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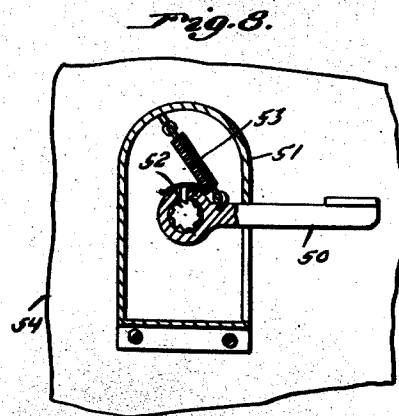
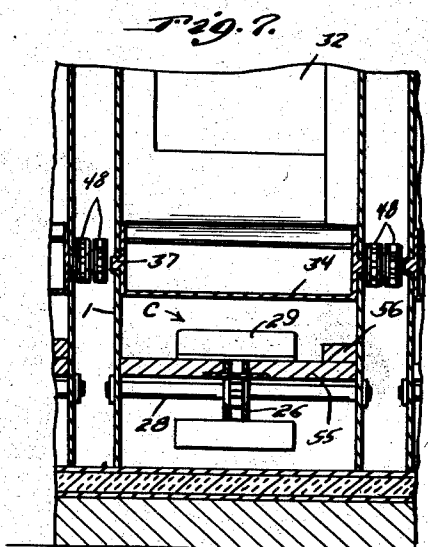
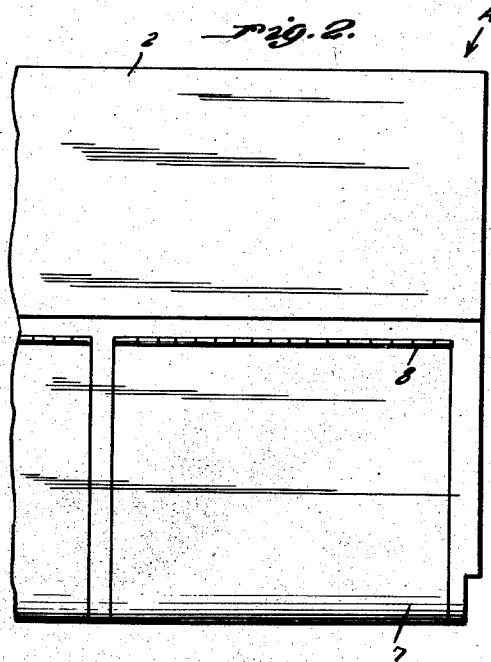
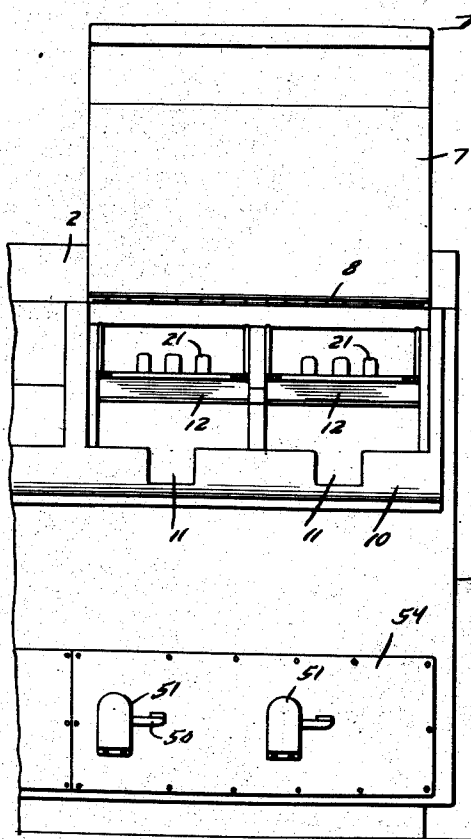
T. S. ELLIOTT, SR

