

No. 670,267.

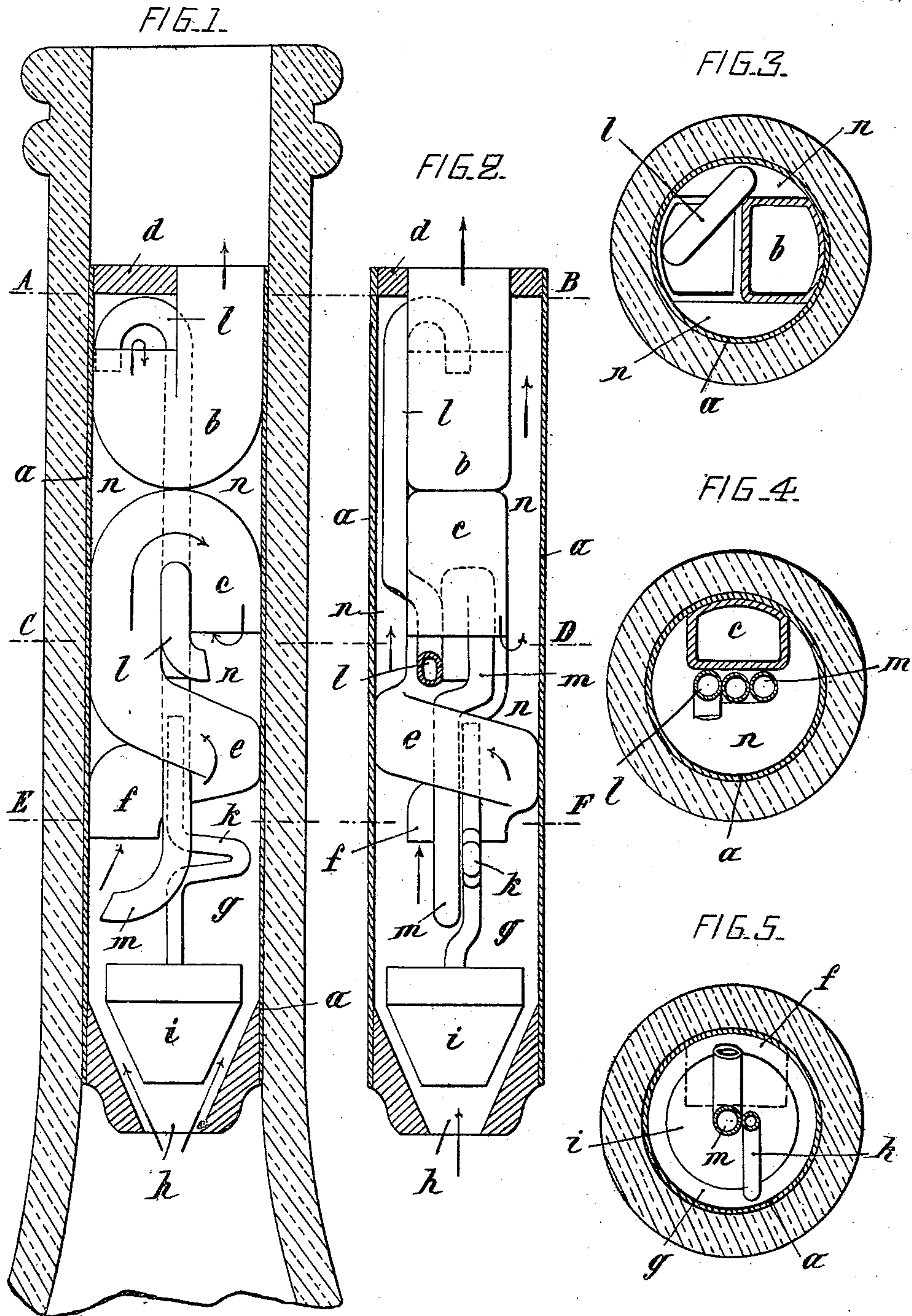
Patented Mar. 19, 1901.

L. F. BIZOUARNE & E. KUGLER.
MEANS FOR PREVENTING REFILLING OF BOTTLES.

(No Model.)

(Application filed July 12, 1900.)

2 Sheets—Sheet 1.



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FIG. 6.

