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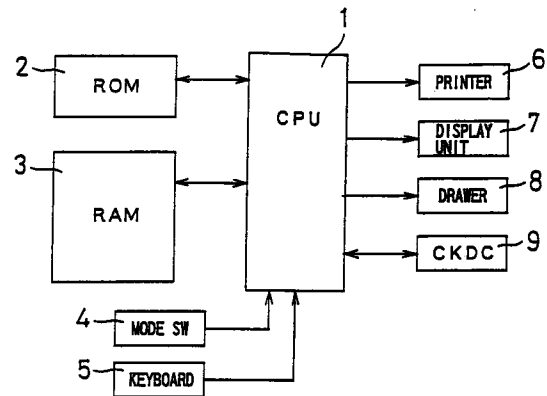
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(54) Electronic cash register

(57) An object of the invention is to provide an electronic cash register capable registering sales data speedy while keeping optimum operability. To this end, the electronic cash can change and setup a commodity to be assigned to a registration key even during a sales registering processing without stopping serving customers, as well as register sales data of any commodity whose code is changed using a registration key after the changing and setting. Another object of the invention is to provide an electronic cash register with improved operability, which can change the assignment according to sales quantity and sales time. Upon an input from a commodity key (5b), sales data of a commodity having a commodity code related to the commodity key (5b) by a key layout memory (3-1) is registered. The registered sales information of each commodity can be printed out or displayed. If it is designated that a specific commodity is set so that its code is related to the commodity key during the sales registering processing, the commodity code related to the commodity key is replaced by the specific commodity code. After this registration, the sales of the specific commodity is registered according to the commodity key input.

FIG. 1



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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an electronic cash register to be installed in various stores to register sales of commodities.

2. Description of Related Art

[0002] Generally, a sales data input apparatus such as an electronic cash register (ECR) and a POS (Point Of Sales) terminal has keys pre-assigned exclusively to commodities and the user can input a desired commodity by selecting the key assigned to that commodity. The key layout of such a sales input apparatus cannot be changed during registering of sales data, so a plurality of predetermined key layouts are stored beforehand and the most proper key-layout is read and used as needed.

[0003] The invention disclosed in Japanese Unexamined Patent Publication JP-A 5-197470 (1993) intends to provide a user-friendly keyboard, which stores a downloaded input key layout and an input key layout data changed in a change mode without updating the previous key layout to facilitate the user to use the keyboard. In addition, attribute information for limiting changes of key layouts is added to the key layout data to download, so that it is judged whether or not it is appropriate to change key layouts and when judged not appropriate, a warning message is issued to the user. The attribute information is provided to the user as visual information, so that a proper key layout is provided to each user. When another user uses the keyboard, the user can use the keyboard by restoring the previous key layout.

[0004] However, the key layout setup in the above technology is possible only in a setup mode other than sales data register modes. In order to change the setup of a key layout, therefore, the mode must be changed after a sales totaling processing is finished. Thus, it is difficult to change the mode timely during ordinary business hours.

[0005] Usually, no key is assigned to commodities whose sales frequency is low. Instead, a code input method is often taken for those commodities. If the sales of such a commodity rises sharply for any unexpected reason (for example, sales of umbrellas on a rainy day), code input operations will have to be made very frequently, so the following problems will arise; it takes much time to input those codes and many input errors result.

SUMMARY OF THE INVENTION

[0006] It is an object of the present invention to pro-

vide an electronic cash register that can register sales data speedily with maintaining the optimized operability so that a change setting for assigning each registration key to a given commodity is enabled without stopping serving customers even during registering of sales data, and sales data of each commodity whose code is changed using the registration key after the key assignment is changed. It is another object of the present invention to provide an electronic cash register whose controllability is improved for changes of key assignments so as to be carried on both by sales quantity and by sales time.

[0007] In a first aspect of the invention, there is provided an electronic cash register comprising:

input means having input keys including a plurality of registration keys, for inputting registration key information corresponding to a commodity code for discriminating each commodity;

a commodity code memory for storing a registration key layout obtained by relating the registration key information to the commodity code;

sales registering means for registering sales data of the commodity whose commodity code is related to the inputted registration information by the commodity code memory;

printing means for printing the sales registration information of the commodity; and

display means for displaying the sales registration information of the commodity, the electronic cash register further comprising:

designation means for designating that a commodity code of a specific commodity is set so as to be related to the registration key information;

specific commodity code memory for storing, in accordance with the designation, a registration key layout, obtained by relating the registration key information to the commodity code of the specific commodity in place of the commodity code related to the registration key information in the commodity code memory; and

control means for controlling the sales registering means so that sales data of the commodity whose commodity code is related to the inputted registration key information by the specific commodity code memory is registered when information is stored in the specific commodity code memory.

[0008] According to the first aspect of the invention, when registration key information is specified according to an input from a registration key, sales data is registered for a commodity having a commodity code related to the registration key information by the commodity code memory. The registered commodity sales information can be printed out or displayed.

[0009] When it is designated that a commodity code of a specific commodity is set so as to be related to the registration key information during an operation for

sales registration, then the commodity code related to the registration key information is replaced by the specific commodity code and thereafter, sales of the specific commodity is registered according to an input from the registration key in the subsequent registering operations.

[0010] Conventionally, changing of key layouts is disabled during a registering operation, and if a large quantity of a commodity that does not exist on the key layout is sold, the commodity code must be inputted as many as the sales quantity. It takes much time to input those codes and this often causes key operation errors. According to the first aspect of the invention, however, it is possible to change a key layout even during a registering operation, so that a commodity code can be registered just with a key operation after the changing of key layout. Thus, each registering operation of the register can be made fast and accurately.

[0011] In a second aspect, the control means controls, in accordance with an input from the specific input key, the sales registering means so that sales data of the commodity whose commodity code is related to the inputted registration key information by the commodity code memory is registered.

