

No. 881,671.

PATENTED MAR. 10, 1908.

O. DUCKER.
BOTTLE CAP.

APPLICATION FILED JAN. 14, 1907.

Fig. 1.

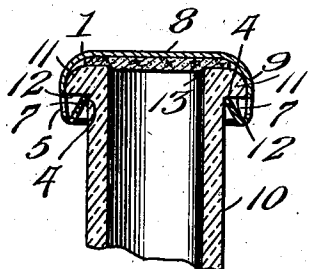


Fig. 2.

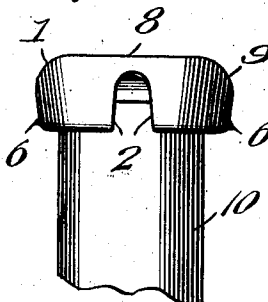


Fig. 3.

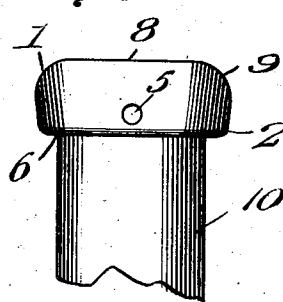


Fig. 4.

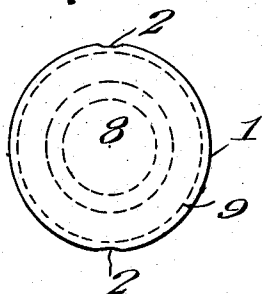


Fig. 5.

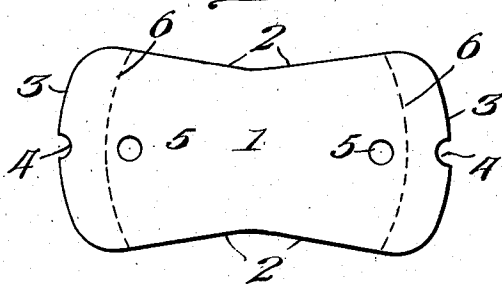


Fig. 6.

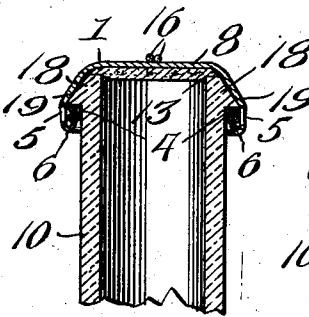


Fig. 7.

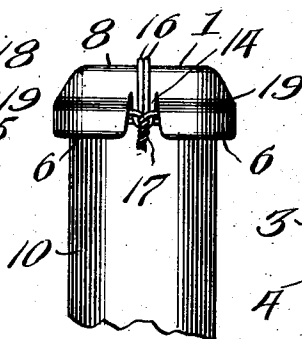
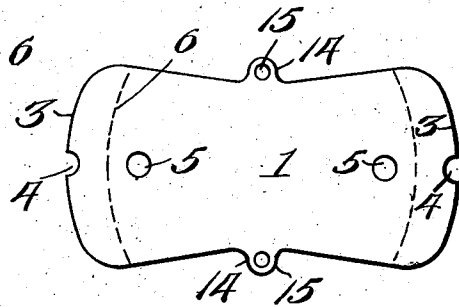


Fig. 8.



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BOTTLE-CAP.

No. 881,671.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed January 14, 1907. Serial No. 352,188.

To all whom it may concern:

Be it known that I, ORLANDO DUCKER, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Bottle-Caps, of which the following is a specification.

The invention relates to an improvement in bottle caps arranged for interlocking engagement with the bead of a bottle neck.

The main object of the present invention is the production of a bottle cap formed with locking flanges adapted to engage beneath the bead of the bottle, the normal disposition of said flanges being at an angle to the line of strain against the cap when in sealing position; whereby to utilize the maximum resistance to such strain.

Another object of the invention is the provision of a cap formed of a single blank, and so constructed as to provide for its ready clamping in sealing position on the bottle mouth, a simple means being provided whereby the cap may be rearranged in sealing position after removal to permit access to the contents of the bottle.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a transverse vertical sectional view showing the preferred form of cap in applied position. Fig. 2 is a side elevation of the same viewed at right angles to the line of section of Fig. 1. Fig. 3 is a similar view, viewed at right angles to Fig. 2. Fig. 4 is a plan of the cap applied. Fig. 5 is a plan of the initially formed blank on a scale somewhat smaller than shown in Fig. 4. Fig. 6 is a broken vertical section illustrating a slightly modified form of cap in applied position. Fig. 7 is a view in side elevation of the same, taken at right angles to the line of section of Fig. 6. Fig. 8 is the initially formed blank of the modified cap.

Referring particularly to Figs. 1 to 5 inclusive, wherein is clearly illustrated the specific construction and mode of application of the preferred form of my improved cap, it will be noted that said cap is cut or stamped from a single sheet of material, preferably block tin or the like. The cap as initially formed from the material, is illustrated as a cap blank 1 in Fig. 5. The transverse median dimension of the blank 1 is somewhat in excess of the interior diameter of the bottle mouth with which

the cap is adapted to cooperate, the side edges of the blank 2 projecting from said median line in a forwardly and outwardly inclined direction, the free ends of the blank being curved at 3, as shown.

