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GATE MECHANISM FOR BOTTLE DISPENSING CONTAINERS

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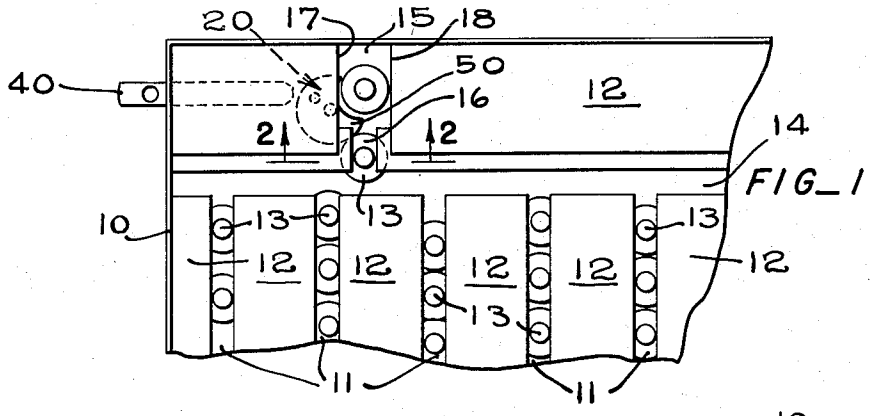


