May 22, 1945. M. L. SMITH ET AL 2,376,562

DISPENSING MACHINE

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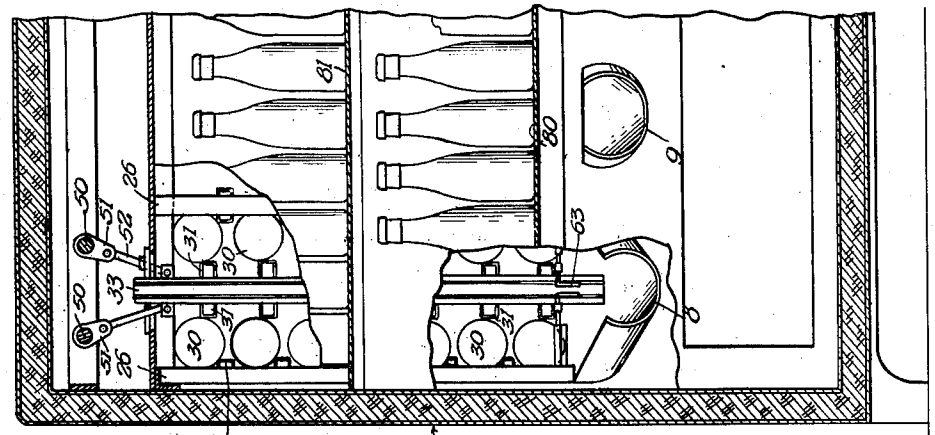


