June 16, 1931. J. S. HARDIMAN 1,810,706

SCREW CAP

Filed Nov. 11, 1926

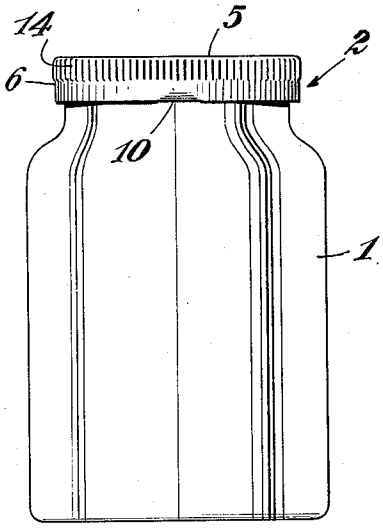


Fig. 1.

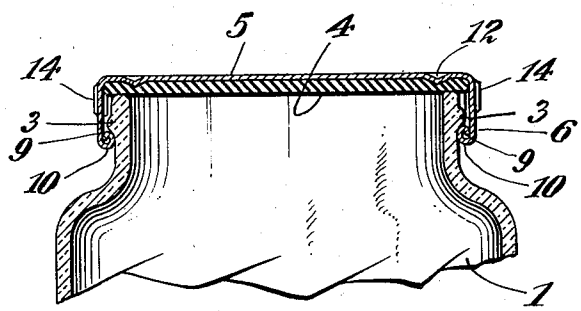


Fig. 2.

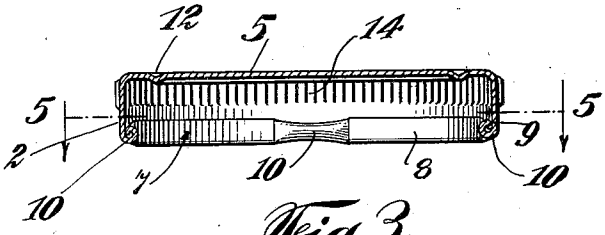


Fig. 3.

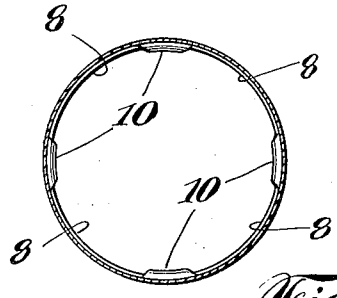


Fig. 5.

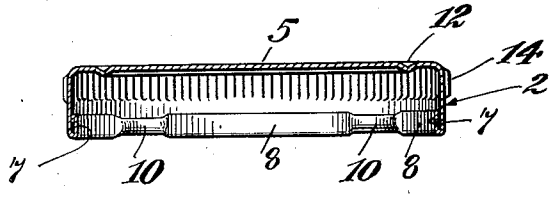


Fig. 4.

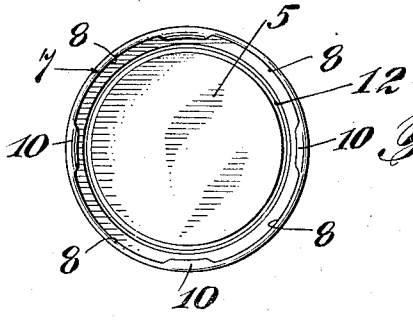


Fig. 6.

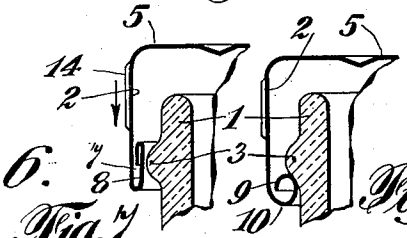


Fig. 7.

Fig. 8.

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Patented June 16, 1931

1,810,706

UNITED STATES PATENT OFFICE

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SCREW CAP

Application filed November 11, 1926. Serial No. 147,625.

The present invention relates to closure caps and more particularly to a screw cap adapted for use on bottles, jars and the like.

