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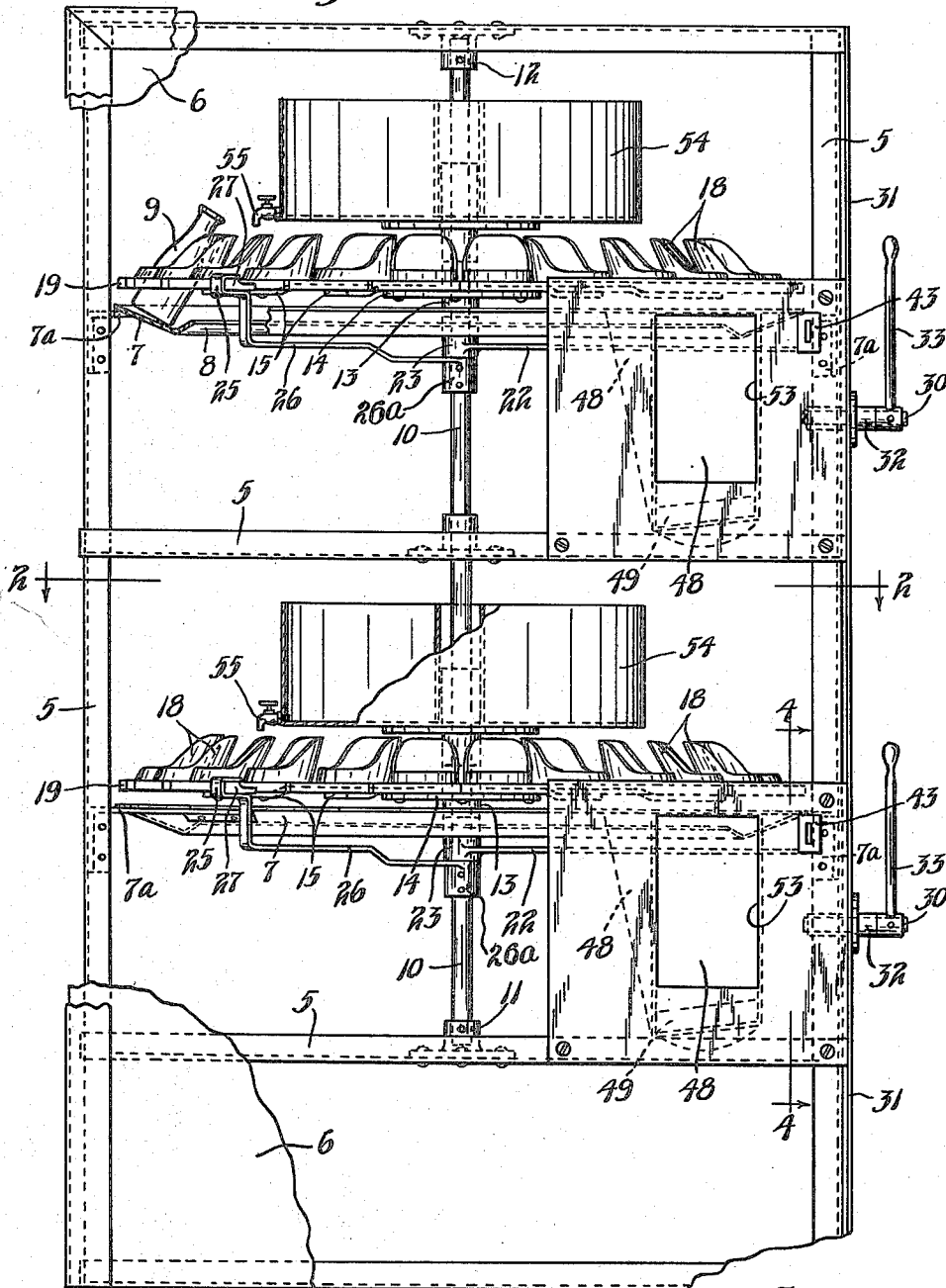
2,111,730

DISPENSING DEVICE

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2 Sheets-Sheet 1

Fig. 1.



