April 14, 1964 J. C. STALEY 3,129,039

VISIBLE PRODUCT VENDING MACHINE

Filed Feb. 3, 1958 2 Sheets-Sheet 1

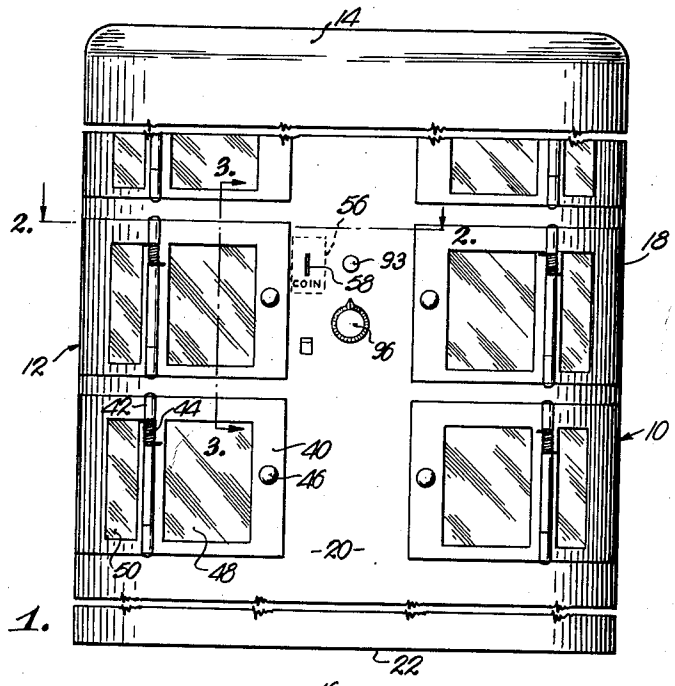


Fig. 1.

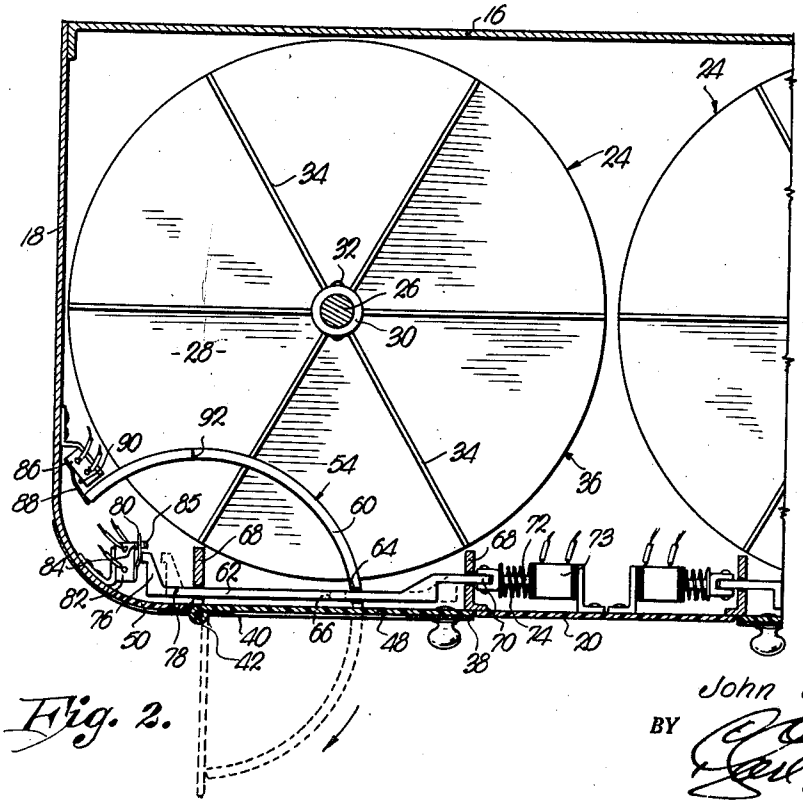


Fig. 2.

