

June 2, 1953

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2,640,574

CONTROL FOR REVOLVING DRUM VENDING MACHINES

Filed April 4, 1952

3 Sheets-Sheet 2

Fig. 3.

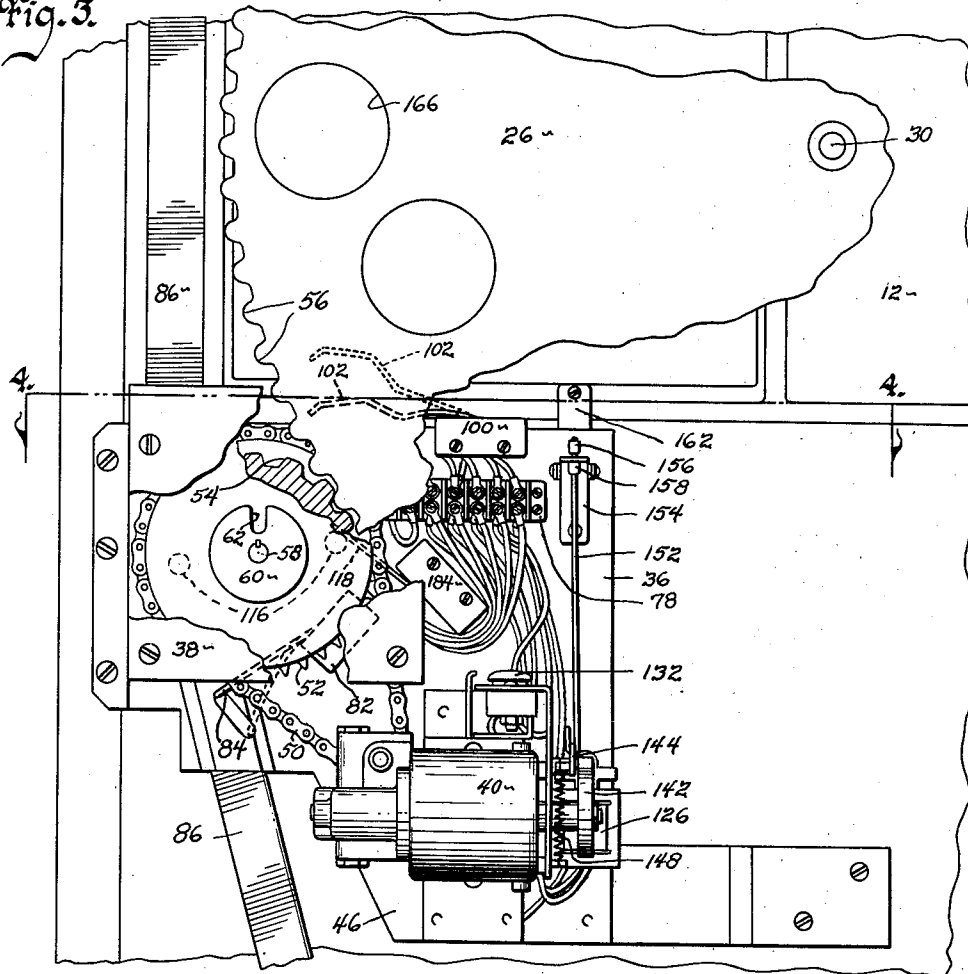
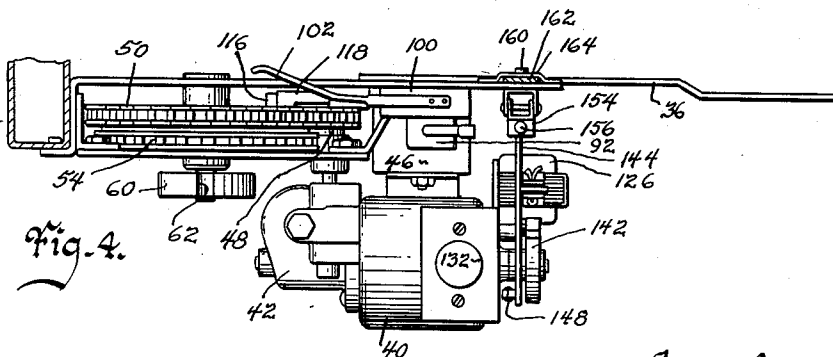


Fig. 4.

