

(No Model.)

J. J. DURKIN & H. L. FRITZE.
BOTTLE.

No. 581,814.

Patented May 4, 1897.

Fig. 1.

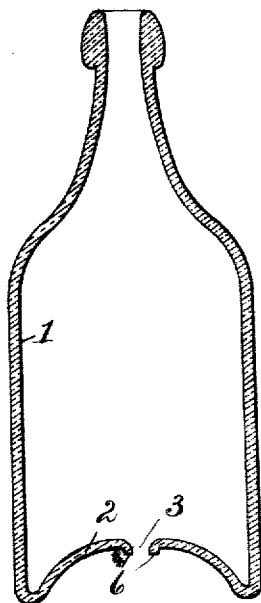


Fig. 2.

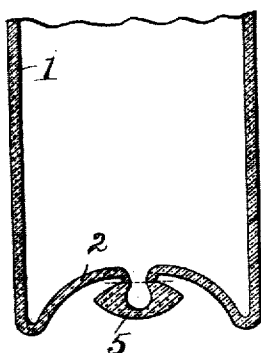


Fig. 3.

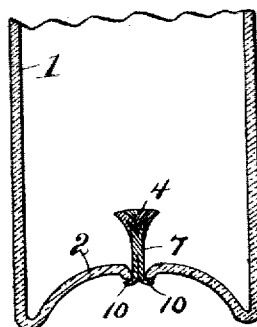


Fig. 4.

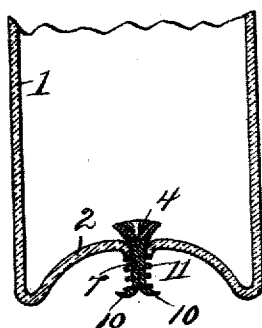


Fig. 5.

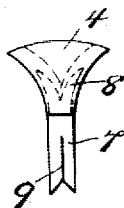
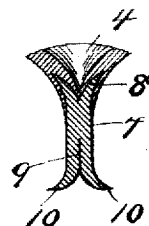


Fig. 6.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN J. DURKIN AND HENRY L. FRITZE, OF JERSEY CITY, NEW JERSEY.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 581,814, dated May 4, 1897.

Application filed March 31, 1896. Serial No. 585,543. (No model.)

To all whom it may concern:

Be it known that we, JOHN J. DURKIN and HENRY L. FRITZE, citizens of the United States, and residents of Jersey City, in the county of Hudson, State of New Jersey, have invented a new and useful Improvement in Bottles, of which the following is a specification.

Our invention relates to bottles or other liquid-holding vessels; and its object is to provide a bottle or like receptacle with improved means for facilitating the expulsion of its contents.

It is well known that the emptying of liquid from an ordinary bottle is necessarily slow because of the resistance caused by the pressure of the air outside of the bottle.

Our invention comprises the combination, with an air-vent formed in the bottle, of a valve of novel construction.

In the accompanying drawings, Figure 1 is a central vertical section of a bottle provided with an air-vent in its bottom. Fig. 2 is a vertical sectional view of a portion of a bottle provided with a projection formed integral with the bottle preparatory to forming the air-vent therein. Fig. 3 is a vertical sectional view of a part of a bottle provided with our improved valve. Fig. 4 is a similar view showing the valve provided with a coil-spring, and Figs. 5 and 6 are views of the valve and valve-stem detached.

The reference-numeral 1 indicates the bottle provided with a concavo-convex bottom 2, having a central air-vent 3 formed therein, said air-vent being annularly beveled or tapered to form a seat for a conical valve 4. We preferably form the air-opening 3 by blowing a hollow projection 5 in the bottom of the bottle, as shown in Fig. 2, and then severing the projection at the point indicated by dotted line in Fig. 2. This leaves a slightly-projecting annular flange 6 around the valve-seat to contact with the outer end of the stem of the valve 4.

The valve 4 is preferably made of rubber and in the form of an inverted hollow cone, and it is secured to a metallic stem 7. We prefer to secure this stem to the valve by splitting or bifurcating the upper end of the stem to form prongs 8, which are embedded in the rubber in the process of vulcanizing

the latter; but it is obvious that any other suitable fastening may be employed to secure the valve and stem together and that other substances than rubber may be used in constructing the valve.

The lower or outer end 9 of the valve-stem is divided longitudinally, as shown in Fig. 5, and the arms or prongs thus formed are bent outwardly in opposite directions to form stops 10 to prevent the stem from passing entirely into the bottle.

It will be apparent that the valve as thus described when in place within the air-vent 3 will, by gravity, close the vent, and the pressure of the liquid in the bottle or the gases contained in said liquid will normally hold the valve to its seat. By pressing the valve away from its seat through the stem air is admitted through the vent 3 to the liquid, and the pressure of the air upon the liquid at the mouth of the bottle is thus utilized, and the liquid will flow out freely.

If desired, a coil spring 11 may be applied around the stem 7, one end of the spring bearing against the stops 10 of the stem and the other end against the bottom of the bottle, as shown in Fig. 4. This spring tends to hold the valve to its seat, and when the valve is pressed inwardly by the finger the spring is compressed and automatically seats the valve when the finger is removed.

Having thus described our invention, what we desire to claim and secure by Letters Patent is—

1. The combination with a bottle, or other liquid-holding vessel having an air-vent, of a valve seated in said air-vent, and a valve-stem having its outer end bifurcated and bent outwardly to form stops.

2. The combination with a bottle or other liquid-holding vessel, having an air-vent at its bottom, of a valve of conical form and a valve-stem provided at one end with prongs embedded in the valve, and at its opposite ends with oppositely-bent arms or prongs.

3. The combination with the bottle having an air-vent in its bottom, of a valve, a valve-stem longitudinally divided at its ends, and a coil-spring arranged on said stem.

4. The combination with the bottle having an air-vent annularly beveled, of a closure comprising a hollow, rubber valve of conical

form, and a valve-stem secured at one end to the valve, and longitudinally divided at its outer end and oppositely bent, substantially as shown and described.

- 5 5. A closure for bottles, comprising a rubber valve, a valve-stem longitudinally divided at both its ends, and bent in opposite directions, said stem being embedded at one end in the rubber, substantially as shown and described.
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In testimony that we claim the foregoing as our invention we have signed our names in presence of two witnesses.

JOHN J. DURKIN.
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Witnesses:

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