Jan. 5, 1943. H. S. CHILDERS 2,307,450

VENDING MACHINE

Filed Jan. 14, 1941 4 Sheets-Sheet 1

FIG. 1.

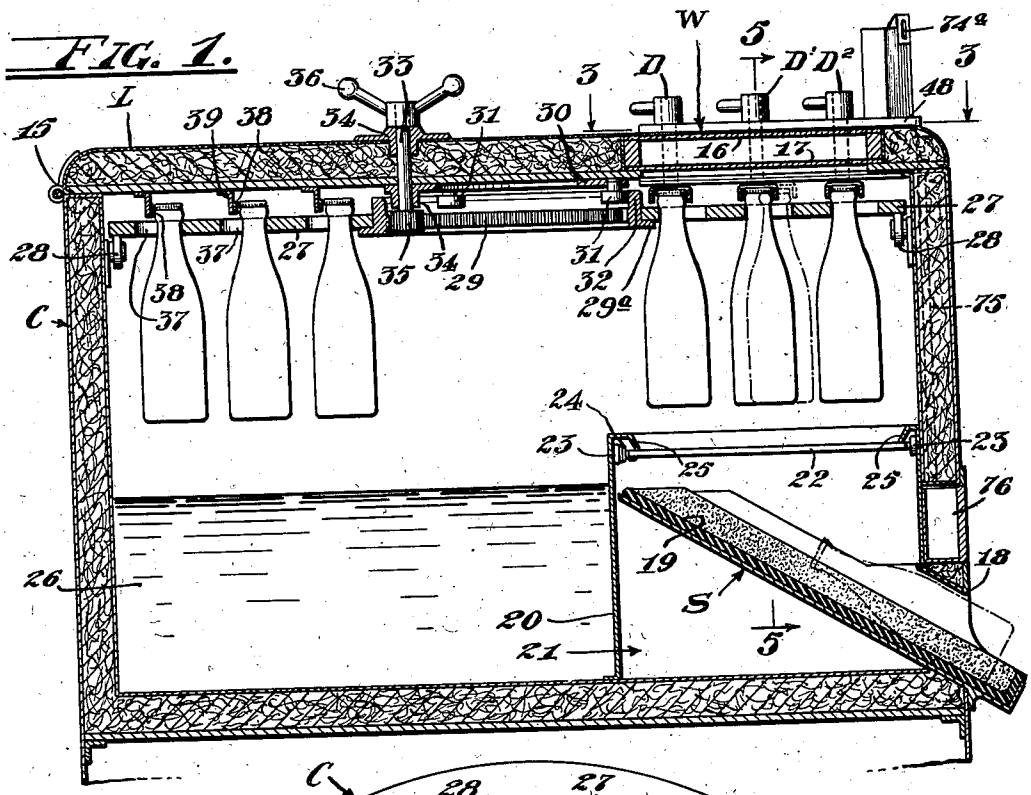
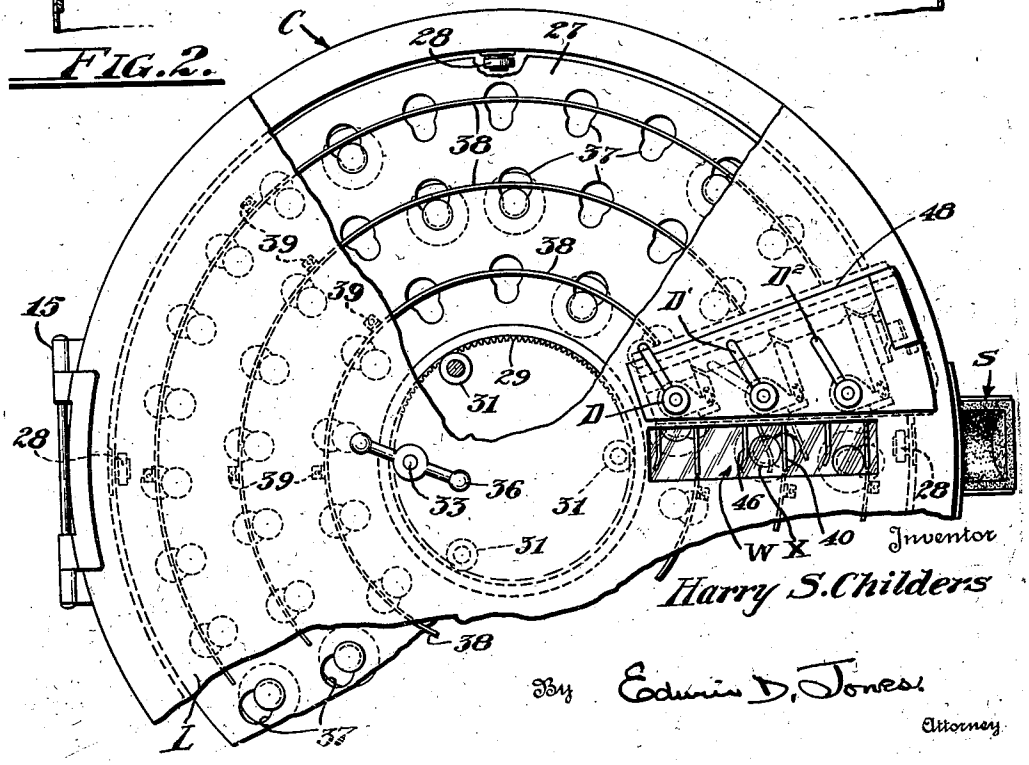


FIG. 2.



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VENDING MACHINE

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FIG. 3.

