May 2, 1933. A. B. DODGE 1,907,254

CLOSURE FOR CONTAINERS

Filed March 21, 1932

Fig. 1.

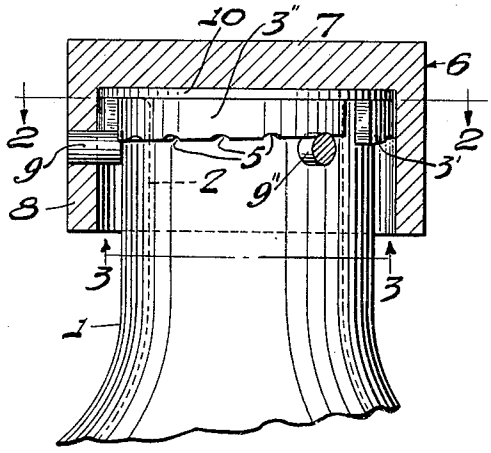


Fig. 4.

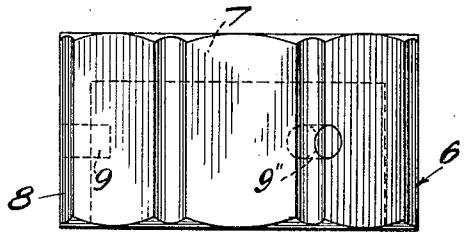


Fig. 5.

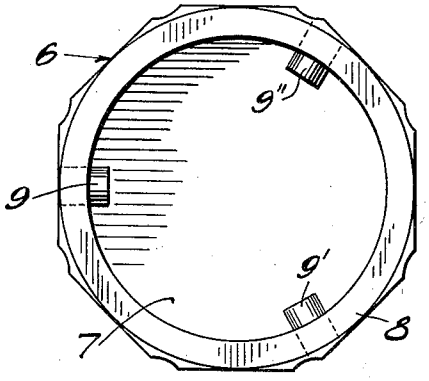


Fig. 2.

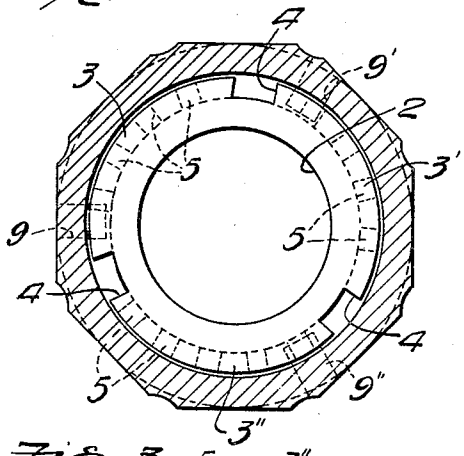
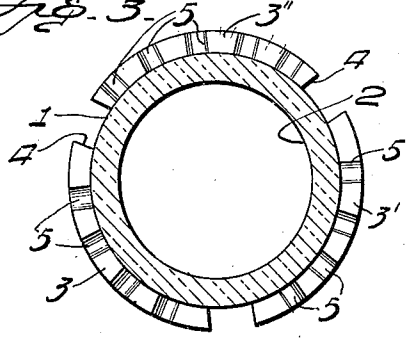


Fig. 3.



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UNITED STATES PATENT OFFICE

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CLOSURE FOR CONTAINERS

Application filed March 21, 1932. Serial No. 600,334.

My invention relates to closures for containers and more particularly to closures for bottles, jars and like containers in which a liquid or air tight closure is essential.

The principal object of the invention is to provide a closure cap which can be readily and quickly applied to or removed from the container.

Another object of the invention is to provide means whereby a closure cap can be conveniently drawn into sealing engagement with the mouth of a container by a slight turning movement, and thereafter automatically locked by a continuation of such rotary movement without materially decreasing the sealing pressure.

Other objects of the invention will be apparent from the following description.

In the accompanying drawing wherein I have illustrated a preferred embodiment of the invention;

Fig. 1 is a vertical section through the cap of my invention, the bottle being shown in elevation.

Fig. 2 is a cross-sectional view of my invention taken on the line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional view of the bottle of my invention taken on the line 3—3 of Fig. 1.

Fig. 4 is an elevational view of the cap of my invention, showing the disposition of lugs therein.

Fig. 5 is a bottom plan view of my cap.

Referring more particularly to the drawing 1 denotes the neck of a bottle, the mouth 2 of which is provided with a plurality of segmental peripheral locking flanges 3, 3′ and 3″, separated by intervening openings or channels 4. The bottom of these flanges are formed with inclined cam faces, each of which cam face is formed with a plurality of regularly spaced notches or indentations 5.

