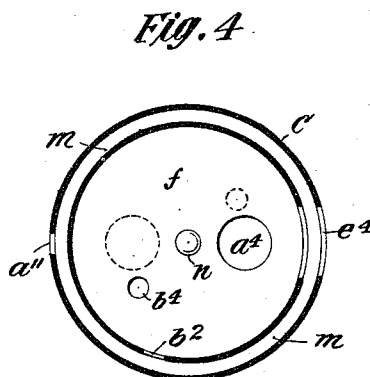
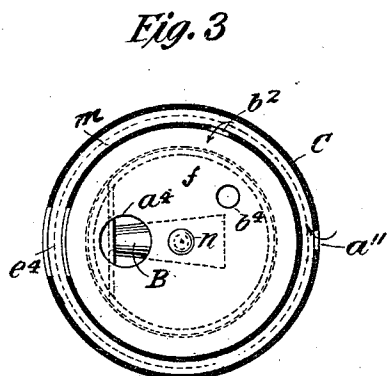
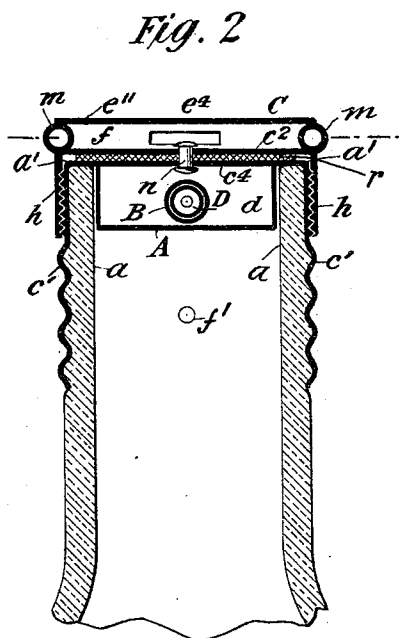
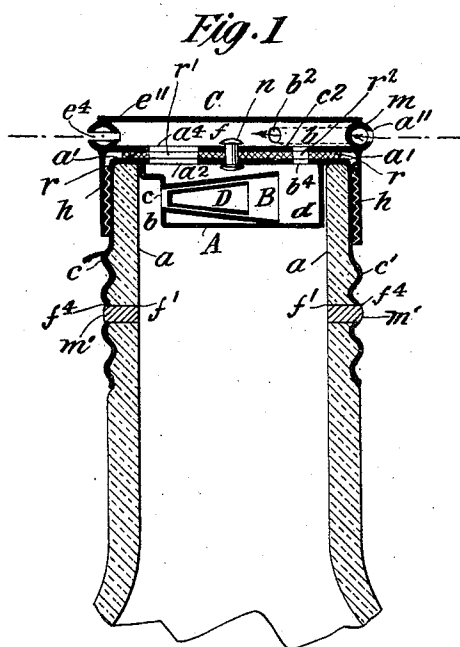


(No Model.)

W. C. WILSON.
NON-REFILLABLE BOTTLE.

No. 579,629.

Patented Mar. 30, 1897.



Witnesses:

Clarence W. Hughes.
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UNITED STATES PATENT OFFICE.

WILLIAM C. WILSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO FRANCIS RAYMOND, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 579,629, dated March 30, 1897.

Application filed June 29, 1896. Serial No. 597,374. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WILSON, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical sectional view of a non-refillable bottle made according to my invention. Fig. 2 is a sectional view of the same, taken in a plane at right angles to Fig. 1. Figs. 3 and 4 are horizontal sectional views of the same, showing the parts thereof in different positions.

This invention relates to that class of apparatuses which are designed to frustrate fraud in many branches of traffic by preventing the refilling of bottles after the contents thereof have been once exhausted.

The purpose of my invention is to secure greater simplicity of construction, economy of manufacture, and certainty of operation to attain the desired object than has been found practicable in the devices heretofore provided; and my invention comprises certain new and useful combinations of parts whereby such results are effectually secured.

