No. 612,961. Patented Oct. 25, 1898.

M. BARCI.

NON-REFILLABLE BOTTLE.

(Application filed Mar. 3, 1898.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

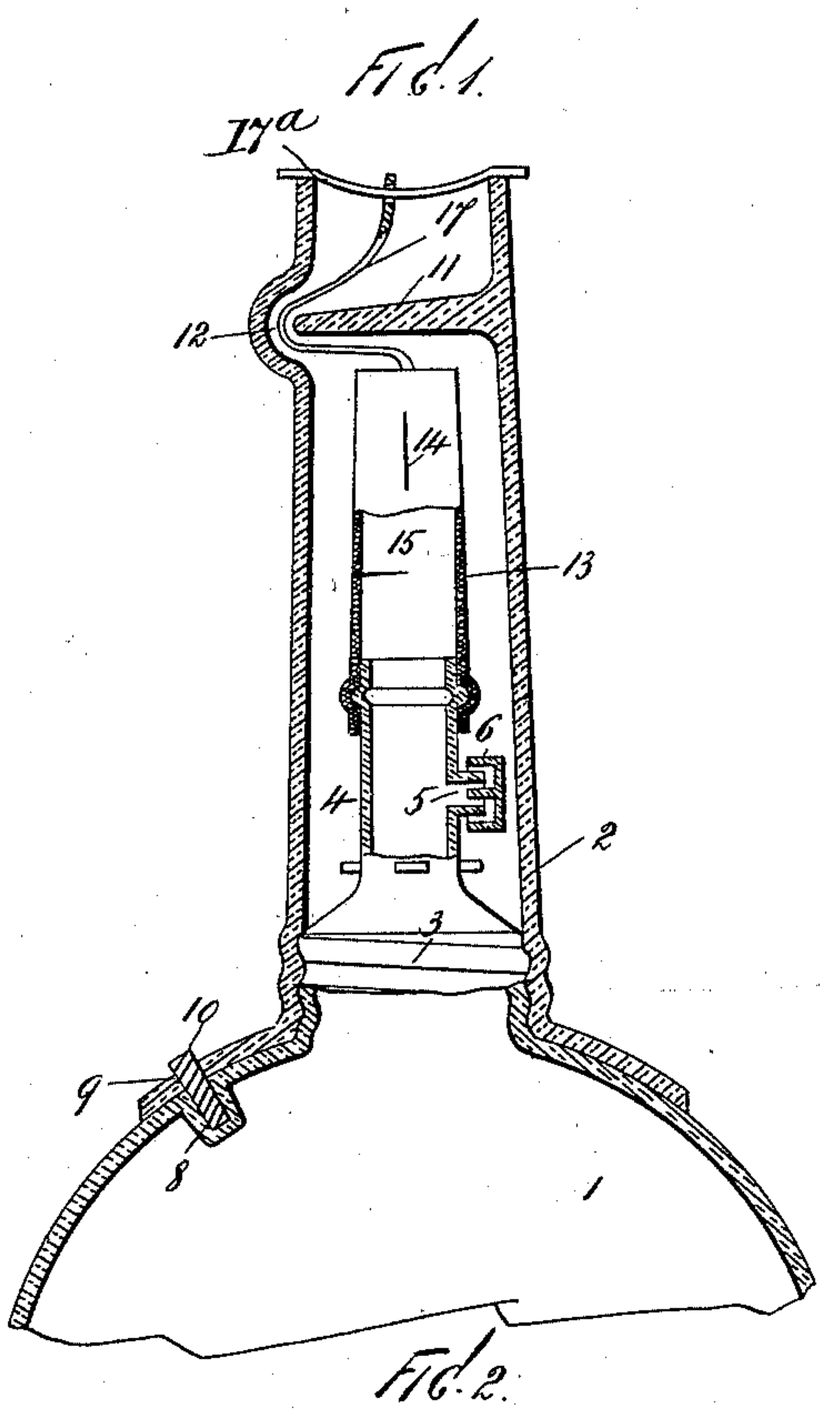
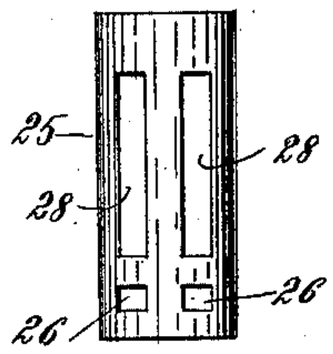


FIG. 2.

