of which is herein incorporated by reference.

If, for example, we consider the outermost box of the leftmost figure code in Figure 3, this box No. 1 has sides a, b, c, d, and the display is distinguished according to the presence or absence of a cut in the side straight lines, the correspondence being "0" if there is a cut part A in the side straight line and "1" when there is no cut part A.

Thus, here box No. 1 has a form in which there is a cut part A in side a and no cut part A in its other sides b, c, d, and by this combination of sides, box No. 1 expresses an item of information. In this case, the space for box No. 1 in the table of the box display content shown in the lower part of Figure 3 displays the name of the product. As product name information, this is a display method whereby, for example, if there is a cut part A in side a of the box but not in its other sides b, c, d, as in the basic code at the far left of the upper part of the diagram, it stands for the snack item "potato chips". If there is a cut part A in side b but not in the other sides, it stands for "laundry detergent" (the second basic code figure from the left in the upper part of the diagram). If there is a cut part in side c but not in the other sides, it stands for "imported meat" (the third basic code figure from the left). If there is a cut part in side d but not in the other sides, it stands for "tuna sashimi" (the fourth basic code figure). Of course, this coding can be applied to all kinds of merchandise, not just these products.

Next, box No. 2 in the leftmost basic code at the top of the diagram is made up of sides a1, b1, c1, d1, and this is a combination in which there is a cut part in side a1 and no cut part in the three sides b1, c1, d1. In this case, as shown in the space for box No. 2 in the box display content table in the lower part of the diagram, the seller is indicated. In the display example, "Meiji Candy Ltd." is indicated if there is a cut part in side a1 but not in the other three sides, "Kao Ltd." is indicated if there is a cut part in side b1 but not in the other three sides (corresponding to the second basic code figure at the top),

"importer" is indicated if there is a cut part in side c1 but not in the other three sides (corresponding to the third basic code figure at the top), and "Tsukiji market" is indicated if there is a cut part in side d1 but not in the other three sides (the fourth basic code figure).

Similarly, box No. 3 consists of sides a2, b2, c2, d2 and expresses the content of the product, expressing for example, according to the location of the cut part, "size of the box, date of manufacture", "size of the box, date of manufacture", "for roast meat, time of delivery", and "southern tuna red meat, time of delivery". Similarly, box No. 4 consists of sides a3, b3, c3, d3, and indicates "price"; in this example, it represents "100 yen", "200 yen", "300 yen", or "200 yen", according to the location of the cut part.

Thus, in the leftmost basic code among the four at the top of the diagram, box No. 1, having a cut part in side a, represents the product name "potato chips", box No. 2, having a cut part in side a1, represents the seller "Meiji Candy Ltd.", box No. 3, having a cut part in side a2, represents the content "size 4x10x20 cm, date of manufacture June 10, 1996", and box No. 4, having a cut part in side a3, represents the price "100 yen"; in identification by the recognition means, this becomes product name: potato chips, price 100 yen, etc.

In the same way, in the second basic code from the left at the top of the diagram, box No. 1, having a cut part in side b, represents the product name "laundry detergent", box No. 2, having a cut part in side b1, represents the seller "Kao Ltd.", box No. 3, having a cut part in side b2, represents the content a box of "size 5x15x40 cm, date of manufacture June 5, 1996", and box No. 4, having a cut part in side a3, represents the price "300 yen"; in identification, this becomes product name "laundry detergent", price "300 yen", etc.

The explanation here has shown how four recognition items are distinguished for four kinds of products, but it is also possible to have a hierarchical indication of products of the same type; taking box No. 1, which represents the product name, as an example, if there are cut parts not just in one side but in two, such as in side a and side c, then with the product name being "potato chips" one may also express a high-grade item of 200 yen or more per box.

Thus it is possible to indicate $2^{**4} = 16$ different product names per box by combinations of cuts or non-cuts in the four sides of a box. Operation of the system is described next.

First, when a row of products 8 being purchased are placed onto belt conveyor 20 as shown in Figure 2, they are lined up on the belt conveyor and transported toward the reading station at inspection hood 21. On arrival of the products 8 inside the inspection hood, belt conveyor 20 stops with the products arranged in position for camera 22 to read box the codes 9 and the overall shape of products 8. The camera or fixed scanner 22 reads the shape, quantity, and box codes of all the products, and from the read box code information 9, recogni-

tion means 3 recognizes the product names, quantities, and prices by referring to merchandise control table 4 shown in Figure 3.