[0012] According to the second aspect, when the setting is changed according to the input from the registration key so that sales of a specific commodity is to be registered, the previous key layout is restored according to an input from a specific input key. In other words, after a specific input key is pressed, sales data is registered for each commodity having a commodity code related to the information of the inputted registration key in the commodity code memory according to the registration key input.

[0013] Conventionally, a complicated resetting operation is needed to restore the previous key layout after the new key layout is used just temporarily. According to the second-aspect of the invention as described above, however, the complicated resetting operation is omitted, since the previous key layout is stored in a memory and it is called and restored with a simple key operation.

[0014] In a third aspect of the invention, the electronic cash register further comprises copying means for copying, in accordance with an input from the specific input key, storage data of the specific commodity code memory to the commodity code memory.

[0015] According to the third aspect of the invention, when key layouts are changed so that sales data of a specific commodity is registered according to an input from a registration key, the previous key layout is kept used according to an input from a specific input key. In other words, after input from a specific input key is carried out, sales data is registered for each specific commodity having a specific commodity code related to the information of a registration key in the commodity code memory, according to a registration key input.

[0016] Conventionally, a complicated operation is needed to reset the previous key layout when the cur-

rent key layout is to be used continuously. According to the third aspect of the invention as described above, however, the new key layout is copied onto the previous key layout with a simple operation. Thus, no resetting operation is needed for the copying.

[0017] In a fourth aspect of the invention, the electronic cash register further comprises:

a sales quantity memory for storing a sales quantity of each commodity;

a reference sales quantity memory for storing a predetermined reference sales quantity;

sales quantity judging means for comparing the sales quantity to the reference sales quantity to judge whether the sales quantity is larger than the reference quantity or not;

notifying means for notifying the user to select a commodity whose sales quantity is judged to be larger than the reference sales quantity as the specific commodity.

[0018] According to the fourth aspect of the invention, it is notified that a commodity being sold very well is set as a specific commodity during a sales registering operation so that the commodity code is related to the information of a registration key. Consequently, the operator can specify a replacement of an easily selected proper specific commodity with a predetermined commodity.

[0019] Conventionally, the operator himself/herself has to judge each commodity being sold well and when it was impossible for the operator to make such a judgment accurately, it was impossible to change key layouts efficiently. According to the fourth aspect of the invention as described above, however, the operator can use the function of the register for changing key layouts efficiently, since the electronic cash register can judge it according to a preset reference by sales quantity and notifies the operation of the judgment result.

[0020] In a fifth aspect of the invention, the electronic cash register further comprises:

sales quantity memory for storing a sales quantity for each commodity;

commodity selecting means for selecting a commodity whose sales quantity is smallest among the commodities on the layout stored in the commodity code memory; and

notifying means for notifying the user to select a commodity code of the commodity whose sales quantity is smallest as the commodity code to be replaced by the commodity code of the specific commodity.

[0021] According to the fifth aspect of the invention, when it is specified that a specific commodity code is set so as to be related to the information of a registration key during a sale registering operation, the operator is notified to set the specific commodity code so as to be

related to the information of a registration key for the commodity of a low sales quantity. Consequently, the operator can specify so that the specific commodity is replaced with an easily selected proper commodity.

[0022] Conventionally, the operator himself/herself has to decide each key to be assigned to a commodity code. When it was impossible for the operator to make such a decision accurately, it was impossible to change key layouts efficiently. According to the fifth aspect of the invention as described above, however, the electronic cash register can judge the commodity of the least sales quantity among the commodities registered on an object key layout and notify it to the operator, thereby the operator can use the key layout change function more efficiently and accurately.

[0023] In a sixth aspect of the invention, the electronic cash register of the first aspect further comprises:

a sales quantity memory for storing a sales quantity for each commodity;

a last sales registration time memory for storing a last sales registration time for each commodity;

commodity selecting means for selecting a commodity whose last sales registration time is oldest among the commodities on the layout stored in the commodity code memory; and

notifying means for notifying the user to select a commodity code of the commodity whose last sales registration time is oldest as the commodity code to be replaced by the commodity code of the specific commodity.

[0024] According to the sixth aspect of the invention, when it is specified that a specific commodity code is set so as to be related to the information of a registration key during a sales registering operation, the register notifies the operator to set the specific commodity code by relating to the information of the registration key for the commodity whose last sales registered time is the oldest. Consequently, the operator can specify so that a specific commodity can be replaced with an easily selected proper commodity.

[0025] According to the sixth aspect of the invention as described above, the electronic cash register decides a commodity whose last sales registered time is the oldest (not registered lately) among the commodities stored on an object key layout and notifies the operator of the judgment result, thereby the operator can use the key layout change function more efficiently and accurately.

[0026] In a seventh aspect of the invention, the electronic cash register further comprises:

a sales quantity memory for storing a sales quantity for each commodity;

a reference sales quantity memory for storing a predetermined reference sales quantity;

sales quantity judging means for comparing the

sales quantity and the reference sales quantity to judge whether the sales quantity is larger than the reference sales quantity or not;

commodity selecting means for selecting a commodity whose sales quantity is smallest among the commodities on the layout stored in the commodity code memory; and

setting means for setting a commodity code in the following manner:

selecting a commodity whose sales quantity is judged to be larger than the reference sales quantity as the specific commodity, and

selecting a commodity code of the commodity whose sales quantity is smallest as the commodity code to be replaced by the commodity code of the specific commodity.

[0027] According to the seventh aspect of the invention, a specific commodity of a high sales frequency is set as a specific commodity so that its code is set so as to be related to the information of a registration key during a registering operation and the specific commodity code is set so as to be related to the information of a registration key for a commodity of low sales frequency. Consequently, the operator can replace an easily selected proper commodity with an easily selected proper commodity.

[0028] According to this aspect of the invention as described above, the electronic cash register decides each of specific commodities with high sales registration frequency automatically and furthermore decides a key of the lowest registration frequency thereby to change key layouts so that the specific commodity is assigned to the key. Thus, the operator can use the key layout change function more effectively and surely.

