

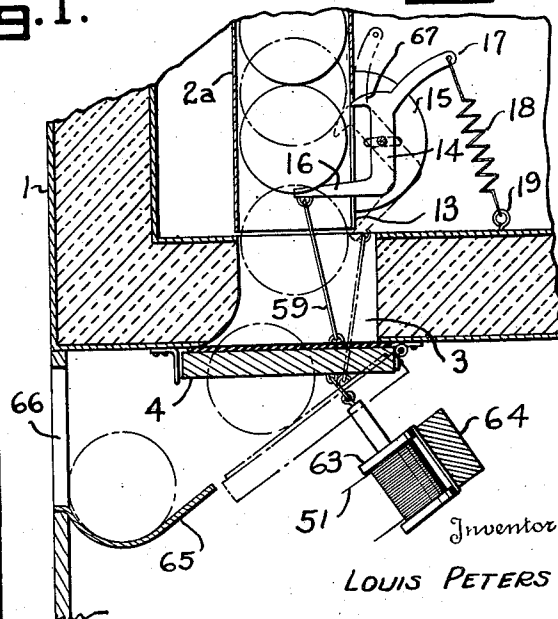
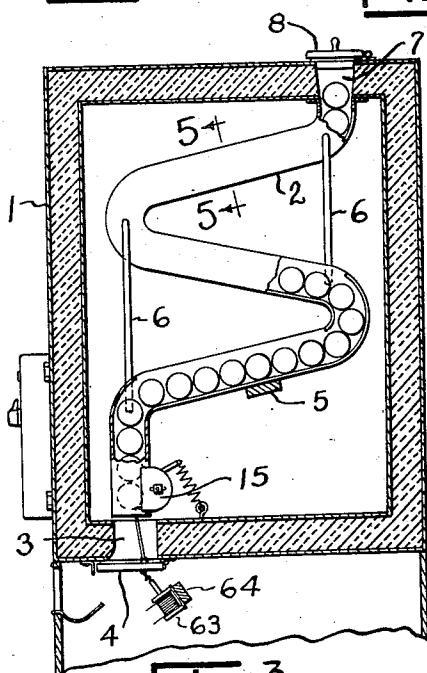
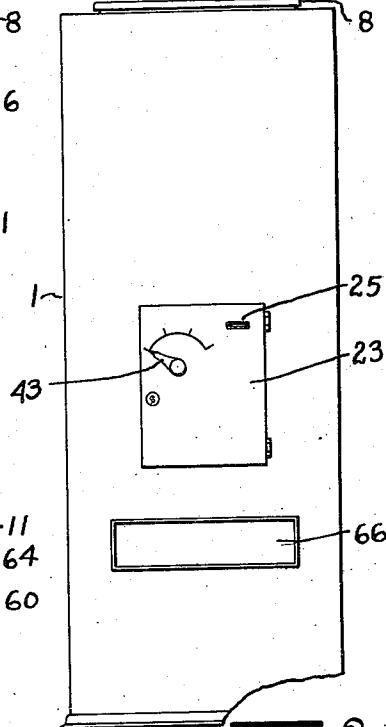
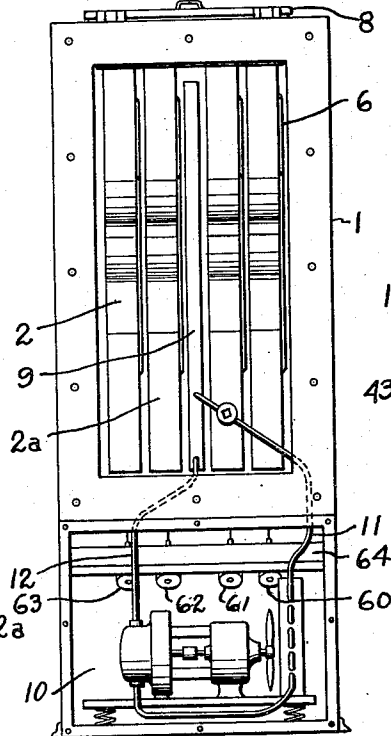
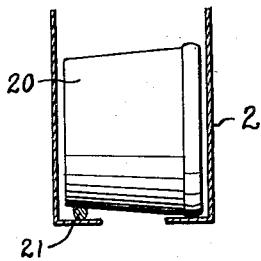
April 7, 1942.