FIG. 3

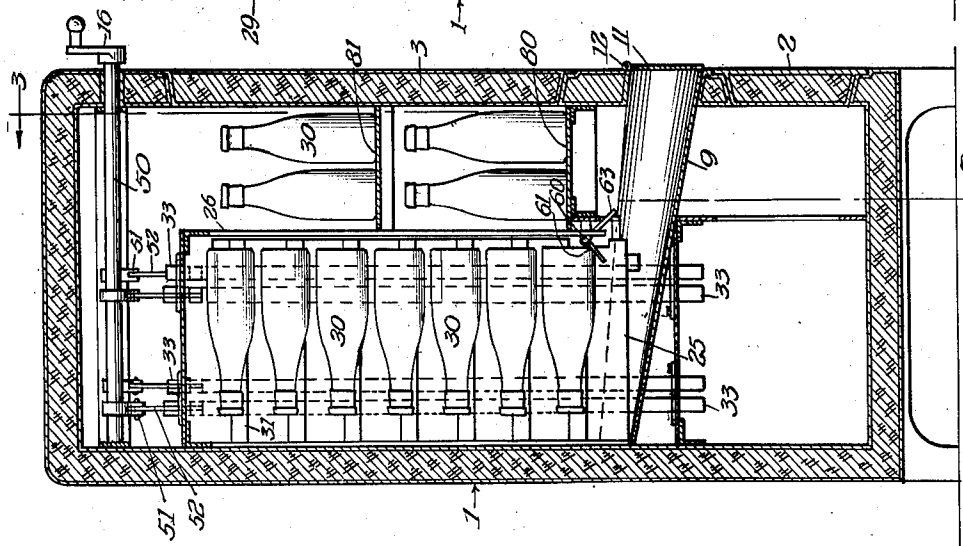


FIG. 2

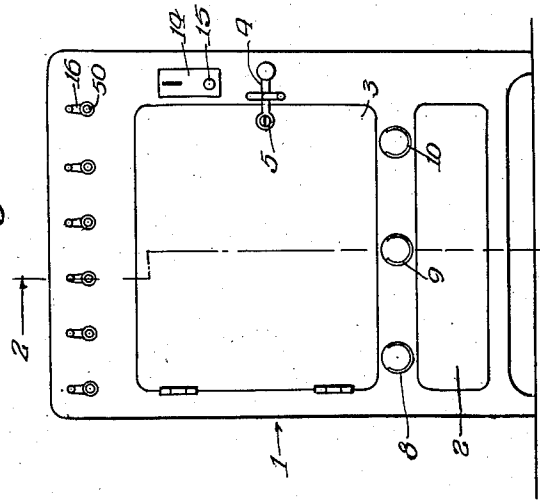


FIG. 1

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Fig. 4

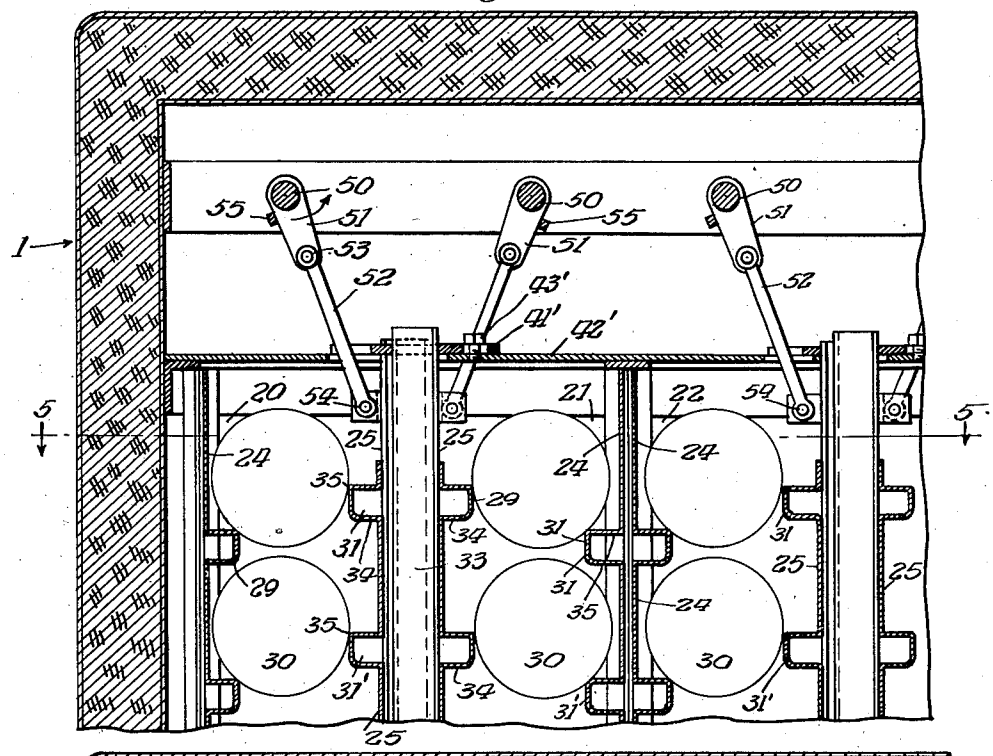
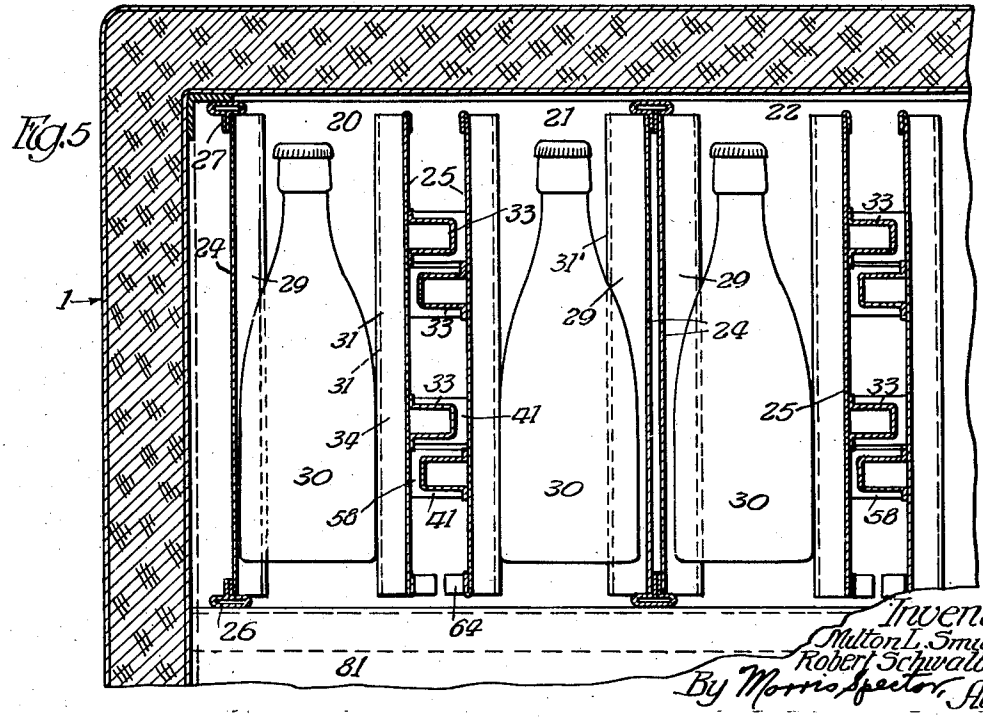


