Jan. 19, 1943. C. A. MELCHERT 2,308,989

SELECTIVE BOTTLE VENDING EQUIPMENT

Filed Dec. 23, 1940 5 Sheets-Sheet 1

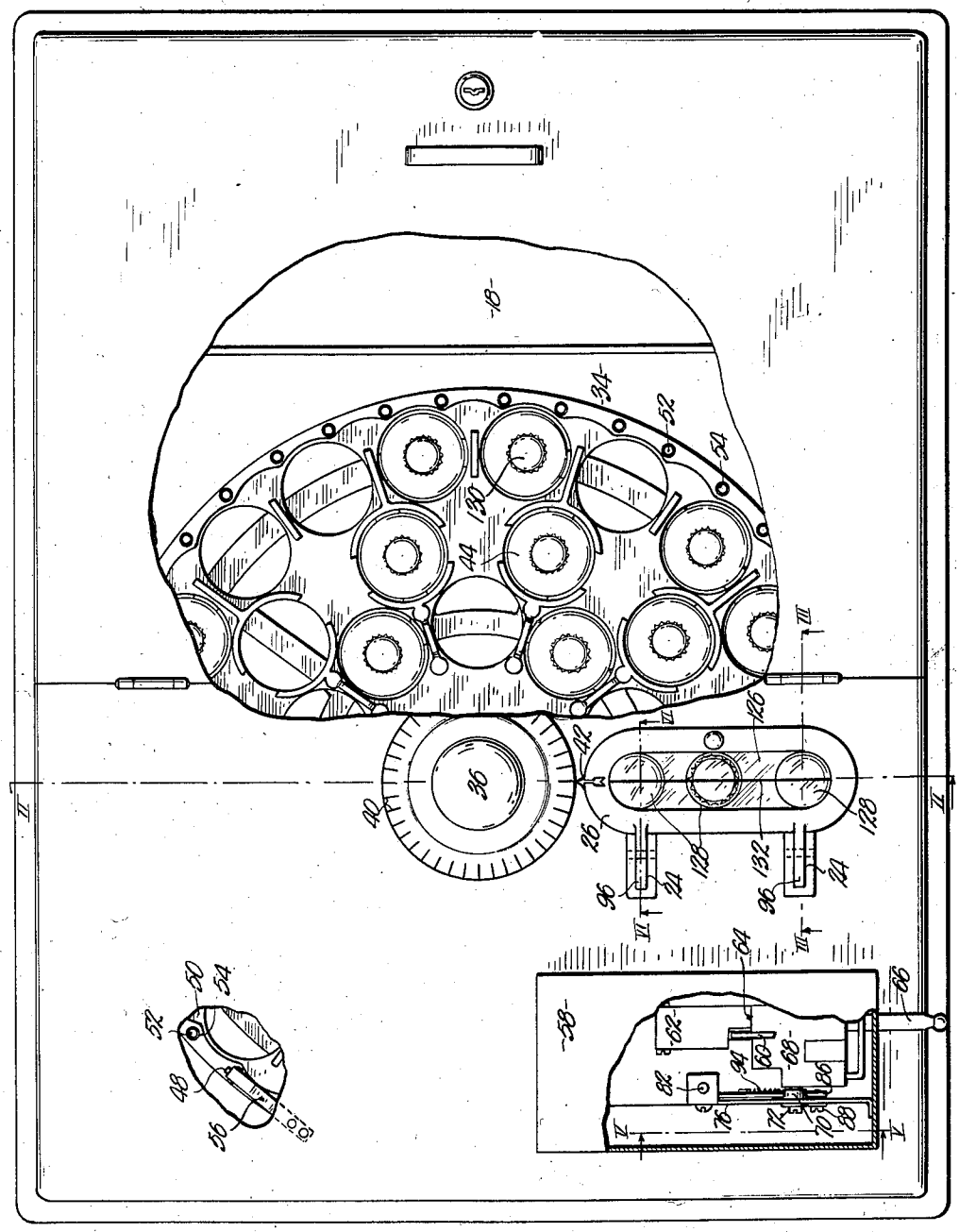


Fig. 1.

