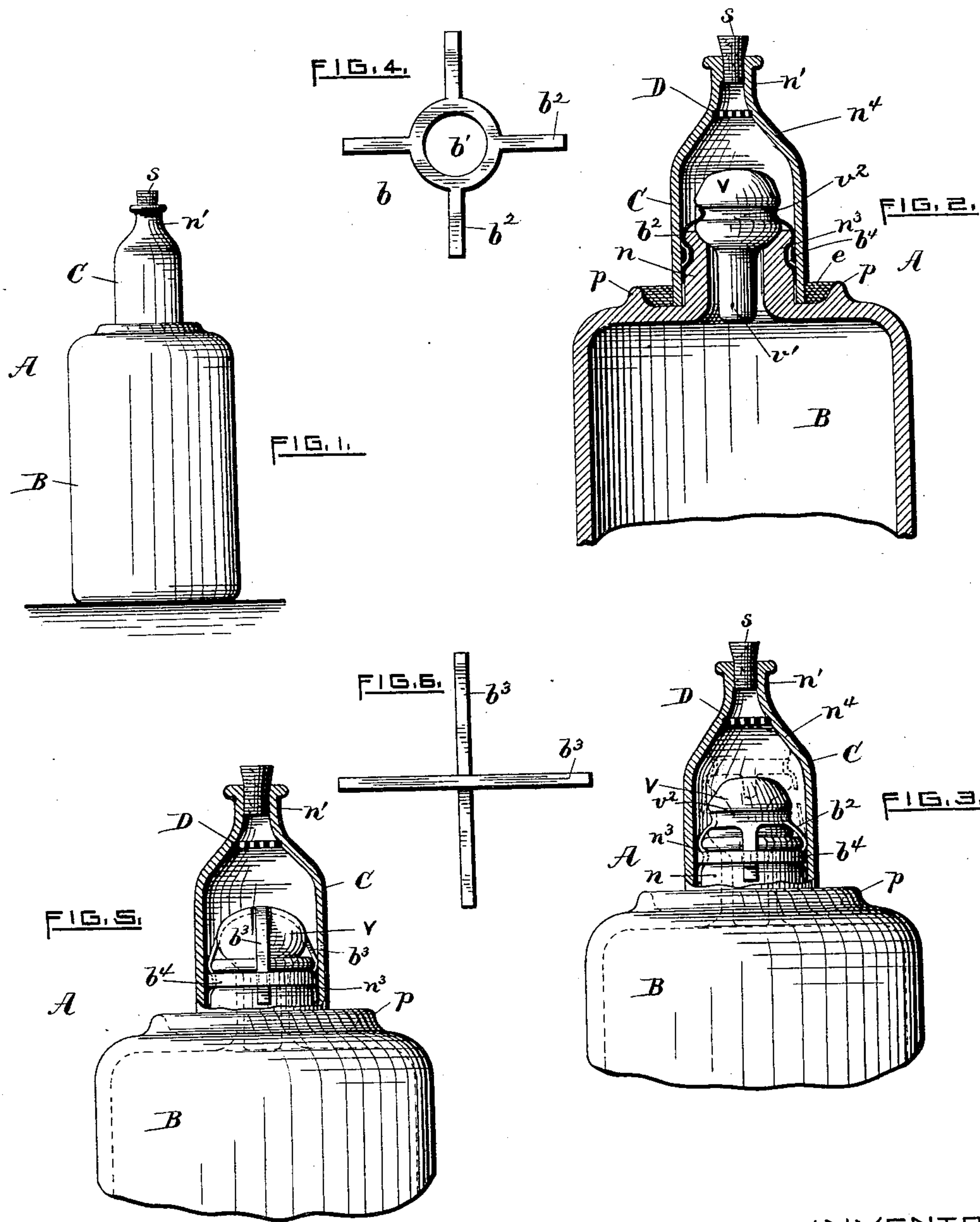


(No Model.)

H. I. LEITH.
BOTTLE.

No. 368,345.

Patented Aug. 16, 1887.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HARVEY I. LEITH, OF PROVIDENCE, RHODE ISLAND.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 368,345, dated August 16, 1887.