Fig. 5



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DISPENSING MACHINE

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Fig. 6

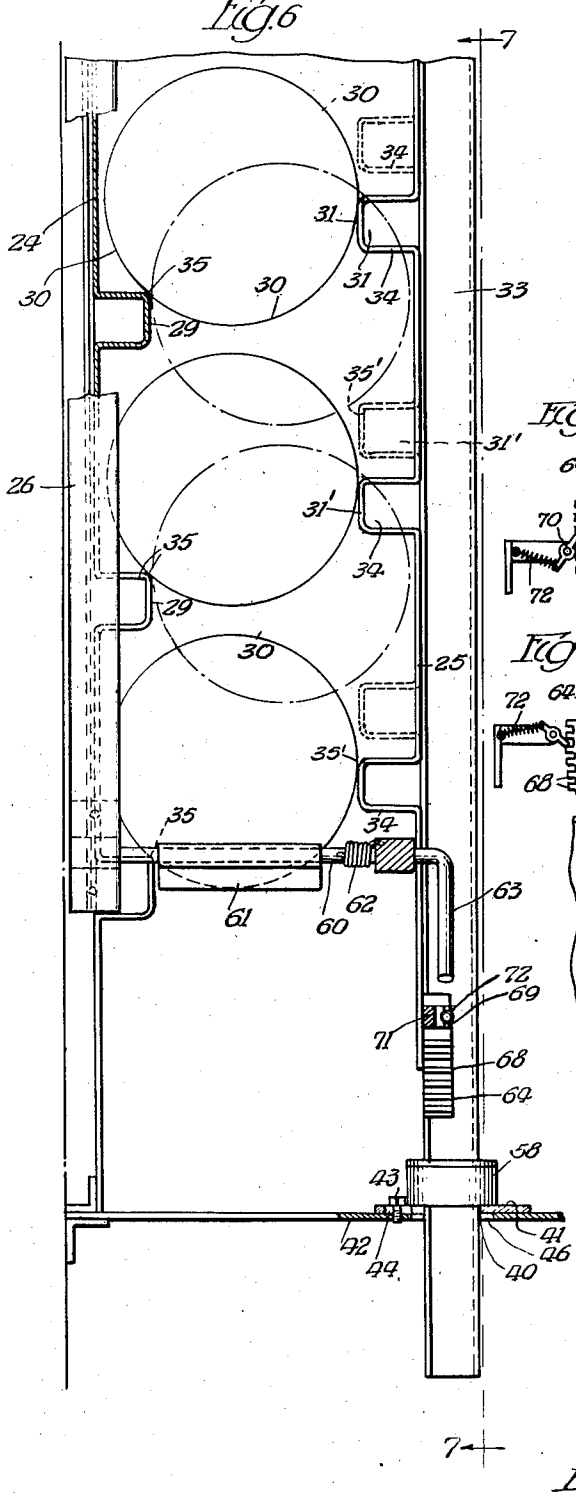


Fig. 8

Fig. 9

Fig. 7

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UNITED STATES PATENT OFFICE

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DISPENSING MACHINE

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13 Claims. (Cl. 312—48)

This invention relates to vending machines and more particularly to dispensing units for such machines, especially for coin controlled refrigerator type beverage vending machines.

It is one of the objects of the present invention to provide a dispensing unit for holding and dispensing packaged goods, such as for instance bottled beverages, although not limited to bottled goods, one at a time, and with a minimum amount of effort on the part of the operator and with a minimum amount of shaking or agitation of the package to be dispensed or of the packages remaining in the machine.

In the dispensing of packaged articles of the type with which the present invention is concerned there is usually provided an operating mechanism, controlled by a coin controlled mechanism, and so arranged that when the operating mechanism is actuated it moves certain parts to effect discharge of one, and only one, package. In a machine for dispensing large packages the discharge opening must necessarily be large and that permits a person to insert one's hand through the discharge opening in an attempt to operate the discharge mechanism manually for the surreptitious removal of a package or packages. It is one of the objects of the present invention to provide a simple and reliable self-locking structure to prevent such unauthorized removal of packages.

In a coin controlled machine the operation is dependent upon the depositing of a coin, and the coin is collected after the operating mechanism has operated a predetermined amount. In the event that the compartment from which a package is to be discharged is empty, then operation of the mechanism will, of course, not result in discharge of a package. It is therefore necessary to prevent collection of a coin if the selected compartment is empty. It is one of the objects of the present invention to provide a simple mechanism for preventing collection of the coin if the selected bottle dispensing compartment is empty. This is accomplished by providing a locking mechanism which normally tends to lock the operating mechanism against operation. The lock is released by the pressure of a package in the compartment from which the package is to be discharged. In the event that the compartment is empty the lock is not released and the operating mechanism is thus locked. The coin mechanism is of the usual type which does not collect the coin until after a predetermined operation of the operating mechanism so that if the operating mechanism is not operated the coin controlled mechanism can be actuated to release and return the coin.