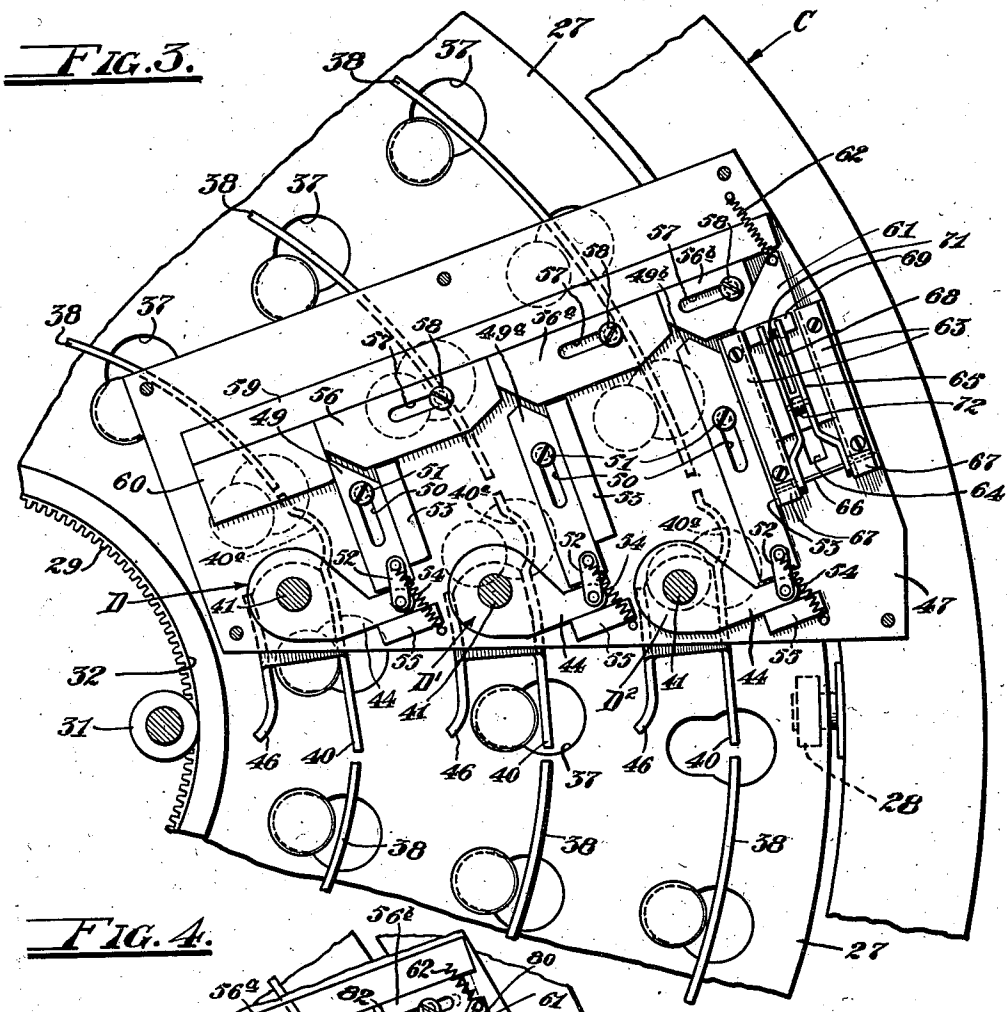
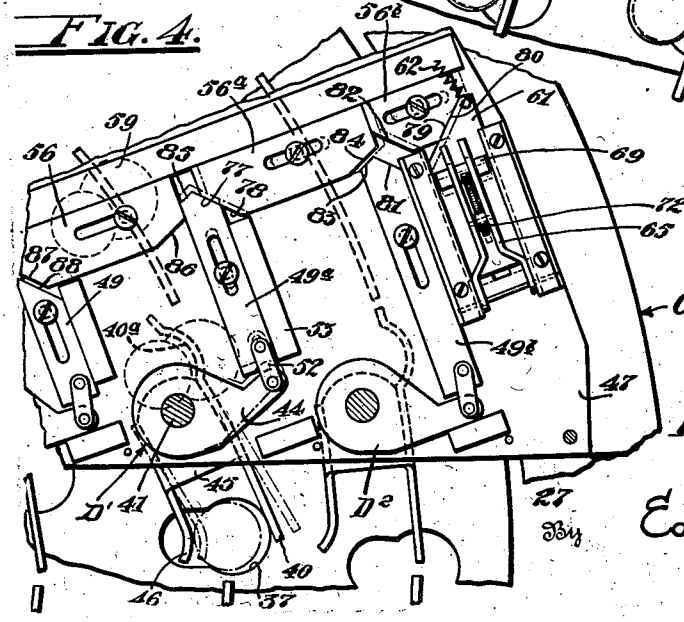


FIG. 4.



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VENDING MACHINE

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FIG. 5.

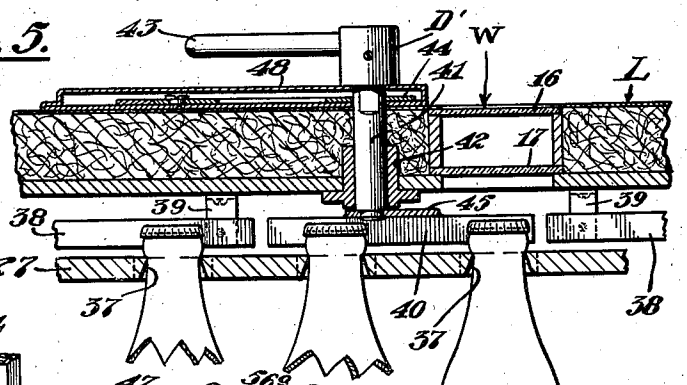
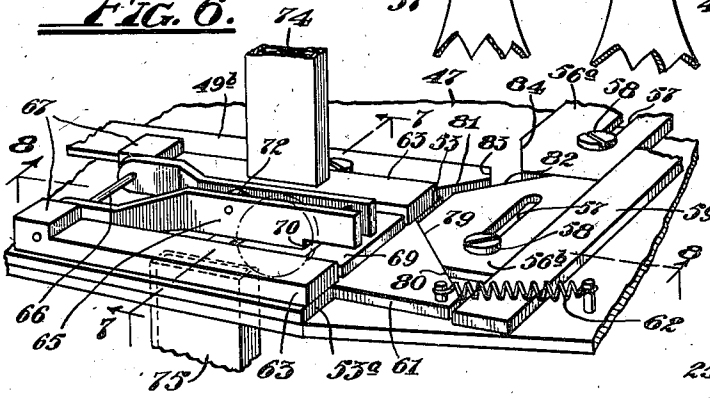


FIG. 6.



