Nov. 4, 1941. R. T. WRIGHT 2,261,910

BOTTLE DISPENSER

Filed Sept. 26, 1938 2 Sheets-Sheet 1

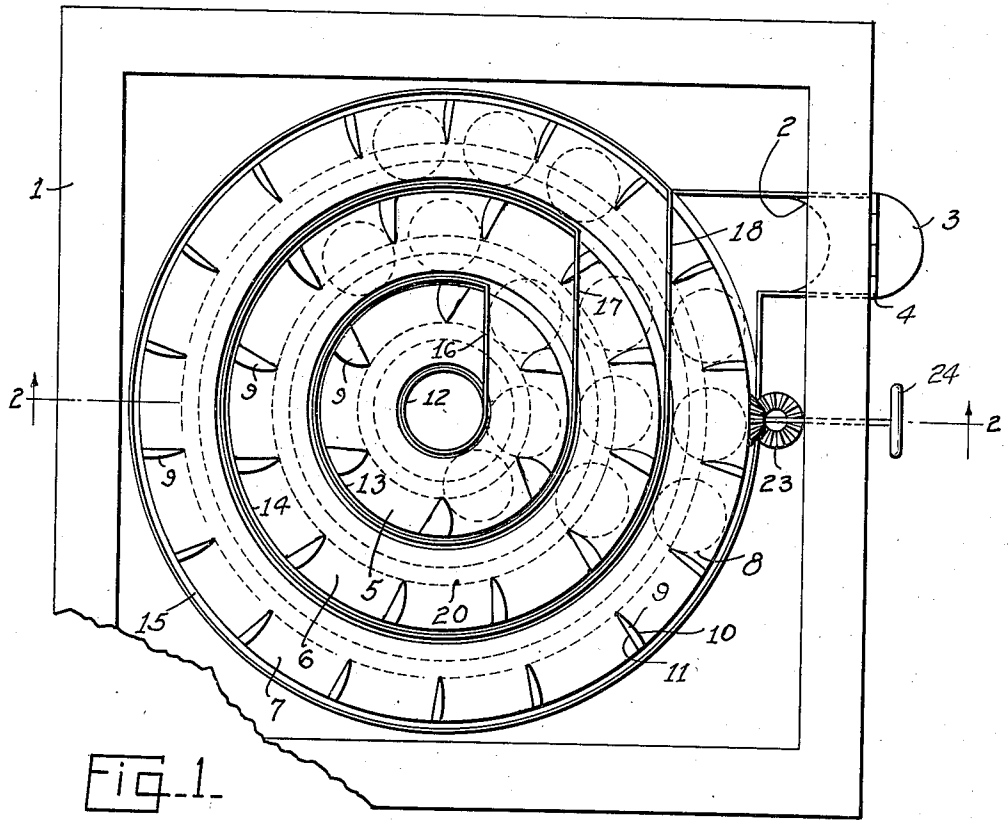


Fig. 1.

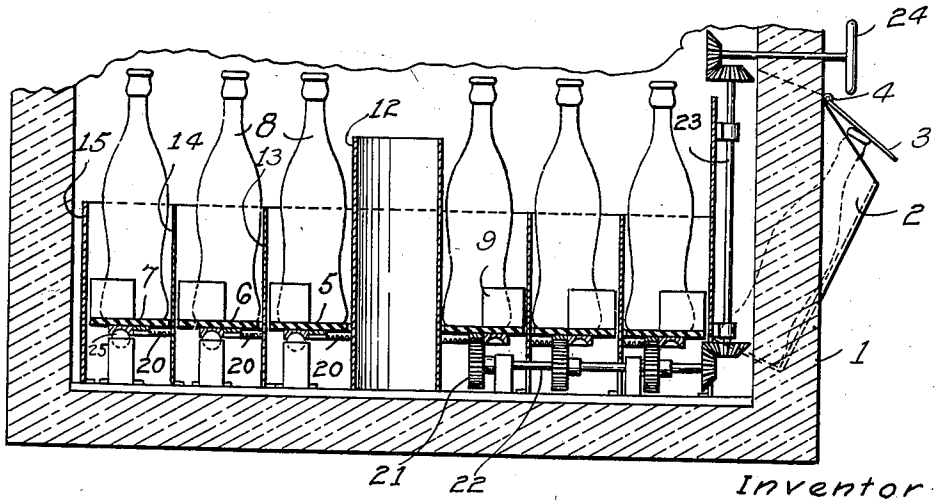


Fig. 2.