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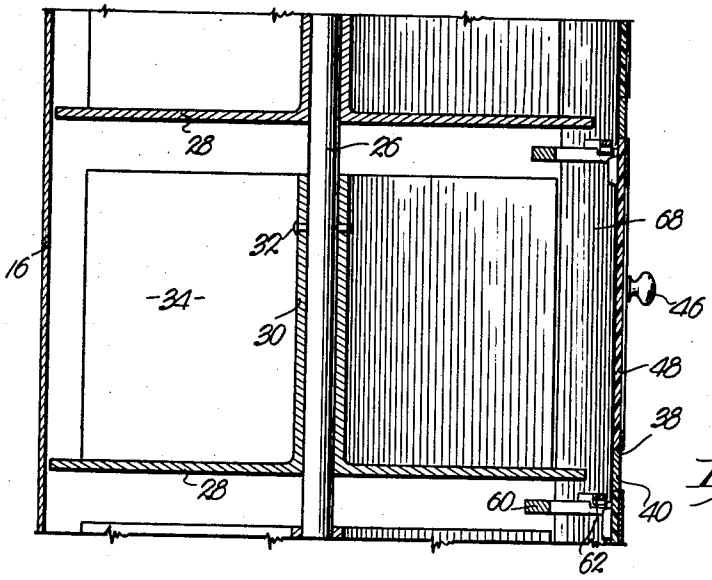


Fig. 3.

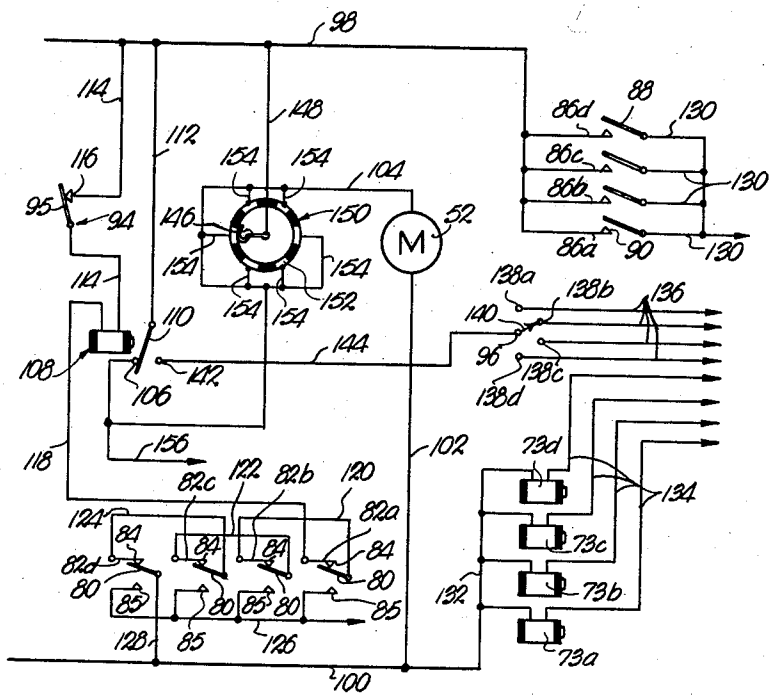


Fig. 4.

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3,129,039

VISIBLE PRODUCT VENDING MACHINE

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15 Claims. (Cl. 312—97.1)

This invention relates to vending machines and more particularly, to a machine adapted for displaying and vending a large variety of products.

It is the primary object of this invention to provide a vending machine including novel mechanism for permitting the customer to examine one of the products for as long as he wishes, yet containing positive lock mechanism for assuring that only one of the products is vended upon insertion of proper coins into the coin mechanism of the machine.

Another important object of the present invention is to provide a vending machine having structure rotatably mounted within the housing of the machine and provided with a series of product compartments adapted to receive a variety of products, as well as means for continuously rotating the structure so that the articles disposed in the compartments may be viewed by a potential customer as the structure is rotated.

An important object of this invention is to provide a vending machine as described wherein is included switch means interposed in the prime mover circuit so that the customer may actuate the switch to stop the prime mover and thereby interrupt rotation of the article supporting structure and, consequently, view articles displayed on the structure for as long a period of time as he desires.

An equally important aim of this invention is to provide a vending machine as described wherein is included a continuously rotatable article supporting drum and means for preventing rotation of such drum after specified coins have been inserted in coin mechanism on the machine and the customer has pushed the button interrupting rotation of the drum to thereby effectively prevent removal of but one article from the vending machine.

Also an important object of this invention is to provide a visible product vending machine having structure rotatably mounted within the housing thereof having a series of product compartments successively registrable with a product delivery opening in one face of the machine so that, if desired, a different product may be placed within each of the compartments and thus the utility of the vending machine is greatly increased, since a single machine may be stocked with a variety of products.

