

If movement to operative horizontal condition of lever 48a has occurred, further rotary travel of it and its underlying container will move the cam surface 48''a of the operatively positioned lever 48a into engagement with cam roller 55 causing a rotation of lever 48a about the axis of the valve body 22a and like rotation of the latter to rotate it into valve-open condition shown in FIG. 5, whereat the port 26a and passage 24a then communicate with inlet passageway 20a from the fill source so that fluid fill from the latter can pass under pressure via spout 31a into the container C into which it has been projected. As long as particular container C remains in elevated position of its supporting platform 15, the associated lever 48a remains in its horizontal operative condition and as a result the open condition of valve body 22a continues as the conveyor 11 continues to rotate and carry the container being filled along with it in a rotary path of motion. During such motion, if desired, the cam roller 58 projects into the path of cam surface 48''a of lever 48a and when they engage, a partial reverse rotation of valve body 22a towards closed position occurs, the extent of which depends upon the adjusted projecting condition of cam roller 58 with resultant partial closure of port 26a and passage 24a relative to inlet opening 20a, thereby reducing fill flow into the container toward the end of fill.

When fill to desired level has been effected, the fill sensing device 46a detects this condition and energizes the pneumatic cylinder 64 so that its plunger 62 is extended and its nose engages lever 48a and effects complete closing rotation of valve 22a into the condition seen in FIG. 4, cutting off further fill flow to the particular container. If by chance, the detection device fails to function, the cam surface 48''a of lever 48a engages cam roller 61 and this completes closing rotation of valve body 22a to its FIG. 4 condition. Then, platform 15 and its filled container C are lowered and the latter becomes engaged by takeoff star wheel 15 for transfer to the removal conveyor 16'.

It is to be noted that when valve 22a is in the closed condition of FIG. 4, that free transit of fluid under pressure from inlet passage 20a via slots 25'a and 22'a into return flow pipe 21a is possible. Thus, if a particular valve 22a fails to be opened because nonappearance of a container below its spout 31a has occurred, no pressure buildup will occur to disturb specific pressure fill flow in opened valves of containers being filled.

Furthermore, when a valve 22a is in its open condition (FIG. 5) toward the end of pressure fill flow, pressure and overflow fill from the container being filled can pass freely through the overflow passage 43a upwardly via passageways 34a and chamber S and slot 25c to the return flow pipe 21a, thus preventing counter pressure buildup in the container as it approaches fill condition.

While specific embodiments of the invention have been shown and described, variations in structural detail within the scope of the appended claims are possible and are contemplated. There is no intention, therefore, of limitation to the exact abstract or disclosure herein presented.

I claim:

1. In a container filling machine, conveyor means for moving containers successively in a rotary path of travel for filling from a fill source, common means for delivering fill material from said source to each such container during its movement in said rotary path, including a plurality of spout means insertable respectively into successive containers entering said path, said spout means each being individually communicable with said delivery means, means for positioning containers

successively while moving in said rotary path for insertion into each successively of one of said spout means, independent rotary valves between said fill material delivery means and each of said spout means, valve rotating means comprising stationary means in said rotary path and an independent valve rotating member for each valve movable with its valve in said rotary path, each valve rotating member being separately movable and normally lying in a nonengageable inoperative condition relative to said stationary means, means requiring presence of a container in said rotary path with an inserted spout means to move said valve rotating member into operative engageable condition with said stationary means for then rotating said valve to shift said valve from closed condition to open condition to permit flow of fill material into said container, and additional means to rotate the valve to closed condition upon completion of fill of said container.

2. In a container filling machine according to claim 1, each said valve rotating member comprising a lever freely pivoted to a part of said rotary valve, said lever normally tending to lie in an oblique position relative to horizontal so that its shorter arm is nonengageable by said stationary means and its longer arm is nonengageable by said additional means, the said means requiring presence of a container in said path with an inserted spout means serving to turn said lever from its said oblique position to a position wherein its shorter and longer arms are respectively in engageable conditions with respect to said stationary means and said additional means in seriatim during travel in said rotary path of each said lever and the said part of said valve to which it is freely pivoted.

3. In a container filling machine according to claim 2, wherein said stationary means and said additional means respectively comprise separate cam means, each independently and adjustably positionable as to their respective extents of projection into the rotary path of travel of the respective shorter and longer arms of each said lever, the extent respectively of such projections controlling respectively the amount of closing and opening rotation imparted to the respective valve to whose part said such lever is pivoted.

4. In a container filling machine according to claim 1, return flow means for fill material to its source and bypass in said valve means for interconnecting said means for delivering fill material and said return flow means when said valve is in its closed condition.

5. In a container filling machine according to claim 1, fill level detecting means and means controlled by said detecting means to rotate the valve to valve closing condition upon achievement of a selected extent of fill of the container.

6. In a container filling machine according to claim 5, overflow means for the container with which said detecting means is connected.

7. In a container filling machine according to claim 2, said part of said rotary valve including a body portion and said means serving to pivot said lever includes a slide member movable on said body portion by movement of a container to position to be filled to engage said lever and move it from its oblique position.

8. In a container filling machine according to claim 1, said rotary valve including a passageway having a part movable on rotation of said valve from closed condition to open condition with respect to said delivering means and vice versa, and said spout means communicating with said passageway for introduction into a container to be filled of fill material in the open condition of said valve.

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