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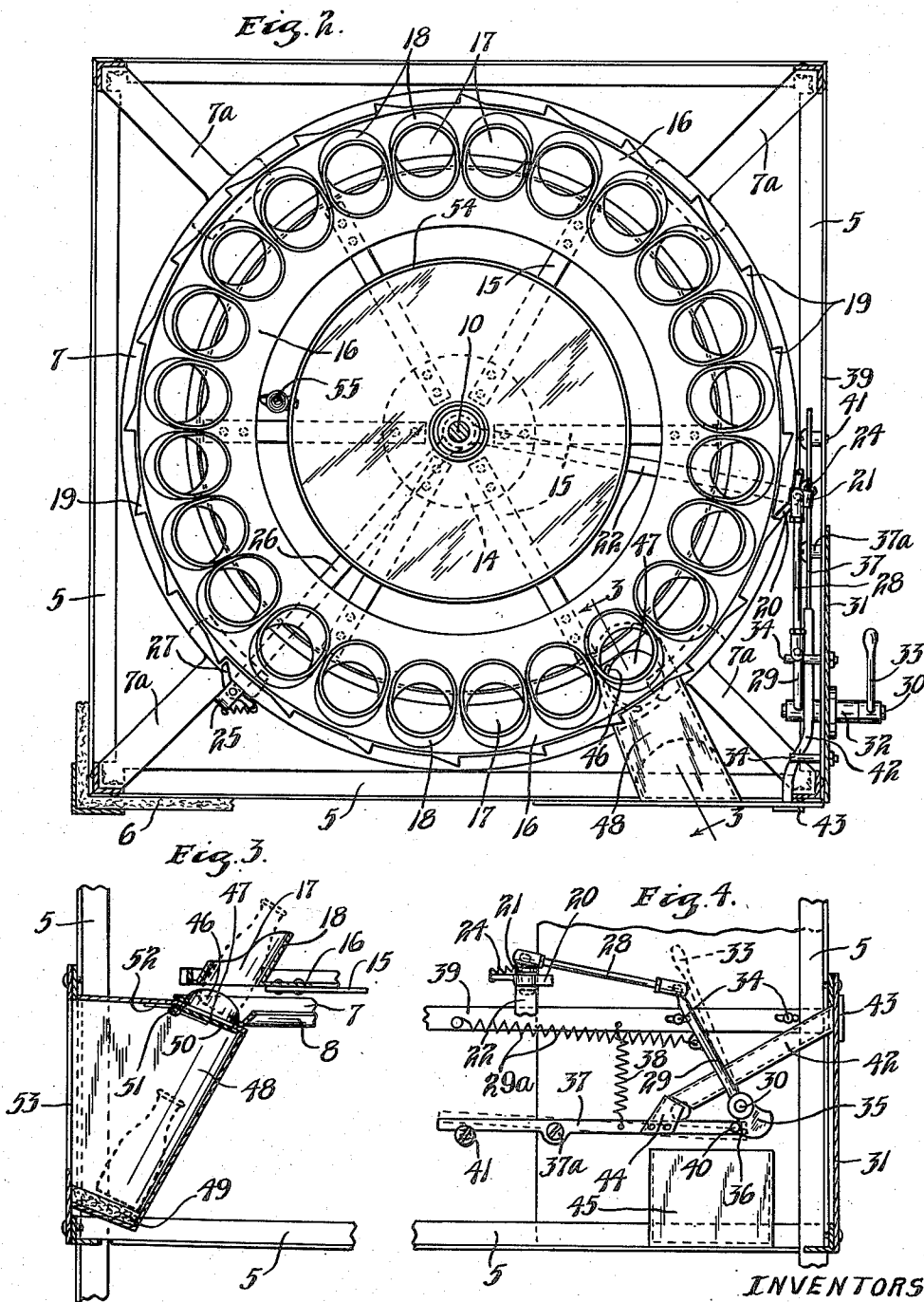
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DISPENSING DEVICE

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6 Claims. (Cl. 312—88)

This invention relates to article handling mechanism and more particularly to mechanism for handling substantially cylindrical articles that have more or less flat bottom surfaces.

