(No Model.)

F. McARDLE.

VENT FAUCET FOR BOTTLES.

No. 342,450. Patented May 25, 1886.

Fig. 1.

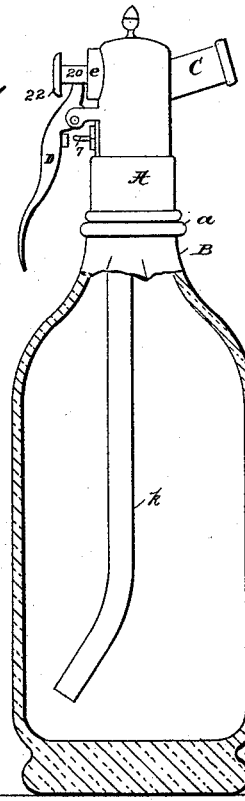


Fig. 4.

Fig. 5.

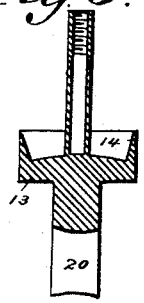


Fig. 2.

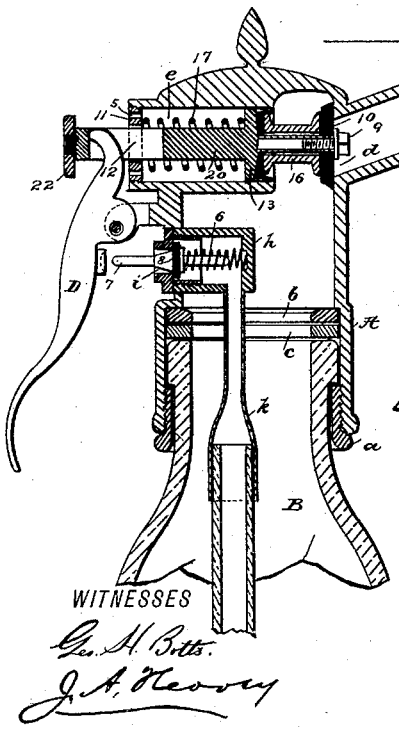
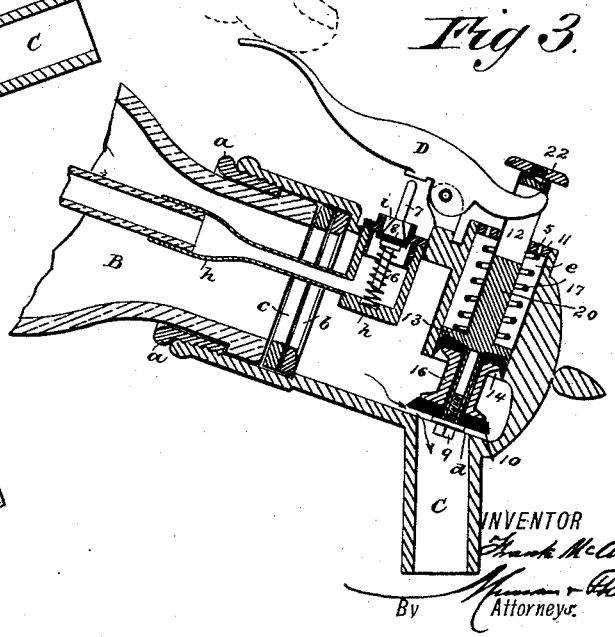


Fig 3.



WITNESSES

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VENT-FAUCET FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 342,450, dated May 25, 1886.

Application filed September 28, 1885. Serial No. 178,337. (No model.)

To all whom it may concern:

Be it known that I, FRANK McARDLE, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Vent-Faucets for Bottles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of vent-faucets for bottles which are provided, in addition to the discharge-opening through which the liquid is poured from the bottle, with a vent-opening and tube or passage through which, when the contents of the bottle is being discharged, air may be admitted to the bottle behind the contents to aid in the discharge, the invention being more especially designed and adapted for use upon bottles which are to contain those beverages and other liquids which are charged with or develop a gas.