Computation means 5 functions to total up the prices associated with each of the specified product names, calculate the price to be paid, and display the "product names, quantities, prices, and total price to be paid" on display panel 23 (the same notification is also generated and sounded audibly from speaker 24). If there is any error in product name, quantity, or price, the customer can call it to the attention of an exchange clerk, and after the goods are exchanged, the customer confirms again what is displayed on display panel 23, and if there is no error in what is displayed, the customer inserts paper money or coins into payment machine 25 and if so entitled receives change, thereby completing the exact-calculation transaction. Alternatively, the exact-calculation transaction can be done with a card payment box-code prepaid card insertable in a card slot in the payment machine.

When payment of the fee is completed, belt conveyor 20, which had stopped inside inspection hood 21, resumes its travel so as to move the products to a discharge or packing station where the purchased products can be packed in packaging such as a basket or paper or plastic bags.

The prepaid card used with the system will be issued as prepaid card 10, on which is printed, with transparent ink, the Figure 3 box codes, the printing being effected with the CPU 55-controlled card writing means as shown in the Figure 4 diagrammatic depiction of the card issuing machine.

The box codes are printed by a writing head 51 that moves at a prescribed speed transversely to the direction in which the card moves. Each of the basic codes shown in Figure 3 is associated with a certain amount, such as a 100-yen code, a 300-yen code, a 400-yen code, or a 200-yen code, and according to this convention and the amount put in by the customer (for example, 10,000 yen), the basic code is printed in a transparent ink that cannot be read except by illuminating it with light of a special wavelength, denoting quantities such as 100-yen code x 10 units, 200-yen code x 10 units, 300-yen code x 10 units, or 400-yen code x 10 units. Transparent ink is used to prevent card forgery. The correspondence between box codes and amounts is not limited to associating the above codes with 100-400 yen; one may decide freely how the No. 4 box only shall be used.

Once the basic codes have been written, if there is any other information to be written in, such as ID information, it is written in, what is written in is confirmed by an optical reading head 52 for verification by shining onto it special light for reading, such as ultraviolet light, and then the card is issued as prepaid card 10.

Figure 5 is a simplified diagrammatic view of the card reader inside automatic payment machine 25. In the case where exact calculation is made with prepaid

card 10, the customer looks at the payment price displayed on display panel 23, inserts prepaid card 10, and inputs a monetary amount (for example, 10,000 yen) through fee input unit 60.

CPU 61 reads the key codes (in case of encoding, the decoded information) through key code reading sensor 50, shines light of a special wavelength on the box code information, and reads the basic code numbers, etc. through optical reading head 63, which detects the current balance on card 10 by reading it while scanning across the box codes as it moves perpendicularly to the direction in which card 10 moves. From among it, a number of box codes corresponding to the price to be paid are overwritten and deleted by writing head 62, completing the payment procedure. For example, if the amount to be paid is 1,000 yen, the 1,000-yen exact-calculation processing is completed by deleting a total of four basic codes, one each of 100, 200, 300, and 400 yen. The overwriting process in this case is effective in preventing forgery.

In the above described embodiment, box basic codes unique to the merchandise control device system are themselves printed on prepaid card 10 and are overwritten, and the corresponding card processing is done. In another embodiment, digit and character information is encoded by box codes, and general-purpose exact-calculation processing is done using a prepaid card on which general box codes are printed on the card.

Figures 6(a) and 6(b) detail corner-cut basic codes of the box code of the second embodiment. In Figure 6(a), outermost box No. 1 consists of sides a, b, c, d, box No. 2 consists of sides a1, b1, c1, d1, box No. 3 consists of sides a2, b2, c2, d2, and box No. 4 consists of sides a3, b3, c3, d3. If each side, as a segment, is associated with a bit, then one quadrilateral (box) corresponds to four bits, and one basic code made up of four quadrilaterals together corresponds directly to 16 bits, allowing the expression of 65,536 alternatives.