FIG. 2a.



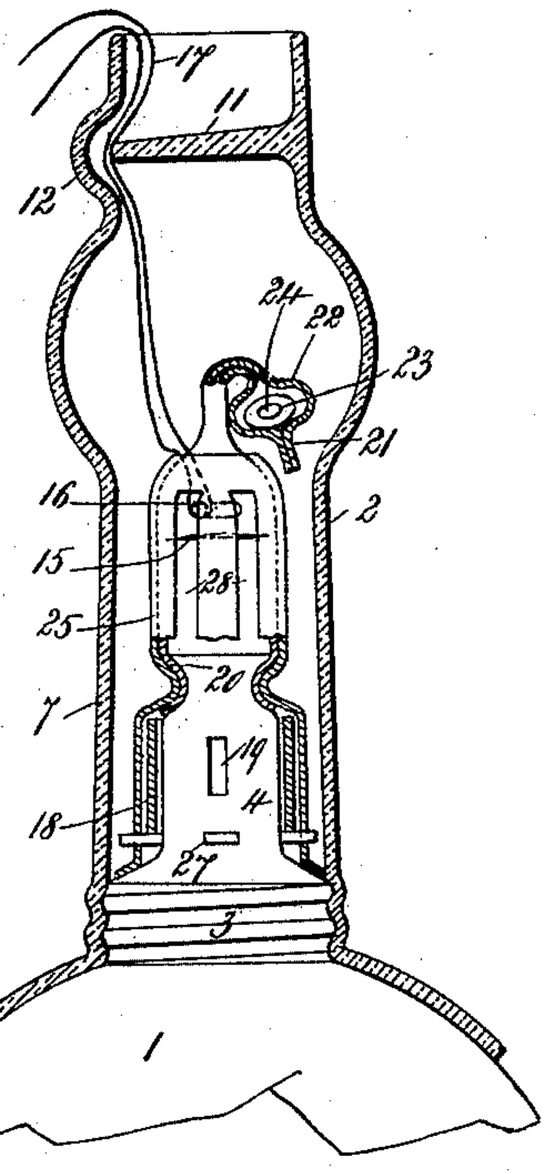
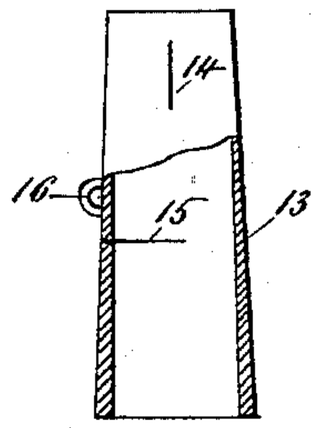


FIG. 1a.



WITNESS

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FIG. 3.