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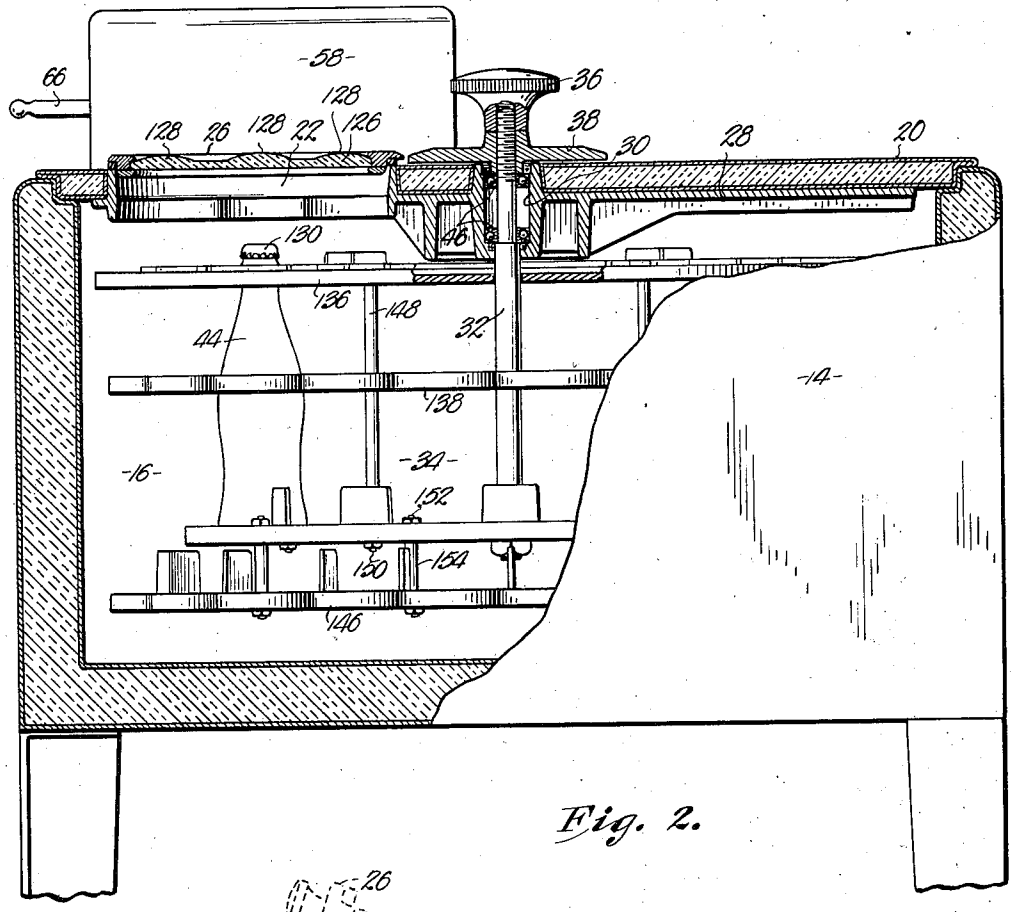


Fig. 2.

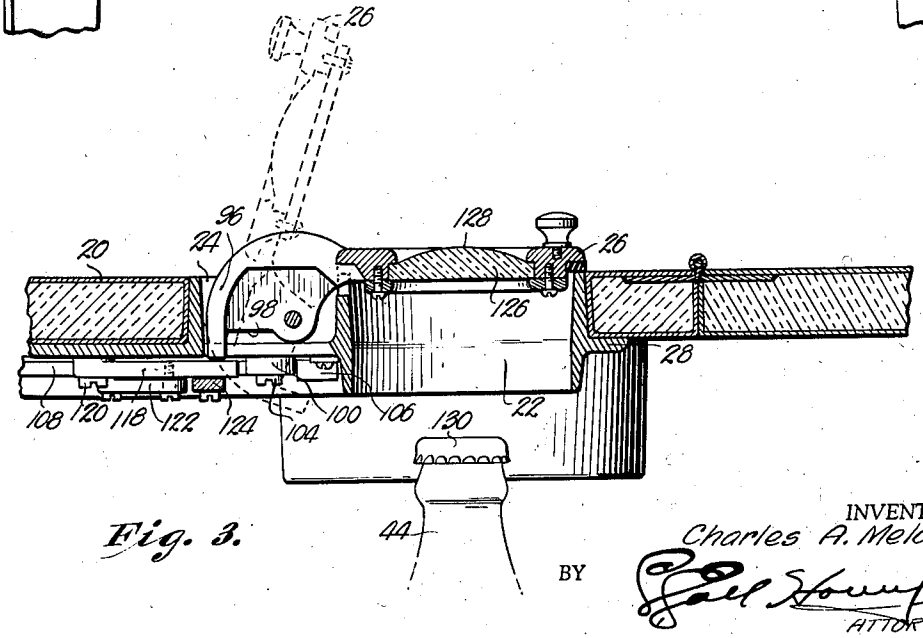


Fig. 3.

