

Dec. 24, 1968

C. L. JOHNSON

3,417,897

HINGED OVERCAP

Filed Dec. 29, 1967

Fig. 1

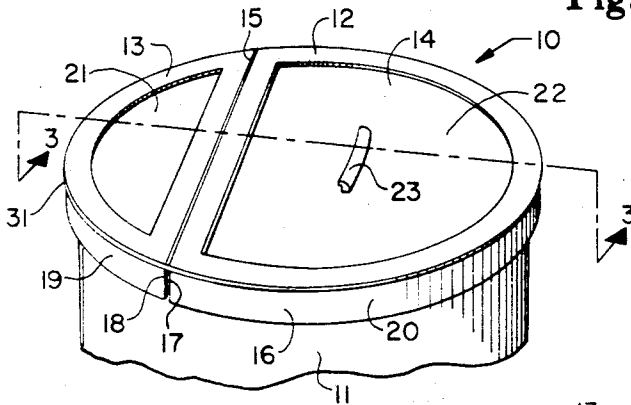


Fig. 2

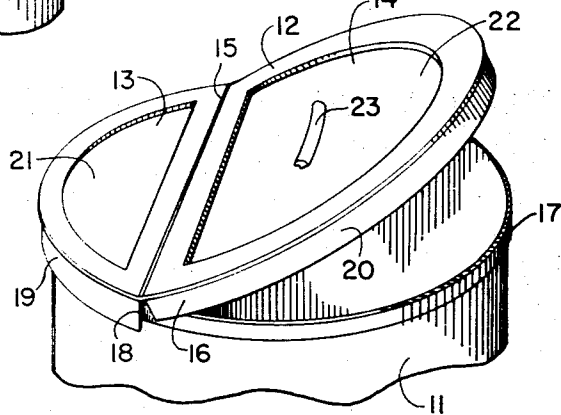


Fig. 8

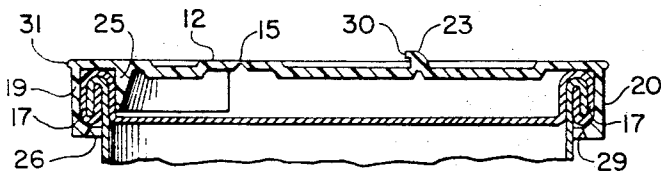
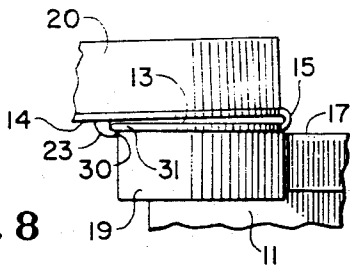


Fig. 3

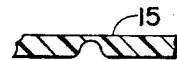


Fig. 6

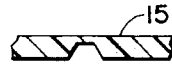


Fig. 7

Fig. 5

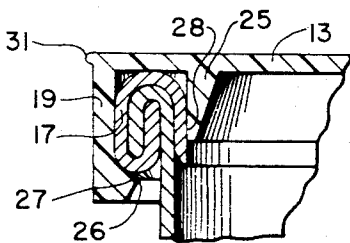
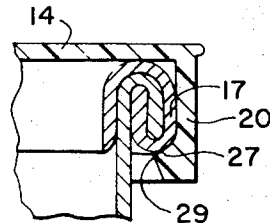


Fig. 4

INVENTOR.

Charles L. Johnson

BY *Fredrick H. Brown*
Arthur J. Morgan
ATTORNEYS

1

2

3,417,897

HINGED OVERCAP

Charles L. Johnson, Deer Park, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

Filed Dec. 29, 1967, Ser. No. 694,579

6 Claims. (Cl. 220—60)

ABSTRACT OF THE DISCLOSURE

A unitary overcap having an integral hinge dividing the overcap into a cover portion and a door portion. The cover portion is adapted to remain stationary with respect to the container to which it is attached by means of a pair of spaced, depending, peripheral skirts which cooperatively grip an outwardly extending peripheral ridge in the sidewall of the container. The door portion is hinged to the cover portion and is movable, permitting access to the interior of a container and subsequent reclosure by means of a single depending peripheral skirt which engages the circumferential bead of the container.

BACKGROUND OF THE INVENTION

This invention relates to a closure, and more particularly to a unitary, hinged overcap wherein an integral hinge divides the overcap into a stationary cover portion and into a movable door portion to provide access to the package and permit easy reclosure.

