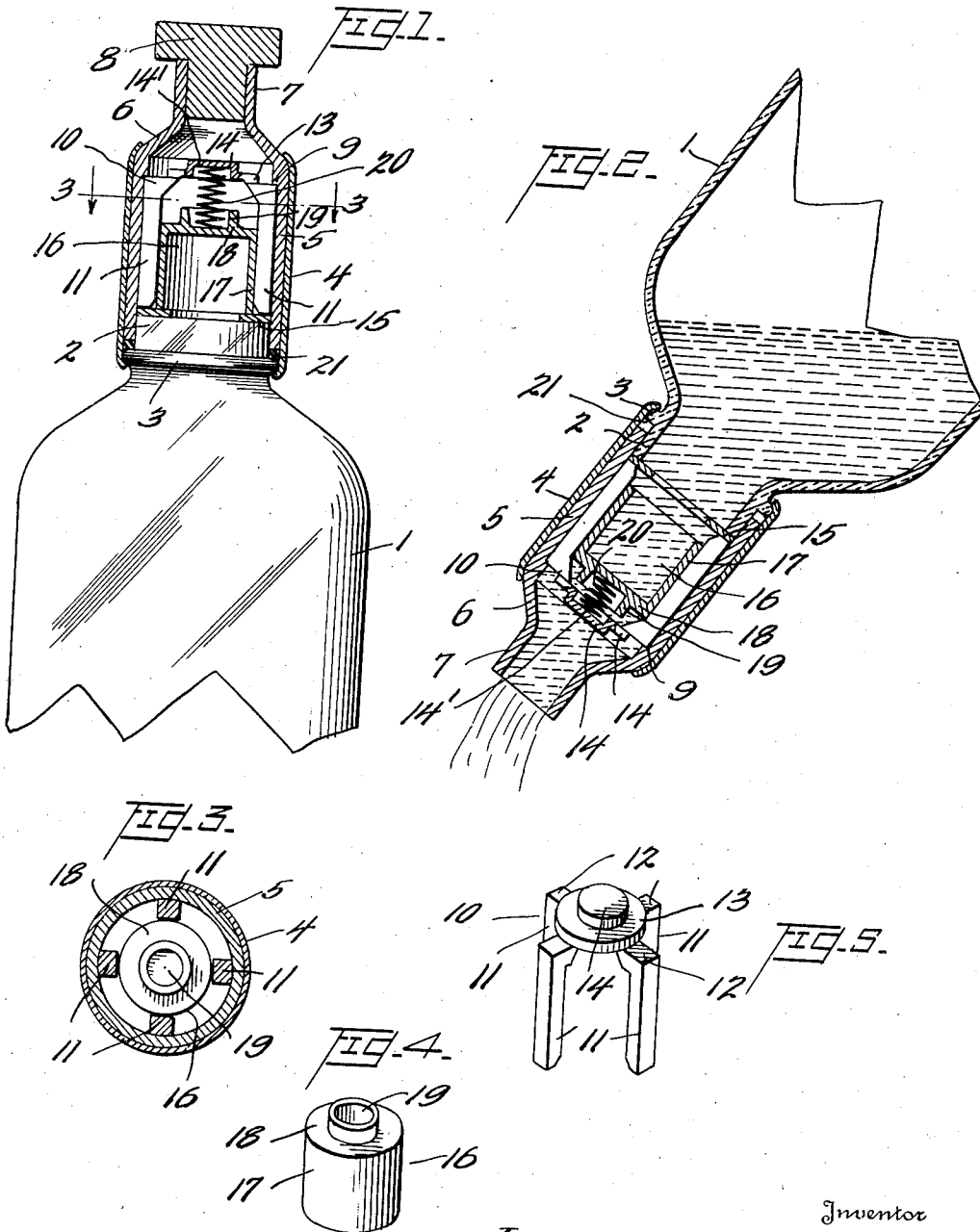


Nov. 11, 1941.

J. A. PATTERSON  
NONREFILLABLE BOTTLE

2,262,115

Filed July 6, 1940



Inventor  
*Joseph Arthur Patterson*

By *Parker Cook*

Attorney

## UNITED STATES PATENT OFFICE

2,262,115

## NONREFILLABLE BOTTLE

Joseph Arthur Patterson, Brave, Pa., assignor of nine-sixtieths to John C. Stewart, eight-sixtieths to Arthur I. Goodwin, six-sixtieths to Joseph Delancy, five-sixtieths to David Berger, four-sixtieths to Arthur W. Ewart, two-sixtieths to L. J. Willis, all of Jefferson, Pa., six-sixtieths to S. Paul Acklin, Waynesburg, Pa., one-sixtieth to Harry F. Enstrom, Rices Landing, Pa., three-sixtieths to S. A. Young, Clarks-ville, Pa., and one-sixtieth to Clarence J. Stewart, Pittsburgh, Pa.

