

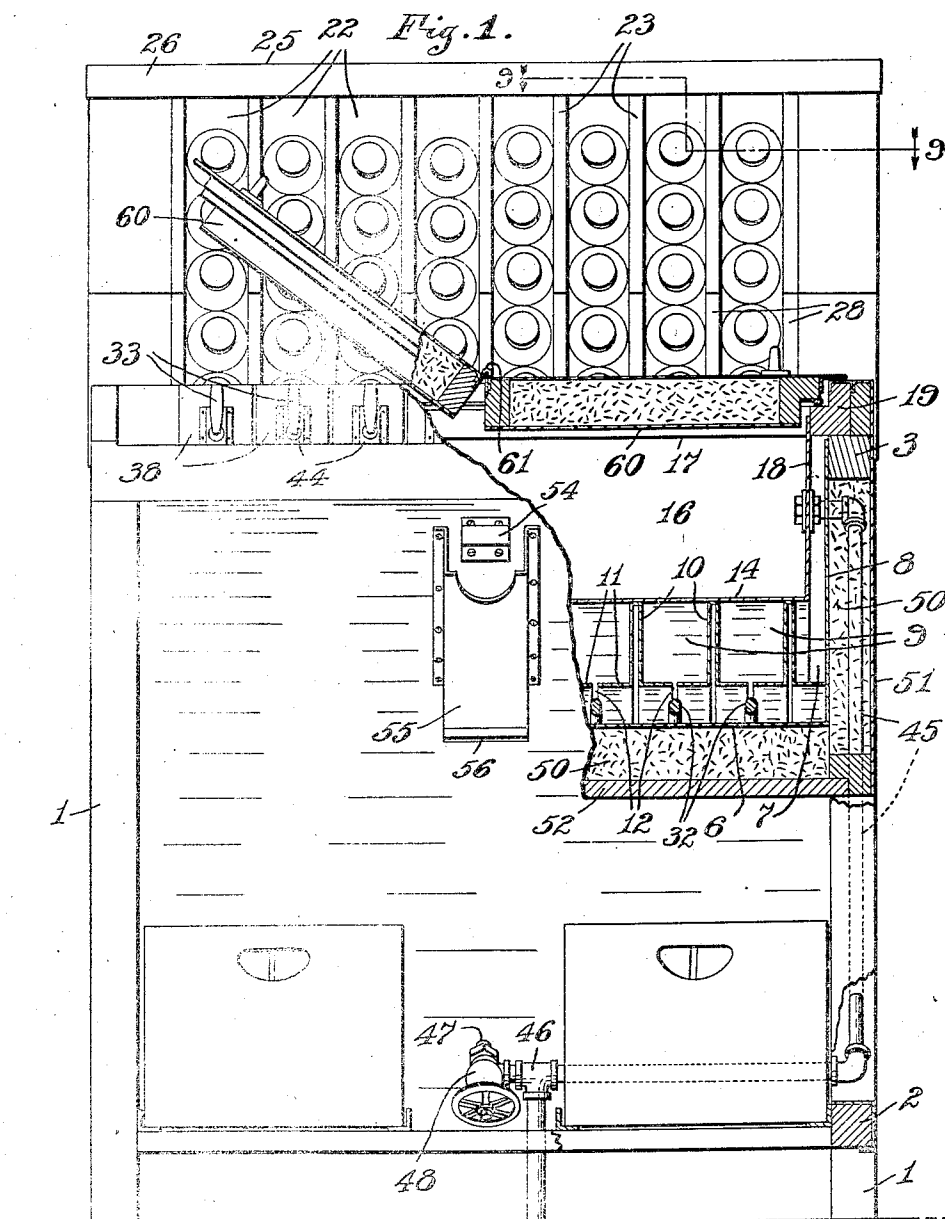
April 5, 1927.

1,623,947

C. A. FRICK
BOTTLE REFRIGERATOR

Filed Oct. 2, 1925

3 Sheets-Sheet 1



INVENTOR.
Chester A. Frick,

BY

Hood & Hahn.
ATTORNEYS

April 5, 1927.

