Sept. 2, 1958

A. LEPRI

2,850,192

BOTTLE CLOSURE

Filed Jan. 31, 1956

Fig. 1.

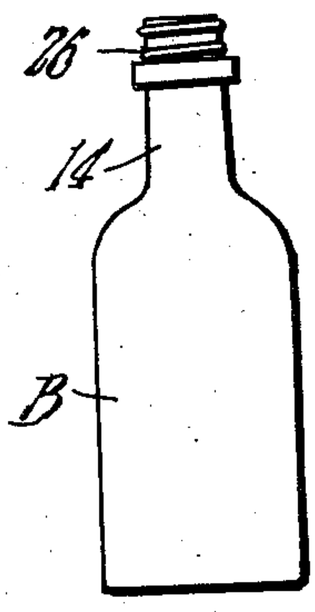


Fig. 2

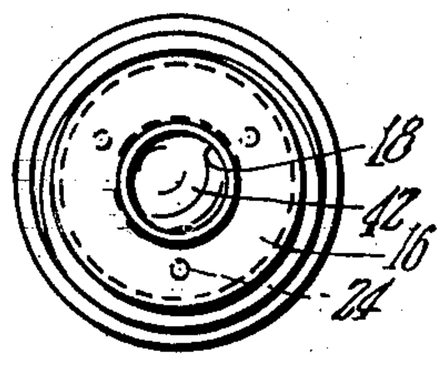


Fig. 3.

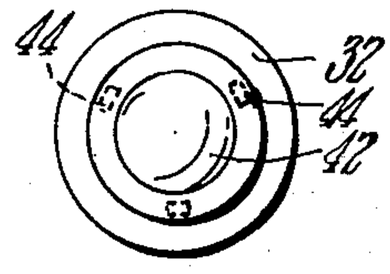
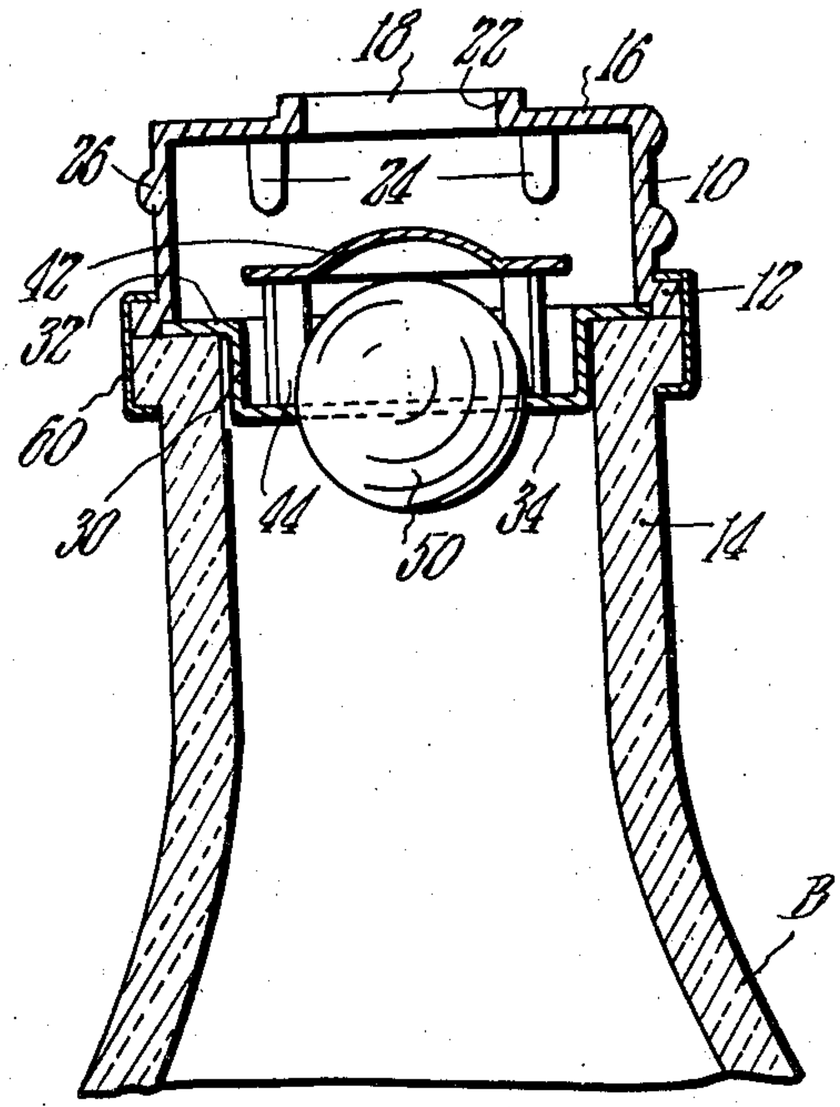


Fig. 4



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BOTTLE CLOSURE

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1 Claim. (Cl. 215—21)

The invention relates to new and useful improvements in non-refillable bottles and is directed more particularly to a tamper proof valve unit which is readily engaged with and sealed to a conventional bottle neck.

