Jan. 9, 1940. R. A. CASAROTTI 2,186,326

FAUCET

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Fig. 1

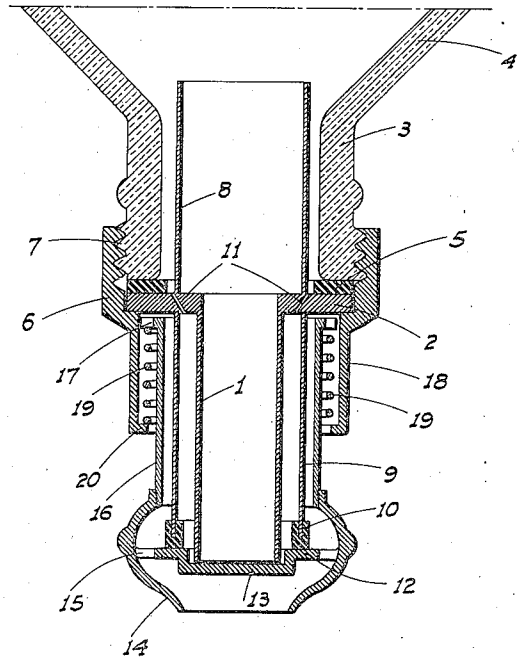
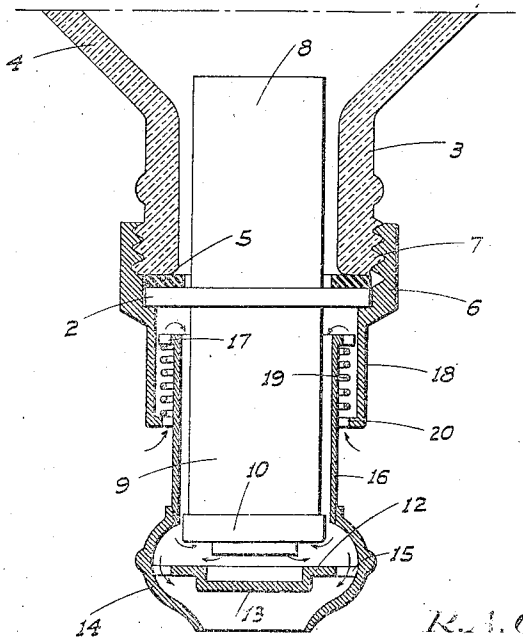


Fig. 2



INVENTOR

R. A. Casarotti

BY

ATTORNEY

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FAUCET

Romeo A. Casarotti, Oakland, Calif.

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10 Claims. (Cl. 221—15)

This invention relates to faucets, and particularly to one intended for use on a liquid container from which the liquid is intended to be dispensed by inversion of the container. Distilled water, for instance, is commonly distributed to individual users in containers intended to be so used; a crock having a faucet therein being usually supplied to the user, the crock supporting the container in an inverted position.

It is one of the objects of my invention to provide a dispensing faucet adapted to be removably and directly applied to the neck of the container, so that the need of a crock or similar vessel is unnecessary.

A further object of my invention is to provide a faucet for the purpose which admits air to the container as the liquid is withdrawn therefrom in such a manner that an even and smooth inflow of air without "bucking" the liquid is obtained, insuring an even flow of liquid from the container.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a sectional elevation of the faucet connected to the neck of a bottle, the faucet being closed.

Figure 2 is a similar view, showing the faucet open.

Referring now more particularly to the characters of reference on the drawing, and describing the faucet as in its normal or depending position relative to the container, the faucet comprises a liquid outlet tube 1 depending from an enlarged flange 2. This flange is substantially the diameter of the neck 3 of the bottle 4 or other container to which the faucet is intended to be applied. A resilient washer 5 is disposed between the flange and the rim of the neck, the flange being clamped against the washer to give a liquid tight fit by means of a screw cap or ring nut member 6 adapted to engage the threads 7 provided on the neck.

Projecting into the neck from the flange 2 in clearance relation to said neck is an open ended tube 8. This is concentric with tube 1, and somewhat larger in diameter. Depending from the flange is another tube 9, which is practically an extension of tube 8, and which surrounds the tube 1 in concentric and clearance relation thereto. This tube 9 is somewhat shorter than tube 1, and is provided about its lower edge with a resilient ring gasket 10. Air bleed holes 11 extend through the flange so as to lead from between the tubes 1 and 9 to the outside of tube 8, the number of these holes being such as to provide an air intake area sufficient to compensate for the amount of liquid withdrawn from the outlet tube 1.

Normally engaging the gasket 10 in sealing relation is a cupped closure disc 12, formed with a central depression 13 to receive the projecting end of tube 1. This disc is formed or rigid with a depending nozzle 14 whose outlet is at the bottom concentric with and clear of the disc. Passages 15 are formed between the disc outwardly of the gasket and the wall of the nozzle, so as to provide for an unobstructed flow of liquid from tube 1 to the nozzle outlet when the closure or valve disc is lowered.

The nozzle, above the disc, is attached to a tubular member 16 which extends about tube 9 in a clearance relation thereto and which is provided at the top with an outwardly projecting flange 17 which slidably engages a skirt 18 formed and depending from the cap 6. A compression spring 19 is disposed about the member 16 inside skirt 18, and at its ends engages the flange 17 and an inwardly projecting flange 20 on the lower edge of the skirt and which also guides the member 16. The flanges 17 and 20 are both notched or otherwise cut away at intervals so as to provide for a free flow of air from exteriorally of the faucet to the space between members 16 and 9.

In operation, the spring normally acts to hold the valve disc against the gasket 10, thus preventing any air from gaining access to the container and of course preventing liquid from leaving the same.