It is a still further object of the present invention to provide a dispensing apparatus of the above character with a full stroke mechanism which will prevent reverse operation of the operating mechanism once the operating mechanism has been actuated, until the operating mechanism has reached the limit of its stroke, at which time and only at which time reverse operation is permitted. Once the reverse operation is initiated the direction of operation of the operating mechanism cannot again be changed until the operating mechanism has again reached the limit of its stroke.

It is a still further object of the present invention to provide an operating mechanism so arranged that a minimum amount of effort is required to actuate it in one direction, there being a minimum amount of lifting of the bottles or packages preparatory to discharge of the lowermost package and wherein upon discharge of the lowermost package the remaining packages tend gently to urge the mechanism to a reset position by the force of their weight.

It is a still further object of the present invention to provide an improved dispensing mechanism which can be readily and quickly adjusted for receiving bottles or other packages of different sizes.

It is a still further object of the present invention to provide an improved dispensing unit so constructed and arranged that it may be placed in a standard type of refrigerator and allow space for a simple shelf or rack for receiving additional bottles or packages for precooling.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawings forming a part thereof.

In the drawings:

Figure 1 is a front view of a bottle vending coin controlled refrigerator embodying the principles of the present invention;

Figure 2 is a longitudinal section taken along the line 2—2 of Figure 1;

Figure 3 is a fragmentary sectional view taken along the line 3—3 of Figure 2 and looking in the direction of the arrows, with portions of the section broken away for illustrative purposes;

Figure 4 is an enlarged fragmentary sectional view of the top portion of Figure 3;

Figure 5 is a sectional view taken along the

line 5—5 of Figure 4 and looking in the direction of the arrows;

Figure 6 is an enlarged sectional view taken along the line 6—6 of Figure 7 and looking in the direction of the arrows;

Figure 7 is a view taken along the line 7—7 of Figure 6 and looking in the direction of the arrows;

Figure 8 is a diagrammatic view illustrating the operation of the full stroke mechanism during the upward movement of the apparatus; and

Figure 9 is a diagrammatic view illustrating the operation of the full stroke mechanism during the downward movement of the apparatus.

Reference may now be had more particularly to the drawings wherein like reference numerals designate like parts throughout.

A refrigerator, indicated at 1, is of the electric or other well known type and may contain the usual electric motor driven compresser at the lower part thereof, accessible by means of a panel 2, and contains the usual cooling coils which may be located at the back of the box or at the top of the box as desired. The refrigerator is provided with the usual hinged door 3 for permitting access thereinto, and a latch 4 for holding the door closed. The latch is controlled by a key 5 to prevent unauthorized opening of the door. A number of delivery chutes 8, 9 and 10 open at the lower part of the refrigerator through which bottled goods are discharged. Each delivery chute is closed by a freely swinging pivoted trap door 11 pivoted at 12 and normally extending downwardly as by gravity or by a light spring to maintain the outlet of the delivery chute closed against the escape of cold air from the refrigerator. The front of the refrigerator also has a coin control mechanism 14 having a push button 15 for returning a coin before the coin has been collected, as may be necessary in the event that the selected merchandise compartment is empty. The refrigerator includes a number of crank handles 16 each of which is manually rotatable under control of the coin control mechanism 14 to rotate an operating shaft that effects the delivery of merchandise from the refrigerator, in a manner to be more fully set forth as this description proceeds. Below each of the handles 16 may be placed a label for indicating the type of merchandise in the compartment or section controlled by that particular handle. Thus bottles of various different types of beverages may be placed in the different compartments controlled by the different handles so that the customer may receive any desired beverage by selecting and operating the corresponding crank handle 16.

To receive merchandise the customer deposits a coin into the slot of the coin box 14 and thereafter turns any one of the selective handles 16. If the compartment containing merchandise controlled by the particular selected handle 16 is empty, then the handle is automatically locked against rotation in a manner to be pointed out as this description proceeds. The customer may then attempt to rotate a different handle or may press the button 15 and have his coin returned.

Within the refrigerator bottles, of beverages to be dispensed, are stacked in vertical rows, each bottle remaining horizontal and being supported independently of the bottles above it. The means for supporting the bottles may best be understood from reference to Figures 4 and 5 and the enlarged illustration of Figures 6 and 7.