L. PETERS
VENDING MACHINE

2,279,093

Filed Oct. 28, 1940

2 Sheets-Sheet 1



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Fig. 4. By *E. V. Hardway*
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2 Sheets-Sheet 2

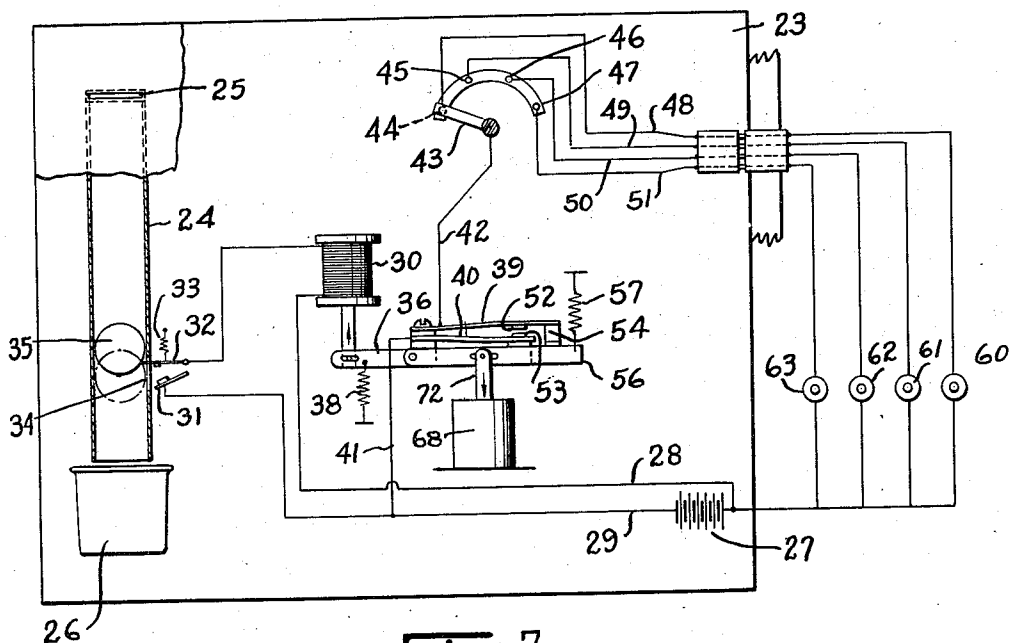


Fig. 7.

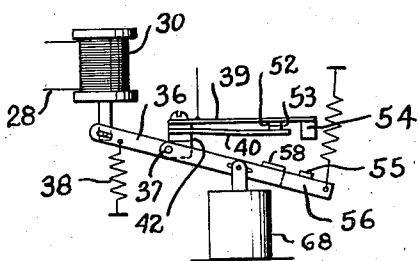


Fig. 8.

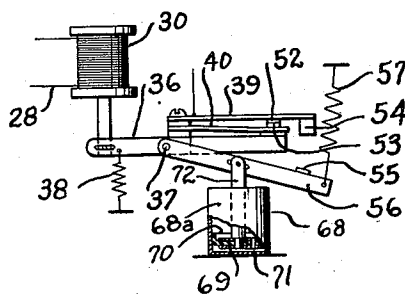


Fig. 9.

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UNITED STATES PATENT OFFICE

2,279,093

VENDING MACHINE

Louis Peters, Houston, Tex.

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4 Claims. (Cl. 312—48)

This invention relates to a vending machine. An object of the invention is to provide a machine of the character described specially designed for vending articles of merchandise such as cartons or cans.

The invention has been particularly designed for dispensing cartons or containers of ice cream and cans containing cold drinks although it is adaptable for vending articles generally.

Another object of the invention is to provide a machine of the character described embodying a novel type of magazine for containing the articles to be sold.

It is contemplated that a plurality of magazines will be assembled within a closed container which will be equipped with a cooling coil or cold plate whereby the articles to be sold will be kept cool while in the magazines.

The invention also embodies electrically operable means enabling the purchaser to select articles from any magazine desired, it being understood that said magazines may be loaded with different kinds of merchandise.