[0029] In an eighth aspect of the invention, the electronic cash register further comprises:

sales quantity memory for storing a sales quantity for each commodity;

a reference sales quantity memory for storing a predetermined reference sales quantity;

a last sales registration time memory for storing a last sales registration time for each commodity;

sales quantity judging means for comparing the sales quantity and the reference sales quantity to judge whether the sales quantity is larger than the reference sales quantity or not;

commodity selecting means for selecting a commodity whose last sales registration time is oldest among the commodities on the layout stored in the commodity code memory; and

setting means for setting a commodity code in the following manner:

selecting a commodity whose sales quantity is judged to be larger than the reference sales

quantity as the specific commodity, and selecting a commodity code of the commodity whose sales registration time is oldest as the commodity code to be replaced by the commodity code of the specific commodity.

[0030] According to the eighth aspect of the invention, a commodity code is set as a specific commodity of high sales frequency so that its commodity code is related to the information of a registration key and the code of the specific commodity is set so that its commodity code is related to the information of a registration key for the commodity whose last sales registered time is the oldest. Consequently, the operator can replace an easily selected proper specific commodity with an easily selected proper commodity.

[0031] According to the eighth aspect of the invention as described above, the electronic cash register decides each of specific commodities with high registration frequency automatically and furthermore decides a key of the oldest registered time thereby to change key layouts so that the specific commodity is assigned to the key. Thus, the operator can use the key layout change function more effectively and surely.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] Other and further objects, features, and advantages of the invention will be more explicit from the following detailed description taken with reference to the drawings wherein:

Fig. 1 is a block diagram of an electronic cash register in an embodiment of the present invention;
 Fig. 2 is a plan view of a keyboard of the electronic cash register;
 Fig. 3 is a memory configuration of the electronic cash register;
 Fig. 4 is a flow chart explaining a registering operation of a commodity in a register mode of the electronic cash register;
 Fig. 5 is a flow chart explaining a judgment for changing key layouts and an operation for an automatic change of key layouts in the register mode of the electronic cash register;
 Fig. 6 is a flow chart explaining an operation for changing key layouts in the register mode of the electronic cash register;
 Figs. 7A to 7F illustrate key operation procedures in each processing of the electronic cash register; and
 Fig. 8 illustrates a display example of the electronic cash register.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0033] Now referring to the drawings, preferred embodiments of the invention are described below.

[0034] Fig. 1 is a block diagram indicating an electrical configuration of an electronic cash register (hereinafter abbreviated as "ECR") of an embodiment of the present invention. This ECR is provided with a central processing unit 1 (hereinafter abbreviated as "CPU") composed of, for example, a microprocessor. Connected to the CPU 1 is a read only memory 2 (hereinafter abbreviated as "ROM") used for storing programs, etc. for controlling various operations of the ECR. In addition, a random access memory 3 storing various setting data (hereinafter abbreviated as "RAM") is connected to the CPU 1.

[0035] Furthermore, to the CPU 1 are connected a mode switch MS4 for changing over the function of the ECR, a keyboard 5 for inputting commodity department codes, prices, etc., a printer 6 for printing out the result of computation in the CPU 1 onto a receipt and a recording paper, a display unit 7 such as a liquid crystal display for displaying the result of the computation, etc., a drawer 8 for storing coins and bills, and a controller CKDC 9 for taking out the current date and time.

[0036] The CPU 1 also executes processings under the control of the control program stored in the ROM 2 including exchanges of data with the devices connected to itself thereby to control the ECR comprehensively.

[0037] Fig. 2 is a plan view of a switch input panel composing the mode switch 4 and the keyboard 5. The operator inserts a key he/she owns into the mode switch 4 and turns the key to a desired position thereby to change over the state of the ECR operation. As for the ECR operation state, the "OFF" indicates a stop state and the "SETUP" indicates an operating state of a program for setting up and registering object commodity codes and key layouts.

[0038] The "TIME" indicates a time display mode in which only the time is displayed. The "REGISTER" indicates an operation state enabling various registrations including registering of sales data. The "MANAGE" indicates an operation state in which necessary information for managing the ER is inputted/outputted. The "CHECK/BALANCE" indicates an operation state in which the sales of an ECR is checked/balanced daily/monthly.

[0039] The register keys 5a of the keyboard are used to register a value. Specific commodity codes are assigned to a plurality of commodity keys 5b. When one of those commodity keys is pressed, the assigned commodity code is read, registering the sales of the commodity. The code key 5c is used to confirm the result of a key layout change and start a change of key layouts.

[0040] Fig. 3 illustrates a memory configuration. Fig. 3 is a comprehensive configuration of the RAM 3. The RAM 3 has key layout memories 3-1 and 3-2 for storing the correspondence between key positions and commodity codes. In the key layout memory 3-1, each key position corresponds to a memory address, and a commodity key position 01 ("A" in Fig. 2) corresponds to a first commodity code memory (3-1(A)) of a start address in the key layout memory 3-1, and a commodity key

position 02 ("B" in Fig. 2) corresponds to a second commodity memory (3-1(B)) of the next address in the key layout memory 3-1. Thus, each of set commodity codes is read according to the corresponding key position.

[0041] Both key layout memories 3-1 and 3-2 are completely identical in configuration. The key layout memory 3-1 stores an after-changed key layout and the key layout memory 3-2 stores a before-changed key layout.

[0042] The RAM 3 has a sales memory 3-3 for storing sales information for each of commodities. An accumulated sales quantity memory (3-3(A)) in the sales memory 3-3 counts up the number of sales each time sales data of a certain commodity is registered, and the count is cleared at the time of balancing. A last sales time memory (3-3 (B)) in the sales memory 3-3 indicates the time when the certain commodity is sold and the time is updated each time the commodity is sold.

[0043] The RAM 3 also has a processing setup memory 3-4 for storing a setup for deciding an operation of the whole ECR. A high sales frequency judging quantity memory (3-4 (A)) in the processing setup memory 3-4 stores quantity data for judging a sales frequency. When the accumulated quantity of the registered commodity exceeds the value of this data, it is judged that the registration frequency of that commodity is high.

