

945,541.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Witnesses:
 Edward J. Jones,
 Augustus B. Copes

Inventor:
 David A. Hoyer,
 by His Attorneys,
 Hays & Hays

WITNESSES:-
Arthur H. Jones.
Augustus B. Coppe

Inventor
David A. Hoyer
by His Attorneys,
Howson & Howson

UNITED STATES PATENT OFFICE.

DAVID A. HOYER, OF PHILADELPHIA, PENNSYLVANIA.

NON-REFILLABLE BOTTLE.

945,541.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed August 30, 1907. Serial No. 390,779.

To all whom it may concern:

Be it known that I, DAVID A. HOYER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Non-Refillable Bottles, of which the following is a specification.

The object of my invention is to provide a bottle with means that will, after initial filling, permit the discharge of the bottle's contents, but when such contents have been discharged, will prevent absolutely the entrance of other liquid therein.

My invention is fully shown in the accompanying drawings, in which:

Figure 1 is a sectional elevation of a non-refillable bottle made in accordance with my invention, showing the same in position for filling; Fig. 2, is a horizontal sectional view of the bottle, showing it in the filled condition; Fig. 3, is a sectional view, showing the bottle inclined and discharging its contents; Fig. 4, is a sectional view on the line *a-a*, Fig. 1; Fig. 5, is a sectional view on the line *b-b*, Fig. 1; and Fig. 6, is a sectional view on the line *c-c*, Fig. 2.

1 represents the body of the bottle, and 2 the neck, which is bulged as indicated to accommodate the elements designed to render it non-refillable. Mounted within the neck and supported by the tapering walls of the same is a cup-shaped shell 3, having a seat 4 for a valve 5 and a guide 6 for a projection 7 carried by said valve. Disposed within this cup-like structure are a pair of balls 8 and 9; the ball 8 being considerably lighter in weight than the ball 9, and such ball 8, if desired, may be hollow. The shell 3 has apertures 3^a through which liquid may pass around the same or through which air may enter when pouring the liquid.

Covering the cup-shaped shell within the neck is a cap 10 having a corrugated inner surface and having an external flange 11 provided with grooves 12 forming air passages. This cap has a reduced upper portion 13 and a projection 14, and fitting the same is a collar 15 carrying a cap member 16 which lies over the projecting portion of the cap 10. The collar 15 is also provided with an external flange 17 having grooves 18 offset with respect to the grooves 12 of the cap 10, and on its under side has an annular groove 19 registering with a groove 20 in the cap 10 whereby communication between

the grooves of the flanges is provided for the passage of air when pouring the contents of the bottle.

The cup-shaped shell 3, together with the valve internally disposed therein, the light and heavy balls, and the two caps or collars, are assembled in the manner shown in Fig. 1, and prior to being disposed within the bottle neck, the valve is lifted from its seat and maintained in the raised position by means of a cord or wire 21 which passes around the projection 7 of the valve and is tied or otherwise secured above the cap member 16. The parts in this position are then assembled in proper relation to a bottle mold, and the neck of the bottle is formed around them in any suitable manner, or the neck may be made large enough to receive them and then finished by drawing the upper portion of the neck around such structure in the manner well known in finishing bottle necks. The finished bottle with the parts in the position noted is then filled with the desired contents and then the cord or wire supporting the valve is cut and removed from the bottle. The valve then drops to its seat and while the bottle is in an upright position, it is held thereto by the balls 8 and 9 within the cup-shaped shell, and said valve will maintain this position when the bottle is disposed as illustrated in Fig. 2.

In order to discharge the contents, I provide means for dislodging the valve, which, in the present instance, consists of a heavy ball 25 disposed within the body of the bottle and freely movable therein so that when the bottle is turned to the pouring position it may engage the projection 7 and dislodge the valve, and permit the discharge of the contents in the manner shown in Fig. 3; air entering the bottle through the passages formed by the grooves of the collars mounted over the cup-shaped shell 3. When the bottle is empty, any attempt to fill it will be thwarted by the valve and the light ball, which will hold the former in place when inverted; and by reason of the peculiar formation of the cap and the projection of the collar below the same, it is impossible to insert any tool that might manipulate the balls and valve. When in the inverted position the heavy ball 25 lies alongside the guide 6 for the valve projection 7 and may not touch such projection.