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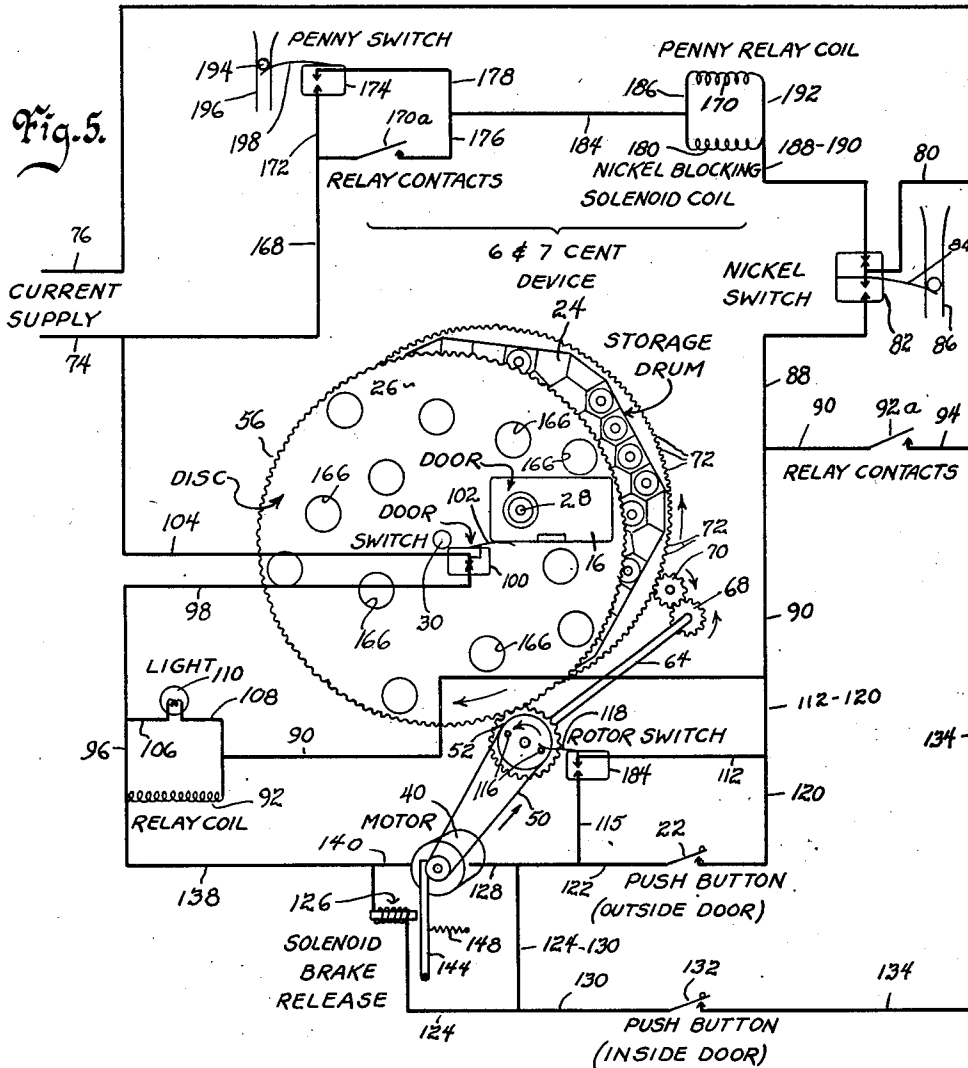
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3 Sheets-Sheet 3

Fig. 5.



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UNITED STATES PATENT OFFICE

2,640,574

CONTROL FOR REVOLVING DRUM VENDING
MACHINES

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Application April 4, 1952, Serial No. 280,533

14 Claims. (Cl. 194-10)

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My invention is a novel type of electrically operated control for rotary drum vending machines that places the control of the ultimate point at which the drum stops in the hands of the vendee. My device permits the vendor to establish a fair price for the machine sold merchandise.

Automatic vending machines are well known already and daily their use is becoming more widespread. One of the most popular of the automatic vending machines is the rotary drum device. The greatest shortcoming of the drum vending machine to date has been the lack of selectivity offered to those wishing to purchase the contents of the machine. The machines known to me merely rotate one unit of motion to present a previously unsold item to the person buying an item of merchandise from the machine. The conventional machines, when the appropriate coin is inserted, go through a fixed cycle of operation and present an unpurchased item to the vendee. These machines have not been well adapted to selling a variety of items. One of these machines does not lend itself to selling several different flavors of soft drinks, for example, since the would-be purchaser has no control over the flavor he will have presented to him. This lack of selectivity inherent in the conventional machine has limited its use to vending a single product. In order to assure the purchaser that he will not be disappointed the conventional machines are usually employed to vend only one flavor of soft drink for example. This single product limitation of the conventional machine is no great problem in a vending machine sales location that has plenty of space so that several machines may be provided. With several machines the purchaser is offered a variety of drinks from which to choose. In situations offering only limited space to accommodate vending machines, however, the conventional machine inhibits the choice of item from which the vendee may select. In some situations not only space but low volume of potential buyers limits the number of machines that is economically feasible. In these two identified cases the lack of flexibility of the conventional machine is a great handicap. The usual compromise is to install a single machine vending what the owners believe to be the most popular item of the particular type of merchandise the machine is equipped to sell.

Another shortcoming of the conventional machine is no fault of the machine itself, but the result of an economic situation that has devel-

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oped. The creeping inflation that has been growing on the nation for the last several years has made many coin operated vending machines a matter of real concern to their owners. In selling such items as soft drinks, candy bars and like units the five cent piece has been the standard machine operating coin. With the advent of higher prices on most commercial products, the operators of vending machines have found themselves in an unfortunate situation. Although five cents no longer provides the necessary margin above cost to make these machines profitable, their operating mechanism is arranged for a single coin to actuate the mechanism. It would be a simple matter to adjust the machine to cause a ten cent piece to operate the mechanism, but ten cents is a higher price than is necessary. Coin operated vending machine operators for these formerly five cent items are loathe to raise their prices more than is required for profitable operation. As there are no single coins of a value between that of the five and ten cent pieces, however, a new mechanism that will operate on two or more coins is necessary to permit the use of nickels and pennies together to provide a price reasonable to all parties concerned.