Application July 6, 1940, Serial No. 344,272

2 Claims. (Cl. 215—26)

My invention relates to new and useful improvements in non-refillable bottles and particularly to a cap assembly which is to be fitted over the neck of the bottle so that the contents of the bottle may be easily dispensed but the bottle cannot be refilled.

One of the principal objects of the invention is to provide a cap assembly that will be relatively cheap to manufacture and readily and easily placed on a bottle.

Still another object of the invention is to provide a non-refillable bottle wherein the cap assembly is to be clamped or sealed to the neck of the bottle, in which cap there is but one small movable valve which is held in its normal position by its weight and by a spring, so that when this valve is filled with liquid and the bottle is inverted, the weight of the valve with its liquid will overcome the spring pressure and permit the said valve to lower, thus permitting the liquid to flow under the base of the valve, past the valve guide and into the open throat of the cap and out the same.

Still another object of the invention is to provide a non-refillable bottle assembly which comprises in the main but three parts, to wit: the body of the cap assembly, a valve guide, and an open-ended movable reservoir valve which is normally held in a closed position by a small spring interposed between the guide and the upper surface of the reservoir valve.

With these and other objects in view, the invention consists in certain new and novel arrangements and combination of parts, as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawing showing a preferred embodiment,

Fig. 1 is a fragmentary portion of a bottle to which is secured my improved cap assembly, the latter being in section;

Fig. 2 is a sectional view, similar to Fig. 1, but showing the bottle in a tilted position and the valve in its dispensing position;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a perspective of the reservoir valve; and

Fig. 5 is a perspective of the valve guide or valve cage.

Referring now more particularly to the several views, and for the moment to Fig. 1, there is shown a fragmentary portion of a bottle 1, with its neck 2 and its annular flange 3. Any form of flange may be utilized, provided it forms a grip

for a metal sleeve or seal 4, which is to be clamped around the body of the cap member and over the said flange.

The cap member consists of the cylindrical or tubular body 5, which tapers inwardly at the throat 6 and then continues upwardly, as at 7, at a reduced diameter. The cork or stopper 8 will normally be kept in the cap member but is, of course, to be removed when the liquid is to be dispensed.

The cap member may be made of aluminum or any light metal alloy that may be readily cast at a relatively low cost.

In Fig. 1, it will be noticed that in the upper portion of the cap and internally thereof, just below the plane where the body starts to taper, the metal is recessed to form an annular flange or stop 9, against which the valve guide 10 is to be positioned, as this guide member, after once being assembled, always remains in a stationary position.

Referring now for the moment to Figs. 1, 2, 3, and 5, there is shown in detail this valve guide 10, and it will be seen that it consists of four spaced vertical similar upright legs 11 with the inwardly projecting top portions 12 which provide the flat or plane surfaces to engage the heretofore-mentioned annular flange 9 within the body of the cap member.

Formed integral with the legs and positioned on top of the inwardly extending portions 12 thereof may be seen the disc 13, with a smaller superimposed concentric disc 14. This valve guide may be likewise cast in one piece so that the cost of the same is relatively small.

The disc 13, it will be noticed, is less in diameter than the distance from the outer edge of one leg to the outer edge of the opposite leg, so that when the liquid is dispensed, it may flow between the legs and over the periphery of this reduced disc.

The length of the legs 11 is to be such that they will bear tightly against a gasket or non-metal washer 15 forming a seat, which may be seen in Fig. 1, that rests on the upper circular edge of the mouth of the bottle.

The distance between the opposite legs is just slightly greater than the diameter of the reservoir valve so that the valve may slide freely when in position, as will shortly be explained.

It will also be noticed that formed in the under surface of the discs 13 and 14 is a well 14' to receive the upper end of a spring, to be hereinafter mentioned.

Referring for the moment to Figs. 1 to 4, there

may be seen what I term the reservoir valve 16, which consists of the cylindrical side walls 17, the integral top 18, and a top central well or pocket 19, in which is positioned a spring 20, which has its opposite ends fitting within the well 14' of the guide member 10, heretofore referred to.

The weight of the valve reservoir, together with the pressure of the spring, will normally cause the reservoir valve to assume the position as shown in Fig. 1, the lower peripheral edge of the valve thereby bearing against the heretofore-mentioned washer or gasket 15 to form a liquid seal with the said gasket.