Other objects of the invention relate to the provision of a visible product vending machine having means for preventing opening of a door closing the product delivery opening until the product supporting structure has ceased rotation so that it is impossible to obtain more than one article from the machine each time a coin is inserted into the coin mechanism thereof; to the provision of novel latch mechanism connected to the door normally closing the product delivery opening which includes interlocked crossbar structure for preventing opening of the door until the structure supporting the articles to be vended has ceased rotation after the proper coins have been deposited in the coin mechanism of the machine; to the provision of a vending machine wherein the housing of the machine is provided with a series of vertically spaced product delivery openings and swingable doors normally closing the openings, and wherein the article supporting structure has a series of radially extending article compartments for each of the product delivery openings whereby relatively large products of different kinds may be conveniently displayed and vended from the machine; to the provision of a machine as described above wherein is

included means for preventing more than one door being opened to vend an article for each insertion of the proper price in the coin mechanism; to the provision of mechanism for assuring that the product compartment proximal to a delivery opening is brought into exact alignment with such opening upon cessation of rotation of the article supporting structure and opening of the door so that the article may be removed from the machine; to the provision of a visible product vending machine wherein the article supporting structure within the machine automatically begins rotating as soon as the door closing a product delivery opening has been returned to its closed position from a position permitting an article to be removed from the structure; to the provision of a vending machine containing relatively few complicated parts and which may for the most part be constructed of readily available components and materially lessening the overall cost of the machine; and to other objects and features which will become obvious as the following specification progresses.

In the drawings:

FIGURE 1 is a front elevational view of a visible product vending machine constructed in accordance with the principles of the present invention;

FIG. 2 is a fragmentary, enlarged, horizontal, cross-sectional view taken substantially on the line 2—2 of FIG. 1 and looking in the direction of the arrows;

FIG. 3 is an enlarged, fragmentary, vertical, cross-sectional view taken on the line 3—3 of FIG. 1 and looking toward the center of the vending machine; and

FIG. 4 is a schematic wiring diagram of the electrical circuit and the components thereof for controlling operation of the instant machine.

A visible product vending machine embodying the concepts of the present invention and illustrated in its preferred form is broadly designated in the drawings by the numeral 10 and includes an outer housing 12 having a top unit 14 adapted to display suitable advertising material, a rear wall 16, side walls 18, a front panel 20 and a bottom member 22. A pair of display drums 24 are suitably mounted within housing 12 for rotation on parallel vertical axes and each includes an elongated vertical shaft 26 supporting a plurality of vertically spaced, circular plates 28 positioned axially on shaft 26 and integral with a respective sleeve 30 telescoped over and secured to shaft 26 by fasteners 32. A plurality of radially extending dividers 34 joined to the uppermost face of respective plates 28 and corresponding sleeves 30 extend outwardly from the latter and present a series of article supporting compartments 36 on each of the circular plates 28. As illustrated in FIG. 3, the uppermost edges of dividers 34 are disposed in vertically spaced relationship to the lowermost surface of a proximal plate 28.

Front panel 20 has a plurality of product delivery openings 38, it being noted that there is an opening 38 for each row of compartments 36 and for both of the drums 24. A number of doors 40 mounted on panel 20 of housing 12 normally close openings 38 and prevent access to compartments 36 until the door positioned over a corresponding opening 38 is opened. Doors 40 are swingably mounted on panel 20 by vertically disposed hinges 42, each having coil springs 44 normally biasing respective doors 40 into their closed positions. Knob means 46 on each of the doors facilitate opening of the same and each of the doors 40 has a transparent plate 48 therein permitting a potential customer to view products disposed in compartments 36 of each of the drums 24. Manifestly, other transparent panels such as 50 may be provided in front panel 20 and side walls 18 for allowing customers to obtain a better view of the articles disposed on circular panels 28 of drums 24.

Each of the shafts 26 is operably coupled with an

electrical motor 52 by suitable mechanism (not shown) whereby during continuous operation of motor 52, drums 24 are driven at a substantially reduced rate because of gearing or other similar mechanical structure provided in the mechanism interconnecting motor 52 with corresponding shafts 26.

Latch mechanism 54 associated with each of the doors 40 prevents opening any of doors 40 until drums 24 have ceased to rotate and after coin mechanism 56 has been actuated by insertion of the proper denomination of coins through the coin slot 58 thereof. Coin mechanism 56 is of conventional construction and therefore is not shown in detail, but it is pointed out that the same has a series of coin sensing switches, a stepper switch assembly operably associated with the coin sensing switches, a cash box solenoid for releasing the coin or coins to the coin receptacle, and a reset solenoid for resetting the stepper switches of the stepper assembly to their zero position after the customer has gained access to one of the compartments 36. The stepper assembly includes a stepper switch for each row of compartments 36. Each of the latch mechanisms 54 includes an arcuate, transversely rectangular element 60 rigidly connected to the innermost face of a corresponding door 40 adjacent the upper edge thereof and extending inwardly into housing 12 between the lowermost face of a proximal circular plate 28 and the opposed upper edges of respective dividers 34. An elongated bar 62 extends across each of the elements 60 and is normally positioned within a transversely extending slot 64 in the uppermost part of element 60. It is noted that bars 62 are mounted on the innermost face of panel 20 and are adapted to be shifted longitudinally in horizontal directions toward the vertical center line of panel 20. Bars 62 are also provided with a transversely disposed groove 66 in the lower portion thereof adapted to be moved into alignment with elements 60 upon shifting of corresponding bars 62 toward the defined vertical center line of panel 20. Bars 62 extend through opposed, inwardly extending, substantially parallel baffles 68 which are disposed adjacent opposed vertical edges of openings 38 and substantially equal in distance to the linear space between the outermost edges of a pair of proximal dividers 34.