It is the object of the present invention to produce a faucet of this character in which the discharge and vent openings can be opened simultaneously by the same instrumentality, and in which, as soon as sufficient of the contents of the bottle is discharged, both openings will be automatically and simultaneously closed without bringing into operation any other instrumentality.

It is also the object of the invention to improve and simplify the construction and organization of the various parts, whereby the operation will be rendered more effective and reliable, and the faucet as a whole made more desirable.

To these ends the invention consists in various details of construction and combinations of parts, which will now be described, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a bottle provided with a faucet embodying the present invention, the faucet being shown as closed. Fig. 2 is an enlarged sectional elevation of the faucet, the parts being in the same position. Fig. 3 is a view similar to Fig. 2, showing the valve of the discharge-opening partly opened; and Figs. 4 and 5 illustrate details which will be hereinafter referred to.

Referring to said figures, it is to be understood that the operating parts of the faucet are contained in a cylindrical cap or casing, A, which is closed at its upper end, while its open lower end is fitted over and secured to the neck B of the bottle in any suitable manner. As shown, in the present case the lower end of the cap A is screw-threaded and engages with a threaded collar, *a*, which fits around the neck of the bottle, a tight joint between the cap and the bottle-neck being formed by means of a packing-ring, as *b*, and a suitable yielding packing, as *c*, interposed between the end of the bottle-neck and the cap.

The cap A is provided near its upper end with a lateral discharge-opening, *d*, which is closed from the inside by a horizontally-reciprocating valve, 10, and is provided with a spout, C, which is of suitable form to enable the contents of the bottle to be readily poured into a tumbler or other drinking-vessel. Opposite the opening *d* the cap A is provided with a small cylinder, *e*, which opens through the side of the cap, and is closed at its outer end by a removable disk, 11. The stem 20 of the valve 10 extends through the cylinder *e*, and passes outward through an opening in the disk 11, and is provided at its outer end with a slot, 12, into which projects the end of an operating-lever, D, which is fulcrumed on the side of the cap A.

The valve-stem 20 is provided with an enlargement, 13, forming a piston which works in the cylinder *e;* and this piston is provided upon its inner face with a flaring recess, 14, (see Fig. 5,) which forms a seat for a cup-shaped packing, 15, (see Fig. 4,) the edge or rim of which projects beyond the piston 13 and rests against the interior of the cylinder *e*. The packing 15 is held in place by a flanged sleeve, 16, which encircles the stem 20, and also affords a support for the valve 10, the valve 10 and the sleeve being held in place by a screw, 9, which enters the end of the stem 20. The valve-stem 20 is also provided with a spring, 17, which is interposed between the piston 13 and the disk 11, and serves to hold the valve 10 to its seat, except when acted upon by the lever D. The disk 11 may be provided with one or more small openings, as 5, through which air can be allowed to flow

freely in and out of the cylinder *e* behind the piston 13, to prevent the piston from being cushioned. It will readily be seen that by reason of this arrangement the pressure of the gas in the bottle against the piston 13 is in direct opposition to the pressure of the gas against the valve 10, from which it results that the valve is substantially balanced, so that in opening the valve it is only necessary to exert sufficient or slightly more than sufficient force to overcome the resistance of the spring 17. This is a feature of importance, as it permits the valve to be opened easily, even when the pressure of the gas in the bottom is the greatest. The outer end of the valve-stem 20 will preferably be provided with a button, as 22, to which pressure can be applied, to restore the valve 10 to its seat in case the spring 17 should fail to act. The employment of the cup-shaped packing 15 in the cylinder *e* is also a feature of importance, as the pressure of the gas upon the projecting rim or the packing makes the packing self-acting, so that no adjustment is required to compensate for wear.

The packing 15 and valve 10 may be made of rubber, leather, or any other suitable flexible or yielding material.