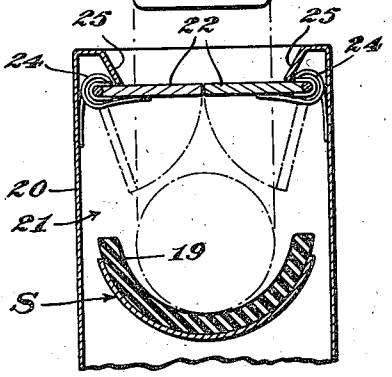


FIG. 7.

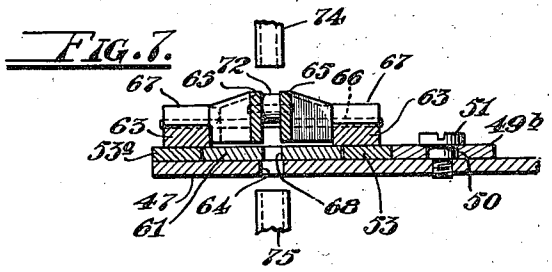


FIG. 8.

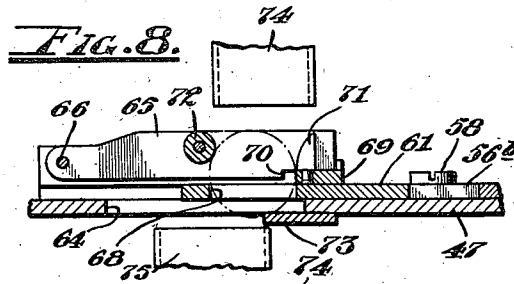


FIG. 9.

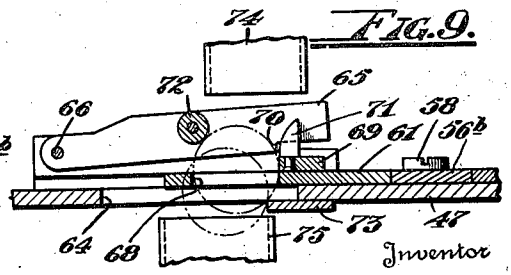
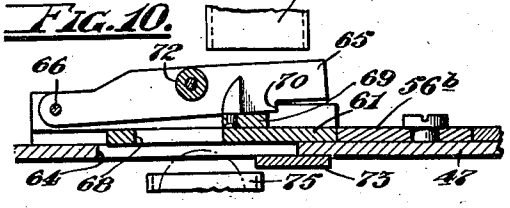


FIG. 10.



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Jan. 5, 1943. H. S. CHILDERS 2,307,450

VENDING MACHINE

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FIG. 11.

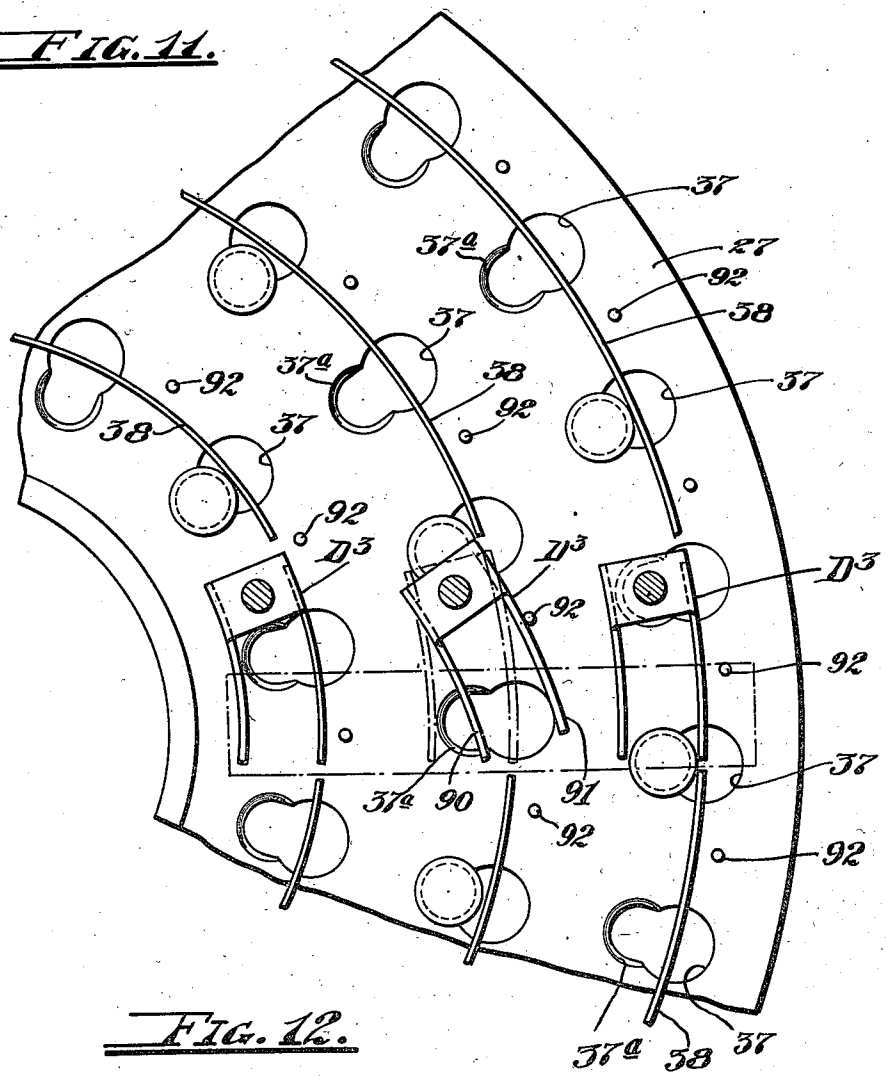
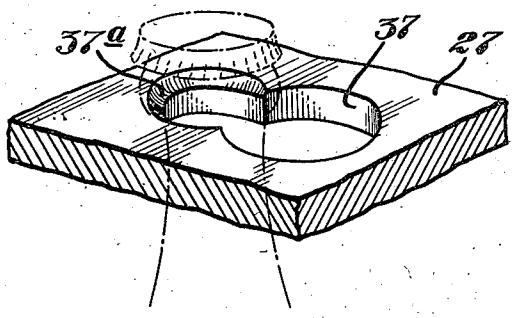