The bottles are mounted in compartments holding sets in vertical rows, indicated at 20, 21, 22, etc. The bottles in the row 20 are supported between a stationary vertical wall 24 and a vertically movable vertical wall 25. The bottles of the rows 21 and 22 are similarly supported between a stationary vertical wall and a vertically movable vertical wall bearing the same reference numerals 24 and 25 respectively. The movable walls of adjacent rows 20 and 21 are adjacent one another and the stationary walls 24—24 of adjacent rows 21—22 are adjacent one another. Each stationary wall 24 comprises a metal plate reenforced along its front and rear edge by clips 26 and 27 that extend the full height of the stationary wall 24 and are welded thereto and thus hold the plate against buckling. Each one of the plates 24 has a number of parallel ledges 29 extending thereacross, which ledges are formed by folds in the metal plate 24. Each of the ledges 29 extends the full width of the wall 24, as may be seen from Figure 5. The corners of the ledge 29 are rounded. The distance between adjacent ledges 29 is slightly greater than the diameter of a bottle 30 to be held between the walls. Each movable wall 25 is of a construction substantially similar to that of the stationary wall 24 and has ledges 31 formed therein similar to the ledges 29 and similarly spaced apart. The plate 25 also has a pair of spaced vertical channels 33—33 extended along the back thereof and welded thereto for stiffening the plate 25 against bending or buckling, said channels performing the same functions that are performed by the clips 26—27 but imparting a greater stiffness to the movable wall 25 as may be necessary because the wall being movable is subjected to more stress and jar during operation thereof, as will be apparent as this description proceeds.

The bottles, indicated at 30, are positioned between adjacent ledges 29 and 31, these ledges being normally such a distance apart as to hold each bottle against falling downwardly between the adjacent ledges 29 and 31. However, the distance from the ledge 31 to the opposite wall 24 and the distance from the ledge 29 to the opposite wall 25 is in each instance greater than the diameter of the bottle.

It is to be noted that in the position illustrated in Figure 6 the vertical surface of each ledge 31 is approximately tangent to the circumference of the bottle 30. If now the movable plate 25 is raised, the initial movement of that plate will produce no appreciable effect upon any of the bottles 30. However, when the lowermost surface 34 (Fig. 6) of the ledge 31 reaches an elevation approximately that of the center of the bottle 30, then any further upward movement of the movable plate 25 will permit the bottle 30 to swing downwardly about the rounded corner 35 of the ledge 29 under control of the ledge 31 until ultimately as the upward movement of the plate 25 continues the vertical surface of the ledge 29 will be tangent to the bottle, at which time the bottle can commence to slide downwardly. At that time the next subjacent ledge 31' is in the position illustrated in dotted lines in Figure 6 so that its rounded corner 35' almost abuts against the bottle. That is the limit of the upward movement of the plate 25. If now the plate 25 is moved downwardly the bottle will move downwardly with the plate 25, said bottle sliding on the vertical surface of the ledge 29 until the center of the bottle is level with the lower surface of the ledge 29. Continued downward movement of the movable plate will then permit the bottle to roll towards the plate 24, under control of the

ledge 31' of the movable plate and the ledge 29 of the stationary plate. When the bottle clears the lowermost rounded corner of the ledge 29 it is free to roll downwardly towards the stationary plate 24 until it encounters the next subjacent ledge 29. It is thus apparent that the movement of each bottle is positively controlled by the movable plate throughout substantially the entire range of travel of the bottle, the only uncontrolled permissive rolling of the bottle being that allowed for clearance and slight variations in the diameters of bottles, which are supposed to be of the same diameter. Thus with each complete cycle of operation of the movable plate the lowermost bottle in the row of bottles controlled thereby is discharged, and all of the remaining bottles are lowered one step. It is also to be noted that during the movement of the movable plate the row of bottles is not being raised, hence no great force must be exerted to move the movable plate upwardly.

It is to be noted that when the movable plate is in its lowermost position the bottles exert substantially no vertically downward force upon the ledges 31 of the movable plate, all of the vertical force due to the weight of the bottles being exerted against the ledges 29 of the stationary plate, which thus supports the weight of the bottles. Therefore, only a small amount of force is required to raise the plate 25. When the movable plate has been raised to its uppermost position and the bottles move past the position illustrated in dot-dash lines in Figure 6 the downward force due to the weight of the bottles is shifted to the ledges 31 of the movable plate and thus tend to urge the movable plate downwardly. It is, however, to be noted that this downward force is less than that due to the combined weight of all of the bottles, since the force is exerted at an angle to the vertical. Once the downward movement of the movable plate 25 has been started it will continue downward, due to the weight of the bottles, even if the crank handle 16 is released before the lowermost limit of travel has been reached.