Taking box No. 1 in Figure 6(b) as an example, under the convention that the absence of a gap A made by a cut in the straight line of a segment represents "1" and the presence of a gap A made by a cut represents "0", in this box No. 1, a="1", b="1", c="1", d="0", and this one box can be interpreted as representing the binary code "1110".

With regard to this conversion to a binary number, as in the explanatory diagram of binary numbers shown in Figures 7(a)-7(d), for example, the decimal numbers 13, 14, and 250 become, as binary numbers, "1101", "1110", and "11111010", designating the notation of $2^{**}n$ in decimal notation by side d = $2^{**}0 = 1$, side c = $2^{**}1 = 2$, side b = $2^{**}2 = 4$, side a = $2^{**}3 = 8$ as in Figure 7(a), and designating the place number n within a binary number by side d = place 1, side c = place 2, side b = place 3, side a = place 4 as shown in Figure 7(b), a binary number can be expressed in code by a sequence of "1"s and "0"s according to each place within the number.

For example, in Figure 7(c), segment d: place 1 = "0", c: place 2 = "1", b: place 3 = "1", a: place 4 = "1", and if they are lined up with the largest place number first, it represents the binary number "1110", which is the binary number $0+2+4+8 = 14$. Similarly in Figure 7(d), segment c = "0", so the binary-number representation of decimal number $1+4+8 = 13$ becomes "1101". Since hexadecimal expression from a binary number is simple, it is possible with the box code to code-express digits, characters, and symbols.

Therefore if a prepaid card on which digit information is written with transparent ink according to the box code by means of the card issuing machine shown in Figure 4 is inserted into a reader as shown in Figure 5 and the payment amount is input, then the remaining amount is read and confirmed with reading head 63, a calculation is made by subtracting the amount to be paid (for example, 1,000 yen), the remaining balance is updated and written with transparent ink by writing head 62 using the box code, and when the exact-calculation processing is completed, the card is returned to the customer.

Thus in this embodiment, everything from recognition of the product to exact calculation of the fee can be completely automated by putting together an efficient merchandise control system that makes use of a simple box code.

And because instead of a bar code it employs a box code that does not require printing precision and functions surely provided only that the break or continuation of a straight line can be detected even if the printing is somewhat rough, this system is particularly useful in reading in-store markings on fresh food items, whose shape is not uniform and on which the printing can be difficult to see because of smudging; this spares the time that would otherwise be needed for re-inputting after misreadings.

And image recognition processing, which has been developing rapidly in recent years, makes it possible to detect whether each side of a box code is broken or continuous and to directly input the code data into a computer by a simple on/off recognition circuit, eliminating the need for the complex signal preprocessing that is required for bar codes and allowing the computer's capacity to be devoted to increasing the quantity of information and upgrading the information compression and encoding processing. This can improve system security and offer customers a higher level of service.

The description thus far has concerned only merchandise control by box codes and box-code prepaid cards, but included within the scope of the claims of this invention are systems that are provided with the compatibility to also handle merchandise control by conventional bar codes or to use ordinary JCB or VISA cards.

As explained above, everything from reading the shape of products to be purchased that are placed on the belt conveyor of a cash register and the box codes printed on them to recognizing the read products, calcu-

lating the total fee, and performing the procedure of exact calculation of the fee is integrated and controlled by a system that employs a simple and efficient box code, thereby making it possible to completely automate the operation of paying for goods at a distribution outlet and improving service to customers.

Having described preferred embodiments of tile invention with reference to the accompanying drawings, it is to be understood that the invention is not limited to those precise embodiments, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention as defined in the appended claims.

Claims

1. A system for automated transacting of total sales price cost determination and reception of fee payment from a purchasing customer attendant sale to the customer of products at a merchandising source, said system comprising

conveyor means for conveying the products being purchased along a conveyance course which includes a reading station at a location along said conveyance course,

a reading means for reading a box code printed on the products as a product code at said reading station,

recognition means for specifying product name, quantity, and price by reference to a merchandise control table according to the box code that is read by said reading means,

computation means for totaling up the product prices specified by said recognition means and calculating the total money price to be paid for the products,

display means for displaying the amount of money determined by said computation means, as well as the names and quantities of the products, and

exact-calculation means for effecting customer account settlement by one of cash payment and a box-code card in accordance with said displayed amount and for confirming completion of account settlement so the purchased products can be dispensed to the customer.

