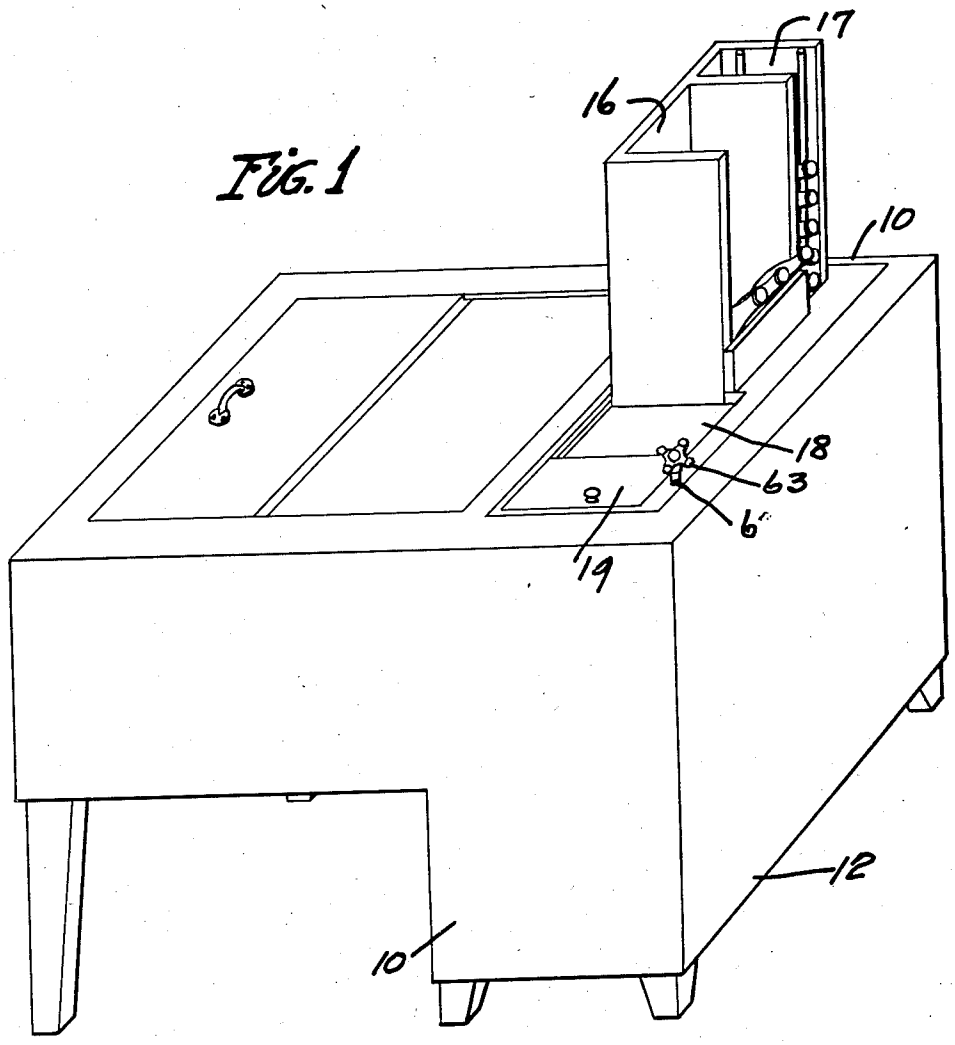
May 21, 1935. C. H. KARNAGHAN 2,001,786

BOTTLE DISPENSING APPARATUS

Filed March 31, 1934 3 Sheets-Sheet 1

FIG. 1



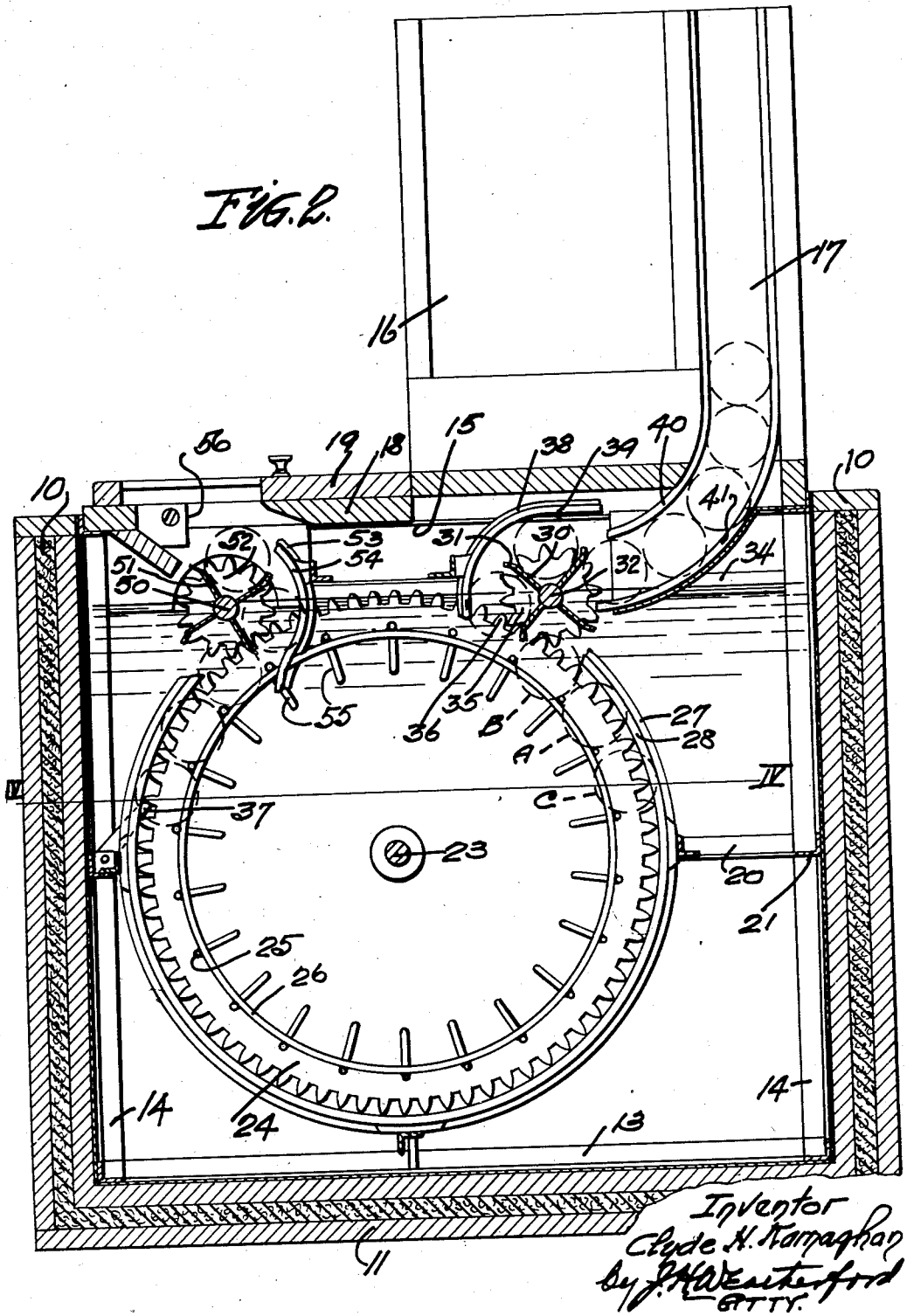
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BOTTLE DISPENSING APPARATUS

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FIG. 2.



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FIG. 3.

