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HINGED PLUG-COVER FOR CONTAINERS

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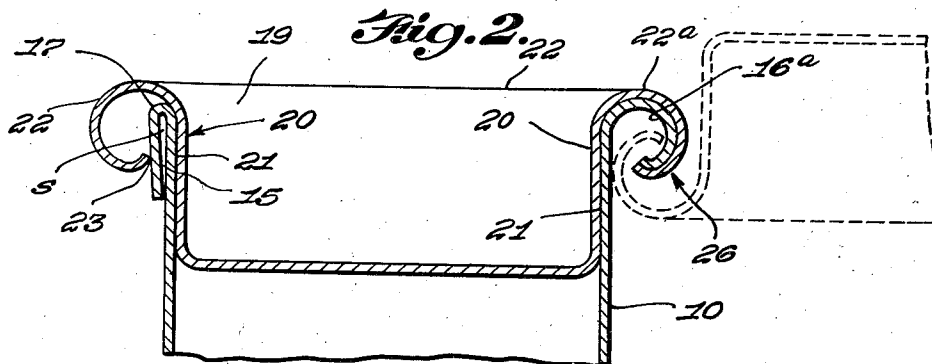
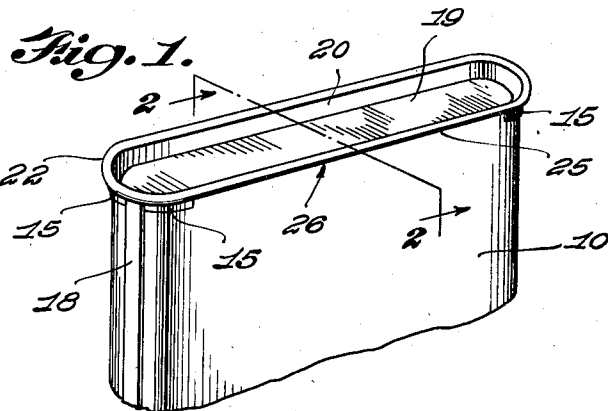
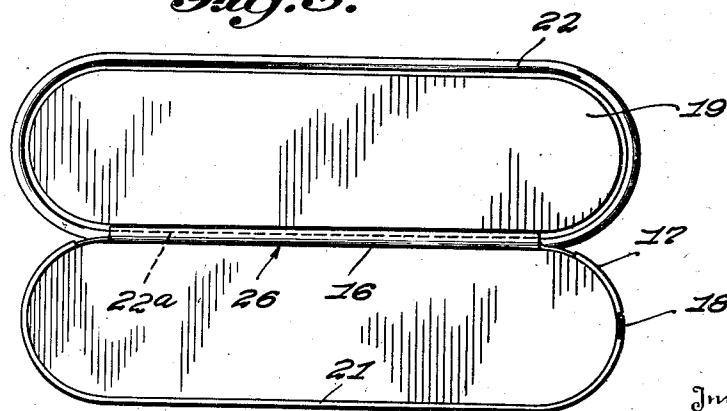
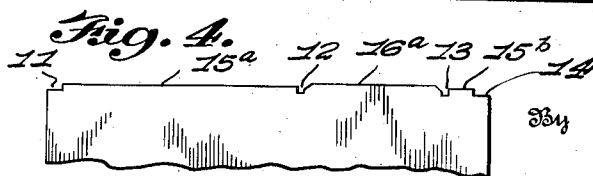


Fig. 3.



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HINGED PLUG-COVER FOR CONTAINERS

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6 Claims. (Cl. 220—31)

The present invention relates in general to can closures and in particular to a can closure of the plug-cover type.

The hinging of a plug-cover capable of being freely and widely opened with a hinge support situated directly at the edge of the opening has long been considered practically unattainable without recourse to elaborate construction and multiple parts.

Another desideratum in the art has been that of a solution of the problem of applying a plug-cover to a can having a completely open end to which the side walls of the can extend to form the rim of the opening so that the opening is co-extensive with the cross-sectional area of the can.

