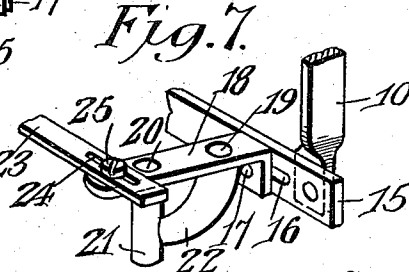
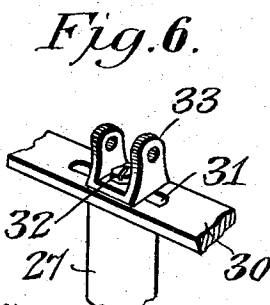
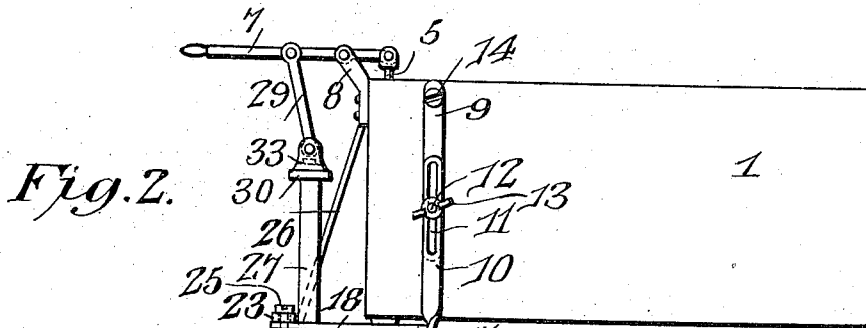
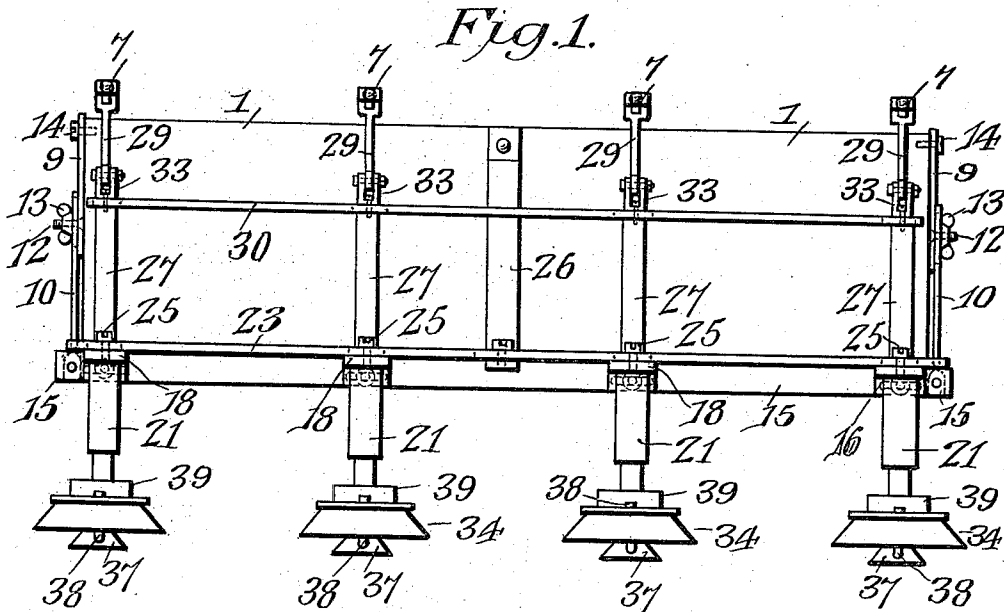