The innermost ends 70 of each of the bars 62 are secured to corresponding armatures 72 of respective solenoids 73 suitably mounted on the innermost face of panel 20, it being noted that the coil springs 74 surrounding respective armatures 72 normally bias bars 62 toward the outermost ends of their paths of travel and toward respective side walls 18. Laterally extending projections 76 on the outermost ends 78 of bars 62 are disposed in a position to engage the switch arms 80 of corresponding double pole switches 82 mounted within housing 12 adjacent the zone of juncture of side walls 18 and panel 20. As clearly illustrated in FIG. 2, projections 76 bias switch arms 80 toward a position engaging contacts 84 on switches 82 when bars 62 are disposed at the outermost ends of their paths of travel under the influence of coil springs 74, but when bars 62 are moved inwardly upon energization of solenoids 73, switch arms 80 are permitted to move to their normally outermost positions engaging contacts 85. Also, when one of the solenoids 73 is energized causing its respective armature 72 to be pulled into the same, the corresponding bar 62 is moved therewith to a position with the groove 66 thereof in alignment with a proximal element 60 so that the latter and a respective door 40 may be swung outwardly. Swinging of element 60 away from a respective switch 86 mounted on the inner face of corresponding side walls 18 permits the normally closed switch arm 88 of switch 86 to move into engagement with the contact 90 thereof. Stops 92 on the uppermost part of respective elements 60 engage cross bars 62 to thereby prevent swinging outwardly of doors 40 beyond designated points.

A switch button 93 on the outermost face of panel 20 between drums 24, connected to switch arm 95 of switch 94, controls operation of motor 52 in a manner to be hereinafter described, and an article row selection switch 96 rotatably mounted on panel 20 below switch 94 permits the customer to select the row from which he wishes to obtain an article.

Machine 10 is adapted to be connected to a pair of power lines 98 and 100, and the schematic wiring circuit of machine 10 is illustrated in FIG. 4 wherein it can be seen that motor 52 is connected to power lines 98 and 100 in a manner to run continuously by virtue of the fact that the same is connected directly to line 100 by a lead 102 and to power line 98 by a lead 104 connected to the contact 106 of a relay 108 and thence, through relay switch arm 110 connected to lead 112 directly coupled with power line 98. Switch 94 mounted on the outer face of panel 20 is interposed in a lead 114 interconnecting the windings of relay 108 and power line 98, it being noted that switch arm 95 of switch 94 normally engages contact 116 of switch 94 so that energy is normally transmitted from power line 98 to the windings of relay 108. The other lead line 118 of relay 108 is connected to a switch 82*a*. Switch 82*a* is connected in series with switches 82*b*, 82*c* and 82*d* by virtue of a lead line 120 interconnecting the switch arm 80 of switch 82*a* with the contact 84 of switch 82*b*; a lead line 122 interconnecting switch arm 80 of switch 82*b* with contact 84 of switch 82*c*; a lead line 124 coupling switch arm 80 of switch 82*c* with contact 84 of switch 82*d*; a lead line 126 suitably connected to all of the contacts 85 of switches 82*a*, 82*b*, 82*c* and 82*d*; and a line 128 coupling switch arm 80 of switch 82*d* with power line 100.

Contacts 90 of switches 86*a*, 86*b*, 86*c* and 86*d* are coupled directly to power line 98 in series, while leads 130 of each of the switches 86*a*, 86*b*, 86*c* and 86*d* are directly coupled in series with stepper assembly reset solenoid (not shown) within coin mehcanism 56 mounted on panel 20. As illustrated in FIG. 2, the switch arms 88 of switches 86*a*, 86*b*, 86*c* and 86*d* are normally biased out of engagement with contacts 90 when element 60 is disposed at the innermost end of its path of travel.