FIG. 12.



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Patented Jan. 5, 1943

2,307,450

UNITED STATES PATENT OFFICE

2,307,450

VENDING MACHINE

Harry S. Childers, Fresno, Calif.

Application January 14, 1941, Serial No. 374,345

17 Claims. (Cl. 312—36)

My invention relates to coin-controlled machines for vending articles, and it has particular reference, although not necessarily, to machines for vending bottled goods, such as soft drinks.

It is a purpose of my invention to provide a bottle-vending machine which, while possessing the desirable characteristics of present-day machines, is greatly reduced in number of parts to simplify its construction and cost of manufacture, even to the extent of eliminating the motor and correlated mechanism for actuating the bottle-carrier and bottle-discharging means, by designing the machine so that it is operated entirely by the vendee.

It is also a purpose of my invention to provide a bottle-vending machine in which the bottle storing and vending capacity thereof is greatly increased over present machines, while at the same time actually reducing the over-all size of the machine.

A further purpose of my invention is the provision of a bottle-vending machine which possesses that highly desirable characteristic of selectivity as to type of bottled drink vended, that is to say, the machine is capable of carrying bottled drinks of different brands of beverages, and it can be so operated as to permit the vendee to pre-select any desired bottle and discharge the same from the machine upon deposit of a suitable coin.

Still another purpose of my invention is the provision of a bottle-vending machine by which the large bottle-carrying capacity and easy bottle selectivity are achieved by a rotary carrier from which the bottles are suspended in concentric annular series, and where bottle-discharging devices are provided one for each annular series of bottles, to singly discharge bottles from any pre-selected series.

Another purpose of my invention is the provision of a bottle-vending machine having a coin-controlled locking mechanism for the bottle-discharging devices so correlated thereto that during operation of any one of the devices to effect discharge of a bottle, the other devices are locked against operation to the end of preventing the discharge of more than one bottle when depositing only a single coin.

I will describe only one form of bottle vending machine embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in vertical section one form of bottle vending machine embodying my invention.

Fig. 2 is a fragmentary plan view of the machine with a portion of the lid broken away.

Fig. 3 is an enlarged and schematic sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 3, showing other positions of certain of the parts from those positions shown in Fig. 3.

Fig. 5 is an enlarged vertical sectional view taken on the line 5—5 of Fig. 1 and looking in the direction of the arrows.

Fig. 6 is a fragmentary perspective view of a portion of the coin-controlled locking mechanism of the machine.

Fig. 7 is a vertical sectional view taken on the line 7—7 of Fig. 6.

Fig. 8 is a vertical sectional view taken on the line 8—8 of Fig. 6.

Fig. 9 is a view similar to Fig. 8 showing the released position of the coin lock.

Fig. 10 is a view similar to Fig. 9 showing the position of the lock after the coin has been discharged therefrom.

Fig. 11 is an enlarged and schematic fragmentary plan view similar to Fig. 3, and showing a modified form of bottle carrier and another means for preventing discharge of more than one bottle from the machine with deposit of a single coin.

Fig. 12 is an enlarged fragmentary perspective view of the bottle carrier shown in Fig. 11 and illustrating how a bottle is supported in one of the slots.

Similar reference characters refer to similar parts in each of the several views.

The vending machine in its present embodiment comprises a circular casing C having a lid L hinged as at 15 to permit the lid to be moved to open or closed position. Both the casing and the lid are suitably insulated, and the lid is provided with a window W through which the vendee may sight the bottles in the casing in the selection of a particular bottle, as will be more fully described hereinafter. This window W is made up of two panes of glass 16 and 17 secured in spaced parallelism to provide therebetween a dead air chamber for the purpose of insulation.

As best shown in Fig. 1, the casing contains a delivery chute S which is of arcuate form in cross section (Fig. 5) and inclined downwardly from its inner end to its outer end where it projects from the casing through a suitable opening 18. The chute is lined with a sheet 19 of soft rubber in order to cushion bottles falling into the chute, and the lower ends of both the chute and the lining are upturned, as shown, to confine the bottle against discharge from the chute.

Partitions 20 are secured within the casing C to form a compartment 21 into which the chute S extends. The top of the compartment is normally closed by a pair of doors 22 hinged as at 23 (Fig. 5) with springs 24 acting to urge the doors to closed position against downwardly extending stops 25 formed on the partitions 20. The spacing of the stops 25 is such that a bottle from above may pass downwardly into the compartment 21, and in so doing move the doors 22 to open position so that the bottle may fall onto the chute S.

A bottle carrier 27 is mounted for rotational movement in the casing C just beneath the lid L, and in the present instance this carrier is in the form of a large disk supported for rotation of movement by a plurality of rollers 28. The center of the disk 27 is formed with an opening in which is secured an internal ring gear 29, such gear being formed with a flange 29a extending to the under side of the disk 27 and to which the latter is secured.