FIG_1

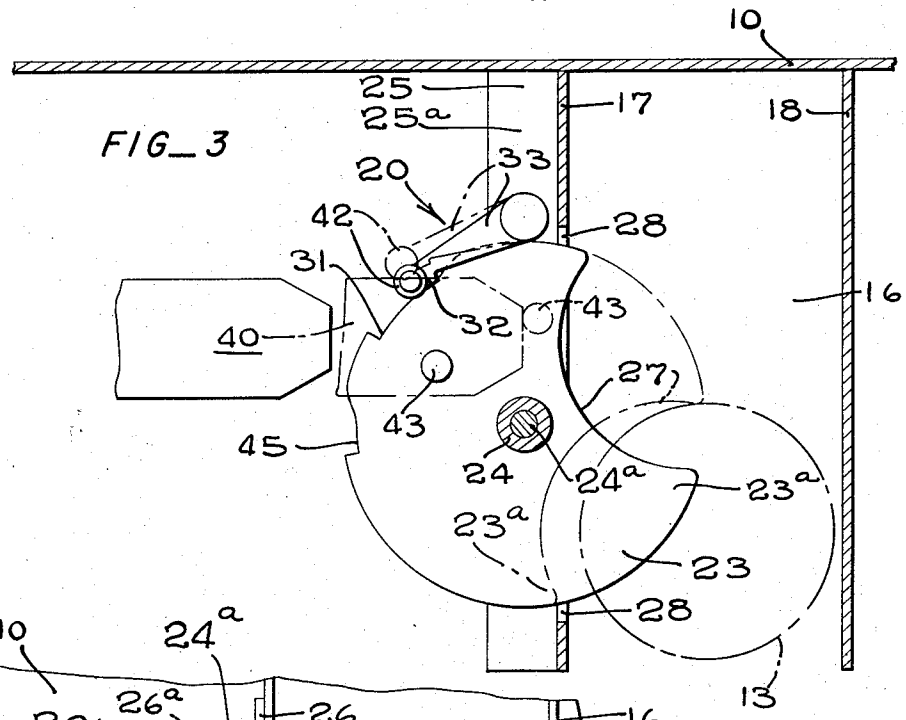


FIG_3

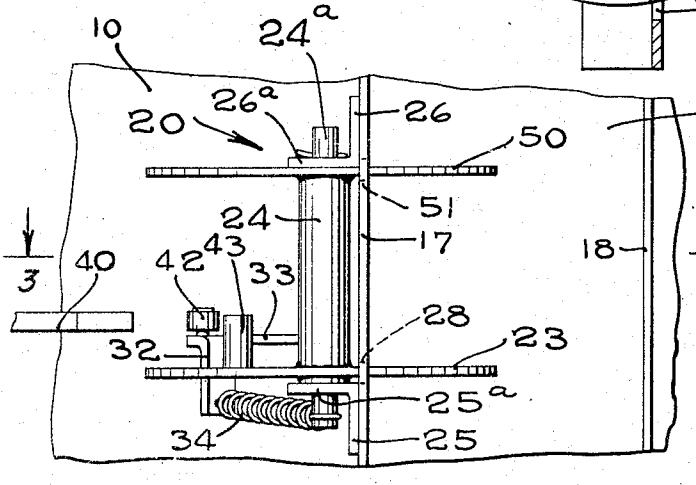


FIG_2

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GATE MECHANISM FOR BOTTLE DISPENSING CONTAINERS

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4 Claims. (Cl. 312—88)

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The present invention relates to bottle-dispensing containers of the type wherein the bottles are retained in the container by means of a cover structure and protrude with their necks through and above channels, provided in said cover structure, which are too narrow to permit passage of the bottle bodies therethrough. To enable a purchaser to make a choice amongst a variety of different kinds of bottled beverages, said cover structure contains usually a plurality of parallel channels, one for each different type of beverage, and said channels all communicate with a narrow cross channel which leads to the bottle-dispensing station whereat said cross channel, or a side branch thereof, expands sufficiently far to permit total withdrawal of a bottle therethrough. Access from said cross channel to said dispensing station is normally barred by a gate mechanism that may be operated by a suitable coin-controlled actuating mechanism to admit a single bottle from the cross channel into said bottle-dispensing station. Hence, a bottle selected from any one of said parallel channels may be moved into and along said cross channel to the described gate mechanism and may, upon payment of the proper coin that enables effective operation of the actuating mechanism, be moved into the dispensing station from where it can be withdrawn.

It is an object of the present invention to provide a bottle gate mechanism, of the type referred to, that is simple in construction and effective in operation.

Another object of the invention is to provide a gate mechanism, of the type referred to, that dependably limits passage of bottles therethrough to a single bottle for every effective stroke of the coin-controlled actuating mechanism therefor.

Yet another object of the invention is to provide a bottle gate mechanism, of the type referred to, that may readily be associated with, and operated by, any type of coin-controlled actuating mechanism possessing a reciprocating actuating arm.

Still another object of the present invention is to provide a bottle gate mechanism, of the type referred to, that is compact and may readily be installed in bottle containers of the type described.

These and other object of the present invention will be apparent from the following description of the accompanying drawing which illustrates a preferred embodiment thereof and wherein:

Figure 1 is a fragmentary plan view of a coin-controlled bottle-dispensing container provided with a bottle gate mechanism embodying my invention;

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Figure 2 is a side elevation of the bottle gate mechanism illustrated in Figure 1 viewed in the direction of the arrows 2—2, and

Figure 3 is a horizontal section through the bottle gate mechanism illustrated in Figure 2 taken along lines 3—3 thereof.

Referring first to Figure 1, the reference numeral 10 designates the side wall of a container, such as a refrigerated box, in which bottles of beverages may be stored in upright condition with their necks protruding through parallel channels 11 formed in a retainer plate 12 that is firmly secured to said side wall 10 of the container in any suitable manner. The channels 11 are too narrow to pass the bodies of the bottles 13 therethrough, and all said parallel channels communicate with an equally narrow cross channel 14 that leads to the bottle-dispensing station proper which is formed by the expanding end 15 of a side channel 16 that is laterally bounded by two vertical side walls or partitions 17 and 18. Access to the dispensing station 15 is normally barred by a gate 20 that is mounted at the left side wall 17 of the branch channel 16 as shown in Figures 2 and 3. Said gate mechanism 20 is formed by a horizontally positioned disc 23 that is firmly mounted upon a vertically disposed tubular bushing 24 which turns on a vertical pivot 24a the opposite ends of which are suitably held in the horizontal flanges 25a and 26a of angle bars 25 and 26, respectively, that are secured with their vertical flanges to the inner face of the channel wall 17.