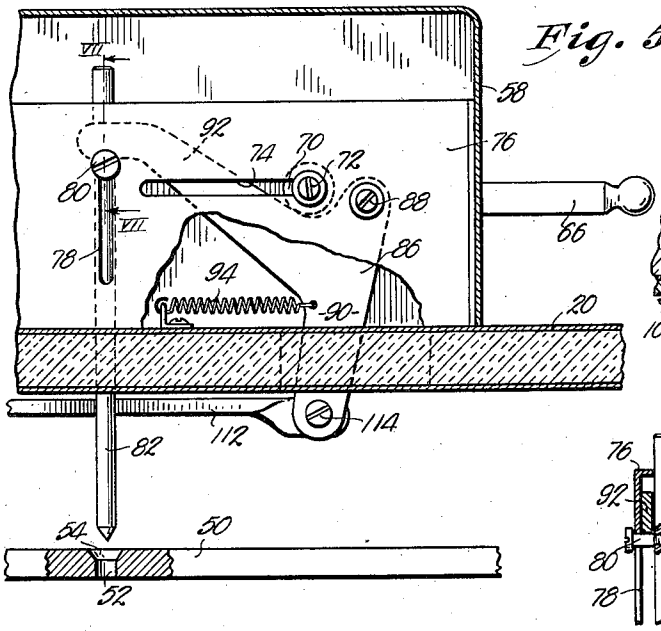
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SELECTIVE BOTTLE VENDING EQUIPMENT

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Fig. 5.



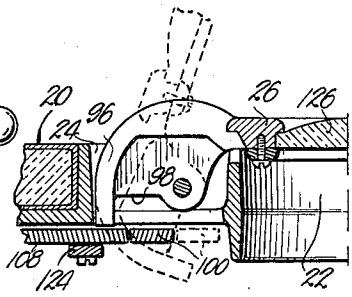


Fig. 6.

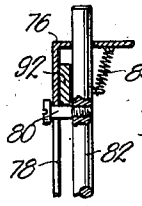


Fig. 7.

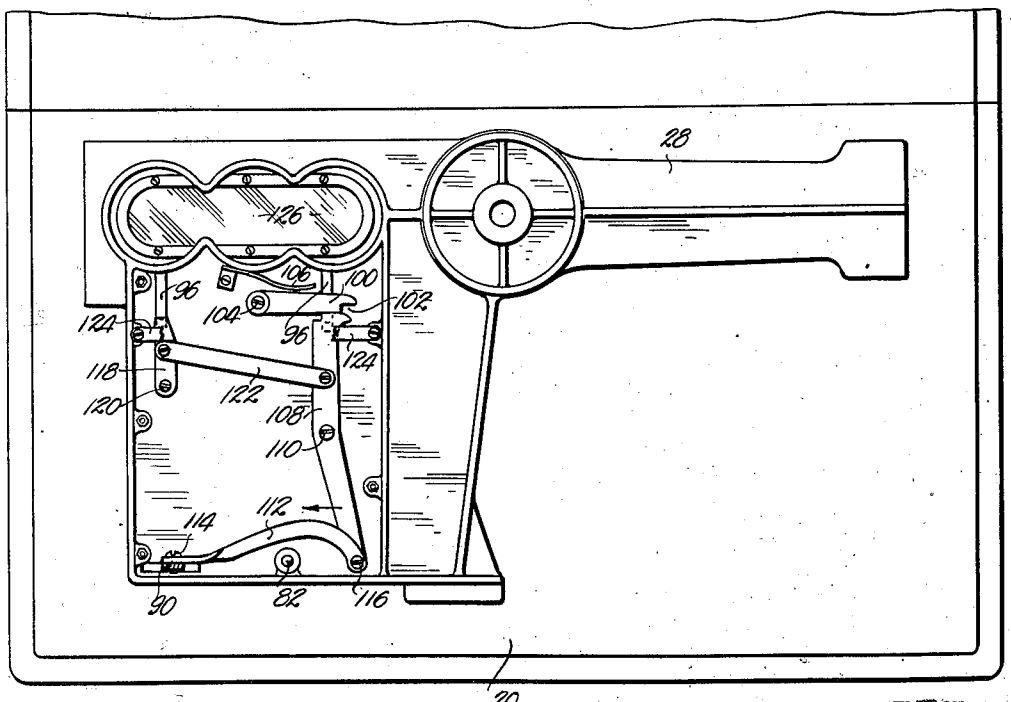


Fig. 4.

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Fig. 8.

