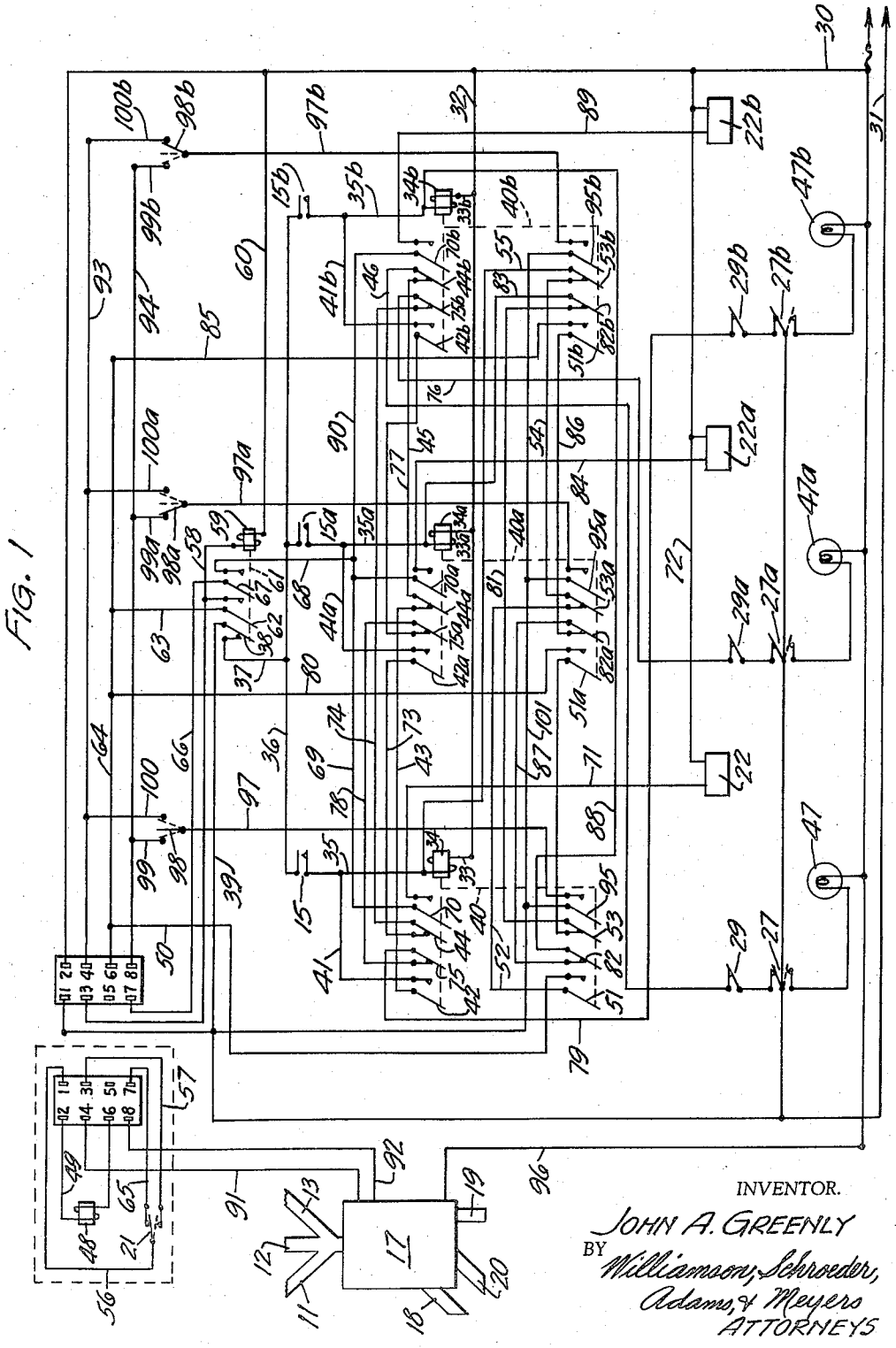
Sept. 2, 1958 J. A. GREENLY 2,850,133

DISPENSING MACHINE WITH COIN-OPERATED ARTICLE PRE-SELECTOR

Filed Feb. 4, 1957 2 Sheets-Sheet 1

FIG. 1



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BY Williamson, Schroeder, Adams & Meyers

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Filed Feb. 4, 1957 2 Sheets-Sheet 2