In the structure of my invention I provide to the mouth of the bottle—meaning by this term any suitable or similar vessel for containing liquids—a chamber which has a suitable pouring outlet or opening. The interior of the bottle during the outflow of liquid therefrom communicates with the chamber through a conical or tapering tube the smaller end of which opens into the interior of the bottle and the larger end of which opens into the chamber, there being no other means of communication between the two. Within this tapering tube I place a movable cup of correspondingly tapering or conical form and of a size which adapts it to fit snugly, on occasion, in the narrower portion of the tube, with its closed smaller end at the corresponding smaller open end of the tube. These parts may be of any suitable construction and in size and proportions may vary within wide limits. These elements of my invention are shown in their most approved form in the drawings, which also include

other combinations and arrangements of parts embraced in my invention.

In the drawings the part which includes the chamber above mentioned is shown at A and is situated in the neck *a* of the bottle or liquid-containing vessel B. This part should be so proportioned as to afford a space *b* at one side, where is provided an outlet-opening *c*, to which is soldered or otherwise hermetically fixed the smaller end of the conical or tapering tube B, the opposite end of which is open into the chamber *d*, the latter being closed at top except for an outlet-opening *a*² and an air-inlet orifice *b*². This part A is securely fixed to the neck *a* of the bottle, and for that purpose, as shown in Figs. 1 and 2, has a circumferential flange *a'*, from which extends downward and around the neck a sleeve *c'*. This sleeve, in the construction shown, is screw-threaded and screws upon a corresponding thread formed on the neck. The flange and sleeve are preferably integral with the lower portion of the part A.

Placed above the chambered part A, and of course above the chamber *d* thereof, is another part C, also chambered, the chamber being shown at *f*. This part C is capable of an axial movement upon the part A and in its bottom *c*² has an outlet-opening *a*⁴ and an air-inlet orifice *b*⁴, which may, by means of the axial movement of the part C, be brought coincident with the opening *a*² and orifice *b*² in the top of the chamber *f*. At *h* is shown a downwardly-extending collar in the part C, which is screw-threaded to engage with a like screw on the exterior of the sleeve *b* of the part A. To the chamber *f* is provided an outpouring-opening *e*⁴, and at another place with an air-inlet through which external air may pass to the orifices, and when the same are coincident for the outpouring of the contents of the bottle, as hereinafter explained.

In the construction of the part C as shown in the drawings the bottom *c*² of the chamber *f* is formed of a plate which has integral with it the flange *h*. Upon this plate is fixed a hollow ring *m*, in the outer wall of which at one place is formed an orifice *a''* and in the inner wall of which at another place is formed another orifice *b*², the interior of the ring between these two orifices constituting a sinuous air-inlet passage to the chamber *f*. Through

the opposite walls of this ring at one side thereof is formed a passage which constitutes the pouring-outlet of the said chamber. Upon the upper side of this ring is soldered or otherwise fixed a disk e'' , which closes the top of the space within the ring and thus forms the chamber f . Prior to affixing this disk a rivet n is passed axially through the top plate e' of the part A and the bottom e^3 of the part C, and being enlarged or headed at both ends holds the two parts face to face together. This done, the disk is attached as just set forth. In opposite sides of the bottle-neck a are provided holes f' , which are coincident with similar holes f^4 in the sleeve c of the part A. In placing the screw-thread of the sleeve upon that of the bottle-neck a layer of any suitable mastic is provided between them to cement the sleeve to the neck. Metal pins m' are driven in through the coincident holes f^4 and f' of the sleeve and bottle-neck and their outer ends are soldered to the sleeve. By these means the sleeve, and consequently the part A, are so firmly secured in place that they cannot be detached from the bottle without destruction of the said parts or of the bottle itself. In like manner the part C, being attached to the part A by the rivet n , which is inclosed and inaccessible, said part C cannot be removed except through its own destruction, that of the part A, or that of the bottle, either contingency resulting in the incapacity of the apparatus for further use in the retention under closure of liquids.

