

(No Model.)

H. I. LEITH.  
BOTTLE.

No. 360,102.

Patented Mar. 29, 1887.

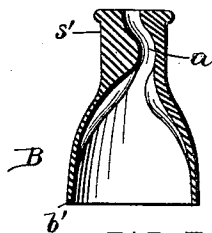
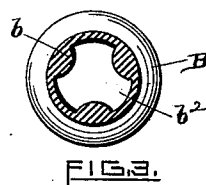
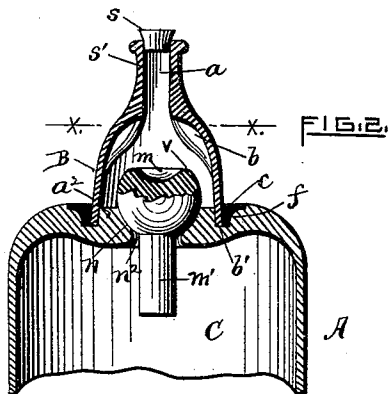
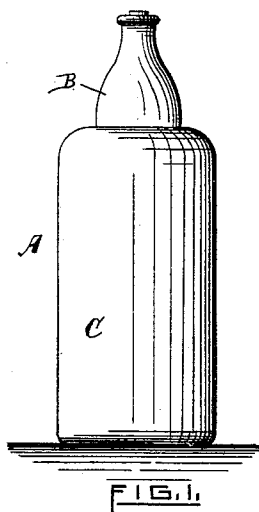


FIG. 5.

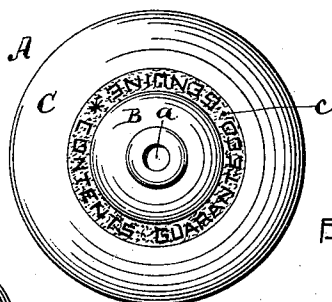


FIG. 4.

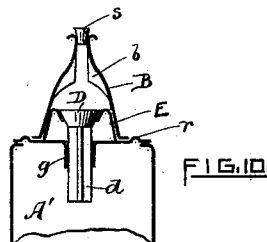


FIG. 10.

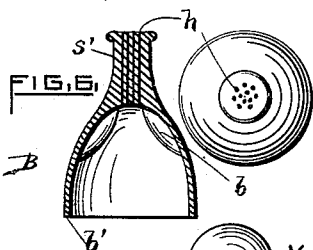


FIG. 6.

FIG. 6 1/2.

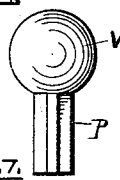


FIG. 7.



FIG. 8.

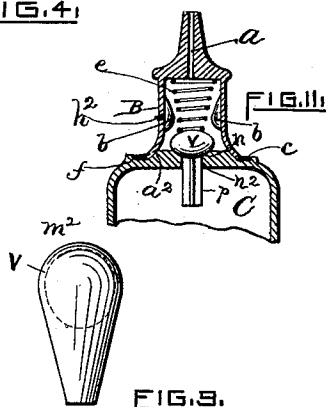


FIG. 9.

WITNESSES.



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# UNITED STATES PATENT OFFICE.

HARVEY I. LEITH, OF PROVIDENCE, RHODE ISLAND.

## BOTTLE.

SPECIFICATION forming part of Letters Patent No. 360,102, dated March 29, 1887.

Application filed September 23, 1886. Serial No. 214,726. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY I. LEITH, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain novel improvements in the construction of bottles or other analogous receptacles for liquids; and it consists, essentially, of a bottle having an apertured neck, a self-closing stopper or valve fitting therein, an apertured protection-cap inclosing the neck and adapted to limit the lift of the valve, and also adapted to be secured or sealed to the top of the bottle, all as will be more fully hereinafter set forth and claimed.

The object of my invention is to provide a bottle with means whereby the original liquid contents thereof are protected from subsequent adulteration or dilution, thereby insuring to the dealer or user the purity of such liquid.

