C. A. FOLLY.

NON-REFILLABLE BOTTLE.

APPLICATION FILED DEC. 15, 1916.

1,259,221.

Patented Mar. 12, 1918.

Fig. 1,

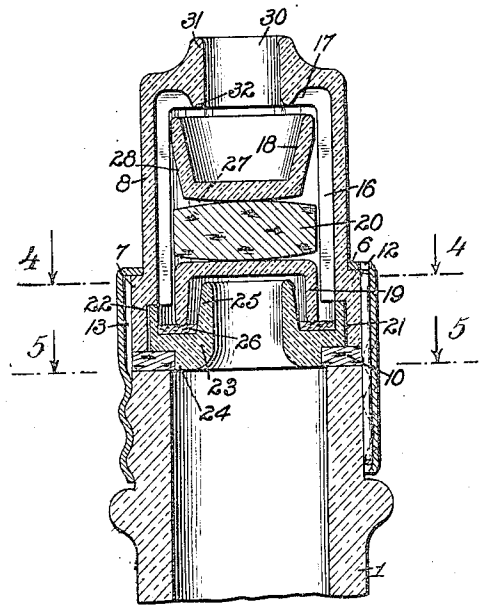


Fig. 2,

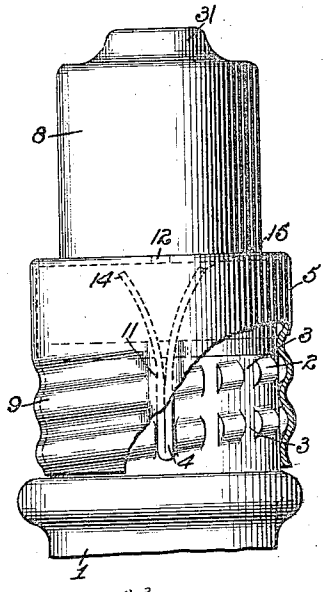


Fig. 4,

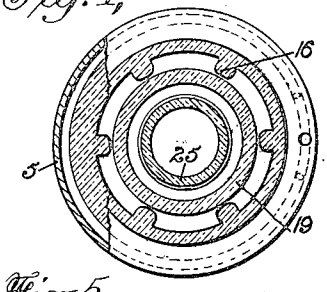


Fig. 3,

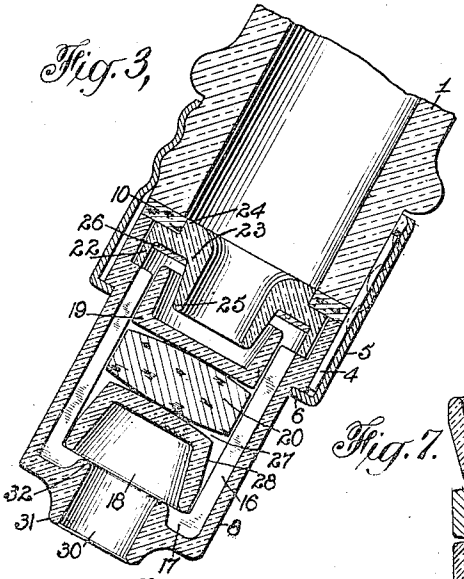


Fig. 6,

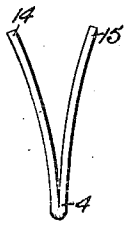


Fig. 5,

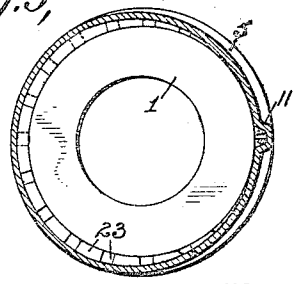
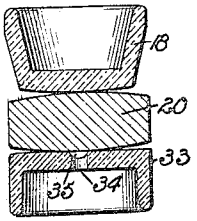


Fig. 7.



WITNESSES

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NON-REFILLABLE BOTTLE.

1,259,221. Specification of Letters Patent. Patented Mar. 12, 1918.

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To all whom it may concern:

Be it known that I, CORNELIUS A. FOLLY, a citizen of the United States, and a resident of Boonton, in the county of Morris and State of New Jersey, have invented a new and Improved Non-Refillable Bottle, of which the following is a full, clear, and exact description.

This invention relates to bottle closures and particularly to what is commonly known as a non-refillable bottle, and has for an object the provision of an improved simple, strong construction which utilizes the principle of air displacement in its construction whereby re-filling is positively prevented.

Another object in view is to provide a strong construction which has a minimum number of parts which coact for readily permitting the removal of the contents while positively preventing the escape of air when refilling, whereby the refilling fluid cannot enter by reason of the pressure of the air.

A still further object in view is to provide an improved construction which will prevent the use of a suction pump and the forcing of fluid into the bottle after a partial vacuum has been secured therein.

In the accompanying drawing:—

Figure 1 is a longitudinal vertical section through the upper part of a bottle and stopper disclosing an embodiment of the invention.

Fig. 2 is a side view of the structure shown in Fig. 1.

Fig. 3 is a view similar to Fig. 1 except that the parts are substantially inverted.