It is a further object of the invention to provide a coin controlled vending machine, the controlling mechanism being constructed so that a single article, or a definite quantity, of merchandise will be delivered at a time.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein—

Figure 1 shows an elevational view of the complete machine showing the rear wall removed.

Figure 2 shows a front elevation.

Figure 3 shows a vertical, sectional view.

Figure 4 shows an enlarged, fragmentary, vertical, sectional view.

Figure 5 shows a cross-sectional view of the magazine taken on the line 5—5 of Figure 3.

Figure 6 shows a cross-sectional view of another embodiment of the magazine on the line 5—5 of Figure 3.

Figure 7 shows a wiring diagram.

Figure 8 shows an elevational view of an electrical switch mechanism in closed position, and

Figure 9 shows an elevational view of said switch mechanism, partly in section, and in readiness to move to open position.

Referring now more particularly to the drawings wherein like numerals of references designate the same parts in each of the figures, the numeral 1 designates a suitable cabinet, or cas-

ing, which is completely closed and whose walls are suitably insulated.

In this cabinet there is one or more magazines indicated by the numerals 2, 2a. These magazines are preferably arranged in coinciding relation as indicated in Figure 1. They are of a sinuous shape as shown in Figure 3 so as to increase their capacity. Their upper ends are anchored to the top of the cabinet in any suitable manner and their lower ends terminate immediately above suitable outlet openings 3 through the bottom of the cabinet. These outlet openings are normally closed by downwardly opening hinged shutters 4. The magazines are secured in spaced relation by means of a suitable cross-bar 5 attached thereto and their turns may be connected by the reinforcing straps 6, 6 as shown in Figure 3. The top of the cabinet has the inlet, or filler, openings as 7 aligned above the upper ends of the respective magazines and through which the magazines may be loaded or filled and the openings 7 are normally closed by the cover 8.

The turns of the magazines decline downwardly so that the articles of merchandise to be sold will be fed downwardly by gravity.

As illustrated in the drawings there is a conventional type of cold plate 9 located in the magazine chamber through which a refrigerant is circulated. Beneath the magazine chamber there is a compartment within the cabinet wherein is located conventional refrigerating apparatus designated generally by the numeral 10 and by means of which the refrigerant is circulated through the pipe 11 to the cold plate and returned through the pipe 12. It is, of course, obvious that a cooling coil may be used instead of the cold plate and the plate or coil may be located at any desired position in the magazine chamber.

At the lower end of each magazine said magazine is provided with a side slot 13 and a retainer, designated generally by the numeral 14, is provided for each magazine. These retainers are pivotally mounted between the overturned ears 15 carried by the magazines. The lower end of each retainer is formed into an inwardly extended arm 16 which extends through the corresponding slot 13 across the corresponding magazine and as the magazines are loaded this arm will prevent the discharge of the contents of the magazine. Each retainer has an outwardly extended lug 17 to the free end of which one end of a coil spring 18 is attached. The other end of this coil spring is attached to a suitable anchor

as 19 carried by the cabinet and this pull spring 18 holds the arm 16 normally projected across the corresponding magazine.

It is contemplated that in some instances the articles to be sold will be of a frusto-conical shape such, for example, as individual ice cream cartons 20. In such event the magazine containing this type of article will have an elevated track 21 at one side along which the small end of the article will roll as it descends along the magazine so that the ends of the article will be maintained parallel with the sides of the magazine so as not to bind there against to impede the movement of the article downwardly. Cans such as 22 will usually be of a true cylindrical shape and will move along the magazines 2a and the elevated track 21 will not be required.

At the front of the cabinet there is a hinged shutter 23 on the inner side of which there is a coin chute 24 terminating at its upper end in a coin slot 25 and at its lower end it terminates above a suitable coin box or receiver 26. Coins inserted through the slot 25 will drop down through the chute into the coin box. The inner side of the shutter 23 also carries suitable electrical equipment for automatically releasing the selected article to be purchased upon the insertion of the coin and which will now be described.

