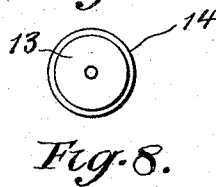
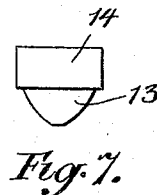
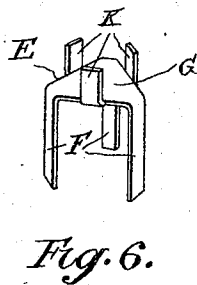
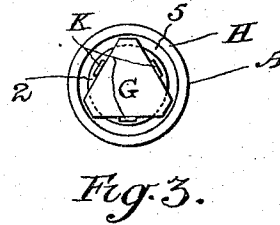
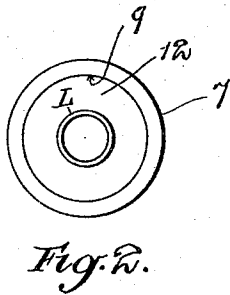
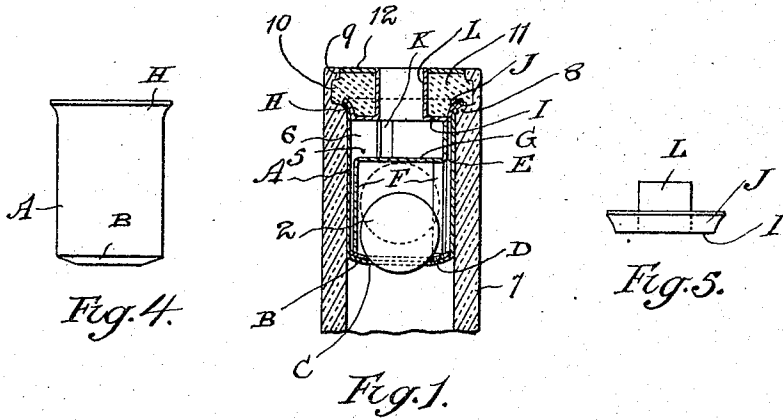


A. MURDOCH.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAY 25, 1915.

1,185,702.

Patented June 6, 1916.



Inventor.
A. Murdoch
by Egerton R. Case
att'y.

UNITED STATES PATENT OFFICE.

ALEXANDER MURDOCH, OF TORONTO, ONTARIO, CANADA.

NON-REFILLABLE BOTTLE.

1,185,702.

Specification of Letters Patent.

Patented June 6, 1916.

Application filed May 25, 1915. Serial No. 30,269.

To all whom it may concern:

Be it known that I, ALEXANDER MURDOCH, of the city of Toronto, county of York, Province of Ontario, Canada, a subject of the King of Great Britain, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to improvements in non-refillable bottles, and the principal object of my invention is to permanently combine with the neck of a bottle or other receptacle, a device which will prevent the refilling of the same, and which positively cannot be tampered with in any way to permit the refilling of the bottle after the device has been sealed in place.

Another object of my invention is to provide a bottle equipped with a non-refillable device to be marketed at a very little higher price than is now charged for the ordinary bottle.

Another object of my invention is to provide a device which can be constructed to permit heavy-flowing liquids to be emptied from a bottle or other retainer, as well as permitting the flow of quick-flowing liquids, as hereinafter more particularly set forth.

Figure 1 is a vertical central longitudinal section through the neck of a bottle and through my device combined therewith, showing the same permanently mounted in place. Fig. 2 is a plan view of the neck of the bottle illustrated in Fig. 1 showing my device incorporated therewith. Fig. 3 is a plan view of my device unmounted and with the cover therefor removed. Fig. 4 is a side elevation of the thimble. Fig. 5 is a side elevation of the thimble cover. Fig. 6 is a perspective view of the preferred form of valve cage. Fig. 7 is a side elevation of an alternative form of valve, and Fig. 8 is a plan view of the underside of the said preferred form of valve.

In the drawings, like characters of reference indicate corresponding parts in each figure.

A is the thimble, the lower end of which is provided with a valve seat B having a central opening C formed therein. Held on the valve seat B is a suitable washer D. Contained within the thimble A is the valve cage E which is provided with a plurality of legs F which rest upon the washer D. The said washer may be omitted, but I pre-

fer to use the same. The legs F are carried by the plate G, and depend therebelow. The upper end of the thimble A is flared as shown at H to provide a flange.

I is the cover for the thimble and the same is provided with a spout L, the opening through which opens through the cover I. The said cover is provided with an outwardly flared flange J which is designed to rest against the flange H.

Carried by the plate G and projecting above the same are a plurality of lugs K which perform the function of spacing members in that the cover I comes in contact therewith, when positioned, thus providing plenty of space between the plate G and the said cover for the flow of liquid out through the spout L. Positioned between the legs F is the valve 2, the preferred form of which is in the form of a sphere. This valve normally seats against the washer D, and when the bottle or other receptacle is tilted far enough the said valve moves from its seat thus permitting liquid to pass through the opening C. In Figs. 3 and 6 the preferred shape of the plate G will be clearly seen. This shape of the said plate provides a plurality of passage ways 5 at each side of the plate where the lugs K are positioned, and permits the escape of the liquid above the plate. The liquid passes from the passage ways 5 into the chamber 6 and thereout of through the spout L.