H. BARRY.
LIQUID FILLING DEVICE.
APPLICATION FILED MAY 31, 1910.

1,014,935.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

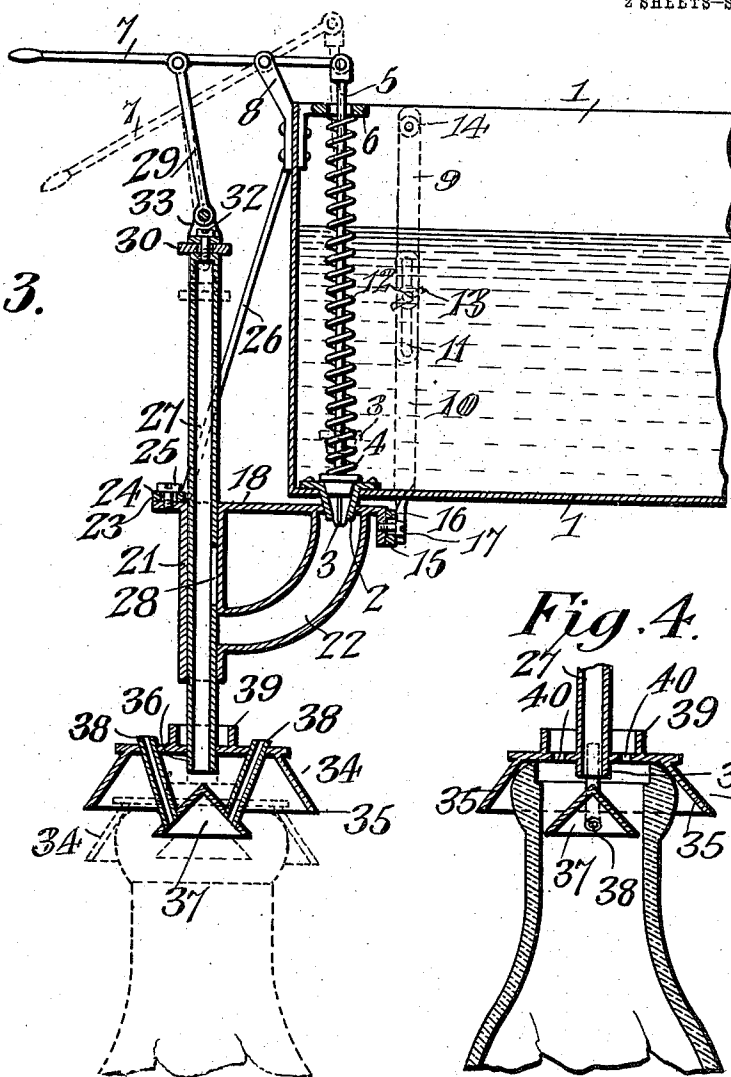


Fig. 4.

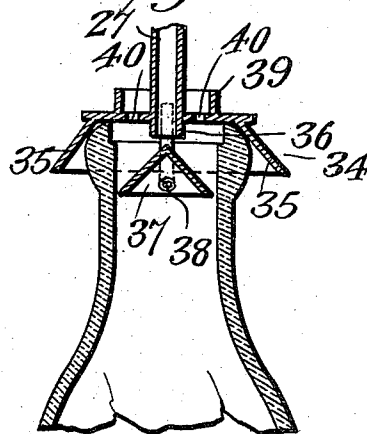
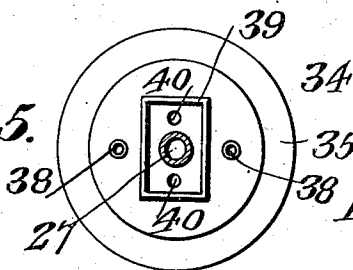


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY BARRY, OF CHICAGO, ILLINOIS.

LIQUID-FILLING DEVICE.

1,014,935.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed May 31, 1910. Serial No. 564,209.

To all whom it may concern:

Be it known that I, HENRY BARRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Liquid-Filling Device, of which the following is a specification.

This invention relates to bottle filling apparatus, and more especially to mechanism for filling milk bottles.

The primary object of my invention is to provide a simple and efficient mechanism which may be so manipulated that the flow of the liquid may be positively cut off when the bottle is filled.

A secondary object of the invention is to provide a device of the character stated by which the inflowing liquid will be directed toward the sides of the jar so that splashing of the same around the mouth of the jar will be overcome and the escape of the air within the jar facilitated.

A further object of the invention is to provide means whereby any fluid which may leak around the filling tube will be caught and directed into the bottle or jar being filled.

All of these objects, and such other incidental objects as will hereinafter appear, are attained in the mechanism illustrated in the accompanying drawings, and the invention consists in certain novel features of the same which will be hereinafter first fully described and then set forth more particularly in the appended claims.