5 It is an object of the invention to provide article handling mechanism in the form of a bottle or other container dispensing apparatus in which the container is moved along a substantially smooth supporting surface toward a discharging shoot or other discharge element. In carrying out this object we have provided means whereby substantially flat bottom cylindrical articles are moved along a stationary relatively smooth surface with the articles disposed at an angle to said surface whereby they will describe a rolling movement as they are propelled by a suitable propelling and engaging means, which engaging means loosely contacts the articles being moved.

20 Another object of the invention is to provide a simply constructed and highly efficient mechanism for moving said articles with a step by step motion and properly positioning them with respect to the discharge means.

25 A still further object of the invention is to apply these features to a dispensing mechanism such as may be used for dispensing bottled liquids as milk or beverages of various kinds.

30 These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the views and, in which:

35 Fig. 1 is a front elevation of a dispensing machine with the outer casing and portion of the mechanism broken away and in section;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1;

40 Fig. 3 is a section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a section taken approximately on the line 4—4 of Fig. 1.

In the drawings we have shown a casing which includes a frame work indicated generally at 5 and which is covered with a suitable insulating layer 6. The particular structure of the frame work and insulation is of no importance in this invention. It will be noted that in Fig. 1 there are illustrated two dispensing assemblies but in this description reference will be made to the structure of a single assembly, it, of course, being understood that the described parts of one assembly are duplicated in the other assembly.

55 We have provided a bottle supporting element on

trackway 7 which is suspended within the frame work 5 by means of straps 7a extended inwardly from the corner of said frame work and are secured to said trackway by rivets or any other suitable fastening means. It will be noted that the main surface of the trackway is at a slight angle from the horizontal. In the particular embodiment shown this main surface is placed at an angle so that the bottles being dispensed will be at substantially the proper angle for dropping them down the dispensing chute which will be described later. The inner edge of this trackway is provided with an upturned portion 8 which acts as a guard to prevent the bottles from slipping too far inwardly and out of their correct position.

Extending vertically through the center of the frame work and the circular trackway 7 is a shaft 10 which is mounted in a socket 11 at its lower end and secured by a similar socket 12 at its upper end. A collar 13 is suitably secured to said shaft and this collar supports the central portion of a spider like assembly 14 whose radial arms 15 engage the underside of a circular rotary engaging and moving assembly 16. The arms 15 may be secured to the bottle engaging assembly by rivets, bolts or other suitable connection element. The rotary assembly 16 is provided with a plurality of openings 17 and extending upwardly, around the edges of these openings there are provided inwardly cylindrical bottle engaging saddles 18. As shown in Figs. 1 and 3 these saddles are taller at their inner portions to provide an adequate lateral support for the bottles 9, and the angle of the saddles will keep the bottles at the proper angle relative to the surface of the supporting trackway 7. As best illustrated in Fig. 1 the bottle 9 is leaning at such an angle that only the inner portion of its inner surface is in contact with the relatively smooth surface of the stationary trackway 7. The assembly 16 is rotatably mounted upon the shaft 10 and movement of the bottle progressing assembly 16 will cause the bottles to describe a rolling motion with respect to trackway 7. If the bottles rest flatly against the surface of the trackway it would be necessary to slide them along the surface of said trackway, an operation which would require considerable force if the rack or progressing assembly 16 was loaded with bottles. In addition the rolling action produced in my construction greatly reduces the wear on the trackway. It should be remembered that the saddle elements 18 and openings 17 should be sufficiently large with respect to the bottles that they will permit relatively free rotation of the

bottles within the saddles. At the same time the saddles cannot be too large for if they were the bottles would not be held in proper angular position relative to the trackway.