2,296,154

BOTTLE DISPENSING AND COOLING APPARATUS

Filed April 30, 1941

3 Sheets-Sheet 1



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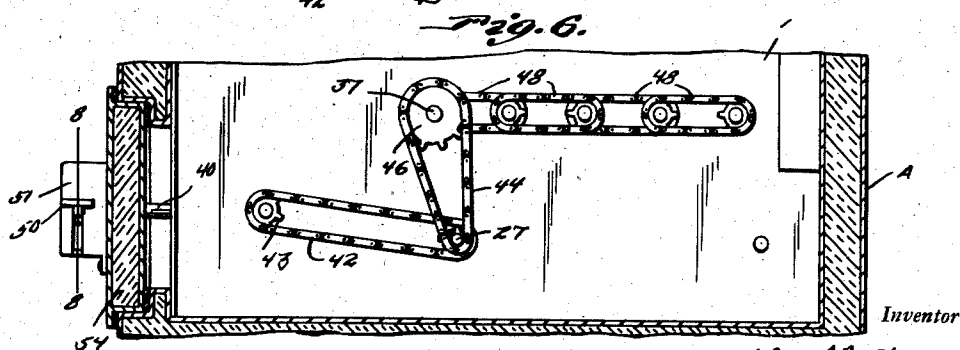
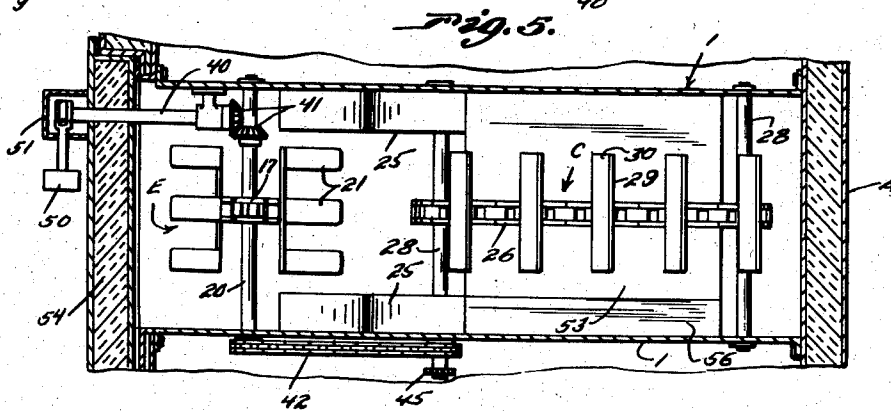
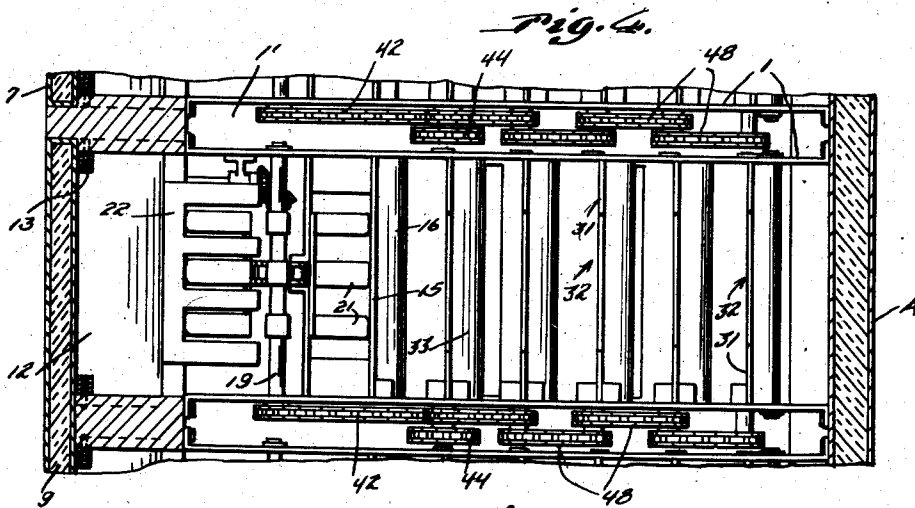
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BOTTLE DISPENSING AND COOLING APPARATUS

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3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,296,154

BOTTLE DISPENSING AND COOLING  
APPARATUS

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Application April 30, 1941, Serial No. 391,184

5 Claims. (Cl. 312—36)

This invention relates to a bottle cooling and dispensing apparatus, the general object of the invention being to provide a refrigerator cabinet divided into compartments, each compartment being provided with means for holding and dispensing bottles of beverages, with means whereby the bottles that have been in the cabinet the longest period of time are taken therefrom by the dispensing means so that the contents of these bottles are thoroughly chilled before being dispensed.