In view of the foregoing, therefore, it is the principal object of my invention to provide a control for revolving drum vending machines that permits a selection by the vendee of any one of several products offered for sale in the machine.

It is a further object of my invention to provide a control for revolving drum vending machines that permits the use of two or more coins of different denominations to actuate the mechanism.

It is a further object of my invention to provide a control for revolving drum vending machines that requires no special skill or knowledge to operate.

It is a further object of my invention to provide a control for revolving drum vending machines that cannot be incorrectly operated.

It is a further object of my invention to provide a control for revolving drum vending machines that is durable in use and economical to manufacture.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement, and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, and specifically pointed out in my claims, and

illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of a rotating drum vending machine equipped with my control,

Fig. 2 is an enlarged, side elevation view of my control means together with fragments of the storage drum and sale disc and taken on the line 2—2 of Fig. 1,

Fig. 3 is an enlarged rear elevation view of my control and a fragmentary view of the sale disc. Portions of the device and the disc are broken away to illustrate more fully their construction and inter-relation. Fig. 3 is taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged plan view of my control and a fragment of the service door of the vending machine and taken on the line 4—4 of Fig. 3.

Fig. 5 is a schematic perspective mechanical view combined with an electrical wiring diagram of my control means.

Fig. 6 is an enlarged plan view of the terminal block showing the various leads connected to it.

Referring to the drawings, I have used the numeral 10 to designate a rotating drum vending machine adapted to the sale of bottled beverages and which I have used for illustrative purposes to show how my control device operates on an actual installation. The cabinet is provided with the usual servicing door 12, coin slot 14, access door for purchasers 16, bottle opener 18 and coin return 20. The numeral 22 designates a spring loaded push button switch that is normally "off" or open as it will be described hereafter. The purpose of this switch is to permit the vendee to select one of several different items offered for sale by the machine. The exact manner in which this switch achieves its purpose will be described below.

On the interior of the cabinet is the usual revolving storage drum 24 and sale disc 26. The drum holds the merchandise such as the bottled beverage 28 in Fig. 2 that is to be offered for sale. The drum is rotatably secured to the cabinet 10 while the disc is rotatably mounted on the service door 12 by means of a suitable pivot such as the shaft 30. The purchaser's access door 16 is secured to the open supporting frame 32 that is vertically slidable on service door 12. The access door 16 covers the opening 34 when it is in a lowered position and permits limited access to the interior of the machine when it is raised. This door 16 is made from any suitable material that is transparent as the vendee must be able to look through the door to make his selection. I have shown the door as made of a clear plastic with a dead air space in it to insulate a refrigerated box that would be suitable for bottled beverages. Thus far the machine as described, except for the switch 22 and its related mechanism, is not dissimilar from conventional vending machines, and I turn now to a description of my control means which is my invention.

The control is mounted on any suitable frame work such as the main frame plate 36 and the secondary frame plate 38 which are secured to the door 12. These two frame elements are secured together in a spaced relationship. An electric motor 40 having a gear reduction box 42 at one end and a brake drum 44 at the other drives the device. The motor 40 is secured to the main frame plate by any suitable means such as the bracket 46. A sprocket gear 48 is driven by the motor via the gear reduction. This sprocket engages the chain 50 which also embraces the large sprocket gear 52. Rigidly secured to the large

sprocket is the sales disc gear 54 which engages the teeth 56 of the sale disc. These two last mentioned gears are secured to shaft 58 which is rotatably mounted between the main and secondary frame plates with one end of it protruding toward the cabinet interior beyond the secondary frame plate. The drum driving disc 60 is keyed to the protruding end of shaft 58 and is provided with the notch 62. A drum drive shaft 64 is rotatably mounted in the interior of the cabinet and is shown only in the schematic drawing, Fig. 5. This shaft 64 is provided with a lugged disc 66 that engages notch 62 when the door 12 is closed. A gear 68 is secured to the shaft 64 and meshes with an idler gear 70 that in turn engages the gear teeth 72 of drum 24. Whenever the motor 40 rotates, therefore, both the sales disc and the storage drum are rotated. I will now describe the electrical circuit that determines when the motor operates.

Power that is provided for the operation of the device is conducted to the interior of the device by the leads 74 and 76 connected to the terminal block 78 as shown in Fig. 3. Connected to the same terminal post as lead 76 is the lead wire 80 which connects to the center terminal of the single double throw nickel switch 82. This switch is called the nickel switch for convenience as that coin is the one which is commonly used in soft drink vending machines. This switch may actually be operated by any desired coin and is merely the primary coin switch. This switch is actuated mechanically by an appropriate coin striking and depressing arm 84 as the coin passes down coin chute 86. The primary coin switch is a single pole double throw switch that is normally spring loaded to close the circuit between the center terminal and one of the outside terminals which is used only if an auxiliary penny circuit is used. The other outside terminal of switch 82 that is normally open is connected to lead 90 which is secured to the terminal block. Lead 90 connects to lead 98 at the terminal block and extends to the fixed one of the points 92a and by jumper to one end of the relay coil 92. Lead 94 connects the movable point 92a to power lead 80 while leads 96 and 98 connect the other end of the coil 92 to the terminal block and the block to one side of the single pole single throw spring loaded open door switch 100. This door switch is closed by the weight of the door 16 bearing on lever 102, however, via the hollow door support 32. A lead designated 104 connects the other terminal of door switch 100 to the source of power at the terminal block by connecting to lead 74. Leads designated 106 and 108 connect the terminals of light 110 to leads 96 and 90 respectively to place the light in parallel to the coil 92. Thus whenever the relay is energized the light will burn. In the circuit thus far, with door 16 closed, a coin in chute 86 momentarily actuates switch 82 by striking lever 84. When the nickel switch is actuated power is applied to the coil of relay which closes the relay points and provides a circuit parallel to the nickel switch for current to continue to energize the relay coil 92 and the light 110. This action of the circuit permits the balance of the circuit to operate.