Heretofore in the art the most common type of screw cap has been that in which screw threads have been embossed in the flange or skirt thereof. Such caps are generally known as continuous thread caps. Another type is the lug cap adapted for use on containers having interrupted threads. The present invention relates more particularly to the latter type although many of its features are applicable to the former.

Lug caps have been made by striking in portions of the skirt to form locking projections. Such projections have been located in various portions of the skirts of caps but generally at the lower edge thereof. In some instances the skirt is beaded and in other cases it is a mere raw edge struck up at the bottom. In either case the inpunching operation breaks the lacquer, or other decorative and protective coating which is applied to the sheets of tin prior to the stamping and rolling operations. Thus the formation of the lugs causes the cap to rust and in addition distorts and weakens the metal in the lugs. If the cap is not beaded a raw edge is added to the above difficulties. Further, the appearance of the caps is marred due to the deformation of the skirt. Attempts have been made to form lugs by rolling extensions from an irregular blank into coiled lugs. These, however, are inclined to be weak and objectionable for this reason and for the further reason that a raw edge is always exposed.

The present invention overcomes the above difficulties by providing lugs completely concealed by the skirt of the cap, the skirt itself being continuous throughout with no deformations. The metal is rolled or bent and not distorted or stretched. The lacquer, therefore, is not broken and there is no chance for rust irrespective of the acidity of the contents of the container. The caps are formed preferably with an inturned bead at the lower edge of the skirt and the lugs are formed by pressing the inner side of portions of the bead outwardly to meet the skirt of the cap. These portions of the cap may be telescoped over the mouth of the container without engaging the screw threads. The intermediate normal portions of the bead which have not been deformed in any manner constitute short, tubular lugs substantially closed at their respective ends and held firmly in position by constricted portions of the bead. The lugs themselves are tubular and afford maximum strength with a given thickness of metal. Such a cap will take a maximum variation from a standard size of container without slipping over the threads. There is no exposed raw edge to rust either on the interior or the exterior of the cap and all lugs are completely concealed, greatly improving the external appearance of the cap.

An object of the invention is to provide an inexpensive screw cap neat in appearance with concealed locking lugs of maximum strength.

Another object of the invention is to provide a screw cap formed from the normal portions of a continuous bead and to conceal said lugs by the skirt of the cap.

A further object of the invention is to provide a screw cap neat in appearance and simple in construction which may be inexpensively manufactured from commercial material without damage to the lacquer or other coating thereon.

Other and further objects of the invention will be obvious upon an understanding of the illustrated embodiment about to be described, and other advantages not specifically 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 side elevation view of a package sealed with a cap in accordance with the present invention;

Fig. 2 is a sectional view through the cap and container with portions broken away for simplicity;

Fig. 3 is a sectional view through the lugs of the cap illustrating details thereof;

Fig. 4 is a sectional view taken through the constricted portions of the bead showing details thereof;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 3;

Fig. 6 is a bottom view of the cap;

Fig. 7 is a fragmentary sectional view illustrating the relation of the constricted portions of the bead to the threads on the container, and

Fig. 8 is a fragmentary sectional view illustrating the lugs engaging the threads as the cap is applied to the container.

Referring to the drawings illustrating one embodiment of the invention, there is shown a container 1 having a closure cap 2 secured in position over the mouth thereof. A gasket 4 of suitable material may be secured to the upper part of the cap in any suitable manner to rest upon the end of the container and to form an edge seal therewith. The cap preferably comprises a cover portion 5 and a depending skirt 6, with the lower edge of the skirt rolled inwardly to form an inturned bead or wire edge 7. The portions 8 of the bead, preferably four in number, are constricted as shown particularly in Figs. 4 and 7, so that these portions of the bead will be sufficiently large to be telescoped about the mouth of the container without engaging the threads 3 thereon. Preferably the free edge 9 of the cap is enveloped by the bead and completely enclosed in the constricted portions 8. The relatively short normal portions 10 of the bead extend inwardly beyond the constricted portions 8 and hence the diameter of the cap measured from the inner sides of these portions is substantially less than the diameter measured from the inner sides of the constricted portions 8. This difference in diameter permits the normal portions of the bead to act as lugs for engagement with suitable threads or other projections on the mouth of the container, while permitting the restricted portions to pass over the threads without engagement therewith, as shown in Figs. 7 and 8.