To the under side of the lid L is secured a ring plate 30 carrying a plurality of centering rollers 31 each of which bears against the inner side of a collar 32 formed integral with the gear 29. By this arrangement of rollers 28 and 31 the bottle carrier 27 is supported for free rotational movement and at all times centered within the casing when the lid is in closed position.

The carrier 27 is adapted to be rotated manually through the medium of a shaft 33 journalled in bearings 34 in the lid L and provided at its lower end with a pinion 35 meshing with the gear 29. The upper end of the shaft 33 is provided with a handle 36 which is adapted to be gripped in actuating the shaft to effect rotation of the bottle carrier.

The bottle carrier 27 is formed with a multiplicity of slots 37 arranged in annular concentric series, there being, in the present instance, three of such annular series. Each slot 37 is of keyhole form, that is to say, one end is wide and the other end is narrow. The wide end is of such width as to permit the ready insertion of the neck of a bottle therethrough so that the upper end of the bottle is disposed to the upper side of the carrier.

The narrow end of the slot 37 is such as to allow a bottle neck to be extended thereinto with the beaded portion of the neck at the upper side of the carrier. By reference to Fig. 5 it will be seen that the narrow end of the slot has chamfered walls so that the upper edges thereof are relatively sharp to engage the under side of the beaded portion of the neck. In this manner the bottle is suspended from the carrier when within the narrow end of the slot, and yet it can be readily moved to the wide end of the slot wherein the bottle bead is disengaged to allow the bottle to gravitate from the carrier.

For the purpose of preventing the bottles suspended within the carrier from moving to the large end of the slots and thus dropping from the carrier, except when the machine is operated through the deposit of a coin to vend a bottle, each annular series of slots has associated therewith a restraining rail 38. Each rail is of annular form and secured to the under side of the lid L by brackets 39 (Figs. 1 and 5). Each rail 38 is positioned in respect to the slots 37 of the respective series, so as to span the large end of the slots and in a manner to restrain or confine the cap ends of the bottles from passing out of the narrow ends of the slots.

As best shown in Figs. 3 and 4, the rails 38 are not of full circular form, there being a gap between the ends of the rails. The gap of each rail is normally spanned by a movable rail portion 40, and such portion constitutes one arm of a bottle-discharging device or discharger. To facilitate description of the operation of the several discharging devices, I have designated them by the letters D, D′ and D^2 one for each of the three series of slots 37.

The devices D, D′ and D^2 are designed for manual operation to effect movement of any bottle of the respective series from the narrow ends of the slots to the wide ends and thus cause the discharge or dropping of the bottles from the carrier into the chute S. Each device comprises a shaft 41 (Fig. 5) journaled in the bearing 42 and extending upwardly to the top side of the lid L where it is provided with an operating handle 43. Fixed to the lower end of the shaft is a crank 44 and to the lower side of the crank is secured a plate 45 to the edges of which are secured the arm 40 and a second arm 46.

In the normal position of each device D, D′ and D^2, (Fig. 3) the arm 40 is circumferentially alined with the ends of the respective rail 38 so as to prevent a bottle between the arms from being moved to the wide end of the respective slot and thus dropping from the carrier into the chute, without rotating the shaft 41. However, the spacing of the arms 40 and 46 is such that in the normal position of the device the capped ends of the bottles are free to pass between the arms, thus allowing free rotation of the bottle carrier 27 in either direction for the selection by the vendee of a particular bottle in any one of the three series.

Each bottle discharging device is yieldably urged to a normal position by a spring, but by rotation of the shaft 41 in a clockwise direction as when viewed in Fig. 4, the arm 46 is moved as indicated by the dot and dash lines, to push the bottle to the wide end of the slot and thus cause it to be discharged from the carrier into the chute S. In this bottle discharging position of the device the arm 46 extends across the narrow end of the slot 37 to be disposed in the path of movement of that bottle next in a counter-clockwise direction around the carrier. Thus, should one attempt to rotate the carrier in a counter-clockwise direction, the bottle will engage the arm and thus prevent the carrier from being rotated at least to the extent of bringing the bottle between the arms for a possible discharge of the bottle from the carrier.

Also, in the bottle discharging position of any one of the devices, where a bottle is within the next preceding slot 37 in a clockwise direction around the carrier, the arm 40 will be caused to grip the bottle cap and thus lock the carrier against rotation in either direction. Should the foregoing slot be devoid of a bottle the carrier can be rotated clockwise until the cap of the next bottle strikes the end of the free arm 40, when further rotation of the carrier is prevented to bring the bottle between the two arms of the device. As illustrated, the arm 40 is formed with a portion 40a curved to fit the bottle cap in a manner to coact with the narrow end of the slot in locking the carrier against rotation.

By virtue of the foregoing described functions of the arms 40 and 46 in stopping rotation of the bottle carrier, the possibility is prevented of a vendee rotating the carrier to effect a surrepti-

tious discharge of a second bottle where only a single coin has been deposited into the machine.

To prevent operation of the other two bottle-discharging devices while the third is being operated to discharge a bottle, and to thereby eliminate the possibility of more than one bottle being vended with deposit of only a single coin, the following coin-controlled lock mechanism is provided.

As shown in Figs. 1, 2 and 5, the lid L has secured to its top side a bed plate 47, and secured to this plate is a cover plate 48, the two forming a compartment in which the coin-controlled locking mechanism is housed. In the schematic view shown in Fig. 3, the mechanism is illustrated as comprising three primary cam bars 49, 49*a* and 49*b*, for the respective devices D, D' and D². These bars are all slidably attached to the bed plate 47 by slots 50 and screws 51, and they are operatively connected to the respective cranks 44 by links 52 in such manner that under forward movement of the cranks the bars are advanced with a slight pressure to the right to maintain the bars in contact with guide strips 53, 53, 53.