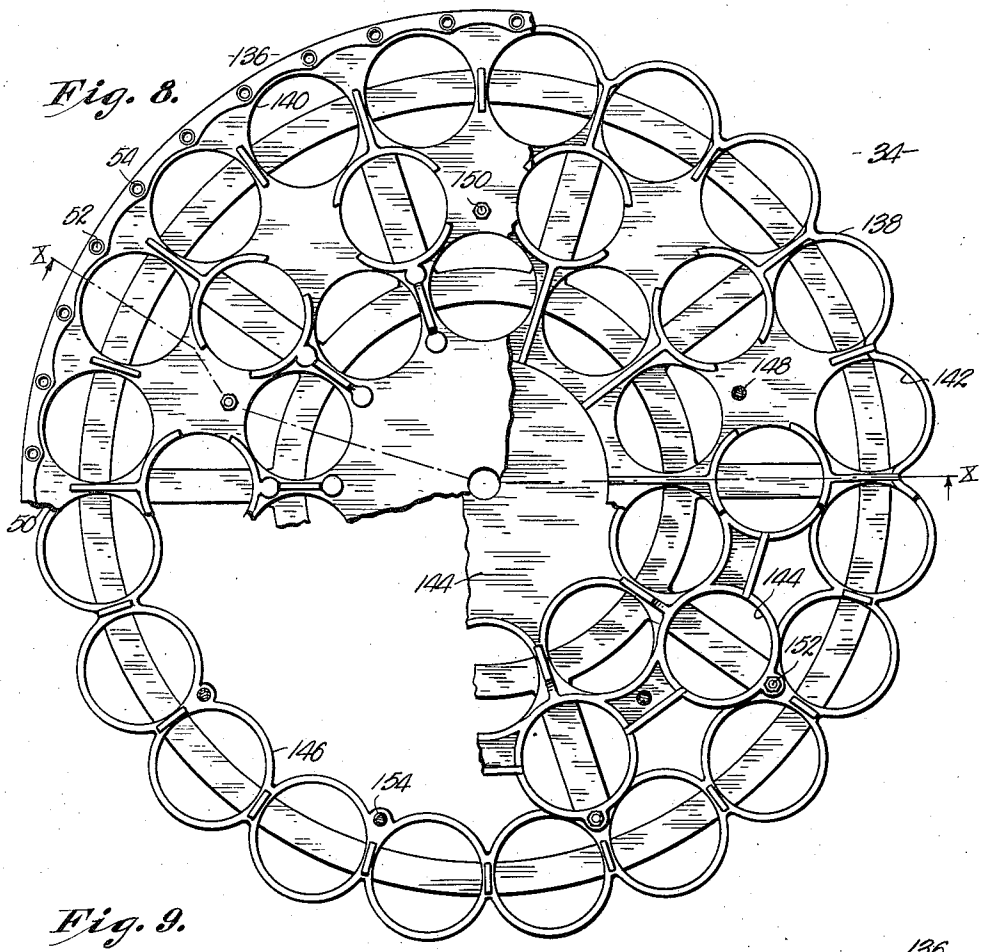
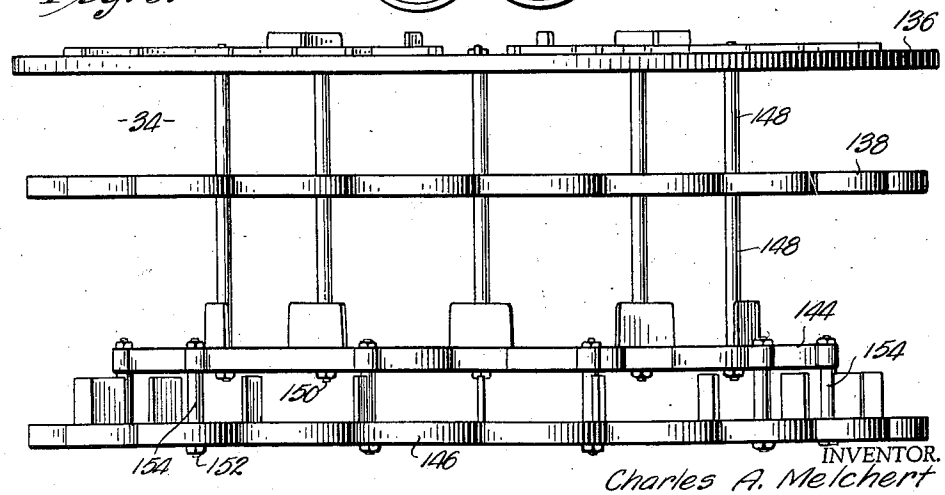


Fig. 9.