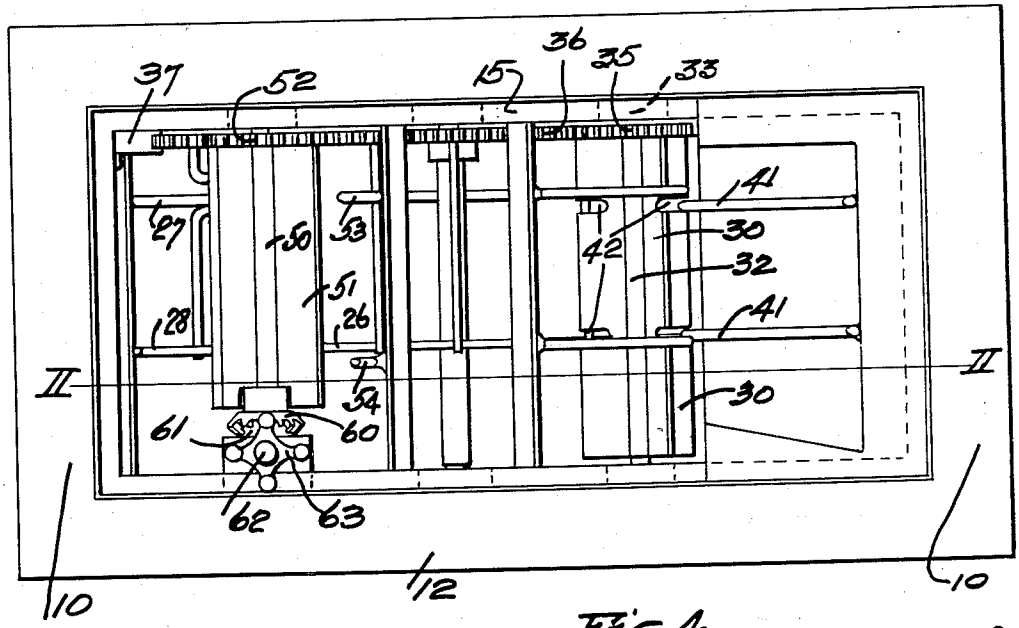
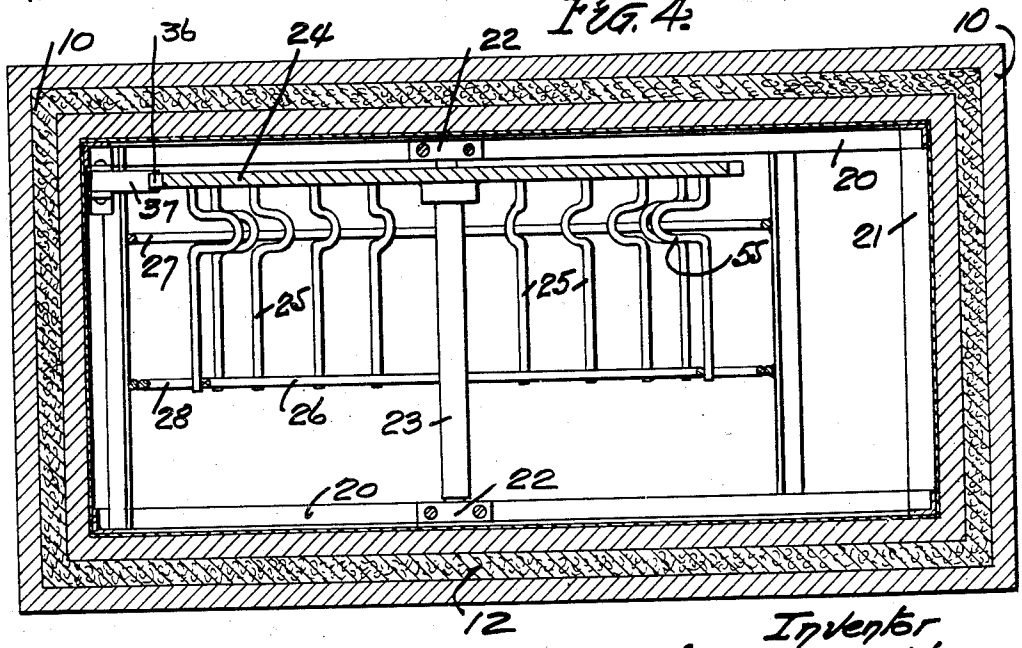


FIG. 4.



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UNITED STATES PATENT OFFICE

2,001,786

BOTTLE DISPENSING APPARATUS

Clyde H. Karnaghan, Memphis, Tenn.

Application March 31, 1934, Serial No. 718,377

3 Claims. (Cl. 312—36)

This invention relates to machines for dispensing small packages, especially bottles, as of soft drinks, beer and the like, which it is desired to keep ice cold, and which are to be dispensed one at a time.

The invention particularly relates to the means by which the bottles are delivered into the machine and are removed therefrom.

The objects of my invention are:

To provide such a device in which a large number of bottles may be kept below the surface of a cooling liquid, such as ice water;

To provide means by which these bottles may be advanced through the water and delivered;

To provide means which coordinates the delivery of a bottle with the feed-in of an additional bottle;

To provide means by which the feed-in of the bottles is accomplished with a minimum of, or lack of, disturbance to bottles positioned for such feed-in;

To provide means by which the bottles must be removed in the order of their placing in the machine;

To provide means to prevent reversal of the movement of the bottles through the machine;

To provide means for delivering the bottle to be dispensed within reach of the dispenser or customer, and

To provide means whereby the delivery of a bottle automatically stops movement of the machine until such bottle is removed.

The means by which the foregoing and other objects are accomplished and the method of their accomplishment will readily be understood from the following specification on reference to the accompanying drawings, in which,—

Fig. 1 is a perspective view showing the machine disposed in one end of a special form of cooling tank.