2. A system in accordance with claim 1 in which the reading means optically picks up the products with a CCD camera and with image processing judges the names of the products from characteristics of the products including shape, size and color.

3. A system in accordance with claim 1 in which the reading means attaches one of a radio and an electromagnetic merchandise tag to said products, and a sensor for reading the merchandise tags. 5
4. A system in accordance with claim 1 in which the reading means comprises a mesh sensor judging the names of the products from characteristics of the products including shape, size and color. 10
5. A system in accordance with claim 1 in which the box-code merchandise control table uses a box code wherein four quadrilaterals of different area are overlaid concentrically and taken as one basic code, and bit representation is done according to whether side straight lines of said quadrilaterals are cut or not, each box corresponding to one quadrilateral corresponding with a recognition characteristic of one of name of the product, seller, price, and the characteristic can be recognized by said one basic code. 15 20
6. A system in accordance with claim 1 further comprising notification means for audibly communicating product price, product name, and the quantity determined by said computation means. 25
7. A system in accordance with claim 1 in which the conveyor is operable to stop when the products arrive at the reading station and to arrange the products in positioning facilitating reading of the box code on the products. 30
8. A system in accordance with claim 7 in which on completion of account settlement, conveyor travel is resumed to carry the products to a product packing station. 35
9. A system in accordance with claim 1 further comprising a payment machine in which the customer inserts one of the cash payment and the box card with which payment is being made. 40