While the dimensions of the various parts may be varied within wide limits without departing from the spirit of the invention, it is essential that the distance between adjacent movable and stationary ledges be such as to permit the bottles to move from between the ledges when the members are in certain positions and prevent such movement when the members are in other positions. In one preferred construction, for recovering bottles of an etxernal diameter of 2¾ inches, the distance between the inner surfaces at the plates 24—25 was 3¼ inches. The ledges projected from their respective plates a distance very slightly less than ½ inch. Each ledge 29—31 was ⅝ inch high with the corners thereof rounded so that the effective height at the outermost edge of each ledge was approximately ½ inch. When the movable plate was in its lowermost position the distance between the top surface of a stationary ledge and the bottom surface of an adjacent movable ledge was $\frac{3}{16}$ inch, and the center to center distance between adjacent stationary ledges, and between adjacent movable ledges, was 2⅞ inches. This gave excellent operation with a 1⅜ inch stroke of the movable plate 25.

The vertical channels 33 on the back of the movable plate are guided in their vertical movement so as to keep the plate 25 vertical. To this effect each channel 33 fits snugly in and slides through an opening 40 in a plate 41 (Figs. 6 and 7) which is adjustably secured to the base 42 of the dispensing unit as by a screw 43 that extends through an oversized hole 44 in the plate 41. The channel 33 extends through an oversized hole 46 in the base 42. Because of the oversized hole 44 in the plate 41 this plate may be shifted small distances towards and away from the stationary plate 24 and then locked in its adjustable position by the screw 43. At the top of the dispensing unit each channel 33 is provided with a plate 41' (Fig. 4), similar to the plate 41, secured to the top 42' of the dispensing unit but adjustable thereon by small amounts, said plate 41' serving as a guide for the top of the channel 33. Each movable plate having two channels 33 is thus provided with two upper and two lower adjusting and guiding plates 41 and 41'.

The movable plate 25 is raised and lowered by turning the corresponding operating crank handle 16 which rotates a shaft 50 carrying a crank 51 and a connecting rod 52 pivoted together as at 53, the connecting rod being connected to the movable plate 25 as by a hinge pin 54 which passes through the connecting rod and through a short plate or tongue extending from the plate 25, as may be seen in Figure 4. When the plate 25 is in its lowermost position the crank 51 and the connecting rod 52 are in position of toggle so that no amount of upward force exerted against the movable plate 25 can effect the movement of the plate against the action of the toggle. The crank and connecting rod may even be in position beyond toggle so that an upward force exerted against the movable plate 25 will cause the connecting rod 52 to force the crank 51 in a direction against a stationary stop 55. The direction of operative movement of the crank 51 when turned by the shaft 50 is as indicated by the arrow in Figure 4. It is thus apparent that the shaft 50 can be turned to raise or lower the plate 25, but that when the plate 25 is in its lowermost position the crank 51 and connecting rod 52 serve to lock the plate against upward movement. This is of importance in that it prevents unauthorized manual upward movement of the plate 25 to cause discharge of bottles.

When the plate 25 is being lowered all of the bottles in the row controlled thereby are also being lowered. In order to prevent banging of the plate as it approaches its bottom limit of travel each of the two channels 33 carries a sponge rubber bumper or shock absorber 58 (Fig. 7). Each shock absorber includes a block of rubber having a metal plate secured to the top thereof. The channel 33 extends through the plate and the block of rubber, the plate being secured to the channel in any desired manner.

The coin controlled mechanism is so arranged that upon turning of any one of the cranks 16, following deposit of a coin into the coin box, the box collects the coin. Means is provided for preventing operation of a crank 16 when the compartment controlled thereby is empty, and to compel a full stroke operation of a crank once a crank has been turned. The mechanism whereby the movable plate 25 is automatically locked against movement when and if the compartment controlled thereby is empty will now be described. A shaft 60 (Figs. 6 and 7) is pivoted to bearing brackets at the bottom front of each compartment and carries a lever 61 keyed thereto. The lever is in the path of the lowermost bottle and is swung from its normal dotted line position of Figure 7 to the position illustrated in full lines by the lowermost bottle of the compartment. If there is no bottle at the bottom

of the compartment then a coil spring 62 swings the shaft 60 to bring the lever 61 to the position indicated in dotted lines in Figure 7, at the same time bringing a stop 63 on the shaft 60 from the position illustrated in full lines in Figure 7 to that illustrated in dotted lines in Figure 7. When the stop 63 is in its dotted line position it is immediately above a stop plate 64 which is riveted or otherwise rigidly secured to the movable plate 25. Any attempt to raise the plate 25 brings the stop plate 64 into abutment with the stop 63 which thereby prevents upward movement of the plate and thus prevents turning of the associated crank handle 16. The customer being unable to turn the selected crank handle 16 may then turn a different crank handle in an attempt to get a different beverage, or may press the coin return button 15 for a return of his coin.

