Dec. 2, 1930. E. SCOFIELD 1,783,314

TWO-PIECE CLOSURE CAP

Filed Aug. 25, 1927

Fig. 1.

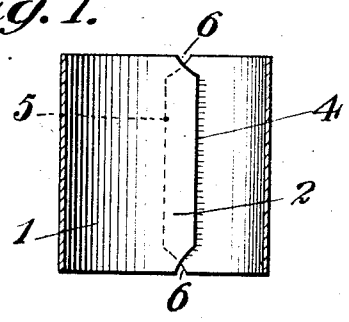


Fig. 4.

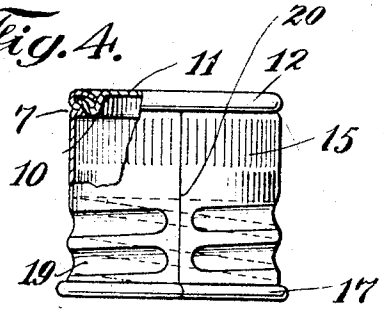


Fig. 2.

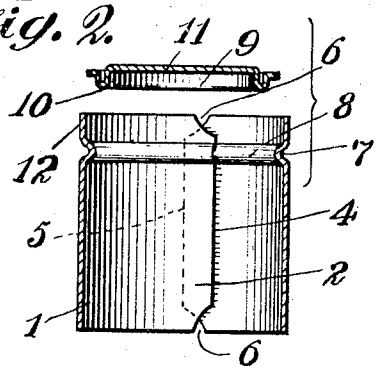


Fig. 5.

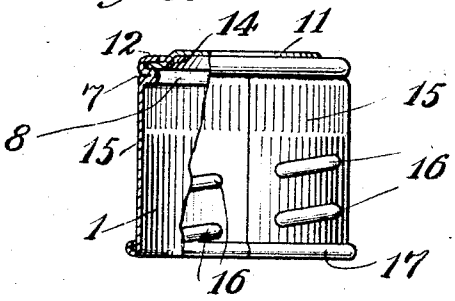


Fig. 3.

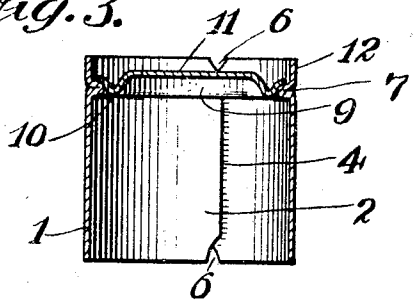


Fig. 6.

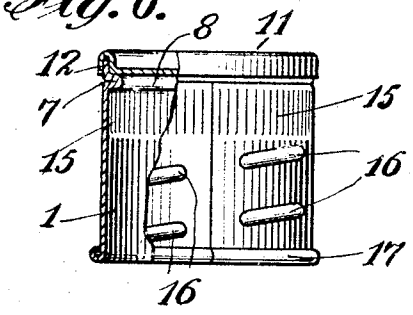
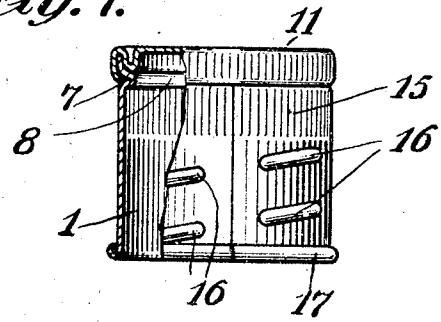


Fig. 7.



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UNITED STATES PATENT OFFICE

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TWO-PIECE CLOSURE CAP

Application filed August 25, 1927. Serial No. 215,313.

The present invention relates to closure caps and more particularly to two-piece closure caps.