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FIG. 1

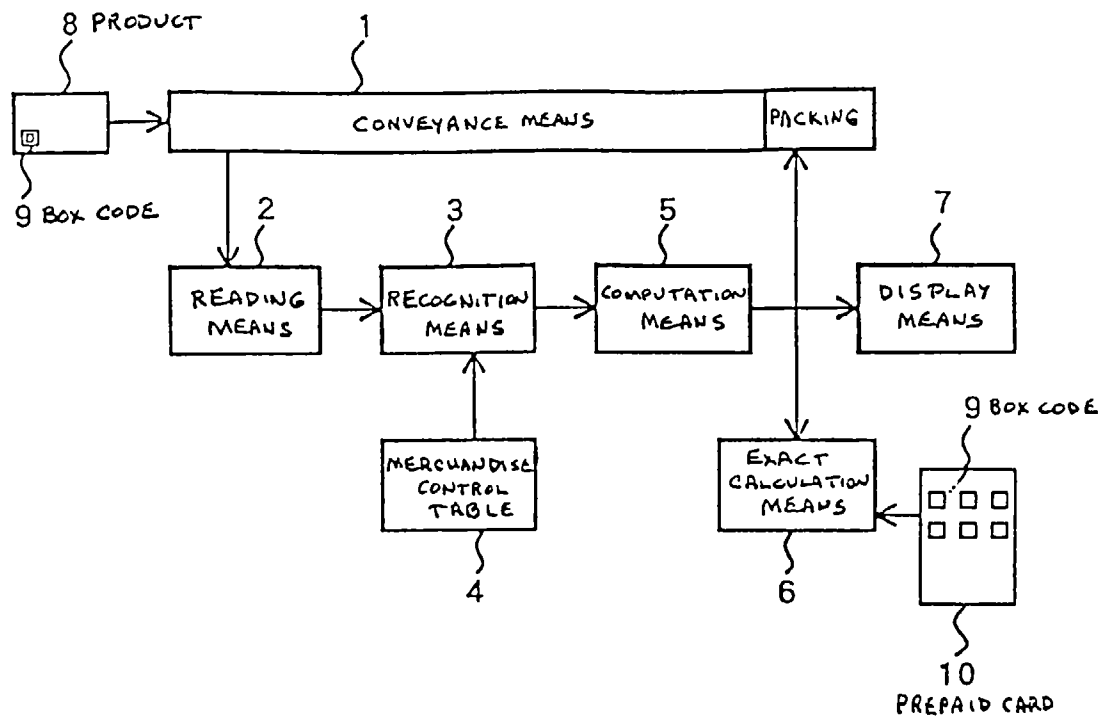


FIG. 2

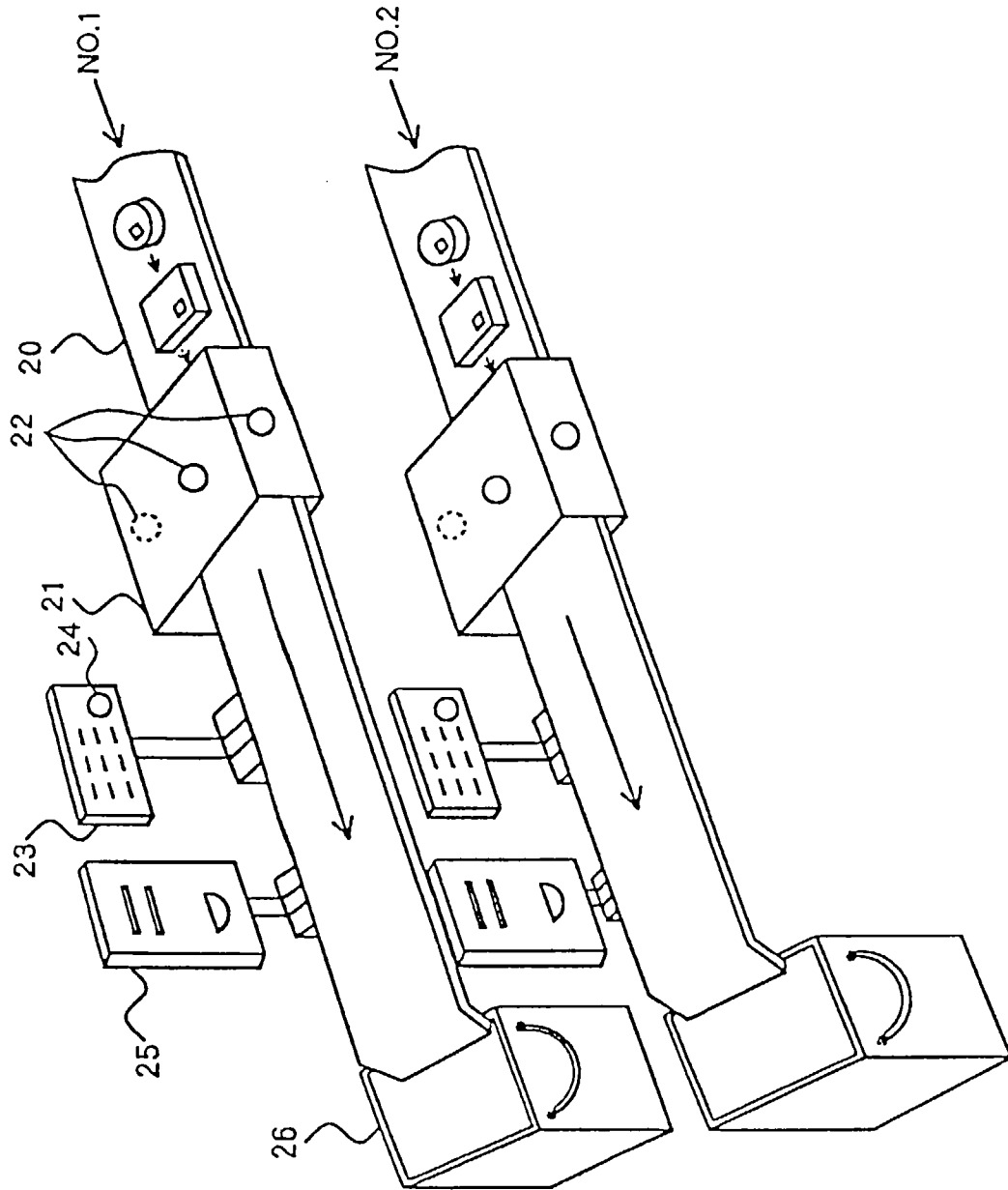


FIG. 3

MERCHANDISE CONTROL TABLE

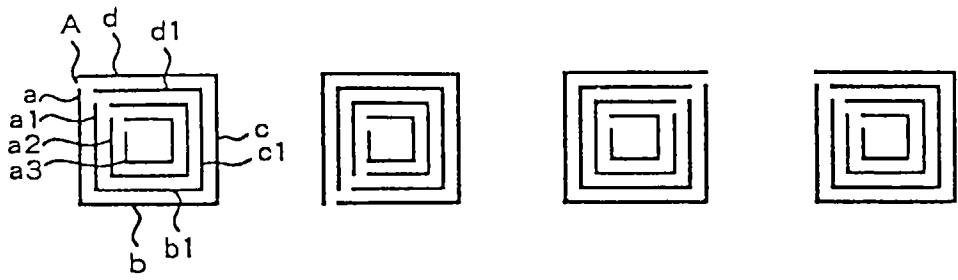
TYPE	SNACK	DETERGENT	BEEF	SASHIMI	
AMOUNT	100 YEN	300 YEN	400 YEN	200 YEN	
					
DISPLAY CONTENT OF EACH BOX					
BOX NO.	PRODUCT ID ITEM	a	b	c	d
①	NAME	POTATO CHIPS	LAUNDRY DETERGENT	AUSSIE BEEF	TUNA SASHIMI
②	SELLER	MEIJI CANDY	KAO LTD.	IN-STORE IMPORTER	IN-STORE TSUKIJI MARKET
③	CONTENT	MFGD 96.6.10 4X10X20 CM	MFGD 96.6.5 5X15X4 CM	RECEIVED 96.6.12 FOR ROAST	MFGD 96.6.13 SOUTHERN TUNA RED MEAT
④	PRICE	100 YEN	300 YEN	400 YEN	200 YEN