5 Around the outer edge of the rotatable assembly 16, we have provided a plurality of teeth 19 whose forward edges are slanting and whose rear edges are preferably abrupt to provide abutments which may be contacted by a pawl element 20. This
10 pawl element is pivoted at 21 to the outer end of arm 22 whose inner end merges into a hub element 23, the latter being rotatable upon the vertical shaft 10. A spring 24 constantly urges the pawl 20 inwardly toward the edge of the rotatable assembly 16. Some distance around the
15 edge of the circular rotatable assembly 16 is the end 25 of an arm 26 which radiates from the hub 26a which is below the hub to which the pawl supporting arm 22 is connected, and is secured to the stationary shaft 10. The outer end of the arm 26
20 carries a spring pawl arrangement 27 similar to the pawl 20 and spring 24 described above. This spring and pawl arrangement is provided to act as a stop element to prevent the rotary carrier assembly 16 from turning in a counterclockwise
25 direction when the operating levers move the pawl 20 back to engage a tooth 19 prior to operation for another delivery of one of the bottles.

Also connected to the outer end of the arm 22
30 is a connecting link 28 which is preferably provided with a ball and socket connection with said arm, and the opposite end of the link 28 has a ball and socket connection with an upwardly extending lever 29 said lever being normally held
35 in the position shown in Fig. 4 under the influence of the spring 29a, the lever extending downwardly to a stub shaft 30. This shaft extending outwardly through a supporting plate 31, which forms a part of the outer casing and is mounted
40 for movement in a suitable journal 32. The outer end of the shaft has rigidly secured thereto, an operating lever 33. If desired a pair of adjustable stops 34 may be provided for limiting the rocking movement of the shaft 30 and the lever
45 arm 29 which moves therewith.

Rigidly connected to the lever arm 29 below the shaft 30 is a cam like locking element 35 which has a flat abutment surface 36. Pivotaly mounted at 37a is a locking bar 37 whose end next the
50 cam like element 35 is normally held up by a tension spring 38, the spring being connected to a horizontal cross member 39 which constitutes a part of the frame work. The end of the locking bar 37 adjacent the cam like element 35 is provided with a locking pin 40 which is adapted to
55 normally engage the abutment 36 on said cam like element. A stop pin 41 at the opposite end of the locking bar 37 limits its movement under the influence of the spring 38. A coin chute 42
60 has an inlet 43 at its upper end, and an outlet at the lower end thereof which communicates with a coin receiving pocket 44. The spring 38 has sufficient tension to hold the locking bar 37 in the full line position shown in Fig. 4, but when
65 a coin is introduced into the slot 43 it will roll into the pocket 44 with its weight bearing upon the locking arm 37, and the weight of the coin will overcome the action of the spring 38 and cause said locking arm to drop to the dotted line
70 position shown in Fig. 4, the locking pin 40 being then out of engagement with the abutment 36 on the cam shaped element 35 and the operating lever 33 may then be operated and its motion transmitted through the lever arm 29 and connecting link 28 to progress the rotatable bottle

engaging assembly 16. Operation of the operating lever 33 and the lever arm 29 cause said cam element 35 to engage the locking pin on the round surface of said cam element and further urge the
5 locking arm 37 downwardly until the coin is free to drop into the coin receptacle 45, therefor when the operating lever 33 is returned to its starting position, the locking arm 37 and pin 40 will be drawn upwardly by the spring 38 into locking
10 position.

If the rotatable assembly 16 is progressed by the lever mechanism just described it will cause the bottles engaged by the assembly 16 to roll around the trackway 7 and the leading bottle will be brought up against the stop 46, which will register
15 the bottle with a discharge opening 47. Thereupon the bottle will drop down the slanting discharge chute 48 and be received by a suitable cushion pad 49 at the bottom of the shoot. For the purpose of preventing warm air from flowing
20 into the discharge opening 47, we have provided a pivoted trap door 50, which normally covers said opening. This door is pivoted at 51 and provided with a spring element 52 to hold it closed under
25 tension. An opening 53 permits removal of the bottle from the apparatus. In the earlier part of the description the trackway 7 was stated to be placed at an angle. It will now be seen that this
30 angle position is provided to align the bottles properly with the slanting discharge shoot 48, and we have placed the shoot on a slant to retard the fall of the bottles at least to some extent.