FIG. 2

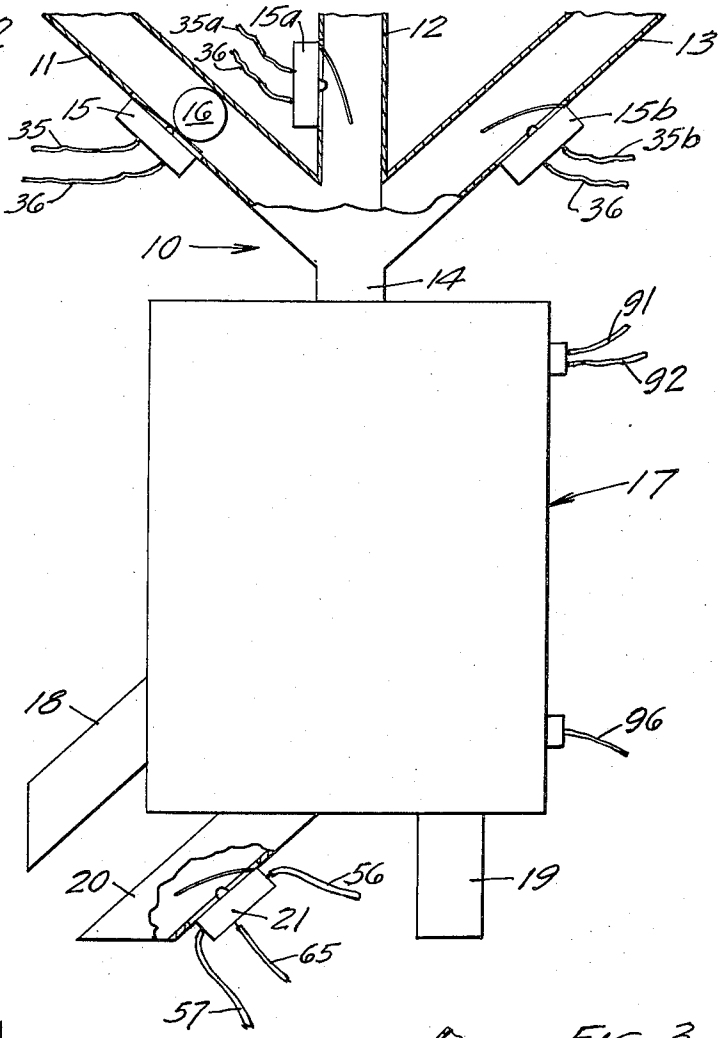
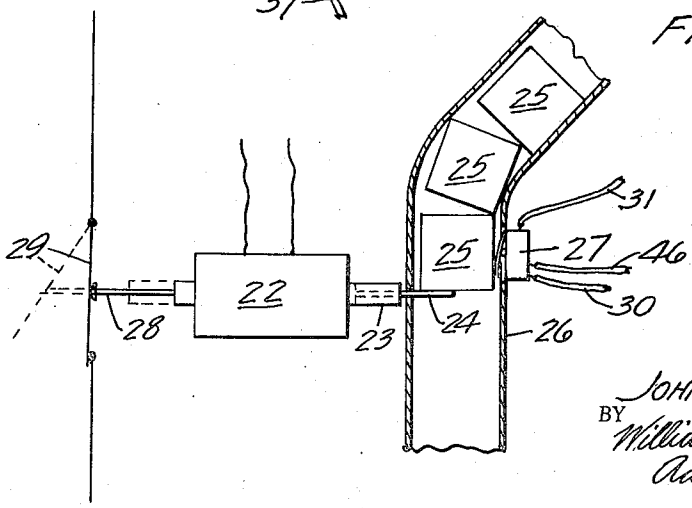


FIG. 3



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DISPENSING MACHINE WITH COIN-OPERATED ARTICLE PRE-SELECTOR

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Application February 4, 1957, Serial No. 638,084

7 Claims. (Cl. 194—10)

This invention relates to dispensing machines, and more particularly to a coin-operated pre-selector mechanism for dispensing individual articles from a plurality of types thereof.

In the conventional vending machine, it is customary to insert coins totaling the price of an article to be dispensed therefrom following which a lever is manually actuated in order to release and deliver a correspondingly selected article. In the event the article selected has been exhausted from the machine, then the coins inserted into the machine will be returned only after all of them have been accumulated and the purchaser must then start his operation of the machine over again if he desires to make another selection.

Another characteristic of some conventional vending machines is a construction and electrical wiring system which will permit jamming of the machine by violently handling the control members or shaking the entire machine so as to result in the delivery of more than the single article paid for. In some instances, the machine will not return coins already inserted at the time that jamming takes place.

It is an object of the present invention to overcome the above noted difficulties and to provide a relatively simple and inexpensive mechanism which will dispense one of a plurality of articles of different types in response to automatic selection by actuation of inserted coins alone and without further attention to manually operable levers, buttons and the like.

Another object of the invention is to provide a dispensing mechanism wherein coins may be inserted at one of several locations to pre-select the desired article, the location of the last inserted coin determining which article will be dispensed so that a purchaser may change his mind after having started to place coins in a receptacle or slot representing another article.