Since the operating components of coin mechanism 56 are conventional in the vending art, such components have not been illustrated but it is to be understood that coin switches are provided to sense passage of coins of different values through mechanism 56. Each of the normally open stepper switches of the stepper assembly is operably associated with a solenoid stepper having a rotatable device thereon selectively positionable at any one of a number of different locations for engaging the actuating arm of a respective stepper switch to close the latter after the solenoid steppers have been pulsed a selected number of times. If the mechanism 56 is capable of handling nickels, dimes and quarters as is conventional, coin switches are provided to sense passage of coins of these values through respective coin channels therefor. The nickel and dime switches are in series with all of the stepper solenoids while the quarter switch is in a pulse motor circuit adapted to send five successive pulses to the stepper solenoids each time the quarter switch is closed. Nickels deposited in slot 58 actuate only the nickel switch to send one pulse to the stepper solenoids while dimes contact both the nickel and dime switches to effect pulsing of the stepper solenoids twice. The stepper switch closing devices are rotated against the action of spring means by the stepper solenoids with pawl structure controlled by the reset solenoid normally precluding retrograde movement of the stepper devices. In this manner actuation of the reset solenoids permits the stepper devices to return to their normal zero position as the stepper switches open.

An escrow unit in mechanism 56 is controlled by a cash box solenoid for retaining the customer's deposit in escrow until one of the doors 40 has been opened by the customer. If the person desires return of his money after

deposit thereof and before opening a door 40, structure on the front of cabinet 20 may be actuated to direct the coins to a customer accessible coin return chute.

The lead 136 coupled to contacts 138*a* to 138*d* of selector switch 96 are each connected to one of the stepper switches of the stepper assembly while leads 134 joined to solenoids 73*a* to 73*d* are also connected to the stepper switches requiring closing of the latter before the solenoids 73 may be energized through the selector switch 96. Although all of the steppers may be set up to cause the switches thereof to close at the same price, only one solenoid 73 may be energized at a time by virtue of selector switch arm 140 of switch 96 providing coupling of only one lead 136 at a time to the lead 144 joined to the contact 142 of relay 108.

Means for assuring exact alignment of compartments 34 with corresponding openings 38 upon deenergization of motor 52 includes a commutator switch 146 secured to a respective shaft 26, coupled with power line 98 by lead 148 and rotatable within a commutator ring 150 having a contact bar 152 for each compartment 36 on the respective drum 24 coupled with lead 104 by corresponding conduits 154.

Lead line 126 is connected to the escrow cash box solenoid within coin mechanism 56, while line 156 connected to lead 104 is suitably joined to the coin reject solenoid within mechanism 56.

Although only one circuit has been described and illustrated in FIG. 4, it can be appreciated that there is provided one of these circuits for each of the rotatable drums 24 with solenoids 73, switches 86 and switches 96 being suitably coupled to the switches and solenoids within coin mechanism 56.

The operation of machine 10 will be described with respect to the circuit illustrated in FIG. 4, but it can be appreciated that when two drums 24 are provided within housing 12, the operation of both drums 24 will be exactly similar to that described with respect to one of such article supporting structures. Therefore, with machine 10 suitably connected to power lines 98 and 100, it can be seen that drum 24 is continuously rotated at a predetermined rate by virtue of energization of motor 52 through lead 112, normally closed switch arm 110 of relay 108, lead 104, and lead 102 coupled with power line 100. It can be seen that switch arm 110 is maintained in engagement wth contact 106 during the time that the coil of relay 108 is energized by virtue of current passing through normally closed switch arm 95 of switch 94 interposed in lead 114, as well as completion of the circuit through lead 118, thence to switch arm 80 of switch 82*a*, through lead 120 to switch arm 80 of switch 82*b*, subsequently to switch arm 80 of switch 82*c* through lead 122, through switch arm 80 of switch 82*d* and finally, to power line 100 through lead 128.

Wtih drums 24 constantly rotating, it can be seen that articles disposed within compartments 36 thereof are brought into view of the potential customer and, because of the fact that such customer can select any article in any of the compartments 36, if desired, a different product may be placed in each of compartments 36. Manifestly, this materially increases the overall utility of vending machine 10 and permits a variety of articles to be vended and also effectively displayed.

If the customer desires to view any one of the articles within a compartment 36, he may do so by pushing button 93 to thereby shift switch arm 95 whenever compartment 36 containing the article comes into alignment with respective opening 38 and its corresponding door 40. Movement of switch arm 95 away from contact 116 deenergizes the coil 108 through the circuit just outlined and thereby causes relay switch arm 110 to be moved into engagement with contact 142, breaking the circuit to motor 52 through leads 112 and 104. However, energy is directed to motor 52 until commutator switch 146 on shaft 26 moves into an insulated space between contact

bars 152. It should be pointed out that contact bars 152 are positioned to assure that compartmens 36 are moved into exact alignment with product delivery openings 38, with opposed dividers 34 in proximal relationship to the innermost ends of respective baffles 68, as clearly illustrated in FIG. 2.