Lead 112 connects the terminal block to one terminal of rotor switch 114 while the other lead 115 that is connected to the rotor switch is connected to a terminal on the block to which so far no other lead has been described as connecting. The rotor switch is one that is spring loaded closed and when the motor is inoperative it is

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held open by one of the bosses both designated 116 that are rigidly secured to the large sprocket gear 52. Every half revolution of the sprocket gear causes one of the bosses 116 to engage lever 118 and open the rotor switch. Two leads designated 120 and 122 respectively connect the terminals of selector switch 22 to the same terminals on the block to which the rotor switch is connected. Switch 22 is a single pole single throw unit spring loaded to the "off" or open position and is connected in parallel to the rotor switch. A lead designated 124 connects both the rotor switch and the selector switch to the brake solenoid coil 126 connecting to the leads 114 and 122 at the terminal block.

Jumper leads 128 and 130 connect the lead 124 to motor 40 and the vendors push button 132 switch respectively. Switch 132 is identical to switch 122 in that it is spring loaded open. The other terminal of switch 132 is connected to leads 80 at the terminal block by means of lead 134. Switch 132 is mounted in any convenient place inside the cabinet and I have shown it illustratively on bracket 136 that is secured to the motor 40.

The other end of the brake solenoid is connected to leads 96 and 98 at the terminal block by means of lead 138 and a jumper designated 140 completes the parallel connection of the motor and brake coil. The brake solenoid serves a dual function in the circuit. It will be noted that the door switch is in series with all the balance of the circuit so that when the door is opened to remove a purchased item, the entire circuit is opened and even relay coil 92 is de-energized which breaks the main power circuit by releasing the relay contacts of relay 92. It is important, therefore, that the door 16 remain closed for any period consisting of one half revolution of the rotor 60; since as will be explained completely later to stop the action of the circuit other than at points determined by the rotor switch, will prevent the vendee from receiving any merchandise. The second function of the brake solenoid is to release the motor armature brake whenever the motor is energized. Since the control device depends for success upon precise amounts of motor action, a brake band 142 engages the drum 44 whenever the solenoid coil is de-energized. A lever arm 144 is pivoted on bracket 136 by any suitable means such as pin 146. A spring 148 secured to the bracket 136 and the lever at the left of pin 146 as viewed in Fig. 2 applies a force to that end of lever 144 that urges the end of the lever connected to the spring down. One end of the brake band pivotally is secured to the lever at a point directly below pin 146. The other end of the band is similarly secured to arm at the right of pin 146. When the spring 148 is permitted to move the lever arm, the band 142 is tightened around the drum 44 to halt the motor instantly. The arm 144 is also pivotally secured to the armature 150 of the brake solenoid and at a point considerably to the right of pin 146 as viewed in Fig. 2. When the solenoid coil is energized, the arm 144 is moved to the position illustrated in Fig. 2 which releases the motor brake drum 44 from band 142.

At the extreme right end of lever 144 as viewed in Fig. 2 is a connecting rod 152 that extends upwardly through a pierced ear on pivot arm 154. The connecting rod has two lugs designated 156 and 158 respectively. These lugs engage the top and bottom of the pivot arm ear and causes the pivot arm to move in response to movement of the connecting rod. The pivot arm is secured

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pivotally as its name implies to the primary frame plate 36 and extends down to a boss 160 rigidly secured near the lower end of the pivot arm. This boss when the connecting rod is pulled down by the energizing of the brake solenoid, is moved outwardly through a hole in the primary frame plate and also a hole in the door lock bar 162. The door lock bar is rigidly secured to the door support 32. This bar slides in a channel formed by the primary frame plate and channel member 164. The boss 160 also may extend through an appropriate hole in the channel member if desired. I have shown this latter construction which causes the door lock bar to be held securely against vertical movement while freeing the relatively light pivot arm from any strain resulting from attempts to open door 16 while it is locked. When spring 148 moves lever arm 144 to lock the brake drum, the connecting rod 156 is pushed up and lug 158 engages and moves the pivot arm to withdraw boss 160 from the door lock bar.

I now have completed the description of the basic control system, and I will now describe its operation. As the portion of the circuit set out so far may be used separately, and since the circuit is rather extensive, I believe it will be desirable to set out the operation of this portion of the circuit separately before describing and explaining the action of the secondary circuit.