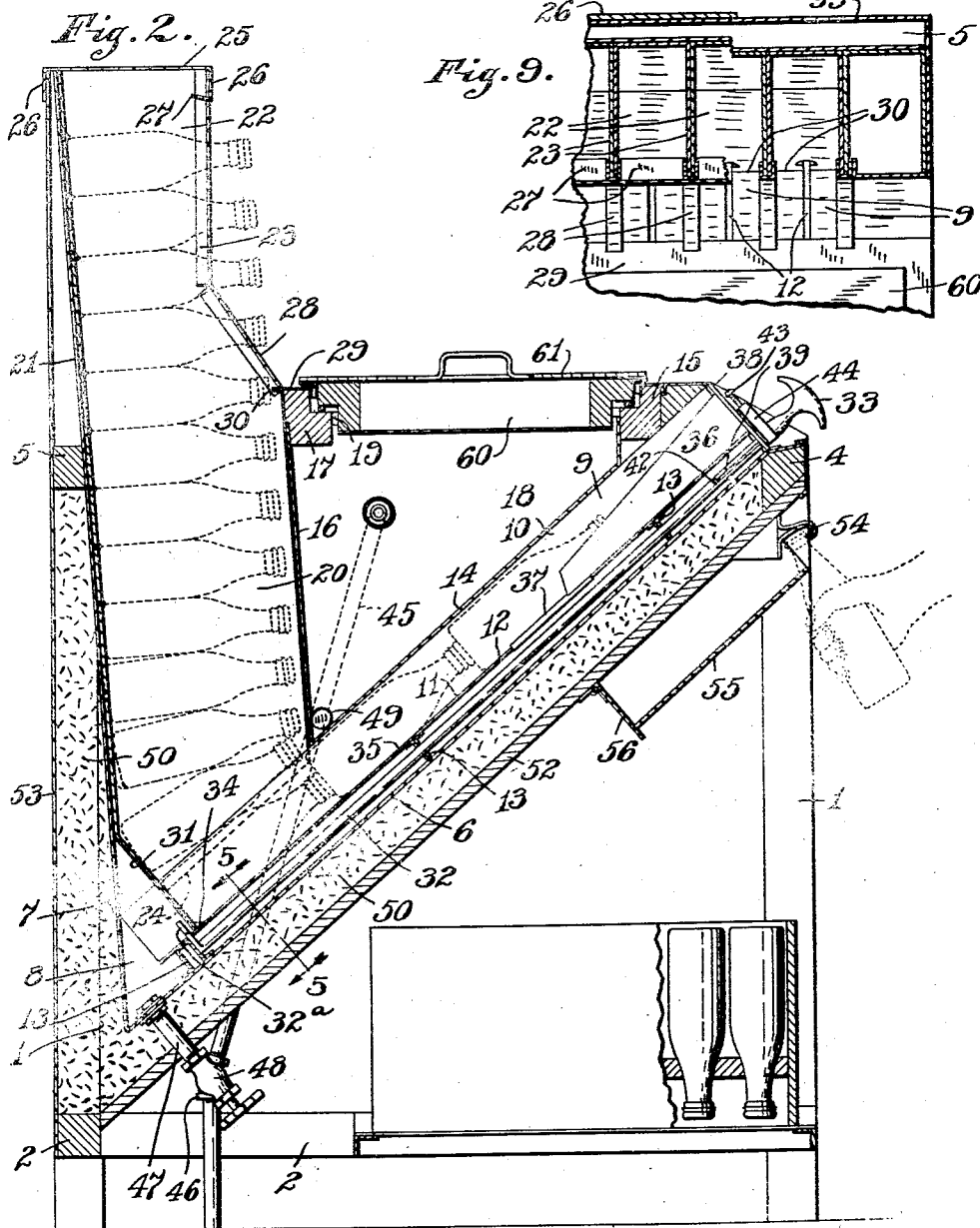
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3 Sheets-Sheet 3

Fig. 3.

