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2,960,255

POLYGONAL FOIL CONTAINER

Filed Jan. 22, 1959

2 Sheets-Sheet 1

Fig. 2.

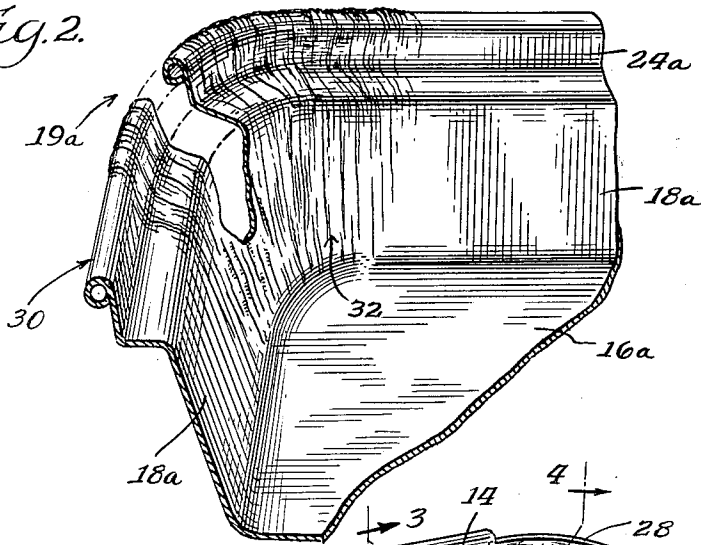


Fig. 1.

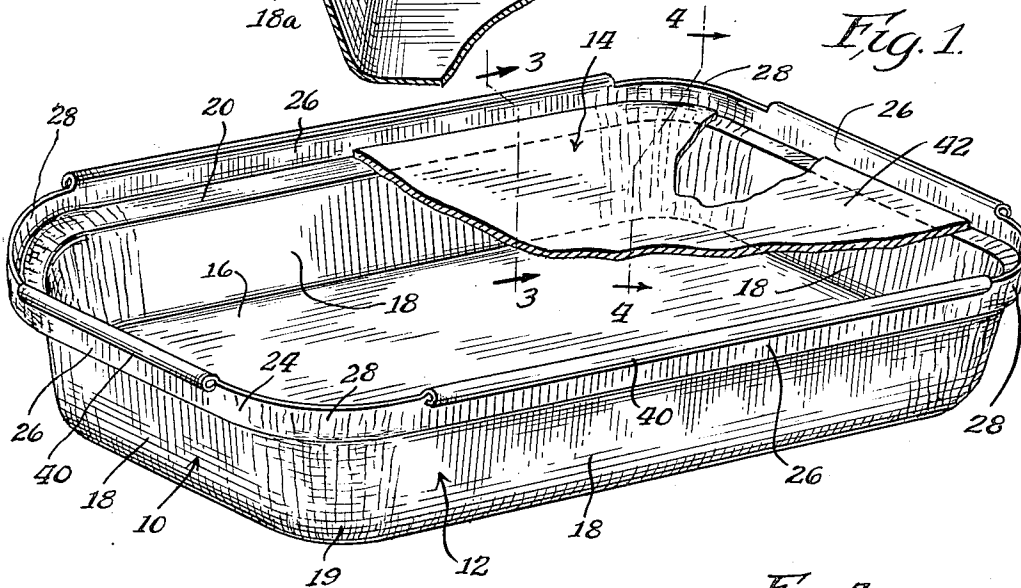


Fig. 3.