Application filed May 11, 1887. Serial No. 237,819. (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.

My present invention relates to improvements in bottles; and it consists of a bottle provided with a valve, a rubber band or bands, adapted to limit the movement of the valve and to automatically close the same, and an apertured protection-cap secured to the top of the bottle, the whole combined and arranged whereby a small chamber is produced which retains a small portion of the liquid contents of the bottle and in which the rubber band is immersed.

It also consists in the combination, with the automatic closing-valve and apertured cap, of a finely-perforated plate arranged in the upper portion of said cap, thereby preventing the entrance into the chamber beneath of a tool or other means calculated to tamper with the valve, and also to prevent the refilling of the bottle with spurious preparations, the invention herewith being an improvement upon the bottle described and claimed in my United States Patent No. 360,102, granted March 29, 1887.

The class of bottles to which I more particularly contemplate applying my improvement is that in which the liquid contents of an inverted bottle are expelled in little jets by shaking.

In the annexed sheet of drawings, Figure 1 represents a perspective view of a bottle provided with my improvement. Fig. 2 is an enlarged vertical central sectional view taken through the upper portion of the bottle, the valve being normally seated by an annular rubber band secured thereto and having narrow strips of rubber extending downwardly therefrom, the ends of which are secured to the neck by a rubber band, and also showing the protection-cap secured to the top of the bottle and having a finely-perforated plate se-

cured to the upper portion of the cap, thereby forming a chamber in which the stopper is inclosed. Fig. 3 is a side elevation of the same, the glass protection-cap being sectionally represented. Fig. 4 is a detached view showing the rubber blank used to seat the valve. Fig. 5 is a view similar to Fig. 3, but showing the valve seated by means of two crossed pieces of rubber extending over the valve and having the ends secured to the neck of the bottle; and Fig. 6 is a detached view of the said two crossed pieces of rubber.

The following description relates to the construction and operation of the device:

A, referring to the drawings, designates a bottle complete as provided with my improvement.

B indicates the receptacle for the liquid, the same being made of glass or other suitable material.

n indicates the annular neck of the bottle, the same extending vertically from the upper side. The outer end of the neck serves as a seat for the stopper or valve. A shallow peripheral groove, as *n*³, is formed in the exterior surface of the neck. A bead or circular ridge, *p*, is also formed on the top end of the bottle, thereby producing a shallow recess at and around the base of the neck.

C designates a glass "protection-cap," so called, adapted to be fitted over and inclose the neck of the bottle and rest in the bottom of the recess. The upper portion of the protection-cap is contracted and terminates in the apertured neck *n*'. Immediately below the neck *n*' is secured a perforated plate, D, made of porcelain, glass, or other material. The object of the plate is to prevent the entrance of a tube into the chamber by unscrupulous persons for the purpose of refilling the bottle with inferior or counterfeit preparations. Said perforated plate further serves to prevent the valve and rubber bands from being tampered with.

V indicates the glass valve or stopper, adapted to fit the seat formed in the neck of the bottle, *v*' being an extension formed on the under side of the valve to serve in a degree as a guide in returning the valve to its seat. In Figs. 2 and 3 the head of the valve is provided with a circumferential groove, *v*². The upper surface of the valve is so shaped in connection with the beveled sides *n*⁴ of the cap C that in case the two parts engage each other, as in the

event of a breaking of the elastic band, (about to be described,) the liquid contents of the bottle is prevented from running out, the valve at the same time not striking the perforated plate D.

The following describes the particular means hereinafter claimed for insuring the seating of the valve, as well as for limiting its movement.

