May 25, 1937. G. A. NUSS 2,081,833

CLOSURE FOR BOTTLES

Filed July 7, 1936

Fig. 1.

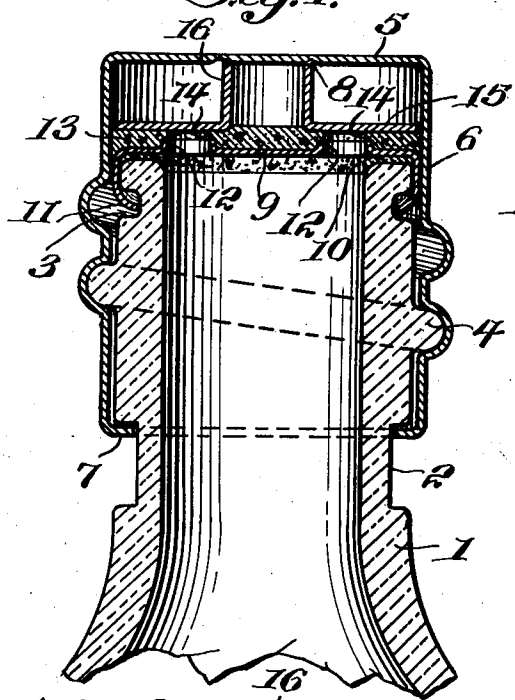


Fig. 2.

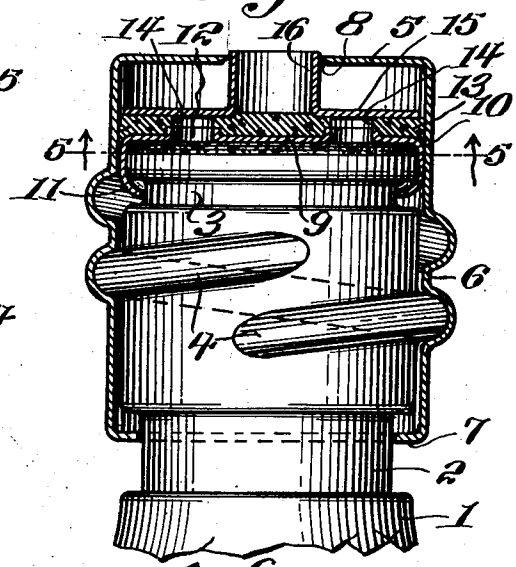


Fig. 3.

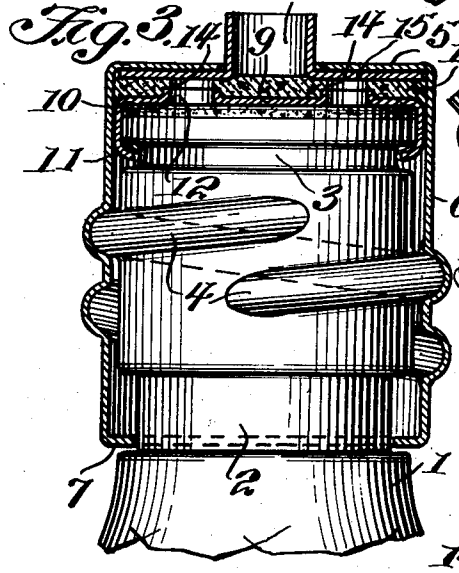


Fig. 4.

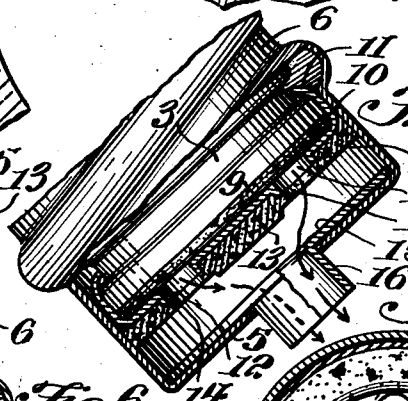


Fig. 5.

