J. C. DICKINSON.

BOTTLE VENDING MACHINE.

APPLICATION FILED JUNE 28, 1916.

1,240,321.

Patented Sept. 18, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

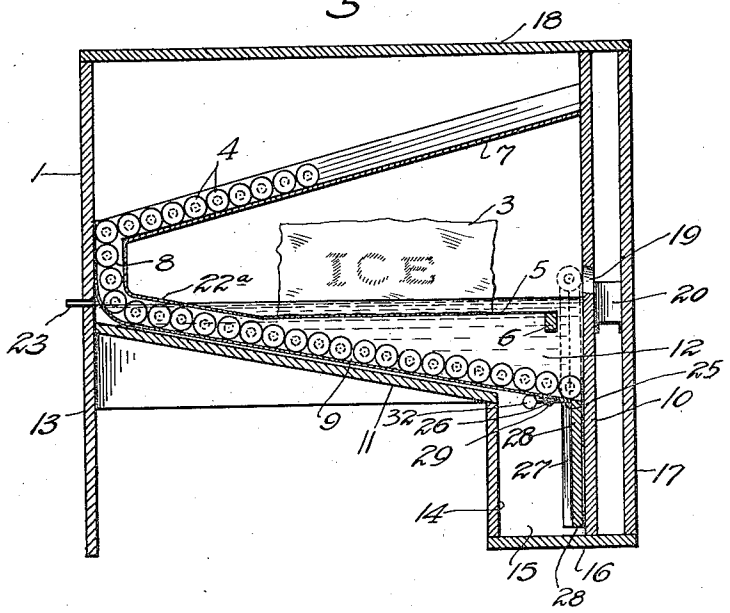
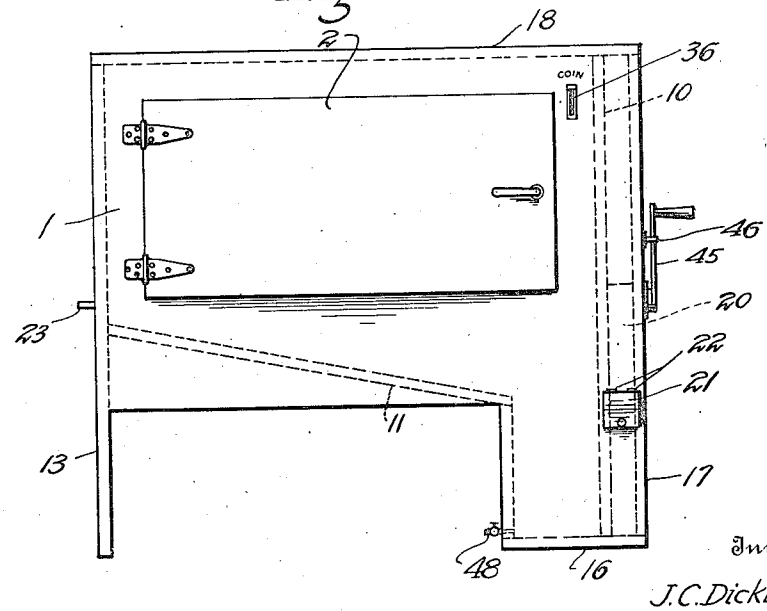


Fig. 2.



Inventor

J. C. Dickinson

Witness

J. Gordon Sparkes.

By

Attorney

J. C. DICKINSON.

BOTTLE VENDING MACHINE.

APPLICATION FILED JUNE 28, 1916.

1,240,321.

Patented Sept. 18, 1917.

2 SHEETS—SHEET 2.

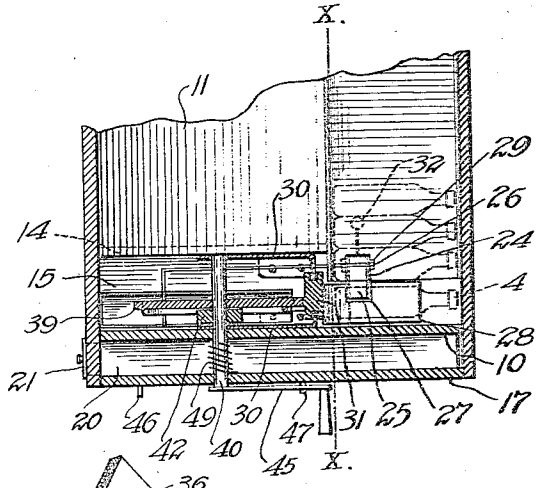
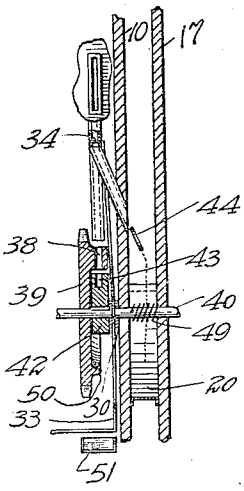


Fig. 3.