Along the longitudinal median line, the blank 1 is formed in the edges 3 with a semi-cylindrical notch 4, and between said notches and the transverse center of the blank, I form the blank with openings 5, preferably disposed a greater distance from the transverse median line of the blank than from the proximate notches 4. The blank is folded or bent along the dotted lines 6 adjacent to each edge 3, the bent portion being projected upward at an angle from the body of the blank to provide locking flanges 7. The blank is then formed into cap shape, providing the disk portion 8, and side flanges 9, it being noted from Fig. 2 of the drawings that owing to the relative formation of the edges 2 of the blank, the flanges 9 are, in the completed cap separated to provide in effect two distinct side flanges, each less in peripheral length than half the circumference of the bottle mouth. As thus constructed the cap in completed form comprises an imperforate disk of a size to overlies the bottle mouth, from which depends independent side flanges, the lower edges of the flanges being formed with inwardly and upwardly inclined locking flanges, as clearly seen in Fig. 1.

In use the cap is applied to a bottle formed near the mouth thereof with a bead 10 11. The relatively lower surface of the bead is preferably disposed at a right angle to the length of the neck, thereby providing a square shoulder 12 at the lower edge of the bead. The cap, initially provided with the usual sealing disk 13 of any desired material, is secured upon the bottle by the application of pressure to the disk 8, the side flanges 9 riding over the outer surface of the bead 11, as will be evident. Lateral pressure is applied to the side flanges 9 of the cap to force the locking flanges 7 beneath the shoulder 12 of the bead, thereby securing the cap in place.

When desired to remove the cap any properly formed tool or implement may be inserted between the locking flange and the bottle neck, and one or the other of the side flanges 7 laterally displaced to remove the locking flange from beneath the bead, whereupon the cap may be slipped laterally from the bottle mouth. In replacing the cap after such dis-

placement, the implement is introduced through the opening 5 in the previously bent side flange 7, and pressure applied to force said flange to normal position, the edge of the tool being arranged beneath the shoulder 12 to secure desired leverage. The point of the tool may rest in the notch 4 in the particular locking flange, thereby preventing interference with said flange in the proper seating of the latter beneath the shoulder.

The divided side flange, or more properly speaking the duplicate side flanges of the cap, insure a proper locking cooperation of the flanges 7 with the shoulder 12, as said side flanges are independently movable and thereby readily accommodate themselves to the pressure necessary to secure a proper lock.

The particular feature of the present invention is the disposition of the locking flanges 7. In locking position said flanges 7 are arranged at an upward and inward incline relative to the side flanges 9. The resistance of the cap to the displacing strain is, therefore, practically lengthwise, or vertically, of the locking flanges 7, thereby requiring practically a crushing of said lateral flanges before the cap will yield to the displacing strain.

For use with bottles designed for export trade or for long shipments, I prefer that the cap be provided with an additional locking means to prevent accidental lateral displacement of either of the locking flanges in handling the bottles. To provide this additional locking means the cap blank is formed as illustrated in Fig. 8, wherein it will be noted that said blank is identical with the preferred form with the addition thereto of ears 14 projected from the side edges 2 in the transverse median line of the blank, each of these ears being perforated as at 15.

In the use of the modified form of cap, securing wires 16, arranged in pairs, are, prior to the securing of the cap on the bottle as before described, passed across the disk 8 of the cap with their respective ends projected through the openings 15 in the opposing ears 14. The ears are preferably of a length to dispose their openings 15 on a line with the locking shoulders of the bottle bead when the cap is in place, and the ends of the two wires projecting through each respective ear are separated and passed around the bottle in opposite directions, being directed between the locking flanges 7 and the side flanges 9. The terminals of the wires so projected from one ear are passed over the opposing ear and secured by intertwisting, as at 17, Fig. 7. The cap is thus secured to prevent the accidental lateral movement of either side flange, it being noted that the wires rest against the outer surface of the locking flanges and thereby positively pre-

vent displacement of the cap under any strain or handling to which the bottles may be subjected.

In connection with the improved cap described, I contemplate the use of a particular form of bottle bead, as shown more particularly in Fig. 6. In this form the relatively outer surface of the bead 18 inclines downwardly and outwardly as at 19, thereby guiding the locking flanges in the application of the cap, and more positively insuring their cooperation with the locking shoulder of the bead.

It is to be understood that the cap is designed for application to any form of bottle provided with a bead with which the locking flanges may engage, and that the salient feature of the present invention resides in the formation of a bottle cap having independent side flanges, each of which is provided with a locking flange extending upwardly and inwardly at an angle therefrom, the arrangement being such that the extreme upper or free edge of each locking flange engages directly beneath and in contact with the locking shoulder of the bead.

While preferring the details of construction and arrangement of parts shown and described, it is to be understood that various changes and modifications may be resorted to without departing from the spirit of the present invention, that I wish to include, as part of the present invention, all such changes and variations as may fall within the scope of the appended claims.

Having thus described the invention, what I claim is:

1. A bottle cap having a divided side flange, and a locking flange projecting upwardly and inwardly from the lower edge of each division of the side flange, each division of the side flange being formed with an opening in transverse alinement with the upper edge of the locking flange.

2. A bottle cap having a divided side flange, locking flanges projecting from each division of the side flange, ears disposed between the divisions of the side flange, and auxiliary locking means passed above the cap and through the ears.

3. A bottle cap having a divided side flange, locking flanges projecting from each division of the side flange, ears disposed between the divisions of the side flange, and a plurality of locking wires passed over the cap with their ends projecting through the respective ears.

In testimony whereof, I affix my signature in presence of two witnesses.

ORLANDO DUCKER.

Witnesses:

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ARTHUR L. EVANS.