When the nozzle is pulled down, against the resistance of the spring, the valve disc is lowered from engagement with the gasket. Air can then enter the container 4 from the outside, passing down between members 9 and 16, under the gasket, and then up between the tubes 1 and 9 and into the container on the outside of tube 8 through passages 11. The incoming air of course allows the liquid to flow from the faucet through tubes 8 and 1, over the valve disc and through passages 15 to the nozzle outlet.

The direct downward flow of the liquid from the nozzle being thus interrupted, a smoother

and softer flow from the nozzle is obtained, without any loss of volume.

Due to the fact that the liquid outlet tube 1 terminates below the air intake tube 9, and that the highest point of the valve disc (over which the liquid must flow) is below the closure gasket when the faucet is open, the outgoing liquid on the disc does not interfere with the flow of air in the opposite direction into the tube 9.

Due to the large size of the liquid outlet tubes 8 and 1 relative to the air intake holes 11, practically all the liquid takes the path of least resistance and passes down through said tubes rather than through the holes. This leaves the air intake space between the tubes 1 and 9 relatively empty of liquid, so that the desired inrush of air into the container through said holes is unrestricted. Also, since the air enters the container clear of the path of the main body of downwardly flowing liquid, such liquid offers no interference to the intake of air. As a result, a liquid flow of substantially constant volume is obtained.

As will be particularly clear from Fig. 2, the flange 2 of the tube unit is clamped in place by the removable cap or nut 6. Removal of this nut therefore enables the tube unit to be withdrawn from the remaining parts of the faucet assembly. This facilitates sterilizing operations, as well as making it very easy to replace the gasket 10 whenever necessary.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A faucet comprising a liquid outlet tube, means to mount said tube on a container in a depending position relative thereto, a closure for the lower end of the tube, a nozzle mounted as a unit with and below and enclosing the closure and providing for a liquid flow within the nozzle from above to below the closure and means mounting the nozzle unit for downward movement from a tube closing position.

2. A faucet as in claim 1, with air passage means thereon to admit air to the container around said tube and means between the closure and said passage means to close the latter when the outlet tube is closed and to open said passage means when the closure is moved away from the tube.

3. A faucet comprising a liquid outlet tube, means to mount said tube on a container in a depending position relative thereto, air intake passage means provided with the faucet to admit air from atmosphere to the container about the tube and including another tube about and spaced from the outlet tube, a disc extending under the lower end of the tubes and normally closing the lower end of the last named tube and means mounting the disc on the faucet for movement axially of the tubes.

4. A faucet comprising a liquid outlet tube, means to mount said tube on a container in a depending position relative thereto, air intake passage means provided with the faucet to admit air from atmosphere to the container about the tube and including another tube about and spaced from the outlet tube and a closure member movably mounted on the faucet and normally closing the lower end of the tubes; the outlet tube extending above the upper termination of the air intake passage means.

5. A faucet as in claim 3, with a bottom-discharge nozzle mounted as a unit with and enclosing the disc and providing for a liquid flow within the nozzle from above to below the disc and means mounting the nozzle for downward movement from a closed position; the outlet tube terminating below the adjacent end of the other tube.

6. A faucet as in claim 4, in which said upper termination of the air passage means is in the form of a number of bleed holes.

7. A faucet to withdraw liquid from the bottom opening of a closed container, said faucet comprising an open ended tube unit of smaller diameter than the opening, a flange larger than the opening about and rigid with the unit intermediate its ends, means to secure the flange on the container over the opening, another tube depending from the flange about and spaced from the first named tube, the flange having air holes leading into the container outwardly of the first named tube from between the tubes, the space between the tubes at their lower end being normally open to atmosphere, a closure disc movable axially of the tubes extending over the lower end of the tubes and normally closing said other tube in air tight relation, a nozzle for liquid mounted as a unit with the disc and arranged when lowered from a closing position to allow a liquid flow from above to below the disc and means mounted with the nozzle to provide an air intake passage leading from atmosphere to the space between the tubes from above.

8. A faucet to withdraw liquid from the bottom opening of a closed container, said faucet comprising an open ended tube unit of smaller diameter than the opening, a flange larger than the opening about and rigid with the unit intermediate its ends, means to secure the flange on the container over the opening, another tube depending from the flange about and spaced from the first named tube, the flange having air holes leading into the container outwardly of the first named tube from between the tubes, the space between the tubes at their lower end being normally open to atmosphere, and releasable means to close said space at its lower end.

9. A faucet to withdraw liquid from the bottom opening of a closed container, said faucet comprising an open ended tube unit of smaller diameter than the opening, a flange larger than the opening about and rigid with the unit intermediate its ends, means to secure the flange on the container over the opening, another tube depending from the flange about and spaced from the first named tube, the flange having air holes leading into the container outwardly of the first named tube from between the tubes, the space between the tubes at their lower end being normally open to atmosphere, a closure disc movable axially of the tubes extending over the lower end of the tubes and normally closing said other tube in air tight relation, a nozzle for liquid mounted as a unit with the disc and arranged when lowered from a closing position to allow a liquid flow from above to below the disc, a tubular member mounted on and upstanding from the nozzle in clearance relation to the second

tube, an element depending from the flange securing means in surrounding and spaced relation to said tubular member and a compression spring between said member and element and acting to yieldably hold the member in a raised position.

10. A faucet comprising a liquid outlet tube, means to mount said tube on a container in a depending position relative thereto, air intake passage means provided with the faucet to admit air from atmosphere to the container about the tube and including another tube about and spaced from the outlet tube and a closure member movably mounted on the faucet and normally closing the lower end of the tubes.

ROMEO A. CASAROTTI.