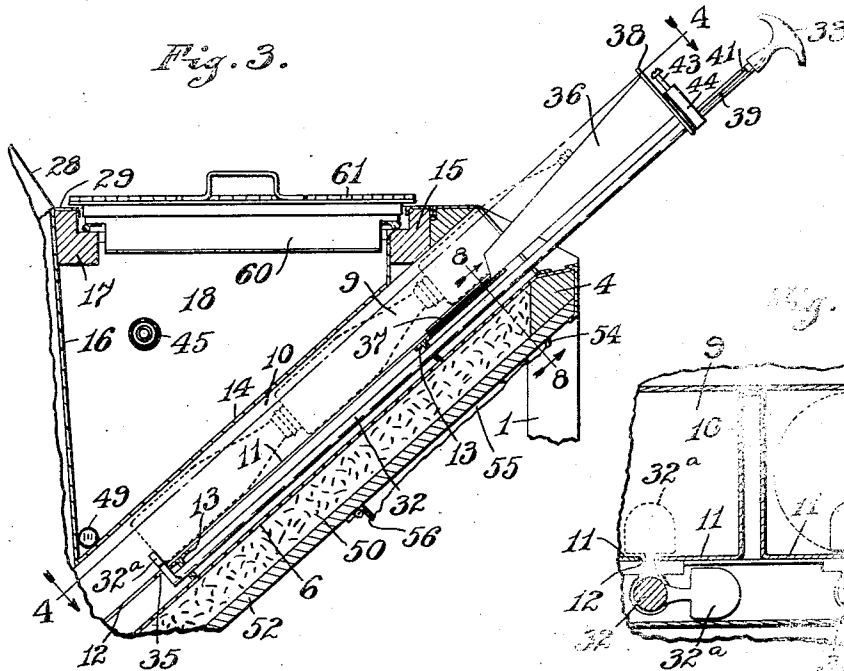


Fig. 5.

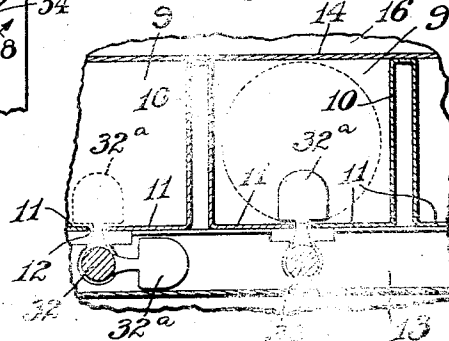


Fig. 4.

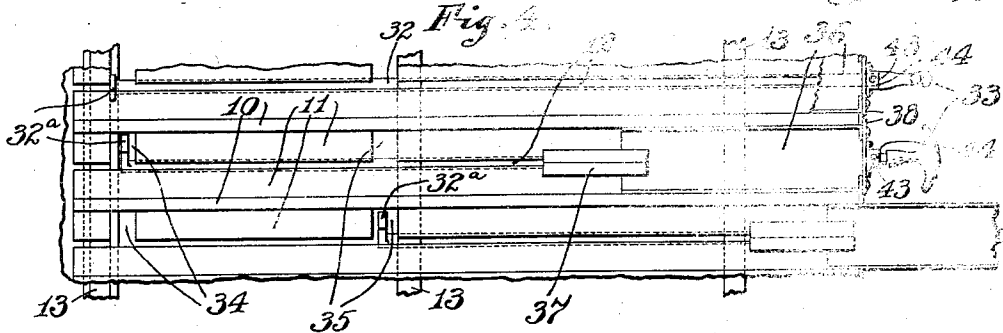


Fig. 6.

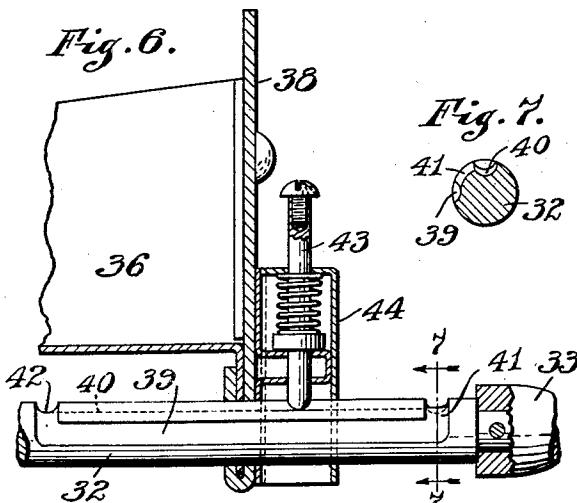


Fig. 7.

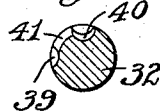
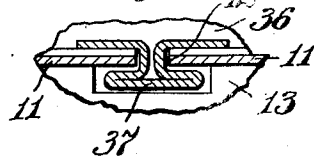


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHESTER A. FRICK, OF MUNCIE, INDIANA, ASSIGNOR TO GLASCOCK BROTHERS MFG. COMPANY, OF MUNCIE, INDIANA, A CORPORATION OF INDIANA.