From this, it will be seen that the bottle cap assembly consists principally of the body 3, the valve guide 10, and the reservoir valve 16 with its spring 19 and the washer against which the valve seats.

To assemble, there is first placed a cork gasket 21 over the neck of the bottle, as may be seen in Figs. 1 and 2, after which the cap with its guide member, washer, spring and valve reservoir is placed over the neck of the bottle and the metal seal 4 applied mechanically, which tightly holds the cap and its parts in place, as will be readily understood.

The operation is as follows:

After the bottle is filled at the distillery or bottling plant and the cap placed in position as just explained, it becomes a non-refillable bottle.

However, the contents may be easily dispensed by tilting the bottle, as shown in Fig. 2, and the reservoir valve member 16 now being filled with liquid and its weight increased will slide to the position shown in Fig. 2, so that the liquid may pass from the bottle through the neck and underneath the lower peripheral edge of the reservoir valve (which has now fallen from its seat) and pass between and along the legs 11 of the guide member and past the periphery of the disc 13 and out through the neck of the bottle.

As long as the bottle is held in this position, the liquid may flow therefrom, but immediately on the straightening of the bottle the reservoir valve will again drop (assisted by the spring) to its normal position and seat on its washer and thus prevent any refilling of the bottle.

By also providing the discs 13 and 14, it will be seen that should anyone try to unlawfully fill the bottle by placing a relatively long, thin instrument in the bottle neck, the instrument would impinge on the disc 13 or the disc 14 and in no way act on the valve to raise or lower it from its seat, depending on whether the bottle was held in an upright or tilted position.

A wire, for instance, if placed in the bottle to affect the valve, would be deflected by the metal discs and even though it should extend downwardly between the legs, it could not contact with the valve.

From the foregoing, it will be seen that the entire cap assembly is extremely simple and fool-proof. Also, it can be cheaply assembled and readily made. By having the valve seat at its bottom, a relatively high annular passageway is provided for the flow of the liquid so the contents may be dispensed in a relatively rapid manner rather than a few drops at a time, which is often the case with other forms of non-refillable bottles.

Different size cap assemblies will be made for different size bottles, and it will be understood

that the drawing illustrating the device is illustrative of one successful embodiment.

It will also be understood that when the cap assembly is placed on the bottle, it will be done under pressure, so that when the seal is applied, the lower edge of the cap assembly will bear tightly against its cork gasket and prevent any of the liquid from leaking from around the neck of the bottle.

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

1. In combination, a fluid container having a flanged neck, a dispensing closure therefor, including a cylindrical cap member open at its top and bottom fitting about said neck, a seal fitting over said flange and about the cap member to hold the latter in place, the body portion of the cap member having a flange internally thereof near its upper portion, a valve guide having oppositely spaced legs fitted within the body and the upper portion of said legs abutting against said flange, a reduced size disc forming the top of the valve guide member, providing passageways between the legs to the neck of the cap member, a washer on the upper edge of the neck of the bottle to form a valve seat and held in position by the legs of said valve guide, a reservoir valve slidably fitted within the valve guide member, a spring interposed between said valve guide member and said reservoir valve, the reservoir valve resting on said seat when the container is in an upright position to prevent refilling of the container, and said reservoir valve unseating when the container is tipped and the said reservoir is filled with liquid to thereby permit dispensing of the contents of the container.

2. In combination, a fluid container having a flanged neck, a washer on said neck and resting on said flange, a cylindrical cap member open at its top and bottom and fitted about said neck and against said washer, a seal fitting over said flange and about the cap member to hold the latter in place, the cap member tapering slightly at its upper end to form a reduced mouth, the body portion of the cap member having an undercut flange internally thereof and just below the tapered portion of the cap member, a valve guide having oppositely spaced legs fitted within the body and the upper edge of the legs abutting against said last-mentioned flange, a disc forming the top of the valve guide member and being less in diameter than the distance from the outer edge of one leg to the outer edge of its diametrically opposite leg to thereby provide passageways between the legs and said disc to the neck of the cap, a washer on the upper surface of the neck of the bottle to form a valve seat and held in position by the legs of the said valve guide, a reservoir valve open at its lower end and provided with a pocket on its top surface, said valve slidably fitted within the valve guide member, a spring fitting within said pocket and bearing against the under surface of said disc, the lower peripheral edge of the valve resting on said seat when the container is in an upright position to thereby prevent refilling of the container, and said valve moving from said seat when the container is tipped and the said valve is filled with liquid to thereby permit the contents of the container to flow beneath the valve along said legs, past said disc, and out through the neck of the cap.

JOSEPH ARTHUR PATTERSON.