No. 821,903. PATENTED MAY 29, 1906.

H. TOLKE & W. T. & H. HENSEL.

NON-REFILLABLE BOTTLE.

APPLICATION FILED MAR. 7, 1906.

Fig. 1.

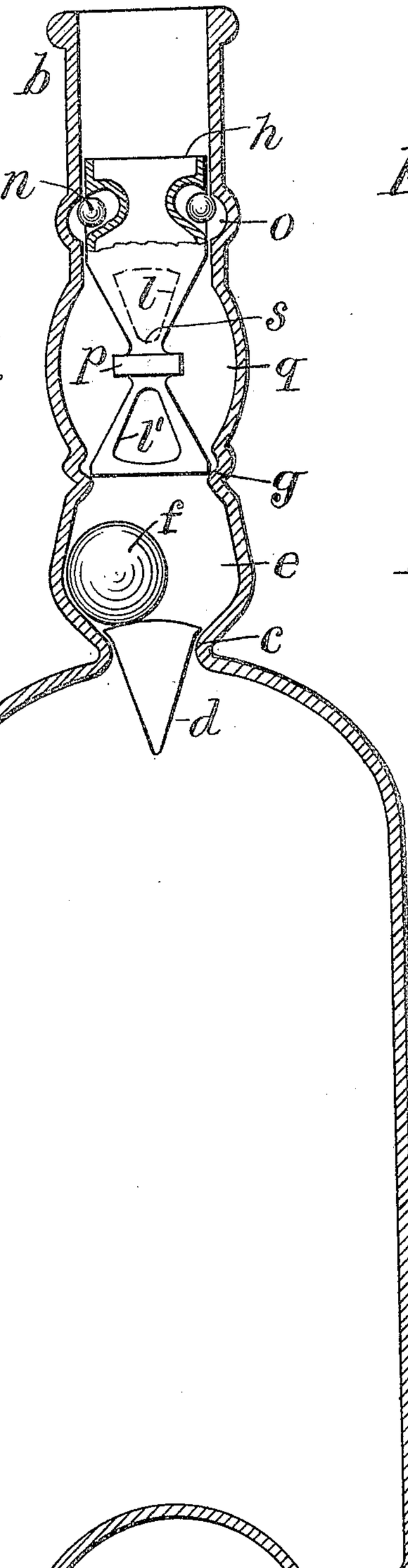


Fig. 2.

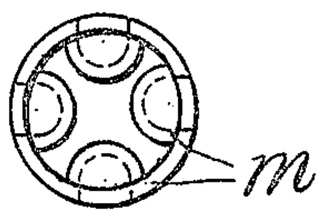


Fig. 3.

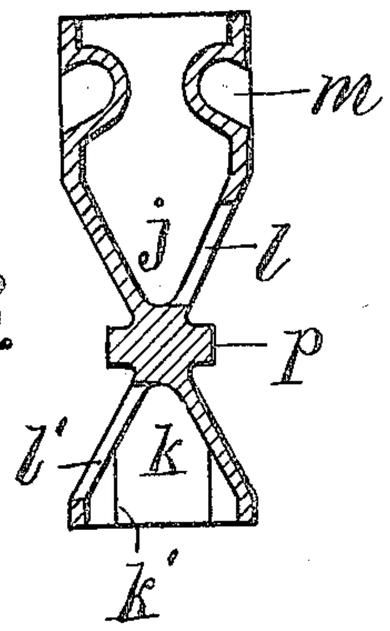


Fig. 4.

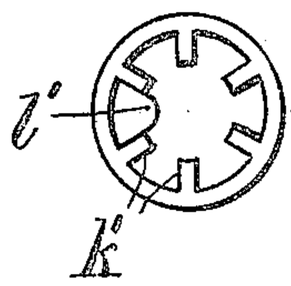
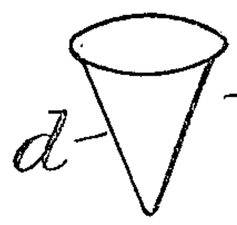


Fig. 5.



Witnesses;
L. Lee. Bernard Mgraus.

Inventors;
Hugo Tolke
Henry Hensel
William T. Hensel
per Thomas S. Graul, Atty

UNITED STATES PATENT OFFICE.

HUGO TOLKE, OF NEW YORK, N. Y., WILLIAM T. HENSEL, OF PHILADELPHIA, PENNSYLVANIA, AND HENRY HENSEL, OF NEW YORK, N. Y.

NON-REFILLABLE BOTTLE.

No. 821,903. Specification of Letters Patent. Patented May 29, 1906.

Application filed March 7, 1906. Serial No. 304,639.

To all whom it may concern:

Be it known that we, HUGO TOLKE, of 245 East One Hundred and Twenty-second street, New York, county and State of New York, WILLIAM T. HENSEL, of 508 Wood street, Philadelphia, county of Philadelphia, and State of Pennsylvania, and HENRY HENSEL, of 704 East One Hundred and Thirty-seventh street, New York, county and State of New York, all citizens of the United States, have invented certain new and useful Improvements in Non-Refillable Bottles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a non-refillable bottle having a shoulder in the neck to receive a stopper which is provided with tortuous passages and with loose balls fitted to recesses in the side of the stopper and adapted when the stopper is dropped into the bottle-neck to engage cavities in the side of the neck and lock the stopper permanently in place.