If the selected compartment is not empty then upon turning of the selected crank handle 16 the corresponding movable plate 25 is raised. A ratchet 68 on the plate 64 then engages a pawl 69 which is pivoted at 70 on a stationary bracket 71 secured to the stationary frame of the dispensing apparatus. The pawl 69 is maintained in its normal position, illustrated in Figure 7, by a coil spring 72. When the ratchet 68 engages the pawl 69 it swings the pawl upwardly to the position illustrated in Figure 8. The pawl then engages the respective teeth of the ratchet 68 permitting upward movement of the ratchet but preventing downward movement thereof. Thus once the customer has commenced the upward movement of the selected plate he cannot reverse his direction of rotation of the crank handle 16 until he has raised the plate to its upwardmost limit. At that time the pawl clears the bottom of the ratchet 68 and is then again swung to its horizontal position by the spring 72. Thereafter the movable plate 25 may then be lowered. When that is done the bottom surface of the ratchet 68 engages the pawl 69 and forces it downwardly to the position illustrated in Figure 9. The pawl 69 then rides on the teeth of the ratchet so long as the ratchet is moving downwardly but prevents upward movement of the ratchet until the ratchet has reached its lowermost position.

When a bottle is discharged from a compartment it slides down one of the corresponding discharge chutes 8, 9 or 10 from which it is delivered at the front of the refrigerator box. The discharge chute 8 receives bottles from either one of two adjacent compartments or rows 20 and 21. There is thus provided one discharge chute for each pair of vertical rows of compartments.

Different types of beverages are bottled in bottles of different diameters. If a bottle of smaller diameter than that shown in Figure 6 is to be placed in the apparatus there shown it is advisable to reduce the distance between the movable plate 25 and its opposite stationary plate. This is accomplished by loosening the screws 43 and 43' and shifting the upper and lower plates that guide the respective channels 33, to bring those plates closer to the stationary plate 24. Only a small adjustment is necessary since the differences in size of bottles are small. It is, however, within the purview of the present invention to provide for a greater or lesser amount of adjustment as may be desired.

While we have herein shown the operating mechanisms for the respective movable plates as located above the refrigerator so that they pull the plates upwardly, it is within the purview of the present invention to locate the crank handles 16 at any desired level, for instance, even adjacent the discharge openings 8, 9 and 10, in which case the operating mechanism would push the plate 25 upwardly rather than pull it.

Precooling or storage bottle holding racks are mounted in the refrigerator between the dispensing unit and the door 3. These racks are indicated at 80 and 81 and extend across the front of the refrigerator for receiving bottles of beverages to be precooled preparatory to the placing of those bottles into the dispensing unit. The racks 80 and 81 are in abutment with the clips 26 of the stationary plates, which clips hold the racks out of abutment with the movable plates, thus preventing interference with the movement of the movable plates.

From the above description it is apparent that the dispensing unit here shown positively supports the bottles and assures the discharge of one, and only one, bottle with each complete cycle of operation of the movable plate. It is further apparent that the amount of rolling movement of the bottles in the row during the discharge operation of the lowermost bottle is very slight so that there is no appreciable agitation of the contents of the bottle. It is further apparent that during the upward stroke of the movable plate substantially no lifting of the bottles takes place and therefore the amount of force required to raise the movable plate is very small. While in the description above given we have spoken of the plate 24 being stationary and the plate 25 being movable, it is apparent that this arrangement may be reversed without altering the operation of the dispensing unit. It is unimportant as to which of the plates is stationary and which is movable. It is only important that there be relative vertical movement of the plates, said relative vertical movement being obtained by moving one of the plates the full amount necessary to allow a bottle to slide between the corners 35 of the projections 29 and 31 or by moving both of the plates in opposite directions to effect the same clearance.

In order to simplify the construction illustrated here we have not shown the mechanical connection between the coin controlled mechanism 14 and the operating shafts 15 whereby operation of the cranks 16 is prevented, or rendered ineffective except at such times as a coin has been deposited in the coin collecting mechanism 14, because this is well known in the art and forms no part of the present invention. Any standard type of connection between the coin controlled mechanism 14 and the operating cranks 16 or their shafts 15 may be used and any standard type of interlock may be used between the shafts 15 or the handles 1 so that upon effective operation of one of the cranks in response to the deposit of a coin, the other cranks cannot be effectively operated. Such mechanisms are well known in the art. At the delivery ends of the chutes 8, 9 and 10 the usual type of bottle receiving or catching structure may be provided to receive a discharged bottle. This is well known in the art and forms no part of the present invention.