Fig. 4 is a sectional view through Fig. 1 on line 4—4.

Fig. 5 is a section through Fig. 1 on line 5—5.

Fig. 6 is a side view of a locking pin embodying certain features of the invention.

Fig. 7 is a vertical sectional view through the cups and float disclosing a slightly modified construction to that shown in Fig. 1.

Referring to the accompanying drawing by numerals, 1 indicates the neck of a bottle, said bottle being of any size or shape. The upper part of the neck is provided with threads 2 which may be of the ordinary type or what is known as quick-acting threads. The threads 2, however, must be provided with notches 3 regardless of the type of thread, said notches being designed to receive the pin 4 whereby the parts are locked against removal by any one. It will be noted that the locking pin 4 co-acts with a locking sleeve 5, said sleeve having a shoulder 6 overlapping the shoulder 7 of the porcelain casing 8. The sleeve 5 is provided with threads 9 designed to coact with the threads 2 whereby the sleeve 5 may be screwed down into position and cause the shoulder 6 to press against shoulder 7 for clamping the casing 8 tightly against the packing washer 10, which washer bears against the upper end of the neck 1. In forming the sleeve 5 a grooved portion 11 is provided arranged in line with the aperture 12, said groove accommodating the pin 4. It will be noted that the groove 11 extends only across the threads 9 and that a space 13 is provided above the threads whereby when the pin 4 is forced through aperture 12 into some of the notches 3 the upper ends 14 and 15 of the pin 4 may be automatically spread apart, said pin being of spring material. This will lock the pin against removal by any one and, consequently, as the pin 4 is in the groove 11 and notches 3 any movement of the sleeve 5 will be prevented. The locking is absolute and the parts cannot be brought to an unlocked position even by an authorized person, so that the only way the sleeve 5 may be removed and also the casing 8 is to break the sleeve 5.

The casing 8 is preferably made from porcelain, as it comes in contact with the fluid, but if desired it could be made from other material. During the construction of the casing 8 the same is provided with guiding beads 16 merging into transverse guiding beads 17, whereby the buckets 18 and 19 are spaced from the walls of the casing continually, as well as the float 20. The lower end of the casing 8 is provided with a recess 21 for accommodating the outer edge and flange 22 of the trap 23, said trap being provided with a depending portion 24 coming opposite the packing washer 10 and an upstanding sleeve section 25 projecting into the bucket 19. A packing ring 26 of paper, felt, cork or other desired material is arranged between the sleeve section 25 and the flange 22, as shown in Fig. 1, so as to make a tight joint between the trap 23 and bucket 19 which rests on this packing when the bot-

tle is in an upright position. The buckets 18 and 19 may be made of any material, but preferably of porcelain, while the float 20 may be made of any material but for ease of manufacture and for the sake of cheapness it is preferably made from cork, said float acting as means for raising the bucket 19 and pressing the same against the packing member 26 when the bottle is inverted and fluid is being forced therein, whereby said fluid cannot pass the bucket 19. In forming the bucket 18 the same is preferably provided with a rounded bottom 27 and beveled or tapering sides 28. This is desirable as it will cause the bucket to press against the float 20 under the action of gravity when the bottle is in a substantially horizontal position or slightly before it reaches the horizontal position from a vertical position. By this construction of bucket the lower bucket 19 will be held against its seat until the bottle has been turned to a horizontal or greater than a horizontal position from a vertical position. The upper end of the casing 8 is provided with a restricted opening 30 having a discharge section 31 and an inwardly extending tubular extension 32 which may be flush with the guiding beads or ribs 17 or may extend below the same as preferred.

In operation, after the contents has been placed in the bottle, the casing 8 and parts connected therewith are placed in position, as shown in Fig. 1, and then the sleeve 5 passed thereover and then screwed down until the casing 8 presses tightly against the washer 10, after which the pin 4, as shown in detail in Fig. 6, is forced through opening 12. As soon as the pin has completely passed through the opening the ends 14 and 15 will spread apart by reason of the resilient nature of the pin, whereby the pin cannot be withdrawn even by an authorized person, and as the lower part of the pin is engaging the groove 11 and the threads 2 by reason of the notches 3, the sleeve cannot be rotated. In this way a lock is provided which cannot be unlocked. After the cap has been placed in position as just described and it is desired to remove all or some of the contents, all that is necessary is to turn the bottle over completely or to an angle substantially as shown in Fig. 3, whereupon the fluid will flow past the buckets 18 and 19 in the space between the beads or corrugations 16 and 17 and will eventually pass out the discharge opening 30. After the bottle has been completely emptied no fluid can be forced therein, nor can there be any fluid forced therein when the bottle is partially emptied, as the buckets 18 and 19 will prevent the passing of fluid into the bottle.