Within the tapering or conical tube of the part A, and therefore inaccessible from the outside of the bottle, is placed a cup D of corresponding shape but of a length less than that of the tube, so that the cup is capable of a longitudinal movement within the tube. The closed smaller end of the cup is adjacent to the smaller open end of the tube, and the parts are so proportioned that when the cup is moved inward it fits snugly throughout or substantially throughout its length against the inner surface of the contiguous smaller portion of the tube and, as against any inward flow from the larger end of the tube, effectually closes any passage through the latter toward the interior of the bottle, the cup catching the first flow of any liquid attempted to be injected in the direction indicated, so that the cup is immediately driven inward to close the tube, as just described. When, however, liquid is caused to flow outward from the bottle through the opening e^4 into the tapering tube, it strikes the closed inner or smaller end of the cup and forces the latter outward into the portion of the tube which has a greater diameter than the cup, thereby affording a passage between the outer circumference of the cup and the inner wall of the tube. Through this passage the liquid flows into the chamber d , and thence through the openings a^2 b^4 into the chamber f , and thence to and through pouring-outlet e^2 from the bottle. It will thus be seen that while the original

contents of the bottle or similar vessel may be readily poured therefrom the refilling thereof without the destruction of the whole or essential parts of the apparatus is made practically impossible.

To pour out the contents of the bottle, the part C is turned to bring its opening a^4 and air-orifice b^4 coincident with the opening a^2 and orifice b^2 of the part A, which done the bottle is tilted to cause the liquid contents thereof to pass into the conical tube B through the opening c . The pressure of the outflowing liquid pushes the tapering or conical cup D outward, as already described, so that it is brought into the larger and outer part of the tapering or conical tube, so that the liquid may pass out freely through the annular passage thus provided between the cup and the tube into the chamber f and thence out through the outlet e^4 .

If it be attempted to refill the bottle by pouring or injecting liquid inward through the opening, the thus-injected liquid passes primarily and at once into the interior of the conical cup and at once drives the latter back into the smaller inner part of the conical tube, so that the outer surface of the cup being pressed against the correspondingly-shaped inner surface of the conical tube forms a close and practically impossible joint between them, thereby effectually shutting off any inflow to the interior of the bottle. As the interior of the cup has a flaring surface, larger at its outer end, it is practically impossible to draw the cup outward in the conical tube by means of a wire or any like device to produce a passage between the cup and the tube, the thrust of any such implement, moreover, tending to force the cup inward to, if possible, increase the snugness with which it fits within the inner end of the tube to shut off all access to the interior of the bottle.

To close the bottle against outflow of liquid, the part C is turned to bring the opening a^4 away from the opening a^2 and the orifice b^4 away from the orifice b^2 . By means of the screw connection of the part C with the part A the said parts are tightened toward each other in the act of closing the bottle and thus render the closure the more secure. To still more securely seal the bottle under those conditions, I provide to the under side of the bottom of the part C an elastic disk or packing r , which has an opening r^1 , corresponding to the opening a^4 , and an orifice r^2 , corresponding to the orifice b^4 , and which turns with the part C. When the latter is brought more snugly to the part A in the closure of the bottle, as described, this packing is compressed between the two and hermetically closes the joint between them.

What I claim as my invention is—

1. The combination with a bottle-neck of a chambered part or device having an outlet for liquid contents of the bottle, a tapering or conical tube placed transverse to the axis of the bottle the smaller end of which opens

to the interior of the bottle, and the larger end of which opens into the chamber of said part and a tapering or conical cup proportioned in shape and size to the smaller portion of the tube and longitudinally movable in the latter, substantially as and for the purpose herein set forth.

2. The combination of a part, A, comprising a chamber, which has an outlet-opening and an air-inlet orifice in its top, a tapering or conical tube the smaller end of which opens external to the said chamber while the larger opens into the same, a correspondingly-shaped cup placed in said tube and longitudinally movable therein, a part, C, constructed with a chamber which has a pouring-outlet an outlet-opening an air-inlet orifice, means for attaching said parts, A, and, C, one to the other and means for affording an axial movement of the part, C, with reference to the part, A, substantially as and for the purpose herein set forth.