The first action that occurs when a vendee inserts the correct coin in coin slot 14 is the actuation of the primary coin switch 82 as the coin passes down chute 86 to the coin receiving box (not shown). As soon as the "nickel switch" is actuated, power is applied to the coil of relay 92. Light 110 also comes on, and the vendee can observe through the transparent door 16 which of the various items sold by the machine would be available to him if he opened the door. Only one of the holes 166 in sales disc 26 will align at one time with the opening covered by door 16. One of the items such as bottled beverages 28 will be visible through the one hole of course. If the storage compartment that is made visible by the energizing of light 110 is either empty or is stocked with an item that does not appeal to the purchaser, he may examine other compartments by actuating selector switch 22. A glance at Fig. 5 will disclose that a complete circuit is then provided to the brake solenoid coil as well as to the motor itself in a path parallel to the rotor switch. As soon as the rotation of the motor produces any noticeable movement of the gear 52, the rotor switch is closed by the lug 116 moving past arm 118 and allowing switch 114 to assume its normal spring loaded position which is closed. The selector switch may then be released, and power will be supplied to the motor and brake through the rotor switch. The motor will continue to operate driving the drum and disc to new positions. As the gear 52 completes 180 degrees of circular movement, the other lug 116 depresses arm 118 on the rotor switch 114 which opens the circuit to the motor and brake. The brake halts all rotary movement instantly. The gearing between the drum, the disc and the gear 52 is such that one different storage compartment and an aligning hole 166 of the disc are brought into view through door 16. Light 110 permits the vendee to examine this merchandise and decide whether he will accept it. If the item presented is not satisfactory, selector switch 22 is actuated again and the cycle of movement repeated. The vendee continues his selective con-

trol until he decides to accept a presented unit. To reach the merchandise door 16 must be raised, however, and by raising the door, the vendee opens switch 100, the door switch. Relay 92 is de-energized by opening switch 100 which resets the system for the next purchaser. The door switch is also in series with the motor circuit, of course. The lock structure that holds door 16 against being opened as long as the motor brake is released prevents an impatient purchaser from opening door 16 before the drum and disc are aligned to permit removal of the merchandise. Switch 132 produces very similar operation to that described for switch 22. As lead 134 bypasses or is parallel to the primary coin switch 82, however, switch 132 does not require the operation of the relay 92. This switch is provided for the use of the vendor in servicing the machine with new merchandise.

The system just described provides for selective selling of several items from a single vending machine using a single coin. I will now describe and explain my auxiliary circuit that permits the use of two coins. Lead 168 connects to lead 74 at the terminal block. The other end of lead 168 connects to one of the contacts 170a of relay coil 170 (shown in the wiring diagram only) and by jumper 172 to one terminal of the secondary coin switch 174 (shown only on the wiring diagram and there labeled "penny switch"). The secondary coin switch is a single pole single throw switch that is spring loaded open. The other relay contact and other terminal of the secondary coin switch are connected together by the leads 176 and 178 respectively and they are both connected to the nickel blocking solenoid coil 180 and the coil 170 of relay points 170a by means of lead 184 and jumper 186, respectively. The other end of the nickel blocking solenoid coil is connected to terminal block by lead 188 where it joins to lead 190 that connects to the normally closed side of the primary coin switch 82 as shown in Fig. 5. A jumper 192 completes the parallel connection of the relay coil to the nickel blocking solenoid coil. The switch 174 is actuated by a secondary coin such as the one designated 194 sliding down secondary coin chute 196 and engaging the lever arm 198. The coin moves the arm and causes the switch 174 to be closed momentarily. This momentary closing of switch 174 energizes the relay coil 170 which closes the points 170a of the relay which then provides a continuous flow of current to its own coil and also to the nickel blocking solenoid coil 180. The energizing of coil 180 withdraws the nickel block and permits the primary coin to operate as shown in Fig. 5 and described above. The movement of arm 84 not only sets up the operation of the primary control system but also breaks the circuit to the secondary coin relay coil 170 which resets that device for the next purchaser.

The mechanical action involved in this portion of the device is substantially the same as that used in mechanical secondary coin devices and consequently well known to persons skilled in the art. I have not illustrated the structure of the nickel block rod in chute 86, but it is positioned as usual at a point between primary coin slot 14 and arm 84 of switch 82. Just as in the purely mechanical devices, as long as the nickel block rod is in position any coin placed in the primary coin slot 14 is shunted to the coin return 18. When the solenoid 180 is energized, however, the blocking rod is withdrawn from the

chute 86 and allows the basic circuit to be actuated by placing a coin in the primary coin slot 14 as described earlier herein. The secondary coin circuit can be made to require the use of two secondary coins by employing the known teeter-totter mechanical movement that has been used of auxiliary coin devices for mechanical machines. The second coin is the one that operates switch 174. As these mechanical structures are not claimed as part of this invention, their inclusion in the drawings is considered unnecessary.