The invention broadly envisions the provision of a non-refillable bottle having means adapted to be attached to the neck of a bottle to prevent the same from being refilled, while permitting liquid to flow from the bottle when same is tilted in any conventional discharge position.

A further object is to provide a valve and a protecting member therefor, both of which are loosely mounted within the unit whereby the valve member is protected by the protecting member so that an outside implement or tool cannot be employed to engage the valve so as to hold the same from the valve seat and thereby make unauthorized refilling possible.

It is the principal object of my invention to provide a novel and improved construction of the type in which a non-refillable bottle has a valve unit therein of a character which is inexpensive to manufacture and there is the further provision of a means which will eliminate the now present objectionable inconveniences and which will operate with a maximum amount of ease and with a minimum degree of effort.

One of the primary purposes of my invention is to provide structural and operational improvement in devices of the class to which reference has been made, which improvements not only simplify the structure as such, but also provide important distinct advantages, durability, efficiency and the like.

Other prime objects of my invention include: first, the securement of a higher degree of accuracy and greater degree of variety in the manner of work performed therewith than has heretofore been possible with prior devices known in the art; second, the attainment of a higher speed of construction and assembly of the device due to its simplification of design and its unique composition of parts; third, the achievement of a greater ease in adjustment and repairs; fourth, the provision of an improved non-refillable bottle which may be made more economically and with fewer operations in the manufacture of its parts, as well as in the assembly of the same, than prior devices known in the art; fifth, the provision of a construction which may be readily installed with respect to the various purposes for which it is intended, and sixth, the provision of such other improvements in and relating to non-refillable bottles of the type above referred to as are hereinafter described and claimed.

A still additional object is to provide a bottle with a gravity actuated valve unit embodying a minimum number of movable parts co-related to prevent refilling of the bottle, all without materially restricting the rate of discharge therefrom.

With the above primary objects in view, it is another object of my invention to provide a construction of the above described character which is compact in accordance with the demands and desires of manufacturers and purchasers alike and which is not only distinctive in its appearance and practical in its value but also reliable in its operation and efficient in its use.

It is still further object to provide a device which is constructed of relatively simple parts which are adapted to be readily assembled and which when once assembled are positively and securely retained in operative relationship and which cannot be readily separated from each other, either accidentally or otherwise.

Further objects and advantages of my invention will become apparent as the following description proceeds, and the features of novelty which characterize my invention will be pointed out with particularity in the claim annexed to and forming part of this specification.

In the accompanying drawing, I have illustrated a complete example of a physical embodiment of the invention in which the parts are combined and arranged in accordance with one mode which I have devised for the practical application of the principles of the invention. It will however be understood that changes and alterations are contemplated and may be made in these exemplifying drawings and mechanical structures, within the scope of the claim, without departing from the principles of the invention.

The above cited objects, I accomplish by means of such structure and relative arrangement of parts thereof, as will fully appear by a perusal of the description below and by various specific features which will be hereinafter set forth.

To these ends, various other and ancillary features and advantages and objects of my invention will become more readily apparent as the description proceeds. My invention consists in certain features of novelty, in a mode of operation, and in the combination, organization, and arrangement of parts as will be hereinafter more particularly pointed out in the claim hereunto annexed and more fully described and referred to in conjunction with the accompanying drawings where:

Fig. 1 is a small scale side elevational view of a bottle shown in association with the device of my invention;

Fig. 2 is a top plan view of the device of my invention;

Fig. 3 is a top plan view of the baffle and well members of the invention; and

Fig. 4 is a sectional elevational view of the device of my invention used in connection with the neck of a bottle.

In the following description and claim, various details will be identified by specific names for convenience. These names however are intended to be as generic in their application as the art will permit.

Referring now to the drawing more in detail, in which similar characters of reference indicate corresponding parts in the several figures and referring more particularly to the preferred form of my invention selected for illustrative purposes, I have shown a bottle B in order that the general relation and utility of the device of the invention may be better understood.

The present invention is shown embodied in a self-contained unit readily engageable with the neck of a conventional type of bottle B and embodying means to facilitate its being sealed or otherwise securely attached thereto to prevent its unauthorized removal therefrom.

The unit preferably consists of a substantially cylindrical shell or housing **10** made of any suitable material, such as for example, glass or plastic, which is provided with an enlargement at its lower end to provide an annular external shoulder or flange **12** which is arranged to seat tightly on the uppermost edge of the bottle neck **14**.

The upper end of the member **10** is provided with an upper wall **16** having a central aperture or outlet **18**, there being an annular rim or flange **22** surrounding the same, if desired, for purposes of facilitating the insertion of a

cork (not shown) thereinto, if same is desired for normally closing the container.