After the customer has viewed the particular article for any time that he wishes, release of button 93 and thereby switch arm 95 reenergizes the coil of relay 108 and causes relay switch arm 110 to be pulled into engagement with contact 106, thereby causing motor 52 to begin operating.

When a customer desires to purchase a product disposed in one of the compartments 36 on drum 24, he first rotates product selector switch 96 to a position indicating the row of compartments 36 within which the one he desires is positioned to thereby move switch arm 140 into engagement with one of the contacts 138*a*, 138*b*, 138*c* or 138*d* and then deposits the proper denominations of coins in coin slot 58 of coin mechanism 56. It is to be remembered that the price at which the articles in a particular row are sold is determined by the setting of the stepper switch associated therewith and thus upon customer deposit of coins of proper value for the selected row, the stepper switch for that row will be closed to condition the corresponding solenoid for operation when the customer depresses push button 93 to deenergize relay 108 and opens the respective door 40.

Therefore, after the customer has moved the arm 140 of selector switch 96 to indicate the proper row of product compartments 36 and has deposited the necessary coins in coin mechanism 56, he next presses button 93 connected to switch arm 95 when the product he wishes to purchase comes into view in the transparent plate 48 of the door 40 of the particular row of compartments 36 which he has selected. Opening of switch 94 disconnects the circuit through the coil of relay 108 and permits relay switch arm 110 to move into contacting relationship with contact 142 to thereby complete the circuit through lead 144, a corresponding lead 136, the closed stepper switch within coin mechanism 56, the lead 134 of a respective solenoid 73 and thence to power line 100. As illustrated in FIG. 4, switch arm 140 of selector switch 96 is in contacting engagement with contact 138*b* and thus, solenoid 73*b* would be energized through the coin mechanism 56 if the customer has made a proper deposit. Energization of the coil of solenoid 73*b* causes the armature 72 thereof to be drawn into the same to move the crossbar 62 connected to armature 72 toward the vertical center line of panel 20. Inward movement of crossbar 62 brings the groove 66 thereof into alignment with element 60 so that the customer may grasp handle 46 of the corresponding door 40 and swing the same outwardly as element 60 clears crossbar 62. He may then reach into the compartment 36 disposed in alignment with opening 38 and remove the product contained therein. Movement of crossbar 62 toward the innermost end of its path of travel causes projection 76 to be moved out of engagement with the switch arm 80 of the corresponding switch 82*b* and thereby permits switch arm 80 to move into engagement with contact 85 thereof. The cash box solenoid within coin mechanism 56 is energized when switch arm 80 of switch 82*b* moves into engagement with contact 85 thereof and permits the coins deposited in the escrow section of mechanism 56 to gravitate into the cash box. During the time that switch arm 80 of switch 82*b* in in engagement with the contact 85 thereof, the circuit to relay 108 is maintained in a deenergized condition and therefore, it is impossible for motor 52 to be energized to rotate drum 24.

Also, as element 60 connected to the corresponding door 40 is swung outwardly with the latter, stop 92 engages crossbar 62 to limit outward swinging movement of door 40 and also the outermost end of element 60 moves out of engagement with switch arm 88 of corre-

sponding switch 86*b* permitting switch arm 88 to move into engagement with contact 90 and causing energization of the stepper switch reset solenoid within coin mechanism 56 to effect reopening of all of the stepper switches. In this manner, the stepper assembly is reset and in condition for insertion of additional coins.

The coin reject solenoid operably coupled with lead 156 and forming a part of coin mechanism 56 is of the conventional type in that when the same is in a deenergized condition, the armature thereof is disposed in a position blocking passage of coins through the coin tube of mechanism 56 to the coin sensing switches controlling operation of the stepper assembly. However, when machine 10 is electrically connected to power lines 98 and 100, it can be seen that the reject solenoid is normally energized through lead 156, contact 106, switch arm 110 and lead 112 to power line 98 causing the armature thereof to be withdrawn from and maintained out of blocking relationship to the coin channels therefor in mechanism 56 and thereby permitting coins to pass through the coin channels. If a customer actuates switch arm 95, either to view a product within machine 10 or to make a purchase, breaking of the circuit to the winding of relay 108 permits relay switch arm 110 to move into contacting relationship with contact 142 thereby causing the reject solenoid connected to lead 156 to be deenergized so that the armature thereof returns to a position blocking the coin channels in mechanism 56. It is apparent that the reject solenoid prevents mechanism 56 from accepting coins whenever a power failure results and no energy is supplied to the circuitry of machine 10 or when a customer has actuated switch button 95 to view the products. Furthermore, the reject solenoid prevents additional coins from being accepted by mechanism 56 after the customer has deposited the proper price and has actuated stop button 93 to select a product for vending.