BOTTLE REFRIGERATOR.

Application filed October 2, 1925. Serial No. 59,993.

My invention relates to improvements in refrigerators for bottles and particularly to a dispensing refrigerator for cooling pop bottles and the like.

One of the objects of my invention is to provide a bottle dispensing refrigerator in which a comparatively large number of bottles may be subjected to the influence of the cooling medium and in which the bottles may be maintained in a cooling liquid, which in turn is chilled by a suitable cooling medium such for instance as ice or refrigerating coils, the liquid in which the bottles are stored, however, being separate from the cooling medium.

Another object of my invention is to provide a refrigerator in which the bottles are mechanically projected from their storage chamber and which at the same time will prevent drip as the bottles are withdrawn from the storage container.

Another object of my invention is to provide a refrigerator for pop bottles and the like which may be manufactured at a minimum expense without sacrificing storage capacity and convenience in handling the bottles.

For the purpose of disclosing my invention I have illustrated one embodiment thereof in the accompanying drawings in which

Fig. 1 is a front elevation partly in section of a refrigerator embodying my invention;

Fig. 2 is a longitudinal sectional view thereof;

Fig. 3 is a detail sectional view showing the delivery mechanism in delivery position;

Fig. 4 is a detail section on the line 4—4 of Fig. 3;

Fig. 5 is a detail section on the line 5—5 of Fig. 2;

Fig. 6 is a detail sectional view of the connection between the bottle drawer and the bottle projector;

Fig. 7 is a detail section on the line 7—7 of Fig. 6;

Fig. 8 is a detail section on the line 8—8 of Fig. 3, and

Fig. 9 is a sectional view on the line 9—9 of Fig. 1.

In the embodiment of the invention illustrated I provide a suitable supporting frame having four corner posts 1 connected and braced at their bottoms by suitable hori-

zontal braces 2. At each side the tops of the posts are connected together by side braces or sills 3, which extend from front to rear of the frame and at the front the posts are connected by cross sills 4 and at their rear by cross sills 5. A rigid supporting frame for the parts constituting the refrigerator is thus provided. Supported from the side sills 3 and the front and rear sills 4 and 5 is a bottle receiving tub substantially V shaped in cross section, which provides an upwardly inclined bottom 6 and a vertical back 7, the back 7, however, being slightly inclined from the vertical as illustrated in Fig. 2. The two ends of the tub are closed by vertical side walls 8 which at their upper ends are secured to the side sills 3, the top and front end of the bottom 6 being lapped over and secured to the front sill 4 and the rear wall or back being secured to the rear sill 5 whereby the tub is conveniently hung from the top sills of the supporting frame. This tub, which may be conveniently termed the outer tub, has formed therein a plurality of bottle channels 9 parallel with the bottom 6 of the tub. These channels are formed by a plurality of spacer members each of which is formed of sheet metal, the metal being doubled upon itself to form a T, the stem 10 of which provides the riser or spacer member while the head 11 forms the bottom of the bottle channel. The heads of the different T's are spaced apart as at 12 to form a plurality of longitudinal slots in the bottom of the channel for a purpose more fully hereinafter described. These T's are supported upon and secured to cross bars 13 at suitable spaced intervals, which connect the risers or spacers together and form the same into a unitary structure and at the same time space the bottoms of the bottle channels formed by the heads 11 from the bottom 6 of the outer tub.

An inner tub of substantially the same shape as the outer tub, being smaller in dimension, however, nests the outer tub and its inclined bottom 14 rests upon the tops of the spacers 10 and lies parallel with the bottom 6 of the outer tub. The upper end of the bottom 14 is secured to a transversely extending support 15 of the supporting frame and the rear wall or back 16 is secured to a second transversely extending support 17 on the frame. The sides 18 of the inner tub are secured to horizontal sills