Another advantage possessed by my improvement is that unscrupulous dealers are prevented from refilling the bottles with inferior preparations, owing to the fact that refilling can only be done after the cap and seal have been broken.

It is well known that ordinary bottles containing certain proprietary liquid preparations are frequently refilled with very inferior goods, although in color and taste having a close approximation to the genuine. This is particularly true in the case of preparations adapted to be mixed with drinks.

In order to fully illustrate my improvements, I have prepared the accompanying sheet of drawings, in which—

Figure 1 represents a perspective view of a bottle provided with the protection-cap. Fig. 2 is an enlarged vertical central sectional view taken through the upper portion of the bottle. Fig. 3 is a horizontal sectional view taken through  $xx$  of Fig. 2. Fig. 4 is a plan view of the bottle. Fig. 5 is a vertical central sec-

tional view of the cap as provided with a crooked outlet. Fig. 6 is a similar view of a cap having a series of fine holes formed in the neck thereof, through which the liquid is ejected. Fig. 6 $\frac{1}{2}$  is a top view of the same. Figs. 7, 8, and 9 are forms of glass stoppers which may be employed. Fig. 10 is a vertical central sectional view of a metal can or reservoir embodying my present improvements, and Fig. 11 is a similar view of a bottle having a light spring bearing against the top of the stopper.

The following is a detailed description of the improvement and the manner of its operation:

A, referring to the drawings, designates the bottle as a whole made of glass or other suitable material. C indicates the liquid-holding portion of the bottle, the top end of which is provided with the short central neck,  $a^2$ , having a ground seat,  $n$ , adapted to receive an automatic or self-closing stopper or valve, V, whose stem extends through the opening  $n^2$  of the neck into the chamber below. An annular groove or recess,  $f$ , is formed in the top of the bottle, the same extending outwardly from the neck  $a^2$ , all as clearly shown in Fig. 2.

B indicates the protection-cap, its lower portion,  $b'$ , being enlarged to inclose the neck  $a^2$ , to which it is secured by cement, solable glass, grinding, or other suitable means. The upper portion of the cap is reduced or contracted in area and terminates in the neck  $s'$ , having the small central outlet,  $a$ , through which the liquid may be expelled.

$b$  designates two or more lugs formed on the inner surface of the cap, the same serving to limit the "lift" of the stopper, as well as forming narrow passages  $b^2$ , Fig. 3, leading to the outlet  $a$ .

In Fig. 5 the outlet is made crooked or bent, while in Fig. 6 the outlet consists of a series of very small holes,  $h$ , all connected with the enlarged chamber below.

V, Fig. 2, represents the self-closing stopper or valve, the same having a guide-stem,  $m'$ , loosely fitting the opening  $n^2$ . The top portion of said valve is made slightly concave, as at  $m$ , for the purpose of more readily closing the same when pressure is introduced from the outside through the neck  $s'$ .

In Fig. 7 the stem of the valve is made cru-

ciform in cross-section. In this case the guide-stem is made to just fit the opening  $n^2$ , but at the same time readily permitting the contents of the bottle to flow out freely when the bottle is inverted.

In Fig. 9 the upper portion of the stopper is made hollow, as at  $m^2$ , to insure the ready closing of the opening  $n^2$ .

In Fig. 10 I have represented my improvement as applied to a metal can or reservoir,  $A'$ , the upper part having a top secured thereto, provided with the central opening,  $g$ , and annular bead  $r$ . A raised annular seat,  $E$ , is also secured to the top, into which is fitted a valve,  $D$ , having a guide-stem,  $d$ , extending down through said opening  $g$ . The protection-cap  $B$  is made of sheet metal, its lower edge being enlarged and soldered to the top of the can. Above the valve  $D$  the cap is indented in places, as at  $b$ , to produce lugs, against which the valve is adapted to rest while the can is being emptied. In this case, as also in that shown in Fig. 2, the liquid is first introduced into the can. The stopper is then placed in the mouth  $g$ , and the cap  $B$  firmly soldered or otherwise secured to the top, thereby effectually preventing the passage of other liquids, &c., into the can.