In the drawings,—Figure 1 is an end elevation of a supply tank having my improved filling and cut-off apparatus applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged vertical longitudinal section through the filling tube and the end of the tank, a jar or bottle being indicated in dotted lines and the working position of the filling tube being also shown in dotted lines. Fig. 4 is a detail sectional view through the bottle-engaging cap and taken at right angles to the plane of the section shown in Fig. 3. Fig. 5 is a detail plan view of the cap. Fig. 6 is a detail perspective view of a portion of the upper end of the filling tube and its connections. Fig. 7 is a similar view of a part of the means for securing the device to the tank.

The tank 1 may be of any desired size and will preferably be provided with means for

filling four bottles or jars simultaneously. At one end of the tank, in the bottom of the same, will be provided short nipples or outlet tubes 2 corresponding in number to the number of jars or bottles to be filled by the use of the apparatus, and these outlet tubes or nipples will be normally closed by plug valves 3 seated in the upper ends of the nipples, and held normally against the same by springs 4 coiled around the valve stems 5 between the upper ends of the plugs or valves and the under side of a stop 6 within the tank. An operating lever 7 is pivoted to the upper end of the stem 5 and projects forward over the end of the tank, being fulcrumed upon a bracket 8 secured rigidly to the end of the tank at the top of the same, as clearly shown. To the sides of the tank I secure an extensible bar consisting of an upper section 9 and a lower section 10, the lower section being provided with a longitudinal slot 11 through which projects a bolt 12 carried by the upper section and having a thumb nut 13 mounted on its outer end whereby the two sections may be secured firmly together after being adjusted to the height of the tank. A set screw 14 is mounted in the upper end of the upper section 9 and engages the tank so as to secure the bar thereto, as will be readily understood. The lower end of the section 10 is secured to or formed integral with a cross bar 15 which extends under the bottom of the tank to the opposite side of the same where it is secured to a duplicate securing bar, as shown in Fig. 1. This bar 15 is provided at intervals with longitudinal slots 16 through which fastening screws or bolts 17 are inserted to secure to the said bar forwardly projecting brackets or supporting plates 18. These supporting plates or brackets are provided with openings 19 and 20 near their opposite ends, and the rear opening 19 in each bar or supporting plate is adapted to fit over a nipple or outlet tube 2 in the bottom of the tank. The forward opening 20 is directly over a guiding tube or sleeve 21 depending from the bar, and an elbow or curved pipe 22 extends from the under side of the bar or plate around the rear opening 19 to communicate with the guiding tube or sleeve 21 near the lower end of the same, as shown most clearly in Fig. 3. The front ends of the several bars or plates 18 are connected by a brace 23

which is provided with longitudinal slots 24 through which fastening screws 25 are inserted into the end of the bar or plate 18 and a brace 26 has its lower end secured to the said connecting bar 23 and its upper end secured to the end of the tank, as shown clearly in Fig. 1. The longitudinal slots 16 and 24 in the cross bars 15 and 23 permit the bars or plates 18, with the pipes depending therefrom, to be adjusted so as to compensate for irregularities in the spacing of the nipples or outlet tubes 2 in the tank, it being the purpose of my invention to provide a filling and cut-off device which may be applied to the tanks now in common use.

Within the vertical guiding sleeve or tube 21, depending from the front end of the plate or bar 18, I mount a vertically movable filling tube 27 which is provided with a port 28 adapted, when the tube is in its lowest position, to register with the end of the elbow or pipe 22 in order to permit flow of the fluid from the said pipe or elbow into and through the filling tube. The upper end of the filling tube is connected by a link 29 with the lever 7 so that when the lever is operated to raise the valve 3 and permit the liquid in the tank to escape, the filling tube will be lowered so that the port 28 will be brought into alinement with the lower end of the elbow or pipe 22 and the escaping liquid, consequently, caused to pass into the filling tube by which it will be directed into the jar or bottle. The upper ends of the several filling tubes are connected by a bar 30 which is provided with longitudinal slots 31, similar to the slots 16 and 24, so that the filling tubes may be spaced properly to move easily within the sleeves 21, as will be readily understood. The upper ends of the filling tubes are closed and securing screws 32 are inserted through the bases of yokes 33 within which the lower ends of the links 29 are pivoted, as will be readily understood, the fastening screws 32 serving to secure the yokes to the filling tubes as well as the filling tubes to the cross bar 30.