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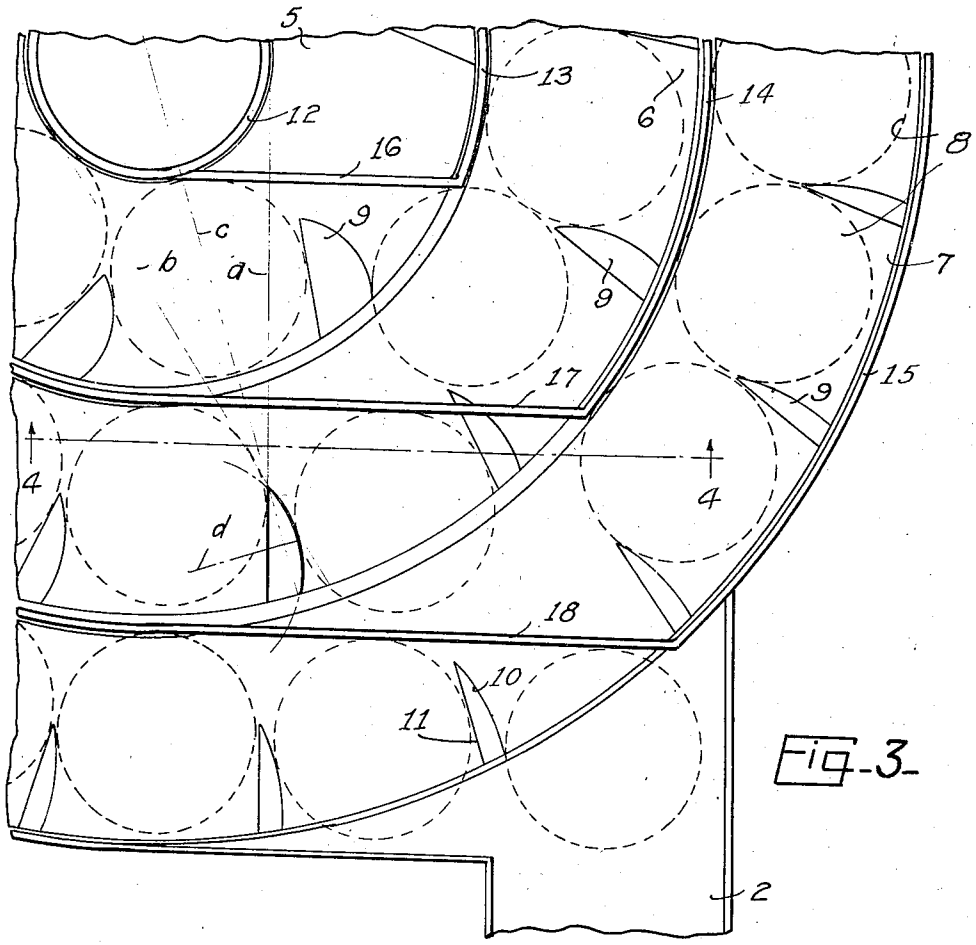


Fig-3

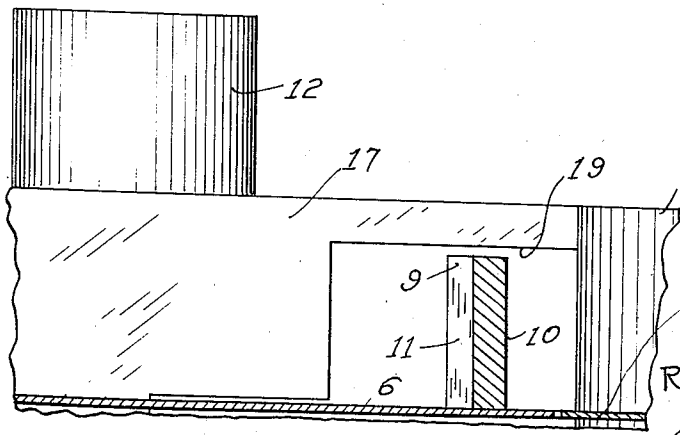


Fig-4

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UNITED STATES PATENT OFFICE

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BOTTLE DISPENSER

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Application September 26, 1938, Serial No. 231,633