In addition to the parts already described, the casing A is provided with a vent-opening, *i*, which communicates with a small chamber, *h*, formed upon the inside of the casing, and having a tube or passage, *k*, which extends to a point near the bottom of the bottle. The tube *k* will preferably be made in two parts, as shown, the upper portion, which is connected to the chamber *h*, being made of metal, and the lower portion, which is immersed in the contents of the bottle, being made of glass. The vent-opening *i* is provided with an inwardly-opening valve, 8, which, like the valve 10, reciprocates horizontally, and is provided with a stem, 7, which extends outward through the vent-opening in position to be acted on by the lever D when the latter is operated to open the valve 10. The stem 7 also extends inward from the valve, and affords a guide for a spring, 6, which is interposed between the valve and the inner wall of the chamber *h*, and acts to hold the valve 8 to its seat, except when acted on by the lever D.

The manner of using the faucet thus constructed is as follows: When it is desired to pour out a portion of its contents, the bottle will be tipped, as shown in Fig. 3, so as to cause the contents to flow into the casing A, and the lever D will be depressed, so as to compress the spring 17 and move the valve 10 away from its seat, as also shown in said figure. This will allow the contents of the bottle to flow out through the spout C, and the lever D being still further depressed will come into contact with the stem 7, so as to compress the spring 6 and open the valve 8, and thus allow air to pass through the vent-opening *i* and tube *k*, and enter the bottle behind the contents to take the place of that portion of the contents poured out, and thus prevent the dissipation of the gas contained in the liquid contents of the bottle. As soon as the pouring is completed, the lever D will be released, and thereupon the springs 17 and 6 will immediately close the valves 10 and 8, as shown in Fig. 2, so as to prevent all further escape of the gas contained in the contents of the bottle.

It will be observed that by reason of the arrangement of the discharge-opening *d* and valve 10 the valve, when fully opened, is removed entirely out of the way of the stream of liquid flowing out through the discharge-opening, and, as a consequence, does not agitate or break up the stream so as to to allow the gas contained in the liquid to escape. This is a feature of considerable importance, as in the constructions heretofore in use the valve when opened remained in and operated to break up and agitate the stream of liquid flowing out through the discharge-opening, thus causing the liquid to foam and more or less of the gas contained therein to escape.

What I claim is—

1. The combination, with the cap or casing A, having the lateral discharge-opening *d*, of the horizontally-reciprocating valve 10, for controlling the same, the valve-stem 20, extending outward through the side of the cap opposite the opening *d*, and the lever D, fulcrumed on the side of the cap and engaging with the valve-stem 20, substantially as described.

2. The combination, with the cap or casing A, having the lateral discharge and vent openings, of the horizontally-reciprocating valves 10 8, for controlling the same, the valve-stems 20 7, extending outward through the same side of the cap, and the lever D, fulcrumed on the side of the cap and engaging with the valve-stems 20 7, to open both of the valves, substantially as described.

3. The combination, with the cap or casing A, having the lateral discharge-opening *d*, of the horizontally-reciprocating valve 10, for controlling the same, the valve-stem 20, extending outward through the side of the cap opposite the opening *d*, the lever D, fulcrumed on the side of the cap and engaging with the valve stem 20, to open the valve, and the spring 17, for closing the valve, substantially as described.

4. The combination, with the cap or casing A, having the discharge-opening *d* and cylinder *e*, of the valve 10 and valve-stem 20, having the piston 13, whereby the valve is balanced, substantially as described.

5. The combination, with the cap or casing A, having the discharge-opening *d* and cylinder *e*, of the valve 10, the valve-stem 20, having the piston 13, the lever D, for opening the valve, and a spring for closing the same, substantially as described.

6. The combination, with the cap or casing A, having the discharge-opening *d* and cylin-

der *e*, of the valve 10 and the valve-stem 20, having the piston 13, provided with the cup-shaped packing 15, substantially as described.

7. The combination, with the cap or casing A, having the discharge-opening *d* and cylinder *e*, of the valve 10, valve-stem 20, having the piston 13, cup-shaped packing 15, and sleeve 16, substantially as described.

8. The combination, with the cap or casing A, having the discharge and vent openings *d* *i* and cylinder *e*, of the valves 10 8, springs 17 6, piston 13, and lever D, substantially as described.

In testimony whereof I hereunto set my hand in the presence of two subscribing witnesses.

FRANK McARDLE.

Witnesses:
J. A. HOOEY,
JAS. J. KENNEDY.