This equipment embodies a source of electrical energy 27, such as a storage battery which is connected into the wiring circuit 28, 29. This circuit includes the electromagnet 30. The conductor 29 leads from the battery and terminates in a contact point 31 and the conductor 28, into which the electromagnet 30 is incorporated, terminates in a pivotally mounted switch lever 32 which is normally held out of contact with the contact point 31 by a coil spring 33. The switch lever projects through a slot in one side of the coin chute and is in the path of the coin 35 moving downwardly through said chute. The weight of the coin will be sufficient to move the switch lever 32 into contact with the contact point 31 and close the electrical circuit through the electromagnet 30. The core of this electromagnet is connected to one end of a lever 36 which is pivoted to the shutter at an intermediate point 37 so that when the electromagnet 30 is energized it will exert a pull on the end of the lever 36 to which its core is connected, overcoming the pull of a coil spring 38 which is connected at one end to the lever 36 and at its other end to a fixed anchor on said shutter 23. The pull spring 38 is connected to the lever 36 on the same side of the pivot 37 as the connection of the core of the magnet 30, to said lever 36.

There are the flexible arms 39, 40 fixed at one end to the bracket 42 which is secured to the inner side of said shutter 23. A current conductor 41 connects the arm 40 with the conductor 29 and a current conductor 41a connects the arm 39 with a brush 43 mounted to pivot on the shutter 23. This brush 43 may be moved into contact, successively, with the contact points 44, 45, 46 and 47, mounted on said shutter and from which the current conductors 48, 49, 50 and 51, respectively, lead.

The flexible arms 39, 40 carry the opposing contact points 52, 53 and the free end of the arm 39 is provided with an overturned lug 54 arranged opposite an elevated boss 55 on the auxiliary lever 56. This last mentioned lever is pivoted at one end on the pivot 37 and is normally held, by the pull spring 57, in alignment with the lever 36 as shown in Figure 7 with the boss 55 engag-

ing the lug 54 to hold the contact point 52 out of contact with the contact point 53 so that the circuit through the wiring 41, 41a will be broken. The coil spring 57 is connected at one end to the free end of the lever 56 and at its other end to a suitable anchor on the shutter 23. When the lever 56 moves into alignment with the lever 36 it contacts against a stop 58 on said lever 36 so that, after such contact, said levers will move together.

The doors 4 are connected to their corresponding arms 16 through links 59 and said doors 4 are connected to the cores of the respective electromagnets 60, 61, 62 and 63 which may be fastened to a transverse bar 64 located beneath the magazine chamber of the cabinet 1. The electromagnets 60 to 63, inclusive, are connected into the corresponding electrical conductors 48 to 51, inclusive, said conductors being connected with the battery 27 and with the electrical conductor 28 as shown in Figure 7.

The operation of the device is as follows:

The customer may move the brush 43 into electrical connection with any of the contacts 44 to 47, inclusive, thus completing a circuit from the conductor 42 through the corresponding electromagnet of the series 60 to 63. The circuit will not be completed, however, until a coin is deposited in the slot 25 because the contact points 52, 53 are open, that is, they are out of contact as shown in Figure 7. The coin will drop down through the coin chute 24 and will move the lever 32 into contact with the contact point 31 thus completing a circuit through the electromagnet 30 which, being energized, will actuate the levers 36, 56 into position shown in Figure 8 moving the boss 55 away from the lug 54 and allowing the contact point 52 to come into contact with the contact point 53 thus completing a circuit through the electromagnet corresponding to the contact of the series 44 to 47, inclusive, with which the brush 43 is then connected. The coin 35 will pass on and drop into the box 26 and the spring 33 will move the switch arm 32 back to original position breaking the circuit through the electromagnet 30 but the electromagnet of the series 60 to 63, inclusive, which has been energized, will immediately open the door, or shutter, 4 and will release the arm 16 from the article to be delivered allowing said article to drop down into the receiver 65 located in the cabinet chamber beneath, said released article being guided by the open door 4 into said receiver.

The article so delivered will be accessible to the purchaser through the opening 66 provided for the purpose. When the arm 16 has been moved to released position to release the lower article in the corresponding magazine, the upper end of the retainer 14 will be moved inwardly toward the corresponding magazine. This upper end is formed with an inwardly directed dog 67 which will be projected through the corresponding slot 13 in the path of the next succeeding article in the magazine above so as to retain the same against discharge thus insuring the discharge of a single article at a time.

