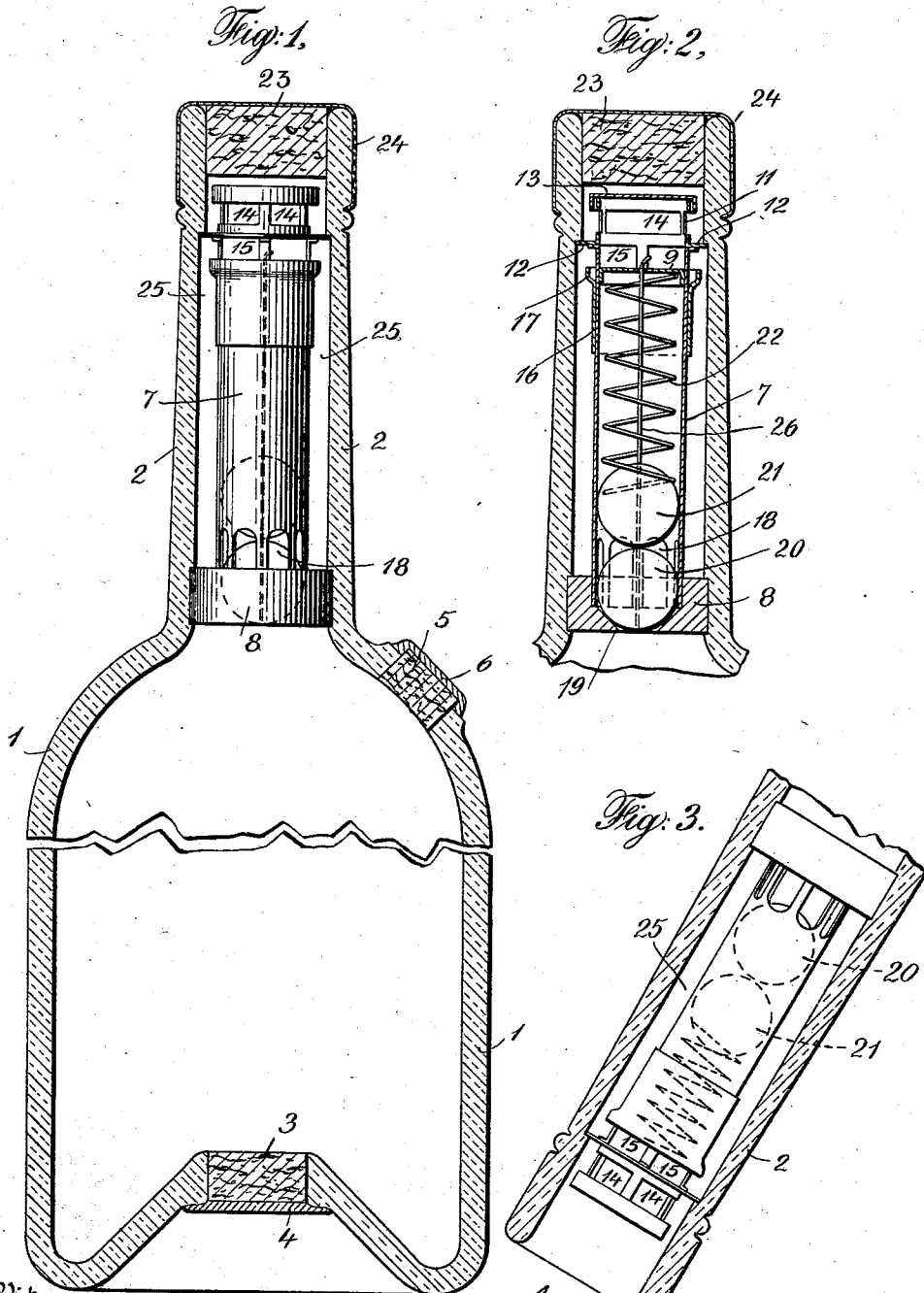


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NON-REFILLABLE VESSEL.
APPLICATION FILED MAY 20, 1908.

935,957.

Patented Oct. 5, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES C. BLOSSOM, OF WICKFORD, RHODE ISLAND.

NON-REFILLABLE VESSEL.