Another object of the invention is to so construct and arrange the bottle handling means that the bottles are carried through the compartments to the dispensing point without any jars or shocks such as will be caused by the bottles dropping a considerable distance from one part to another.

A still further object of the invention is to provide divider means in each compartment for dividing the bottles into vertical rows with means whereby the bottles are removed from the bottoms of the rows successively so that the bottles remain in the spaces formed by the dividers for a long time, thus giving the contents of the bottles a thorough chilling before the bottles are removed from the device.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which—

Figure 1 is a fragmentary front view of a cabinet for dispensing bottles constructed in accordance with the invention with one of the doors in raised position.

Figure 2 is a top plan view of Figure 1 but with the door in closed position.

Figure 3 is a vertical sectional view through the invention.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a horizontal sectional view through a portion of the device and showing the elevator and the horizontal conveyor with the means operating the same.

Figure 6 is a vertical sectional view through the lower part of the cabinet showing the oper-

ating chains and sprockets for moving the parts for delivering the bottles in timed relation.

Figure 7 is a section on the line 7—7 of Figure 3.

Figure 8 is a section on the line 8—8 of Figure 6.

Figure 9 is a view of one of the rotary cups.

In these drawings the letter A indicates a refrigerator cabinet which is insulated as shown at *a* and which is divided into a plurality of compartments by the partitions 1. A counter 2 is connected to the top of the cabinet at the front thereof and is supported on a raised part 3 of the top of the cabinet, this raised part leaving a recess 4 in the under face thereof which receives some of the coils of the cooling unit 5. Other coils of the unit are shown at 6 and arranged as shown in Figure 3. Of course, the refrigerating coils can be made to suit the size of the cabinet.

The rear part of the top of the cabinet has a plurality of openings therein, one for each compartment and such opening is closed by a door 7 hinged as at 8 to the stationary part of the top and said door has a depending portion 9 which overlaps a trough forming part 10 at the upper portion of the rear wall of the cabinet. This trough forming part is formed with the notches or openings 11 so that bottles dropping into the trough can be readily picked up. A downwardly closing trap door 12 closes the upper part of the trough between the part 9 of the door 7 and the reduced wall part *a'* of the rear wall of the cabinet, this door being provided with spring hinges 13 so that the door is normally closed but will swing downwardly to open position under the weight of a bottle B as shown in dotted lines in Figure 3.

The partitions 1 are of double construction so as to form the spaces 1' in which the operating means are arranged as will be hereinafter described.

A vertically arranged partition 15 is arranged in each compartment and extends from a partition 1 to the next partition 1 and its lower end is curved as shown at 16, this partition dividing the compartment into a space for receiving the bottles and a space for receiving the elevator E. The elevator includes the endless chain 17 passing over the upper and lower sprockets 18 carried by the upper shaft 19 and the lower shaft 20, fingers 21 of curved construction being carried by some of the links of the chain so that these fingers will carry bottles from a point adjacent the bottom of the compartment upwardly

alongside the partition 15 and then carry the bottles across the top of the elevator upon the sloping fingers 22 which convey the bottles to the door 12 which opens under the weight of the bottles so that the bottle will drop into the trough 10. A vertically arranged member 23 forms an abutment for the upwardly moving part of the chain so as to prevent this part of the chain which carries the bottles upwardly from moving inwardly toward the downwardly moving part of the chain. The fingers 21 as they move upwardly after passing around the lower sprocket 18 will pick up the bottles from the downwardly curved members 25 down which the bottles roll from the horizontal conveyor C.

This conveyor includes an endless chain 26 passing over the sprockets 27 carried by the shafts 28. Lugs 29 extend outwardly from the chain 26 and support strips 30 of rubber or the like, these strips acting to receive the bottles moving downwardly onto the conveyor as will be hereinafter described.

