Oct. 1, 1946. M. RIFKIN 2,408,581

SELF-SERVE AUTOMATIC REGISTERING DEVICE

Filed June 21, 1943

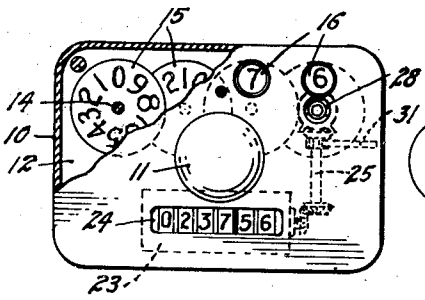


Fig 1

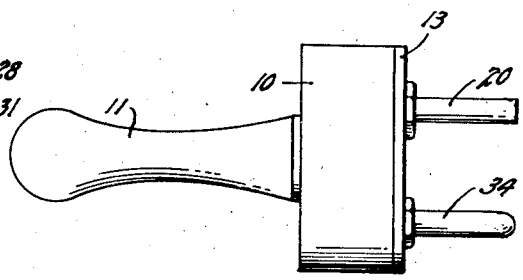


Fig 2

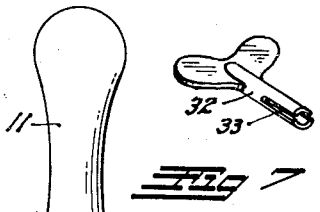


Fig 7

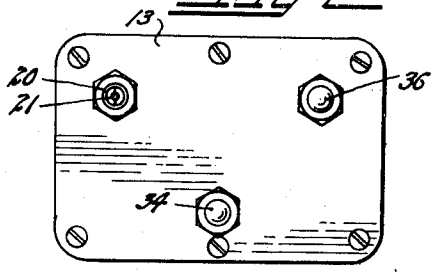


Fig 4

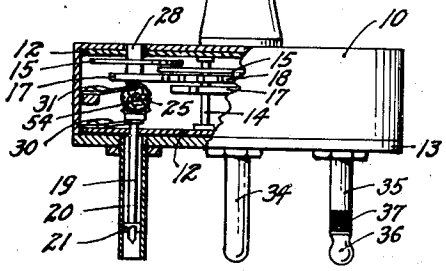


Fig 3

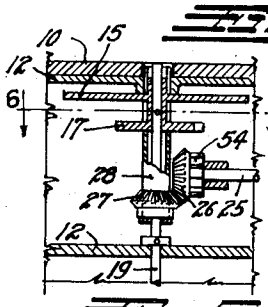


Fig 5

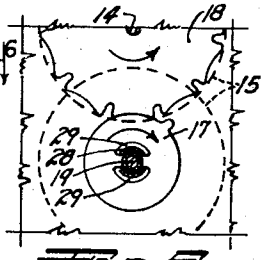


Fig 6

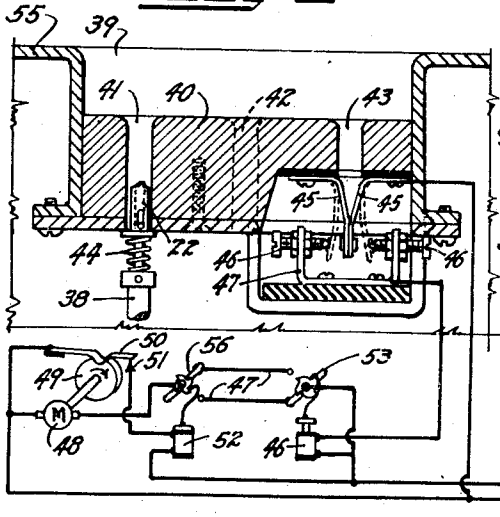


Fig 9

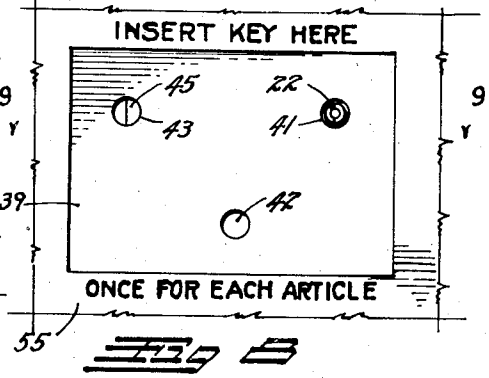


Fig 8

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SELF-SERVE AUTOMATIC REGISTERING DEVICE

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7 Claims. (Cl. 235—1)

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This invention relates to a serve-self store and more particularly to a registering key for operating dispensing machines in such a store. The principal object of the invention is to provide means for use in a self-serve store of a type in which all of the articles of merchandise will be stocked in dispensing machines. The customers will receive a novel key when they enter the store, and can obtain any article of merchandise by simply inserting this key into the dispensing machine for that article. The machine, into which the key is inserted, will operate a registering device on the key so that the total amount of all purchases made by the customer will be instantly visible to the cashier upon the return of the key. This system obviates the necessity for clerks, adding machines, and computation upon the part of the cashier and eliminates all errors in the charge as well as all possibility of theft of money or merchandise. The customer chooses his articles as he desires, and simply pays the amount shown on the key as he departs. No other services are required from the store. The key is reset for each customer but the total of all purchases made during the day remains in the key as a check on the cashier.