Through springs 54 connected to the links 52 as shown, the cranks 44 and the bars 49, 49*a* and 49*b* are urged to the retracted positions shown in Fig. 3, and which positions are defined by stops 55 secured to the bed plate 47.

Secondary cam bars 56, 56*a* and 56*b* are also provided in the locking mechanism, and these bars are, as shown in Fig. 3, disposed at right angles to the primary cam bars 49, etc., and in such positions as to be operated thereby. All of the primary and secondary bars are formed with cam faces which will be described hereinafter. The secondary bars are also slidably attached to the bed plate 47 for longitudinal movement by the provision of slots 57 in the bars and screws 58 secured in the bed plate and extending through the slots. A guide strip 59 is secured to the bed plate 47 for preventing any turning movement of the secondary cam bars. Also, an abutment strip 60 is secured to the bed plate 47 for limiting movement of the bar 56 to the left, and whereby the retracted position of all of the bars is defined.

The bar 56*b* is adapted to advance a cam plate 61 normally urged to the retracted position shown in Fig. 3 by a spring 62 mounted as illustrated. The cam plate 61 is slidable in guide strips superimposed so as to form grooves for slidably receiving the plate. That lower guide strip against which the cam bar 49*b* slides has already been designated at 53. The remaining guide strips are designated 53*a* and 63, 63 (Fig. 6). All of these guide strips are secured to the bed plate 47 at opposite sides of a slot 64 in the bed plate, as best shown in Fig. 7.

A latch consisting of two bars 65 is pivoted on a pin 66 (Fig. 6) secured in ear 67 on the strips 63. These latch bars are spaced from each other a distance corresponding to that of the slot 64 and so that the slot formed by the bars registers with the slot 64. As will be noted in Fig. 7, the cam plate 61 is also formed with a slot 68 which likewise registers with the slot 64. As shown in Fig. 8, a plate lug 69 is secured to the cam plate 61 at one end of the slot 68 for engagement with shoulders 70 on the latch bar 65 when attempting to advance the cam plate to the left and thereby preventing such movement of the plate.

A shoe 71 extends upwardly from the lug 69 to coact with a roller 72 for guiding a coin (shown in dot and dash lines in Fig. 8) from above into the slot 68 and onto a rest strip 73. As shown in Fig. 1, the lid L carries the upper section 74 of a coin chute having a coin entrance slot 74*a*. The lower end of this upper chute section terminates directly above the slot of the latch 65, as best shown in Fig. 8. In the casing C is the lower section 75 of the coin chute with its lower end leading a coin box 76 and its upper end disposed below the slot 64 and offset with respect to the lower end of the upper chute section 74.

The carrier 27 may be filled with bottled beverages by lifting the lid L to open position and passing the bottles downwardly through the ring gear 29 and then upwardly so that the bottle necks are extended into the narrow ends of the slots 37 in the manner previously described. The interior of the casing constitutes a chamber 26 which may be partly filled with ice and water and in which a reserve supply of bottles may be stored.

None of the elements carried by the lid L interfere with movement of the lid to open position, and when the lid is returned to closed position following filling of the carrier with bottles, the pinion 35 is returned into mesh with the ring gear 29 and all other elements likewise properly positioned to insure the operation of the machine as will now be described.

By rotating the handle 36 the vendee can cause the bottle carrier 27 to be rotated beneath the window W until a bottle containing the desired beverage is brought into view through the window and to a position as indicated at X in Fig. 2.

Thereupon, the vendee deposits a suitable coin into the slot 74*a* to release the locking mechanism in the following manner. Reference is now directed to Figs. 6 to 10, inclusive. The coin in descending the upper section 74 of the chute falls into the slot 68 resting on the member 73 and in contact with the roller 72 (Fig. 8). In this position of the coin it provides an operative connection between the lug 69 and the roller 72. Thus, when the cam plate 61 is advanced to the position shown in Fig. 9 the latch 65 will be elevated to move the shoulders 70 out of the path of the lug 69 allowing the cam plate to move to a completely advanced position, as shown in Fig. 10. In moving the plate 61 to this advanced position, the coin is advanced until the slots 68 and 64 are brought into registration, when the coin falls through the slots and into the lower chute section 65, whence it finally reaches the coin box 76.

Any one of the three discharging devices D, D' and D² is individually operable to move the cam plate 61 to the aforedescribed completely advanced position, but only at any one time with the deposit of a single coin. As an example, with a bottle positioned at X in Fig. 2, the device D' is now operable to effect the discharge of that bottle into the chute S in the following manner.

By movement of the handle 43 to the left as when viewed in Fig. 2, the crank 44 is actuated to advance the cam bar 49*a* to the position shown in Fig. 4. A cam face 77 on the bar 49*a* now contacts with the cam face 78 on the bar 56*a* causing the bar to be moved to the right. The motion of this bar 56*a* is operable to move the bar 56*b* likewise to the right, thereby causing the cam face 79 to engage a cam face 80 on the plate 61, and thereby moving the latter to the aforedescribed advanced position and causing the coin to fall into the coin box.

As previously described, upon turning of the shaft 41 to operate the crank 44 the arm 46 is actuated to move the bottle from the narrow end of the slot 37 to the wide end thereof causing the bottle to be discharged from the carrier 27 into the chute S, where it is positioned within reach of the vendee. By reference to Figs. 3 and 4 it will be noted that the free end of each arm 46 is curved in order to have a wiping contact with the bottle cap when moving the bottle to a discharging position.