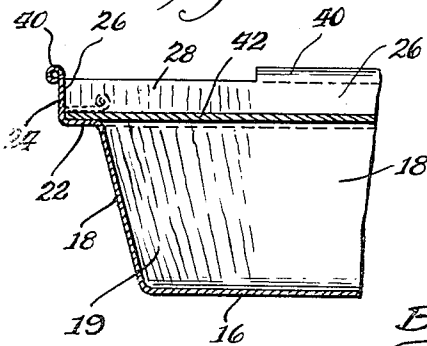
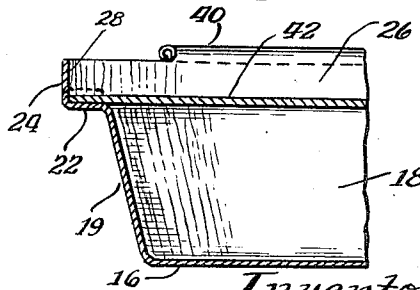


Fig. 4.



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POLYGONAL FOIL CONTAINER

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2 Claims. (Cl. 220—67)

This invention relates to foil containers, and more particularly, to an improved arrangement for food packaging units of rectangular and other polygonal configurations.

Food packaging units of the type to which the invention relates conventionally comprise a foil container closed by a cardboard cover or closure member. Such units serve as a utensil in which food may be frozen or baked and also a protective package in which the contents may be delivered and stored.

The foil containers conventionally employed in devices of this type are customarily provided with an internal shoulder about the food receiving portion thereof on which the cover rests, and a securing flange or lip that extends from the outer edge of the shoulder and is bent over against the cover to secure it to the container.

The container securing flange or lip, regardless of the shape of the container, heretofore has been a straight vertical flange or wall which, during the closing operation, is deflected downwardly and inwardly by appropriately shaped dies to trap the rim of the cover between the horizontal ledge provided by the internal shoulder and the said flange or lip.

More recently, containers of this type have employed a curl or bead about the edge of the securing flange or lip to eliminate the raw edge inherent in the conventional straight flange or lip. The curl or bead is also designed to make the top of the container more attractive aesthetically and to improve the strength of the container. Since these containers are made from light foil material, no difficulty is presented in forming a curl or bead in the edge of the securing flange or lip, even in polygonal containers having corners struck on a small radius.

Nevertheless, the curl or bead when applied to rectangular, square, and other polygonal shaped containers has proved to be generally unsatisfactory. During closure of the securing flange or lip, the foil material tends to gather in the corners of the container, and this gathering action is sharply accentuated in the curl or bead; this is due to the fact that the length of the bead or curl across the corner must necessarily be reduced as the flange or lip is deflected downwardly and inwardly toward the container cover. The result is that severe buckling occurs in the corner, which not only presents an irregular and aesthetically unattractive appearance, but also makes the flange or lip difficult to open and reclose due to the relative stiffness of the gathered foil material at the corners.

A principal object of this invention is to provide a

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polygonal foil container that is constructed and arranged to overcome this difficulty, whereby the benefit of the securing flange curl or bead is made practical for such containers.

5 A further principal object of the invention is to provide a polygonal foil container which provides equal ease of opening at the straight sides and rounded corners, which eliminates the dangerous raw edge inherent in straight securing flanges or lips, and which permits easy and efficient reclosure.

10 Another principal object of the invention is to provide a foil container package in which provision is made for substantially increasing the wall rigidity of the container that is effective both prior to and after filling with the food product.

15 Still another principal object of the invention is to provide a foil container having a substantially improved closure action between the cover and the container about the entire rim of the cover.

20 Other objects, uses and advantages will be obvious or become apparent from a consideration of the following detailed description and the application drawings.

In the drawings:

Figure 1 is a diagrammatic perspective view illustrating a food packaging unit in which the principles of this invention are employed, parts being broken away to facilitate illustration;

Figure 2 is a fragmental diagrammatic perspective view of a conventional polygonal foil container, illustrating one corner thereof;

Figure 3 is a diagrammatic cross-sectional view along line 3—3 of Figure 1, showing in dashed lines the closed position of the container securing flange or lip;

Figure 4 is a diagrammatic cross-sectional view along line 4—4, showing in dashed lines the closed position of the container securing flange or lip at the corner of the container;

Figure 5 is a diagrammatic perspective view showing the food packaging unit of Figure 1 with the container securing flange deflected against the cover of the unit and indented in accordance with this invention to effect an improved locking action between the container and its cover;

Figure 6 is a fragmental plan view of the conventional container corner shown in Figure 2 after the securing flange or lip thereof has been deflected against the container cover;

Figure 7 is a view similar to Figure 2, but showing the conventional container corner as it ordinarily appears upon attempted reclosure of the conventional container, although it has been found that reclosure of such containers at their corners is rarely attempted; and

Figure 8 is a fragmental sectional view through the rim of the container shown in Figure 5, at a point along a rectilinear side thereof.