While the invention is particularly designed for obtaining articles of merchandise, it can be similarly adapted however, for any types of service which can be preformed by machines.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a rear view of the improved dispensing machine operating key;

Fig. 2 is an end view thereof;

Fig. 3 is a side view partially broken away to show the interior construction;

Fig. 4 is a front face view thereof;

Fig. 5 is an enlarged fragmentary detail section illustrating the construction of the resetting shaft of the key;

Fig. 6 is a similarly enlarged detail view taken on the line 6—6, Fig. 5;

Fig. 7 illustrates a resetting device for use in resetting the registering dials of the key;

Fig. 8 illustrates a typical key hole or socket

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on the dispensing machine to which this key is applicable; and

Fig. 9, is a cross section through the key hole taken on the line 9—9, Fig. 8. In Fig. 9, a typical electric circuit of the dispensing machine is diagrammed, showing its relation to the key hole mechanism.

Briefly, the improved key is designed for insertion in a key hole or socket in a dispensing machine, and when inserted will first connect a registering mechanism in the key with the operating mechanism of the dispensing machine, and then close an electrical circuit to cause the dispensing machine to operate to deliver a single article of merchandise. The registering on the key is accomplished by the operation of the machine, therefore, should the machine fail to operate, there will be no actuation of the registering mechanism of the key.

The improved key consists of a housing 10, provided with a projecting handle 11 which extends from the middle back of the housing. The housing contains a dial mechanism frame 12 held in place therein by means of a suitable face plate 13. The mechanism frame carries a plurality of dial shafts 14, each of which carries a number dial 15. One digit of each of number dial is visible through the back of the housing 10 through a row of suitable windows 16.

Number dials are common in the art, and their successive operation of each other is well known. They are so constructed that when the right hand dial rotates, one complete revolution, it will rotate the next adjacent dial to the left one-tenth of a revolution and so on throughout the entire series of dials. This may be accomplished, as shown in Fig. 6, by providing the dial shaft with a single-toothed disc gear 17 which meshes with a ten-socket Geneva gear 18 on the next adjacent dial shaft.

The shaft of the first number disc, which will be herein designated the operating shaft 19, extends through the face plate 13 within a guide tube 20. The projecting extremity of the shaft 19 terminates in a suitable clutch face 21 which cooperates with an inter-fitting clutch face 22 on the dispensing machine to impart rotation to the shaft 19. The key is also provided with a totaling device 23, the numerals of which are visible through a window 24 in the back of the key. The construction of this totaling device need not be described in detail since they can be purchased on the open market, and are used as counters and totalers of various numbers and revolutions.

The totaling device is operated through the

medium of a bevel gear shaft 25 which terminates in a bevel gear 26 adjacent the operating shaft 19. The bevel gear 26 meshes with a similar gear 27 which is mounted on a sliding sleeve 28 surrounding the shaft 19. The number dial and disc gear on this particular shaft are slotted adjacent their axes, as shown at 29, and the sleeve 28 is slotted so as to pass through the slots in the dial and disc, as shown in Fig. 6, to a point accessible through the rear face of the housing 10. The sleeve 28 is constantly forced upwardly to maintain the gears 26 and 27 in mesh by means of a pressure spring 30. Reverse rotation of the gear shaft 25 is prevented by means of a ratchet spring 31 which engages a ratchet wheel 54 on the gear shaft.

Therefore, the number dials can not be turned backwardly by an unauthorized person since they are locked by the ratchet spring 31. If, however, a key such as indicated at 32 in Fig. 7, is inserted through the rear face of the housing 10 about the shaft 19, it will contact the sleeve 28 and force it inwardly against the action of the spring 30 to disengage the gears 26 and 27 so that the number of dials can be rotated back to the zero position. Since the totaling device, however, is disconnected at this time, the total will not be affected. The key 32 is provided with side slots 33 which allow it to pass into the openings 29 in the number disc to impart rotation to the latter.

The face plate 13 is also provided with a guide stud 34, which guides its insertion in the key hole, and with a contact stud 35 carrying a contact extremity 36 insulated from the stud proper by means of suitable insulation 37.

