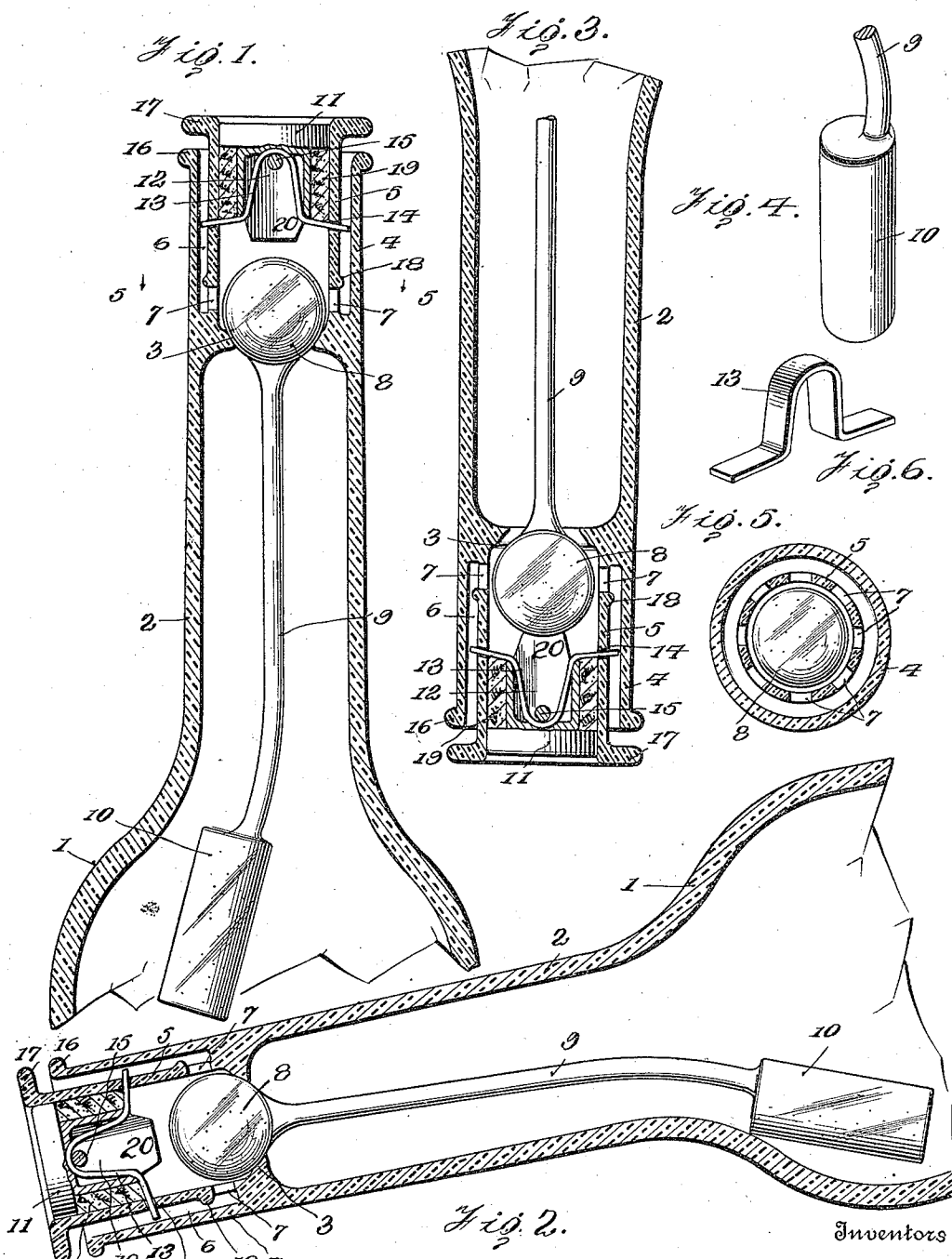


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 NON-REFILLABLE BOTTLE.  
 APPLICATION FILED JULY 22, 1910.

997,645.

Patented July 11, 1911.



Witnesses  
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*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

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## NON-REFILLABLE BOTTLE.

997,645.

Specification of Letters Patent. Patented July 11, 1911.

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*To all whom it may concern:*

Be it known that we, FRANK F. C. BLAKE and ALBERT C. BLAKE, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention has for its primary object an improved non-refillable bottle, designed to effectively withstand and frustrate the immersing, siphoning and other tests which are commonly employed in attempts to fill a bottle of this character, and one that is composed of comparatively few parts that may be easily manufactured and readily assembled, and the invention consists in certain constructions and arrangements of the parts that we shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal vertical section of the upper portion of a bottle constructed in accordance with our invention; Fig. 2 is a similar view, the bottle being illustrated in a somewhat inverted position; Fig. 3 is a similar view with the bottle neck completely inverted, the valve being shown open; Fig. 4 is a detail perspective view of a part of the valve structure; Fig. 5 is a horizontal sectional view, the section being taken approximately on the line 5—5 of Fig. 1; and, Fig. 6 is a detail perspective view of the spring which may be employed to hold the plug or stopper in place.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawing, the numeral 1 designates a portion of the body of a bottle, and 2 the neck thereof, these parts being of any desired size and proportion. The neck 2 is formed below its mouth rim, and at any predetermined point, with an interior annular shoulder 3 constituting a valve seat, the neck being formed above the valve seat with outer and inner concentric cylindrical walls, designated 4 and 5 respectively, and spaced from each other to form an annular outlet chamber 6. Communication is established between the interior of the lower portion of the bottle neck 2 and the outlet or

pouring chamber 6, by means of any desired number of orifices 7, the same being formed in the inner wall 5, at the base thereof in the present instance, and above the valve seat 3.