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SELECTIVE BOTTLE VENDING EQUIPMENT

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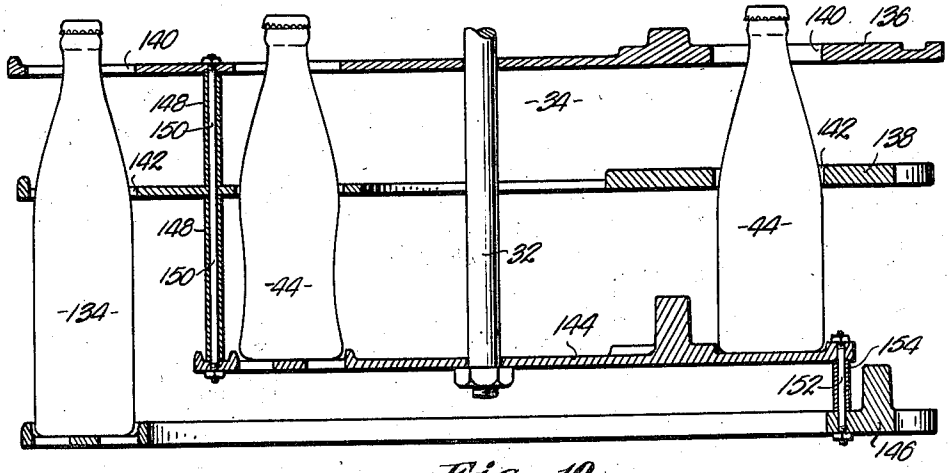


Fig. 10.

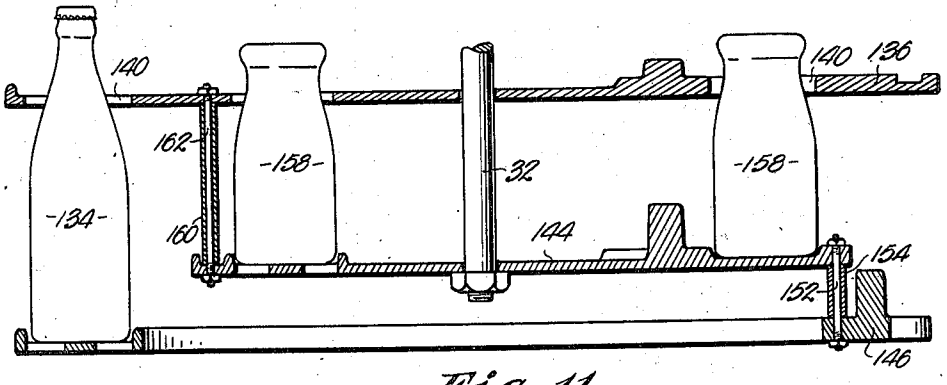


Fig. 11.

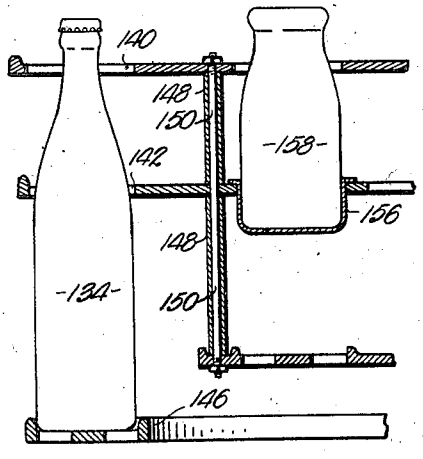


Fig. 12.

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2,308,989

UNITED STATES PATENT OFFICE

2,308,989

SELECTIVE BOTTLE VENDING EQUIPMENT

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Application December 23, 1940, Serial No. 371,266

8 Claims. (Cl. 312—36)

This invention relates to vending equipment in the nature of selective article merchandising machines, a portion of the mechanism of which is coin controlled, while other parts thereof are freely manipulated by the operator for the purpose of successively registering one of the articles to be vended beneath the delivery opening, and the primary object of the invention is to provide such equipment with unique, novel and efficient latching elements disposed to maintain a closure for the delivery opening in a normal position and formed to be actuated by said closure when the latter is moved from the open to the closed condition.

A yet further important aim of this invention is to provide selective bottle vending equipment having an article holding rack made of a number of sections, some of which support the bottle or article, while others circumscribe parts thereof to preclude lateral displacement, said sectional rack being assembled by means capable of permitting quick adjustment whereby the rack may carry a large number of bottles of various heights with the ends thereof in substantially a common plane.

Because parts of the selective bottle vending equipment embodying the preferred form of this invention may be cheaply constructed, easily assembled and maintained in operative condition without excessive expense, the parts about to be described and their relation to each other, embody additional objects of the invention.

In the drawings:

Fig. 1 is a top plan view of a selective article vending machine made in accordance with the present invention, parts being broken away to reveal normally underlying or concealed elements.

Fig. 2 is a fragmentary vertical central sectional view through the machine.

Fig. 3 is an enlarged fragmentary detailed sectional view taken on line III—III of Fig. 1.

Fig. 4 is a fragmentary inverted plan view of the cover of the equipment.

Fig. 5 is an enlarged fragmentary detailed vertical sectional view through a portion of the machine taken on line V—V of Fig. 1.

Fig. 6 is a similar view taken on line VI—VI of Fig. 1.

Fig. 7 is a vertical fragmentary sectional view taken on line VII—VII of Fig. 5.