It is customary in the cap art to lacquer the sheet metal used prior to the stamping and other manufacturing operations, because the metal can be more easily decorated while it is in the form of a comparatively large sheet. In making deep skirt caps such as those used for ketchup bottles and the like, the necessary die operation for drawing the metal to form a one-piece cap damages the lacquer or other coating on the metal. The resulting cap does not have the glossy appearance that the original coating had. Drawing operations are not necessary with two-piece caps and the lacquer will retain its original lustre. Another advantage of the two-piece cap is that the button may have an entirely different coating from that of the body portion; this also improves the appearance of the cap.

One of the objections to two-piece closure caps is the difficulty of securely fixing the parts together and retaining them in proper position with respect to each other. The seam extending longitudinally of the body part frequently opens under stresses occasioned by application of the closure to a container. Even greater difficulty is encountered with the button, which becomes loose and frequently falls out. Some manufacturers require that the button be positioned relative to the seam in the body part. Naturally a loose button soon becomes deranged. Another difficulty encountered is the positioning of the button in the body portion preliminary to the attaching operation. With the ordinary cylindrical body part the button may be pushed in too far or it may become canted or otherwise deranged, and as a consequence, damaged in subsequent operations.

The present invention overcomes these difficulties by providing a shoulder formed by an annular groove adjacent one end adapted to seat the button. The outer edge of the body may be bent inwardly to engage the button and to retain it firmly against said shoulder. In this manner the button is clamped in position and there is no possibility of its becoming loose. It is rigidly secured in position. The shoulder also seats the button in the body portion prior to the securing operation, thereby assuring accurate position for subsequent operations. The groove forming the shoulder may extend across the seam of the body portion actually to clamp the parts of the seam in place and prevents their being later disengaged. The appearance of the cap may be improved by pressing the walls of the groove together, whereby the groove is concealed and a line is the only visible indication of the shoulder. Any suitable means may be formed in the body portion of the cap to engage threads or other projections on the bottle, but the preferred form embodies a series of projections or an interrupted thread adapted to engage the usual screw thread on the bottle, said projections or thread being positioned so that they do not touch the seam of the body.

An object of the present invention is to provide an inexpensive two-piece closure cap with the parts rigidly secured in position.

Another object of the invention is to improve the connection between the button and the body portion.

A further object of the invention is to provide an annular shoulder adjacent one end of the cap adapted to act as a seat for the button and as a lock for the seam in the body portion.

Other and further objects of the invention will be obvious upon an understanding of the illustrated embodiment about to be described and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment has been chosen for purposes of illustration and description and is shown in the accompanying drawings, wherein:

Fig. 1 is a sectional view of the body part prior to the formation of the shoulder;

Fig. 2 is a sectional view of the parts in unassembled position;

Fig. 3 is a sectional view of the button seat-

ed in the body portion prior to attachment;

Fig. 4 is a side elevational view partly in section, illustrating the finished cap;

Fig. 5 is an elevational view, partly in section, illustrating another form of finished cap;

Fig. 6 is an elevational view, partly in section, illustrating another form of cap; and

Fig. 7 is an elevational view, partly in section, of still another form of cap.

In the preferred embodiment of the invention the body portion 1 of the cap comprises a flat strip of metal bent into a tubular form with the ends interlocked to form the seam 2. Preferably the ends 4 and 5 have their corners severed as shown at 6 to facilitate the operations which will be described hereinafter. Adjacent one end of the body portion a groove 7 is formed, the convex surface of which is on the interior of the body to provide a shoulder or abutment 8 adapted to support the button 9 when it is placed in the body part, with the periphery thereof resting upon the shoulder. The button shown in Figs. 2 and 3 has a groove 10 formed adjacent its outer periphery with the central portion 11 raised slightly above the level of the outer periphery. This groove preferably abuts against the shoulder 8 and may form a friction contact therewith, securely fixing the button in position to facilitate subsequent operations.

The cylindrical portion 12 just above the annular shoulder may be turned inwardly to engage the inclined portion 14 of the button leading to the raised portion 11. In this way the edge of the body portion forms a secure contact with the button and prevents both longitudinal and radial movement of the body thereof.