10 *b*, referring to Fig. 4, indicates a blank as cut from a piece of sheet rubber, the same consisting of an annular center, *b'*, from which radiate narrow arms or strips *b²*. The blank is attached to the stopper and neck of the bottle, as follows: The center *b'* is stretched over 15 the top of the stopper until it rests in the groove *v²* thereof. The short narrow arms *b²* are then bent down and across the groove *n³* of the neck of the bottle, after which an elastic band, 20 *b⁴*, is employed to firmly retain the arms in place by crimping them into the groove, all as clearly shown in Figs. 2 and 3. By means of this arrangement of rubber bands, &c., it is obvious that by removing the small cork *s* and 25 then inverting the bottle the contents can be emptied therefrom only by a gentle shaking of the bottle in the longitudinal direction. The liquid runs out in small intermittent jets corresponding to the number and force of the 30 agitations, the stopper being seated immediately after each shake by reason of the tension of the arms *b²*, which unite the stopper and neck of the bottle. Substantially the same arrangement for closing the valve is shown in 35 Figs. 5 and 6. In this case the upper surface of the valve *V* is provided with two shallow grooves crossing at right angles, into which are placed two narrow strips, *b³*, of rubber, the ends thereof being subsequently bent down 40 into the groove and secured to the neck of the bottle, as just described with reference to Figs. 2 and 3. I preferably use rubber for the purpose, as being less injuriously affected by the various inclosed liquids or preparations.

45 The following describes the manner of filling and sealing the bottle. The liquid preparation to be dispensed is drawn into the holder or receptacle B. The stopper *V* is next inserted in the neck *n* and secured by the elastic connection, as just stated, after which the protection-cap *C* is placed over the neck fitting the lower portion thereof and into the annular recess, when, finally, a sealing composition, as wax or cement *e*, is run into the 55 recess flush with the top of the ridge *p*, thereby forming an air-tight joint. The sealing composition may be impressed with the seal of the manufacturer or proprietor of the preparation as a guarantee to the purchaser of the genuineness of the contents of the bottle.

Now, as hereinbefore stated, the bottle cannot be emptied except by inverting and shaking it, said movement thereby causing 65 the liquid to escape in little jets, the elastic bands serving to instantly reseal the valve or stopper at the end of each shake or vibration.

While the bottle is thus inverted, should the band break, as indicated by dotted lines, Fig. 3, the upper sides of the stopper then engage 70 the beveled surface *n⁴* of the cap, thereby preventing the liquid contents from further running out.

By means of this improved construction and arrangement of the bottle, the latter upon being returned each time after use to its normal 75 vertical position leaves a small quantity of the liquid in the protection-chamber, which liquid serves partly as a seal for the valves, but is especially advantageous in protecting 80 the rubber bands or springs *b*, for if the chamber be empty the process of evaporation soon incrusts the rubber with crystals, thereby making it brittle and diminishing its durability, whereas in the former case, as stated, 85 the presence of the liquid, especially acids, prevents crystallization from taking place, thereby preserving the rubber.

I would not be understood as claiming, broadly, a bottle provided with a stopper 90 closed and maintained on its seat by means of springs, such—for example, as beer and soda bottles—having been made prior to my improvement.

Having thus described my invention, what I claim, and desire to secure by United States 95 Letters Patent, is—

1. The combination of a bottle, as B, a valve normally seated therein, a rubber band adapted to limit the lift of the valve and seat it 100 when the bottle is inverted, and an apertured protection-cap sealed to the top of the bottle and inclosing said valve and rubber band, whereby upon returning the bottle to its upright position a quantity of the liquid contents is left in the upper chamber to serve 105 as a seal to the valve and a preservative to the rubber, substantially as hereinbefore described.

2. The improved bottle hereinbefore described, consisting of the base or liquid-holding portion, a valve seated therein, a rubber band for normally closing the valve when the bottle is inverted, an apertured protection-cap sealed to the top of the bottle and inclosing 110 said valve and rubber band, and a perforated plate located in the neck of said protection-cap, substantially as shown, and for the purpose specified.

3. The combination of the vessel B, a grooved valve, *v*, normally seated therein, a rubber band engaging said groove and secured to the neck of the vessel, the glass protection-cap 120 *C*, sealed to the top of the vessel and inclosing the valve and rubber band, and a finely-perforated plate, as D, secured to the interior of the neck of the said cap *C*, all constructed, arranged, and operating substantially as shown, and for the purpose specified.

In testimony whereof I have affixed my signature in presence of two witnesses. 130

Witnesses: H. I. LEITH.

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WM. R. DUTEMPLE.