A further object of the invention is to provide a machine of the class described wherein a plurality of coin slots represent different types of articles to be dispensed, and the first coin placed in a slot representing an article which has become exhausted, will automatically return the purchaser's money without requiring a complete accumulation of the total purchase price followed by an attempted delivery of an exhausted article.

A still further object of the invention is to provide a mechanism which is coin-operated for pre-selecting an article wherein an electrical pre-selector circuit will be conditioned prior to the vending of an article and will be returned to an unconditioned status upon the vending of an article from the machine, the entire actuation of the mechanism being accomplished by the travel of a coin or coins.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same parts throughout the several views and in which:

Figure 1 is a diagrammatic representation of the electrical circuit for my dispensing machine;

Figure 2 is a detailed diagrammatic representation of the article pre-selector and coin-operated vending switch mechanism with a coin shown in the process of pre-selecting an article from the first pre-selector chute and switch; and

Figure 3 is a detailed diagrammatic representation of the article dispensing mechanism, showing the relationship between the relay drop switch and the solenoid-operated gate member.

With continued reference to the drawings, my coin-operated vending machine comprehends a mechanism which includes generally a pre-selector chute member **10** having a plurality of individual chutes **11**, **12** and **13** which feed into a common delivery chute **14**, as shown in Fig. 2. My system adapts itself to any number of pre-selector chutes but for convenience I have shown but three in the disclosure of this specification. The vending machine proper (not shown) may have the usual outer casing and be provided with a plurality of article chambers, each containing a specified type of article as is well known in the art. Each of the individual pre-selector chutes represents a different type of article, information on which is available to the purchaser prior to making his coin slot selection. The pre-selector chutes **11**, **12** and **13** are provided respectively with coin drop selection switches **15**, **15***a* and **15***b*. Each of the coin drop selection switches is actuable to closed contacts momentarily when a coin **16** is inserted into the corresponding chute. In Figure 2, the coin **16** is shown in the course of closing coin drop selection switch **15** as it passes downwardly in the pre-selector chute **11**.

An important feature of my invention is the cancellation of a pre-selected article prior to completion of the purchase where several coins are employed so that if coin **16** were followed with another coin placed, for example, in pre-selector chute **12**, then coin drop selection switch **15***a* would cancel the conditioning of the system previously established by switch **15** and now condition the system to vend an article corresponding to chute **12**. This procedure may be reproduced with as many coins as can be employed until the last coin which completes the purchase is inserted into a chute. The selected chute receiving the last coin thus causes the other selections to be cancelled out and to condition the machine for delivering an article corresponding with the said last chute. Details of the circuit for accomplishing the foregoing will be explained under operation of the system.

With continued reference to Figure 2, when a coin passes into the common delivery chute **14**, it enters the coin rejector and coin changer mechanism indicated generally at **17**. The rejector and coin changer mechanism may be any conventional mechanism of this sort wherein slugs, tokens and the like will be instantaneously rejected via chute **18**, and the accepted coins will be accumulated or collected via the chute **19**. The last coin completing the purchase may be deflected into chute **20** where it will momentarily actuate the switch **21** to set off a cycle of events resulting in the delivery of the selected article from the vending machine.

The ultimate action resulting in the delivery of an article is diagrammatically set forth in Figure 3. The vend solenoid **22** which corresponds to chute **11** of the pre-selector **10** is provided with a core **23** which is connected in turn to article release mechanism such as gate **24** which will permit the lowermost of a plurality of articles **25** to be discharged from the article delivery chute **26** and permit remaining articles **25** to advance downwardly and be retained by gate **24** after it has assumed its latching position. The lowermost of articles

25 maintains the switch 27 in closed condition so as to signify that the articles 25 are not sold out or exhausted. When the last of the articles 25 has been released by gate 24, then switch 27 will be permitted to open and thereby affect the circuit as will be subsequently described. Also in Figure 3 is shown a switch actuator 28 connected to core 23 of the vend solenoid 22. The switch actuator 28 is adapted to open the relay drop switch 29 simultaneously with the release of the lowermost article 25. The relay drop switch, when opened, will cause return of the circuits to their original position ready for another selection by a subsequent purchaser. It is understood that the vend solenoid together with an article-delivering chute and the other members shown in Figure 3 are duplicated for each of the types of articles corresponding to the pre-selector chutes 11, 12 and 13.