Some changes may be made in the construction and arrangement of my control for revolving drum vending machines without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a control mechanism for a rotating drum type vending machine having a vendee's access door, a sales disc and a coin receiving slot and chute, a frame secured to the interior of said vending machine, a pair of leads for conducting electrical energy to the interior of said vending machine, a coin switch secured to said frame and having one of its terminals connected to one of said pair of leads; said coin switch being spring loaded open, a lever arm secured to said coin switch and extending into said coin chute; whereby when a coin passes along said coin chute said coin switch is momentarily closed, a relay switch secured to said frame, a lead connecting one end of said relay switch coil to one of the contact points of said relay switch, a lead connecting the one of said relay switch contact points that is connected to one end of said relay switch coil to the other terminal of said coin switch, a lead connecting the other of said relay switch terminals to the one of said pair of leads that is connected to said coin switch terminal, a door switch having two terminals secured to said frame and near said vendee's access door, a lever arm for actuating said door switch extending into operative engagement with said vendee's access door, said door switch being spring load open and being closed by the engagement of said vendee's access door with said lever arm, a lead connecting one of the terminals of said door switch to the other of said pair of leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a motor having a rotating armature and two terminals secured to said frame, a lead connecting one of the terminals of said motor to said other end of said relay switch coil, a gear rotatably secured to said frame and operatively connected to one end of said motor armature, means operatively connecting said gear to said disc and drum of said vending machine, a gear switch having two terminals and spring loaded closed secured to said frame near said door, a gear switch lever for opening said switch extending near to said gear, at least one lug on said gear for engaging said gear switch lever to open said gear switch at a fixed location for said gear, a lead connecting one terminal of said gear switch to the other terminal of said motor, a lead connecting the other terminal of said gear switch to the contact point of said relay switch that is connected to one end of the coil of said relay switch, a selector switch secured to said vending machine and operable from the exterior of said

vending machine; said selector switch having two terminals and being spring loaded open, a lead connecting one of the terminals of said selector switch to said other terminal of said motor, and a lead connecting the other terminal of said selector switch to the one of said relay switch contacts that is connected to one end of said relay switch coil.

2. In a control mechanism for a rotating drum type vending machine having a vendee's access door, a sales disc, and a coin receiving slot and chute, a frame secured to the interior of said vending machine, a pair of leads for conducting electrical energy to the interior of said vending machine, a coin switch secured to said frame and having one of its terminals connected to one of said pair of leads; said coin switch being spring loaded open, a lever arm secured to said coin switch and extending into said coin chute; whereby when a coin passes along said coin chute said coin switch is momentarily closed, a relay switch secured to said frame, a lead connecting one end of said relay switch coil to one of the contact points of said relay switch, a lead connecting the one of said relay switch contact points that is connected to one end of said relay switch coil to the other terminal of said coin switch, a lead connecting the other of said relay switch terminals to the one of said pair of leads that is connected to said coin switch terminal, a door switch having two terminals secured to said frame and near said vendee's access door, a lever arm for actuating said door switch extending into operative engagement with said vendee's access door, said door switch being spring load open and being closed by the engagement of said vendee's access door with said lever arm, a lead connecting one of the terminals of said door switch to the other of said pair of leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a motor having a rotating armature and two terminals secured to said frame, a lead connecting one of the terminals of said motor to said other end of said relay switch coil, a gear rotatably secured to said frame and operatively connected to one end of said motor armature, means operatively connecting said gear to said disc and drum of said vending machine, a mechanical means secured to said frame for stopping the rotation of said motor instantly whenever the circuit to the motor is interrupted, an electrical control means connected in parallel to said motor for releasing said mechanical means, a gear switch having two terminals and spring loaded closed secured to said frame near said door, a gear switch lever for opening said switch extending near to said gear, at least one lug on said gear for engaging said gear switch lever to open said gear switch at a fixed location for said gear, a lead connecting one terminal of said gear switch to the other terminal of said motor, a lead connecting the other terminal of said gear switch to the contact point of said relay switch that is connected to one end of the coil of said relay switch, a selector switch secured to said vending machine and operable from the exterior of said vending machine, said selector switch having two terminals and being spring loaded open, a lead connecting one of the terminals of said selector switch to said other terminal of said motor, and a lead connecting the other terminal of said selector switch to the one of said relay switch contacts that is connected to one end of said relay switch coil.

3. In a control mechanism for a rotating drum type vending machine having a vendee's access door, a sales disc, and a coin receiving slot and chute, a frame secured to the interior of said vending machine, a pair of leads for conducting electrical energy to the interior of said vending machine, a coin switch secured to said frame and having one of its terminals connected to one of said pair of leads; said coin switch being spring loaded open, a lever arm secured to said coin switch and extending into said coin chute; whereby when a coin passes along said coin chute said coin switch is momentarily closed, a relay switch secured to said frame, a lead connecting one end of said relay switch coil to one of the contact points of said relay switch, a lead connecting the one of said relay switch contact points that is connected to one end of said relay switch coil to the other terminal of said coin switch, a lead connecting the other of said relay switch terminals to the one of said pair of leads that is connected to said coin switch terminal, a door switch having two terminals secured to said frame and near said vendee's access door, a lever arm for actuating said door switch extending into operative engagement with said vendee's access door, said door switch being spring load open and being closed by the engagement of said vendee's access door with said lever arm, a lead connecting one of the terminals of said door switch to the other of said pair of leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a motor having a rotating armature and two terminals secured to said frame, a lead connecting one of the terminals of said motor to said other end of said relay switch coil, a gear rotatably secured to said frame and operatively connected to one end of said motor armature, means operatively connecting said gear to said disc and drum of said vending machine, a brake drum secured to the other end of said motor armature, a lever pivotally secured to said frame near said other end of said motor armature, a spring secured to said lever and said frame urging said lever in one direction of its pivotal movement, a solenoid coil connected in parallel to said motor and secured to said frame near said lever, a sliding core in said solenoid coil connected to said lever arm for moving said lever arm in the other direction of its pivotal movement, a brake band surrounding said brake drum and tightened thereon by pivotal movement of said lever arm in the direction of said spring's urging, a gear switch having two terminals and spring loaded closed secured to said frame near said door, a gear switch lever for opening said switch extending near to said gear, at least one lug on said gear for engaging said gear switch lever to open said gear switch at a fixed location for said gear, a lead connecting one terminal of said gear switch to the other terminal of said motor, a lead connecting the other terminal of said gear switch to the contact point of said relay switch that is connected to one end of the coil of said relay switch, a selector switch secured to said vending machine and operable from the exterior of said vending machine, said selector switch having two terminals and being spring loaded open, a lead connecting one of the terminals of said selector switch to said other terminal of said motor, and a lead connecting the other terminal of said selector switch to the one of said relay switch contacts that is connected to one end of said relay switch coil.