8 Claims. (Cl. 312—87)

This invention relates to improvements in dispensers wherein a plurality of units are placed within a storage container of some sort, and from which a single unit at a time is withdrawn, these units following one another in sequence until all of the units within the device have been extracted, and whereupon a fresh supply must be replaced for further withdrawals in like manner. Although the device is primarily intended for the dispensing of bottles, as for example, of iced beverages, it will be obvious from the disclosure herein given that the uses of the mechanism may be extended to other articles desired to be dispensed in unit amounts.

The invention has among its objects the production of a device of the kind described, that will be neat and attractive in appearance, simple and economical in construction and operation, smooth and quiet in operation, long lasting, and otherwise satisfactory and efficient for use wherever deemed applicable.

One of the principal objects of this invention is to provide a mechanism for dispensing bottles, in which there will be a spiral passageway along which the bottles may be arranged at spaced intervals, and having operating means for so advancing said bottles along said passageway that the outermost bottle is discharged and all of the other bottles are advanced ready for discharging the then outermost bottle (in the passageway) upon the next successive operation of the control mechanism.

Another object of my invention is to provide a mechanism of the kind described, wherein there will be a plurality of concentrically arranged platforms, on all of which bottles may be arranged at spaced intervals, with a baffle or bridge between each of said platforms and the next outwardly adjacent one, all of said platforms being rotated in unison, and means whereby the bottles will be pushed along said baffles from an inner to the next outer platform.

A further object of my invention is to provide spacer and pusher lugs on each of said platforms, the forward and trailing edges of said lugs being so proportioned that the bottles will move easily and quietly along the passageway during their advancement toward the discharge outlet, without binding or locking of the various parts of the mechanism, and so that as soon as the bottles leave one platform they will be properly propelled along the next succeeding platform.

An added object of this invention is to provide a withdrawal outlet for such a dispenser, in which there is a cover normally closing said outlet, but when the bottle is being discharged from its association with the other bottles in storage, the bottle being discharged will fall slightly from its normal vertical position, into said withdrawal outlet, and in so falling will strike against said cover to lift the latter sufficiently so that the bottle is in view and enabling the bottle to be grasped between the fingers of the person who is operating the device and lifted from the dispenser, the cover falling by gravity to its normally closed position as soon as the bottle has been withdrawn from the outlet.

Many other objects and advantages of the construction herein shown and described, and the uses mentioned, will be obvious to those skilled in the art to which this invention appertains, as will be apparent from the disclosures herein given.

To this end, my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and the uses mentioned, as will be more clearly pointed out in the claims hereunto appended.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure 1 is a top plan view of a bottle dispenser, with the usual lid therefor removed;

Figure 2 is a vertical cross-sectional view through the same, taken substantially along the line 2—2 of Fig. 1;

Figure 3 is an enlarged fragmentary plan view, to more clearly illustrate the movement of the bottles within the dispenser; and

Figure 4 is a vertical cross-sectional view, taken substantially along the line 4—4 of Fig. 3.

Referring more particularly to the drawings, wherein I have illustrated a preferred embodiment of my invention, there is shown a mechanism for dispensing units of merchandise, as for examples bottles of beverages, as desired. Such a mechanism may be coin-controlled, in any special or regular manner, but it is to be understood that this application does not extend to the manner of controlling the operating mechanism.

A casing or box 1 is arranged to be iced, or the same may be provided with some sort of a refrigerating unit (not shown), so as to properly cool the beverages within the device during their travel to the discharge point, the bottles being removed at the outlet 2 whose axis is at an angle to the vertical. A closure or cover plate 3 is movably seated on the upper end of

the outlet, as by the hinged edge 4, so that when a bottle is within said outlet in the position shown, the top of the bottle will lift said cover sufficiently to expose enough of the bottle to permit grasping of the latter without actually touching the cover with the hand, to withdraw the bottle ready for consumption from the dispenser. As soon as said last-mentioned bottle has been extracted, the cover will thereupon drop, of its own weight, to its normal closed position on said outlet. Thus, said outlet is maintained sufficiently sealed against the entrance of dirt, dust or other foreign matter or objects thereinto.