FIG. 4

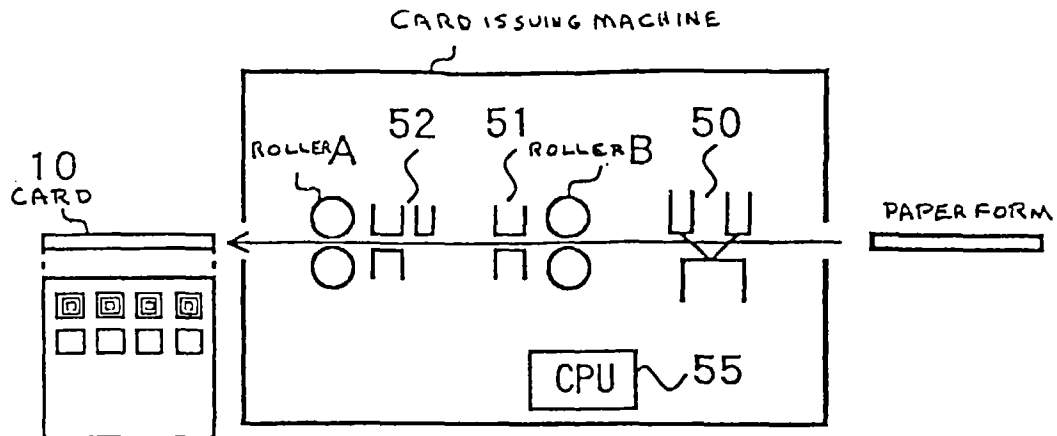
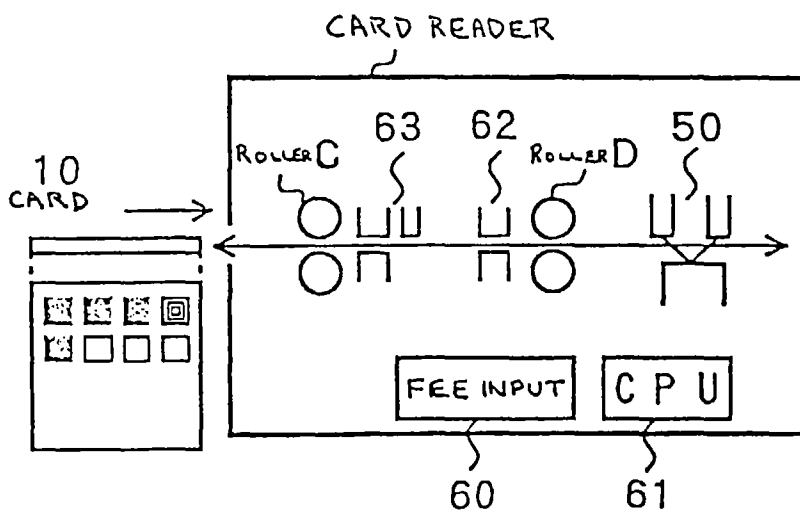
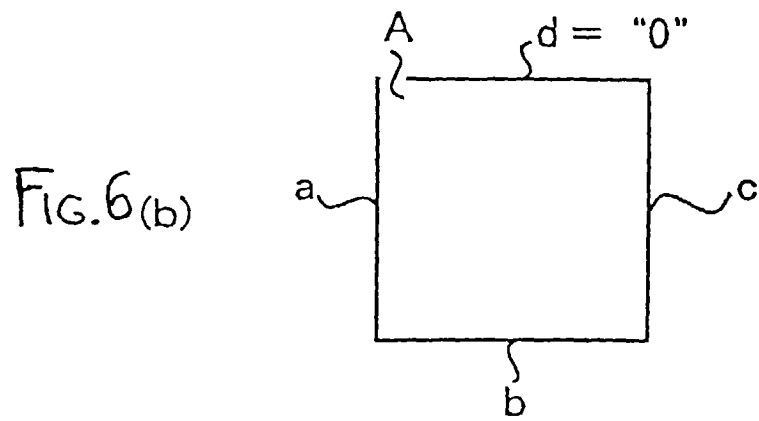
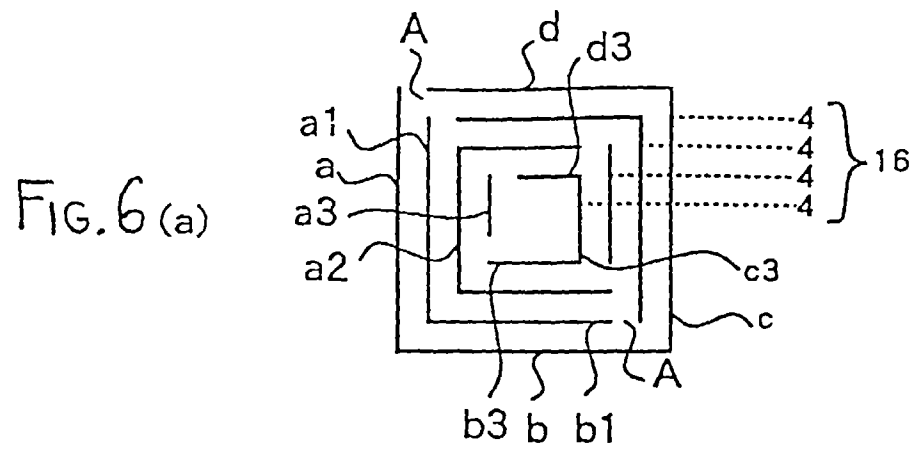