55 The packaging unit 10 of Figure 1 generally comprises a container 12 formed from a thin metallic foil material, such as aluminum foil, having a thickness in the range of .002 inch to .010 inch, and a cover member or closure 14 applied to the container 12 to protect the contents thereof.

60 Figure 1 illustrates the packaging unit 10 prior to the closing operation that secures cover 14 in place, while Figure 5 illustrates the fully assembled unit as it appears

when serving as, for instance, a protective package for some food product.

Generally speaking, the container 12 is formed in any conventional manner to provide the general shape illustrated in Figure 1, which includes a bottom wall 16 merging into straight side walls 18 that extend upwardly from the marginal edge of the bottom wall. The side walls merge into rounded corners 19 that integrally connect adjacent side walls 18 together. The side walls 18 and corners 19 merge into an internal circumambient shoulder 20 on which the closure or cover member 14 rests; shoulder 20 comprises a laterally extending ledge 22 which merges into an upstanding securing circumambient flange or lip 24 that rises from the outer marginal edge of the ledge 22.

The flange or lip 24 thus includes rectilinear portions 26 along the rectilinear sides of the container 10 which merge into curvilinear portions 28 that are formed about the corners 19 of the container 10.

As previously mentioned, conventional polygonal containers of this type frequently have included a curl or bead about the edge of the securing flange or lip. This curl or bead is indicated at 30 in Figure 2 illustrating a corner of a conventional polygonal container, which also includes bottom 16a, side walls 18a and securing flange or lip 24a. The bead 30, when employed, customarily has been applied entirely about the periphery or edge of the securing flange or lip 24 including the corners 19a thereof.

It is common knowledge that in foil containers of the type shown in Figure 2, the rectilinear side walls 18a are relatively free from foil creases, but in the formation of the corners 19a, the foil material necessarily folds and creases such as is diagrammatically illustrated at 32. These folds or creases at the corners 19a necessarily extend through the securing flange or lip 24a and its curl or bead 30. Though such creases and folds do not interfere with the formation of the curl or bead 30 about the corner, when the securing flange 24a is to be deflected inwardly against the container cover 14a (see Figure 6), it is obvious that the already present creases and folds of foil material in the bead 30 will greatly accentuate the necessary gathering of the foil material at the corners that is necessary to permit the securing flange or lip to be folded down against the cover at the container corners. Since the bead 30 at the corners 19a must be somehow foreshortened or circumferentially reduced to effect the inward deflection necessary, it is immediately apparent that the corners of such containers when closed will bulge and buckle with consequent unsightliness. Moreover, the further folding and creasing of the foil material will increase the rigidity of the securing flange or lip 24a at the corners 19a to the point where it is difficult to unflex the securing flange or lip at the container corners.

Consequently, initial closure of the securing flange or lip at the corners is barely possible, the container corners then having an appearance somewhat as suggested by Figure 6. Likewise, it is difficult to flex the said corners on opening the container, and on reclosure, the corners are usually left in the open position because their rigidity defies bending by hand; the unaesthetic appearance and ineffective closure action resulting is well known to those familiar with containers of this type.

In accordance with this invention, a curl or bead 40 is applied to the vertical edge of the rectilinear portions 26 of the securing flange or lip, while the curvilinear portions 28 of said vertical flange or lip remain straight, as seen in Figure 4. Thus, when the flange or lip 24 is deflected downwardly against the container cover 14, both the rectilinear portions 26 and curvilinear portions 28 will lie flat against the cover. Of course, some folding and creasing of the foil material occurs in the curvilinear portions 28, but the lightness of the foil material per-

mits these portions of the flange or lip 24 to be pressed comparatively flat.

