Aug. 16, 1932. L. OLT 1,871,907

METAL CAP FOR CLOSING PAPER CONTAINERS

Filed April 30, 1931

Fig. 1.

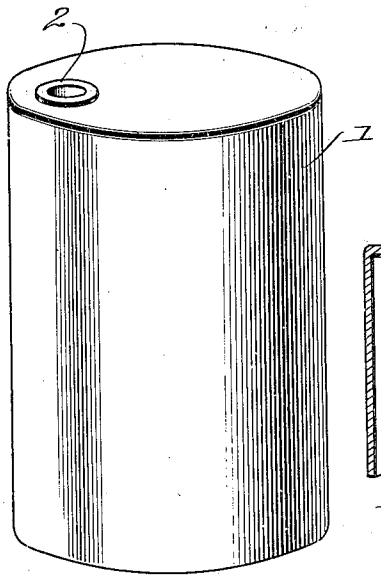


Fig. 4.

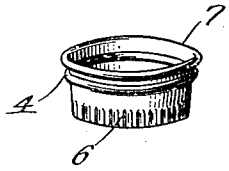


Fig. 5.

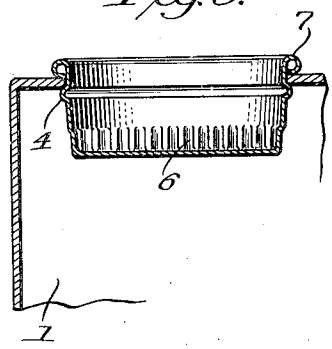
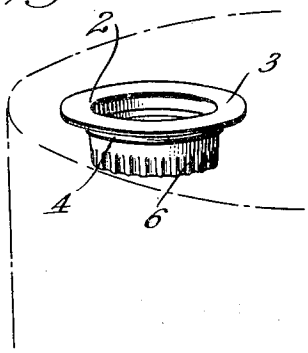


Fig. 2.



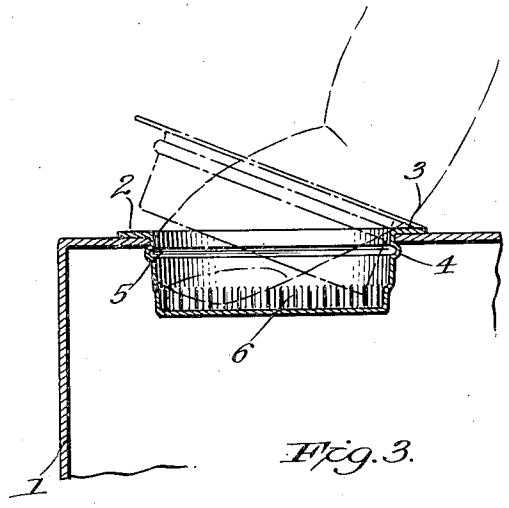


Fig. 3.

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UNITED STATES PATENT OFFICE

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METAL CAP FOR CLOSING PAPER CONTAINERS

Application filed April 30, 1931. Serial No. 534,069.

The present invention relates to caps for containers designed to carry liquid or dry material, but primarily useful in connection with granular substances such as salt, sugar and cleaning powders.

The invention embodies a frictionally retained cap, which is removable by levering with the finger or a suitable tool and which can be replaced to effectively seal the contents of the container.

In constructions of this character considerable difficulty has been attendant upon the removal of the caps, in that friction resulted when the lower portion of the cap was moved past the opening in the container. Such condition resulted in tearing of the material of the edge of the opening, eliminating the value of the cap as a seal and distorting the top of the package, since before the tearing actually occurred the wall in which the cap was disposed was liable to be strained.

With the present invention, this result is effectively overcome by clamping the cap in position upon the wall of the closure and indenting the lower portion of the cap in such a manner that the frictional surface of the cap is considerably reduced when it passes the edge of the cap receiving opening in removing the cap.

The invention is capable of cheap and large scale production and will meet the requirements of the trade for an effective sealing cap, which will not cause distortion of the package or produce undesirable leakage.

Referring to the drawing,

Figure 1 is a perspective view of a container with a cap applied.

Figure 2 is a view showing the cap in detail and the container in lines.

Figure 3 is a sectional view showing the cap applied to the container and also showing the cap elevated and the method of removal.

Figure 4 is a modified form of cap, and

Figure 5 is a sectional view of such modification.

The container is indicated at 1 and may consist of metal, cardboard or any other suitable material useful or appropriate in the manufacture of containers. Preferably, however, a pulp or fibrous substance is used, which will be described as a cardboard-like material.

The cap is illustrated in Figure 2, by the numeral 2 and is substantially cylindrical in form. The cap 2 opens outwardly as shown and is provided with a relatively broad flange 3.

While I have described the cap as cylindrical, it is to be understood that it may have various contours such as square, oblong, oval and, in fact, any desired shape. The flange 3 may be a continuous flange as shown, or comprise two or more spaced flanges.

The cap 2 is preferably formed of resilient metal, although other fabricated materials may be employed and there is formed in the cap an outwardly projected bead 4, which, in the instance shown, is a continuous circular projection and forms on the interior of the cap a continuous circular groove 5.

The bead is spaced from the flange 3, preferably a distance substantially slightly less than the thickness of the material of the wall of the container in which the cap is disposed as shown. In this manner, the material about the edge of the opening in the container is effectively clamped between the flange 3 and the bead 4.

The bead and groove 5 may be continuous about the wall of the cap or may comprise one or more spaced projections and recesses. It is preferred to use a continuous groove and bead in order to make certain that an effective clamping will be procured and also to permit the cap to be opened by insertion of a finger or tool at any point, as will now be described. The groove 5 is disposed sufficiently close to the mouth of the cap or the top of the container as to permit a finger to be inserted within the cap with the finger nail engaging in the groove, whereby the cap may be levered upon the flange 3 against the action of the bead 4. Instead of the finger, any suitable tool may be employed.