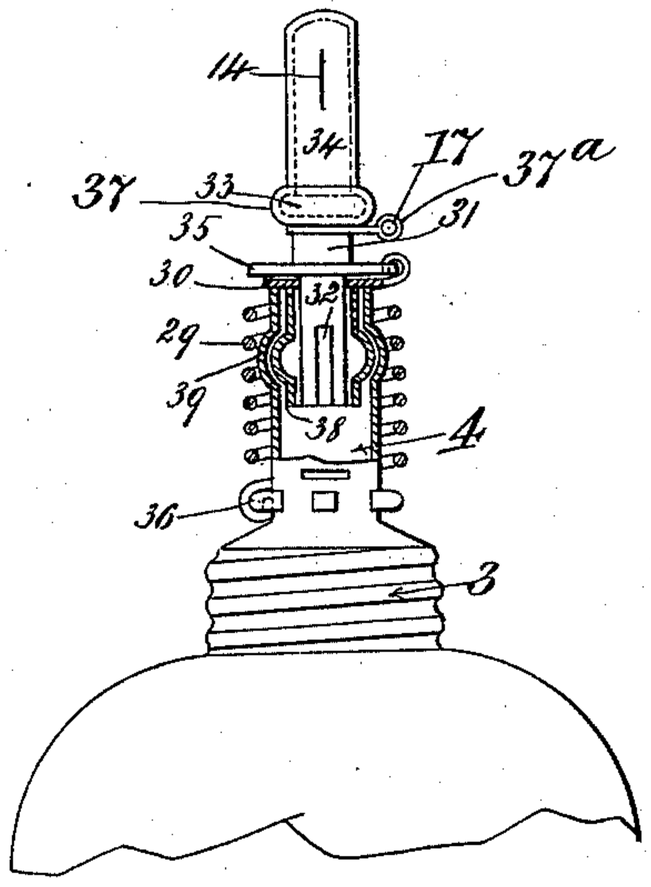


FIG. 4.

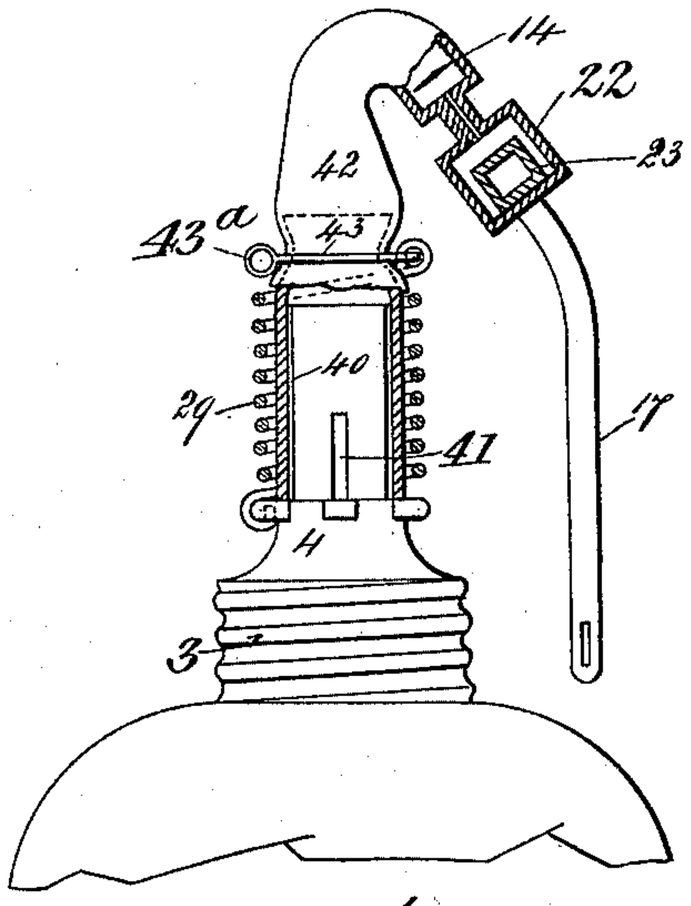
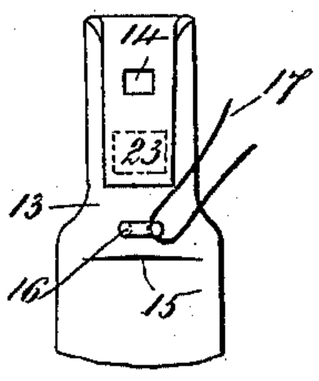


FIG. 5.



WITNESS
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UNITED STATES PATENT OFFICE.