The disc 23 is of circular contour with a large arcuate recess 27 cut into its periphery so that it has somewhat the shape of a crescent and its pivot 24a is mounted so closely adjacent to the side wall 17 that a large segment of said disc projects through a narrow horizontal slot 23 in said side wall into the dispensing channel 16. Means are provided to normally hold said crescent-shaped disc 23 in a rotary position wherein one of its horns 23a protrudes into the dispensing channel 16 with the arcuate recess 27 facing in a direction away from the entrance portion of said dispensing channel as illustrated in full lines in Figure 3. In this position the disc presents a part of its convex periphery to any bottle that may be moved into the dispensing channel 16, and effectively bars any such bottle from the dispensing station proper. To maintain the disc in said position a notch 31 is provided in its periphery

and said notch is engaged by the head 32 of a latch 33 that is pivotally mounted upon the horizontal flange 25a of the lower angle bar 25 and is urged into notch engaging position by a spring 34 (Figure 2) suitably tensioned between its head 32 and the lower protruding end of the pivot 24a.

For the gate formed by the crescent shaped disc 23 to pass a bottle, it must be turned in clockwise direction into the position indicated in phantom lines in Figure 3 wherein it presents its arcuate recess 27 to the entrance end portion of the dispensing channel 16. A bottle 13 may then be moved into said arcuate recess, and upon pushing the bottle further along the channel 16, the disc 23 will swing back to its original counterclockwise position while the bottle passes ahead of its trailing horn 23a into the dispensing station proper from where it may be withdrawn.

Any coin-controlled actuating mechanism having a reciprocating actuating bar, such as indicated at 40 may be employed to release the latch 33 and move the disc into its bottle-passing position. Having specific reference to Figure 3, the reciprocating bar 40 of a coin-controlled actuating mechanism is arranged to advance across the disc 23 along a line intermediately its center point and the latch head 32, such that upon its forward thrust the leading end of said bar will engage a suitable roller 42 pivoted to the latch head 32 and cam the latch out of the notch 31 in the periphery of the disc. Likewise, disposed within the path of the advancing actuating bar 40 a limited distance beyond its point of contact with roller 42 is an actuating stud 43 that is integral with and projects upwardly from the disc 23. Hence, after the advancing actuating bar 41 has unlatched the disc 23 and while it keeps the latch head 32 away from the edge of the disc, it engages the stud 43 and moves the disc 23 in clockwise direction into the bottle receiving position indicated in phantom lines in Figure 3, where it may remain after the actuating bar has been retracted into its position of rest. To prevent excessive clockwise rotation of the disc beyond the position in which it is adapted to receive a bottle into its arcuate recess 27, another notch 45 is provided in its contour at a point angularly displaced from the notch 31 in counterclockwise direction, as viewed in Figure 3. Said notch 45 is engaged by the head of the latch 33 as soon as the actuating bar 40 is returned to its initial position. The notch 45 is of such conformation as to positively prevent further rotation of the disc in clockwise direction while permitting disengagement of the latch head 32 against the urgency of spring 34 whenever sufficient force is applied to the disc in counterclockwise direction, such as is the case when a purchaser pushes a bottle into and against the concave edge of the arcuate recess 27 of disc 23. When this happens the latch head 32 is forced out of the notch 45 and slides along the edge of the rotating disc 23 to drop into the locking notch 31 under the urgency of spring 34 before the disc 23 reaches the rotary position in which it releases a bottle into the dispensing station proper. Hence, the disc must be turned further in counterclockwise position to deliver the bottle into the dispensing station than necessary for said disc to be locked against clockwise rotation, and as a result thereof it is impossible to pass more than one bottle through the gate for each effective stroke of the coin-controlled bar 40.