In Fig. 11  $e$  indicates a small spiral spring, which is used to assist in closing the stopper  $V$ . A small hole,  $h^2$ , is formed in the shell of the cap  $B$ , to serve as a vent, thereby causing the liquid to flow out in a steady stream.

The operation of sealing a bottle according to my invention, together with the manner of using the same, is substantially as follows: We will assume that a manufacturer of a valuable liquid preparation, particularly adapted to be combined with soda-water, is desirous that his goods be guaranteed genuine to the consumer. He (the manufacturer) first fills the bottle  $C$  with said liquid preparation and inserts the stopper  $V$ , which latter seats itself at  $n$ . The glass cap  $B$  is then placed in position, resting upon the top of the bottle and cemented or otherwise firmly secured to the neck  $a^2$ , thereby forming an air-tight joint, after which a waxy composition,  $e$ , is run into the channel  $f$ , said wax before hardening being impressed with the seal of the manufacturer, to denote the genuineness of the contents of the bottle. A small cork,  $s$ , is finally inserted into the mouth  $a$  of the cap  $B$ , and retained in place by a wire, &c., as usual. Now, a bottle thus filled and protected can only be emptied of its contents by first removing the cork  $s$  and then inverting the bottle and gently shaking the same, which movement causes the liquid to run out in little jets, the stopper automatically closing the opening  $n^2$  upon replacing the bottle in its normal position.

In the case of other classes of liquids a small hole or air-vent,  $h^2$ , Fig. 11, may be drilled in the side of the cap  $B$ , to produce a steady flow of the liquid while being outpoured.

I contemplate manufacturing the improved bottles so cheaply that it will be undesirable to use them over again. They may, however, be sent back to the manufacturer and be decapped by suitable means, and again refilled and resealed by him.

I would not be understood as limiting myself to the exact form, proportion, and arrangement of the several parts composing my invention, as shown in the drawings, as it is evident that minor changes may be made therein without departing from the spirit of the invention.

I am aware that self-closing stoppers for bottles have been used long prior to my present invention. Therefore I do not claim such construction, broadly; but

What I do claim, and desire to secure by United States Letters Patent, is—

1. The combination, with the apertured neck of a bottle and a self-closing stopper or valve fitting therein, of the protection-cap having an outlet and lugs formed therein for limiting the lift of said valve, and means for securing and sealing the cap to the upper end of the bottle and inclosing said apertured neck and valve, substantially as hereinbefore set forth, and for the purpose specified.

2. The combination, with a bottle having a self-seating stopper, of the protection-cap having an outlet, lugs for limiting the lift of the stopper formed in the cap, and means consisting of an annular groove or rim formed in the bottle to receive cement, into which the lower end of the cap is embedded, and adapted to be sealed for removably securing the cap to the bottle, substantially as shown, and hereinbefore described.

3. A bottle having an opening,  $n^2$ , annular sealing-recess, and self-closing stopper, in combination with the protection-cap having an outlet, and means consisting of lugs  $b$ , for limiting the lift of the stopper, all constructed and arranged substantially as shown and described, and for the purpose hereinbefore set forth.

4. The improved bottle  $A$ , hereinbefore described, consisting of the reservoir portion  $C$ , having an outlet,  $n^2$ , seat  $n$ , neck  $a^2$ , and annular groove  $f$ , formed in the top, a self-closing stopper,  $V$ , adapted to fit said seat, and the protection top or cap  $B$ , secured and sealed to the neck  $a^2$  and having a contracted outlet for the passage of the liquid contents of the bottle, and further having internally-projecting lugs  $b$ , adapted to limit the movement of the stopper, substantially as shown and set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

H. I. LEITH.

Witnesses:

CHARLES HANNIGAN,  
BENJAMIN L. DENNIS.