3. The combination with a bottle-neck of a chambered part, A, which has a flange and a sleeve for attaching the same to the neck, a top provided with an outlet-opening and an air-inlet orifice, a tapering or conical tube placed within said part with its smaller end opening external to its chamber and with its larger end opening into said chamber and a correspondingly tapering or conical cup placed in the said tube, of a chambered part, C, which has a collar constructed and arranged to pass over and around the sleeve of the part, A, an outlet-opening and an air-inlet orifice in the bottom of its chamber, a pouring-outlet at another part thereof, and an air-inlet to said chamber, the whole arranged for coördinate use and operation, substantially as and for the purpose herein set forth.

4. The combination with a part, A, which has the chamber, *d*, an air-inlet orifice and an outlet-opening a tapering or conical tube opening at its smaller end external to said chamber and with its larger end opening into said chamber, and a correspondingly-tapered cup placed in said tube and longitudinally movable therein, of a part, C, composed of a plate, *c*², having in it an outlet-opening and an air-inlet orifice, a hollow ring, *m*, having an outlet, *e*⁴, and a disk, *e*², upon said ring to provide the chamber, *f*, all substantially as and for the purpose herein set forth.

5. The combination with a chambered part, A, having a tapering tube opening at its smaller end to the interior of the bottle and at its larger end into the chamber of said part and a tapering cup placed within said tube, of a chambered part, C, having a pouring-outlet, and a rivet placed axially in said two parts holding the same together, substantially as and for the purpose herein set forth.

6. The combination with a chambered part, A, which has a flat top in which is an outlet-opening and an air-inlet opening, a tapering or conical tube the smaller end of which opens external to the chamber of said part and the

larger end of which opens into said chamber, a tapering or conical cup placed in said tube and longitudinally movable therein of a chambered part, C, which has a flat bottom placed opposite to and parallel with the top of the part, A, and is provided with an outlet-opening and an air-inlet orifice of an axial rivet connecting the bottom of the part, C, with the top of the part, A, and with its ends within and protected against access by the respective chambers of the said parts, substantially as and for the purpose herein set forth.

7. The combination of the chambered part, A, which has an outlet-opening and an air-inlet opening and an externally-threaded sleeve, C, for attaching it to the bottle-neck, a tapering or conical tube, the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering or conical cup placed in said tube and movable therein, of a chambered part which has a pouring-outlet, an outlet-opening, *a*⁴, an air-inlet, *b*⁴, and an internally-threaded collar for connecting it with the externally-threaded sleeve of the part, A, all substantially as and for the purpose herein set forth.

8. The combination of the chambered part, A, which has an outlet-opening and an air-inlet opening and an externally-threaded sleeve, C, for attaching it to the bottle-neck, a tapering or conical tube the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering or conical cup placed in said tube and movable therein, of a chambered part which has a pouring-outlet, an outlet-opening, *a*⁴, an air-inlet, *b*⁴, an internally-threaded collar for connecting it with the externally-threaded sleeve of the part, A, and an axial rivet which holds the said two parts together and the opposite ends of which are within respective chambers thereof, all substantially as and for the purpose herein set forth.

9. The combination of the following elements, to wit, a bottle-neck which has one or more holes, *f*², a chambered part, A, which has a tapering tube, the smaller end of which opens external to the chamber of said part and the larger end of which opens into said chamber, a tapering cup placed in said tube and movable therein, a sleeve extended from said part downward around the bottle-neck and provided with one or more holes, *f*⁴, a pin or pins, *m*¹, passed into said holes, *f*¹, *f*⁴, and soldered to the sleeve, and a part, C, attached to the part, A, and adapted to receive the liquid contents from the bottle and to discharge the same through a suitable pouring-outlet, all substantially as and for the purpose herein set forth.

WILLIAM C. WILSON.

Witnesses:

CLARENCE W. HUGHES,
JNO. C. MCQUHAE.