As a security against attempts to by-pass the described gate by tilting the bottle, a second recessed disc 50 may be firmly mounted upon the bushing 24 a limited distance above, and in rotary alignment with, the disc 23 and protrudes through another horizontal slot 51 in the wall 17 into the channel 16, as best shown in Figure 2. As said second disc 50 is rigidly connected to and moves in unison with the above described disc 23, it will be understood that no separate latching or actuating means are required for the second disc.

The described mechanism is simple and inexpensive in construction and dependable in operation. For performance it requires actuating mechanisms of the simplest kind only and may readily be combined with any known coin-controlled actuating mechanism of the type having a reciprocating actuator bar. It takes a minimum of space and may, therefore, readily be installed in any type of dispensing bottle container, refrigerator and the like.

While I have described my invention with the aid of a specific embodiment thereof, it will be understood that I do not wish to be limited to the specific constructional details shown and described which may be departed from without departing from the scope and spirit of the invention.

What I claim is:

1. A gate mechanism for bottles comprising members arranged to form a channel adopted to guide bottles, a rotor mounted for rotation about a vertical axis and being of a diametrical size to effectively bar the channel for the passage of bottles, said rotor having a recess in its periphery adapted to receive a single bottle and to pass it upon rotation from one to the other end of the channel, latching means effective during said bottle passing rotation to engage said rotor and prevent rotation thereof in the opposite direction, and means operable to disengage said latching means and turn said rotor in said opposite direction.

2. A gate mechanism for bottles comprising members forming the side walls of a channel adapted to guide bottles, a rotor mounted for rotation adjacent one of said side walls and being of a diametrical size to effectively bar the channel for the passage of bottles, said rotor having an arcuate recess in its periphery adapted to receive a single bottle and to pass it upon rotation from one to the other end of the channel, latching means effective during said bottle passing rotation to engage said rotor and prevent rotation thereof in the opposite direction, and means operable to disengage said latching means and turn said rotor in said opposite direction, said latching means being adapted to limit rotation of said rotor in said opposite direction at a predetermined rotary position thereof.

3. In a bottle dispensing container of the type having a bottle guide channel leading to a bottle dispensing station; a gate mechanism operable by a coin-controlled actuating bar, said gate mechanism comprising members arranged to form the bottle guide channel, a rotor mounted for rotation laterally adjacent said channel and being of a size to effectively bar said channel, said rotor having a recess in its periphery adapted, upon rotation from a position where said recess faces said channel to a position wherein said recess faces said station, to pass a single bottle from said channel to said station; latching means effective to engage said rotor during said bottle-passing rotation and prevent rotation thereof in the opposite direction, said latching means being located in the path of said actuating

bar such that it is engaged by said bar during each effective stroke thereof and forced out of said latching depression; and means adapted to be engaged by said actuating bar and effective upon such engagement to turn said rotor in said opposite direction.

4. A gate mechanism for bottles comprising two parallel side walls forming a bottle guide channel having an entrance and an exit portion, said gate mechanism comprising a circular disc mounted for rotation about a vertical axis adjacent one of said side walls, said disc being of a diametrical size adapted to effectively bar said channel for the passage of bottles but having an arcuate recess in its periphery adapted to receive a bottle and pass it through said channel, upon rotation from a position wherein said recess faces the entrance portion to a position wherein said recess faces the exit portion of said channel; a latch yieldably urged against the periphery of said disc, said disc having a first latching depression in its periphery adapted to be engaged by said latch during said bottle passing rotation

upon a predetermined increment thereof to prevent rotation of said disc in the opposite direction; means operable to force said latch out of said depression and turn said disc in said opposite direction, said disc having a second latching depression in its periphery adapted to be engaged by said latching means to limit rotation of said disc in the said opposite direction to a rotary position wherein said bottle receiving recess faces the entrance end of said channel.

LARRY M. HARRIS.

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