

(No Model.)

P. H. McGRATH.
NON-REFILLABLE BOTTLE.

No. 580,829.

Patented Apr. 13, 1897.

Fig. 1.

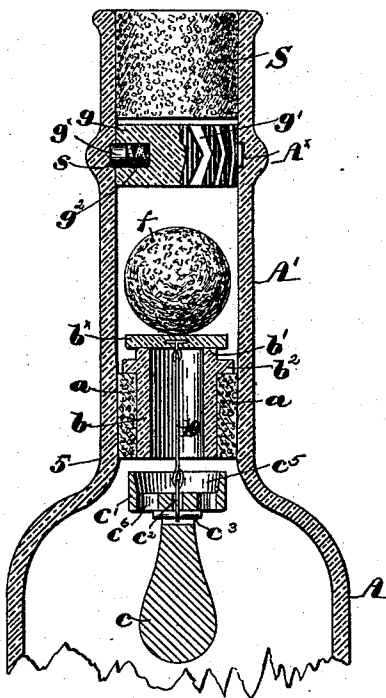


Fig. 2.

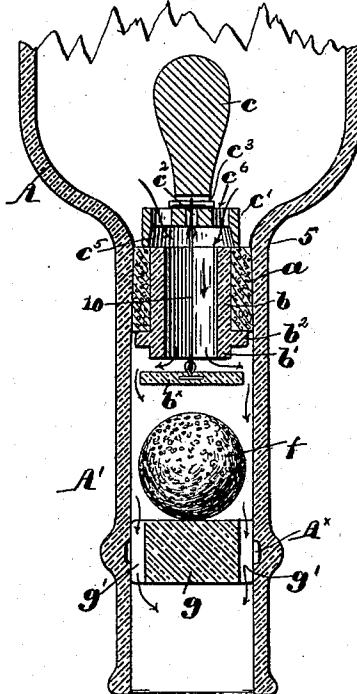


Fig. 3.

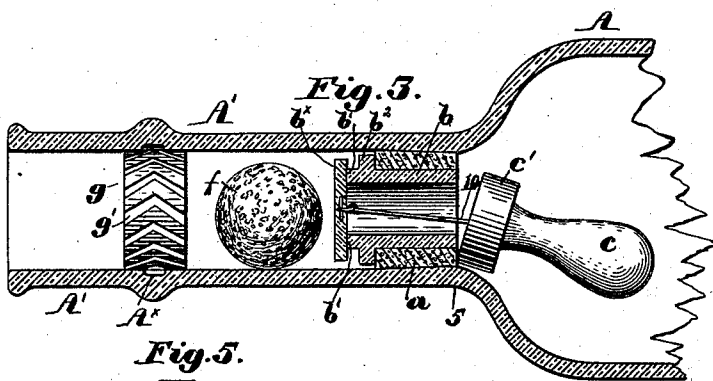


Fig. 4.

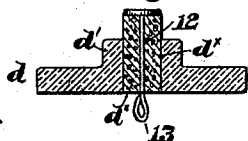
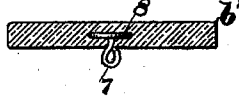


Fig. 5.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

PATRICK H. McGRATH, OF RANDOLPH, MASSACHUSETTS, ASSIGNOR OF FIVE-EIGHTHS TO MICHAEL F. CUNNINGHAM, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 580,829, dated April 13, 1897.

Application filed March 6, 1896. Serial No. 582,096. (No model.)

To all whom it may concern:

Be it known that I, PATRICK H. McGRATH, of Randolph, county of Norfolk, State of Massachusetts, have invented an Improvement in Non-Refillable Bottles, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention relates to bottles devised to prevent refilling by unauthorized parties after the original contents or any part have been removed; and my invention has for its particular object the production of a bottle of the class referred to which will be inexpensive, effective, and simple in construction.

Many non-refillable bottles have been devised, but their cost has prevented their extended adoption.

In accordance with my invention I provide the bottle with a valve in its neck, and a gravity-controller for the valve is so arranged that when the bottle is canted or tipped the effect of the controller is increased instead of diminished, as is now usual, and the contents of the bottle can be completely discharged only when the bottle is turned substantially upside down. In such position the valve-controller is inoperative, and to prevent refilling in such position a float is provided, maintained adjacent the valve and protected by a guard fixed in the bottle-neck below the usual cork or other removable stopper.

Having thus stated the principle of my invention, I will proceed now to describe the same in detail, and then will particularly point out and distinctly claim the part or improvement which I claim as my invention.

Figure 1 is a vertical sectional view of the neck and upper portion of a non-refillable bottle embodying my invention. Fig. 2 is a similar view showing the bottle reversed with the valve-controller inoperative. Fig. 3, in section, shows the position of the parts when the bottle is canted on its side; and Figs. 4 and 5 are sectional details showing different ways of attaching the valve-controller to the valve.