MARSIO BARCI, OF NEW YORK, N. Y.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 612,961, dated October 25, 1898.

Application filed March 3, 1898. Serial No. 672,387. (No model.)

To all whom it may concern:

Be it known that I, MARSIO BARCI, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to a novel form of non-refillable bottles; and the object is to provide a bottle of the kind which is simple in construction, economical in manufacture, and reliable in action.

The invention consists of a non-refillable bottle constructed substantially as hereinafter described, and defined in the claims.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same numerals of reference in each of the views, and in which—

Figure 1 is a vertical central section of the upper portion of a bottle constructed in accordance with this invention. Fig. 1ª is a view, partly in section, of a detail thereof. Fig. 2 is a view similar to Fig. 1 of a modified form. Fig. 2ª is an elevation of a detail thereof. Fig. 3 is an elevation, partly in section, of the upper portion of a modified form. Fig. 4 is a similar view of another modified form; and Fig. 5 is an elevation of a detail, showing a modification.

Referring to the drawings, 1 represents the body portion of a non-refillable bottle, and 2 the neck thereof. The body portion is provided with an extension that is screw-threaded at its lower portion 3 and is reduced at its upper portion, as shown at 4. An air-vent is placed in this contracted upper end portion 4 of the extension, and the valve-tube, hereinafter described, is mounted upon the upper end of this portion. In Fig. 1 the said air-vent consists of an open tube 5 and a circular cap 6, having an inwardly-extending annular flange inclosing the end of the tube 5 and provided with a centrally-arranged tongue, which projects within the bore of the said tube and serves as a guide for the cap. The wall of the neck 2 prevents the displacement of the cap 6. The said neck 2 is screw-threaded at the lower end portion to screw upon the portion 3 of the extension in the manner shown and to lock the said neck in place. It is understood that a suitable cement can be placed upon the screw-threaded portion thereof, which hardens and will hold these parts firmly together.

As a further means for locking the neck in place a recess 8 is made in the body portion of the bottle, which is arranged opposite a slot 9 in the integral flange on the lower end of the neck, so that when the parts are screwed together a pin 10 can be placed within the recess and suitably cemented therein. In this way it will be seen that the neck cannot be unscrewed without breaking some portion of the bottle.

The upper portion of the neck adjacent to the mouth thereof is provided with a transverse obstruction or plate 11, that extends across the neck and into a recess 12 on one side thereof. By means of this construction the liquid can pass through the neck, while the obstruction or plate 11 prevents the insertion of an instrument with which the valve-tube 13, hereinafter described, could be manipulated. The said valve-tube is preferably composed of soft rubber and is securely fastened at its lower open end to the upper end of the contracted portion 4 of the neck extension. The said tube tapers toward its upper end, where it is provided with a longitudinal valve-slit 14, which is normally closed by reason of the inherent elasticity of said tube. The tube 13 is further provided with a transverse valve-slit 15, which is also normally closed, and the said tube is provided at the top thereof with a rubber cord or strap formed integrally therewith, and said cord or strap is adapted to be passed up through the neck of the bottle and adapted to be connected with a cross-head 17ª, which serves as a handle or support and also prevents the accidental loss of the cord or the slipping thereof back down into the neck of the bottle. The method in which this form of construction is used is as follows: The parts are assembled in the position shown in Fig. 1, and by pulling the cord 17 it is seen that the valve-slit 15 is opened, which permits the liquid poured into the neck of the bottle to find its way into the body portion

thereof. After the bottle is filled the cord or string 17 is pulled out of the neck, and there is then no means for opening the transverse valve-slit 15. The bottle can be emptied by inverting or holding it in a tilted position in the usual manner, when the liquid will flow into the valve-tube, and the pressure thereof will open the longitudinal valve-slit 14, through which the liquid will freely flow, while the tube 5 serves as an air-vent in an obvious manner. Upon restoring the bottle to its upright position the valve-slit 14 will automatically close by reason of the liquid flowing back down out of the valve-tube, and it will be manifest from the above description that when the bottle is once emptied it is impossible to refill it.