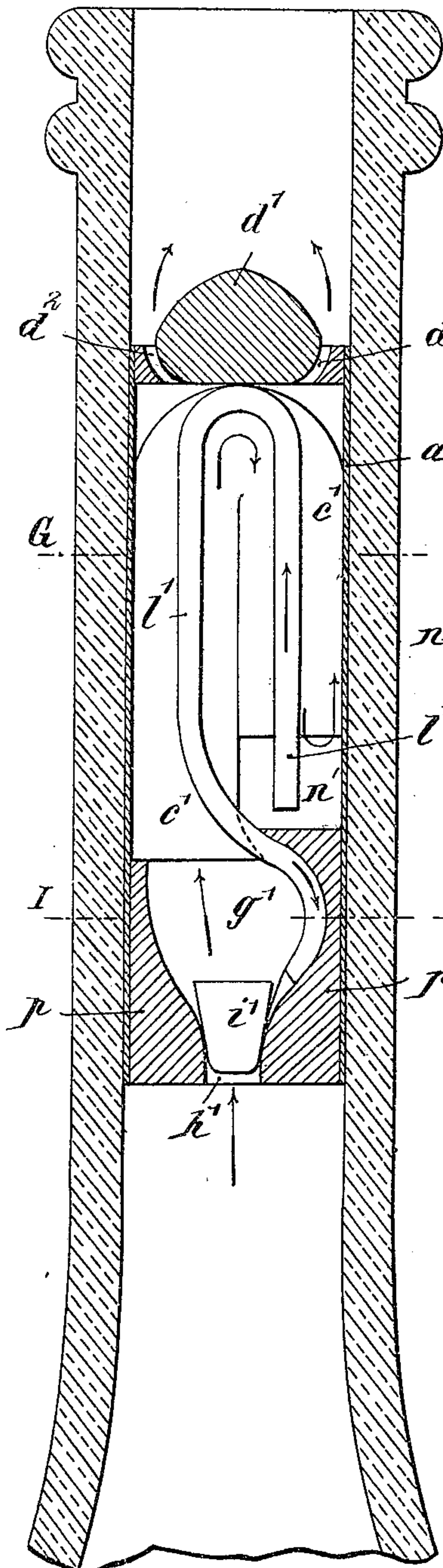


FIG. 7.