Fig. 5.



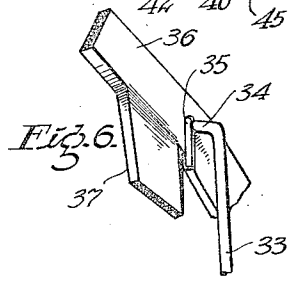


Fig. 6.

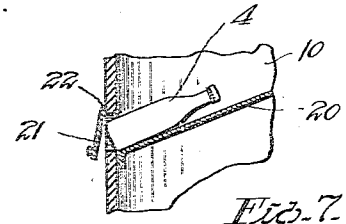


Fig. 7.

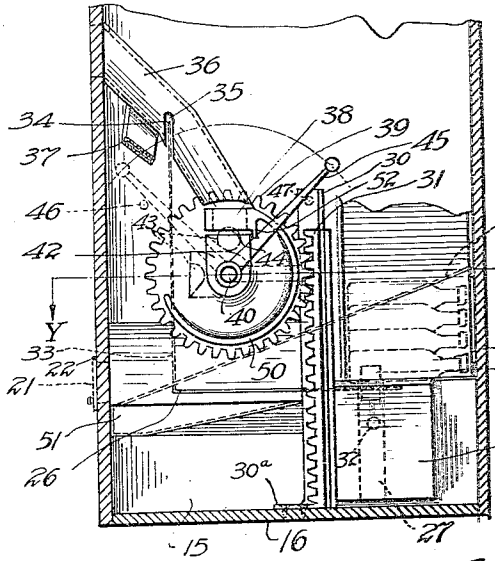


Fig. 4.

Witness

J. Gordon Gardner.

By

Inventor

J. C. Dickinson.

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH C. DICKINSON, OF COTTONDALE, ALABAMA, ASSIGNOR OF ONE-HALF TO J. D. WRIGHT, OF TOOMSUBA, MISSISSIPPI.

BOTTLE-VENDING MACHINE.

1,240,321. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed June 28, 1916. Serial No. 106,439.

To all whom it may concern:

Be it known that I, JOSEPH C. DICKINSON, a citizen of the United States of America, residing at Cottondale, in the county of Tuscaloosa and State of Alabama, have invented certain new and useful Improvements in Bottle-Vending Machines, of which the following is a specification.

This invention relates to improvements in bottle vending machines in which the delivery mechanism is coin controlled and which is particularly designed to provide a simple and effective arrangement for chilling the bottles and delivering them thoroughly chilled without requiring but a small quantity of ice.

One distinguishing feature of my invention is the arrangement by which the bottles for some time before their discharge are submerged in ice water of the lower part of the refrigerating compartment and such an arrangement involves a novel means for raising the bottles successively from the ice water bath and delivering them to the discharge chute or opening.

My present invention also comprises coin controlled means for effecting the delivery of the bottles in which the coin itself forms a temporary operating connection between the driving and driven elements of the delivery mechanism and in this connection I provide bottle controlled means which, after the dispensing apparatus is empty of bottles, will divert any coin inserted and return the same to the customer.

My invention further comprises the novel features of construction and arrangements of parts, which in their preferred embodiment only are hereinafter more particularly described and illustrated in the drawings but which may be varied in many respects without departing from the principle underlying my invention.

Referring to the drawings:—

Figure 1 is a vertical sectional view through the dispensing cabinet taken on the line *x—x* of Fig. 3.

Fig. 2 is a front elevation of the apparatus.

Fig. 3 is a sectional view taken on the line *y—y* of Fig. 4.

Fig. 4 is an end view of the cabinet showing its end walls removed to illustrate the operating mechanism and the coin controlled delivery mechanism in elevation.

Fig. 5 is a detail view of the coin chute and the coin return means when the cabinet is empty.

Fig. 6 is a partial perspective view of the coin chute.

Fig. 7 is a detail view showing the bottle in position to be withdrawn from the cabinet.

Similar reference numerals refer to similar parts throughout the drawings.