Referring now to Figure 1, the actuation of the various mechanisms of my invention and the energization of the electrical circuits will be described under various circumstances under which the vending machine may be operated. The electrical source for energizing my circuits is provided through lines 30 and 31. Assuming now that a coin 16 has been dropped into pre-selector chute 11 as shown in Figure 2, then the coin drop selection switch 15 will be momentarily closed. Closing switch 15 will cause current to flow from line 30 into conductor 32 and thence into lead 33, relay 34, conductor 35, and through the closed coin drop selection switch 15. The circuit is then completed through conductors 36 and 37, then through normally closed switch 38 and lead 39, then back to the other line member 31. Energization of the relay 34 will then cause the entire selective relay member 40 to actuate all of the switches interconnected with the relay electromagnet 34 as indicated by the dotted line representation.

As soon as the selective relay 40 is energized, a holding circuit is established through conductor 32, lead 33, relay electromagnet 34, conductor 35, conductor 41, and then through switch 42 which is now closed. Current then flows through lead 43 to the closed switch 44*a* of the selective relay assembly 40*a*, thence through lead 45, and through closed switch 44*b* of the selector relay assembly 40*b*. The circuit then continues through conductor 46, relay drop switch 29, sold-out switch 27 and back to line 31. The foregoing holding circuit maintains selective relay assembly 40 and its electromagnet 34 energized even though coin 16 has passed the coin drop selection switch 15 and has permitted the latter to again open.

If an article 25 had not been in position to be vended from the article discharge 26, then the sold-out switch 27 would have sprung to the dotted line position shown in Figure 1. The switch 27 in the dotted line position would establish a current from the line 31 therethrough and then through the sold-out lamp 47 and back to the other line 30. As long as energy is supplied to lines 30 and 31, a continuing indication of the exhaustion of one or more articles is thus effected. It should also be noted that, if sold-out switch 27 lies in the dotted line position for the lack of an article to maintain it in its full line position, then the return lead 46 to line 31 which is a part of the holding circuit for selective relay 40 would be interrupted and the electromagnet 34 for selective relay 40 would be deenergized the instant a coin passed the coin drop selection switch 15. As long as the selective relay 40 is energized, electrical current is maintained through the coin return electromagnet 48, but if the electromagnet 48 is deenergized, then all coins entering the rejector and coin changer mechanism 17 will be automatically returned therefrom without accumulating or actuating the vend switch. The coin return electromagnet 48 is maintained in energized condition through the circuit established from line 30 through block terminal connections 2—2 through lead 49, through block terminal connections 6—6, through conductor 50, through switch 51, conductor 52, switch 53*a* in the selective relay assembly 40*a*, then through lead 54, through switch 53*b* in selective switch assembly 40*b*, through conductor 55, through conductors 35 and 41, through switch 42, conductor 43, switch 44*a*, conductor 45, switch 44*b*, lead 46, through relay drop switch 29, and sold-out switch 27 to the other line member 31. It will be noted that the circuit for energizing the coin return electromagnet 48 includes the sold-out switch 27. Thus, if an article 25 is exhausted so that the sold-out switch 27 will be moved to its dotted line position in Figure 1, then the coin return electromagnet cannot be energized and the very first coin 16 placed in the chute 11 will be automatically returned, since the electromagnet 48, when not energized, will automatically cause all coins entering the common delivery chute 14 to be rejected through the outlet rejection chute 18.

Presuming that articles 25 are not exhausted and that the last coin 16 requisite for a purchase is placed in the chute 11 of pre-selector 10, then no change in the pre-selector system will be made as the coin passes coin drop section switch 15. Since the coin return electromagnet is energized to prevent the automatic rejection of coin 16, it will pass into the rejector and coin changer mechanism 17, and then be diverted to chute 20 in which it actuates the vend switch 21 by depressing it temporarily to the dotted line position shown in Figure 1. The following circuit is then established: current from line 31 feeds into the block terminal connection 1—1, then through conductor 45, vend switch 21, lead 57 to the block terminal connections 3—3. Current then flows through the conductor 58, the vend relay electromagnet 59, and through lead 60 back to line 30. When the vend relay electromagnet 59 is energized, vend relay 61, as indicated by the dotted line switch interconnection, will move to the right in Figure 1 and simultaneously operate the three switches associated therewith. A holding circuit is established for a short time through the lead 60, electromagnet 59, conductor 58, switch 62 (now closed), lead 63, conductors 64 and 50, through switch 51 in the selective relay 40 which has remained closed, through conductor 52 and switch 53*a*, then through conductor 54 and switch 53*b*, through conductors 55, 35 and 41, through switch 42 (now closed) in selective relay 40, conductor 43, switch 44*a*, conductor 45, switch 44*b*, lead 46, then through relay drop switch 29, switch 27, and back to the other line 31. The foregoing holding circuit will be maintained even though coin 16 passes the vend switch 21 and permits it to spring back to its normal full line position as shown in Figure 1.