The dispensing machine mechanism forms no part of the present invention, and may be any of the standard mechanisms for delivering articles upon receipt of an electric impulse. The impulse may be derived from the insertion of a coin or other closing of an electric circuit. The only change made to adapt the machine to the use of the improved key is the extension of one of the machine shafts to provide a drive shaft such as indicated at 38. A socket 39 is also formed in the face of the dispensing machine for the receipt of the housing 10.

A guide block 40 is positioned in the socket 39. This block is provided with openings 41, 42 and 43 for the receipt of the key prongs 20, 34 and 35, respectively. The opening 42 is simply to guide the prong 34 accurately into place and to properly position the entire assembly. The opening 41 guides the tube 20 so as to accurately position the clutch member 21 over the clutch member 22. The clutch 22 is slidably mounted on the extremity of the shaft 38 and is constantly urged outwardly by means of a spring 44 so that the clutch members 21 and 22 will engage each other before the key reaches its final inserted position.

In the final position the contact extremity 36 of the prong 35 enters between and separates two contact springs 45, causing them to close an electric circuit with a pair of contact screws 46 which are adjustably mounted in a screw frame 47. Actually only one of the springs 45 would be absolutely necessary since both are carried by a single frame to which a circuit wire is attached but by providing two a more positive contact is assured, should either point be damaged or improperly set. The closing of the contact starts the dispensing machine in action, and causes it to deliver one article of merchandise. During the delivery of this article, the shaft 38 will rotate once for each cent of cost of the particular article in the dispensing machine; that is, for a ten-cent article, it will rotate ten times so as to rotate the "cent" number disc ten times.

The machine will operate only once unless the key is withdrawn and re-inserted. A typical machine operating circuit is illustrated diagrammatically in Fig. 9, in which the insertion of the key closes a circuit to a first ratchet solenoid 45' which rotates a double armed switch blade 53 at one extremity of a "3-way" circuit 47', causing current to flow through the circuit 47' to an operating motor 48. The mechanism driven by the motor rotates a cam 49 which, when it starts to rotate, lifts a switch blade 50 from the contact 51, breaking the circuit to a second ratchet solenoid 52. When the cam 49 has completed one revolution, the switch blade 50 will again close the contact 51, energizing the solenoid 52, causing it to rotate a double armed switch blade 55 to break the "3-way" circuit 47 at the opposite end to bring the motor to rest. The motor cannot start again until the key is withdrawn to de-energize the first solenoid 46 and allow it to engage another notch on its ratchet, to again operate the first "3-way" blade 53.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A registering device for operating an electrically controlled dispensing machine comprising a key; registering mechanism in said key; mean on said key for closing an electric circuit to said dispensing machine when said key is inserted in said dispensing machine; and means on said key for driving said registering machanism in consequence of operation of said machine.

2. A registering device for operating an electrically controlled dispensing machine comprising: a housing; registering mechanism in said housing; means on said housing for closing the circuit when said key is inserted in the dispensing machine; and means on said key for driving said registering mechansm in consequence of operation of the machine.

3. A registering key for operating an electrically controlled dispensing machine comprising: a housing; number dials rotatably mounted in said housing and visible therethrough; operating means in said housing for rotating said discs including a rotary driving shaft; means on said key for closing a circuit and initiating operation of said machine; and means for transmitting rotation to said driving shaft from the machne upon operation of said machine.

4. A portable, combined operating and registering device for electrically operated dispensing machines comprising: a portable housing; registering mechanism in said housing; a handle positioned on one side of said housing; a contact closing key projecting from the other side of said housing to initiate a dispensing operation of the dispensing machine; and an operating shaft operatively connected with said registering mechanism and projecting from said latter side parallel to said key to transmit the dispensing movement of the machine to said registering mechanism.

5. A price registering key for use with elec-

trically operated dispensing machines comprising: a housing; a shaft projecting from said housing; a contact operating device extending from said housing to initiate a dispensing operation of the dispensing machine; a series of number dials within said housing; and means for communicating the movement of said shaft to said number dials to rotate the latter in registering relation upon a dispensing operation of the dispensing machine.

6. An operating and recording key for an electrically operated dispensing machine comprising: a housing; a plurality of number dials within said housing; a shaft for rotating said dials, said shaft projecting from said housing; and circuit closing means projecting from said housing.

7. A key for a dispensing machine having a drive shaft rotatable in consequence of the operation of said machine; said key comprising: a housing; a plurality of number dials within said housing; a shaft for rotating said dials, said shaft projecting from said housing so that it will be brought into operable contact with the drive shaft of said machine when said key is inserted; a member projecting from said housing for entering the machine and initiating the operation of said machine; and a handle member projecting from said housing to facilitate the insertion thereof.

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