Prior to or during the attachment of the button by turning in the edge of the body portion, longitudinal pressure is applied substantially to collapse the annular groove 7 from the shape shown in Fig. 2 to that shown in Fig. 3 where the sides are in contact. In practice the metal is so close together that it is impossible to perceive the groove as such; a mere line fixes its position. The finished cap is not disfigured in any way, its appearance is actually improved.

A series of corrugations 15 extend about the upper end of the closure just below the annular groove 7 to strengthen this portion of the cap as well as to afford a finger grip in the application and removal thereof. As a container engaging means, the prefered embodiment illustrates a thread 19, adapted to engage the usual thread on a bottle. The thread 19 is interrupted at the seam to avoid deformation of the layers of metal therein and to prevent disfiguration of the cap at this joint. If desirable the thread may be interrupted at several points to form a series of projections 16 as shown in Figs. 5, 6, and 7. Such a thread engaging means facilitates application and removal thereof due to the fact that the engaging surface is materially less than that of a continuous thread cap and due further to the fact that there are no irregularities at the seam of the cap.

It will be noted that the thread on the cap, whether formed as shown in Fig. 4 or otherwise, has a definite position with respect to the seam 2 of the cap. As shown in Fig. 4 the thread begins substantially at the seam. The seam may be in any other desired position with respect to the thread but the position determined upon remains the same in all caps. An advantage of such a thread is that the seam will be fixed with respect to the thread on a container when the cap is applied thereto. Labels or other designs may be positioned with respect to the thread on the bottle and the seam of the cap will always be at the rear of the bottle.

Preferably a reinforced or beaded edge 17 is provided at the bottom of the closure. The beaded edge, the screw threads and the corrugations may, if desired be formed in a single operation together with the formation of the button retaining means at the other end of the cap.

Another form of closure is shown in Fig. 5 which differs from the one previously described in that the button does not have a groove adjacent its outer periphery but instead has an inclined surface leading to the raised center portion 11 with the outer periphery flat to fit under the inturned flange engaging the inclined portion of the button.

In Fig. 6 a button is shown with a depressed center portion adapted to rest upon the annular shoulder 8 with a groove in its outer periphery to receive and grip the upwardly extending cylindrical portion 12 of the cap. In Fig. 7 this button is shown with a raised center and with the downwardly extending flange thereof elongated to rest against the lower side of the groove 7.

In each embodiment illustrated the annular groove 7 not only forms a rigid abutment for the button so that it cannot be deranged or tilted during the assembling operation, but it also binds the portions of the cap perpendicularly inwardly thereby reinforcing the body part in a circumferential direction. The engagement of the downwardly extending part of the button with inward side of shoulder 8 holds the button in frictional engagement against radial movement irrespective of irregularities in the outer circumference of the button itself. In this way the button may be made, if desirable of slightly less maximum diameter than the internal diameter of the body portion. The inward flange on the upper end of the body portion securely holds the cap and clamps it against the shoulder and in addition the pressure of the edge on the inclined portion 14 of the

button prevents any lateral movement thereof.

It will be seen that the present invention provides a two-piece closure with the parts rigidly secured in position. The button is seated against an annular shoulder and the end of the body portion clamps the button firmly against its seat. The annular shoulder locks the longitudinal seam of the body part to prevent derangement thereof and in addition, reinforces the body part circumferentially. The thread is definitely positioned with respect to the seam of the cap so that the seam of the cap, when the cap is screwed on a container, will have a definite position relative to the thread on the container. The cap is easy to manufacture from inexpensive material. Further, it is fully capable of meeting the various requirements of a commercial cap and of withstanding the rough usage to which it may be subjected.