As illustrated, I provide a combined refrigerator and dispensing cabinet 1 having therein a door 2 for the introduction of ice 3 and for charging of the apparatus with bottles 4 to be dispensed. This door may be arranged in any convenient part of the cabinet. The ice rests on a rack 5 suitably mounted in the cabinet, being preferably supported at one side on the cross bar 6 made fast to the front and rear walls of the cabinet and having its other side edge resting on and supported by the trough-like bottle chute. This chute comprises a top leg 7 left open above and extending from the right hand upper corner of the ice box, diagonally downwardly across same and above the ice to the left hand side of the ice compartment where it connects with a part of the chute forming a vertical leg 8, which in turn delivers the bottles to the bottom leg 9 of the chute which passes with a downward inclination below the ice rack and joins the inner side wall 10 of the refrigerator compartment at a point near the bottom 11 of the main ice water chamber 12 formed therein below the rack 5. The bottom 11 lies close under the chute 9 and is inclined from the side wall 13 of the cabinet to a point near the wall 10 where it joins the inner side wall 14 of the ejector pocket 15. This ejector pocket is disposed in the leg or support 16 at one side of the cabinet. I provide an outer side wall 17 parallel with and spaced from the wall 10, and the walls 10, 13 and 17 are connected overhead to the top 18. In the wall 10 above the water level is provided a bottle outlet opening 19 through which the bottles are adapted to fall upon an inclined chute 20 disposed between the walls 10 and 17 and to slide down the same to a point opposite the normally closed delivery door 21, hung on spring hinges 22, which the customer opens to remove the bottles. The bottle is delivered to the chute with its bot-

tom end foremost and the chute is designed to stop the slide of the bottle to prevent its falling out. If desired the bottle can be caused to strike and partly open the door 21, as seen in Fig. 7. The ice rack 5 is connected to a top member 22ª on leg 9 of the chute, which member forms a continuation of the inner wall of the leg 8 and the bottom wall of leg 7 of the chute. As this top extends only above a few of the bottles lying at the upper end of the chute leg 9, it will be observed that there is no obstruction interposed between the other bottles near the delivery end of the chute 9 and the ice, thus permitting the chilled currents of ice water to have direct access to bottles that will next be delivered. An overflow outlet 23 from the ice water chamber 12 is disposed at a level which will prevent the water rising to the level of the outlet 19.

It will be noted in Fig. 3 that the delivery end 9 of the bottle chute does not continue to the wall 10 (see Fig. 3), but stops a distance therefrom slightly greater than the diameter of a bottle 4 to be vended and that a bottom notch 24 is provided in the end of the chute. A presser plate 25 is mounted fast on a rocker arm 26 so that one end thereof projects below and is free to swing up through the notch 24 in the chute. This plate normally lies horizontal with its end projecting into a vertical groove 27 in the bottle ejector 28 which works in the compartment 15 and the upper inclined edge of which when lowered forms a continuation of the chute 9 and receives the lowermost bottle. This bottle, as seen in Fig. 1, rests on the outwardly inclined edge of the ejector 28 and is caused to lean against the wall 10 with which the ejector is in sliding engagement. The rocker arm is journaled in suitable bearings 29 attached under the chute 9 and at its front end is journaled in and projects through the casting 30 forming one side guide for the rack bar 31 that is connected to the forward end of the bottle ejector 28. I provide a counterweight 32 on the presser plate 25 which will tend to swing the latter upwardly out of the groove 27 so that it will project through the notch 24 in the chute 9 when there is no bottle resting on the ejector 28, but when there is a bottle on the ejector it overlies the groove 27 and thus serves to hold down the presser plate in its normal position. Should the presser plate swing to abnormal or vertical position (see Fig. 4), due to the absence of any bottle on the ejector, the rocker arm will be turned by the counterweight 32 and its vertical arm 33 (see Fig. 4) will swing its angled top end 34 into a notch 35 in the coin chute 36 so as to block the chute and cause the coin to pass off through by-pass or laterally inclined chute 37 (see Fig. 6) into the space between the walls 10 and 17, where it will fall upon the bottle chute 20 and be delivered opposite the door 21. Should the coin be permitted to follow the chute 36 it will fall into a pocket 38 formed on the side of a gear wheel 39 loosely mounted on a crank shaft 40 which is journaled in the walls 10 and 17 and in the castings 30. Fast on the crank shaft is an actuator member 42 carrying in its upper edge a pocket 43 disposed normally to receive a coin 44 after it has fallen through the pocket 38 and arrest it with its upper portion projecting slightly into the lower end of the pocket 38. If, now, the crank shaft 40 be turned the coin will form a driving connection between 42 and 38 and will cause the pinion 39 to turn with the crank. It will be noted that the teeth of the pinion 39 are in mesh with the teeth on the rack bar 31, which bar at its side edges is longitudinally grooved so as to travel on the guides in the castings 30, which have bottom flanges 30ª by which they are made fast to the bottom of the ejector pocket 15. A crank handle 45 is fast on the outer end of shaft 40 adjacent to the wall 17 and this wall also carries a pair of stop pins 46 and 47 which are spaced to limit the travel of the crank. I provide a drain cock 48 at the bottom of the ejector pocket 15 so as to drain the water from the chamber 12. A spring 49 on shaft 40 between the walls 10 and 17 serves to hold the crank against the stop pin 47 and to return the member 42 to its initial position. It will be noted in Fig. 4 that the pocket 38 has a depending lug 52 which projects into the path of the member 42 so that as the latter is returned to its initial position it will engage lug 52 and carry the pinion also back to initial position in which its pocket is in line with the coin chute. To make it necessary for the handle 45 and the parts 42 and 38 to be brought to initial position before the machine can be operated, I provide a curved guard 50 which projects laterally from the pinion in position to travel just under the coin chute and extends from the pocket 38 on the pinion through a sufficient arc to prevent a coin falling from the chute until the pinion has been returned to initial position by the movement of the handle to its initial position against stop pin 47. I do not thus rely upon the spring 49 to bring the pinion to initial position, but I force the operator to throw the lever back to its starting position before the machine can be operated.