Fig. 8 is a fragmentary plan view of the bottle carrying rack entirely removed from its operative position.

Fig. 9 is a side elevational view of the same.

Fig. 10 is a fragmentary vertical sectional view through the rack taken on line X—X of Fig. 8.

Fig. 11 is a similar sectional view but with one of the guard sections removed to condition the rack for holding relatively short bottles; and

Fig. 12 is a fragmentary sectional view illustrating the use of adaptors for short bottles when the parts of the rack are assembled, as illustrated in Figs. 8, 9 and 10.

Case 14 has walls of insulated material and forms an article-receiving compartment 16 and a chamber 18 wherein a refrigerant is disposed. Cracked ice may be used or mechanical refrigeration employed, if desired.

A cover 20 for case 14 is provided with a delivery opening 22 and slots 24 for the reception of the hereinafter described parts of the closure 26 for opening 22.

A reinforcing spider, generally indicated by the numeral 28, is mounted on the under side of cover 20 and forms a bearing 30 for the reception of a vertically disposed shaft 32 upon which is hung the rack 34. This shaft 32 has a handle 36 disposed above the cover 20 and an indicator plate 38 mounted on shaft 32 has graduations 40 visible to the operator to cooperate with pointer 42 on closure 26. In this regard, it is notable that graduations 40 correspond in number with the number of stalls in rack 34 and when one of the graduations 40 is in register with pointer 42, a bottle 44 or one of the articles being bended, may be withdrawn through delivery opening 22.

Rack 34 is mounted for free rotation in bearing 30 and said bearing should be equipped with ball or roller bearings 46. Rack 34 is releasably arrested in any one of the many positions where one of the graduations 40 registers with pointer 42.

Means for so arresting rack 34 is in the nature of a roller 48 that rides upon the top of upper section 50, the rim of which is provided with a number of apertures 52 and sockets 54. Roller 48 carried by spring 56 successively snaps into sockets 54 as the rack is rotated.

A housing 58 mounted upon cover 20 accomdates conventional coin chutes or the like through which the coin 60 is passed to the operative position shown in Fig. 1.

Latch 62 lies against shoulder 64 to hold plunger 66 against inward movement when a coin 60 is not in place. Plunger 66 is rigid to and travels with member 68 upon which is mounted

roller 70 through the medium of machine bolt 72, the projected portion of which rides in a slot 74 formed in bracket 76. This bracket is disposed in a vertical plane upon cover 20 and has a vertical slot 78 formed therein for the reception of guide pin 80 projecting laterally from bolt 82, yieldably held in an elevated position out of engagement with apertures 52 by spring 84. Bell-crank lever 86 pivotally mounted as at 88 has one leg 90 thereof extending into compartment 16 of case 14, while the other leg 92 thereof underlies roller 70 and overlies pin 80.

Spring 94 yieldably maintains bell-crank lever 86 in a normal or set position and this spring should be strong enough to maintain the hereinafter described locking structure in a normal position where opening of closure 26 is precluded until a coin is dropped into the machine.

Closure 26 has fingers 96 of like character extending respectively through slots 24. One of the fingers has a shoulder 98 formed thereon for the purpose of engaging dog or latch 100 as closure 26 is swung to the open position. This dog 100 is notched at its free end as at 102 and pivotally supported by bolt 104 to spider 28.

A spring 106 yieldably maintains dog 100 against one end of locking member 108 that is pivotally supported as at 110 intermediate its ends. The other end of member 108 is joined to the free end of leg 90 of bell-crank lever 86 by link 112, which link has pivotal connection with leg 90 and member 108 as at 114 and 116 respectively. Another locking member 118 pivotally mounted as at 120 to spider 28 moves with member 108 because tie-bar 122 extends between members 118 and 108 as illustrated in Fig. 4.

The ends of locking members 108 and 118 normally lie in a position to close slots 24 and to preclude the movement of fingers 96 through said slots into chamber 16. A bar 124 slidably maintains the free ends of these locking members 108 and 118 against the underside of spider 28.

Closure 26 has a transparent panel 126 therein through which may be observed bottles 44 and the magnifying areas 128 of panel 126 assist the operator in reading matter usually printed upon the caps 130 of bottles 44.

With the parts normally set as illustrated and just described, rack 34 is free to rotate for the purpose of allowing the operator to select the bottle 44 that he wishes to withdraw from compartment 16. Rotation of rack 34 is accomplished by manipulating handle 36 and the line 132 across panel 126 together with indicator 42 and graduations 40, will expedite locating or registering the desired bottle 44 with outlet opening 22. This visual means for quickly registering the desired bottle with outlet opening 22 is supplemented by roller 48 and sockets 54 because as rack 34 is rotated about the axis of shaft 32, roller 48 drops into each socket 54 and thereby tends to retard the rotating action of rack 34.