Another circuit, however, is established through energizing the vend relay 61. This circuit is established from line member 31 to block terminal connection 1—1, through conductor 56 and vend switch 21 in its normally closed full line position, lead 65 and to block terminal connections 7—7. Current then flows through conductor 66 to the switch 67 which is held closed by the holding circuit for vend relay electromagnet 59, and then connects with lead 68. Lead 68, in turn, connects with the conductor 69 which, in turn, is connected to the switch 70 in the selective relay assembly 40, the latter still remaining closed because of the pre-selective quality of coin 16 when it was placed in pre-selector chute 11 prior to actuating the vend switch. Since the respective corresponding switches 70*a* and 70*b* in selective relay assemblies 40*a* and 40*b* remain open, current from the conductor 69 must pass through the closed switch 70, as noted. The vend solenoid 22 is then energized by connection of switch 70 through lead 71 and through the return lead 72 which connects with the other line member 30. It will be remembered that vend solenoid 22, when energized, not only releases an article 25, as shown in Figure 3, but also opens the relay drop switch 29 through its core actuator 28, as previously noted. It will be remembered further that the holding circuits for both

selective relay assembly 40 and the vend relay 61 included the relay drop switch 29. These relay assemblies 40 and 61 are thus returned to their normal position with the switches in full line orientation to the left, as shown in Figure 1. Vend solenoid 22, having its circuit through switches 70 and 67 of the respective relays 40 and 61, is immediately deenergized and permitted to return to gate closing position, as shown in Figure 3, before another article 25 can be dispensed from the machine.

A feature of my invention resides in the double-throw character of vend switch 21 which prevents multiple actuation of the vend solenoid through jarring of the mechanism at the time an article is dispensed. This feature is made possible by arranging vend switch 21 so that the vend relay can be energized only by depressing the vend switch to its dotted line position, following which the vend solenoid itself can be actuated only after the vend switch 21 returns to its full line position. The instant vend solenoid 22 is energized, the holding circuit for vend relay 61 is broken and vend solenoid 22 cannot again become energized until pre-selector relay 40 is again energized and vend switch 21 is again depressed by coin operation.

Now, suppose that a coin has been placed in chute 11 so as to energize the selective relay assembly 40 prior to the full accumulation of coins which will constitute the full purchase price for the article selected, and the purchaser changes his mind as to the article which he desires to purchase. The coin or coins already inserted in the machine will have been accumulated in the rejector and coin changer mechanism 17 and a newly inserted coin can be added thereto through a different chute such as that numbered 12 in Figure 2. The coin, as it passes downwardly in chute 12, will close the coin drop selection switch 15*a* and energize the electromagnet 34*a* which operates the selective relay assembly 40*a*. The energization is effected through line 30, conductor 32, lead 33*a*, electromagnet 34*a*, lead 35*a*, coin drop selection switch 15*a*, conductors 36 and 37, switch 38, and lead 39 which connects with the other line member 31. The instant that electromagnet 34*a* is energized, the entire selective relay assembly 40*a* will move to the right and actuate all the switches therein. Since the selective relay assembly 40 was maintained energized through a holding circuit which included the normally closed switch 44*a* of the selective relay assembly 40*a*, the opening of the latter switch through energization of electromagnet 34*a* will break the holding circuit and selective relay assembly 40 will return to its normal position with the switches oriented as shown in Figure 1 and will remain deenergized until the coin drop selection switch 15 is again momentarily closed. At the same time that the electromagnet 34*a* was energized, and the electromagnet 34 was deenergized, a new holding circuit for selective relay assembly 40*a* becomes established through line member 30, conductor 32, lead 33*a*, electromagnet 34*a*, conductors 35*a*, and 41*a*, switch 42*a* (now closed), line 73, switch 44 of selective relay assembly 40 (now closed), conductor 74, switch 75*b* in selective relay assembly 40*b*, lead 76, through relay drop switch 29*a* and the sold-out switch 27*a* and back to the other line 31.

Now, suppose that the selective relay assembly 40*a* remains in its energized condition through the holding circuit just described and a subsequent coin is inserted in chute 13 of pre-selector 10 in such a manner as to close the coin drop selection switch 15*b*. The momentary closing of the latter switch will energize electromagnet 34*b* and actuate the selective relay assembly 40*b* so as to shift all of the switch members to the right from the position shown in Figure 1. The circuit established is from line 30 through conductor 32, lead 33*b*, electromagnet 34*b*, conductor 35*b*, coin drop selection switch 15*b*, conductor 36, lead 37, switch 38, lead 39, and back to the other line 31. Before the coin passes the coin drop selection switch 15*b*, a holding circuit is established for selective relay assembly 40*b* and the selective relay assembly 40*a* is caused to drop its own holding circuit since the latter included the switch 75*b* as above described but is now opened with the energization of electromagnet 34*b*. The new holding circuit for selective relay assembly 40*b* is established through line 30, conductors 32 and 33*b*, electromagnet 34*b*, conductors 35*b* and 41*b*, switch 42*b* (now closed), conductor 77, switch 75*a*, in the selective relay assembly 40*a*, conductor 78, switch 75 in selective relay assembly 40, lead 79, relay drop switch 29*b*, the sold-out switch 27*b*, and back to the other line member 31. The selective relay assembly 40*b* thus remains energized while the other selective relay assemblies 40 and 40*a* both remain unenergized.