A valve to prevent the introduction of liquid into the bottle is fitted in the junction of the neck with the body of the bottle and a chamber provided within the neck between such valve and the stopper, in which chamber a check-ball is placed which prevents the valve from any great displacement, while it does not prevent the free passage of liquid when the bottle is tipped and the valve opened.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a vertical section of the bottle with the fixtures in place, but not shown in section. Fig. 2 shows the upper end of the stopper; Fig. 3, a vertical section of the stopper. Fig. 4 shows the lower end of the stopper; and Fig. 5 is a perspective view of the valve, which may be made of glass or india-rubber, as may be preferred.

a designates the body of the bottle; *b*, the outlet of the neck, in which the stopper is inserted.

The neck of the bottle is contracted at its junction with the body of the bottle to form a valve-seat *c*, upon which a valve *d* is fitted. A chamber *e*, larger than the valve-seat, is formed in the neck of the bottle above the same to receive the check-ball *f*, and a shoulder *g* is formed upon the neck of the bottle smaller than the outlet *b* at a short distance above the top of the ball to support the stopper, which is shown of hour-glass shape, to leave a space between the central portion of the stopper and the sides of the bottle-neck. The upper part of the stopper is formed as a cylindrical plug *h*, which closes the bottle-neck, excepting a passage *j* in the center of the plug which extends above a diaphragm *s* in the body of the stopper. A passage *k* extends from the under side of the diaphragm through the bottom of the stopper to receive the liquid which escapes from the valve *d*, and ports *l l'* are extended from the passages *j* and *k* through opposite sides of the stopper, as shown in Fig. 3. The passages extend from the diaphragm completely through the opposite ends of the stopper. Ribs *k'* are formed in the ends of the passage *k* to support the ball *f* without obstructing the passage of liquid into the chamber when the bottle is inverted for the liquid to flow through the stopper.

Recesses *m* are shown in the sides of the stopper-plug *h* and balls *n* fitted loosely thereto, and an annular groove *o* is formed within the neck of the bottle at a suitable point to engage the balls when the stopper is first dropped into the bottle-neck against the shoulder *q*. The balls when thus engaged prevent the stopper from ever being withdrawn from the bottle.

A flange *p* is shown extended around the contracted portion of the stopper, and the neck of the bottle is shown expanded adjacent to the flange to form a chamber *q* around the same. When the bottle is tipped to discharge liquid, the valve falls open, the liquid enters the chamber *k* in the lower end of the stopper and passes laterally into the chamber *q* through the port *l'*. The liquid then moves past the flange *p* and enters the pocket *j* through the port *l*, from which chamber it escapes to the outlet *b*. The flange *p* is of diameter greater than the width of the ports *l* and *l'*, and the liquid when flowing from the port *l'* to the port *l* in its movement from the bottle is compelled to travel spirally around the stopper as it moves past the flange from one side of the stopper to the other.

The construction prevents any tampering with the valve *d* or the introduction of any instrument into the ball-chamber *e* past the stopper, as the diaphragm *s* lies between the

socket *j* and the pocket *k*, so as to obstruct any such instrument, and the opening of the ports *l l'* upon opposite sides of the stopper prevents the passage of any wire from one port into the other to reach the ball or the valve.

Having thus set forth the nature of the invention, what is claimed herein is—

1. A non-refillable bottle having the valve *d* located in the junction of the neck with the body of the bottle, the stopper fitted within the neck above the valve and constructed of hour-glass shape as herein described with the middle portion much smaller than the ends and provided with the flange *p*, and the stopper having the central passages *j* and *k* in opposite ends with diaphragm *s* between the same, and the ports *l*, *l'* opening from such passages upon the opposite sides of the stopper above and below the flange, whereby all of the fluid moves in and out of the stopper upon its central line, and passes spirally around the stopper and past the flange *p* in its movement from the port *l'* to the port *l*, and the neck of the bottle having the expanded chamber *q* surrounding the flange *p* to afford free passage for the fluid.

2. A non-refillable bottle having a valve-seat located at the junction of the neck with the body of the bottle and an enlarged chamber in the neck above the valve-seat, the shoulder upon the neck above such chamber the passage through such shoulder being smaller than the outlet of the bottle-neck, the valve *d* fitted to the valve-seat with check-ball *f* in the chamber above such seat, and the stopper fitted within the neck and constructed as herein described with the central passages *j* and *k* in opposite ends with diaphragm *s* and flange *p* between the same, and the ports *l*, *l'* opening from such passages upon the opposite sides of the stopper above and below the flange, whereby all of the fluid moves in and out of the stopper upon its central line, and passes spirally around the stopper in its flow from the port *l'* to the port *l*, and the stopper having ribs *k'* upon the inner side of the passage *k* to support the ball *f* and permit the flow of the liquid past the ball into such passage, when the bottle is inverted, substantially as set forth.

3. A non-refillable bottle having a valve-seat located at the junction of the neck with the body of the bottle, and an enlarged chamber in the neck above such seat, a shoulder upon the neck above such chamber, a passage through such shoulder being smaller than the outlet of the bottle-neck, the neck having a chamber larger than the neck adjacent to such shoulder with annular groove *o* near its upper end, a valve fitted to the valve-seat with check-ball in the chamber above the same, the hour-glass-shaped stopper fitted to the shoulder and provided with the pockets *j*, and *k* in its opposite ends separated by the diaphragm *s* and having the ports *l*, *l'* opening from the passages upon opposite sides of the stopper, and the stopper having the inclined recesses *m* with balls *n* fitted loosely therein and adapted to engage the groove *o* to lock the stopper in place.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

HUGO TOLKE.
WM. T. HENSEL.
HENRY HENSEL.

Witnesses:
THOMAS S. CRANE,
C. F. CONNER.