In Fig. 2 is shown a modified form of construction in which the air-vent consists of a sleeve 18, mounted on the contracted portion 4 of the screw-threaded extension 3 of the body portion of the bottle, and a slot 19, which is formed in said contracted portion, is covered by said sleeve. The valve-slit 15 is also provided in this form of construction, said valve-slits being formed in a rubber tube 20, which is secured to the upper end of the contracted portion 4 of the extension 3. The upper portion of the tube 20 is tapered or formed of a gradually-reduced diameter until it forms the nipple 21. The body portion of the tube 20, which is provided with the transverse slit 15, is also provided with an eye 16 and a string or cord 17, which is passed through said eye for opening the valve-slit 15, as hereinbefore described. Near the free end of the nipple 21 is formed an enlargement or bulb 22, within which is arranged a weight 23. This weight serves to hold the end of the nipple normally in a downward position and may be of any suitable material, preferably glass, and of any convenient shape, and said weight is preferably provided with an opening 24 therethrough in order that the outflow of the liquid may not be accidentally impeded, and in the operation of emptying the bottle the liquid flows through the enlarged portion or bulb 22 and through the nipple 21 into the neck 2 of the bottle, from which it is discharged in the usual manner. It is obvious that the bulb 22 is not absolutely essential, as the weight may be arranged within the nipple, or, if preferred, it may be secured to the outside of the nipple and serve the purpose for which it is intended, which is to bend the nipple over and hold it in a downwardly-directed position. A rubber sleeve 25 incloses the rubber tube 20, and the reduced portion 4 of the screw-threaded extension 3 is provided at its lower end with a plurality of openings 26, which are adapted to engage suitable lugs 27, formed on the lower portion of the said reduced portion 4 of the screw-threaded extension 3, and by means of which the vertical displacement of said sleeve is prevented. In the body portion of the sleeve 25 is formed one or more, preferably two, longitudinal slits 28, with which the valve-slit 15 communicates, and the purpose of the sleeve 25 is to perform the functions of a spring for forcibly and certainly closing the valve-slit 15 after the bottle has been filled and to reduce the possibility of refilling the bottle after it has been emptied.

The operation of the modified form of construction shown in Fig. 2 differs but slightly from that of the form shown in Fig. 1, and by inverting or tilting the bottle the nipple 21 will be turned in a straight position or longitudinally of the neck 2 and the contents of the bottle will flow out therethrough, and in this operation the air passes under the sleeve 18 and through the slot 19 to prevent a vacuum in the bottle. It will be understood that in this form of construction the bottle is filled in the same manner as with the construction shown in Fig. 1, the string or cord 17 being pulled upwardly to open the valve-slit 15, and after the bottle has been filled the said string or cord is pulled out of the neck and the valve-slit 15 automatically closes.

In Fig. 3 is another modification in which the rubber sleeve 25 is substituted by a spring 29. In this form of construction the reduced portion 4 of the screw-threaded extension 3 of the bottle is provided at its upper end with a rubber cover or stopper 30, which is secured thereto in any suitable manner and which is provided with an opening through which projects a tube 31, of glass or any suitable material, which tube is provided with a longitudinal slot 32 in its lower portion and with an angular bead 33, by means of which the rubber valve-tube 34 is secured thereto. The tube 31 is provided above its central portion with a flange 35, which serves to support the said tube upon the rubber cover or stopper. The spring 29 is secured at one end to the flange 35 and at the lower end to the lug 36 on the reduced portion 4 of the screw-threaded extension 3 of the bottle. In the upper end of the valve-tube 34 is arranged a longitudinal or vertical valve-slot 14, similar in construction and operation to that shown in Fig. 1. A wire ring 37 is secured upon the body portion of the tube 31 and is provided with an eye 37[a], with which in practice the cord or string 17 is connected. Within the upper part of the reduced portion 4 is arranged a supplemental sleeve 38, which is secured thereto by means of an annular bead 39, engaging the corresponding groove in said reduced portion 4. This supplemental sleeve is not essential, but is preferred because it affords additional protection against tampering with the bottle. The operation of this form of construction is the same as that of Fig. 2. The string or cord 17 being pulled, the tube 31 is withdrawn until the slot 32 in its body portion comes over or above the cover 30. The liquid can then flow into the bottle. Upon releasing the cord the string 29 returns the tube 31 to its normal position for closing the slot 32, and the bottle cannot