Any suitable means may be provided for refrigerating the articles within the dispensing apparatus if the articles are such that they should be
35 sold in cooled condition. Therefore, we have shown generally a circular ice pan 54 which may be mounted upon the shaft 10 in any suitable manner. Furthermore a drain cock 55 may be utilized for draining water from the ice pan.
40

From the foregoing description it will be seen that we have provided a highly efficient mechanism for moving and progressively dispensing bottled
45 beverages or other articles which are substantially cylindrical in shape and which have more or less flat bottoms. It can readily be seen that there is much less force required to move the bottles around the trackway 7 when they are
50 supported at an angle so that only a portion of the rounded bottoms of the articles are in contact with the trackway and the described rounding movement around said trackway. We have also provided an insulated cabinet structure and discharge mechanism which will safely discharge the articles without danger of breakage.
55

It will be seen by Fig. 1 we have duplicated the entire assembly so that different types or sizes of articles may be dispensed from one machine. Of course, several of these assemblies can be incor-
60 porated in a single insulated outer cabinet.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of our invention.
65

What is claimed is:—

1. A device for handling substantially cylindrical articles having relatively flat bottoms comprising a support, and article engaging and moving means above said support, said last mentioned means being constructed to hold said
70 articles at an angle to said support whereby only a small portion of the bottoms of said articles will engage said support.

2. A device for handling substantially cylin- 75

drical articles having relatively flat bottoms comprising a trackway along which articles are moved, said trackway having a substantially smooth article supporting surface, and means 5 mounted above said trackway for engaging and moving said articles along the trackway, said engaging and moving means being constructed to hold said articles at an angle to permit contact of only a limited portion of the lower surfaces of said articles with said trackway. 10

3. A device for handling substantially cylindrical articles having relatively flat bottoms comprising a circular trackway having a discharge opening at one point therein, a stop element 15 adjacent said opening, a rotatable carrier assembly mounted above said trackway and having a plurality of article receiving openings therein, article engaging and supporting saddles cooperating with said openings, the longitudinal 20 axes of said saddles being at a slight angle to the surface of said trackway whereby said articles will rest upon said trackway at a slight angle thereto, and means for progressively moving said articles along said trackway to said stop and 25 discharge opening.

4. A device for handling substantially cylindrical articles having relatively flat bottoms comprising a frame work, a vertical shaft extending vertically in said frame work, a circular trackway supported by said frame work and having 30 a discharge opening therein, a circular article engaging and moving assembly rotatably mounted upon said shaft, said assembly having a plurality of article receiving openings therein, sad-

dles about said openings adapted to hold said articles at a slight angle to said trackway, means for progressing said assembly relative to said trackway whereby said articles will be moved 5 along said trackway to said discharge opening, and a discharge chute into which said articles will drop when they have been progressed to said discharge opening.

5. A device for handling substantially cylindrical articles having relatively flat bottoms comprising a circular trackway whose main surface 10 is disposed at an angle to the horizontal and whose lower edge is provided with an upturned portion, said trackway having a discharge opening therein, a discharge chute extending down- 15 wardly from said discharge opening, a carrier assembly rotatably mounted above said trackway, said assembly having a plurality of openings which may be progressively aligned with said discharge opening, and saddles around said open- 20 ings, the longitudinal axes of said saddles being at a slight angle to the angle of the main portion of said trackway and substantially in alignment with said discharge chute, and means for rotating said carrier assembly with a step by 25 step movement to bring said openings and saddles successfully into registration with the discharge opening and said trackway.

6. The structure in claim 5 and said trackway having a rounded article stop element at the 30 far side of said discharge opening to align said articles with said openings.

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