In accordance with the invention, the container 12 in the form shown in Figure 1 is first filled with the food that it is to contain and then the closure or cover member 14, which ordinarily takes the form of a cardboard cover 42, is placed in engagement with the internal shoulder 20. The container and its cover are then processed to deflect the flange or lip portions 26 and 28 against the cover to the dashed line positions of Figures 3 and 4, the ends of the curls of beads 40 being flattened adjacent corners 19 to insure that sharp raw edges will not be present at the ends of each curl or bead. The flattened bead portions are indicated at 45 in Figure 5, they preferably being on the order of $\frac{1}{8}$ inch in length. This processing contemplates the use of a suitable die that engages the flange or lip portions to flex them into engagement with the cover.

The completed package unit is shown in Figure 5, and is preferably provided with continuous upwardly opening indentation 50 (see Figure 8) thereabout formed by grooves 51, 53 and 55 pressed into the flange or lip 24, the closure member 14 and the ledge 22, respectively, about the entire container (see Figure 5). Indentation 50 is formed after the flange or lip 24 is deflected against the cover, and effects a locking of the cover member in place by reason of the interengaging or interlocking action of grooves 51, 53 and 55.

The flange or lip portions 26 of this invention thus provide a protective curl or bead along the rectilinear sides of the container, which eliminates the straight, thin and sharp or raw edge that would be presented if the curl or bead 40 were omitted. The curl or bead 40 also reinforces the flange or lip portions 26 so that their neat appearance is retained even after reclosing the packaging unit several times.

The straight or beadless portions 28 at the corners of the unit eliminate, on closure of flange or lip 24, the excessive gathering and buckling of the foil material at the container corners, found when the curl or bead extends into the corner flanges. Thus, also eliminated are the consequent unsightly and irregular appearance of such corners as well as the difficulty in opening and closing the flange or lip 24 experienced with curled corners when the packaging unit is to be opened. Since the beadless portions 28 are thickened by the folds and creases naturally occurring at the container corners, the edge presented by beadless portions 28 is thickened sufficiently to be substantially harmless.

Consequently, the securing flange or lip combination of this invention provides equal ease of opening at both the rectilinear sides and corners of the container, regardless of the length of radius on which the corners are struck. Also, the securing flange or lip is readily reclosed at both the rectilinear sides and corners to provide an adequate resealing action when needed.

The rectangular container illustrated in Figures 1 and 5 is merely illustrative of the polygonal container shapes to which this invention is applicable; it should be immediately apparent that the principles of the invention are likewise applicable to containers that are of square, triangular, or other polygonal configuration.

The foregoing description and the drawings are given merely to explain and illustrate my invention and the invention is not to be limited thereto, except insofar as the appended claims are so limited, since those skilled in the art who have my disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.

I claim:

1. In a polygonal container, for food packaging, including a receptacle formed from foil sheet material to define a marginal lip about its open mouth and an internal shoulder at the base of said lip, said receptacle including rectilinear side portions that merge into rounded

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corner portions which integrally connect adjacent side portions together and a cover for the container proportioned to rest upon said shoulder and within the mouth of said receptacle, said lip being flexed inwardly to overlie and abut against the rim of said cover to secure said cover to said receptacle and said lip being finger-manipulable to permit removal of said cover; the improvement for expediting opening of the container wherein the lip along the rectilinear portions thereof is formed with an outwardly curled bead terminating at the rounded corner portions to dispose the sharp edge of the lip outwardly of the finger-contacting portion of said lip on opening said container, with the curvilinear portions of the lip being uncurled, whereby, when said lip is flexed to

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abut against the rim of the container, the curvilinear portions thereof fold neatly against the cover.

2. The container set forth in claim 1 wherein said lip is indented into said cover about the margin of said cover.

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