

N. J. SMITH.
NON-REFILLABLE BOTTLE.
APPLICATION FILED FEB. 7, 1912.

1,051,285.

Patented Jan. 21, 1913.

Fig. 1.

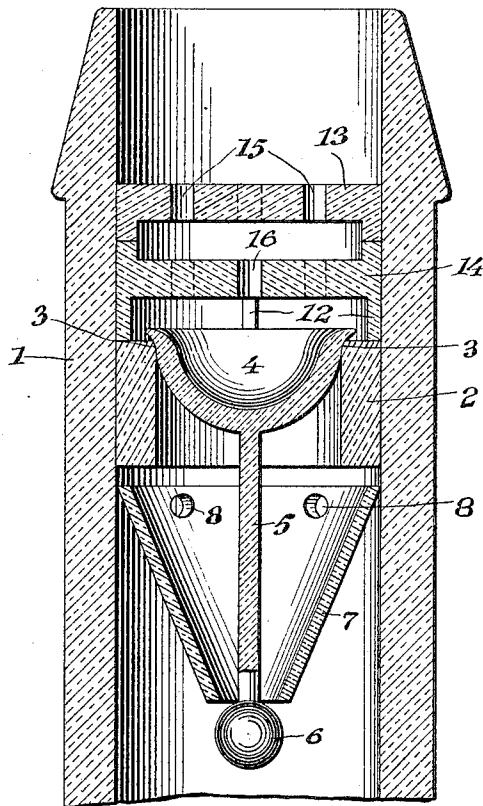
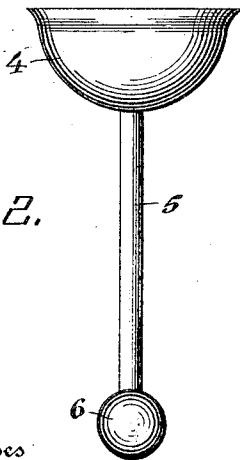
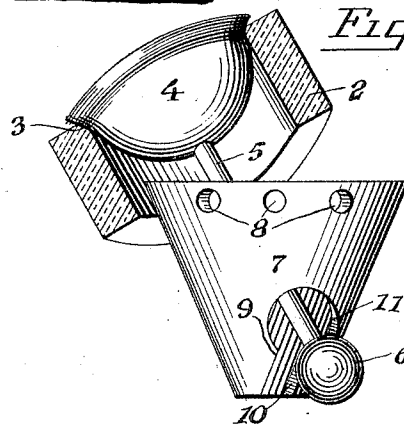


Fig. 2.



Witnesses:
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Fig. 3.



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NON-REFILLABLE BOTTLE.

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To all whom it may concern:

Be it known that I, NORMAN J. SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to non-refillable bottles and the principal object of the invention is to provide a simple and efficient means for preventing the refilling of the bottle after the original contents has been discharged.

A further object of the invention is the provision of a novel type of valve which operates in conjunction with a novel weight for holding the valve upon its seat and which is so constructed that it can not become disengaged from the valve when these parts are assembled in the bottle neck.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawing, which forms a part of this application, and in which:—

Figure 1 is a longitudinal section through a bottle showing the mechanism therein. Fig. 2 is an elevation of the valve removed. Fig. 3 is a view showing the method of connecting the valve to the glass cone.

Referring more particularly to the drawing, 1 represents the bottle neck into which is cemented an annular collar or tube 2 beveled off upon its upper inner edge, as shown at 3 to form a valve seat. Resting upon the seat is a cup-shaped valve 4 having a depending stem 5 with a ball head 6 formed at its lower end. Resting upon the ball head is a hollow frustum of a cone 7 having a plurality of apertures through its side walls adjacent its base, as shown at 8, to permit the passage of liquid, as will be hereinafter described, and at its lower end with a key hole opening 9, the slot 10 of which extends inwardly from the lower end of the cone to the eye 11. The slot also extends diagonally to a vertical line through the cone, as shown.

In order to assemble these parts, the collar or tube 2 is tilted at an angle until the ball head will pass through the opening or eye 11. The stem is then passed down through the slot until it enters the opening at the bottom of the cone. The cone valve and tube are then inserted into the bottle

neck and the tube cemented therein in the position shown. Immediately above the valve and spaced therefrom by legs 12 is a fraud preventing device which consists in separated disks 13 and 14 having openings 15 and 16, respectively, arranged in staggered relation. The disks are connected together, as shown, and both of them with the spacing legs 12, are formed as a unit and cemented into the bottle neck so as to prevent fraudulent operation of the valve. When the bottle is inverted, the cone prevents the valve from rising too far from the seat and, yet, at the same time, permits free passage of the liquid out of the bottle. Any attempt, however, to refill the bottle will be offset by the fact that unless the bottle is fully inverted, the cone will not permit the valve to disengage the seat. Any attempt to force liquid into the bottle while the same is inverted, will result in the liquid coming into contact with the cup shape of the valve and forcing the same against the seat independent of any movement of the cone. Therefore, it will be seen that a relatively great weight is applied to hold the valve upon its seat and when the valve is inverted, this weight is removed from any action upon the valve so that the valve can rise freely and prevent the liquid from being forced into the bottle.

When the bottle is tilted to one side, the under edge of the large end of the frustum seats itself on the adjacent surface of the collar, and when the bottle nears the position of complete inversion the frustum tilts forward and the large end becomes seated on the adjacent surface of the collar 2 at all points. In this position the valve stem slides forward and the valve unseats itself permitting the liquid to flow out freely. As soon as the movement of righting the bottle begins, the cone tilts to one side, pulling the valve stem backward and completely seating the valve to prevent ingress of liquids. It has been found that this action takes place while the bottle is within 15° from its vertical inversion, and that the valve remains seated in all positions of the bottle below an arc of 15° on either side of vertical inversion. It has also been found that, should the valve stick when used in conjunction with sugary liquids, the movement of the small end of the frustum, being at right angles to the central line of the valve stem, will force the valve stem into

similar movement and thus dislodge the valve from its seat.

While a hollow frustum of a cone is used to pull the valve into position, it is obvious
5 that the shape of the cone member may be varied in any manner calculated to provide the proper weight in glass, metal or other material. In other words, weight may be
10 added to or taken from the upper end of the cone by increasing or decreasing the thickness or size thereof to apply a greater or less degree of pulling power on the valve stem.

What is claimed is:—

15 1. In a non-refillable bottle, the combination with a bottle neck, a valve seat member mounted therein, a cup-shaped valve mounted upon the seat and having an integral depended headed stem, a hollow inverted
20 cone removably surrounding and having lateral movement upon the stem and having

its small end adapted to abut the head on the stem and its large end to engage the seat member, and means to prevent fraudulent operation of the valve. 25

2. A non-refillable bottle comprising a valve, a seat therefor surrounding the valve, said valve having a stem with a head on the end, a hollow frustum of a cone having a key hole slot extending diagonally across
30 the side of the cone and adapted to permit the passage of the head on the stem and the stem into the opening through the cone, and means to prevent fraudulent operation of the valve. 35

In testimony whereof I affix my signature in presence of two witnesses.

NORMAN J. SMITH.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."