Assuming now that the desired bottle has been positioned beneath opening 22. A coin 60 is dropped to the position shown in Fig. 1 where inward movement of plunger 66 will force the coin beneath latch 62, lift the same and thereby allow continued inward movement of plunger 66 and plate 68, upon which is mounted roller 70. As bolt 72 rides along slot 74, roller 70 will exert pressure upon leg 92 of bell-crank lever 86 to rotate said lever about its pivotal connection 88. Leg 92 will force bolt 82 into the underlying aperture 52 to preclude further rotative movement of rack 34. The other leg 90 of bell-crank lever 86 will draw link 112 in the direction of the arrow shown in Fig. 4, to move locking members 108 and 118 about their pivotal connections 110 and 120 respectively. When these locking members are moved out of the path of travel of fingers 96, spring 106 will force dog 100 behind member 108 to hold the same in place.

Closure 26 may now be moved from the position shown in full lines of Fig. 6 to the position shown in dotted lines thereof, and while closure 26 is held open with one hand, the underlying bottle 44 is withdrawn through delivery opening 22 with the other.

As closure 26 is manually moved to the open position, shoulder 98 engages dog 100 to move the latter out of engagement with the end of locking member 108. The movement of dog 100 is from that position shown in full lines in Fig. 6 to that position shown in dotted lines thereof. When the dog is so held out of operative engagement with member 108, spring 94 exerts a sufficient amount of force to draw the edge of locking member 108 against the face of finger 96 where it is held until fingers 96 are returned to the normal position out of the path of travel of locking members 108 and 118.

Obviously, when closure 26 is returned to the normal position, spring 94 will draw locking members 108 and 118 back to the position shown in Fig. 4, to close slots 24 and to rest below fingers 96. As spring 94 moves locking members 108 and 118 to the normal position, bell-crank lever 86 will permit spring 84 to withdraw bolt 82 from one of apertures 52 wherein it was resting while one of the bottles 44 was withdrawn from the case.

Selective equipment of the character just described is capable of holding for sale, bottles of different shapes, forms and capacities. The rack 34 which forms a part of the equipment is so designed as to permit adjustment of the parts thereof, whereby to vend, for example, 6, 7, 8, 10 or 12 oz. bottles of beverages and ⅓ or ½ pt. bottles of milk.

The rack illustrated in Figs. 8, 9 and 10 has the sections thereof assembled to receive 7 or 8 oz. bottles 44 and 10 or 12 oz. bottles 134. The two upper sections 136 and 138 of rack 34 are cast with openings 140 and 142 respectively therein. These openings 140 and 142 are arranged in annular paths, one above the other and the said openings are in alignment to receive the bottles as illustrated in the drawings.

Bottle supporting platforms 144 and 146 are likewise cast from light metal, such as aluminum and form the bottoms of stalls for the bottles 44 and 134. Sections 136 and 138 are held in spaced relation by tubes or spacers 148 through which pass tie-bolts 150.

Where 6, 7 or 8 oz. bottles are to be dispensed with 10 or 12 oz. bottles, upper platform 144 and sections 136 and 138 are secured together by tie-bolts 150. Openings 140 and 142 are arranged in three annular paths and the bottles in the two groups of openings arranged in the inner annular paths are supported by platform 144. The bottles 134 arranged in the openings of the outer annular path are supported by the ring-shaped or annular platform 146. It is advantageous therefore, to secure platform 146 to platform 144 by relatively short tie-bolts 152 that pass through sleeves 154.

Through such construction and arrangement of parts, flexibility is permitted with respect to quickly altering rack 34 to vend different types

of bottles and containers of various capacities. For example, in Fig. 12, is illustrated an adaptor 156 insertible into openings 142 of section 138 for the purpose of permitting the vending of small milk bottles 158 with 6, 7 or 8 oz. bottles of other types of beverage. With this adaptor 156 employed as illustrated, the rack may also vend 10 or 12 oz. bottles 134.

An example of the advantages arising from the employment of a sectional rack 34 are further illustrated by reference to Fig. 11 wherein the intermediate section 138 has been entirely eliminated and supports 144 and 146 drawn closer to upper section 136. When the parts are assembled as just mentioned, 6, 7 or 8 oz. bottles are not vendible and only small milk bottles 158 and 10 or 12 oz. bottles 134 are operatively supported in the rack.

Tubular spacer 160 and tie-bolt 162 of a length suitable for the purpose are employed when setting the unitary sections of the rack to accommodate bottles of different heights.