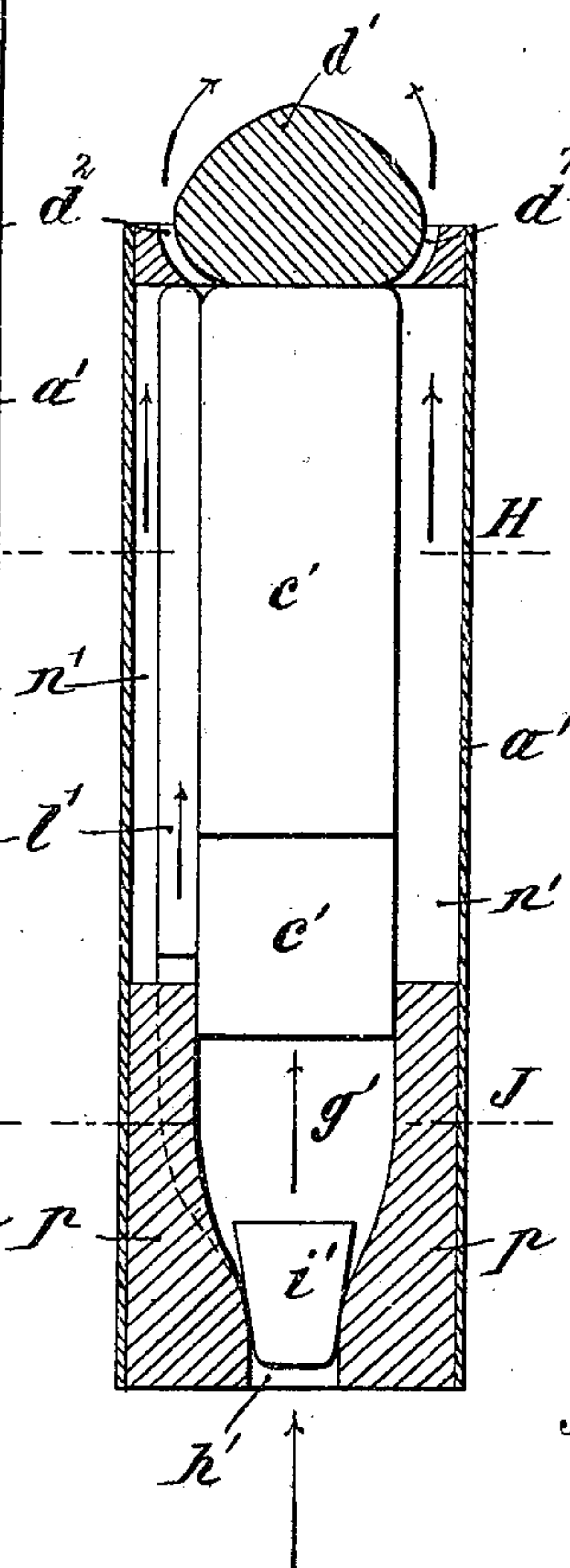


FIG. 8.