Fig. 2 is a vertical sectional elevation showing the dispensing machine in the cooling cabinet, the section being taken on the line II—II of Fig. 3.

Fig. 3 is a plan of the machine with the magazine and cover portions removed.

Fig. 4 is a sectional plan of the machine taken as on the line IV—IV of Fig. 2.

Referring now to the drawings in which the various parts are indicated by numerals, 10—10 are the side walls of a cooling tank, 11 the bottom thereof, and 12 the front wall, these walls and the structure formed thereby being merely illustrative of a tank in which the device may be placed and not forming an essential portion of the present invention.

The machine itself comprises a framework preferably rectangular in vertical and horizontal section, and preferably built up of structural members such as angle irons. As here outlined this framework comprises a rectangular base 13 from the four corners of which angle iron posts 14 extend upward to a similar rectangular top frame 15. The vertical legs of the angles forming this top frame 15, preferably are turned upward in order to receive and position a bottle magazine 16, a feed-in chute 17, and a top closure 18, having a door 19, these parts being fastened to the top frame in any usual or desired manner.

Intermediate the height of the posts 14 is an intermediate frame comprising side members 20, and end members 21. Secured to the side members 20 are bearings 22 in which a horizontal shaft 23 is journaled. Mounted on this shaft is a drum shaped bottle carrier which preferably comprises a disk 24, to which spacing rods or fingers 25 are secured. These fingers are disposed at equal intervals along a circle, concentric with the shaft, project substantially at right angles from the disk and are braced at their outer ends as by a ring 26 to which they are rigidly secured. The fingers 25 are so spaced with reference to the size of the bottles to be carried that any bottle as the bottle "A" Fig. 2, may nest between two adjacent fingers and their diameter is such that adjacent bottles, as the bottles "B" and "C" adjacent the bottle A, are spaced slightly apart.

Surrounding this carrier and concentric therewith are a pair of retainers or guides 27, 28 which hold the bottles in the pockets formed by the fingers, the bottles being moved along these guides as the drum is turned. Ordinarily the guide 27 adjacent the disk is of greater diameter than the guide 28, the former retaining the bottom end of the bottle and the latter being so spaced therefrom as to engage the neck of the bottle. Such conformation prevents longitudinal displacement of the bottles.

The bottles are fed to the drum from the feed-in chute 17, in which they are superimposed. This chute is vertically disposed with its lower end curved inward horizontally toward a rotatable feeder, which feeder preferably has four substantially radial fins 30 forming an equal number of pockets. The outer edges of the fins are curved forward in the direction of rotation of the feeder.

The feeder includes a shaft 32, carried by

suitable bearings 33, on a secondary frame 34 disposed slightly below the top frame 15. Mounted on the shaft 32, is a pinion 35 which meshes with a gear preferably formed by cutting teeth 36 in the periphery of the disk 24, the pitch diameters and numbers of teeth of the pinion and gear being so related, that the pocket spaces of each embrace the same number of teeth and synchronize the movements of such pockets. Both feeder and drum turn in one direction only, reverse rotation being prevented by a ratchet dog 37 which engages the teeth of the disk. 38, 39 are feeder-guides, retaining the bottles in the pockets of the feeder particularly as the bottles are about to be delivered to the drum.

The feed-in chute may be provided with guide rods 40, 41, the lower ends of the latter projecting into the path of the fins 30, which fins are notched as at 42 to permit such projection.

The bottles are removed by an ejector substantially identical with the feeder. 50 is the shaft, 51 the fins and 52 the pinion meshing with the teeth 36 of the disk. 53, 54 are drum strippers, which cooperate with the ejector in removing the bottles from the drum. The stripper 53 lies between the ring 26 and the disk, and projects across the path of the fingers 25, the fingers being provided with U shaped bends 55 extending radially inward to clear the stripper. Stripper 54 lies outside the ring 26 and the ends of the fingers and does not interfere. 56 is a stop against which the ejector turns each bottle in succession, and which stop prevents further movement until such bottle is removed.

Mounted on the ejector shaft 50 is a bevel pinion 60 with which meshes a second pinion 61. Pinion 61 is mounted on a shaft 62 which also carries a handwheel, or handle, 63 by which it may be turned.

