No. 692,520. Patented Feb. 4, 1902.

E. A. JOHNSON & G. M. ROBERTS.

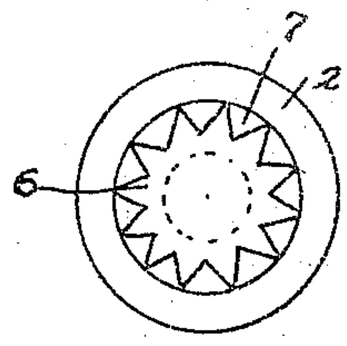
NON-REFILLABLE BOTTLE.

(Application filed June 20, 1901.)

(No Model.)

Fig. 1

Fig. 2



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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 692,520, dated February 4, 1902.

Application filed June 20, 1901. Serial No. 65,222. (No model.)

To all whom it may concern:

Be it known that we, EDWARD A. JOHNSON and GOODWIN M. ROBERTS, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Non-Refillable Bottles, of which the following is a specification.

Our invention relates to the improvement of non-refillable bottles; and the objects of our invention are to provide a bottle-neck with an improved non-refillable attachment, whereby the introduction of water or other liquid into the body of the bottle is prevented, to so construct our improved attachment and the bottle with which the same is used as to insure the opening of the outlet-valve when the bottle is tipped to the proper position, and to prevent the valve-actuating ball from lying in an operating position when the bottle is held horizontally. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view, partly in elevation and partly in section, of a bottle having our improvements; and Fig. 2 is a plan view of the bottle-neck.

Similar numerals refer to similar parts throughout both views.

1 represents a bottle-body, and 2 the neck thereof, the base of the latter being formed, as shown, with an outward bulge or globe-like projection 3. Within the neck 2 we provide a close-fitting vertical casing 4, the latter having a tapering bottom portion, as indicated at 4^a, and said bottom having formed therein a central valve-opening 5. The upper end of the internal casing 4 is provided with a fixed horizontal top disk or plate 6, the latter having formed therein adjacent to its border suitable openings 7. Depending from the under side and central portion of the top disk 6 are downwardly-extending and outwardly-curved fingers or strips 8, the outer ends of the latter bearing against the inner surface of the casing 4.

9 represents a valve, which, as indicated in the drawings, is of a truncated-cone form, this valve adapted to pass partially through the valve-opening 5 and serving to close the latter. Within the space between the upper end or head of the valve 9 and the fingers 8 is provided a valve-closing ball 10, while within the body of the bottle we provide, as indicated in dotted lines in Fig. 1, a valve-opening ball 11. As shown in the drawings, the casing top disk 6 is arranged at such point below the top of the bottle-neck as to provide space above said disk for the insertion of an ordinary cork, which is indicated in dotted lines at 12. It is obvious that when the cork is removed and the bottle is tipped or inclined beyond a horizontal position the ball 11 will roll upward and into contact either with the lower end or inclined surface of the valve 9, with the result that the latter is forced outward a sufficient distance to permit a desirable flow of the liquid contained in the bottle through the casing 4 and top openings 7. It will be understood that during this operation of pouring liquid from the bottle the ball 10 and valve 9 will be limited in their outward movement by the fingers 6. When the bottle is returned to a vertical position or partially returned to such position, it is obvious that the valve 9 will by pressure of the ball 10 be pressed downward in the valve-opening 5, resulting in closing the latter and preventing liquid which may be poured or injected into the mouth of the bottle from passing into the body thereof. In order to prevent the ball 11 from exerting an opening pressure on the valve 9 when the bottle is lying or held in a horizontal position, we have provided the base of the bottle-neck with the curved enlargement 3, into which the ball 11 may roll and be seated when the bottle is in said horizontal position.

The ball 11 is preferably formed of glass, while the internal casing 4 and other parts with which the liquid may come into contact in passing out are preferably formed of aluminium, although other desirable substance may be used.

We are aware that ball-controlled valves have been employed heretofore in the construction of non-refillable bottles; but our invention differs from those heretofore produced in the details of construction and arrangement of parts which are hereinafter claimed.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent,

1. In a non-refillable bottle, the combination with a bottle-body 1, of a casing 4 inserted within the neck portion of said bottle, a top plate for said casing having openings therein, said top plate having depending curved fingers 8 and said casing having a tapering bottom portion provided with a central opening, a tapering valve adapted to project through and close the opening 5, a ball 10 above said valve and a ball arranged within the body of the bottle, substantially as specified.

2. In a non-refillable bottle, the combination with the bottle-body 1 and a neck portion 2 and a rounded enlargement 3 at the base of said neck, of a casing within the neck, a top plate for said casing having openings therein, said casing having a tapering bottom provided with a central opening, a tapering valve for said opening as described, a ball above said valve and a ball in the body of the bottle, substantially as specified.

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GOODWIN M. ROBERTS.

In presence of—
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