19 of the frame. The rear wall 16 of the inner tub is inclined to lie parallel with the rear wall 7 of the outer tub and is spaced apart from the rear wall 7 of the outer tub a distance substantially equal to the length of the bottles to be contained in the refrigerator. A bottle chute 20 is thus formed which is extended beyond the top of the refrigerator by providing an extension 21 of the back 7 of the outer tub, which extension may be formed integral with the back 7 or may be formed of a separate sheet of metal. This chute is divided into a series of channels 22 coinciding with the channels 9 by suitable spacers 23 comprising U shaped sheet metal channels which extend from the top of the back member 21 to the point 24, straddling at their lower ends the risers or spacers 10. These spacers 23 are maintained in their spaced relation at their tops by a cap or cover 25 having side flanges 26, the front one of which is provided with turned lips 27 which fit between the spacers 23. At their top ends the spacers 23 are narrower and inclined outwardly as at 28 to a width corresponding to the length of a bottle and on the support 17 I provide a plate 29 having fingers 30 interposed between the spacers 23 and maintaining them in their spaced relation at this point. Due to the narrowing of the bottle channels at their upper ends the neck of the bottle will project beyond the front thereof so that the bottles may be dropped in position.

A deflector 31 extends across the lower ends of the channels 9 and is at right angles to the bottoms of these channels, this deflector projecting upwardly until it meets the back 7 of the outer tub and insures the dropping or feeding of the bottles in correct position into the lower ends of the channels. For projecting the bottles axially along the channels 9 I provide in each channel a spade shaped plunger 32^a the handle of which is adapted to project through the slot 12 in the bottom of the channels and be secured to an operating rod 32 which is slidably mounted in openings in the cross member 13. This rod projects beyond the front end of the channel and terminates in a handle 33 by which the same may be reciprocated in its guides. The bottom of each channel, at its rear end, is provided with a transverse slot 34 and immediately to the rear of the central cross support 13 is a second transverse slot 35 for a purpose more fully hereinafter to appear.

Sliding in each of the channels 9 is a drawer 36 slidable into and out of the channel and guided at its forward end during its sliding movement by a guide member 37 fitting in the slot 12. This drawer at its front end is provided with a cover plate 38 which, when the drawer is closed, effectually closes the end of the channel and the

drawer is connected to the rod 32 by a lost motion connector. To this end the rod 32, at its handle end, is provided with a pair of longitudinally extending guideways 39 and 40 connected at their extremities by transverse guideways 41 and 42 and operating in these guideways is a spring pressed plunger 43 carried by a suitable support 44 mounted on the face of the cover 38.

The inner tub is provided with an overflow opening communicating with a drain pipe 45 connected by a T coupling 46 with a drain pipe 47 communicating with the bottom of the outer tub provided with a valve 48. Under normal circumstances the valve 48 is closed so that the drain 47 is closed to prevent the water from escaping from the outer tub. In event, however, it is desired to drain the outer tub for cleaning purposes, this valve 48 may be opened and the water contained in the outer tub drained off therefrom. The inner tub is likewise provided with a drain opening 49 at its bottom, which opening, however, is normally closed by a plug or the like, and is provided only for the purpose of draining of the water from the inner tub when desired to clean the tub.

The outer tub is surrounded by a suitable insulating material, such as cork filler 50, held in place at the sides by side panels 51 secured to the frame, at the bottom by a bottom board 52, likewise secured to the frame, and at the back by a back panel 53 also secured to the frame. These panels not only maintain the cork filler in position, but also "finish" the structure.

On the under face of the bottom 52 I provide a crown puller 54 which is arranged at the top of a chute 55 having a hinged bottom 56.

In operation, the bottles are inserted in a horizontal position at the top of the channels 22, being stacked one on top of the other, and fed by gravity into their respective channels 9, the angle of the deflector plate 31 being such that the bottles as they are fed down will drop in the correct position into the channel. The bottles are then moved axially up the channels 9 by the reciprocation of the spade plunger 32^a which in its vertical, or raised, position engages behind the lowermost bottle in the channel 9 and pushes the same forward until it is removed from beneath the stack of bottles above it, permitting the stack to drop down and another bottle to drop into the rear end of the channel 9, and maintaining the first bottle in an advanced position in this channel. When the spade plunger reaches the channel 35 it may be given one half a turn to rotate the same beneath the bottom 11 to permit it to be moved into its initial position below said bottom, after which it may be again turned upwardly through the chan-

