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CAN POSITIONING MECHANISM FOR LIQUID DISPENSING


This invention relates to canning machinery, and more particularly to mechanisms for introducing a predetermined quantity of liquid from a continuous source into vessels which are intermittently moved beneath the liquid supply, and for preventing the liquid form being wasted by spilling while the successive cans are changing to a position beneath such liquid supply.

The object of the invention is to provide a mechanism whereby vessels may be filled or partly filled with liquid in endless succession without starting or stopping the liquid supply means after the predetermined amount of liquid has been introduced into each vessel.

Another object of the invention is to provide means which places the vessels in such relation one to the other that no liquid will be spilled during the movement of one vessel from beneath the liquid supply means and another vessel moved into such position.

Still another object is to prevent the liquid from spreading at the mouth of the liquid supply means and thereby dripping onto the machinery or floor.

According to the invention, the cans or vessels to be filled are provided with an annular ring or flange and the flanges of the adjacent vessels have that portion which passes beneath the liquid supply means overlapped so that during the change of one can from beneath said supply means and the adjacent can under said supply means, the overlapped flanges will direct any liquid which falls thereon into one or the other of said vessels, and therefore prevent the same from being spilled and wasted.

The liquid supply means contemplated by this invention is a hopper which has a curved deflecting plate for preventing the cans from being raised by the feed means so as to engage the hopper and said hopper is also provided with a bottom flange or ring for directing all the liquid passing through the orifice into the vessels beneath the same.

The drawing illustrates an embodiment of the invention and the views therein are as follows:

Figure 1 is a side elevation showing the can feeding means and the hopper for directing the liquid into the vessels.

Figure 2 is a top plan view of the hopper showing the orifice at the bottom thereof through which the liquid passes into the vessels, and

Figure 3 is a fragmentary view of adjacent vessels showing the manner in which the annular flanges overlap at the point which passes under the hopper orifice.

The can feeding and positioning mechanism designated by the numeral 6 is, for the purpose of this invention, considered as the same mechanism which is shown and described in applicant's Patent No. 1,475,673, dated November 27, 1923, and while this mechanism may be successfully used for feeding the cans and for positioning the same, it is not essential to the invention herein, as other mechanism may be incorporated in the machine and which will, with equal success, perform the function of the mechanism shown.

In the present invention the feed screw 6 is rotated in the manner shown by my Patent No. 1,459,982, granted June 19, 1923. The cans are fed onto a table 7 and each can is advanced intermittently by the succeeding can striking the same when it is pushed from the end of the screw 6 so that the time lapse between advancement of the cans allows each can to remain under the orifice 8 of the hopper 9 just a sufficient time to receive the desired amount of liquid. It therefore follows that the element 6 may be timed in its operation so that the predetermined amount of liquid will be placed in each of the vessels 11 which pass under said orifice.

The annular outwardly extending flange 12 at the upper end of the can or vessel 11 is of the same thickness as the material forming the can and since the edge thereof is rounded or substantially chamfered when the flanges of two adjacent cans contact they will slide into a position substantially as shown in Figure 3 or in any event an overlapped flanged position. This, in the present instance, is accomplished by the end of the worm or feeding means 6 pushing the can shown at the end thereof over against the 100
partially filled can shown beneath the hopper and the pressure exerted by the end of the worm will engage the flanges as described. The hopper 9 has its side walls converging downwardly as shown in Figure 2 and there is provided in the lower end thereof the orifice 8, which is somewhat long and narrow, the length thereof being parallel with the direction of movement of the cans thereunder.

As the cans engage there is provided the space 13 shown in Figure 3 which passes under the orifice through which liquid continually flows, and such liquid as falls upon this overlapped portion of the flanges readily passes into one or the other of the cans whose flanges form this overlapping portion so that no liquid is wasted by spilling during the time that one can is being moved from beneath the orifice and the succeeding can being moved to that position.

The hopper 9 is provided with a supply pipe 14 having the cock 16 and regulating valve 17.

In the first place, when the machine is started an amount of liquid in excess of the amount which will pass through the orifice 8 is admitted to the hopper until a certain desired level, indicated by the lines at 18, is attained, whereupon the regulating valve is adjusted to maintain that level. This provides a fixed “head” which insures each of the cans receiving the identical quantity or volume desired.

The bottom of the hopper is provided with a downwardly extending flange or ring 19 which prevents the liquid passing through the orifice from spreading out onto the plate 21, and the side of the hopper extending towards the feed mechanism is provided with an upwardly curved plate 22 which prevents the cans from piling up and from clogging with the flange or ring 19 at the bottom of the hopper.

Of course, the can filling mechanism illustrated herein may be modified in various ways without departing from the invention herein set forth and hereafter claimed.

The invention is hereby claimed as follows:

1. Mechanism for depositing uniform quantities of liquid in cans which have an upper annular flange, said mechanism comprising a stationary hopper adapted for constant flow of liquid, means for automatically and intermittently feeding cans under said hopper, said means adapted to force the cans into contact to overlap the segments of the flanges which pass under said liquid stream to prevent the liquid from spilling during the positioning and removal of the cans under the hopper.

2. Mechanism for depositing uniform quantities of liquid in cans having an upper annular flange, said mechanism comprising a stationary hopper having a serving orifice in the bottom thereof for continuously serving liquid during the operation of said mechanism, means for automatically and intermittently feeding cans under said orifice, said means providing an overlapping of the segments of the flanges which pass directly under said orifice to prevent the liquid from spilling when a can is being moved into filling position.

3. Mechanism for depositing uniform quantities of liquid in cans, said mechanism comprising a hopper having a continuously flowing orifice, means for maintaining a fixed level of liquid in said hopper, means for automatically and intermittently feeding cans under said orifice, deflecting means on said hopper to prevent the cans from being raised above a suitable position for receiving the liquid charge, and a flange surrounding said orifice and extending toward the locus of the can and terminating in the intervening space.

4. The combination of a reservoir for can filling machines having a continuous discharge, means for feeding liquid thereto so as to maintain a fixed level therein, and a deflecting plate for preventing the cans from being thrown upward in their travel to a position under the discharge.

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