In the case where selective relay assembly 40*a* had become energized with the other assemblies 40 and 40*b* deenergized and the last coin completing a purchase had been inserted in the chute 12, the coin would then operate the vend switch 21 and cause an article to be dispensed in accordance with the selection and as previously described. The same energizing circuit for vend relay 61 is established by depressing of vend switch 21 as was previously described but the holding circuit for vend relay 61 must be through different switches than those associated with the coin drop selection switch 15. In the present instance, the holding circuit for the vend relay 61 is established through line 30, conductor 60, electromagnet 59, conductor 58, switch 62 (now closed), lead 63 into conductor 64, then to lead 80, through switch 51*a* (now closed), switch 53 in the selective relay assembly 40, conductor 81, switch 82*b* in the selective relay assembly 40*b*, lead 83, conductors 35*a* and 41*a*, closed switch 42*a*, conductor 73, switch 44, lead 74, switch 75*b*, lead 76, relay drop switch 29*a*, sold-out switch 27*a*, and back to the other line member 31. As before, the holding circuit includes the relay drop switch for the vend solenoid associated with the corresponding selective relay assembly which is currently in held position to pre-select the article. The vending of articles through energization of the vend solenoid 22*a* is accomplished through line 30, conductor 72, vend solenoid 22*a*, conductor 84, switch 70*a*, through a short length of conductor 69, lead 68, switch 67, conductor 66, block terminal connections 7—7, conductor 65, vend switch 21 (now returned to its normal position), lead 56, block terminal connections 1—1, and back to the other line member 31. As in the case of vend solenoid 22, the vend solenoid 22*a*, upon releasing its associated article, will also open the relay drop switch connected thereto and deenergize the selective relay assembly 40*a* as well as the vend relay 61 since both of these relays include the relay drop switch 29*a* in their respective holding circuits.

Now suppose that the selective relay assembly 40*b* is the one which is energized while selective relay assemblies 40 and 40*a* are deenergized and that the last coin has been inserted through the pre-selector chute 13 and has been diverted to the discharge chute 20 where it will actuate the vend switch 21 in passing. Again, the temporary depression of vend switch 21 will energize the vend relay 61 through the previously described circuit including the electromagnet 59. The holding circuit for vend relay 61 now becomes as follows: current flows from line 30 to conductor 60, through electromagnet 59, into conductor 58, through switch 62 (now closed), through conductors 63 and 64, then through the lead 85, switch 51*b*, conductor 86, switch 82*a*, conductor 87, through switch 82, conductor 88 to leads 35*b* and 41*b*, then through switch 42*b* which is held closed by selective relay assembly 40*b*. The circuit is completed through conductor 77, switch 75*a*, conductor 78, switch 75, conductor 79, and through the switches 29*b* and 27*b*, then back to the other line member 31.

While the vend relay 61 is held in energized condition,

the vend switch **21** snaps back to its full line position as shown in Figure 1 so as to actuate vend solenoid **22***b*. The circuit establishing actuation of solenoid **22***b* is completed from line member **30** to the solenoid, then through conductor **89**, switch **70***b*, which remains closed in the selective relay assembly **40***b*, then through conductor **90** lead **68**, switch **67**, conductor **66**, block terminal connections **7—7**, lead **65**, switch **21**, lead **56**, block terminal connections **1—1**, and back to the other line member **31**.

As previously described, whenever a vend solenoid is actuated, its associated relay drop switch is also opened. Thus the drop switch **29***b* is opened by vend solenoid **22***b* and, since the holding circuits for both the selective relay assembly **40***b* and the vend relay **61** include the relay drop switch **29***b*, both of these relays will become deenergized and return to normal position. In the meantime, of course, an article will have been delivered in the same manner as previously described. In the event the associated sold-out switch **27***b* lies in its dotted line position because the associated article is exhausted from the machine, then the sold-out lamp **47***b* will become lit and the coin return electromagnet **48** will be deenergized so as to permit immediate return of the first coin placed in chute **13**.