In compliance with the requirements of the patent statutes we have here shown and described a preferred embodiment of our invention. It is, however, to be understood that the invention is not limited to the precise construction here shown, the same being merely illustrative of the principles of the invention. What is considered

new and desired to be secured by Letters Patent is:

1. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a fixed projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections.

2. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a fixed projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, the distance between each of said members and the projection on the opposite member exceeding the diameter of a bottle by an amount less than the width of a projection, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections.

3. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections, means for locking the members against movement relative to one another, and means controlled by a bottle in the dispensing apparatus for disabling the locking means.

4. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections, and actuating mechanism for actuating one of the members, said actuating mechanism including a self locking operating gear transmitting power to move one of the members but self locking against transmission of motion from said one member to the mechanism.

5. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections, means for locking one of the members against movement relative to the other member, means controlled by a bottle in the dispensing apparatus for disabling the locking means, and a full stroke mechanism actuated responsive to movement of one of the members for preventing reverse movement prior to completion of the stroke of movement.

6. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections, and a full stroke mechanism actuated responsive to movement of one of the members for preventing reverse movement prior to completion of the stroke of movement.

7. A bottle dispensing apparatus comprising two spaced vertically extending members opposite one another for holding a row of bottles between them, each of said members having a projection extending towards the other member with the two projections constituting a stop for holding the lowermost bottle of the row, said members being mounted so that one is vertically movable relatively to the other to increase the distance between the two projections for permitting the lowermost bottle in the row to move by gravity past the projections, a full stroke mechanism actuated responsive to movement of one of the members for preventing reverse movement thereof prior to completion of the stroke of movement, means for locking said one of the members against movement with respect to the other member, means controlled by a bottle in the dispensing apparatus for disabling the locking means, and actuating mechanism for actuating one of the members, said actuating mechanism including a self locking operating gear transmitting power to move one of the members but self locking against transmission of motion from said one member to the mechanism.

8. A package dispensing apparatus comprising two spaced vertically extending members, each of said members having a series of uniformly spaced package receiving projections rigid with respect thereto and extending therefrom towards the other member, the projections on one of the members being staggered with respect to those on the other member, any packages on the respective projections on one of the members tending to move off therefrom by gravity and being held against movement by the opposite projections on the other member, said members being mounted so that one is vertically movable relatively to the other to increase the distance between opposite projections to permit each package to move off of its projection onto the subjacent opposite projection.

9. A package dispensing apparatus comprising two spaced vertically extending members, each of said members having a series of uniformly spaced package receiving projections extending therefrom towards the other member, the projections on one of the members being staggered with respect to those on the other member, any packages on the respective projections on one of the members tending to move off therefrom by gravity and being held against movement by the opposite projections on the other member, said members being mounted so that one is vertically movable

relatively to the other to increase the distance between opposite projections to permit each package to move off of its projection onto the subjacent opposite projection, means for locking one of the members against operation with respect to the other member, and means controlled by a package in the dispensing apparatus for unlocking the locking means.

10. A package dispensing apparatus comprising two spaced vertically extending members opposite one another and having projections on the inner surfaces thereof for holding a row of bottles between them, the members being mounted so that one is vertically movable relatively to the other, actuating mechanism for moving one member with respect to the other, said actuating mechanism including a crank and a connecting rod in dead center position when the members are in their normal non-actuated relative positions whereby said crank and connecting rod lock the members against being operated to operate the mechanism.

11. A package dispensing apparatus comprising two spaced vertically extending members relatively movable vertically with respect to one another, each of said members having a series of uniformly spaced projections fixed thereon and extending therefrom towards the other member, the projections on one of the members being staggered with respect to those on the other member.

12. A package dispensing apparatus comprising two spaced vertically extending members relatively movable vertically with respect to one another, each of said members having a series of uniformly spaced projections fixed thereon and extending therefrom towards the other member, the projections on one of the members being staggered with respect to those on the other member, and means for adjusting the horizontal distance between one of the members and the projections on the other member to adapt the apparatus for different sizes of packages.

13. A package dispensing apparatus comprising two spaced vertically extending members relatively movable vertically with respect to one another, each of said members having a series of uniformly spaced projections fixed thereon and extending therefrom towards the other member, the projections on one of the members being staggered with respect to those on the other member, means for guiding one of the members as it moves vertically, and means for adjusting the position of the guiding means to vary the horizontal distance between the members to adapt the apparatus for different sizes of packages.

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