FIG. 5





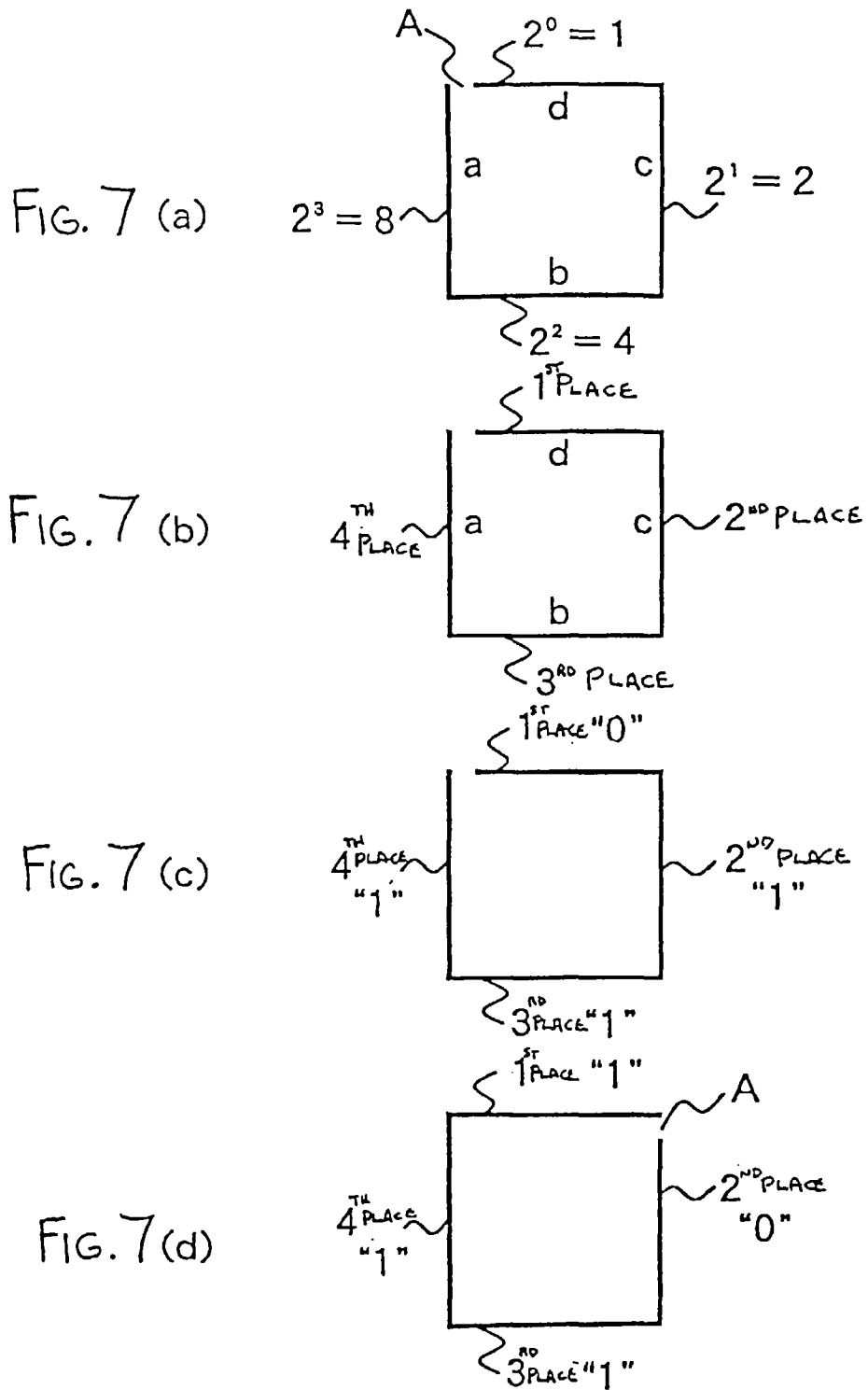


FIG. 8

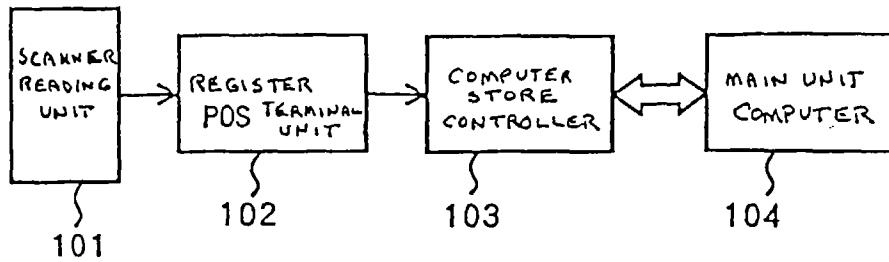
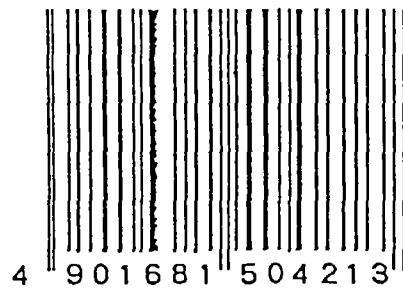


FIG. 9



STANDARD TYPE

PLACE	1	2	3	4	5	6	7	8	9	10	11	12	13
	4	9	M ₁	M ₂	M ₃	M ₄	M ₅	I ₁	I ₂	I ₃	I ₄	I ₅	C
	COUNTRY CODE		STANDARD MFG. CODE (SELLER)					PRODUCT ITEM CODE DIGIT					CHECK