Prior to dropping the vend relay **61**, switch **38** which is a part thereof remains open. Since all of the coin drop selection switches **15**, **15***a* and **15***b* include the switch **38** in their respective circuits, there is no opportunity for a newly inserted coin to actuate one of the coin drop selection switches during the vending period so as to obtain an article in addition to that which has been fully paid for. Of course, after the vend is complete, then the vend electromagnet **59** will become deenergized and switch **38** will become closed. The entire system is then ready for a new cycle of operation.

It will be evident from the foregoing that additional pre-selector chutes may be employed so as to correspond with the number of types of articles which it is desired to dispense. In such instance, there would, of course, be an additional selective relay assembly for each additional pre-selector chute and the previously described inter-relation of switch members would be continued so as to cancel out all previous selections when a new chute receives a coin and there are articles remaining which correspond to the chosen pre-selector chute.

The rejector and coin changer device **17** is of any conventional design which can be energized and controlled in such a manner as to require an accumulation of a given sum of money as a purchase price according to the combination of coins utilized and to return the proper change to the purchaser when the combination of coins exceeds the proper purchase price. Since the purchase price of the different articles dispensed from the machine disclosed herein may vary from article to article, means must then be provided to condition the rejector and coin changer mechanism so as to actuate the vend switch **21** when the proper summation of the purchase price has been reached. Details of the operation of rejector and coin changer **17** are not given since such devices are known in the art and, for the purposes herein, it is deemed sufficient to show a pair of conductors **91** and **92**, each electrically connected to mechanism **17** and respectively connected to the block terminal connections **4—4** and **8—8**. The main conductor **93** continues from the block terminal connection **4—4** and the main conductor **94** continues from the block terminal connection **8—8**. The pre-selector **17** may be internally adjusted so as to give a number of pricing combinations and, in the instant representation, the mechanism **17** is indicated as being capable of registering three price combinations, one when the main conductor **93** is energized, the second when main conductor **94** is energized, and the third being effected when neither of the main conductors **93** or **94** are energized.

Now relating the pricing combinations of mechanism **17** to the pre-selector arrangement disclosed herein, each of the selective relay assemblies **40**, **40***a* and **40***b* are provided with respective switches **95**, **95***a* and **95***b*. Supposing that selective relay assembly **40** is the one which is being held in energized condition, the switch **95** will then be closed and the following circuit may be established: electrical energy from line member **30** passes into conductor **96** and thence to the ejector and coin changer mechanism **17** from which it continues optionally through lead **91** or **92** or through neither of the foregoing if a circuit it not completed. The switch **95** of selective relay assembly **40** is connected to a conductor **97** which, in turn, is connected to a three-way switch **98**. The three-way switch **98** in the instant case is shown in neutral or open position but may be swung to the left to contact the connecting lead **99** joined with the main conductor **99** or may be swung to the dotted line position at the right to close the contact with connecting lead **100** which, in turn, is joined to the main conductor **93**. Since the three-way switch **98** has been placed in neutral or open position, it makes no difference that the switch **95** is closed since no current will pass through the conductor **96** and through either of the conductors **91** or **92**. Hence, the particular price selection which exists when neither of the main conductors **93** or **94** (which connects respectively with the conductors **91** and **92**) are energized, then prevails. There is, of course, no opportunity for the main conductors **93** and **94** to be energized from any other source since the corresponding pricing switches **95***a* and **95***b* in the selective relay assemblies **40***a* and **40***b* respectively must necessarily remain open as long as selective relay assembly **40** is energized.

Now supposing that selective relay assembly **40***a* is the one which has been energized by a coin **16** passing through pre-selector chute **12**, then the pricing switch **95***a* will be closed and the following circuit established or conditioned: line member **30**, conductor **96**, conductor **92**, block terminal connections **8—8**, main conductor **94**, lead **99***a*, through three-way switch **98***a*, conductor **97***a*, switch **95***a*, conductor **101** and back to the line member **31**. In this instance, a price is established in mechanism **17** responsive to energization of the conductor **92**. It will be observed, however, that three-way switch **98***a* could be set at neutral or open position or could be swung to the right to establish connection through conductor **100***a* with the main conductor **93** and the conductor **91** to yield a different pricing arrangement.

If the selective relay assembly **40***b* is energized, then the pricing switch **95***b* will be closed and the following circuit established from line member **30**: conductor **96**, to mechanism **17**, then through conductor **91** to block terminal connections **4—4**, and into the main conductor **93**. Current then continues into the lead **100***b* through three-way switch **98***b*, conductor **97***b*, switch **95***b*, conductor **101**, and back to the other line member **31**. The position of switch **98***b* is such as to yield a third price when the pricing switch **95***b* is closed, although it is understood as previously explained, that the three-way switch **98***b* can be moved to neutral or open position, or to closed position with respect to the lead **99***b* so as to effect one of two other price combinations. In the event that a mechanism **17** is utilized wherein four pricing combinations are available, then an additional line would be employed and each of the pricing switches would be provided with a four-way switch instead of a three-way switch. Similarly, even greater numbers of pricing combinations can be accommodated through the selective switching arrangement described above.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of my invention.