Heretofore it has been considered one of the essential features in the use of plug-covers for cans to provide a flat wall portion of the body of the can itself with an opening having an inwardly extending side, friction-wall or rim to receive the plug-cover, the portion of the apertured wall between the opening and the sides of the can forming a reinforcing ledge or flange for the rim of the opening. This flange was considered necessary to act as a reinforcement to offset a tendency to expansion by the wedging effect of the plug-cover. However, this ledge or flange offers an obstruction to the pouring out of the contents from the can when such contents are material such as tobacco, spices, cocoa or viscous liquids, and hinders a free removal of all of the contents from the can.

The main object of the invention, therefore, is to provide a simple construction which makes possible the application of a plug-cover to an open-ended sheet metal can with all of its attending advantages for hermetically sealing and being permanently attached to the can while at the same time preventing the distortion of the can out of shape and permitting the contents to be poured out without hindering obstructions.

Another object is the provision of a hinged plug-cover construction in which the hinged joint is situated in close proximity to adjacent edges of the opening and the cover.

Another object of the invention is the provision of a novel structure whereby a reinforcing bead at the rim of the plug-cover forms with the side wall of the cover a re-entrant groove for reception of the rim of the opening.

A further object is the provision of a construction whereby a hinged joint may be established between adjacent marginal portions of an opening and a plug-cover therefor, in which the side

walls of the plug-cover and a rolled bead—extending continuously around the outer edge of the cover—receive between them the edges of an outwardly projecting wall surrounding the opening to be covered and without the hinge interfering with the continuity of the seal thus formed.

A further object is the provision of a hinged joint of the intercurled nested spiral type applicable to one of the straight sides of a closure opening of containers enabling a free and full opening of a plug-type cover without binding or distortion of the hinge joint.

Various other objects and advantages of the invention will be apparent from the specification and the drawing accompanying the same.

In the drawing

Figure 1 is a fragmentary perspective view of the top portion of a pocket tobacco can embodying the invention;

Figure 2 is a fragmentary vertical sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a top plan view of the can with the cover opened and on an enlarged scale; and

Figure 4 is a fragmentary view on a reduced scale showing the form of the blank at the open end of the can.

Referring to the drawing more in detail, the invention is here shown as applied to a sheet metal can of flat oval section such as is commonly used as a pocket size tobacco container, but it will be understood that it is applicable to any can having an open end to which the side walls extend to form the rim of the opening, or to any other form of can in which an upstanding rim or side wall forms the rim of the opening whether or not the area of the opening is co-extensive with the cross-sectional area of the can. However, as pointed out above, an important object of the invention is the application of a plug type cover to an open-ended can in which the opening is co-extensive with the cross-sectional area of the can, thus affording an opening of the entire end of the can without obstruction to the pouring out of its contents, a feature which finds particular utility in the flat, pocket type tobacco can, as well as in containers for other commodities.

To provide for the application to the can of my improved plug cover, the blank from which the can body 10 is formed, is notched at its upper end, that is at the end which is to become the open end of the can, as indicated in Figure 4 at the points 11, 12, 13 and 14 to divide the upper margin into rim, flap portions 15a, 16a and 15b

which are to form the rim structure of the open end of the can. The body 10 of the can is formed by bending the blank into a flat tubular form of oval cross-section, as shown in Figure 1, with the side edges of the blank formed into the rolled seam 18, the rim flap portions 15a and 15b having previously been bent down over the outer surface of the can body to provide a reinforced hemmed rim 15 with a rounded lip 17 for the open end of the can, the side notches 11 and 14 clearing the blank of the reinforcing material at the end of the seam so as to permit the seam to be freely formed and avoid undue thickening of the rim at the point of termination of the seam.

The plug cover 19, as is usual, is shaped like a shallow pan with side walls 20 for frictional engagement with the marginal edge side wall 21 at the open end of the can, and in addition is provided with a reinforcing rolled curl 22 partly open near the bottom at 23 to form with the side wall 20 of the cover a downwardly facing channel adapted to receive the reinforced hemmed rim 15 of the body of the can, as shown in Figure 2. This cooperative relation between the cover and the hemmed rim of the can exists around the entire open end of the can except for the straight portion at the back of the can occupied by the hinge flap portion 16a where a corresponding straight section 22a of the reinforcing curl 22 of the cover and the hinge-flap portion 16a of the body of the can are loosely curled together to form an interlocking nested-flanged hinge member 26. The term loosely rolled is here used to distinguish from the type of rolling utilized to form a rigid joint or rolled seam and is to be understood to indicate a rolling of the parts into a sufficient closeness to prevent undue lost motion while permitting a free relative rotary movement of the parts from the full to the dotted line positions shown in Figure 2. It is also to be understood that in Figure 2 the clearance between the hinge elements is somewhat exaggerated for the sake of clearness in showing the structure, but that in practice these clearances are made a minimum consistent with ease in operation of the hinge.