4. In a control mechanism for a rotating drum

type vending machine having a vendee's access door, a sales disc and a coin receiving slot and chute, a frame secured to the interior of said vending machine, a pair of leads for conducting electrical energy to the interior of said vending machine, a coin switch secured to said frame and having one of its terminals connected to one of said pair of leads; said coin switch being spring loaded open, a lever arm secured to said coin switch and extending into said coin chute; whereby when a coin passes along said coin chute said coin switch is momentarily closed, a relay switch secured to said frame, a lead connecting one end of said relay switch coin to one of the contact points of said relay switch, a lead connecting the one of said relay switch contact points that is connected to one end of said relay switch coil to the other terminal of said coin switch, a lead connecting the other of said relay switch terminals to the one of said pair of leads that is connected to said coin switch terminal, a door switch having two terminals secured to said frame and near said vendee's access door, a lever arm for actuating said door switch extending into operative engagement with said vendee's access door, said door switch being spring loaded open and being closed by the engagement of said vendee's access door with said lever arm, a lead connecting one of the terminals of said door switch to the other of said pair of leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a motor having a rotating armature and two terminals secured to said frame, a lead connecting one of the terminals of said motor to said other end of said relay switch coil, a gear rotatably secured to said frame and operatively connected to one end of said motor armature, means operatively connecting said gear to said disc and drum of said vending machine, a gear switch having two terminals and spring loaded closed secured to said frame near said door, a gear switch lever for opening said switch extending near to said gear, at least one lug on said gear for engaging said gear switch lever to open said gear switch at a fixed location for said gear, a lead connecting one terminal of said gear switch to the other terminal of said motor, a lead connecting the other terminal of said gear switch to the contact point of said relay switch that is connected to one end of the coil of said relay switch, a servicing switch secured to said frame and having two terminals; said servicing switch being spring loaded open, a lead connecting one of the terminals of said servicing switch to said other terminal of said motor, a lead connecting the other terminal of said servicing switch to said one of said pair of power leads, a selector switch secured to said vending machine and operable from the exterior of said vending machine; said selector switch having two terminals and being spring loaded open, a lead connecting one of the terminals of said selector switch to said other terminal of said motor, and a lead connecting the other terminal of said selector switch to the one of said relay switch contacts that is connected to one end of said relay switch coil.

5. In a control mechanism for a rotating drum type vending machine having a vendee's access door, a sales disc, and a coin receiving slot and chute, a frame secured to the interior of said vending machine, a pair of leads for conducting electrical energy to the interior of said vending machine, a coin switch secured to said frame and having one of its terminals connected to one of said pair of leads, said coin switch being spring

loaded open, a lever arm secured to said coin switch and extending into said coin chute; whereby when a coin passes along said coin chute said coin switch is momentarily closed, a relay switch secured to said frame, a lead connecting one end of said relay switch coil to one of the contact points of said relay switch, a lead connecting the one of said relay switch contact points that is connected to one end of said relay switch coil to the other terminal of said coin switch, a lead connecting the other of said relay switch terminals to the one of said pair of leads that is connected to said coin switch terminal, a door switch having two terminals secured to said frame and near said vendee's access door, a lever arm for actuating said door switch extending into operative engagement with said vendee's access door, said door switch being spring loaded open and being closed by the engagement of said vendee's access door with said lever arm, a lead connecting one of the terminals of said door switch to the other of said pair of leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a motor having a rotating armature and two terminals secured to said frame, a lead connecting one of the terminals of said motor to said other end of said relay switch coil, a gear rotatably secured to said frame and operatively connected to one end of said motor armature, means operatively connecting said gear to said disc and drum of said vending machine, a brake drum secured to the other end of said motor armature, a lever pivotally secured to said frame near said other end of said motor armature, a spring secured to said lever and said frame urging said lever in one direction of its pivotal movement, a solenoid coil connected in parallel to said motor and secured to said frame near said lever, a sliding core in said solenoid coil connected to said lever arm for moving said lever arm in the other direction of its pivotal movement, a brake band surrounding said brake drum and tightened thereon by pivotal movement of said lever arm in the direction of said spring's urging, a gear switch having two terminals and spring loaded closed secured to said frame near said door, a gear switch lever for opening said switch extending near to said gear, at least one lug on said gear for engaging said gear switch lever to open said gear switch at a fixed location for said gear, a lead connecting one terminal of said gear switch to the other terminal of said motor, a lead connecting the other terminal of said gear switch to the contact point of said relay switch that is connected to one end of the coil of said relay switch, a servicing switch secured to said frame and having two terminals; said servicing switch being spring loaded open, a lead connecting one of the terminals of said servicing switch to said other terminal of said motor, a lead connecting the other terminal of said servicing switch to said one of said pair of power leads, a selector switch secured to said vending machine and operable from the exterior of said vending machine, said selector switch having two terminals and being spring loaded open, a lead connecting one of the terminals of said selector switch to said other terminal of said motor, and a lead connecting the other terminal of said selector switch to the one of said relay switch contacts that is connected to one end of said relay switch coil.

