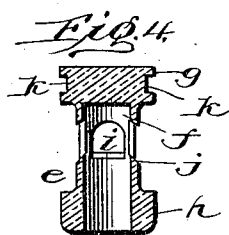
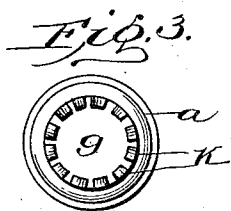
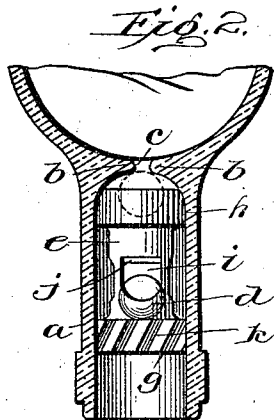
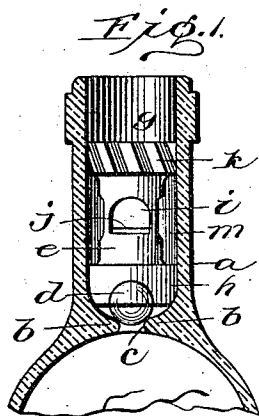


No. 839,756.

PATENTED DEC. 25, 1906.

G. D. HARTLETT.
NON-REFILLABLE BOTTLE.
APPLICATION FILED APR. 10, 1906.



Witnesses

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GEORGE D. HARTLETT, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO
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NON-REFILLABLE BOTTLE.

No. 839,756.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed April 10, 1906. Serial No. 310,925.

To all whom it may concern:

Be it known that I, GEORGE D. HARTLETT, a citizen of the United States, residing at New Rochelle, New York, have invented certain new and useful Improvements in Non-Refillable Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
5 10 pertains to make and use the same.

This invention relates to non-refillable bottles, and has for its object the provision of a bottle which while of simple and cheap construction shall be proof against any attempts
15 to refill after the original contents are discharged.

The invention, as hereinafter more fully described and particularly set out in the claims, will be readily understood by reference to the accompanying drawings, illustrating a preferred embodiment, in which draw-
20 ings—

Figure 1 represents a bottle-neck in section equipped with the safety device. Fig. 2 is a similar view representing the bottle inverted.
25 Fig. 3 is a top plan of the bottle-neck with the safety device in position. Fig. 4 is a vertical section through the safety device.

Referring to the figures of the drawings in detail, the bottle-neck *a* is provided with an inwardly-extending shoulder *b* near the point of merger of the neck with the bottle-body. This shoulder is formed at the time the bottle is blown in a well-known manner and extend-
30 35 ing inwardly from all sides forms a valve-seat *c* for the ball-valve *d*.

The safety device proper consists of a cylindrical thimble *e*, formed, preferably, of glass, although other suitable inert material
40 may be employed. The thimble is provided with an interior cylindrical cavity *f*, having a diameter slightly larger than the ball-valve *d*, and exteriorly with a flanged crown *g* at the closed end and at the open end with a
45 bead *h*. Inclined ports *i*, preferably four or more in number, are formed in the side walls of the thimble *e* and communicate between the interior cavity *f* and the outside. This inclination is effected by having the walls of
50 these ports beveled, as shown at *j*, for a purpose hereinafter more particularly set forth. The crown *g* is provided in its periphery with channels *k*, extending at an inclination to the

length of the thimble and preferably parallel to each other.

The channeled crown and beaded mouth of the thimble have substantially the same extreme diameter and are of such size as to fit snugly within the bottle-neck *a* with the bead resting upon the shoulders *b* above the
55 60 valve-seat *c*. After the bottle is filled the ball-valve *d* is first dropped into position on its seat, as shown in Fig. 1. The thimble is then dropped into position, as shown in the same figure, with its mouth downward and
65 permanently secured in that position by glass, cement, or otherwise. It will be seen that between the walls of the thimble and the walls of the bottle-neck a chamber *m* is
70 formed bounded below by the bead *h* and above by the crown *g*. If, now, it is desired to empty the bottle, it is wholly or partially inverted in the usual manner, the ball-valve *d*
75 dropping from the position shown in full lines in Fig. 1 to the position similarly shown in Fig. 2. The liquid now has a free passage
80 through the constricted portion of the bottle-neck, the internal cavity *f*, the ports *i*, the chamber *m*, and the channels *k* to the outside. In pouring from the bottle when hold-
85 ing in an inclined position the air necessary to replace the liquid enters through the upper channels *k* and ports *i*, so as to obviate the gurgling and any interrupted flow, ordi-
90 narily so objectionable, the flow of the liquid from the bottle being thus continuous and free.