I claim:—

1. In a non-refillable bottle, the combination of a cup-shaped shell disposed within the neck of said bottle and having an internal valve seat, a freely movable valve disposed within the shell and adapted to said seat, movable means within said shell for keeping said valve to its seat under varying conditions, said means comprising a plurality of spherical members of differing specific gravity, and means for dislodging said valve from its seat.

2. The combination with a bottle, of a cup-shaped shell, a valve carried thereby, spherical members within said cup for engagement with said valve, a collar mounted on top of said cup and fitting the bottle neck, said collar having a projecting portion and a reduced portion forming a shoulder, and a second collar fitting over said reduced portion, said second collar having a cap lying over the projecting portion, such construction providing an outlet for the passage of liquid but preventing the insertion of a tool.

3. The combination with a bottle, of a shell fitting the neck of the same and having a valve seat, a valve fitting said seat, means for keeping said valve to its seat, means within the bottle for dislodging said valve from its seat, and a double cover for said shell, said cover having offset notches forming air passages but preventing the insertion of a tool.

4. The combination with a bottle, of a shell fitting the neck of the same and having a valve seat, a valve fitting said seat, a pair of spherical members within said shell for keeping said valve to its seat, one of said members being lighter than the other, a stem carried by the valve, a guide for said stem through which the stem projects, a ring sleeve fitting the shell, a cover for the same also fitting the shell, said members having communicating passages for the entrance of air, and a weighted member within the bottle for engagement with the projecting member of the valve to dislodge the same to permit flow of the liquid.

5. The combination with a bottle, of a shell disposed in the neck of the same and having an internal valve seat, means for securing said shell within the bottle neck, a valve adapted to the seat of said shell, guides for said valve, and movable means within the shell for keeping said valve to its seat under varying conditions, said means comprising a plurality of spherical members of differing specific gravity.

6. The combination with a bottle, of a cup-shaped shell disposed within the neck of the same and having an internal valve-seat, a freely movable valve adapted to said seat, an apertured cover for said shell, and a plurality of spherical bodies within said

shell for keeping said valve to its seat under varying conditions, said bodies being of differing specific gravity with the lightest adjacent to the valve.

7. The combination with a bottle, of a cup-shaped shell disposed within the neck of the same and having a valve-seat, a freely movable valve adapted thereto, the lower portion of said shell fitting the neck snugly, an apertured cover for said shell, a retaining ring engaging said cover and fitting the wall of the neck and having a cap disposed over the aperture of the cover, and freely movable means within said shell comprising spherical members of differing specific gravity for keeping said valve to its seat.

8. The combination with a bottle, of a cup-shaped shell disposed within the neck of the same and having a valve-seat, a freely movable valve adapted thereto, guides for said valve, an apertured cover for said shell, a retaining ring engaging said cover and fitting the wall of the neck, said ring having a cap disposed over the aperture of the cover, and a plurality of freely movable spherical bodies of differing specific gravity within said shell for keeping said valve to its seat.

9. The combination with a bottle, of a cup-shaped apertured shell disposed in the neck of the same and having a valve-seat, a freely movable valve adapted to said seat, movable means comprising a plurality of spherical members of differing specific gravity for keeping said valve to its seat under varying conditions, a cover for said shell having a tapered outlet, and a ring fitting the wall of the bottle neck for securing said cover in place, said ring having a cap disposed over the aperture in said cover.

10. The combination with a bottle, of an apertured shell disposed in the neck of the same and having a valve seat, the lower end of said shell fitting the bottle neck, a valve adapted to said seat, a plurality of freely movable bodies of differing specific gravity for keeping said valve to its seat under varying conditions, an apertured cover for said shell, said cover having a tapered outlet, a cap or guard carried by the cover and serving to prevent the access of means to permit refilling of the bottle and providing space adjacent to the margin of said outlet for the egress of liquid, and means engaging the cover and fitting the wall of the bottle neck for securing said cover in place.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

DAVID A. HOYER.

Witnesses:

F. M. ANDERSON,
CHARLES VONDERCRONE.