The legs F are made longer than the lugs K to provide sufficient room for the movement of the valve 2 in order that there may be a free flow of liquid through the opening C. The size of the passage ways 5 and the chamber 6 and the spout L will be such as to permit the liquid to flow freely thereout of without in any wise retarding the flow through the opening C. Where heavy-flowing liquids are to be handled, the relative size of the openings and chamber and spout will be so arranged as to provide for freedom of flow.

The valve cage E is constructed to be readily inserted and removed from the thimble A, and the diameter of the valve 2 will be such as to permit the same to readily move between the legs F. The distance separating the sides of the said valve from the legs F will be such as to absolutely prevent the valve lodging on the washer D.

In Fig. 1 I show my device mounted with-

in the neck 7 of a bottle. The neck of this bottle must be specially constructed at its upper end so as to provide an annular shoulder 8 against which the flanged upper end 5 H will find lodgment when the thimble A is dropped into place. At the upper end of the said neck is formed an annular flange 9 which overhangs the annular groove 10 formed in the neck of the bottle, and which 10 groove is positioned between the flange 9 and the shoulder 8. The diameter of the bore of the neck 7 measured at the annular flange 9 will be greater than the outside diameter of the thimble A measured through 15 the flanged upper end H so as to permit this thimble to be positioned. The thimble A has a sliding fit with the bore of the neck 7 below the annular groove 10. When the said thimble and cover I are positioned, any 20 suitable cement 11 is poured around the spout L, thus filling in the annular groove 10 and the space separating the spout L therefrom, and filling the upper side of the cover.

25 12 is a pierced cap which fits around the upper end of the spout L and is contained within the annular flange 9. Sufficient of the cement 11 is used so that when the cap 12 is positioned the top thereof will be 30 flush with the top of the neck 7.

The cement to be used will be very hard, and will dry quickly, and the same will adhere to the bottom of the cap 12, sufficiently to retain it in place.

35 It will be understood upon referring to Fig. 1 particularly that once my device is positioned it cannot be removed again without destroying the neck 7.

Since the path of the liquid is a tortuous 40 one, and furthermore since the plate G will preferably be imperforate, there will be no possibility of a person passing a tool through the spout L and raising the valve 2 from its seat.

45 In place of a spherical valve, I may use the shape of valve illustrated in Figs. 7 and 8. In this alternative form of valve the nose 13 thereof is designed to close the opening C, while the body 14 of the valve 50 will be positioned above said opening and co-act with the legs F to insure that the nose 13 shall always be in proper position to co-act with the opening C.

The form of the plate G is substantially 55 triangular in shape as illustrated in Figs. 3 and 6, as this shape enables me to cheaply manufacture the valve cage and provide passage ways 5. Upon referring particularly to Fig. 6 it will be seen that all the 60 parts of the valve cage are stamped from one piece of material. Each of the lugs K

is preferably formed up from the plate G intermediate each pair of legs F.

What I claim as my invention is:

1. The combination with the neck of a 65 bottle counterbored a short distance from its top to provide an annular groove, of a thimble designed to have a close sliding fit with the bore of said neck below said annular groove, and provided with a valve seat 70 having an opening therein, and further provided with a flared upper end designed to rest against the lower inner corner of said annular groove; a valve cage mounted within said thimble and comprising a sub- 75 stantially triangular-shaped imperforate plate provided with a plurality of isolated legs depending therebelow which rest upon said valve seat, and further provided with a plurality of isolated lugs projecting above 80 said plate; a valve mounted to have movement between said legs and normally designed to close the opening in said valve seat; a spout-provided cover resting against the upper end of said thimble and cemented 85 in place, and a pierced cap positioned around the top of said spout and flush with the top of said neck.

2. The combination with the neck of a 90 bottle counterbored a short distance from its top to provide an annular groove, of a thimble designed to have a close sliding fit with the bore of said neck below said annular groove, and provided with a valve seat 95 having an opening therein, and further provided with a flared upper end designed to rest against the lower inner corner of said annular groove; a valve cage mounted within said thimble and comprising a sub- 100 stantially triangular-shaped imperforate plate provided with a plurality of isolated legs depending therebelow which rest upon said valve seat, and further provided with a plu- 105 rality of isolated lugs projecting above said plate; a valve mounted to have movement between said legs and normally designed to close the opening in said valve seat; a cover for said thimble provided with a spout, and further provided with an annular shoulder which rests against the flanged 110 upper end of said thimble; cement positioned in said annular groove and surrounding said spout and its shoulder, and a pierced cap positioned around the top of said spout and flush with the top of said 115 neck.

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

ALEXANDER MURDOCH.

Witnesses:

EGERTON R. CASE,
D. U. BEMIS.