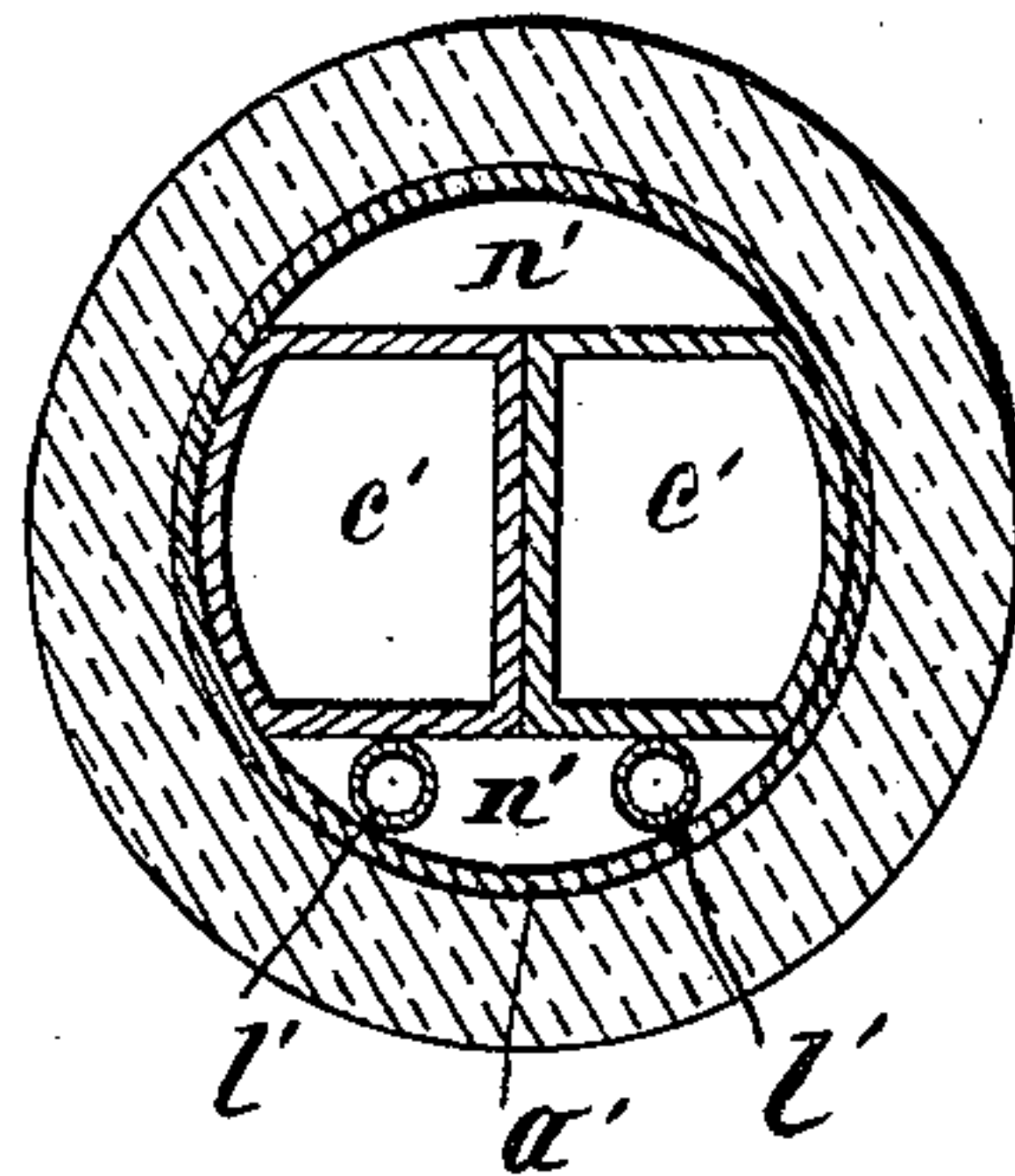
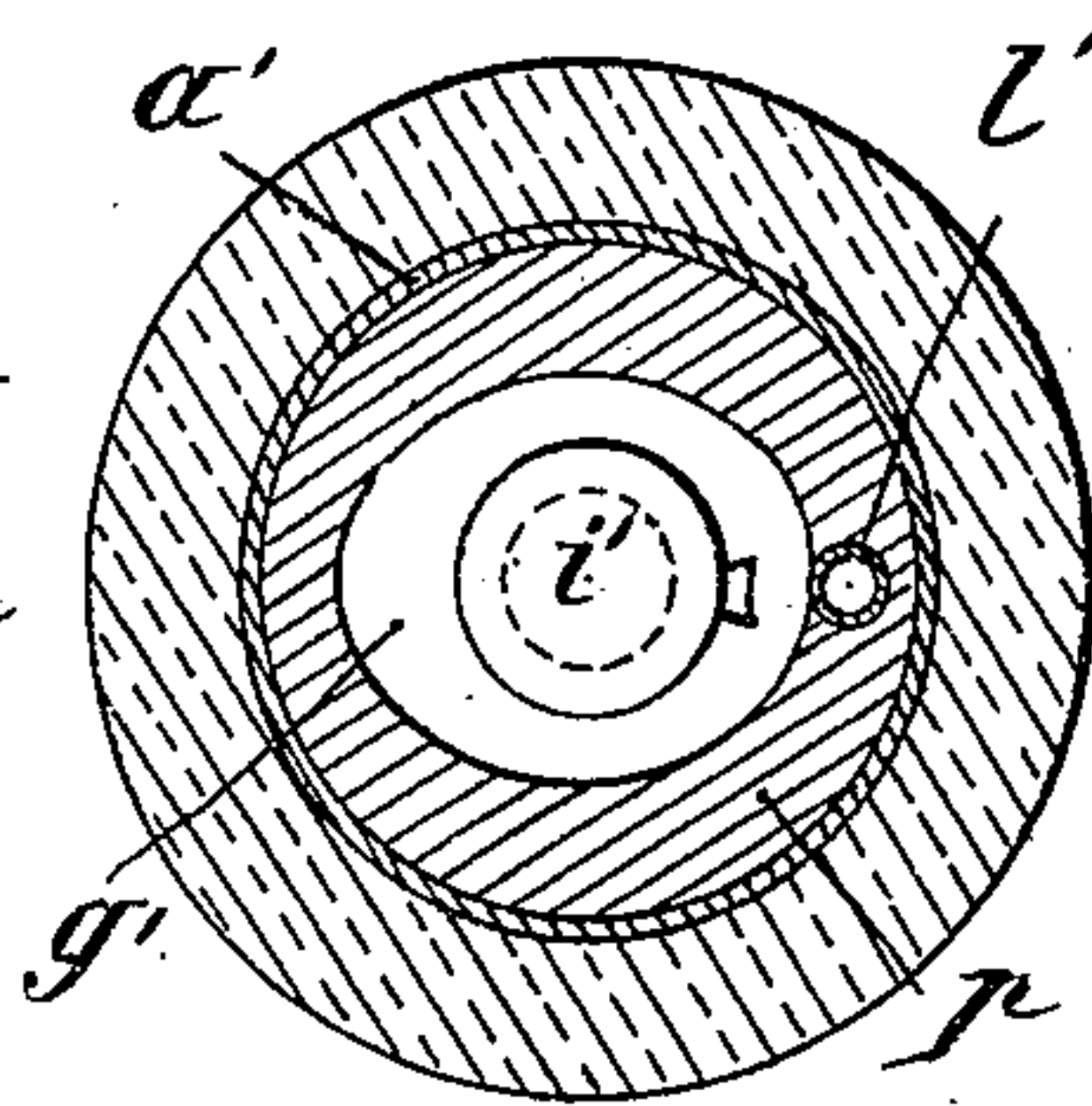


FIG. 9.



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UNITED STATES PATENT OFFICE.