be refilled, and in emptying the bottle it is simply inverted or tilted and the contents thereof flow out through the valve-slot 14, as hereinbefore described with reference to Fig. 1.

In the modification shown in Fig. 4 is a sleeve 40, mounted upon the reduced portion 4 of the screw-threaded extension 3, which is provided with one or more vertical or longitudinal slots 41. The upper end of the sleeve 40 is provided with an annular groove, and a rubber valve-tube 42, similar in construction to that shown in Fig. 2, is secured thereto by means of a wire ring 43, to which the spring 29 is secured and upon which is formed the eye 43^a for receiving the operating-cord and which is the same as the eye 37^a in Fig. 3. If preferred, however, the said cord or strap may be integral with or secured upon the end of the nipple in any suitable manner, and in this event the eye or ring 43^a would not be necessary. In this form of construction instead of having the outlet in the end of the nipple, as shown in Fig. 2, the slit 14 may be formed in the tube below said nipple. In this form of construction the end of the outlet tube or coupling is also provided with an enlarged portion or bulb 22, the equivalent of which is shown in Fig. 2 and in which is placed the weight 23. The contents of the bottle, however, in this form of construction do not pass through the enlarged portion, but secured to said enlarged portion or bulb is the strap or cord 17, the equivalent of which is shown in Fig. 1, and in practice the cord or strap 17 is passed out through the neck of the bottle the same as in Fig. 1, and when said cord or strap 17 is employed as shown in Fig. 2 the bottle is filled by pulling upwardly thereon, which opens the valve-slot 41, and when the bottle has been filled the strap or cord 17 is cut off the same as in the construction shown in Fig. 1 and the enlarged portion of bulb 22 drops downwardly the same as in Fig. 2.

The valve-tube 13 (shown in Fig. 1) is preferably constructed of rubber, the lower portion of which is made relatively thicker than the upper portion, so as to form a tubular body portion which, while flexible, is, owing to its thickness, partially rigid. The upper portion is made thinner, so as to be made quite flexible, and these sides are preferably pinched together, so that a side view would appear wedge-shaped above the tubular body portion.

Instead of forming the rubber cord or strap 17 integral with the upper end of said tube the eye or ring 16 may be connected with the side thereof above the transverse valve-slot and a cord or similar device may be passed therethrough and carried up through the neck of the bottle, and many other changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A bottle or similar vessel provided with a neck extension, a neck secured to said bottle and inclosing said extension, said extension being provided with a reduced tubular portion which projects upwardly within said neck, and a valve-tube secured to said reduced portion, and provided with a valve-slot through which the bottle may be filled, and means connected with said valve-tube for opening said slot, substantially as shown and described.

2. A bottle or similar vessel provided with a neck extension, a neck secured to said bottle and inclosing said extension, said extension being provided with a reduced tubular portion which projects upwardly within said neck, and a valve-tube secured to said reduced portion, and provided with a valve-slot through which the bottle may be filled, and means connected with said valve-tube for opening said slot, said valve-tube being also provided with a flexible portion in which is formed a valve-slot through which the contents of the bottle may be discharged, substantially as shown and described.

3. A bottle, provided with a screw-threaded neck extension, a neck secured to said bottle and inclosing said extension, said extension being also provided with an upwardly-directed reduced tubular portion, and a flexible valve-tube connected with said reduced portion and provided with a transverse valve-slot through which said bottle may be filled, substantially as shown and described.