The bottle A, of any usual or suitable construction, is provided with a neck A', tapering internally to about the point 5 to receive tightly a hollow, preferably cork, bushing a,

through which is extended a tubular lining b, of glass, porcelain, or some other material not affected by the liquid to be placed in the bottle. The upper end of the tube b forms a valve-seat b', and it is shown as held from slipping down by an external shoulder b², resting on the top of the bushing a. A disk-like valve b^x is normally held on the seat b' by a gravity-controller, shown as an elongated heavy body c, provided at its upper end, or that nearest the bushing a, with an annular flange or enlargement c', which rests on the inner end of the bushing when the bottle is turned upside down, Fig. 2.

The valve is connected by a link 10 to the controller, the latter having a loop c² at the center of the upper side of the enlargement c', said loop being shown in Fig. 1 as held in place by a retaining-pin c³.

The link 10 may be connected to the valve b^x in various ways, either as in Fig. 4, wherein a loop 7 of suitably enameled or protected wire is provided with a foot 8, embedded in the substance of the valve b^x, or as in Fig. 5, wherein the valve d has a hollow boss d', through which the long-headed shank 12 of a loop 13 is passed, and a two-part cork or other suitable plug d^x is forced into the boss around the shank 12. In any case the object is to effect an attachment of the link 10 and the valve without providing any source of leakage through the latter.

Above the valve is placed a float f, of cork or other suitable material, retained in the neck by a guard g, shown as a plug having tortuous or indirect exit-passages g' therein for the fluid, herein shown as made in its periphery.

The guard g is held from removal, as herein shown, by one or more plungers g^x, movable in lateral recesses g² in the guard and adapted to enter a preferably annular recess A^x in the neck A' when the guard is driven to place.

Springs s are employed to project the plungers, said springs being preferably cut from cork and inserted in the recesses g² behind the plungers.

After the bottle has been filled the bushing a, with its valve-seat, valve, and valve-controller in operative connection, is forced down into place in the bottle-neck and the float f

dropped in above the valve. The guard *g*, of glass, porcelain, or similar material, is then forced in until the detents *g*^x engage the recess *A*^x in the neck, preventing removal of the guard, and a suitable removable stopper *S* is finally put in place.

When it is desired to remove the contents, the stopper *S* is removed and the bottle turned upside down, so that the flange *c'* (shown in Figs. 1 and 2 as cupped out at *c*⁵ and perforated at *c*⁶) will rest on the plug *a*, letting the force of the fluid passing through the openings *c*⁶ open the valve. The fluid then passes around the float *f* and out through the passages *g'*, which by their indirect shape prevent insertion of wires or other devices to tamper with the valve or float.

Referring to Fig. 1, it will be seen that when the bottle is upright the dead-weight of the valve-controller *c* holds the valve seated; but when the bottle is inclined the outer edge of the flange *c'* will impinge against the inner end of the bushing *a*. At such time the controller will act as a lever fulcrumed at the point of contact of the flange and bushing, so that the effect of the controller is actually increased, due to the leverage thus produced.

If the weight or controller *c* were permitted to rest on the side of the bottle, its effectiveness would be practically destroyed, so that the bottle could be refilled, as the valve could not be retained seated.

Should it be attempted to refill the bottle while in the position shown in Fig. 2, the incoming liquid would move the float *f* against and to seat or close the valve. The circular edge of the flange *c'* provides a fulcrum for the valve-controller however the bottle may be tilted or canted.

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

1. In a non-refillable bottle, a valve in the

neck thereof, a valve-seat for said valve, and a valve-controller flexibly connected with the valve and arranged below the seat and valve and within the body of the bottle, and acting by gravity to retain the valve closed when the bottle is upright or canted, and composed of a heavy top, provided with an annular flange or enlargement of greater diameter than the top and which affords a fulcrum against the valve-seat support when the bottle is tilted sidewise, to insure the closing of the valve by the weight of the said controller, said controller being provided with fluid-passages in its flange or enlargement, substantially as described.

2. In a non-refillable bottle, a guard in the neck thereof, a valve-seat and support therefor also arranged in said neck and distant from the guard, a valve applied to said seat, a float interposed between the guard and the said valve, and a valve-controller flexibly connected with the valve and arranged below the seat and valve and within the body of the bottle, and acting by gravity to retain the valve closed when the bottle is upright or canted, and composed of a heavy top having an annular flange or enlargement projecting laterally beyond the top and of greater diameter than the largest portion of the top, the said flange or enlargement serving as a fulcrum against the valve-seat support when the bottle is tilted sidewise, to insure the closing of the valve by the weight of the said controller, said controller and guard being provided with fluid-passages, substantially as described.

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

PATRICK H. McGRATH.

Witnesses:

JOHN C. EDWARDS,
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