6. In an electrical circuit for a rotating drum type vending machine control, a pair of power leads for connecting the circuit to a source of power, a coin switch, said coin switch being a

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connecting the normally open side of said coin switch to one end of the coil of said relay switch; said relay switch having a pair of normally open contact points that are connected in parallel relationship to the open side of said coin switch, a door switch, the two terminals of which are spring loaded open, a lead connecting one of the terminals of said door switch to the other of said pair of power leads, a lead connecting the other terminal of said door switch to the other end of said relay switch coil, a gear switch spring loaded closed, a motor, said motor and said gear switch being connected in series with each other and both in parallel with the coil of said relay switch, a motor brake releasing solenoid connected in parallel to said motor, a light connected in parallel to said relay switch coil, a selector switch spring loaded open connected in parallel to said gear switch, a service switch connected in parallel to said coin switch relay contact points, gear switch and selector switch, a secondary coin switch having two terminals spring loaded open, a lead connecting one of the terminals of said secondary coin switch to said other of said pair of power leads, a secondary relay switch the contacts of which are normally open, a lead connecting the other terminal of said secondary coin switch to the one end of the coil of said secondary relay switch, a lead connecting the other end of the coil of said secondary relay switch to the spring loaded closed side of said coin switch; the secondary relay switch contacts being connected in parallel to said secondary coin switch, and a solenoid coil connected in parallel to the coil of said secondary relay switch.

12. A control mechanism for a merchandise vending machine of the class having a cabinet containing a rotatable drum merchandise container, an access door in the cabinet, an apertured disc means for exposing at the access door a single item of merchandise at a time, and a coin receiving slot and chute, comprising, a terminal block in the cabinet, a pair of leads for conducting electrical energy to said terminal block, a motor receiving electric energy from said terminal block and operatively connected to the drum and disc, a coin operated switch spring loaded to be normally open associated with the coin switch, a door switch spring loaded to be normally open arranged near the access door, means on the access door engageable with said door switch for closing the same, said door switch electrically connected to said terminal block, a relay switch in the cabinet electrically connected to said coin operated switch and said door switch, switch means normally closed electrically connected to said motor and said relay switch, means for opening said last mentioned switch means at predetermined points relative to the rotation of said disc and drum, and a selector switch normally open operable from outside the cabinet and connected electrically in parallel to said last mentioned switch means.

13. A control mechanism for a merchandise vending machine of the class having a cabinet containing a rotatable drum merchandise container, an access door in the cabinet, an apertured disc means for exposing at the access door a single item of merchandise at a time, and a coin receiving slot and chute, comprising, a terminal

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block in the cabinet, a pair of leads for conducting electrical energy to said terminal block, a motor receiving electric energy from said terminal block and operatively connected to the drum and disc, a coin operated switch spring loaded to be normally open associated with the coin switch, a door switch spring loaded to be normally open arranged near the access door, means on the access door engageable with said door switch for closing the same, said door switch electrically connected to said terminal block, a relay switch in the cabinet electrically connected to said coin operated switch and said door switch, switch means normally closed electrically connected to said motor and said relay switch, means for opening said last mentioned switch means at predetermined points relative to the rotation of said disc and drum, a selector switch normally open operable from outside the cabinet and connected electrically in parallel to said last mentioned switch means, and a means electrically connected in parallel to said motor for stopping the rotation of said motor instantly when the circuit thereto is interrupted, said last mentioned means actuated by said selector switch.

14. A control mechanism for a merchandise vending machine of the class having a cabinet containing a rotatable drum merchandise container, an access door in the cabinet, an apertured disc means for exposing at the access door a single item of merchandise at a time, and a coin receiving slot and chute, comprising, a terminal block in the cabinet, a pair of leads for conducting electrical energy to said terminal block, a motor receiving electric energy from said terminal block and operatively connected to the drum and disc, a coin operated switch spring loaded to be normally open associated with the coin switch, a door switch spring loaded to be normally open arranged near the access door, means on the access door engageable with said door switch for closing the same, said door switch electrically connected to said terminal block, a relay switch in the cabinet electrically connected to said coin operated switch and said door switch, switch means normally closed electrically connected to said motor and said relay switch, means for opening said last mentioned switch means at predetermined points relative to the rotation of said disc and drum, a selector switch normally open operable from outside the cabinet and connected electrically in parallel to said last mentioned switch means, and a brake means associated with said motor and electrically connected therewith in parallel for stopping the rotation of said motor instantly when the circuit thereto is interrupted, said last mentioned means actuated by said selector switch.

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