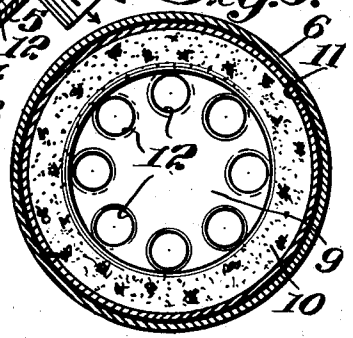
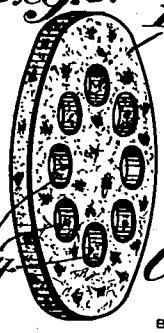


Fig. 6.



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CLOSURE FOR BOTTLES

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Application July 7, 1936, Serial No. 89,382

5 Claims. (Cl. 215—73)

This invention relates to closures for bottles, and its general object is to provide a closure device of the sealed type, that cannot be initially opened without detection, in that a part of the device must be broken away before access can be had to the contents of the bottle, and after being unsealed or initially opened, the device is automatic in its opening and closing action which is controlled by gravity, thereby retaining the contents free from exposure when the bottle is not in use and also rendering the bottle non-refillable.

A further object of the invention is to provide a closure device of the self-closing type, that is simple in construction, inexpensive to manufacture, easy to apply, and extremely efficient in use, operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a vertical sectional view taken through the neck of a bottle and showing the device which forms the subject matter of the present invention applied thereto and sealed thereon.

Figure 2 is a view of the device applied to the neck of the bottle, with the device in section, and the parts arranged after the seal has been broken, and in the position to allow movement of the valve means to open and closed positions.

Figure 3 is a view similar to Figure 2 with the parts arranged to retain the valve means in closed position.

Figure 4 is a view with the valve means arranged in open position, and illustrates the passage of the contents of the bottle through the device, by the use of dotted arrows.

Figure 5 is a sectional view taken approximately on line 5—5 of Figure 2, looking in the direction of the arrows.

Figure 6 is a detail perspective view of the apertured gasket which forms a part of the present invention.

Referring to the drawing in detail, the reference numeral 1 indicates the neck of the bottle and which as shown includes a relatively wide annular groove 2 surrounding the same, and a narrow annular groove 3 disposed adjacent the upper end thereof, together with a spiral rib 4 providing a screw thread and which is disposed between the grooves, as clearly shown in Figures 2 and 3.

The closure device includes what may be termed an overall or skirted cap having a top 5, and the skirt 6 thereof is spirally grooved to fit the spiral rib 4 to be threaded thereon, as will be apparent. The lower end of the skirt is bent inwardly to provide an annular flange 7 that is mounted in the groove 2, thereby limiting the movement of the cap on the neck. The top 5 is grooved on its underside as at 8 in annular formation to provide a weakened portion centrally thereof, for a purpose which will be later described.

The device likewise includes an inner or flanged cap, that includes a disk shaped body 9 seated on the upper end of the neck and disposed between the body 9 and the upper end or mouth of the neck is an annular gasket 10 which is formed from compressible material such as cork or the like. The disk shaped body has formed thereon a flange 11 that is crimped into the annular groove 3 for fixedly securing the flanged cap to the neck, and the disk shaped body is provided with a plurality of openings 12 that are preferably arranged in circular formation, as well as flanged, as shown and seated upon the disk shaped body is a disk shaped gasket 13 having an annular series of openings 14 therein registering with the openings 12, with the flanges of the latter openings extending into the openings 14, as shown. By that construction, it will be apparent that the openings of the gasket 13 and the body 9 can be punched simultaneously, in the manufacture of the device.

The valve member of the device likewise includes a disk shaped body 15 that normally rests upon the gasket 13 and has formed centrally thereon a tubular member 16 that rises therefrom, so that the upper end of the tubular member can contact the undersurface of the top 5 about the groove 8 thereof to remove the portion of the cap within the groove, upon threading the overall cap downwardly from the position of Figure 1 to that of Figure 2, thereby providing an opening in the top 5 for dispensing the contents of the bottle therethrough, in a manner which will be presently described.