[0044] A low sales frequency judging method memory (3-4 (B)) in the processing setup memory 3-4 stores a method for judging a commodity of the lowest sales frequency in commodities existing in an object key layout. The method is switched between judgment by quantity and judgment by time.

[0045] A change method memory (3-4 (C)) in the processing setup memory 3-4 stores a method for changing key layouts. The method is switched between a manual change method by an operator and an automatic change method by the ECR.

[0046] Furthermore, the RAM 3 has a temporary memory 3-5 including a key position memory (3-5 (A)) and commodity code memories (3-5 (B)), 3-5 (C)) for temporarily storing a key position and commodity codes taken out in the processing process, respectively.

[0047] Hereunder, an operation of the ECR will be described with reference to Figs.4 to 8.

[0048] Fig.4 is a flow chart explaining an operation for registering a commodity using a commodity key (5b), which is a registration key. For example, if the commodity key ("A" in Fig. 2) corresponding to the commodity code 01 is pressed down in step 4-0, the key position of the commodity key is read and stored in the key position memory (3-5 (A)) (step 4-1).

[0049] Each key position code has a sequential value corresponding to the position disposed on the keyboard. The start address of the key layout memory 3-1 is added to such a key position code thereby to be able to calculate an address corresponding the key position in the key layout memory. This is why the calculation can find the memory (3-1 (A)) address corresponding to the commodity key position 01 in the key layout memory

3-1 (step 4-2).

[0050] This memory address is used to read the content (commodity code) of the memory (step 4-3), thereby a commodity code is stored in the commodity code memory (3-5 (B)) (step 4-4).

[0051] Then, the accumulated sales quantity corresponding to this commodity code is read out and written in the accumulated sales quantity memory (3-3 (A)) after being added the current registered quantity, to thereby update the memory (3-3 (A)) (step 4-5). After this, current date/time information is read from the CKDC 9 and the obtained information is written in the last sales time memory for an object commodity code so as to update the memory (step 4-6). This completes the processing.

[0052] Fig.5 is a flow chart explaining an operation for judging whether to change key layouts after the registration in Fig.4 is ended and an operation for changing key layouts automatically.

[0053] At first, it is judged whether the value is set at 0 in the high sales frequency judging quantity memory (3-4 (A)) (step 5-1). If 0 is set, no judgment is needed and the processing is ended. Then, it is judged whether the accumulated quantity of the current registered commodity exceeds the set value of the high sales frequency judging quantity (step 5-2). If the set value is not exceeded, it is judged that it is no need to change key layouts. Thus, the processing is ended. If the set value is exceeded, the indicator (8-3-A in Fig.8) of the display unit is lit, notifying the operator that the current registered commodity sales frequency is high (step 5-3). Fig.8 is a display screen example.

[0054] Steps 5-4 to 5-7a and 5-7b is a processing for selecting an optimal key to be changed. At first, a setting of the judging method memory (3-4 (B)) of a commodity with the lowest registration frequency from the commodities existing in an object key layout is judged (step 5-4). And the following processing is divided into a judgment by quantity (steps 5-5a and 5-5b) and a judgment by time (steps 5-7a and 5-7b). In the judgment by quantity, a commodity code of a less accumulated quantity is searched from the commodity codes set in the key layout memory (3-1) (step 5-5a) and the commodity code is stored in the commodity code memory (3-5 (C)) and the key position is stored in the key position memory (3-5 (A))(step 5-5b) respectively.

[0055] After this, the accumulated quantity of the commodity code is read and compared with the accumulated quantity of the currently registered commodity code (step 5-6). If the accumulated quantity of the commodity code searched in step 5-5a is larger than the accumulated quantity of the currently registered commodity code, it is judged that there is no recommended key to be replaced. Thus, the processing is ended.

[0056] In the case of the judgment by time, a commodity code whose last sales time is the oldest among the commodity codes set in the key layout memory (3-1) is searched(step 5-7a) just like in the case of the judgment

by quantity and the commodity code is stored in the commodity code memory (3-5 (C)) and the key position is stored in the key position memory (3-5 (A))(step 5-7b). Since the latest time is always taken for the currently registered commodity in the case of the judgment by time, the commodity code is not compared with the objective commodity codes. The remaining processing is common between the judgment by quantity and the judgment by time.

[0057] Then the setting of the change method memory for changing key layouts (3-4 (C)) is judged (step 5-8). If a manual processing is selected, the processing is ended immediately. If an automatic processing is selected, the object address in the key layout memory (3-1) is calculated from the key position stored in the key position memory (3-5 (A)) just like in step 4-2, and the commodity code stored in the commodity code memory (3-5 (B)) is written in the memory space indicated by this address thereby to update the memory (step 5-9). The indicator (8-3-B in Fig.8) on the display unit is then lit (step 5-10), notifying the operator that the key layout has been changed automatically. This completes the processing.

[0058] Fig.6 is a flow chart explaining a processing for changing key layouts manually and a processing for confirming the result of an automatic change of key layouts. The key sequence shown in Fig.7A is used for the manual change of key layouts. The common key sequence is also used to confirm the result of the automatic change of key layouts.

[0059] The series of processings is started with pressing of the code key (5c) (step 6-1a). After the key (5c) is pressed, the commodity code stored in the commodity code memory (3-5 (B)) is displayed on the display unit 7 (step 6-1b). In the case of the manual processing, this commodity code indicates a commodity code assigned newly. In the case of the automatic processing, an already changed commodity code (8-1 in Fig.8) is displayed as the commodity code assigned newly.

[0060] At the same time, the display unit 7 displays the commodity code stored in the commodity code memory (3-5 (C)). In the case of the manual processing, this commodity code indicates a commodity code of the key to be assigned. In the case of the automatic processing, a commodity code erased from the key layout due to an automatic key assignment (8-2 in Fig.8) is displayed.