Because of the advantages arising from the structures hereinabove described that embody the preferred form of the invention, it is desired to be limited only by the spirit of the invention and scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith and through the respective slots into the case as the door is opened; locking structure mounted on the case for movement to and from a normal position precluding movement of the fingers into the case where the door is opened; manually operated means for moving the locking structure from said normal position to permit opening the door; and a latch for releasably holding the locking structure out of the normal position.

2. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith and through the respective slots into the case as the door is opened; locking structure mounted on the case for movement to and from a normal position precluding movement of the fingers into the case where the door is opened; manually operated means for moving the locking structure from said normal position to permit opening the door; and a latch for releasably holding the locking structure out of the normal position, said latch being shiftable to the released position by one of the fingers when the door is opened.

3. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith and through the respective slots into the case as the door is opened; locking structure mounted on the case for movement to and from a normal position precluding movement of the fingers into the case where the door is opened; manually operated means for moving the locking structure from said normal position to permit opening the door; and a latch for releasably holding the locking structure out of the normal position, said latch being shiftable to the released position by one of the fingers when the door is opened, said finger having a portion thereof in engagement with a part of the locking structure after the latch has been shifted to the released position thereby and until the door is completely closed.

4. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith and through the respective slots into the case as the door is opened; locking structure mounted on the case for movement to and from a normal position precluding movement of the fingers into the case where the door is opened; manually operated means for moving the locking structure from said normal position to permit opening the door; and a latch for releasably holding the locking structure out of the normal position, said latch being held inoperative by the locking structure when the latter is in said normal position.

5. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith through certain of the slots respectively into the case as the door is opened; a pivotally supported bell-crank lever having one leg thereof projecting through one of the said slots into the case; a reciprocable bolt movable to and from a position in the path of travel of a part of said rack in connection with the other leg of said bell-crank lever; a pivotally mounted locking member normally closing each of said certain slots to preclude movement of the fingers therethrough; a link joining one of the locking members and the first mentioned leg of the bell-crank lever; and coin controlled means for swinging the bell-crank lever around its pivotal support to simultaneously move the bolt into a position in the path of travel of a part of the rack and to move the locking members to open the certain slots to permit passage of the fingers therethrough.

6. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith through certain of the slots respectively into the case as the door is opened; a pivotally supported bell-crank lever having one leg thereof projecting through one of the said slots into the case; a reciprocable bolt movable to and from a position in the path of travel of a part of said rack in connection with the other leg of said bell-crank lever; a pivotally mounted locking member normally closing each of said certain slots to preclude movement of the fingers there-

through; a link joining one of the locking members and the first mentioned leg of the bell-crank lever; coin controlled means for swinging the bell-crank lever around its pivotal support to simultaneously move the bolt into a position in the path of travel of a part of the rack and to move the locking members to open the certain slots to permit passage of the fingers therethrough; and a latch for holding the bolt and locking members in said last mentioned positions.

7. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith through certain of the slots respectively into the case as the door is opened; a pivotally supported bell-crank lever having one leg thereof projecting through one of the said slots into the case; a reciprocable bolt movable to and from a position in the path of travel of a part of said rack in connection with the other leg of said bell-crank lever; a pivotally mounted locking member normally closing each of said certain slots to preclude movement of the fingers therethrough; a link joining one of the locking members and the first mentioned leg of the bell-crank lever; coin controlled means for swinging the bell-crank lever around its pivotal support to simultaneously move the bolt into a position in the path of travel of a part of the rack and to move the locking members to open the certain slots to permit passage of the fingers therethrough, and a latch for holding the bolt and locking members in said last mentioned positions, one of said fingers being formed to engage the latch and force the same to an inoperative position when the fingers are moved through the slots as the door is opened.

8. Selective bottle vending equipment comprising a case provided with slots and an outlet opening; a rotatably mounted rack within the case having bottle-receiving stalls successively registrable with the opening; means for rotating the rack; a hingedly mounted door normally closing the opening; fingers on the door movable therewith through certain of the slots respectively into the case as the door is opened; a pivotally supported bell-crank lever having one leg thereof projecting through one of the said slots into the case; a reciprocable bolt movable to and from a position in the path of travel of a part of said rack in connection with the other leg of said bell-crank lever; a pivotally mounted locking member normally closing each of said certain slots to preclude movement of the fingers therethrough; a link joining one of the locking members and the first mentioned leg of the bell-crank lever; coin controlled means for swinging the bell-crank lever around its pivotal support to simultaneously move the bolt into a position in the path of travel of a part of the rack and to move the locking members to open the certain slots to permit passage of the fingers therethrough; and a latch for holding the bolt and locking members in said last mentioned positions, one of said fingers being formed to engage the latch and force the same to an inoperative position when the fingers are moved through the slots as the door is opened, said one finger having a shoulder serving to engage the latch in said last mentioned position until the door is closed.

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