To the lower end of the filling tube I secure a cap 34 which is of a proper diameter to fit upon the mouth of a milk jar or bottle, and the rim 35 of the cap is flared outwardly and downwardly so as to readily engage over the jar or bottle, as shown most clearly in Fig. 4. The end of the filling tube projects slightly within the cap, as shown at 36, and directly under the extremity of the filling tube is arranged a conical deflector 37 which is supported by vent tubes 38 extending upwardly from opposite sides of the same and secured to and projecting through the cap. The lower ends of these vent tubes are secured to the deflector above the lower edge of the same so that they communicate with the space within the deflector and, con-

sequently, form outlets for the air within the bottle which will not be closed or rendered inaccessible by the inflowing liquid. On the upper face of the cap around but spaced from the filling tube, is a retaining rib 39 which serves to catch any liquid that may leak through the guiding sleeve around the filling tube, and openings 40 in the cap, within the space defined by the rib 39, carry the liquid caught by the said rib into the jar or bottle. By referring to Fig. 5, it will be readily seen that the vents 38 open beyond or at the outer sides of the rib 39 so that the leakage or overflow caught by the said rib and thereby directed into the jar or bottle, will not obstruct or interfere in any way with the action of the vents in permitting the escape of the air within the jar or bottle.

By referring to Fig. 4, it will be noted that the deflector 37, when in its working position, extends close to the inner sides of the jar or bottle and, consequently, causes the inflowing liquid to pass down the inner walls of the bottle in a thin stream which will not in any way interfere with the escape of the air from the jar or bottle. I thus avoid agitation of the milk and the formation of air bubbles therein so that a full measure of milk may be passed into each bottle without the exact quantity being made unknown by the formation of foam upon the surface of the milk.

When the apparatus is not in use, the springs 4 will hold the valves 3 in their closed positions and the filling tubes will be raised, as shown in full lines in Fig. 3. When it is desired to fill the jars or bottles, the filling tubes are lowered so that caps 34 will engage over the mouths of the jars or bottles placed on any convenient support in position below the fillers. The filling tubes will be simultaneously lowered by actuating any one of the levers 7 and the bringing of the levers into the position shown in dotted lines in Fig. 3 will effect a simultaneous lifting of the valves 3 and lowering of the filling tubes. When the filling tubes are lowered the caps will fit over the mouth of the jar or bottle, as shown in Fig. 4 and in dotted lines in Fig. 3, and the liquid within the tank will at once flow through the nipples 3 into the elbows or pipes 22 from which it will pass through the ports 28 into the filling tubes, and thence escape against the deflectors 37 and so pass into the jar or bottle. When the bottles have been filled, the lever 7 is released and the springs 4 will then at once seat the valves 3 and cut off the flow. The filling tubes will likewise be raised so that the port 28 will be carried above the pipes or elbows 22 and, consequently, overflowing from the mouth of the jar or bottle will be positively prevented. Any of the liquid which may

be retained within the elbow 22 that may leak around the filling tube, between the same and the guiding sleeve 21, will be caught upon the cap 34 within the area defined by the rib 39 and will consequently pass into the bottle.

My improved device is exceedingly simple in its construction and arrangement of its parts and will operate instantly and easily so as to positively cut off the flow and prevent loss of the liquid through overflow from the bottle.

The advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described my invention, what I claim is:—

1. The combination with a tank having an outlet in its bottom, of a valve controlling the said outlet, a pipe leading from said outlet, a filling tube having a port and movable to carry the port into and out of register with the end of the pipe, and means for simultaneously moving the filling tube to bring the port into register with the end of the pipe and to open the valve.

2. The combination with a tank having an outlet in its bottom, of a pipe detachably secured to the tank with one end around the said outlet, a filling tube movable across the opposite end of the said pipe and having a port adapted to register therewith, a valve within the tank adapted to close the outlet therein, and means for simultaneously moving the said valve and the filling tube in opposite directions.

3. In a bottle filler, the combination with a filling tube, of a cap on the lower end of the same adapted to engage the mouth of the bottle to be filled, a deflector spaced from the said cap and adapted to enter the mouth of the bottle to be filled, and vent pipes leading from the said deflector through the cap and serving to secure the deflector to the cap in spaced relation therewith.