It is to be noted that in the advanced position of the bar 49*a* it is extended between the bars 56 and 56*a* to lock the device D against any possible operation. Also, in the advanced position of the bar 49*a*, the bar 56*a* is in a position to prevent operation of the device D^2. Should the vendee attempt to operate the device D^2 while the device D' is being returned to normal position in an attempt to discharge a second bottle without depositing a second coin, such operation of the device D^2 cannot be effected. This is because the bar 56*a*, although moving to the left as the device D' is returned to normal position, still remains within the path of movement of the bar 49*b*, and because of cam faces 83 and 84 on the bars 49*b* and 56*a*, forward movement of the bar 49*b* will operate to aid in moving the bar 56*a* to the left to allow the bar 56*b*, and in consequence, the cam plate 61, to return to latched position under the action of the spring 62. All this occurs before the bar 49*b* can reach a position in which it will move the bar 56*b* to the right to effect a possible second operation of the cam plate 61.

To effect the discharge of a bottle through operation of the device D, it is, of course, first necessary to rotate the carrier 27 to cause a bottle of the inner annular series to move between the arms 40 and 46 of the device D to the same position as that occupied by the bottle X in Fig. 2. Once this has been accomplished, the device D may be actuated to cause the bar 49 to advance and move the bar 56 to the right through coaction of cam faces 87 and 88, it being understood that this movement of the bar 56 is transmitted through the bars 56*a* and 56*b* to the cam plate 61. Similarly, the device D^2 can be actuated to effect the discharge of a bottle in any one of the outer annular series of slots 37 by first actuating the carrier to bring a bottle of this series into the same position between the arms 40 and 46 as occupied by the bottle X in Fig. 2. Once this has been accomplished, the device D is now actuated to advance the bar 49*b*, causing the cam face 81 thereof to engage a cam face 82 of the bar 56*b* to force the latter to the right and thereby actuate the cam plate 61.

Referring now to Figs. 11 and 12, I have here shown another form of bottle carrier embodying my invention in which the slots 36 have narrow ends formed with a chamfered or countersunk edge 37*a*. The purpose of this edge is to cause the bottle neck to be suspended from the carrier at a level which will necessitate the bottle being raised a short distance before it can be moved to the wide end of the slot for discharge from the carrier. In this manner is prevented the accidental pushing of a bottle from the narrow end to the wide end of a slot during initial filling of the carrier with bottles, or the subsequent refilling thereof.

Referring again to Fig. 11, I have shown another form of bottle discharging device designated at D^3, there being one device for each annular series of slots 37. Except for the shape of the arms 90 and 91, each device D^3 is of the same construction as the devices D, D' and D^2, and its manner of operation to discharge a bottle from the carrier is likewise the same. The arms 90 and 91 are curved from end to end on the same arc as the respective restraining rail 38. Thus, in the normal position of the device a bottle is free to pass between the arms from either end thereof, while the arm 91 is circumferentially alined with the ends of the respective rail 38 so as to prevent a bottle between the arms from being discharged except by movement of the device to a bottle discharging position upon release of such device by the deposit of a coin.

The bottle carrier 27 is shown in Fig. 11 as provided with three series of upstanding pins 92, one series for each series of slots 37 and with adjacent pins of a series disposed to opposite sides of a slot. These pins 92 are provided for the purpose of preventing the vendee from discharging from the machine more than one bottle when depositing a single coin. Were it not for the pins 92, the vendee after depositing a coin, operating one of the discharging devices to discharge a bottle and then holding such device in bottle discharging position, while turning the carrier 27 in a clockwise direction to move the next bottle between the arms 90 and 91, the arm 90 would operate to discharge that bottle from the carrier. With the pins 92 positioned on the carrier as they are, rotation of the carrier in a clockwise direction while attempting to hold the discharging device in bottle discharging position, advances the respective pin 92 to engage and move the arm 91 back to such a position across the wide end of the slot that the bottle cannot be discharged from the carrier.

Should the vendee attempt to rotate the carrier 27 in a counter-clockwise direction while holding the device D^3 in bottle discharging position, a bottle will strike the free end of the arm 90 instead of passing between the arms 90 and 91, and thus the bottle cannot be discharged.

It will be noted that in Fig. 11 the slots of the three series are staggered in respect to each other, and thus only one bottle of any one series of bottles carried in the slots 37 can be brought into bottle discharging position with relation to the respective device D^3, at any one time.

I claim:

1. In combination; a bottle carrier rotatable about a vertical axis and having an annular series of slots therein each of keyhole form so that a bottle can be suspended by its neck for the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; and means for restraining movement of bottles from the narrow to the wide ends of the slots, said means having a portion movable to permit and effect movement successively of each bottle from the narrow end to the wide end of the respective slot after rotating the carrier to bring each bottle into operative relation with said portion.

2. In combination; a casing having a lid; a bottle carrier rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; and means on said lid for each series of slots to restrain movement of

bottles from the narrow ends to the wide ends of the slots, each of said means having a part movable to permit and effect movement of each bottle of the respective series from the narrow end to the wide end of the respective slot after rotating the carrier to bring each bottle into operative relation with said part.

3. In a bottle vending machine; a casing: a bottle carrier therein having means by which bottles when in one position thereon are individually suspended therefrom and when in another position are free to drop therefrom; and coin-controlled means for moving the bottles individually from the first mentioned position to the second mentioned position.

4. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; means for each series of slots to restrain movement of bottles from the narrow ends to the wide ends of the slots, each of said means having a part movable to permit and effect movement of each botttle of the respective series from the narrow end to the wide end of the respective slot after rotating the carrier to bring each bottle into operative relation with said part; means manually operable from a point exteriorly of the casing for rotating the bottle carrier; and means manually operable from points exteriorly of the casing for individually actuating said parts.

5. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; means for each series of slots to restrain movement of bottles from the narrow ends to the wide ends of the slots, each of said means having a part movable to permit and effect movement of each bottle of the respective series from the narrow end to the wide end of the respective slot after rotating the carrier to bring each bottle into operative relation with said part; means manually operable from a point exteriorly of the casing for rotating the bottle carrier; means manually operable from points exteriorly of the casing for individually actuating said parts; and a coin-controlled locking mechanism common to all of said parts.

6. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; means for each series of slots to restrain movement of bottles from the narrow ends to the wide end of the slots, each of said means having a part movable to permit and effect movement of each bottle of the respective series from the narrow end to the wide end of the respective slot after rotating the carrier to bring each bottle into operative relation with said part; means manually operable from a point exteriorly of the casing for rotating the bottle carrier; means manually operable from points exteriorly of the casing for individually actuating said parts; and a coin-controlled locking mechanism common to all of said parts and having elements coacting during operation of any one of said parts to lock the other parts against operation.

7. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; a delivery chute below said carrier; bottle dischargers directly above said chute, there being one discharger for each annular series of slots operable from a point exteriorly of said casing to move a bottle from the narrow end of the respective slot into the wide end thereof so that it is free to drop into said chute; and means for rotating said carrier to bring any bottle of any series into operative relation to the respective discharger.

8. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; a delivery chute below said carrier; bottle dischargers directly above said chute, there being one discharger for each annular series of slots operable from a point exteriorly of said casing to move a bottle from the narrow end of the respective slot into the wide end thereof so that it is free to drop into said chute; means for rotating said carrier to bring any bottle of any series into operative relation to the respective discharger; and a coin-controlled locking mechanism common to all of said dischargers.

9. In a bottle vending machine; a casing; a bottle carrier therein rotatable about a vertical axis and having slots therein arranged in annular concentric series, each slot of keyhole form so that a bottle can be suspended by its neck from the carrier when in the narrow end of the slot and released to drop from the carrier when in the wide end of the slot; a delivery chute below said carrier; bottle dischargers directly above said chute, there being one discharger for each annular series of slots operable from a point exteriorly of said casing to move a bottle from the narrow end of the respective slot into the wide end thereof so that it is free to drop into said chute; means for rotating said carrier to bring any bottle of any series into operative relation to the respective discharger; and a coin-controlled locking mechanism common to all of said dischargers and having elements coacting during operation of any one of said dischargers, to lock the other dischargers against operation.

10. In a bottle vending machine as embodied in claim 7, wherein each bottle discharger comprises a shaft extending exteriorly of said casing, an arm fixed to the shaft within the casing and operable by rotation to engage the neck of a bottle within the narrow end of the respective slot and move it into the wide end of the slot.

11. In a vending machine as embodied in claim 4, wherein each of said parts comprises a pair of fixedly spaced arms between which a bottle neck is adapted to be received, one of said arms when in one extreme position being a continua-

tion of the respective said restraining means, and when in another extreme position disposed in the path of movement of a succeeding bottle neck.

12. In a bottle vending machine; a bottle carrier rotatable about a vertical axis and having means by which bottles can be suspended therefrom when in one extreme position thereon and discharged therefrom when in another extreme position thereon; a device operable from a first position to a second position for moving any one bottle from the first mentioned extreme position to the second mentioned extreme position; and elements on said carrier for returning said device to the first position under rotative movement of said carrier.

13. In a bottle vending machine; a bottle carrier having a plurality of means by which bottles when in one position thereon are individually suspended therefrom and when in another position are free to drop individually therefrom; a delivery chute below said carrier; means for supporting said carrier for rotary movement about a vertical axis to bring said plurality of means individually into overlying relation to said chute; a device above said chute operable from a first position to a second position for moving that bottle overlying said chute to the second mentioned position; and elements on said carrier for returning said device to the first position under rotative movement of said carrier.

14. In a bottle vending machine; a bottle carrier having a plurality of means by which bottles when in one position thereon are individually suspended therefrom and when in another position are free to drop individually therefrom; a delivery chute below said carrier; means for supporting said carrier for rotary movement about a vertical axis to bring said plurality of means individually into overlying relation to said chute; a device above said chute operable from a first position to a second position for moving that bottle overlying said chute to the second mentioned position; elements on said carrier for returning said device to the first position under rotative movement of said carrier; locking means for securing said device in the first position; and coin-controlled means for releasing said locking means, said locking means operable to relock said device upon its return to the first position under the action of any one of said elements.

15. In a bottle vending machine; a bottle carrier rotatable about a vertical axis and having means by which bottles can be suspended therefrom when in one extreme position thereon, and discharged therefrom when in another extreme position thereon; a device operable from a first position to a second position for moving any one bottle from the first mentioned extreme to the second extreme position, said device including a pair of arms; and pins on said carrier engageable with one of said arms under rotative movement of the carrier for returning said device to the first position.

16. In a bottle vending machine; a bottle carrier rotatable about a vertical axis and having means by which bottles can be suspended therefrom when in one extreme position thereon, and discharged therefrom when in another extreme position thereon; a device operable from a first position to a second position for moving any one bottle from the first mentioned extreme position to the second extreme position, said device including a pair of arms; and pins on said carrier engageable with one of said arms under rotative movement of the carrier in one direction for returning said device to the first position thereby preventing discharge of a succeeding bottle under further rotation of the carrier should at the same time an attempt be made to hold the device in the second position, the other of said arms being engageable by a bottle when the device is in the second position and the carrier rotated in the other direction, thereby preventing discharge of that bottle.

17. In a bottle vending machine; a bottle carrier having an annular series of slots therein, each slot having a narrow end in which from an edge thereof a bottle can be suspended by its neck, and a wide end through which the bottle neck is free to pass to allow the bottle to fall from the carrier, said edge being below the upper edge of the wide end of the slot to form an intervening abutment between the two ends for confining the bottle against accidental movement from the narrow end to the wide end; a delivery chute below said carrier; means for supporting said carrier for rotary movement to bring said slots individually into overlying relation to said chute; and a coin controlled device operable to move that bottle overlying said chute from the narrow end to the wide end of that slot overlying said chute.

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