What I claim is:

1. In an electrically operated vending machine requiring an accumulator, mechanism for retaining a plurality of types of articles, a coin chute for each type of article adapted to receive a plurality of coins for purchasing an article, a switch mechanism in each of said coin chutes adapted to be actuated by a coin in passing therethrough and automatic pre-selecting means and pre-conditioning means for dispensing an article of the type associated with a particular chute, and means operated by each of said switch mechanisms to cancel out the operation of a previous pre-selection by said pre-selecting means made by passage of a coin through another chute prior to accumulating payment of a total purchase price.

2. In an electrically operated vending machine requiring an accumulator, mechanism for retaining a plurality of types of articles, a coin chute for each type of article adapted to receive a plurality of coins for purchasing an article, a switch mechanism in each of said coin chutes adapted to be actuated by a coin in passing therethrough and automatic pre-selecting means and pre-conditioning means for dispensing an article of the type associated with a particular chute, means interconnecting all of said switch mechanisms and operable by each such switch mechanism to cancel out the operation of a previous pre-selection by said pre-selecting means made by passage of a coin through another chute prior to accumulating payment of a total purchase price, and coin-operated vend switch mechanism for dispensing a pre-selected article.

3. In an electrically operated vending machine requiring an accumulator, mechanism for retaining a plurality of types of articles, a coin chute for each type of article adapted to receive a plurality of coins for purchasing an article, a common chute interconnecting with all of said coin chutes, a coin rejector and changer mechanism interconnecting with said common chute, a switch mechanism in each of said coin chutes adapted to be actuated by a coin in passing therethrough and automatic pre-selecting means and pre-conditioning means associated with each switch mechanism for dispensing an article of the type associated with a particular chute, means operated by each of said switch mechanisms to cancel out the operation of a previous pre-selection made by passage of a coin through another chute prior to accumulating payment of a total purchase price, a coin outlet for said coin rejector and changer mechanism and a coin-operated switch mechanism in said outlet for dispensing a pre-selected article.

4. In an electrically operated vending machine, mechanism for retaining a plurality of types of articles, a coin chute for each type of article adapted to receive a plurality of coins for purchasing an article, a switch mechanism in each of said coin chutes adapted to be momentarily actuated by a coin in passing therethrough, a selective relay for each coin chute switch mechanism, adapted to be energized by actuation thereof and each

having a holding circuit and a plurality of switches, one of which controls said holding circuit for maintaining the selective relay energized after the said coin has passed the switch mechanism, each of the other selective relays being deenergized and having a normally closed switch operatively connected therewith, all of said normally closed switches lying in series with said holding circuit for breaking said circuit whenever one of said other selective relays becomes energized so as to open its normally closed switch.

5. The subject matter set forth in claim 4, wherein a coin-operated vend switch mechanism is adapted to release an article of the pre-selected type and simultaneously to break the holding circuit and return the energized selective relay to normal deenergized condition.

6. In an electrically operated vending machine, mechanism for retaining a plurality of types of articles, a coin chute for each type of article adapted to receive a plurality of coins for purchasing an article, a switch mechanism in each of said coin chutes adapted to be momentarily actuated by a coin in passing therethrough, a selective relay for each coin chute switch mechanism, adapted to be energized by actuation thereof and each having a holding circuit and a plurality of switches, one of which controls said holding circuit for maintaining the selective relay energized after the said coin has passed the switch mechanism, each of the other selective relays being deenergized and having a normally closed switch operatively connected therewith, all of said normally closed switches lying in series with said holding circuit for breaking said circuit whenever one of said other selective relays becomes energized so as to open its normally closed switch, and a vend relay having a holding circuit for maintaining the vend relay energized, a double throw vend switch normally biased to a first closed position and actuable by a coin to move said vend switch to a second closed position and thereby energize said vend relay, and a vend solenoid actuated through a circuit including another of said selective relay switches closed by the selective relay which is energized, said vend solenoid circuit also including the double throw end switch in its first closed position whereby an article will not be vended until said vend switch returns to its normally biased first closed position to prevent a multiple vending of articles without full payment therefor.

7. The subject matter set forth in claim 5, and pricing means for each type of article, said pricing means including a circuit through each of said selective relays and energized by one of said plurality of switches in the selective relay which is energized prior to completion of the purchasing of an article.

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