The construction of containers used for packaging various consumer products such as, for example, plastic shortening and roasted, ground coffee, has recently been changed from a key open can with either an integral, hinged cover, or a separate but replaceable cover, to a so-called sanitary can with a separate, transparent plastic overcap. The present packages have the plastic overcap attached to the can in snap-fitting arrangement. In order to open the cans to permit the utilization of the product therein contained, the user must remove the overcap and then remove the metal top of the sanitary can with a can opener. The metal top is discarded and after withdrawing the desired quantity of product, the plastic overcap is re-applied to provide protection for the product between uses. This package has the advantages of being less expensive and more trouble-free than the former construction utilizing a key and a tear strip. In addition, the transparent plastic overcap permits a visual determination to be made of the quantity of product remaining in the container without the necessity for opening the package. With the former package, which had a metal cover, it was necessary to remove the cover to determine the quantity of product remaining within the can.

In use, the present sanitary can-plastic overcap combination is generally satisfactory but necessitates that two hands be used whenever the plastic overcap is removed or reapplied. The reason for this is that the plastic overcap is adapted to snugly grip and fit over the can chime and in order to remove the overcap or later reapply it, either the can itself must be grasped with one hand while the other is used to remove or reapply the overcap or the overcap itself must be manipulated by using both hands. This is a cumbersome operation and because of the flexibility of the overcap it is possible for it to be inadvertently pushed into the can and into contact with the product therein contained rather than being forced onto the top of the can, thereby causing an unsightly and undesirable accumulation of product thereon. Additionally, because the overcap must be completely removed to gain access to the contents of the package, it is possible to misplace or lose it. It is an object of the present invention

to provide an improved overcap which can be opened or closed with the use of only one hand and which remains partially attached to the container to avoid loss or misplacement.

Summary of the invention

Briefly stated, in accordance with one aspect of the present invention, a unitary, hinged overcap is provided for use with a container having sidewalls and an outwardly extending peripheral ridge. The overcap is initially substantially planar in shape and conforms in cross section with that of the container to which it is applied. An integral hinge is formed in the top wall to divide the overcap into a stationary, cover portion, which remains attached to the container, and a movable, door portion, which is hingedly attached to the cover portion along a common boundary. The door portion has means for releasably attaching it to the ridge of the container. The cover portion has means for constraining that part of the overcap to the ridge, the latter means comprising a first sealing skirt and a second sealing skirt spaced from the first, and skirts being adapted to cooperatively enclose and grip the outwardly extending peripheral ridge of the container.

Brief description of the drawings

FIGURE 1 is a fragmentary perspective view showing the overcap of the present invention applied to a container;

FIGURE 2 is a fragmentary perspective view of the overcap and container of FIGURE 1 wherein the closure is partially opened to permit access to the container;

FIGURE 3 is a fragmentary cross-sectional view taken along the line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary cross-sectional view showing the gripping means for attaching the stationary cover portion of the overcap to a package;

FIGURE 5 is a fragmentary cross-sectional view of the gripping means whereby the movable door portion is attached to the package;

FIGURE 6 is a fragmentary cross-sectional view showing one form of hinge configuration;

FIGURE 7 is a fragmentary cross-sectional view showing another form of hinge configuration; and

FIGURE 8 is a fragmentary side view showing the overcap of the present invention locked in the fully opened condition.

Description of the preferred embodiments

Referring now to the drawings, and particularly to FIGURES 1 and 2, there is shown the unitary hinged overcap 10 of the present invention as applied to a container 11. The container shown is a conventional metallic sanitary can of the type in which plastic shortening or roasted, ground coffee is typically packaged. Necessarily, the overcap shown has a circular cross-section since the container to which it is applied is also of circular cross-section. However, this should not be construed as a limitation on the possible shapes that the overcap of the present invention can take, as overcaps of the present invention can be applied to containers of any cross section, including, for example, those having a rectangular cross section and those having an oval cross section. Furthermore, although the container is disclosed in terms of a metallic can, it is not necessary that that particular construction be employed and containers formed from plastics, paperboard, or the like, such as, for example, plastic cans or fibre-wound cans, can also be utilized.

The overcap 10 is shown in FIGURE 1 applied to container 11 and comprises a generally planar top wall 12 which is divided into a cover portion 13 and a door portion 14, which are hingedly connected by an integral

hinge 15 comprising a section of reduced thickness that extends across top wall 12. The overcap is preferably formed from resilient, plastic materials such as, for example, polypropylene, polyethylene, and the like.

A skirt 16 depends from the periphery of the top wall to permit attachment of the overcap to a container by engaging the skirt with an outwardly extending peripheral ridge 17 (see FIGURE 2) on the container 11, which ridge can be, for example, a conventional can bead. The skirt 16 is split by a discontinuity 18 at the points where the hinge 15 intersects the periphery of top wall 12 so that the two portions of the overcap, i.e., the cover portion 13 and the door portion 14, can be freely moved relative to one another about the hinge, without the restraining effect of a continuous skirt. Thus, the depending skirt 16 is divided into two separate skirts, the first depending skirt 19 on cover portion 13 and the depending skirt 20 on door portion 14. As shown, top wall 12 has a depression 21 formed in the cover portion and a depression 22 formed in the door portion. These depressions are preferably provided to reduce the tendency of top wall 12 to warp, but are not absolutely necessary. Molded into the outer surface of door portion 14 is a restraining clasp 23, which is adapted to hold the overcap 10 in the fully opened position in a manner which will be hereinafter described.