It is to be observed that the cap is preferably slightly tapered toward its closed end and the wall of the cap adjacent the

closed end is corrugated or indented as shown at 6.

The purpose of these indentations is to reduce the area of frictional contact of a cap with the edge of the opening as the cap is levered and the lower end thereof moves past the material of the container forming the edge of the opening. In this manner there is no catching of the cap in the opening resulting in bending or distortion of the wall of the container and more important there is no opportunity for tearing of the sealing edge of the container.

When the cap has been removed, the contents may be poured at will, whereupon the cap may be replaced in the opening and the original frictional or clamping contact of the bead 4 and flange 3 will be efficiently resumed. It has been found that the cap according to this invention will effectively seal the opening in the container under most unusual conditions of usage, this being due primarily to the fact that little or no wear occurs upon the edge of the opening or distortion or bending of the container wall.

An additional feature of the invention resides in the fact that the cap can be levered off with a minimum of effort due, as will be appreciated, to its construction and to the reduction of the frictional surface as produced by the corrugated or indented area 6.

This indented or corrugated area may be of varying degrees, but I have indicated a plurality of crimps which may be very easily and cheaply produced. The indentations while shown disposed at the lower end of the cap, may, however, extend the length of the skirt.

Referring to Figure 4 of the drawing, the cap is substantially similar to that shown in Figure 2, with the exception that the flange 7 is in the form of a wire edge, as will be seen from an examination of Figure 5. In some cases this construction is found desirable and by having the rolled edge, the cap swings more easily when levered by means of the finger or a suitable tool.

It will be understood that the cap is adapted to be removed and replaced until the contents of the container are exhausted, it being merely necessary to lever off as described and then snap the cap back in position by forcing the bead past the edge of the opening.

I, moreover, propose to score the cap with one or a plurality of indentations which can be perforated or opened by a suitable punching tool or the conventional ice pick, so that where a single perforation is made a suitable pouring opening can be provided and where a multiplicity of perforations are formed, the cap will be useful as a sifter. In this connection the perforate cap will preferably remain attached to the container, although it is, of course, removable and replaceable in accordance with this invention and as occasion may require.

The present invention is subject to various changes or modifications, all of which are considered to be within the scope of the appended claims.

I claim:

1. The combination with a container having a substantially flat wall provided with an opening, of a hollow outwardly opening cap disposed in said opening, said cap having a relatively broad flange engaging the exposed surface of said flat wall at said opening and an outwardly directed bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in sealing position, the cap being removable from said container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead.

2. The combination with a container having a substantially flat wall provided with an opening, of a hollow outwardly opening cap disposed in said opening, said cap having a relatively broad flange engaging the exposed surface of said flat wall at said opening, a bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in sealing position, and indentations in the wall of the cap, the cap being removable from the container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead to bring said indented surface past the edge of the opening, said indented surface presenting a reduced frictional contact between the edge of the opening and the lower end of the cap.

3. The combination with a container of cardboard-like material having a substantially flat wall provided with an opening, of a hollow outwardly opening cap of resilient material disposed in said opening, said cap having a relatively broad flange engaging the exposed surface of said flat wall at said opening and an outwardly directed bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in sealing position, the cap being removable from said container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead.

4. The combination with a container having a substantially flat wall provided with an opening, of a hollow outwardly opening cap disposed in said opening, said cap having a relatively broad flange engaging the exposed surface of said flat wall at said opening, a bead engaging material of the container about the edge of the opening and the

opposed under surface of said wall to clamp the cap in sealing position, and forming a groove in the interior wall of the cap to receive a cap removing means, the cap being removable from said container by the insertion of a finger or similar means in the hollow of the cap in engagement with said groove and levering upon said flange against the action of said bead.

5. The combination with a container having a substantially flat wall provided with a circular opening, of a hollow outwardly opening cylindrical cap disposed in said opening, said cap having a relatively broad circular flange engaging the exposed surface of said flat wall at said opening and an outwardly directed circular bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in sealing position, the cap being removable from said container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead.

6. The combination with a container having a substantially flat wall provided with a circular opening, of a hollow outwardly opening cylindrical cap disposed in said opening, said cap having a relatively broad circular flange engaging the exposed surface of said flat wall at said opening, a circular bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in position, and indentations in the wall of the cap at the lower end thereof, the cap being removable from the container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead to bring said indented surface past the edge of the opening, said indented surface presenting a reduced frictional contact between the edge of the opening and the lower end of the cap.

7. The combination with a container having one wall thereof provided with an opening, of a hollow outwardly opening cap therein, said cap having a flange engaging the exposed surface of said wall at said opening and having an outwardly directed bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in position, and indentations formed in the wall of the cap normally disposed interiorly of the container, the cap being removable from said container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead, whereby the indented area of the cap will present a reduced frictional surface as the cap is moved past the edge of said opening.

8. The combination with a container having one wall thereof provided with an opening, of a hollow outwardly opening cap therein, said cap having a flange comprising a rolled edge engaging the exposed surface of said wall at said opening and having an outwardly directed bead engaging material of the container about the edge of the opening and the opposed under surface of said wall to clamp the cap in position, and indentations formed in the wall of the cap normally disposed interiorly of the container, the cap being removable from said container by insertion of a finger or similar means in the hollow of the cap and levering upon said flange against the action of said bead, whereby the indented area of the cap will present a reduced frictional surface as the cap is moved past the edge of said opening.

In testimony whereof I have hereunto set my hand.

LEONARD OLT.