4. A bottle, provided with a screw-threaded neck extension, a neck secured to said bottle and inclosing said extension, said extension being also provided with an upwardly-directed reduced tubular portion, and a flexible valve-tube connected with said reduced portion and provided with a transverse valve-slot through which said bottle may be filled, and means for discharging the contents of the bottle, substantially as shown and described.

5. A bottle, provided with a screw-threaded neck extension, a neck secured to said bottle and inclosing said extension, said extension being also provided with a reduced tubular portion which projects upwardly within said neck, and a flexible valve-tube secured to said reduced portion and provided with a transverse valve-slot, and also with a longitudinal valve-slot and means connected with said valve-tube for opening said transverse valve-slot, substantially as shown and described.

6. A bottle or other vessel, provided with a neck extension, a neck secured thereto and inclosing said extension, a flexible cap or valve-tube secured to said extension and provided with a longitudinal slot at or near its upper end, and a transverse slot at one side, substantially as shown and described.

7. A bottle or other vessel, provided with a neck extension, a neck secured thereto and

inclosing said extension, a flexible cap or valve-tube secured to said extension and provided with a longitudinal slot at or near its upper end, and a transverse slot at one side, and means connected with said tube for opening said transverse slot, consisting of a strap or cord which is adapted to be passed out through the neck of the bottle, substantially as shown and described.

8. A bottle or other vessel, provided with a neck extension, a neck secured thereto and inclosing said extension, a flexible cap or valve-tube secured to said extension and provided with a longitudinal slot at or near its upper end, and a transverse slot at one side, and means connected with said tube for opening said transverse slot, consisting of a strap or cord which is adapted to be passed out through the neck of the bottle, the reduced tubular portion of said extension being also provided with a vent, substantially as shown and described.

9. A bottle or other vessel, provided with a neck extension, a neck secured to said bottle and inclosing said extension, a tube secured to said extension and provided at its upper end with a slit forming an outlet-valve, and its body portion with a transverse slit forming an inlet-valve, an eye or loop arranged above said outlet-valve, a cord attached to said eye or loop, and an air-inlet arranged in the side of said extension, substantially as shown and described.

10. In a bottle of the class described, the combination with an extension situated within the neck thereof, of a tube secured to said extension terminating in a flexible nipple provided with an enlargement, a weight arranged in said enlargement, a slit forming an outlet-valve in said nipple, the said extension being provided with a transverse slot forming an inlet-opening, an eye arranged above said outlet-valve, a cord attached to said eye, and leading outside the neck of the bottle, an air-inlet arranged in the side of said extension, a sleeve arranged about said air-inlet, and a spring sleeved about said tube and provided with openings communicating with said inlet-valve, substantially as shown and described.

11. In a bottle of the class described, a cap constructed of flexible material having a tubular body portion, the sides of which are of considerable thickness and which taper toward the upper end, said cap being fastened at said upper end and provided in said flattened portion with a slit forming an outlet-valve, and a horizontal slit arranged in the tubular body portion and operating as an inlet-valve, substantially as shown and described.

12. The combination with a bottle provided with a screw-threaded neck extension having a valve-tube provided with a valve, of a neck having a screw-threaded lower end portion to receive said extension, said neck being provided near its upper end with a transverse partition-plate which projects from one side of the neck across the same and into a recess formed on the opposite side of the neck, and means for opening said valve, substantially as shown and described.

13. A bottle provided with a neck extension, a valve-tube connected with said extension and provided with a valve, a neck secured to the bottle and inclosing said extension and provided in its upper end with a transverse plate which projects from one side of the neck into a recess formed on the opposite side, and means for opening said valve, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 25th day of February, 1898.

MARSIO BARCI.

Witnesses:
L. M. MULLER,
M. A. KNOWLES.