The closure member or cap 6 for bottle neck 1 of any suitable material such as bakelite or metal comprises a top 7, a rim or flange 8 and locking lugs 9, 9′ and 9″, projecting inwardly from the inner wall of rim 8. A resilient disk shaped cork washer 10 is preferably inserted in the cap for air and water tight sealing engagement with the mouth of the bottle neck. The locking lugs and openings or channels 4 are equal distances apart, that is, are so spaced that when the cap is being placed over the mouth of neck 1, the lugs will register with and pass downwardly through the openings or channels 4, thus permitting the cap to be freely moved to and from its seat on the bottle neck. A limited turning movement of the cap in a clockwise direction causes the locking lugs to engage beneath the locking flanges and to ride over the inclined indented bottom faces thereof thus pulling the cap downwardly against the mouth of the bottle neck with gradually increasing intensity and sealing effect. This movement will be continued until one of the lugs 9 drops into a locking notch or indentation 5, and where an extremely tight seal is required the cap is preferably rotated until the lug has passed through several indentations.

One objection to cap closures of the general construction just described has been due to the fact that the downward pull of the cap caused by rotating the locking lugs over the bottom inclined faces of the peripheral locking flanges is suddenly released or lessened when the locking lugs 9 drop into the notches or indentations 5, with consequent danger of breaking the hermetic seal between the inner face of the top of the cap and the mouth of the bottle neck. This objection is overcome in the present closure by locating the notches 5 in such a manner that no more than one of the three locking lugs will drop into locking position at the same time, while the other two lugs will ride over and remain in engagement with the smooth portions of the peripheral flanges extending between adjacent notches. Thus corresponding notches 5 on the respective locking flanges 3, 3′ and 3″ are progressively advanced relatively to each other, as will be better understood from the enlarged sectional view, Figure 3, in which the three locking flanges are shown of equal size, two of the flanges being formed with four equally spaced notches and the remaining flange with five.

The notches 5 of flange 3 are arranged symmetrically with respect to the axis of this

flange, whereas the notches of flanges 3′ and 3″ are progressively advanced in a clockwise direction as viewed in Figure 3, with respect to each other and to the notches of flange 3. As the lugs 9, 9′ and 9″ are equally spaced with respect to each other about the inner periphery of the rim 8 of cap 6, it follows that these lugs will alternately engage the notches 5 of the respective locking flanges when the cap is rotated, thus providing for twelve locking positions. However, but one lug at a time engages within a notch 5, and consequently the greater portion of the cap is at all times subjected to maximum pulling and sealing pressure, which is communicated to some extent to the lug which is in locking engagement with its notch. This action is possible due to the resiliency of the cork washer which permits of a slight tilting movement of the cap during the closure operation.

What I claim is:

1. The combination with a bottle having a neck portion, of a closure member comprising a cap seated upon said neck portion, a plurality of inwardly extending spaced lugs on said cap, a corresponding plurality of spaced sectional flanges, surrounding said neck portion, inclined bottom surfaces for said flanges, cooperating with said lugs in drawing the cap tightly against said neck, and a group of equally spaced indentations in the bottom surface of each of said flanges, the spacing of each indentation of one group from the corresponding indentation of the adjacent group being different from the spacing of adjacent lugs, to prohibit simultaneous interlocking of more than one lug with one indentation.

2. The combination with a bottle having a neck portion, of a closure member comprising a cap seated upon said neck portion, three inwardly extending equally spaced lugs on said cap, three horizontally aligned and equally spaced sectional flanges surrounding said neck portion, inclined bottom surfaces for said flanges cooperating with said lugs in drawing the cap tightly against said neck when the cap is rotated, and groups of indentations for each of said bottom surfaces, the spacing of each indentation of one group from the corresponding indentation of the adjacent group being different from the spacing of adjacent lugs, to prohibit simultaneous interlocking of more than one lug with one indentation and to permit of consecutive interlocking of all of said lugs with said indentations.

3. The combination with a bottle having a neck portion, of a closure member comprising a cap seated upon said neck portion, a plurality of inwardly extending equally spaced lugs on said cap, a corresponding plurality of equally spaced sectional flanges surrounding said neck portion, inclined bottom surfaces for said flanges cooperating with said lugs in drawing the cap tightly against said neck, and a group of indentations in the bottom surface of each of said flanges, the indentations of each group being equally spaced from each other, and the spacing of each indentation of one group from the corresponding indentation of the adjacent group being different from the spacing of adjacent lugs, to prohibit simultaneous interlocking of more than one lug with one indentation.

In testimony whereof I affix my signature.

ARTHUR B. DODGE.