It is now apparent that vending machine 10 is especially designed so that the products displayed therein may all be brought into view of the prospective customer as drums 24 are rotated, and that foolproof mechanism is provided so that only one product may be vended from machine 10 upon insertion of proper coins into coin mechanism 56. Baffles 68 prevent more than one article to be removed from a compartment 36 upon opening of one of the doors 40, and the customer is always assured that he will get a product when he inserts a coin into mechanism 56 because he can visually observe whether or not a product is disposed in one of the compartments 36 when the latter comes into alignment with a corresponding opening 38, and he pushes button 93 to deactivate motor 52 and permit energization of a corresponding solenoid 73. By virtue of the provision of selectively alterable devices for closing corresponding stepper switches within mechanism 56, it can be appreciated that articles selling at different prices may be disposed on each of the rows of compartments 36, thereby materially increasing the utility of machine 10. Furthermore, the prices of the articles on the rotatable shelves may be changed at will.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a vending machine, a housing provided with a plurality of vertically spaced delivery openings and swingable doors normally blocking each of said openings; a cylindrical display drum mounted within said housing, rotatable about a vertical axis and having a series of radially disposed product compartments for each of said openings, the compartments of each of said series being successively registrable with a corresponding opening as the drum is rotated; mechanism connected with said drum for continuously rotating the latter; selectively actuatable components associated with said mechanism for inactivating the latter substantially immediately upon actuation of said components and interrupting rotation of said drum, said components including parts for delaying interruption of rotation of said drum upon actuation of said components until the compartments in closest proximity to respective openings at the time of actuation of said components are in exact registration with the openings; and means coupled with said doors for preventing movement of any of the same to positions unblocking corresponding openings except upon actuation of said actuatable components to effect cessation of rotation of said drum.

2. In a vending machine, a housing provided with a plurality of vertically spaced delivery openings and swingable doors normally blocking each of said openings; a cylindrical display drum mounted within said housing, rotatable about a vertical axis and having a series of radially disposed product compartments for each of said openings, the compartments of each of said series being successively registrable with a corresponding opening as the drum is rotated; mechanism connected with said drum for continuously rotating the latter; manually actuatable components associated with said mechanism for inactivating the latter substantially immediately upon actuation of said components and interrupting rotation of said drum, said components including parts for delaying interruption of rotation of said drum upon actuation of said components until the compartments in closest proximity to respective openings at the time of actuation of said components are in exact registration with the openings; a coin actuated assembly; latch means coupled with each of said doors for preventing movement of any of the same to open positions unblocking corresponding openings except upon actuation of said actuatable components to effect cessation of rotation of said drum and actuation of said assembly; and means associated with said assembly and said latch means for permitting only one of the doors to be moved to an open position after actuation of said assembly and cessation of rotation of said drum.

3. A vending machine as set forth in claim 2 wherein is provided means connected with said mechanism for inactivating the same until one of said doors has been swung to an open position and then returned to a closed position blocking its corresponding opening.

4. A vending machine as set forth in claim 3 wherein said coin actuated assembly includes reset mechanism and wherein is provided means for activating said reset mechanism only after one of said doors has been moved from said closed position thereof to said open position thereof.

5. A vending machine as set forth in claim 1 wherein is provided a pair of baffles for each of the openings, each of said pair of baffles being disposed on opposite sides of corresponding openings to prevent access to any of the compartments except the ones in registration with respective openings.

6. In a vending machine, a housing provided with a product delivery opening and movable door means blocking said opening; shelf structure rotatably mounted within said housing and having a series of product compartments successively registrable with the opening as said structure is rotated, each of said compartments being of a width substantially equal to that of said opening; an electrically operated prime mover operably coupled to said structure for continuously rotating the latter during actuation of said prime mover; electrical circuit means operably connected to said prime mover and adapted to be connected to a source of electrical current; switch means interposed in said circuit for deactivating the prime mover upon opening of said switch means; manually actuatable components carried by the housing accessible externally of the latter and associated with said switch means for opening the latter in response to actuation of said components to thereby substantially immediately interrupt rotation of said structure upon opening of said switch means; means in said circuit and associated with said switch means for delaying interruption of rotation of said structure upon opening of said switch means by said components until the compartment in closest proximity to said opening at the time of actuation of said

components is in exact, complemental registration with the opening; and means coupled with said movable door means for preventing movement of the same to a position unblocking said opening except upon actuation of said actuatable components to effect cessation of rotation of said structure.