The rolling of the bead 7 and likewise the constricting of the portions 8 does not break or mar the lacquer or other coating which is applied to the tin prior to the manufacturing operations for decorative purposes and for prevention of rust. The reason for this is that the manufacturing operations do not stretch the metal as heretofore but bend the metal into the desired form. This does not affect or damage the lacquer.

The lugs 10 are tubular and have a curved upper surface affording a substantial degree of resilience. The free edge 9 when the cap is threaded on a container may bend downwardly giving a resilience to the lug which will take care of a container with a maximum variation from a standard size. The ends of the lug are substantially closed by the constricted portions 7. This adds materially to the strength of the lugs and prevents them from slipping over the thread of a container slightly below the standard size. In order to improve the appearance of the cap the cover portion may have an annular groove 12 or any other suitable decorative configuration. The upper portion of the skirt of the cap may be knurled as shown at 14 to improve its appearance and to facilitate gripping for removal from the container.

It will be seen that a screw cap has been formed which is inexpensive in construction and neat in appearance. The manufacturing operations are such that the lacquer is not broken and the raw edge is completely concealed, thereby eliminating any exposed metal and preventing rust. The external portions of the cap are not deformed in any manner and hence the appearance of the cap is not marred. Any designs or ornamentations may be applied either to the skirt of the cap or to the cover portion without danger of their being mutilated in the manufacturing operations.

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

Having thus described my invention, I claim:

1. As an article of manufacture, a screw cap comprising a cover portion, a depending skirt, and a bead at the lower edge of said skirt, said bead being deformed to provide a plurality of locking projections from the normal portions thereof adapted to engage suitable threads on a container without interrupting the continuity of the bead.

2. As an article of manufacture, a screw cap comprising a cover portion, a depending skirt, and a bead at the lower edge of said skirt, certain portions of said bead being pressed outwardly from the axis of the skirt of the cap, whereby the normal portions of said bead form a plurality of locking projections concealed by said skirt and adapted to engage suitable threads on a container.

3. As an article of manufacture, a screw cap comprising a cover portion, a depending skirt, a bead at the lower edge of said skirt, and thread engaging projections formed from portions of said bead by having the inner side of other portions of said bead moved out of alignment with the threads on the container.

4. As an article of manufacture, a screw cap comprising a cover portion, a depending skirt, and an inturned bead at the lower edge of said skirt, said bead having a plurality of constricted portions to form locking lugs from the other portions of the bead, the ex-

ternal surface of said skirt being continuous and of substantially uniform length.

5. As an article of manufacture, a screw cap comprising a cover portion and, a depending skirt, having its lower edge turned inwardly, portions of the inturned edge being folded together, the intermediate portions being tubular to form locking projections without material deformation of the skirt of the cap.

6. As an article of manufacture, a screw cap comprisng a cover portion and, a depending skirt, having an inturned edge at the bottom thereof, certain portions of said inturned edge being constricted to form locking lugs from the normal portions thereof.

7. As an article of manufacture, a screw cap comprising a cover portion, a depending skirt having a bead at the bottom thereof, said bead having constricted portions adapted to be telescoped over the threads of a container, whereby the normal portions of the bead may form locking lugs, the lower edge of said skirt being circular and said lugs being substantially concealed.

8. As an article of manufacture, a closure cap comprising a cover portion and a depending skirt having the lower edge thereof turned inwardly to conceal the raw edge, portions of said edge being flattened outwardly against the inside of the skirt to form lugs from the other portions thereof for engagement with suitable projections on a container without marring the appearance of the cap by striking in said other portions.

9. As an article of manufacture, a closure cap comprising a cover portion, a depending skirt, a bead at the lower edge of said skirt with certain portions thereof pressed outwardly to form locking projections out of other portions thereof without necessitating striking inwardly said other portions.

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