nel 34 and engage behind the rear-most bottle. After two bottles have been thus raised, to provide a series of three bottles in each of the channels, the apparatus is ready for delivering bottles into the drawer 36. With the spade raised into an engaging position behind the rear-most bottle the drawer 36 is closed and the handle 33 occupies a substantially vertical position, that is a position corresponding to the position of the spade plunger. As the handle 33 is drawn outwardly the plunger 43 rides in the longitudinal slot 40 permitting the handle 33 to move without affecting the drawer 36 until a bottle is moved up into the drawer. By this time the plunger 43 will have reached the inner end of the channel 40 and engage the inner wall thereof so that the drawer 36 and rod 32 will move outwardly together until the spade engages the intermediate stop 13 and is opposite the channel or slot 35. By this time the drawer will have been fully opened to a position where the bottle may be removed therefrom. In closing the drawer and returning the spade to its initial position the handle is given a half turn in a clockwise direction, the plunger 43 riding in the transverse groove 42 during this movement and the spade 32^a being turned down into a horizontal position through the opening 35 and to beneath the bottom 11 of the bottle channel. The handle is then pushed inwardly, moving the spade inwardly and the plunger 43 rides in the groove 39 until it reaches the outer end of said groove, at which time it engages the outer wall of the groove causing the drawer 36 to be moved inwardly with the rod 32 to a closed position and by the time the drawer 36 has reached a fully closed position the spade will have reached a position opposite the opening 34 when, by giving the handle 33 a turn in a counter-clockwise direction the spade will be raised through the opening 34 into a position behind the rear-most bottle, the plunger riding in the transverse groove 41 and back into the groove 40, when the parts are again in position for removing a bottle.

The upper open end of the inner tub is closed by a removable cover 60 which is conveniently made in two halves hinged together at 61 (Fig. 1) to facilitate handling.

I claim as my invention:

1. The combination with a tub having a forwardly and upwardly inclined bottom, of a second tub nesting said first tub the space between the bottoms of said tubs being formed into a series of laterally liquid communicating bottle channels open at their forward end and supporting the bottles in axial stacked relation one on top of the other and the space between the backs of said tubs being formed into a series of vertical bottle chutes open at their tops and communicating with said first mentioned channels and ar-

ranged to support the bottles in stacks with the bottles disposed horizontally and reciprocable means in each channel for engaging the bottom bottle of the axial stack and moving the stack axially to the open end of the channel and form beneath the horizontally stacked bottles.

2. The combination with a tub having a forwardly and upwardly inclined bottom, of a second tub nesting said first tub, the space between the bottoms of said tubs being formed into a series of laterally liquid communicating bottom channels open at their forward ends and the space between the backs of said tub being formed into a series of vertical bottle chutes open at their tops and communicating with said channels and arranged to support the bottles in stacks with the bottles disposed horizontally, drawers slidable into the open ends of said channels and reciprocable means having a lost motion connection with said drawers to first move a bottle into a drawer and then open the drawer.

3. The combination with a tub having a forwardly and upwardly inclined bottom, of a second tub nesting said first tub the space between the bottoms of said tubs being formed into a series of liquid communicating bottle channels open at their forward ends and the space between the backs of said tubs being formed into a series of vertical bottle chutes open at their tops and communicating with said channels and arranged to support the bottles in stacks with the bottles disposed horizontally, drawers slidable into the open ends of said channels and reciprocal means having a lost motion connection with said drawers to first move a bottle into a drawer and then open the drawer.

4. The combination with a tub having a forwardly and upwardly inclined bottom, of a second tub nesting said first tub the space between the bottoms of the tubs being formed into a series of bottle channels open at their forward ends and the space between the backs of said tubs being formed into a series of vertical bottle chutes open at their tops and communicating at their bottoms with said channels and arranged to support the bottles in stacks with the bottles disposed substantially horizontally, means for causing the bottom most bottles of the stacks as they are fed downwardly to rotate on an axis at right angles to the axes of the bottles to assume an upwardly inclined position coinciding with the bottom of the channels and reciprocal means for engaging the bottom most bottle of the stack and moving the same axially forwardly through the channels.

5. The combination with a tub divided

into a plurality of channels each channel having its bottom spaced apart from the bottom of the tub and a reciprocable member operating in the space between the bottom of the channel and the bottom of the tub and having means for engaging the bottles to move them forwardly in their channels.

6. The combination with a tub having at its bottom a plurality of bottle receiving channels spaced apart from the bottom of the tub each channel being adapted to receive a plurality of bottles axially arranged, of a reciprocable member operating in the space between the bottom of the channel and the bottom of the tub arranged to engage behind the rear most bottle and propel the bottles forwardly.