In case the bottle is inverted and a suction pump placed thereon so as to produce a vacuum in the bottle, said vacuum may be produced, but when fluid is admitted while the vacuum is still maintained said fluid will act on the float 20 and said float in turn will raise the bucket 19 and thereby seal the passageway. If it is attempted to fill the bottle when in a vertical position the bucket 19 acting through gravity, will prevent the passage of fluid, and in case the bottle is attempted to be filled while in a horizontal position the first movement of fluid therein will cause the bucket 18 to tilt over to one side and in the tilting movement will strike the float 20 and force the bucket 19 to its seat, said movement being assisted by the flow of fluid.

In Fig. 7 will be seen a slightly modified form of the invention in which the bucket 18 coacts with the float 20 in the manner heretofore described while the bucket 33 is provided with a by-pass 34 which may be formed with an enlarged upper end 35, if desired, said by-pass being normally closed by the float 20, which float may be made from any material, as for instance, cork. This construction may be used for fluids of any kind, though it is preferably used for comparatively heavy fluids, as for instance, sauces and the like.

What I claim is:

1. In a device of the character described, the combination with a bottle having a threaded neck, said threads having notches therein, of a cap fitting on top of said neck, valve means in said cap arranged to permit the flow of fluid through the cap in one direction and prevent the flow of fluid in an opposite direction, said cap having a shoulder, a metallic sleeve formed with an inwardly extending shoulder designed to be threaded on to said neck, said inwardly extending shoulder coacting with the shoulder of the cap for clamping the cap on said bottle, said sleeve having a pressed-out portion on a threaded section thereof and an aperture in said flange opposite the pressed-out portion, and a resilient locking member formed with flaring upward portions, said locking member being adapted to be inserted through the aperture in said inwardly extending flange and into said pressed-out portion and said notches, said flaring portions moving away from said aperture when forced therethrough whereby the locking member is locked against removal.

2. In a device of the character described, a hollow cap provided with beads or corrugations on the sides and the top, said top having a central discharge passageway of less diameter than the remaining part of the cap, a trap arranged at the lower end of the cap provided with a passageway therethrough and an upstanding tubular sleeve, a pair of oppositely facing buckets arranged in the cap, one of said buckets fitting over said trap and facing the trap and the other

of said buckets facing the discharge opening, and a float arranged between said buckets.

3. A cap for bottles, comprising a hollow casing open at one end and formed with a restricted discharge outlet at the opposite end, the open end of the casing having an annular recess, a trap arranged in the open end formed with a passageway therethrough, an upstanding tubular portion and an annular flange on the periphery of the trap fitting in said recess, a gasket surrounding said upstanding tubular portion and arranged between the tubular portion and said flange, a gasket arranged below said trap and extending to a point below said casing whereby the casing and trap both press the same gasket when the cap is clamped in position, and a pair of buckets arranged in the casing, said buckets facing in opposite directions, one of said buckets facing the trap and arranged so that the edge thereof will press into said first mentioned gasket and the other of said buckets facing said discharge outlet.

4. In a device of the character described, a bottle formed with threads at the upper end, said threads having a transverse groove arranged therein, a cap structure provided with a metallic sleeve formed with threads interlocking with the first mentioned threads, said sleeve having an opening designed to be brought opposite said groove, a resilient forked pin adapted to be inserted through said aperture into said groove, said pin spreading as soon as the same passes through said aperture and thereby locking said cap against removal, a pair of guarding buckets arranged in said casing, said buckets facing in opposite directions, and a float arranged between said buckets.

5. In a device of the character described, the combination with a bottle having a threaded neck, said neck having notches therein, of a cap fitting on top of said neck, said cap having a shoulder, a metal sleeve formed with an inwardly extending shoulder designed to be threaded onto said neck, said inwardly extending shoulder overlapping the shoulder on the cap and coacting therewith for clamping the cap on said bottle, said sleeve having a pressed-out portion on the threaded section thereof and an aperture in said shoulder opposite the pressed-out portion, and a resilient locking member formed with flaring portions, said locking member adapted to be inserted through said aperture in the shoulder on said sleeve and into said pressed-out portion and said notches, said flaring portion moving away from said aperture when forced therethrough whereby the locking member is locked against removal.

6. In a device of the character described, a bottle formed with threads at the upper end, said threads having a transverse groove arranged therein, a cap structure of non-metallic material, a metallic sleeve interlocked with said cap structure formed with threads interlocking with the first mentioned threads, said sleeve having an opening designed to be brought opposite said groove, and a resilient forked pin adapted to be inserted through said aperture in said groove, said pin spreading as soon as the same passes through the said aperture and thereby locking said cap against removal.

7. In a closure of the character described, a cap structure adapted to be connected with a bottle, the upper part of said cap structure being formed with ribs internally and an annular recess at the bottom, a pair of oppositely facing buckets arranged interiorly of the cap and guided by said ribs, one of said buckets facing upwardly and the other downwardly so that the bottoms of the buckets will come together, a trap formed with a flange fitting in said recess held in place by said cap and a tubular portion spaced from the flange extending into the bucket facing downwardly, a yielding filling member positioned on said trap between said flange and said tubular portion to present a seat for the edge of the bucket facing downwardly, a gasket between said bottle and said cap structure, said gasket underlapping said trap, and means pressing said cap structure and said trap against the last mentioned gasket.

CORNELIUS A. FOLLY.

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