From the above description and disclosure of the drawing, it will be obvious that the sealed or initial position of the parts of the device is as disclosed in Figure 1, and upon threading the overall cap downwardly on the neck of the bottle,

the tubular member 16 will penetrate through the top 5, as shown in Figure 2. When the parts are in the position of Figure 2, and the body is tilted as suggested in Figure 4, the valve member will be moved by gravity to the position as shown in the latter figure, thereby uncovering the openings, to allow the contents of the bottle to be poured therefrom, and of course through the openings and the tubular member 16, as indicated by the arrows in that figure.

When it is desired to subsequently seal the contents of the bottle to retain the same free from exposure, the overall cap is further moved downwardly to the position as shown in Figure 3, which will cause the remaining portion of the top 5 to contact the disk shaped body 15 and thereby hold the latter in engagement with the gasket 13 to close the openings. In that position, the tubular member extends through the openings of the top 5 and the inner end of the tubular member is likewise closed by the adjacent portion of the gasket 13, as clearly shown in Figure 3, with the result the valve means is held against movement, but when the overall cap is moved upwardly to the position as shown in Figures 2 and 4, the valve means is freely movable to open and closed positions by the action of gravity, as will be apparent.

In view of the fact that the valve means automatically closes by gravity, when the bottle is in an upright position, it will be further obvious that the device renders the bottle non-refillable in that it would be impossible to pass liquid into the bottle when in that position.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A non-refillable closure device for a bottle, comprising a cap secured to and mounted for movement on the neck of the bottle and having a weakened portion in the top thereof, fixed perforated means covering the mouth of the neck, valve means normally closing the perforations, means included in the valve means and initially engaged with the weakened portion to break through the top when the cap is moved downwardly, said valve means being movable by gravity to control the perforations when the top is broken through, and said cap being engageable with the valve means to hold the latter in closed position.

2. A non-refillable closure device for a bottle, comprising a skirted cap secured to and mounted for movement on the neck of the bottle, perforated means covering the mouth of the neck, valve means movable by gravity in the cap to control the perforations, tubular means included in the valve means for passage through the top of the cap when the valve means is in open position for dispensing the contents of the bottle and said valve means being engageable by the cap to be held thereby in closed position.

3. A non-refillable closure device for a bottle, comprising a skirted cap secured to and mounted for movement on the neck of the bottle, an inner cap having openings therein and fixed to the neck for covering the mouth thereof, said inner cap including compressible means on the upper portion thereof, valve means movable by gravity in the skirted cap to control the openings and engageable with the compressible means when in closed position, means included in the valve means for passage through the top of the skirted cap for dispensing the contents of the bottle therethrough, and said top being engageable with the valve means to hold the latter in closed position.

4. A non-refillable closure device for a bottle, comprising a skirted cap secured to and mounted for movement on the neck of the bottle, a cap having openings therein and fixed to the neck for covering the mouth of the latter, a compressible gasket included in the inner cap at the upper portion thereof, valve means movably mounted in the skirted cap to control the openings and engageable with the gasket when in closed position to seal the openings, tubular means included in the valve means for passage through the top of the skirted cap when the valve means is in open position to dispense the contents of the bottle therethrough, and said cap being engageable with the valve means to hold the latter in closed position.

5. A non-refillable closure device for a bottle, having a neck provided with spaced annular grooves therein, a skirted cap threadedly mounted on the neck, an inwardly directed flange on the lower end of the skirt and mounted in one of the grooves, the latter being sufficiently wide to allow threaded movement of the cap, an inner cap including a flange mounted in the other groove to fixedly secure the inner cap to the neck and in a position to cover the mouth of the latter, said inner cap having openings therein, a compressible gasket included in the inner cap at the upper portion thereof, with the openings extending therethrough, valve means including a disk shaped body and mounted for movement in the skirted cap for engagement with the gasket to close the openings, a tubular member formed on and rising from the body of the valve means for passage through the top of the skirted cap for dispensing the contents of the bottle therethrough when the valve means is in open position, and said top being engageable with the disk shaped body to hold the valve means in closed position.

GEORGE A. NUSS.