935,957.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES C. BLOSSOM, a citizen of the United States, and a resident of Wickford, Washington county, State of Rhode Island, have invented new and useful Improvements in Non-Refillable Vessels, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 illustrates a vertical sectional view of a vessel embodying the invention, the parts more particularly composing it being shown in elevation; Fig. 2 illustrates a vertical sectional view of the neck of the vessel and also of the parts involved in the invention; Fig. 3 illustrates the neck of the vessel in its inverted position, illustrating the positions the parts assume when the vessel is inverted for the delivery of its contents.

20 The invention embodies devices located in the neck of the vessel, so constructed and arranged that a valve automatically closes and prevents entrance of liquids from the outside to the inside, but when the bottle or vessel is tipped, or inverted, then the valve opens and allows the contents of the vessel to flow outwardly. I prefer to provide means whereby the vessel may be filled in the first instance, located either in its bottom, or on its shoulder, but I sometimes so construct the valve devices that they may be operated to fill the vessel in the first instance, whereupon they will be disorganized, so that any refilling will be impossible, but outflow of its contents will remain as before.

35 I will describe the invention as applied to a bottle. It will be understood that it applies equally to any vessel which is structurally adapted to it.

40 Referring to the drawings, 1 represents the body of an ordinary glass bottle; 2 is the neck thereof; 3 is a cork or other stopper closing an opening which I prefer to make in the bottom, as shown. It is provided with a suitable seal 4. Instead of this opening being in the bottom of the bottle, it may be made on its shoulder and closed with a suitable stopper 5, provided with a suitable seal 6.

50 The parts more immediately involved in the invention are shown as located in the neck of the bottle. They consist of an exterior tubular shell 7, provided with a suit-

able base piece 8, to which it is securely attached.

9 is a closure, or end piece which closes the tube 7 somewhat below its upper end.

11 is a perforated cap or top piece which is attached to the outwardly flanged upper end of the tubular part 7 by a lateral flange 12 and is closed at the upper end by a permanently attached cap 13. The perforations in this cap part are shown at 14. There are similar perforations 15 at the upper end of the tubular part 7.

Surrounding the tubular part 7 near its upper end, there is a collar like part 16 which has an outwardly projecting gutter-like part 17 which extends circumferentially around the device. At the lower end of the tubular part there are other openings 18. The part 8 is provided with a valve seat 19 with which engages a ball valve 20, and above this ball valve is another ball 21.

22 is a spring which abuts at one end against the closure 9 at the upper end of the tube 7 and at its lower end engages with the ball 21.

23 is a cork or other stopper for the mouth of the bottle and 24 is the usual metallic or other sealing material. A space 25 is left all about the neck of the bottle between the inner tube 7 and the inner surface of the neck.

85 The operation is as follows: The bottler of the liquid, or other contents, whatever they may be, fills the bottle, preferably through the opening in the bottom, or upon the shoulder of the vessel, as the case may be, and after it is filled, securely closes and seals the opening in any suitable manner. These seals act as a tell-tale, because if they are broken, conclusive evidence will be afforded that the vessel has been tampered with.

100 The neck of the vessel having been duly closed and sealed by the cork 23 and seal 24, the goods are put upon the market. The purchaser removes the seal 24 and the cork 23, as usual, and upon inverting the vessel into substantially the position shown in Fig. 3, the ball valve 20 and the superposed ball 21, under the action of gravity, will compress the spring 22 which is intentionally made of light tension. Thereupon the contents of the vessel will flow through the valve seat 19, through the openings 20 into

the passageway 25, thence upwardly through the openings 15 in the top of the tube 7, through the cap 11 and outwardly through the openings 14 in the cap and thence out at the mouth of the vessel.

A peculiar advantage flows from this invention, that is to say, no care need be taken in tipping the vessel to avoid excessive outflow which might occasion spilling of the contents, because the passageways are relatively small in area and do not permit such rapid flow as will occasion flushing or loss of the contents. Upon returning the vessel to an upright, or practically upright position, the valve 20 will close under the action of gravity and the pressure of the spring 22, and consequently, except for the exclusion of dust, there is no necessity for re-corking the vessel.

When the vessel is emptied, it will be found impossible to refill it except by breaking the seals over the closures 3 or 5, as the case may be, because when the vessel is in any position in which the liquid can be made to flow into it, the spring 22 will keep the valve 20 upon its seat and there is no possibility of tampering with the apparatus, because the passageways from the exterior to the interior are so tortuous and small that it will be impossible to introduce any implement whereby the valve 20 may be moved off its seat, or otherwise manipulated. The vessel will in due course be returned to the original bottler for refilling by him, he of course breaking the seals at 3, or 5, as the case may be, and after refilling, will reseal the same. Thereupon it will be adapted to a second use and so on indefinitely.