In FIGURE 2, the overcap 10 is shown in a partially open position and shows the relationship of the peripheral ridge 17 to the overcap 10 and to the sidewall of the container 11. Although the overcap of the present invention is shown in the drawing in conjunction with a can having a chime at the end to which the overcap is to be applied, it should be recognized that the invention is not limited to use with cans having chimes, but is broadly applicable to containers which have sidewalls that include an outwardly extending, peripheral ridge.

Overcap 10 is releasably attached to container 11 by ridge-engaging means 26, 29 positioned on the inner surfaces of the depending skirts 19, 20, respectively, as more clearly shown in FIGURE 3. The ridge-engaging means 26, 29 can be a continuous, inwardly facing peripheral projection or bead on each of the skirts 19, 20 and is adapted to overlie the outer and lower portion of the ridge 17. Alternatively, the ridge-engaging means 26, 29 can be a discontinuous projection or a series of individual, spaced, bead-like projections which overlie portions of ridge 17. Preferably, ridge-engaging means 26, 29, whether continuous or discontinuous, are positioned along the complete periphery of each of depending skirts 19, 20 so as to permit substantially uniform contact along the periphery and thus effect a substantially uniform closure between the overcap 10 and container 11.

The cover portion 13 of overcap 10 includes a second depending skirt 25, which is parallel to and spaced inwardly from the first depending skirt 19 and which extends along the non-hinged periphery of cover portion 13. Skirt 25 and skirt 19 cooperatively grip the ridge 17 to securely attach cover portion 13 to container 11. Skirt 25 can be continuous as shown in FIGURE 3, or it can be discontinuous. However, if it is discontinuous, it is preferred that there be a number of locations where the ridge is cooperatively contacted by portions of both first skirt 19 and second skirt 25, to insure tight and uniform gripping action and to preclude unintentional removal of cover portion 13 from container 11.

FIGURE 4 shows an enlarged, fragmentary, cross-sectional view of one form of ridge 17, a can chime, and the first and second depending skirts 19 and 25, respectively, that cooperatively grip it. The can chime shown is of conventional construction and is a standard, double-seamed bead which is well known to those skilled in the art. First depending skirt 19 has a projection 26 which contacts the lower, outer portion 27 of ridge 17, whereby the overcap 10 is attached to container 11. The second skirt 25 is adapted to bear against the vertical portion 28

of the wall forming the inside surface of ridge 17 and in conjunction with the first skirt 19, to substantially surround ridge 17 and cooperatively grip it so that cover portion 13 is firmly yet releasably attached thereto. Preferably, the attachment is such that a moderate degree of force is required to remove cover portion 13 from container 11 in order to preclude inadvertent removal and still permit intentional removal, if desired.

The depending skirts 19, 25 can be the same depth, or they can be of different depths as shown in FIGURE 4. The depth of first skirt 19 is determined by the distance between the lowermost portion of ridge 17 and the uppermost portion of the container 11, while the depth of second skirt 25 is determined by the distance between the uppermost portion of container 11 and the top wall thereof.

The structure of the ridge-engaging means 29 on the door portion of the overcap is shown as a projection in FIGURE 5. Ridge-engaging means 29 can be of the same configuration as projection 26 of the first skirt 19 on cover portion 13, as shown in FIGURE 4. However, it need not be of that specific configuration and can be of any configuration so long as it permits door portion 14 of the overcap to be closed and held in a closed position. Although shown as a continuous projection, ridge-engaging means 29 can be of only limited extent and can comprise a section of relatively short length positioned opposite from hinge 15. Ridge-engaging means 29 can also be discontinuous at spaced positions about the inner surface of the skirt 20. Preferably, however, whether continuous or discontinuous, it encompasses the complete inner surface of skirt 20 so that uniform contact and closure is maintained between overcap 10 and container 11. Since door portion 14 is intended to be opened and closed numerous times, it is preferred that the fit between ridge-engaging means 29 and ridge 17 be sufficiently tight to prevent door portion 14 from inadvertently popping open, yet not be so tight that excessive force is required to open the package.