A valve 8 is designed to normally rest upon the valve seat. This valve, in the present embodiment of the invention, is in the form of a sphere or ball, as shown, and is preferably integrally connected with a shank or rod-like stem 9 which extends down into the bottle neck, as clearly illustrated in the drawing and which is in turn preferably integrally connected at its lower or inner end with a pendant 10. This pendant 10 is in the form of a right cylinder and is connected at one end to the stem 9, in an eccentric relation thereto, as best illustrated in Fig. 4. Preferably, the stem 9 is curved or otherwise formed so that its inner end bears an angular or off-set relation to its outer end.

In order to close the mouth of the bottle within the cylindrical inner wall 5, we have provided a plug or stopper 11 which is formed at its inner end with a socket 12 in which a preferably leaf spring 13 is accommodated, the extremities of the ends of the spring 13 extending outwardly in opposite directions, as best illustrated in Fig. 6, and being designed to spring into diametrically opposed lateral slots or seats 14 that are formed in the wall 5 intermediate of the ends of the latter. By this means, it is evident that when the plug or stopper 11 is thrust into the mouth of the bottle above the valve 8, the ends of the spring 13 will snap into the slots 14 and securely prevent the extraction of the stopper. The spring 13 is secured in place by a pin 15 which extends thereacross and transversely through the stopper. The stopper is also provided with projections, one of which is shown at 20, which serve the two-fold purpose of guides for the spring 13 and as stops to limit the movement of the valve 3 in one direction. All of the parts of the bottle, including the inner and outer walls of the neck, the valve 8, stem 9 and pendant 10, and the stopper and retaining pin 15, are preferably formed of glass, while the spring 13 is preferably composed of aluminum or some similar non-corroding metal.

From the foregoing description in connection with the accompanying drawing, the operation of our improved non-refillable

bottle will be apparent. In the practical use of the device when the bottle is upright, the valve 8 will rest snugly on the seat 3 and thereby close the outlet, the weight of the pendant 10 serving to assist in holding the valve on its seat and any attempts to raise the valve from its seat by an insertion of a wire or the like in between the walls 4 and 5, being frustrated by the concentric and longitudinally spaced outwardly extending beads 16 and 17 that are formed respectively at the mouth rim of the inner and outer walls 5 and 4. The bead or flange 17 is relatively large and extends over the bead 16 of the bottle neck and thus overhangs the space between the bottle neck and the inner wall 5 and forms an effectual baffle to the space between the bottle neck and the inner wall to prevent the insertion of a wire or other implement for the purpose of manipulating the valve. If desired, in addition to these rim flanges 16 and 17, we may form the inner wall 5, just above the annular series of orifices 7, with a bead 18 which serves to safeguard the orifices and to assist in preventing the insertion of a wire or the like through the orifices to engage the valve.

In order to pour out any portion of the contents of the bottle, the bottle is tilted, that is partially inverted, to an angle approximately of 55 to 60° whereupon the valve 8 will leave the seat 3 to provide an opening around the valve seat whereby the liquid within the body of the bottle will pass out through the valve seat and orifices 7 and also out through the cylindrical pouring chamber 6, and finally pass out between the outwardly turned rim edges or flanges 16 and 17, the liquid being thereby directed into the desired receptacle. In this connection it will be observed that the bottle will pour equally well when held in any position, axially considered, as the pouring chamber 6 is uninterrupted circumferentially throughout its extent, and as the series of orifices 7 extend entirely around the bottle neck as best illustrated in Fig. 5. After the desired amount of liquid has been poured out, a reverse tilting of the bottle, even to a very slight extent, will cause the pendant 10 to slide inwardly on the curved portion of the body, where it joins the base of the neck, and this will manifestly cause the valve 8 to close against the seat and effectually prevent any liquid from being forced into the bottle, as for instance, by a siphoning operation. As soon as the bottle is tilted

from a truly inverted position to any appreciable angle or inclination, this action will take place and thereby securely close the valve against its seat. This seating operation, effective by the engagement of the pendant 10 with the interior wall of the body portion of the bottle, is also assisted by the eccentric relation of the cylindrical pendant on the stem 9 and also by the precise position of the pendant in combination with the curved or off-set formation of the stem.

In the operation of filling the bottle initially, after the contents have been poured in, the valve 8 is inserted, and finally the plug or stopper 11 is thrust into place, back of the valve, the stopper being substantially flush with the mouth rim of the bottle, and effectually closing the same with the exception of the annular pouring chamber 6, the latter, by its formation and the formation and location of the flanges 16 and 17 and bead or flange 18, positively preventing the insertion of a wire or other device into the bottle neck in a position to reach the valve and hold the same off of its seat.

If desired, the stopper 11 may be provided with a gasket or packing of rubber or cork, as illustrated at 19, in order to render the device water and air tight at this point.

Having thus described the invention, what is claimed as new is:

A bottle provided at the mouth portion of its neck with a main outer wall and an inner wall spaced from and concentric to the outer wall and joined at its inner end thereto, the interior of the neck being thickened at the juncture of the said two walls and there formed with a valve seat, the inner wall being formed at its inner end with a circumferentially extending series of outlet orifices, and an annular exterior bead extending around the wall and defining the outer ends of said orifices, a valve adapted to rest on said seat, and a stopper held permanently in the outer end of the inner wall, the outer end of said inner wall being formed with an outstanding bead overhanging and at all times entirely spaced from the outer rim edge of the main outer wall.

In testimony whereof, we affix our signatures in presence of two witnesses.

FRANK F. C. BLAKE. [L. S.]  
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Witnesses:

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