[0061] Next, the system waits for key input of the operator from the input panel shown in Fig.2 (step 6-2). If any of the numeral input keys (5a) is pressed (step 6-3), the inputted value is written in the commodity code memory (3-5 (B)), then the system returns again to the key input processing (step 6-4).

[0062] If the any of the commodity keys (5b) is pressed, the key position is stored in the key position memory (3-5 (A)). If other key than the commodity keys 5b is pressed, the processing is ended (step 6-5). Then, the position code stored in the key position memory (3-5 (A)) is read thereby to calculate an object memory

address in the key layout memory (3-1) (step 6-6) and the commodity code stored in the commodity code memory (3-5 (B)) is stored in the key layout memory (3-1) (step 6-7). This completes the processing.

5 [0063] The commodity code to be stored at this time is the one specified by the operator when the key is pressed in step 6-3. If the code is not pressed in step 6-3, the code stored in step 5-5b or 5-7b in Fig.5 is stored for the commodity code.

10 [0064] Figs.7A to 7F illustrate key operations for changing key layouts and various settings.

[0065] Fig.7A indicates a key sequence for changing key layouts or confirming the result of the automatic change of key layouts shown in Fig.6. Fig.7B indicates a key sequence for setting the high sales frequency judging quantity. At first, the mode switch 4 is changed over to the setup mode. Then, a setup job code of high sales frequency judging quantity and a sales quantity are inputted. Finally, when key input for ending the setting of the high sales frequency judging quantity is carried out, the set data is stored in the high sales frequency judging quantity memory (3-4 (A)), then the processing is ended.

25 [0066] Fig.7C indicates a key sequence for setting a low sales frequency judging method. At first, the mode switch 4 is changed over to the setup mode. After this, a setup job code of the low sales frequency judging method is inputted, then a value for changing over the low sales frequency judging method (0; judgment by quantity, 1; judgment by time) is inputted. Finally, when key input is carried out to end the low sales frequency method setup job, the set data is stored in the low sales frequency judging method setup memory (3-4 (B)). Then, the processing is ended.

30 [0067] Fig.7D indicates a key sequence for changing over the key layout changing method. At first, the mode switch 4 is changed over to the setup mode. After this, a setup job code of changing method is inputted, then a value for specifying the key layout change method (0; manual, 1: automatic) is inputted. Finally, in the case where key input for ending the change method setting is carried out, the set data is stored in the key layout change method setup memory (3-4 (C)), then the processing is ended.

45 [0068] Fig.7E indicates a key sequence for invalidating the current key layout and restoring the previous key layout. At first, the mode switch 4 is changed over to the setup mode. Then, a key layout restoring setup job code is inputted. After this, when a key is pressed to end the key layout restoring setup, the data in the key layout memory 3-2 is copied into the key layout memory 3-1, then the processing is ended.

50 [0069] Fig.7F indicates a key sequence for setting a copy set up for invalidating the previous key layout and copying the current key layout. At first, the mode switch 4 is changed over to the setup mode. Then, the current key layout copying job code is inputted. After this, when a key is pressed to end the current key layout copy set-

ting, the data in the key layout memory 3-1 is copied into the key layout memory 3-2, then the processing is ended.

[0070] The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and the range of equivalency of the claims are therefore intended to be embraced therein.

Claims

1. An electronic cash register comprising:

input means (5) having input keys (5a, 5b, 5c) including a plurality of registration keys (5b), for inputting registration key information corresponding to a commodity code for discriminating each commodity;

a commodity code memory (3-1) for storing a registration key layout obtained by relating the registration key information to the commodity code;

sales registering means (1) for registering sales data of the commodity whose commodity code is related to the inputted registration information by the commodity code memory (3-1); printing means (6) for printing the sales registration information of the commodity; and display means (7) for displaying the sales registration information of the commodity, the electronic cash register further comprising:

designation means (3-4(C)) for designating that a commodity code of a specific commodity is set so as to be related to the registration key information;

specific commodity code memory (3-2) for storing, in accordance with the designation, a registration key layout, obtained by relating the registration key information to the commodity code of the specific commodity in place of the commodity code related to the registration key information in the commodity code memory; and

control means (1) for controlling the sales registering means (1) so that sales data of the commodity whose commodity code is related to the inputted registration key information by the specific commodity code memory (3-2) is registered when information is stored in the specific commodity code memory (3-2).

2. The electronic cash register of claim 1, wherein the control means (1) controls, in accordance with an input from the specific input key (5c), the sales reg-

istering means (1) so that sales data of the commodity whose commodity code is related to the inputted registration key information by the commodity code memory (3-1) is registered.

3. The electronic cash register of claim 1, further comprising copying means for copying, in accordance with an input from the specific input key (5c), storage data of the specific commodity code memory (3-2) to the commodity code memory (3-1).

4. The electronic cash register of claim 1, further comprising:

a sales quantity memory (3-3(A)) for storing a sales quantity of each commodity;

a reference sales quantity memory (3-4(A)) for storing a predetermined reference sales quantity;

sales quantity judging means (1) for comparing the sales quantity and the reference sales quantity to judge whether the sales quantity is larger than the reference quantity or not;

notifying means (8-3-A) for notifying the user to select a commodity whose sales quantity is judged to be larger than the reference sales quantity as the specific commodity.

5. The electronic cash register of claim 1, further comprising:

sales quantity memory (3-3(A)) for storing a sales quantity for each commodity;

commodity selecting means (3-4(B)) for selecting a commodity whose sales quantity is smallest among the commodities on the layout stored in the commodity code memory (3-1); and

notifying means (8-3-B) for notifying the user to select a commodity code of the commodity whose sales quantity is smallest as the commodity code to be replaced by the commodity code of the specific commodity.