If an attempt be made to refill the bottle, it will be obvious that this cannot be done when the bottle is in the position in Fig. 1, as
95 the ball-valve *d* effectually seals the entrance. If, on the other hand, the bottle be inverted, as shown in Fig. 2, and fluid under pressure be applied to the mouth of the bottle, its passage through the whirled channels *g* into the
100 chamber *m* will cause violent gyratory currents therein, which, passing through the ports *i* and directed downwardly by the beveled walls thereof, will immediately throw the ball-valve upwardly to its seat, sealing the
105 bottle against the entrance of the liquid. Any augmentation of pressure will hold the valve still more firmly to its seat, while cessation of the pressure will permit the few drops which might have entered to again run out.

The arrangement of the channels *g* diago-

nally possesses the further advantage that it is impossible to manipulate the ball-valve by means of a wire or the like.

It will be understood that the mouth of the bottle may, if desired, be further sealed by the use of a cap or any other appropriate means to prevent the premature discharge of the contents by internal pressure or the like.

The thimble and ball together forming the safety device are preferably made entirely of glass. The thimble is cast in one piece and thus possesses, in addition to its efficiency for the purpose intended, the great advantage of cheapness in manufacture as distinguished from the complicated and built-up devices usually employed.

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

1. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted over the valve, said thimble having an enlarged closed crown and an interior cavity to accommodate the ball and provided in its walls with ports communicating between the interior cavity and the chamber formed between the thimble and neck, the crown having substantially parallel inclined channels formed therein leading from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

2. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior shoulder formed as a valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted above the ball within the neck, said thimble having an enlarged closed crown and an elongated interior cavity to accommodate the ball and provided in its walls with ports communicating between the interior cavity and the chamber formed between the thimble and neck, the crown having a diameter substantially equal to that of the neck and provided with substantially parallel peripheral diagonal grooves forming channels leading from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

3. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior shoulder formed as a valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted above the ball within the neck, said thimble having an enlarged closed crown and an elongated inte-

rior cavity to accommodate the ball and provided in its walls with inclined ports communicating between the interior cavity and the chamber formed between the thimble and neck, the crown having a diameter substantially equal to that of the neck and provided with peripheral grooves forming substantially parallel channels leading from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

4. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior shoulder formed as a valve-seat and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted above the ball within the neck, said thimble having an enlarged closed crown and an elongated interior cavity slightly larger than the ball and provided in its walls with inclined ports communicating between the interior cavity and the chamber formed between the thimble and neck, the crown having a diameter substantially equal to that of the neck and provided with inclined channels leading in the same general direction from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

5. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior shoulder formed as a valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted above the ball within the neck, said thimble having an enlarged closed crown and an elongated interior cavity slightly larger than the ball and provided with ports having beveled walls and communicating between the interior cavity and the chamber formed between the thimble and neck, the crown having a diameter substantially equal to that of the neck and provided with peripheral diagonal grooves forming channels leading in the same general direction from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

6. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior shoulder formed as a valve-seat, and a ball-valve bearing thereon, of a thimble inverted above the ball within the neck, said thimble having at its closed end a crown and at its open end a bead both of substantially the same diameter as the interior of the neck, the exterior diameter of the thimble intermediate the crown and bead being less than the interior diameter of the neck, the side walls of the thimble provided with ports communicating between the interior of the

thimble and the chamber formed between the medial portion of the thimble and the neck at an inclination to the axis of the thimble, and the crown provided with peripheral diagonal grooves forming substantially parallel channels leading from the chamber to the atmosphere, whereby upon any attempt to refill the bottle rotary currents will be generated to throw the valve to its seat.

7. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted over the ball, said thimble having an enlarged closed crown and an elongated interior cavity to accommodate the ball and allow play between the valve-seat and crown, the side walls of the thimble provided with ports communicating between the interior of the thimble and the chamber formed between the thimble and neck, the wall of the ports farthest removed from the crown being inclined inwardly toward the crown, and the wall nearest the crown being at a distance therefrom of not more than one-half the diameter of the ball-valve, and the crown having an extreme exterior diameter substantially equal to that of the neck interior and provided with inclined

channels leading from the chamber to the atmosphere.

8. In a non-refillable bottle, the combination, with a bottle-neck provided with an interior valve-seat, and a ball-valve bearing thereon, of a thimble having an exterior medial diameter less than the interior of the neck and inverted over the ball, said thimble having an enlarged closed crown and an elongated interior cavity to accommodate the ball and allow play between the valve-seat and crown, the side walls of the thimble provided with ports communicating between the interior of the thimble and the chamber formed between the thimble and neck, the port-walls inclined inwardly toward the crown and the wall nearest the crown being at a distance therefrom slightly less than one-half the diameter of the ball-valve, the crown having an extreme exterior diameter substantially equal to that of the neck interior and provided with parallel peripheral inclined grooves leading from the chamber to the atmosphere.

In testimony whereof I affix my signature to this specification in the presence of two witnesses.

GEORGE D. HARTLETT.

Witnesses:

MICHAEL J. SULLIVAN,
W. D. ALLAN.