7. The combination with a pair of nesting tubs having forwardly and upwardly inclined bottoms and substantially vertical backs, the space between said tubs being formed into a series of laterally liquid communicating channels, and reciprocable means operable from the front of the tubs for engaging the bottles in said channels and projecting them forwardly through the same, said means permitting the bottles to be maintained in the upwardly inclined channels in axial stacked relation.

8. The combination with a tub having a series of bottle receiving channels in its bottom, of a reciprocable and rotatable plunger operating beneath the bottoms of said channels and having means moved by the rotation of the plunger into engagement with the bottles of said channels and project the same forwardly by the reciprocation of said plunger.

9. The combination with a tub divided into a plurality of bottle receiving channels through which the bottles are arranged to be moved axially, of a closure member for the open end of each of said channels, a drawer supported by said closure member and projecting into said channel, a reciprocable plunger having means for engaging the bottles in said channels and moving the same axially forwardly and having a connection with the drawer to open the drawer and the member after a bottle has been projected into the drawer.

10. The combination with a tub divided into a plurality of bottle receiving channels through which the bottles are arranged to be moved axially, of a reciprocable and rotatable bottle operating member arranged to be moved into engagement with the bottles by its rotative movement and axially move the bottles by its reciprocal movement in each of said channels.

11. In a bottle dispensing refrigerator, the combination with means for maintaining a series of bottles in stacked relation side by side and a second means for maintaining

a series of bottles in axial stacked relation at substantially less than ninety degrees from the first-stacking means and of a length sufficient to retain a plurality of bottles, and junction means between said maintaining means extending at such an angle to each of them as to cause the bottom bottle of the first maintaining means as the bottles descend in said maintaining means to move directly to the bottom of the second maintaining means and in axial position therein when a bottle is removed from the second maintaining means.

12. In a bottle dispensing refrigerator, the combination with a container having means for maintaining a series of bottles in axial stacked relation one on top of the other, and means for maintaining a series of bottles in horizontal position one on top of the other in stacked relation and at an angle to said first mentioned stack, substantially less than ninety degrees, of guiding means extending at an angle to each of said stacks for causing the bottom bottle of the second stack to be moved directly to the bottom of the first stack when the bottom bottle of the first stack is moved, and reciprocable means operable from the front of the container for engaging the bottom bottle of the first stack and moving the stack axially to deliver the bottle.

13. In a bottle dispensing refrigerator, the combination with a container having a forwardly and upwardly inclined bottle channel arranged to receive the bottles in axial stacked relation one on top of the other and a substantially vertical channel extending from the bottom of said inclined channel and arranged to receive the bottles stacked one on top of the other in a horizontal position, said vertical channel projecting above the top of the container and having its top and front open and reciprocable means engaging the bottom bottle of the inclined stack and moving the stack axially to deliver a bottle.

14. In a bottle dispensing refrigerator, the combination with a container having a forwardly and upwardly inclined bottle channel arranged to receive the bottles in axial stacked relation one on top of the other and a substantially vertical channel extending from the bottom of said inclined channel and arranged to receive the bottle stacked one on top of the other in a horizontal position, said vertical channel projecting above the top of the container and having its top and front open, that portion of the channel projecting above the container being of less width than the length of a bottle.

15. In a bottle dispensing refrigerator, the combination with a water receptacle arranged to receive a series of bottles in an axial stacked relation one on top of the other, reciprocal means engaging the bottom bottle of the stack and moving the stack

axially to raise the bottles and means for supporting a series of bottles in stacked relation one on top of the other in a horizontal position, the bottom bottle of said second
5 stack being permitted to move to the bottom of the first stack when the bottom bottle of the first stack is moved axially and a drip guard at the delivery end of the container movable into and out of the
10 container with said reciprocal means.

16. In a bottle dispensing refrigerator the combination with a container for a liquid refrigerant, of a substantially vertical chute
15 extending into said container and constructed to support and guide the bottles in

a recumbent side by side stacked relation, the rear wall of said chute at its bottom having such an inclination from the vertical as to rotate the bottles on an axis at right angles to the axes of the bottles as the bottles
20 descend in said chute under the influence of gravity to move the bottles toward a vertical position whereby the bottles may be removed axially from the container.

In witness whereof, I, CHESTER A. FRICK, 25
have hereunto set my hand at Muncie, Indiana, this 28th day of September, A. D. one thousand nine hundred and twenty five.

CHESTER A. FRICK.