6. The electronic cash register of claim 1, further comprising:

a sales quantity memory (3-3(A)) for storing a sales quantity for each commodity;

a last sales registration time memory (3-3(B)) for storing a last sales registration time for each commodity;

commodity selecting means (3-4(B)) for selecting a commodity whose last sales registration time is oldest among the commodities on the layout stored in the commodity code memory (3-1); and

notifying means (8-3-B) for notifying the user to

select a commodity code of the commodity whose last sales registration time is oldest as the commodity code to be replaced by the commodity code of the specific commodity.

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- 7. The electronic cash register of claim 1, further comprising:

a sales quantity memory (3-3(A)) for storing a sales quantity for each commodity;

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a reference sales quantity memory (3-4(A)) for storing a predetermined reference sales quantity;

sales quantity judging means (1) for comparing the sales quantity and the reference sales quantity to judge whether the sales quantity is larger than the reference sales quantity or not;

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commodity selecting means (3-4(B)) for selecting a commodity whose sales quantity is smallest among the commodities on the layout stored in the commodity code memory (3-1); and

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setting means (1) for setting a commodity code in the following manner:

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selecting a commodity whose sales quantity is judged to be larger than the reference sales quantity as the specific commodity, and

selecting a commodity code of the commodity whose sales quantity is smallest as the commodity code to be replaced by the commodity code of the specific commodity.

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- 8. The electronic cash register of claim 1, further comprising:

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sales quantity memory (3-3(A)) for storing a sales quantity for each commodity;

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a reference sales quantity memory (3-4(A)) for storing a predetermined reference sales quantity;

a last sales registration time memory (3-3(B)) for storing a last sales registration time for each commodity;

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sales quantity judging means (1) for comparing the sales quantity and the reference sales quantity to judge whether the sales quantity is larger than the reference sales quantity or not;

commodity selecting means (3-4(B)) for selecting a commodity whose last sales registration time is oldest among the commodities on the layout stored in the commodity code memory (3-1); and

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setting means (1) for setting a commodity code in the following manner:

55

selecting a commodity whose sales quan-

tity is judged to be larger than the reference sales quantity as the specific commodity, and

selecting a commodity code of the commodity whose sales registration time is oldest as the commodity code to be replaced by the commodity code of the specific commodity.