To enhance the sealing effect of the joint between the cover 19 and the hemmed rim 15 of the can, the reinforcing curl 22 of the cover is rolled into spring contact with the outer surface of the hemmed rim 15 formed by the flaps 15a and 15b of the blank. The front portion of the hemmed rim 15 is preferably lapped so as to leave a slight space s between it and the body of the can to create a slight spring snap pressure between said rim and the curled edge 22 of the cover and, further, permitting the can to be readily opened by pressure against this curl 22 to release the frictional engagement between the open edge 23 of the curl 22 and the front face of the hemmed rim 15 of the can. While the sides of the plug cover, here shown, are substantially parallel, it is preferable to give them a slight taper so as to afford a slight wedging effect in the fitting of the cover into the can opening, thus insuring a tight frictional fit all around the opening between the outer side walls of the cover and the inner side walls of the rim of the opening. Because the curled portions 22 and 22a and the side wall 20 are continuous around the outer rim of the cover, the part 22 and 20 effect an overlapping of the lip edge 17 on both sides of the hemmed rim 15 of the can opening while the parts 22a and 20 of the cover continue said on-lapping contact with the hinge-flap 16a and the marginal inner

side wall 21 of the can, thus hermetically sealing the can, when the cover is closed, continuously around the whole rim. It will be noted that, because of the entrance of the rim edge of the can into the continuous groove formed between the side wall 20 of the cover and the open end 23 of the curl and hinge flap member 22a of the cover, there is no necessity for additional strengthening means for resisting the outward pressure of the cover such as heretofore has been required in the absence of an overlapping of the rim by a reinforcing bead.

As will be clear from Figure 3, the continuity of the cover reinforcing curl 22 and 22a is not broken by the entrance of the body-hinge-flap 16a thereinto because of the fact that they are rolled together as interlocked curls, the body hinge-flap 16a extending only along a straight portion of the body and entering only the straight portion 22a of the reinforcing curl of the cover. In the present showing, these straight portions (16a and 22a) end near the points of tangency of the straight side of the box with the curved end portions thereof. It will be clear that the transition from a straight extension to a curved extension at the ends of the straight edge of the cover curl—where entered by the body flap 16a—prevent relative axial movement between the hinge flap 16a and the cover curl 22a. By providing the notches 12 and 13 (Figure 4) at the ends of the body flap 16a so as to extend along a portion of the curved ends of the can near the ends of the hinge as shown in Figure 3, with the bevelling of the corners of the flap 16a, it has been found to insure a free and wide opening of the lid, permitting it to swing through substantially 180°. By providing the notches 11 and 14 at the end of the rolled seam 18, overlapping material is here avoided, with the result that the thickness of this part of the rim is rendered approximately that of the seam 18. Thus, the rim portion of the can which enters the recess around the periphery of the plug-cover lid is maintained substantially uniform which makes for effectiveness in the seal between the rim and the lid. It will be clear that with the parts thus constructed the rolled curl 22 of the cover and the outer hinge element 22a form with the side walls 20 of the plug cover a continuous sealing channel inclosing the rim of the open end of the can.

The construction above described permits the application of a tight sealing plug cover to a can having an opening of an area co-extensive with the cross-sectional area of the can whereby the can may be readily emptied due to the absence of re-entrant or radially inwardly extending flanges heretofore considered essential for the use of a plug cover.

It will be understood that the invention is not limited in its application to a can of the particular shape shown, but may be applied to a can of any cross-sectional contour which includes a straight section such as the straight rear section of the present embodiment, the requirement being simply that the cross-sectional contour be such as to afford a pair of adjacent straight sections along the margins of the opening and the lid along which may be provided a cover bead and body flap to be rolled together into the curled flange, hinge structure.