4. In a bottle filling machine, the combination with a filling tube, of a cap at the lower end of the said tube adapted to rest upon the mouth of a bottle to be filled, a conical deflector spaced from the said cap and adapted to enter the bottle to be filled, vent tubes leading from the said deflector through the cap and serving to secure the deflector to the cap, and a liquid catching and retaining device on the upper side of the cap around the filling tube, the cap being

provided with openings within the area defined by the said catching and retaining devices.

5. The combination with a filling tube, of a cap at the lower end of the said tube adapted to fit upon the mouth of a bottle to be filled, a conical deflector arranged immediately below the lower end of the filling tube and adapted to enter the mouth of the bottle to be filled, vent tubes leading from the said deflector through the top of the cap and serving to secure the deflector to the cap, a retaining rib on the upper side of the cap around the filling tube and spaced from the filling tube, and means for conducting through the cap liquid caught by the said retaining rib.

6. The combination with a tank having an outlet in its bottom, of a bar secured to the tank and projecting therefrom and provided with openings near its ends, one of said openings registering with the outlet in the tank, a guiding sleeve depending from the bar in alinement with the other of the said openings, an elbow communicating with the said guiding sleeve and registering with the outlet of the tank, a filling tube movable vertically through the said guiding sleeve and provided with a port adapted to register with the elbow, and means for moving the filling tube within the guiding sleeve so as to bring the port in the filling tube into alinement with the elbow.

7. The combination with a tank having a plurality of outlets in its bottom, of a plurality of brackets, elbows depending from said brackets and adapted to register with the outlets of the tank, guiding sleeves depending from the brackets and having communication with the elbows, filling tubes mounted in the guiding sleeves and movable across the end of the elbows and provided with ports adapted to register with the elbows, cross bars adjustably connected to the brackets, means for securing the brackets to the tank, and an adjustable connection between the several filling tubes.

8. The combination with a tank having an outlet in its bottom, of a pipe detachably secured to the tank with one end around the said outlet, a filling tube movable across the opposite end of the said pipe and having a port adapted to register therewith, a valve within the tank adapted to close the outlet therein, and means for simultaneously moving the said valve and the filling tube in opposite directions.

9. In a bottle filler, a filling tube provided at its discharge end with a cap adapted to engage the mouth of a bottle, said cap being provided on the face remote from that adapted to engage the bottle with means for receiving leakage about the filling tube.

10. In a bottle filler, a filling tube provided at its discharge end with a cap adapt-

ed to engage the mouth of a bottle, said cap being provided on the face remote from that adapted to engage the bottle with means for receiving leakage about the filling tube, and
 5 being also provided with a passage leading to the interior of the cap from the space defined by the means for receiving the leakage.

11. The combination with a tank, of an outlet conduit leading therefrom, a valve
 10 controlling the flow of liquid from the tank to the outlet conduit, a guiding sleeve at the end of the conduit remote from the tank, a filling tube movable through said sleeve and provided with a port adapted to register
 15 with the corresponding end of the conduit on the movement of the filling tube in one direction, and means for moving the filling tube to carry its port into register with the conduit and to move the valve to the open
 20 position simultaneously.

12. In a bottle filler, the combination with a filling tube, of a cap on the lower end of the same adapted to engage the exterior of the mouth of the bottle to be filled, a conical
 25 deflector spaced from the said cap and adapted to enter the mouth of the bottle to be filled, and a vent pipe leading from the deflector and through the cap and connecting both parts and opening outside the cap
 30 and inside the deflector.

13. In a bottle filler, the combination with

a filling tube, a cap secured to the lower end of the tube and adapted to engage the exterior of the mouth of the bottle to be filled, a deflector spaced from the cap immediately
 35 below and spaced from the lower end of the filling tube, said deflector being conical and having its apex in substantial alinement with the vertical center of the said filling tube, and a vent tube connected with the de-
 40 flector and leading through the cap to the exterior thereof outside the filling tube.

14. The combination with a tank having an outlet in its bottom, of a spring pressed valve controlling the said outlet, a pipe lead-
 45 ing from the outlet, a filling tube movable with relation to the end of said pipe and having a port adapted at one limit of movement of the tube to register with said pipe, and a single lever connected with the valve
 50 and with the tube to simultaneously move the tube to carry its port into register with the pipe and to move the valve to place the tank in communication with the pipe leading therefrom.
 55

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HENRY BARRY.

Witnesses:

J. H. McDONOUGH,
 FRED SCHNELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."