Within the casing 1, there is arranged a plurality of rings or platforms, there being three shown in this construction, and designated as 5, 6 and 7 in the order shown, the ring 5 being the radially innermost one, the ring 7 being the outermost one, and of course, the other one being intermediate.

These rings are preferably concentrically arranged, on the same horizontal plane, and are at least wide enough to comfortably seat the bottles 8 so as to allow sufficient clearance for irregularities in bottle sizes and probably a small amount in addition, such a small clearance minimizing the noisiness of operation of the device, to a certain extent.

Spacer lugs 9 are arranged at predetermined intervals on each of said platforms, the forward and trailing edges of said lugs being preferably shaped in a predetermined manner about to be herein described, the forward or advance edge of said lug being represented at 10 and the rear or trailing edge being indicated at 11, these terms being stated as relative to the direction of travel of the bottles within the device.

A substantially spiral passageway is formed from the inner to the outer part of the mechanism, and along which the bottles must travel to the point of discharge from the device, said passageway being formed of the substantially circular or sleeve portions 12, 13, 14 and 15 respectively, concentrically arranged and substantially bounding the inner and outer peripheries of the platforms, and with intermediate baffle or bridge portions 16, 17 and 18 bridging across each pair of adjacent sleeves, said baffles being preferably parallel to one another. It is to be noted that although the rings are rotatable, the sleeves and baffles forming the spiral passageway are fixed or stationary relative to said rings. Further, each of said baffle portions has an opening or cut-out 19 therethrough, of sufficient height and width to permit passage of the lugs 9 therethrough, as indicated more particularly in Figs. 3 and 4.

In laying out the shape of the lugs so as to perform their intended function in the best possible manner, the lugs of each ring or platform are of a size different than those of the other platforms, and are designed as follows, particular reference being had to Fig. 3:

Assuming that we wish to design the shaping of the lugs for the intermediate platform, we first strike off the lines *a* and *b* each at a tangent to the central tube portion 12 of the spiral passageway, and intersecting one another along an arc substantially along the centers of the bottles moving along said intermediate platform. Next, a line *c* is drawn from the center of the tube portion 12 through the said intersection and terminating at the outer periphery of said platform. The line *d* is constructed perpendicular to said line *c*, midway between said point of intersection aforementioned and said outer periphery of said platform. That portion of said first-mentioned tangent line that is between said intersection and the outer rim of the platform forms the rear or trailing edge of the lug, and the forward or advance edge is formed by striking an arc along said line *d*, of a radius that enables said forward portion of the lug to fall within said line *c* and the line *b*, somewhat as shown. The adjacent lugs on said platform are of the same size as the lug just mentioned, and are spaced apart a sufficient distance to enable a bottle to be inserted between the adjacent lugs, plus any additional clearance desired. However, the more clearance that there is, the greater the amount of rattling and other noises that are apt to occur during the operation of the mechanism.

Another advantage of making a minimum clearance between adjacent lugs is to discourage substitution of one kind of beverage for another by the merchant using the dispenser. This enables a close control by the distributer of the bottles that the dispenser is primarily installed for.

All of the platforms are rotatably driven in unison, through suitable means, as for example, by ring gears 20 carried thereby, all of like pitch, and the number of teeth on each gear being substantially exactly divisible by the major diameter of the bottles to be dispensed. These ring gears each mesh with a pinion 21 carried on a shaft 22 rotatably driven through intermediate drive means 23 to a point beyond the casing, as a handwheel 24. As hereinbefore stated, a coin control may be used for governing the step-by-step actuation of the dispenser if so desired. Anti-friction means 25 may be placed between the platforms and the casing as indicated.

In operation, the dispenser is filled with bottles, with a bottle in each of the spaces formed by the adjacent lugs on each platform, and the dispenser iced or refrigerated. The bottles then advance a distance along the spiral passageway equal to the diameter of a bottle, upon each actuation of the dispenser.