7. In a vending machine, a housing provided with a product delivery opening and movable door means blocking said opening; a circular display drum rotatably mounted within said housing and having a series of product compartments successively registrable with the opening as said drum is rotated, each of said compartments being of a width substantially equal to that of said opening; an electrically operated prime mover operably coupled to said drum for continuously rotating the latter during actuation of said prime mover; electrical circuit means operably connected to said prime mover and adapted to be connected to a source of electrical current; switch means interposed in said circut for deactivating the prime mover upon opening of said switch means; manually actuatable components carried by the housing accessible externally of the latter and associated with said switch means for opening the latter in response to actuation of said components to thereby substantially immediately interrupt rotation of said drum upon opening of said switch means; means in said circuit and associated with said switch means for delaying interruption of rotation of said drum upon opening of said switch means by said components until the compartment in closest proximity to said opening at the time of actuation of said components is in exact, complemental registration with the opening; and means coupled with said movable door means for preventing movement of the same to a position unblocking said opening except upon actuation of said actuatable components to effect cessation of rotation of said drum.

8. A vending machine as set forth in claim 7 wherein said drum is rotatable on a substantially vertical axis.

9. In a vending machine, a housing provided with a product delivery opening and movable door means blocking said opening; shelf structure rotatably mounted within said housing and having a series of product compartments successively registrable with the opening as said structure is rotated, each of said compartments being of a width substantially equal to that of said opening; an electrically operated prime mover operably coupled to said structure for continuously rotating the latter during actuation of said prime mover; electrical circuit means operably connected to said prime mover and adapted to be connected to a source of electrical current; switch means interposed in said circuit for deactivating the prime mover upon opening of said switch means; manually actuatable components carried by the housing accessible externally of the latter and associated with said switch means for opening the latter in response to actuation of said components to thereby substantially immediately interrupt rotation of said structure upon opening of said switch means; means in said circuit and associated with said switch means for delaying interruption of rotation of said structure upon opening of said switch means by said components until the compartment in closest proximity to said opening at the time of actuation of said components is in exact, complemental registration with the opening; a latching element rigidly attached to said door means and movable therewith; and locking means engageable with said element for preventing movement of the same and thereby swinging of the door to an open position unblocking said opening except upon actuation of said actuatable components to effect cessation of rotation of said structure.

10. A vending machine as set forth in claim 9 wherein said element is provided with a transverse slot and wherein said locking means includes an elongated, shiftable bar extending across said element and normally positioned within said slot thereof to prevent movement of the element and thereby swinging of the door to said open position, said bar being provided with a transverse groove movable into alignment with the element upon shifting of the bar in one direction whereby when the bar is shifted to a location with said groove thereof in alignment with the element, the latter clears said bar to thereby permit the door to be swung to said open position.

11. A vending machine as set forth in claim 10 wherein is provided electromagnetic means coupled with said bar for shifting the latter, and means connected with said electromagnetic means for permitting actuation of the latter only after cessation of rotation of the structure.

12. A vending machine as set forth in claim 11 wherein is provided means for preventing rotation of said structure while said bar is disposed in said location with the groove thereof in alignment with said element.

13. A vending machine as set forth in claim 12 wherein is provided a coin actuated assembly and means associated with said assembly for preventing energization of said electromagnetic means to shift said bar to said location until after actuation of said assembly.

14. A vending machine as set forth in claim 13 wherein said coin actuated assembly includes reset mechanism and wherein is provided means for actuating said reset mechanism only after swinging movement of the door from said closed position thereof toward the open position thereof.

15. In a vending machine, a housing provided with a plurality of vertically spaced delivery openings and movable doors normally blocking each of said openings; a display carrier mounted within said housing, rotatable about a vertical axis and having a series of transversely disposed product compartments for each of said openings, the compartments of each of said series being successively registrable with a corresponding opening as the carrier is rotated; mechanism connected with said carrier for continuously rotating the latter; actuatable components associated with said mechanism for inactivating the latter substantially immediately upon actuation of said components and interrupting rotation of said carrier, said components including parts for delaying interruption of rotation of said carrier upon actuation of said components until the compartments approaching the respective openings at the time of actuation of said components are in exact registration with the openings; and means coupled with said doors for preventing movement of any of the same to positions unblocking corresponding openings except upon actuation of said actuatable components to effect cessation of rotation of said carrier.

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