With the cork removed therefrom, the aperture **18** provides a suitable pouring spout.

A plurality of bosses **24** depend downwardly from the inner side of the upper wall **16** for purposes presently to be observed.

The outer side of the housing **10** may be threaded as at **26** for purposes of permitting the threading of a cap (not shown) thereonto.

A well member is provided which consists of a substantially cylindrical shell which is provided with a vertical wall **30** which is receivable within the opening in the neck of the bottle and has an integral flange or enlargement at its upper end to provide an annular external shoulder **32** arranged to seat tightly against the top edge of the bottle neck and to be receivable beneath the housing **10** substantially as shown so as to provide a tight seal therewith.

The lower edge of the well wall **30** has a bottom wall **34** extending inwardly therefrom. Said wall **34** is provided with a centrally disposed opening affording access to the interior of the bottle as shown.

An annular baffle member is provided having a centrally disposed arcuate shaped area **42** curved on a radius equal to the radius of a closure or valve body in the form of a spherical body shortly to be referred to. Without the centrally disposed arcuate shaped area an annular ring shaped area is provided from which depend a plurality of legs **44**.

The baffle member is of such dimension as to permit the insertion thereof into the well whereby the legs **44** are seated upon the bottom wall **34** around the central opening thereof, all as shown.

The closure or valve body **50** is in the form of a spherical body and has a dimension whereby its passage through the opening in the bottom wall **34** is obviated and further whereby it may be seated within said opening so as to allow a space between the valve **50** and the baffle when in the non-operating position, all as shown in Fig. 4.

The central opening in the bottom wall **34**, the valve **50** and the centrally disposed arcuate shaped area **40** are in axial alignment with each other.

The entire unit may be sealed to the top of a bottle neck by means of a conventional internally flanged metallic retaining or sealing ring **60**. Upon consumption of the bottle contents, the valve unit may be readily removed after breaking the ring **60**.

The operation of the device will now be described.

The closure or valve **50** is seated in the opening of the bottom wall **34** while the bottle is in the normal upright non-operating position. By virtue of its own weight, the member **50** is held tightly against this valve seat when in this position.

When the bottle is inverted to the normal discharge position for purposes of discharging the contents thereof, the closure **50** moves away from the valve seat by the force of gravity and by the weight of the liquid within the bottle. Due to these forces, the valve **50** falls toward the baffle member being guided in its movement by the legs **44**. The valve **50** abuts the inner side of the portion **42**. As it moves away from the wall **34** and the opening therethrough, the contents of the bottle is thus permitted to flow into the interior of the housing **10** so as to force the baffle member toward the bosses **24**. As the baffle abuts the bosses, further movement of the baffle is prevented and the liquid flows through the housing and out of the opening **18** thereof.

When the bottle is returned to its normal upright position, the valve **50** is returned to its normal position against the valve seat.

It should be noted here that the dimensions of the various co-acting elements constituting the present valve are very exacting so as to permit a free discharge of liquid from the bottle when same is inverted for such purpose and further to prevent the forced admission of liquid into the bottle while held in any position, either a normal upright position, the conventional discharge position, or any intermediate position therebetween.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claim are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

In combination with the neck of a bottle having an annular outwardly projecting rim at the upper end thereof around a central outlet, a non-refillable closure means comprising, a well, a housing, an annular connecting ring, a baffle, a closure ball, said well having a flat upper annular exterior flange disposed on the upper face of the bottle neck and an annular side wall depending therefrom into the outlet of the bottle neck and terminating in a transverse lower wall provided with a central opening therethrough, said housing having a lower annular flange portion disposed adjacent and circumferentially about the flange of said well and an annular upwardly extending side wall terminating in a transverse upper wall provided with a central outlet therethrough, said connecting ring extending around and overlying the rim of the bottle neck and the lower flange of said housing for connecting said housing and well to the rim of the bottle neck, said baffle being within said housing having an upper transverse wall provided with a plurality of depending legs inwardly of the side wall of said well for resting on the lower wall of said well in the upright position of the bottle to space the upper wall of said baffle upwardly of the lower wall of said well, said closure ball disposed within and free of the legs of said baffle and adapted to seat around the opening of the lower wall of said well in the upright position of the bottle, said housing being provided with a plurality of bosses depending from the upper wall thereof and adapted in the inverted position of the bottle to hold the upper wall of said baffle from off the discharge outlet in the upper wall of said housing, the upper wall of said baffle having a periphery spaced inwardly of the side wall of said housing to permit the flow of liquid therebetween in the inverted position of the bottle, the legs depending from the upper wall of said baffle being of such length that in the inverted position of the bottle the legs are disposed within the side wall of said well to prevent displacement of said closure ball from between the lower wall of said well and the upper wall of said baffle, the side wall of said housing being provided with means for receiving a cap.

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