FIG. 1

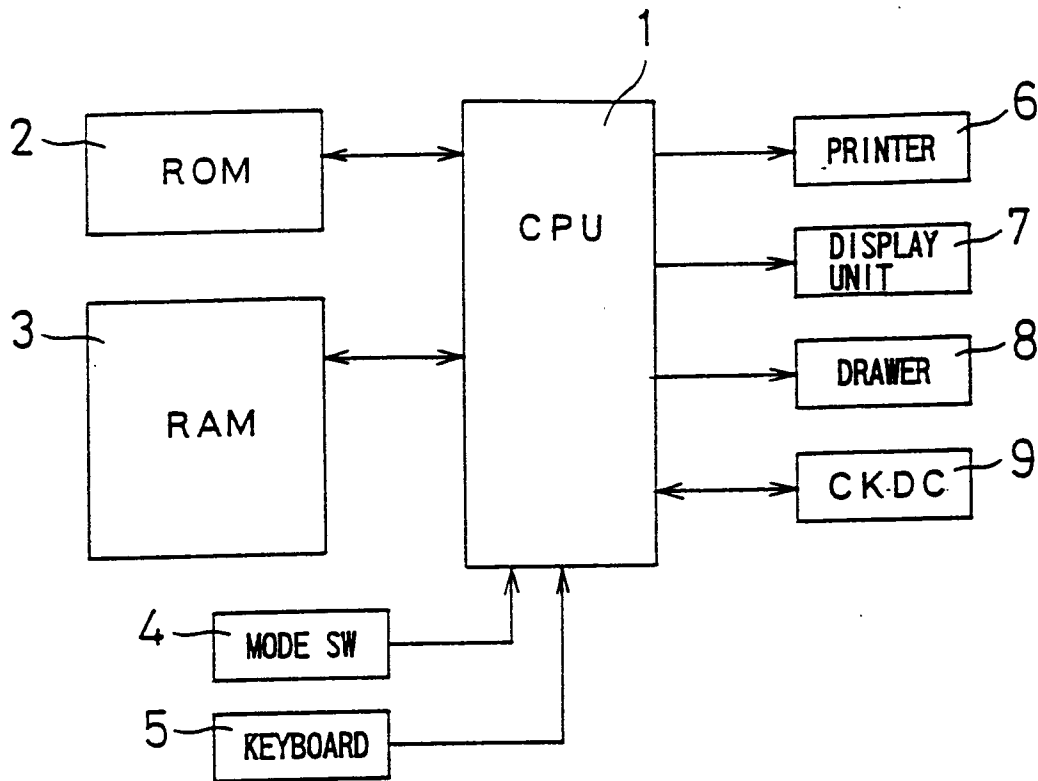


FIG. 2

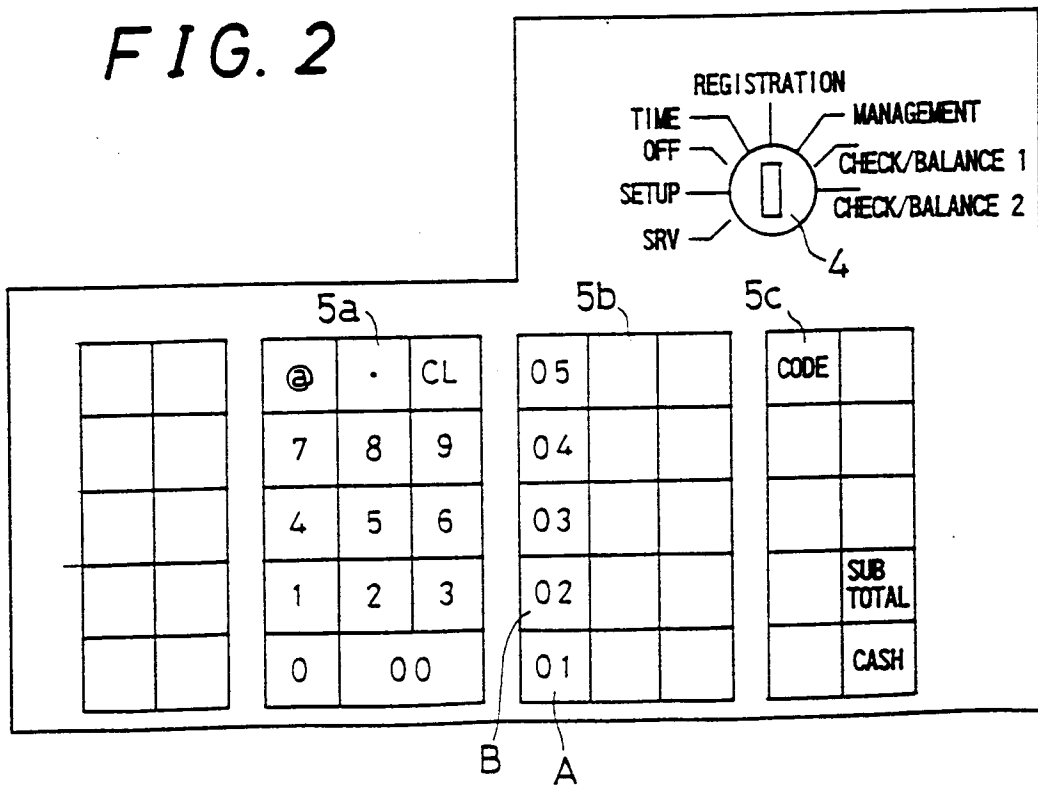


FIG. 3

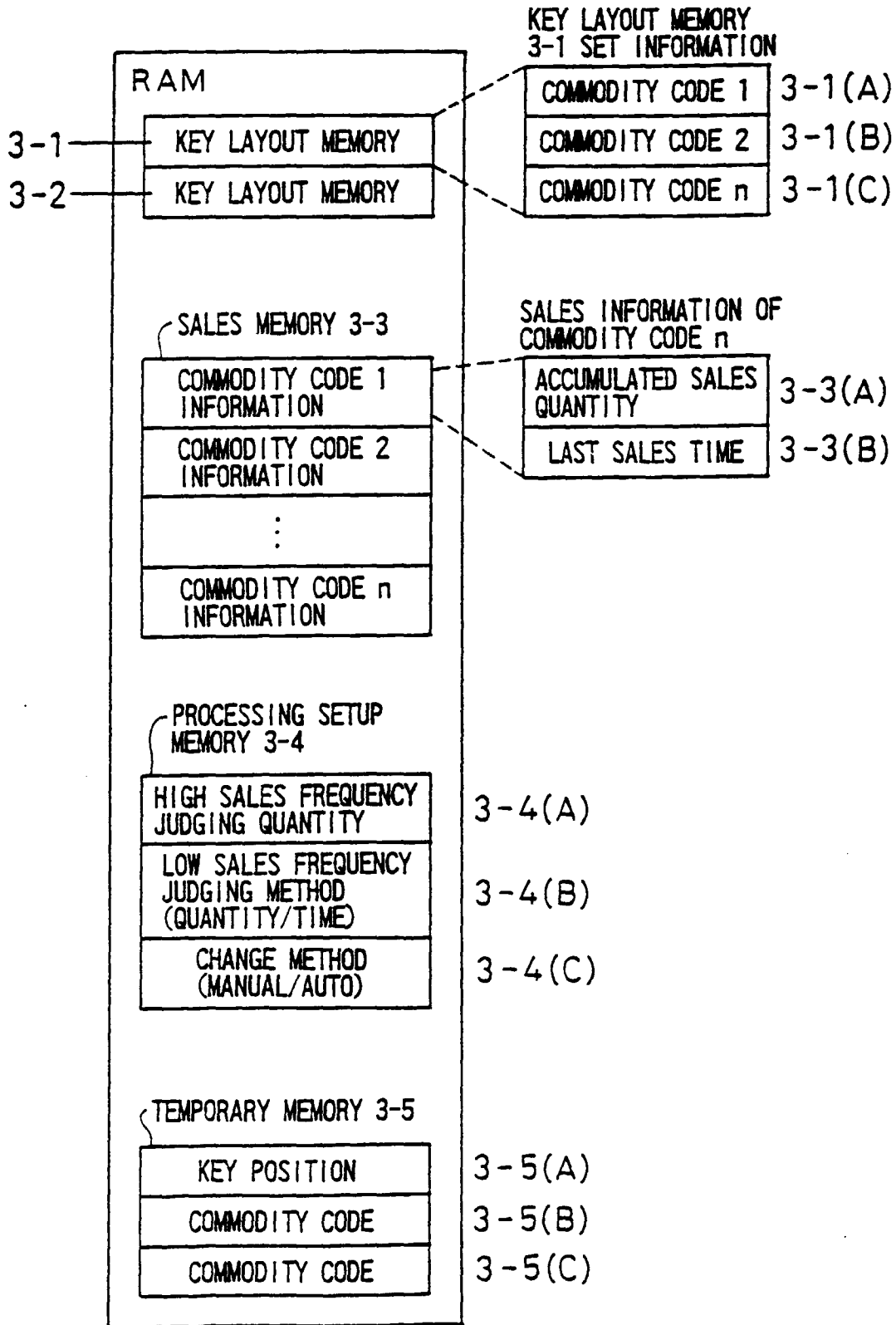