It has also been found that the notches 12 and 13 may be eliminated and still produce a satisfactory cover, provided, of course, that the flap portion 16a is provided either as an extension or by simple slits in place of the notches 12 and 13.

While one particular embodiment of the invention has herein been shown and described for the sake of disclosure it is to be understood that the invention is not limited to such specific embodiment but contemplates all such modifications and variations thereof as fall fairly within the scope of the appended claims.

What is claimed is:

1. A can having an opening, a wall extending around the opening, a plug-cover for the opening having a rolled bead extending continuously around the top outer edge of the plug-cover and overlapping the outer surface of the side wall of the plug-cover to form a closure-sealing channel between the bead and said outer surface to receive the edge of the wall surrounding the opening, and a flange extending from the edge of the wall of the opening, a portion of the rolled bead containing said flange loosely rolled therein to form a hinge joint.

2. A can having an opening, a body flange carried on the can extending along a straight side of the opening, a plug-cover adapted to fit into the opening in sealing engagement therewith, and a rolled bead carried by the cover extending continuously around the top outer edge of the cover and overlapping the outer surface of the plug-cover to contact with and buttress the rim of the can opening against the expanding force of the plug-cover, a continuing, uninterrupted portion of said bead extending along a straight portion of the open edge of the cover and containing loosely rolled therewithin said body flange, to form a hinged joint substantially at the edge of the can opening.

3. A can having a solid side wall terminating at an open end rim, a plug-cover having a side wall arranged to wedge into the open end in continuous sealing engagement with the inner surface of the side wall of the can, a portion of the outer edge of the side wall of the cover and a portion of the open rim of the can being rolled loosely together to form an intercurled hinge member, substantially the entire remaining portion of the outer edge of the side wall of the cover being provided with an open curl portion for overlapping spring contact with substantially the entire outer rim portion of the can remaining from the portion rolled with the cover side wall, whereby the contact between the hinge parts and between the cover and the can merge into one continuous line of contact.

4. In a can having an opening, a wall of sheet material surrounding the opening, front and side marginal portions of said surrounding wall being overlapped outwardly upon itself to form a hemmed rim portion at the opening with a substantially flat outer surface and a rounded edge

or lip, a plug-cover of sheet material having a side wall adapted to fit within the said surrounding wall to form a closure seal for the opening, the edge of the side wall of the cover being provided with a rolled bead extending continuously therearound and bearing against said flat outer surface of the said hemmed rim portion along substantially the entire peripheral length of the latter, a rear marginal portion of the wall surrounding the can opening being loosely rolled into the bead at the back edge of the plug-cover to form a hinged joint within an uninterrupted continuation of the bead of said cover and having its axis substantially in the plane of the rim of the can opening and the rim of the plug cover, substantially the entire front portion of the hemmed rim being lapped to leave a space between it and the body of the can to permit resiliently opposed inward movement of the front surface of the rim of the can relative to the inner surface.

5. A can as claimed in claim 2 in which the straight side of the opening joins the remainder of the sides of the opening through a curved portion, and the said remainder of the sides of the opening is provided with an outwardly turned second flange spaced from the ends of the first flange along a substantial portion of the said curved portion whereby the cover may be swung open to a full 180 degree angle without interference between the continuous cover-bead and the second body flange along the curved portion adjacent the ends of the first body flange.

6. In a can having an opening, a wall of sheet material surrounding the opening, front and side marginal portions of said surrounding wall being overlapped outwardly upon itself to form a hemmed rim portion at the opening with a substantially flat outer surface and a rounded edge or lip, a plug-cover of sheet material having a side wall adapted to fit within the said surrounding wall to form a closure seal for the opening, the edge of the side wall of the cover being provided with a rolled bead extending continuously therearound and bearing against said flat outer surface of the said hemmed rim portion along substantially the entire peripheral length of the latter, a rear marginal portion of the wall surrounding the can opening being loosely rolled into the bead at the back edge of the plug-cover to form a hinged joint within an uninterrupted continuation of the bead of said cover and having its axis substantially in the plane of the rim of the can opening and the rim of the plug-cover.

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