The parts located in the neck of the vessel may be made of such material as preferred. Glass may be employed, also suitable metal thoroughly protected by plating, or the parts may be made partly of glass and partly of metal, suitably plated. Indeed, if metal be used in all or in any of the parts, replating will not always be required, because aluminum is neutral to most liquids, and many other liquids will not be affected by contact with brass, tin, and various other metals.

It is immaterial in what manner the parts be confined in the neck of the vessel. I prefer to embed them therein during the process of manufacture in any of the various methods now well known in the bottle maker's art.

In the drawings I show the horizontal plate 12 as located under a shoulder in the neck of the vessel and the base plate 8 as embedded or inset into the sides of the neck near its junction with the body part thereof. This is a suitable manner in which to confine the parts.

Many mechanical changes may be made in the construction of the device. For instance, it is not at all essential that there be

two balls, one the valve 20, and the other the superposed ball 21, but I prefer this construction so that there may be rolling action between these two parts which will facilitate the certainty of proper seating of the lower or ball valve 20, because the upper one may, under certain circumstances, be confined in its movement somewhat by the pressure upon it of the superposed spring. Obviously also this valve may be made of such shape as preferred, and all in one piece, or there may be more than two balls, or similar parts for the sake of securing additional ease and automatic adjustability in operation. Also the details of construction of the openings and of the parts generally may be changed. I employ a collar 16 with its outwardly projecting flange 17, so as to increase the difficulty of introducing any device with fraudulent intention, but this may be omitted and the tube 7 suitably closed at its upper end may extend all the way through without the superposed cap 11 with its laterally projecting flange or plate 12, suitable openings being made in the upper part of such tube above the closure 9. Also the base piece 8 may be made in the form of a laterally projecting flange or plate from the bottom of the tube. Also it will not always be necessary to employ a spring to reseal the valve. Gravity alone will in many instances be sufficient to accomplish this result, particularly if the valve be a spherical one, so that it will readily roll down the slightly inclined neck of the vessel.

Other changes also may be made in the details of construction without departing from the essentials thereof.

I have referred to a construction in which the necessity for openings through the body of the vessel would be obviated. This construction is as follows: The valve 20, whatever its construction and shape may be, may have a thread 26 attached to it in any preferred manner, which shall extend upwardly, passing through the ball 21, if it be used, as shown, thence extending farther upwardly through the center of the spring 22, through a small centrally located perforation in the closure plate 9, and thence out through one of the openings 14 around the upper cap 13 and thence out at the neck of the vessel. By gently pulling upon this thread, the valve may be lifted off its seat, when the vessel is in an upright position, compressing the spring 22. Thereupon it can be filled through the now open neck in the usual manner and after it has been filled, a stronger pull upon the thread will break it off at or near its point of attachment to the valve, or at least so that it cannot be further used as a means of holding the valve off from its seat.

In order to insure the removal of the thread from the valve, so that it will not interfere with the proper operation of the

parts, I prefer to double the thread and then after the vessel is filled, by letting go of one end and pulling upon the other, the entire thread will come away from the structure; and I have found that a convenient way in which to attach the doubled thread to the valve is to embed in the material of which the valve is made and below its outer surface, the eye-end of a needle of suitable size, through the eye in which the thread will be passed. Of course under the construction last above recited the vessel cannot be refilled at any time, either by the original bottler or any one else, thus limiting the structure to a single use only, and this limitation will make the vessel relatively expensive, but nevertheless desirable for certain uses.

I claim:

20 A vessel embodying within its neck a guideway, all parts of which are permanently connected together so as to constitute an integral structure, the upper end of which

guideway is sufficiently below the mouth of the neck to permit a cork to be placed therein, a valve within the guideway, a seat for the valve at the lower end of the guideway, openings near the bottom and others near the top of the guideway whereby when the valve is off its seat the contents of the vessel may pass through the valve seat through the lower openings into the space between the guideway and the neck of the vessel, thence through the upper openings into the guideway again and thence out at the mouth of the vessel, and a flanged collar upon the exterior of the guideway, the vessel being provided with an opening through which it may be filled.

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

CHARLES C. BLOSSOM.

Witnesses:

MARY A. GADSDEN,
HELEN H. GREENE.