In the cross section of FIGURE 3, the integral hinge 15 which forms a part of the present invention is shown as a section of reduced thickness comprising a triangular depression on the inner surface of top wall 12. This configuration for the hinge is illustrative only and the configurations in FIGURES 6 and 7 can also be employed. Preferably, the hinge is molded in place for maximum flex life at the joint, but it can be formed by contacting the surface in which the hinge is to be formed with a hot wire to melt and displace a portion of the material to thereby form a section of reduced thickness, or by forming the hinge into an already-formed panel by cutting material therefrom to provide the reduced thickness section. The trapezoidal configuration for the depression on the inner surface of the top wall as shown in FIGURE 7 is preferred since the section having reduced thickness is larger, and thus the tensile and compressive stresses which result when the overcap is opened and the hinge is flexed are less because a larger bend radius is formed with this configuration as compared with the configurations shown in FIGURES 3 and 6. The thickness of the hinge at the point of reduced thickness is preferably from about 20% to about 50% of the thickness of the adjacent panel and can range from about 0.008 inch to about 0.018 inch, depending upon the ease of closing and opening desired.

The overcap can be locked in a fully opened position by engaging lip 30 of restraining clasp 23 to outer peripheral bead 31 positioned along the upper peripheral surface of the outer skirt as shown in FIGURE 8. Restraining clasp 23 is positioned on the upper surface of door portion 14, and lip 30 thereof is spaced from hinge 15 a distance corresponding to the distance between outer peripheral bead 31 on cover portion 13 and hinge 15 so that when door portion 14 is opened to its maximum extent and the upper surfaces of door portion 14 and cover portion 13 are substantially in contact with each other,

lip 30 formed in clasp 23 engages with outer peripheral bead 31 positioned on the upper and outermost section of the first depending skirt 19 of cover portion 13. The peripheral extent of bead 31 can be such that it extends around the entire outer periphery of cover portion 13, or it can be of limited extent and positioned diagonally opposite the clasp 23.

The overcap of the present invention can be formed by utilizing known molding techniques for resilient, thermoplastic materials. Preferably, it is injection molded so that relatively close tolerances can be maintained to insure proper fit between the overcap and its associated container. If desired, however, it also can be formed using thermoforming or compression molding techniques. If it is thermoformed, it will be necessary to make the hinge in the overcap after it is formed, since in thermoforming the entire top wall will have a uniform thickness and in order for the hinge to operate properly it must have a section of reduced thickness.

It can thus be seen that the overcap of the present invention provides a significant improvement over a plain flat cover lid in that it permits reclosure and opening of the container with only one hand. Furthermore, since the overcap is relatively permanently attached to the container, it is less likely to be inadvertently misplaced or lost. Additionally, since the former plastic overcaps had to be completely removed from the container and subsequently reapplied, it frequently happened that the closure was inadvertently pushed into the interior of the container in the course of being reapplied and thus contacted the product. This results in a messy and undesirable condition which the present invention eliminates.

While particular embodiments of the invention have been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention, and it is intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed is:

1. A hinged overcap for a container having sidewalls including an outwardly-extending peripheral ridge, said overcap being of unitary construction and formed from a substantially flexible material comprising:

- (a) a top wall having an outline corresponding in shape to the cross section of the opening of the con-

tainer to which the closure is to be applied, said top wall having an integral hinge of reduced thickness formed therein to divide said closure into a stationary cover portion and a movable door portion hingedly attached thereto along a common boundary;

- (b) a first skirt depending from the periphery of said top wall and adapted to overlie at least a part of the sides of said container, said first skirt being discontinuous at the points where said hinge intersects the periphery of said top wall and having ridge-engaging means on its inner surface, said ridge-engaging means being spaced from the inner surface of said top wall; and
- (c) a second skirt depending from said top wall, said second skirt extending along the non-hinged periphery of said cover portion of said top wall and disposed parallel to said first sidewall and spaced therefrom a distance corresponding to the lateral thickness of said ridge.

2. The closure of claim 1 wherein said cover portion has an external peripheral bead opposite said hinge and said door portion has an integral restraining clasp with a lip adapted to overlie said external peripheral bead, whereby to permit said closure to be restrained in a fully open position by the cooperative engagement of said clasp and said external peripheral bead.

3. The closure of claim 2 wherein the ridge-engaging means of said first skirt is discontinuous.

4. The closure of claim 3 wherein said second skirt has a smaller depth than said first skirt.

5. The closure of claim 4 wherein said second skirt is discontinuous.

6. The closure of claim 5 wherein said stationary cover portion comprises a minor portion of said top wall.

References Cited

UNITED STATES PATENTS

3,167,104	1/1965	Wiley et al.	220—31 XR
3,322,299	5/1967	Foster	220—60

THERON E. CONDON, *Primary Examiner*.

G. T. HALL, *Assistant Examiner*.

U.S. Cl. X.R.

220—29, 31