Referring more particularly to Fig. 3, there is a bottle shown as having been advanced from the innermost platform to the intermediate platform, another bottle as having been advanced but partially to the outermost platform from the intermediate platform, and another bottle about to be discharged through the outlet 2. This last-mentioned bottle travels in its normal vertical or upright position on the outermost movable platform until its unbalanced weight causes it to topple over from said upright position to the inclined position shown in Fig. 2. As it falls, it actuates the closure 3 to lift the latter, thereby permitting the person using the machine to grasp the exposed bottle neck and completely withdraw the bottle from the mechanism.

As the bottles on the respective platforms travel along their paths and reach the baffle or bridging portions of the passageway, the latter prevent further movement of the bottles therepast, except lengthwise of said baffles, and as is clearly shown in Fig. 3, the rotation of the platforms will cause the lugs adjacent said baffles to engage on their advance edges with the bottles to actuate the latter lengthwise of said baffles, the lugs passing beneath the baffles through the openings 19 while the bottles are received onto the next outer ring or platform, whereupon said bottles so received are similarly actuated by the lugs on the last-mentioned ring.

Due to the specific shape of the forward and trailing edges of the lugs of each platform, the bottles move between said lugs with uniform clearance, and without rattling or any accidental displacement that might cause jamming or other interference with the continued operation of the dispenser.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination herein shown or described, or the uses mentioned, except as limited by the state of the art to which this invention appertains, and the claims hereunto appended.

What I claim as new and desire to secure by Letters Patent is:

1. In a dispenser, a plurality of article-receiving platforms arranged concentrically, means for rotating said platforms in unison, and means for consecutively discharging said articles from each of said platforms onto the next outer platform.

2. In a dispenser for delivering articles, individual platforms to receive said articles in spaced relation, means for advancing all of said platforms simultaneously, a baffle stationary across each platform to prevent movement of said articles therepast, and means on each platform to engage said articles and actuate them along said baffles to discharge the articles in sequence onto the next adjacent outer platform.

3. In a bottle dispenser for discharging bottles singly, a plurality of individual bottle-supporting platforms substantially in a plane, means for rotating all of said platforms simultaneously at like uniform speeds, a baffle stationary across each movable platform to prevent passage of bottles therepast, and bottle-engaging lugs on each platform to slidably actuate said bottles along the baffles into the path of travel of the lugs on the next adjacent outer platform, said baffles being free of engagement with said lugs.

4. In a dispenser, a plurality of article-receiving platforms arranged concentrically substantially in the same plane, means to rotate said platforms in a given manner, and means to consecutively discharge said articles from the inner to the next outer platforms.

5. In a bottle dispenser, a plurality of concentrically arranged bottle-supporting platforms, means for rotating all of said platforms in unison at the same linear speed, bottle-engaging lugs spaced apart on each platform a distance substantially equal to the diameter of said bottles, and a baffle stationary across each platform to prevent passage of the bottles therepast and constructed to permit passage of said lugs therepast, whereby said lugs slidably actuate said bottles along said baffles into the path of travel of the lugs on the next outer adjacent platform, said lugs having convex forward edges.

6. In a bottle dispenser, a plurality of concentrically arranged bottle-supporting platforms, means for rotating all of said platforms in unison, bottle-engaging lugs spaced apart on said platforms, and a stationary baffle across each of said platforms and having openings to permit movement of said lugs but not of said bottles therepast, said lugs having convex forward edges and having their trailing edges tangent to the inner periphery of said innermost platform, to permit complete passage of said bottles therebetween in all phases of movement of the bottles.

7. In a bottle dispenser, a plurality of concentrically arranged platforms substantially in a plane, a stationary baffle substantially bounding each platform and bridging adjacent platforms to substantially form a spiral passageway, said baffles having cut-outs at said bridging portions to permit passage of lugs therethrough, means for driving said platforms in unison, and lugs circumferentially spaced on all of said platforms to move therewith and pass through said cut-outs, whereby said lugs on each platform will actuate the bottles thereon slidably along its bridged baffle portion into the path of travel of the lugs on the next outer platform.

8. In a dispenser, a plurality of individual rotary platforms, means for rotating said platforms in substantially the same plane, and means relatively stationary on said platforms for consecutively discharging articles in sequence from the innermost to the outermost platform.

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