In using the device, the feed-in chute 17 is filled with bottles of the drink to be iced and dispensed. The handle 63 is turned causing the pinion 52 to rotate the drum gear 36, and through this gear to rotate the feeder pinion 35 and the feeder connected therewith. As the feeder turns the bottles move successively into the feeder pockets and are fed one at a time into the drum pockets, the drum moving concurrently to bring additional pockets in succession into place to receive the bottles. As the bottles feed from the feed-in chute, additional bottles are placed therein and turning of the drum is continued until the first bottle placed has risen substantially to the surface of the cooling water at the opposite side of the drum from the feed-in side. Usually however, the drum is turned until the first bottle placed is removed by the ejector and contacting the stop 56 limits further movement, this bottle then being returned to the feed-in chute. When this has been accomplished, the feed-in chute preferably is entirely filled and any remaining bottles placed in the bottle magazine 16.

The machine as shown will ice 19 or 20 bottles and additionally the feed-in chute will hold about 10 bottles. As the bottles usually come in cases of 24 bottles, this will require somewhat more than one case and such additional bottles of the second case may be placed in the magazine section.

After the bottles have remained in the cooling fluid a sufficient length of time to thoroughly chill them, dispensing may start. This dispensing is accomplished by turning the handle 63 until the bottle which is to be removed comes against the stop 56, at which time the machine is automatically locked against further movement until the bottle is removed. After removal of the bottle the handle may be further turned and a second bottle delivered, and this may be continued until such number of bottles are delivered, one at a time, as desired. During each such movement of the ejector the drum movement brings an additional bottle against the stripper fingers and transfers it to the coordinated pocket of the ejector, in which pocket it remains until an additional delivery movement is initiated and completed. At such delivery movement also, an additional bottle is fed in to the opposite side of the drum from the feed-in chute, thus automatically replacing the bottles in the drum, and so long as the feed-in chute is provided with a bottle supply, keeping the drum filled with bottles.

What I claim is:

1. In a bottle dispensing apparatus a cooling chamber, a horizontally disposed shaft journaled therein, a disk having teeth thereon mounted on said shaft, a plurality of spacing fingers disposed at equal intervals along a circle concentric with said shaft, each of said fingers being rigidly secured to said disk and extending outwardly at right angles therefrom and each having a U shaped bend, intermediate its length, extending radially inward, a bracing ring concentric with said shaft rigidly secured to the ends of said fingers, feeder means and ejector means each including a pinion suitably journaled in said casing and having its teeth meshing with the teeth of said disk and each having means forming pockets carried by and extending horizontally outward from its said pinion, a pair of strippers cooperating with said ejector pockets to remove bottles from said drum, one of said strippers being disposed exterior to said bracing ring and the other thereof being disposed in the path of the pockets of the U shaped bends in said fingers, and manual means for actuating said ejector.

2. In a bottle dispensing apparatus a cooling chamber, a horizontally disposed shaft journaled therein, a disk having teeth thereon, mounted on said shaft, a plurality of spacing fingers disposed at equal intervals around a circle concentric with said shaft, each of said fingers being rigidly secured to said disk and extending outwardly at right angles therefrom and each having a U shaped bend intermediate its length extending radially inward, a bracing ring concentric with said shaft rigidly secured to the ends of said fingers, feeder means and ejector means each including a pinion suitably journaled in said casing and having its teeth meshing with the teeth of said disk and each having means forming pockets carried by and extending horizontally outward from its said pinion, a pair of strippers cooperating with said ejector pockets to remove bottles from said drum, one of said strippers being disposed exterior to said bracing ring and the other thereof being disposed in the path of the pockets of the U shaped bends in said fingers, said strippers extending arcuately upward concentric with said ejector, and cooperating therewith to hold bottles in the said pockets thereof, and manual means for actuating said ejector.

3. In a bottle dispensing apparatus, a cooling chamber, a horizontally disposed shaft journaled therein, a disk having teeth thereon mounted on said shaft, a plurality of spacing fingers disposed at equal intervals along a circle concentric with said shaft, each of said fingers being rigidly se-

cured to said disk and extending outwardly at right angles therefrom and each having a U shaped bend, intermediate its length, extending radially inward, a bracing ring concentric with said shaft rigidly secured to the ends of said fingers, feeder means and ejector means each including a pinion suitably journaled in said casing and having its teeth meshing with the teeth of said disk and each having means forming pockets carried by and extending horizontally outward from its said pinion, and a pair of strippers cooperating with said ejector pockets to remove the bottles from said drum, one of said strippers being disposed in the path of the pockets of the U shaped bends in said fingers, manual means for actuating said ejector, and stop means engaging a bottle delivered by said ejector to stop movement of said apparatus until such bottle is removed.

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