It is desirable to temporarily delay the breaking of the circuit through the electromagnet connected to the door 4 which has just been opened so that said door will not close before the article of merchandise has been delivered into the receiver 65. For that reason a dash pot designated generally by the numeral 68 has been provided. It may comprise a closed cylinder 68a containing

a fluid. Fitted within this container, is a plunger 69 having an upwardly opening cup 70 and having a restricted opening 71 therethrough. The plunger has a stem 72 whose upper end is pivotally connected to the delay lever 56. When the switch arm 32 is released by the coin it will immediately return to its normal position, breaking the circuit through the electromagnet 30 and the spring 38 will immediately act on the lever 36 and move said lever into the position indicated in Figure 9 with its end resting firmly against the arm 49 so as to hold the contact points 52, 53 in firm contact. When the lever 36 is acted on by the electromagnet 30 the cup 70 will allow the plunger 69 to move freely offering substantially no resistance to the movement of the lever 56 and when the circuit through the electromagnet 30 is broken the spring 38 will immediately restore the lever 36 to the original position as shown in Figure 9 but the dash pot will delay the return movement of the lever 56 because the cup will expand forcing the fluid to leak very slowly through the opening 71.

The pull of the spring 57, however, will gradually return the delay lever 56 to its original position as shown in Figure 7 whereupon the boss 55 will contact with the lug 54 causing a corresponding movement of the flexible arm 39 and a separation of the contact points 52, 53 thus breaking the circuit through the electromagnet holding the shutter 4 open. Thereupon the spring 18 will act on the retainer 14 moving the arm 16 to retaining position against the magazine and releasing the dog 67 thus allowing a limited downward movement of the contents of the corresponding magazine until stopped by said retaining arm 16. The corresponding shutter 4 will move into closed position as shown in Figure 4 as said retainer 14 again moves to its active position.

The customer may therefore select an article in either of the magazines and the selected article will be delivered upon the insertion of the proper coin into the coin slot.

The drawings and description are illustrative merely, but the invention is not intended to be restricted to the precise form shown otherwise than as defined by the appended claims.

What I claim is:

1. A vending machine comprising a magazine shaped to contain articles of merchandise to be vended and having a discharge opening toward which the articles are movable by gravity, retaining means normally in position to prevent discharge of the articles through the opening and movable to another position to permit the discharge of a single article and to simultaneously prevent discharge of the other articles in the magazine, electro-magnetic means for actuating the retaining means to said other position to per-

mit such discharge and to temporarily delay return of the retaining means to said normal retaining position and means effective to cause the return of said retaining means to retaining position.

2. A vending machine comprising a magazine shaped to contain articles of merchandise to be sold and having a discharge opening toward which the articles are movable, a swinging shutter normally closing said opening, retaining means on the magazine normally in position to prevent discharge of the articles through the opening, means for simultaneously actuating the shutter into open position and the retaining means to releasing position to release a single article to permit its discharge through said opening and means on the retaining means movable at a unit with the retaining means into position to prevent the discharge of the remainder of the load in the magazine other than the released article.

3. A vending machine comprising a cabinet, a plurality of magazines therein for containing articles to be vended, each having a discharge opening, a separate retainer for each magazine normally in position to prevent discharge of articles from the respective magazines, an electro-magnetic means, under the control of an operator, for each retainer to selectively actuate the same to releasing position to allow discharge of the articles successively from the respective magazines, a relay, a circuit connecting the relay with the electro-magnetic means including a switch effective to connect the selected electro-magnetic means with the relay and a coin operated switch controlling the relay.

4. A vending machine comprising a magazine shaped to contain articles of merchandise to be vended and having a discharge opening toward which the articles are movable by gravity, said magazine having a slot adjacent its discharge end, a retainer pivotally mounted on the magazine and having a retaining arm working through the slot into position to prevent discharge of articles through the opening, mechanical means connected to the retainer and normally operative to hold said arm in retaining position, a dog on said retainer movable through the slot, said arm being movable to another position to permit the discharge of a single article and to simultaneously move said dog into position to prevent discharge of the other articles in the magazine, electro-magnetic means for actuating the retaining means to said other position to permit such discharge, said electro-magnetic means also including means to temporarily delay return of the retaining arm to its normal retaining position.

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