Vertically arranged dividers 31 are arranged in the space between the partition 15 and the front wall of the cabinet and these dividers are formed with the vertical openings 32 therein which extend from a point adjacent the lower end of each divider to the top thereof so that bottles can be readily placed in the spaces between the dividers, after the door 7 is open, without reaching along the space above the tops of the dividers. Each divider is also curved as at 33, the curve being similar to that shown at 16 for the partition 15.

As will be seen these dividers with the partition 15 form five spaces for receiving bottles in which the bottles are arranged in vertical rows. A semi-cylindrical cup 34 is arranged at the bottom of each of the five spaces, each cup including circular end members 35 with the half cylinder having its ends connected with the end pieces. The end pieces are provided with the trunnions 37 which are journaled in the walls or partitions 1 with one trunnion being extended to receive the sprocket. These cups work in the spaces formed by the curved parts 16 and 33 so that the dividers 31 are but slightly offset from the axes of the cups. The cups turn in the direction of the arrow shown in Figure 3 or in an anti-clockwise direction and as will be seen as the cup is turned it will engage the lowermost bottle of the row above it until the trailing edge of the half circle of the cup passes under the approximate center of the bottle when the bottle will roll over the trailing edge and pass into the cup between this edge and a curved portion 33 of the divider so that the bottle will not drop into the cup but will simply roll thereinto and thus the bottle is not subject to a shock or jar as it would be if it dropped into the cup. Only but one bottle can enter a cup at a time and each time a bottle leaves a cup it will be deposited upon the conveyor C and the parts are so arranged that as the bottle moves downwardly from the cup it will strike a rubber member 30 and thus the bottle will be eased onto the conveyor, the conveyor, of course, delivering the bottle upon the members 25 down which the bottles gravitate into a position where they will be picked up by the fingers 21 of the elevator.

A shaft 40 extends into the compartment where it is connected by the beveled gears 41 with the shaft 20 at the lower end of the elevator and a chain 42 connects a sprocket 43 on an end of the shaft 20 to a sprocket on the adjacent shaft 27

of the conveyor. A chain 44 connects a sprocket 45 on the shaft 27 to a sprocket 46 on a trunnion 47 of the first cup. Chains and sprockets 48 connect the cups, on the trunnions thereof together in pairs with one chain, connected with the trunnion of the first cup. The shaft 40 is given step by step movement by a pedal 50 projecting through a slot in a small housing 51, the pedal being connected with the shaft by the ratchet means 52, see Figure 8, and the pedal is held in raised position by a spring 53. The housings 51 are carried by panels 54 fitting in openings in the rear walls of the cabinet at the lower end thereof, the panels being removably held in place in any suitable manner. As before stated the chains and sprockets for operating the cups, conveyor C and the elevator are located in the spaces 1' between the double partitions 1.

A board-like member 55 forms a platform for the upper reach of the conveyor C and a strip 56 is attached to one edge part of this member 55 to form a support for the bottle neck as shown in Figure 7. The chain and sprocket are so arranged that the cups are so moved that the bottles will be discharged from the cups in succession. For instance, a bottle has been discharged from the first cup and then on the next movement of the pedal 50 a bottle will be discharged from the second cup and then on the next movement of the pedal a bottle will be discharged from the third cup and so on until a bottle has been discharged by the last cup. Then the operation begins over again with the bottle discharging from the first cup. The parts are so timed that each time a bottle moves from a cup it will be received by the rubber member 30 of a lug 29 of the conveyor C, with the bottles then moving between the lugs so that they will be carried by the conveyor to the members 25 which, of course, deliver them into a position where they will be picked by the elevator.

As will be seen the bottles at the bottoms of the rows of bottles are delivered onto the conveying means so that the bottles which have been in the refrigerating compartment the longest are dispensed and the bottles are delivered from the bottom of each row in succession so that the bottles remain in the compartment for a long time. The top bottles are being lowered evenly in each chute formed by the dividers, thus enabling the operator to fill the chutes at any time even though he has only served a few bottles. The bottles are gradually lowered in each chute as the bottom bottle is gradually lowered into the conveyor C, the lugs of which are so spaced as to receive the bottles in a proper manner from the cups.