In operation, the door 2 is opened and the bottles are charged endwise to fill the chute, the ice is then introduced, and the box is ready for service. The weight of the ejector 28 and the rack 31 and the action of spring 49 will tend to move the member 42 to initial position and hold the pinion in the position shown in Fig. 3, wherein its coin pocket 38 is in position to receive the coin from the chute 36. When the coin forms a connection between the two pockets,

the crank arm will be in its initial position and as it is drawn forward it will cause the pinion to turn with it and raise the rack and ejector 28, in doing which the bottle resting on the inclined top of the ejector is lifted until it comes opposite the delivery opening 19 in the wall 10, when it will fall through the opening and slide down the chute 20 to the door 21. The actuator is long enough to hold back the bottles on the chute when it is raised so that they cannot fall under it. When the crank is released the binding pressure on the coin is likewise released and the latter will fall out of the pocket 38 into a coin till or compartment 51 connected to the front wall of the cabinet and disposed in position to be reached through the open door. It will be noted in Fig. 2 that the left hand side of the pocket 43 is sloped outwardly to enable the coin, when released from binding engagement between the pockets by the reverse throw of the handle 45, to release itself from the pockets by rolling down this inclined side of pocket 43 and falling into the till. The other side of the pocket 43 must not slope outwardly as it is relied upon to force the coin against the pocket 38 to turn the pinion.

I intend to use any well known means for preventing spurious coins, washers, tags, and the like, being used to operate the machine or foul the apparatus. An undersized coin will not form an operating connection between the parts 42 and 38, but, when the crank is operated, will be delivered into the till without however operating the ejector or remaining to fill the pocket 43. In like manner when the cabinet is emptied the top end 34 on the rocker arm will be moved by the counterweight into the chute to block the latter just beyond the by-pass so that the coin can be returned opposite the door 21.

In practice, I have found that the utilization of the melted ice water to chill the bottles not only effects a great economy in ice but makes the bottles much colder than would be the case in an ordinary refrigerator cabinet.

It will be obvious that the arrangement of the bottle chute may be widely varied to suit different cabinet constructions, but it is my purpose that the lowermost bottles should be passed through a bath of ice water before reaching the ejector and the ejector should operate to successively lift the bottles from the bath of ice water in discharging them. It is preferable that the bottles be arranged with their necks toward the rear of the cabinet as I can shorten the length of the ejector and reduce its weight and I find that I obtain a better handling of the bottles in this way.

While I have referred to the elements which co-act with the coin when forming a driving connection as the pockets 38 and 43, it will be understood that the term pocket is used broadly to cover any equivalent means adapted to receive and hold the coin in position between them to form a driving connection when the handle is moved in one direction and to release and discharge the coin when the handle is moved in a reverse direction.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a bottle vending machine, an ice chamber, a chute leading through the chamber at an incline to a point adjacent to a wall of said chamber, a plunger disposed to receive the bottles successively in its top face which slopes toward the wall and which has a notch therein, a pivoted counter-weighted element normally depressed into said notch by the bottle adjacent to the bottle resting on the plunger, a coin controlled mechanism to move the plunger vertically, mechanism controlled by the movement of said element responsive to its counter-weight to prevent the operation of the coin mechanism, and a discharge chute opening through said wall of the ice chamber above the water level therein and into which the bottles, when raised by the plunger, are adapted to pass, substantially as described.

2. In a bottle vending machine, a refrigerating compartment having an inclined bottle chute therein, an ice water reservoir in the lower part of the refrigerating compartment in which the lower end of the chute is submerged, a vertically reciprocable ejector disposed adjacent to a side wall of the reservoir and in position to receive the submerged bottles successively from the chute, a rack and pinion means for raising the ejector and with it a bottle to a point above the water line in said reservoir, a guard on said ejector to hold the bottles on the chute while it is raised, a discharge chute to receive the bottles from the ejector, and coin controlled means to actuate the rack and pinion drive for the ejector.

In testimony whereof I affix my signature.

JOSEPH C. DICKINSON.

Witness:
NOMIE WELSH.