As various changes may be made in the above embodiment without departing from the spirit of the invention, it is to be understood that all matter herein set forth is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A two-piece closure cap comprising a body portion having a continuous annular groove pressed inwardly adjacent one end thereof, the convex side of said groove being on the interior of the body portion, and a button adapted to rest against the convex side of said groove and enclosing the end of said body portion, the upper end of said body portion being turned inwardly to rest against the outer circumferential portion of said button and to hold said button firmly against said groove.

2. A two-piece closure cap comprising a tubular body portion having thread engaging means at one end and a continuous closed groove extending circumferentially about the other end of said body portion to form a shoulder at said other end, the convex side of said groove being on the interior of the body portion, and a button secured to the end of said body portion and held against said shoulder by turning inwardly the end of the body portion.

3. A two-piece closure cap comprising a tubular body portion having thread engaging means at one end thereof, a continuous annular groove extending circumferentially of one end of said body portion to form a continuous shoulder on the side of the body portion, a button having its substantially flat outer periphery resting against said shoulder with the end of said tube turned inwardly to hold said button firmly in position on said shoulder.

4. A two-piece closure cap comprising a tubular body portion having thread engaging means at one end thereof, a continuous annular groove at the other end thereof, said groove being flattened to provide a convex surface on the interior of the body portion and to close the open side of the groove whereby the groove is substantially concealed on the exterior of the cap and a button adapted to rest against said convex surface of the groove and means for holding said button in position on said convex surface.

5. As an article of manufacture, a two-piece closure cap comprising a body portion having a longitudinal seam therein, a continuous annular groove formed circumferentially of said body portion to provide a shoulder on the interior thereof, said groove being closed by pressure applied longitudinally of the body to increase the depth of the shoulder and to substantially conceal the groove on the exterior of the body part, and a button having a substantially flat periphery resting upon the upper side of said groove with an annular groove substantially contacting with the inner side of the groove of the body part, the end of said body part being turned downwardly against said button to hold it rigidly in position.

6. The method of forming a closure cap which method comprises providing a body portion with a groove adjacent the upper end thereof, telescoping a button in the body portion against said groove and applying pressure to the body portion to collapse said groove thereby substantially to conceal the groove on the exterior of the body part and turning inwardly the upper edge of said body part to hold said button in position.

7. The method of packaging products sealed with two-piece closures, which method comprises providing the container with a screw thread thereon, applying a label to the container in a definite relation to the screw thread, providing a seamed screw closure cap with the thread in a definite position with respect to the seam, and assembling the cap and container whereby the seam of the cap and the label of the container are on substantially opposite sides.

8. The method of packaging products sealed with seamed closures, which method comprises providing a container with a screw thread thereon, decorating a part of the container in a definite relation to the screw thread, forming a screw thread in a seamed closure cap with the thread in a definite relation with respect to the seam and assembling the cap and container, whereby the seam of the cap is on the side of the container opposite the decorated part thereof.

9. The method of packaging, which method comprises providing a container with a screw thread thereon, decorating a part of the container in a definite relation to the screw thread, providing a seamed screw closure cap with the thread in a definite position with re-

spect to the seam whereby, when the cap and container are assembled, the seam of the closure will always be in a definite position with respect to the decoration on the container, and assembling the cap and container.

10. As an article of manufacture, a closure cap comprising a body portion having a continuous annular groove forming a shoulder adjacent one end thereof extending inwardly from the body portion, a button having an annular groove adjacent its outer periphery, said button being adapted to fit into said body portion with the outer side of the groove in the button adapted to fit against the innermost part of the groove in the body portion, the outer end of the body portion being turned inwardly to engage and hold the button in position.

11. As an article of manufacture, a closure cap comprising a body portion having a continuous annular groove adjacent its upper end, a button having an annular groove adjacent the outer periphery thereof, the outer periphery of the button being substantially flat and adapted to rest against the groove in the body portion, and the end of said body portion being adapted to be turned inwardly with the free edge thereof fitting into said groove in the button to hold the button in place and to conceal the raw edge of the inturned portion of the body part.

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