The continuity of movement is made in such a manner that no bottle other than the bottom one in each chute can be removed by the delivery means and by causing a bottle to contact a rolling edge of a cup the bottle is gradually lowered into position and rolls down the closed edge of the cup and passes under the next bottle with a rolling motion and does not lift or disturb the row of bottles above it.

By placing fillers in the chutes alongside the dividers 31 these chutes can be made narrower so as to receive smaller bottles, these bottles being handled by the cups and conveyor C as before described. This will enable the operator to use different sizes of bottles in the cabinet and bottles containing different beverages. This will reduce the upkeep as the one cabinet can be used

for dispensing different sizes of bottles and different brands of drinks.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a bottle cooling and dispensing apparatus, a refrigerator casing, vertical dividers in the casing forming vertically arranged chutes for receiving bottles and holding the bottles in vertical rows, conveying means in the bottom of the casing below the chutes, delivery means at the top of the casing at one side thereof and including a discharge opening at the upper portion of the casing, elevator means for taking bottles from the conveying means and delivering them to the delivery means, means for delivering the bottom bottles from the chutes in succession to the conveyor means and means for operating the conveying means, the delivery means at the bottom of the chutes and the elevator.

2. In a bottle cooling and dispensing apparatus, a refrigerator casing, dividers in the casing forming vertically arranged chutes for holding bottles in vertical rows, semi-cylindrical cups rotatably arranged at the lower ends of the chutes for receiving bottles one by one from the chutes, means for rotating the cups to deliver bottles therefrom successively from the first chute to the last chute, a discharge opening at the upper portion of the casing, a closure for the opening operated through the medium of a bottle engaging the closure, and means for conveying the bottles delivered by the cups to a position for engaging said closure.

3. In a bottle cooling and dispensing apparatus, a refrigerator casing, dividers in the casing forming vertically arranged chutes for holding bottles in vertical rows, semi-cylindrical cups rotatably arranged at the lower ends of the chutes for receiving bottles one by one from the chutes, means for rotating the cups to deliver bottles therefrom successively from the first chute to the last chute, and means for conveying the bottles delivered by the cups to a point exterior of the casing, such means including a conveyor under the chutes, an

elevator, gravity means for receiving the bottles from the conveyor and moving them to a position where they will be picked up by the elevator, a trap door, means for causing the bottles raised by the elevator to roll down upon the trap door to open the same and a trough for receiving the bottles dropping from the trap door.

4. In a bottle cooling and dispensing apparatus, a refrigerator casing, dividers in the casing forming vertically arranged chutes for holding bottles in vertical rows, semi-cylindrical cups rotatably arranged at the lower ends of the chutes for receiving bottles one by one from the chutes, means for rotating the cups to deliver bottles therefrom successively from the first chute to the last chute, and means for conveying the bottles delivered by the cups to a point exterior of the casing, such means including a conveyor under the chutes, an elevator, gravity means for receiving the bottles from the conveyor and moving them to a position where they will be picked up by the elevator, a trap door, means for causing the bottles raised by the elevator to roll down upon the trap door to open the same and a trough for receiving the bottles dropping from the trap door, the lower end of the walls of the chutes curving to conform to the cup with an edge of a cup causing a bottle above the cup to roll over the edge into the cup without dropping, the major portion of the adjacent wall of a chute being slightly spaced to one side of the plane of the axis of a cup.

5. In a bottle cooling and dispensing apparatus, a refrigerator casing, vertical dividers in the casing forming bottle receiving chutes, each chute being adapted to hold a plurality of bottles in a vertical row, the lower ends of the walls of each chute curving downwardly in the same direction and toward another wall, cups rotatably mounted between the curved parts and each cup being of semi-cylindrical shape and adapted to receive the lowermost bottle of the respective chutes, means for rotating the cups to deposit the bottles one at a time and in succession from the first row to the rear row, a horizontal conveyor having lugs thereon, said lugs having resilient parts connected therewith and means for moving the conveyor and the cups to cause the bottles moving from the cups to engage the resilient members and then to be seated between the lugs and means for delivering bottles from the conveyor to an exterior part of the casing.

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