FIG. 4

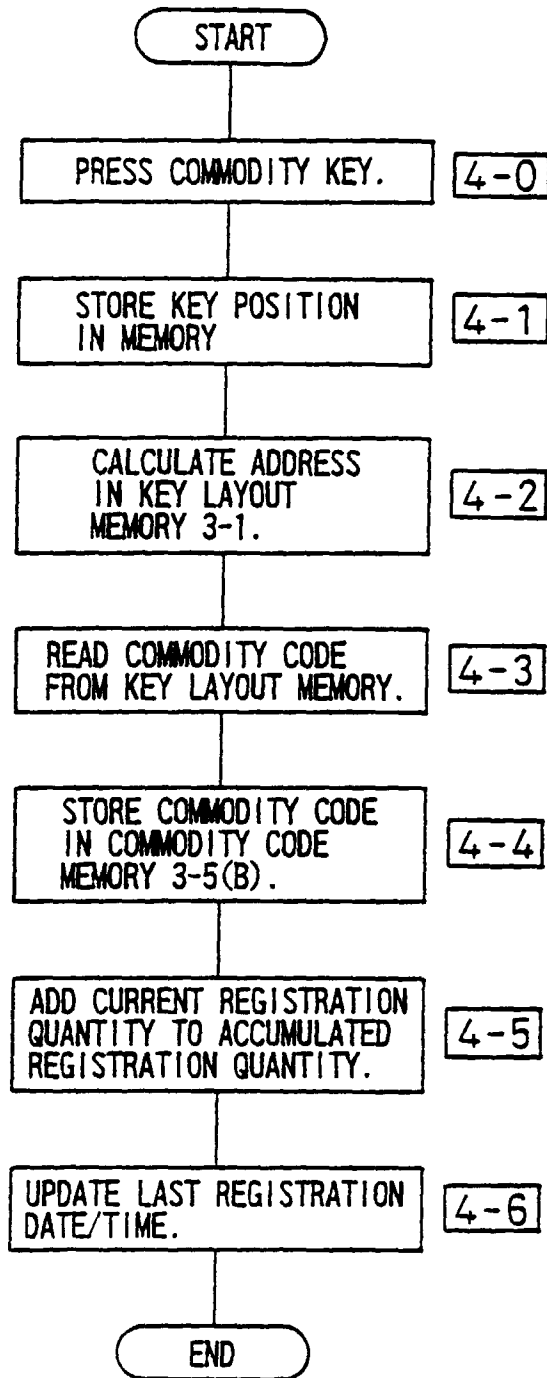


FIG. 5

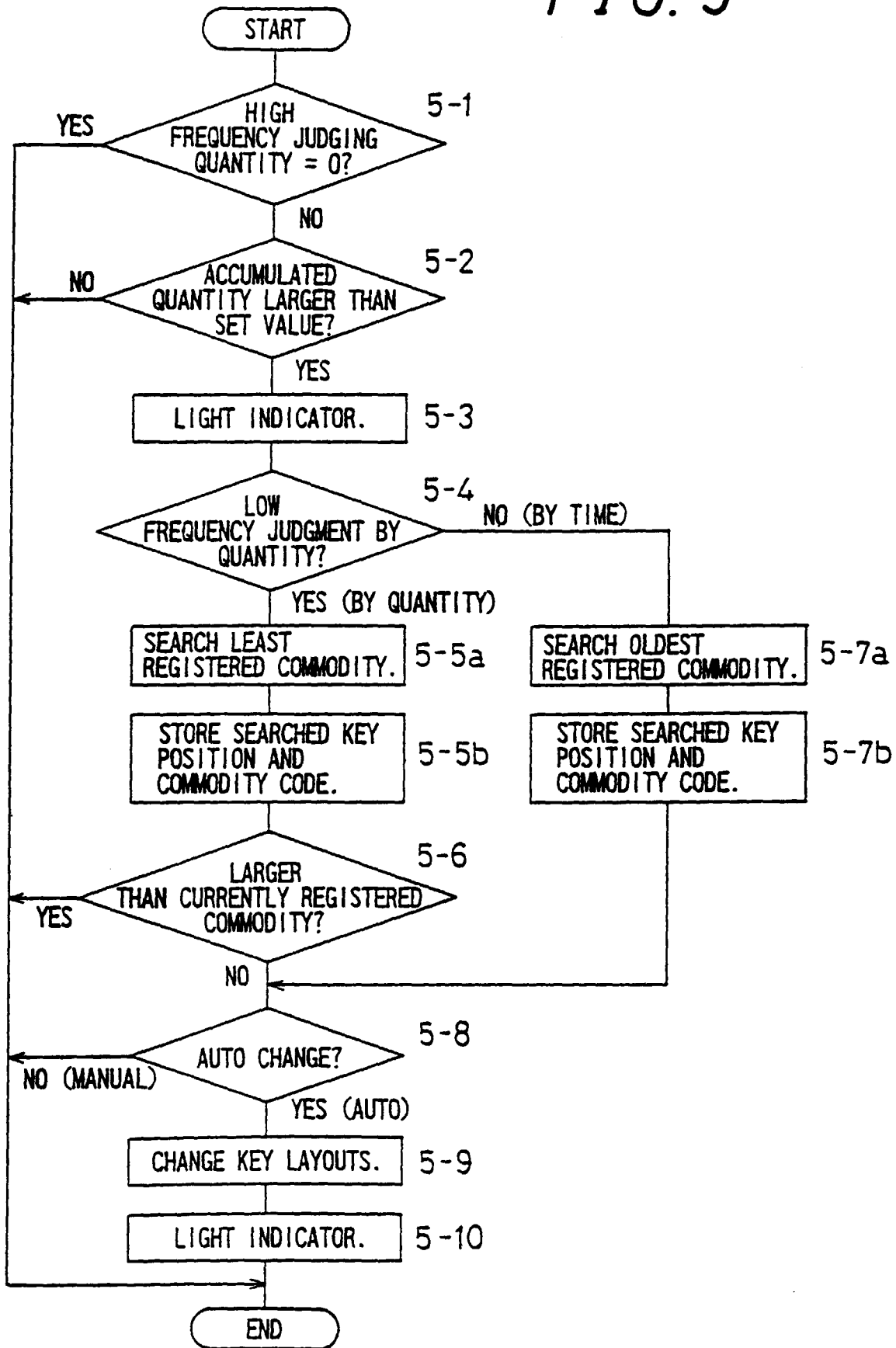


FIG. 6