LEON FERDINAND BIZOUARNE AND EMILE KUGLER, OF PARIS, FRANCE.

MEANS FOR PREVENTING REFILLING OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 670,267, dated March 19, 1901.

Application filed July 12, 1900. Serial No. 23,371. (No model.)

To all whom it may concern:

Be it known that we, LEON FERDINAND BIZOUARNE, gentleman, of 34 Rue des Apennins, and EMILE KUGLER, mechanician, of 28 Rue Fessart, Paris, in the Republic of France, have invented Improved Means for Preventing the Refilling of Bottles and Receptacles, of which the following is a full, clear, and exact description.

10 The invention relates to improved means for preventing the refilling of bottles and receptacles.

Reference is to be had to the accompanying drawings, wherein—

15 Figure 1 shows a vertical section of a bottle-neck in which is fixed a cylinder provided with means for preventing refilling. Fig. 2 is a vertical section of the cylinder, viewed from the opposite side. Figs. 3, 4, and 5 are horizontal sections on lines A B, C D, and E F, Figs. 1 and 2, respectively. Fig. 6 shows a modification, and Fig. 7 a vertical section, of the cylinder, viewed from the opposite side. Figs. 8 and 9 are horizontal sections on lines 20 G H, I J, Figs. 6 and 7, respectively.

The same letters of reference denote like parts in the several figures.

Referring to Figs. 1 to 5, the apparatus essentially comprises a hollow liner-cylinder *a*, preferably of glass, fixed in any suitable manner in the interior of the neck of the bottle or receptacle. Within said cylinder *a* are disposed in positions inversely the one to the other two siphons *b* and *c*. The longer leg of the upper siphon *b* opens to the mouth of the bottle through a diaphragm *d*, which closes the upper end of cylinder *a*, while the short leg terminates at a short distance from the diaphragm *d*, there being a free space between the end of this leg and the diaphragm. The short leg of the lower siphon *c* terminates at a short distance from a lower diaphragm formed by a spiral *e*, which constitutes the long leg of said siphon and terminates in an extension *f*, which opens into a chamber *g*, which is in communication with the interior of the bottle through the contracted passage *h*, which a cork plug *i*, attached to a bent tube *k*, is capable of closing. *l m* are siphon-tubes 40 for admitting external air to the bottle.

50 The action is as follows: The bottle having been filled, the tube sealed in the neck, and

the mouth corked, when after drawing the cork the bottle is tilted to pour off its contents the liquid enters the chamber *g* and passes through the pipe extension *f* into the hollow spiral *e*, which becomes filled, as well as the siphon *c*, and arrives in the space *n* between the siphons and the walls of cylinder *a*. After having filled chamber *n* the liquid enters the short leg of siphon *b* and thence flows out, all as indicated by the arrows in Figs. 1 and 2. The outflowing liquid is replaced by air admitted by the siphon-tube *l* into chamber *n*, whence it can enter siphon-tube *m*, and so into the bottle.

If when the bottle is empty it be attempted to refill it, the action is as follows: If the bottle be in the upright position, the liquid passes into and fills chamber *n* and first enters the branch of the air-siphon *m*, which it, however, fails to prime, as when the liquid reaches such a height as to close the siphon *c* the air in the bottle becomes compressed and prevents the liquid from entering. If the bottle be inclined or laid on its side or be placed in any other than a vertical position, the spiral *e* will force the liquid to rise in chamber *n* to such a height as to close the air-passages *l m*, and consequently compress the air in the bottle, and so prevent the liquid entering.

Should pressure be employed to aid in the fraudulent refilling of the bottle, the small bent tube *k* will tend to straighten under the pressure and so become broken, whereupon the plug *i*, carried by said tube, becoming freed falls into the seat *h*, and so closes all communication with the interior of the bottle.

In the modification represented in Figs. 6 to 9 the liner-cylinder *a'* contains a siphon *c'*, whose short leg terminates a short distance above the lower diaphragm *p*, while the long leg of said siphon *c'* extends down into chamber *g'*, which communicates with the interior of the bottle through the contracted passage *h'*, in which the plug *i'* is seated. *l'* is a siphon-tube disposed at one side of siphon *c'* for admitting air to the bottle. The upper end of cylinder *a'* is closed by a glass diaphragm *d'*, having preferably a convex top to prevent any attempts at perforating it. The diaphragm may have a number of inclined holes *d''*, as shown in Figs. 6 and 7, or radial in-

clined grooves. On emptying the liquid will pass through passage h' into chamber g' and enter siphon c' by its longer leg, and so arrive in chamber n' , and thence flow out through the orifices d^2 , while air enters through siphon l' to chamber g' and thence into the bottle.

The forms, dimensions, details, and materials employed may be varied without in any way affecting the principle of the invention.

10 We claim the herein-described means of preventing the refilling of bottles and receptacles, and consisting, essentially, of—

1. The combination with a receptacle of two superposed and inversely-arranged siphons, and two inversely-arranged siphon-tubes located at the sides of the siphons for admitting air to the receptacle when emptying, one of said siphon-tubes being adapted to communicate with the outer air and the other with the interior of the receptacle, the air passing from the outer siphon-tube to an intermediate space or chamber before entering the siphon-tube communicating with the interior of the receptacle.

2. In an apparatus of the kind specified, a siphon adapted to be inserted in the mouth of a receptacle and having one of its legs in the form of a spiral, a chamber into which the other leg of said siphon opens, and an air-passage adapted to communicate with the interior of the receptacle, the spiral arrangement of the leg of the siphon on an attempt to fill the receptacle through the said siphon, causing the liquid to rise in said chamber and close the opening of the air-passage, thereby compressing the air in the interior of the receptacle and preventing the siphon from becoming primed, as described.

3. In an apparatus for preventing the refilling of bottles or receptacles, a valve adapted to be located in the mouth of the receptacle and arranged when seated to close an orifice communicating with the interior of the receptacle, and a bent tube holding said valve normally in an open position, the said tube tending to become straightened and broken if pressure is applied to force liquid into the receptacle, thereby liberating the valve and permitting it to seat itself, as described.

4. In an apparatus of the kind specified, the combination with the diaphragms of a siphon, and a siphon air-tube disposed between the diaphragms, the outer ends of the siphon and air-tube extending inwardly, as described.

5. Means for preventing the refilling of bottles or receptacles comprising a casing, diaphragms in the casing having apertures for the passage of the liquid, siphon-tubes interposed between the diaphragms and adapted to control the flow of liquid, the outer ends of the said siphon-tubes extending inwardly and opening in the casing between the diaphragms, substantially as set forth.

6. Means for preventing the refilling of bottles or receptacles, comprising a siphon-tube

adapted to be inserted in the mouth of the receptacle and control the flow of liquid there-through, the outer end of said siphon-tube extending inwardly, and an air-vent the outer end of which extends inwardly beyond the outer end of the siphon-tube, substantially as described.

7. Means for preventing the refilling of bottles or receptacles, comprising a casing adapted to be secured in the mouth of the receptacle, and having an opening in its inner end arranged to communicate with the interior of the receptacle, a valve located in said casing, and having a stem extending outward therefrom, the said stem holding the valve normally in an open position, the stem having a bend therein and capable of being broken under pressure to release the valve, as described.

8. A means for preventing the refilling of bottles or receptacles, the said means comprising a casing, siphons or traps arranged in said casing in reversed relation to each other, and adapted to control the flow of liquid, the adjacent ends of said siphons or traps opening into a space or chamber in said casing, and an air-vent tube also arranged in said casing, as set forth.

9. Means for preventing the refilling of bottles or receptacles, the said means comprising a casing adapted to be inserted in the mouth of the receptacle, a siphon in said casing, and an air-vent in sections, the adjacent ends of the sections being out of direct register and opening into the casing, for the purpose set forth.

10. Means for preventing the refilling of bottles or other receptacles, the said means comprising a liquid-outlet for the receptacle in the form of a trap or siphon, the outer end of which extends inwardly, and an air-vent the outer end of which also extends inwardly, substantially as described.

11. The combination with a receptacle of a casing adapted to be arranged in the mouth of the receptacle and communicating with the interior thereof, a valve in said casing and adapted when closed to cut off communication with the interior of the receptacle, a siphon arranged in the casing and through which the liquid flows when emptying the receptacle, the outer end of said siphon extending inwardly, and an air-vent tube in said casing the outer end of which also extends inwardly, substantially as set forth.

The foregoing specification of our improved means of preventing the refilling of bottles and receptacles signed by us this 25th day of June, 1900.

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EMILE KUGLER.

Witnesses:

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