

Oct. 24, 1967

G. D. LA CROSS

3,348,726

PULL TAB

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FIG. 1

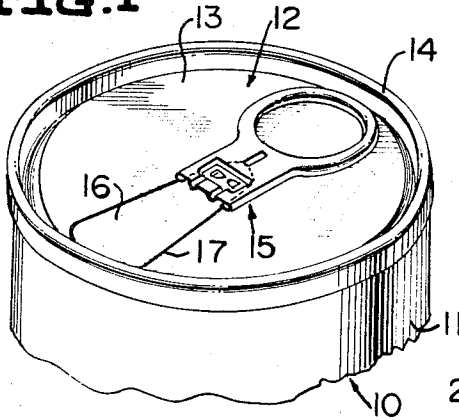


FIG. 4

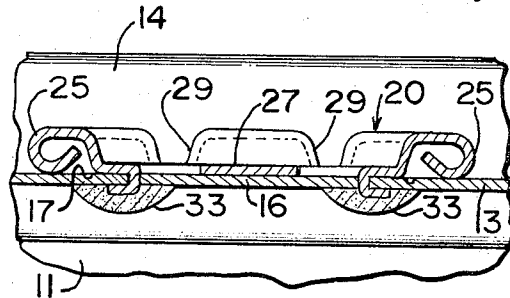


FIG. 2

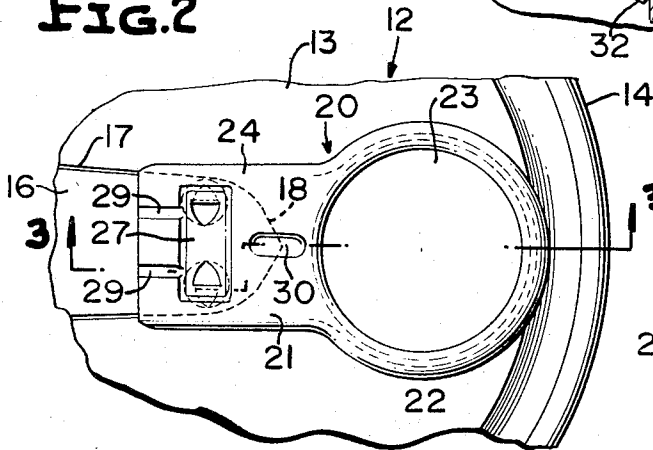


FIG. 5

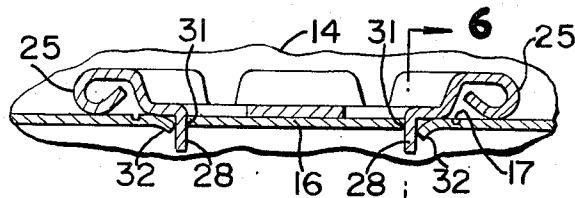


FIG. 6

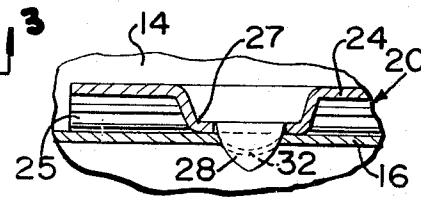
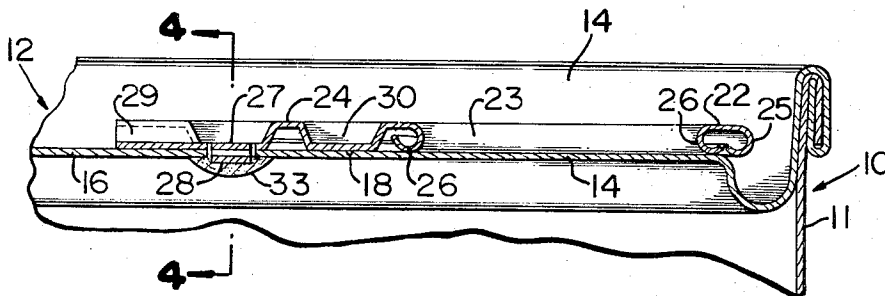


FIG. 3



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PULL TAB

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9 Claims. (Cl. 220—54)

This invention relates in general to new and useful improvements in easy opening containers, and more particularly to a novel pull tab construction.

In order to facilitate the tearing of a tear strip from a container panel in the opening of the container, there is provided a pull tab. The pull tab is normally a separate component which is suitably secured to the tear strip. In most instances, the pull tab is secured to the tear strip by means of a rivet formed integrally with the tear strip. However, the formation of the rivet requires complicated dies and numerous operational steps. Furthermore, extreme care must be taken to assure that the rivet does not crack and leave a rupture in the container when the rivet is being upset to secure the pull tab to the tear strip. In addition, there have been numerous failures of the riveted connections when a container is being opened with the result that the pull tab is torn from the tear strip without the tear strip being torn from the container.

The other generally followed procedure is to provide an aperture in the tear strip and to utilize a plastic pull tab having a plug portion which passes through the aperture and locks behind the tear strip. The deficiency of this connection is that if the plastic pull tab is rotated relative to the tear strip, the seal between the pull tab and the tear strip may be broken.

In accordance with this invention, it is proposed to provide a metal pull tab which is secured to the tear strip by means of nibs which pierce the tear strip and which are sealed relative thereto.

Another object of this invention is to provide a novel pull tab which is formed of sheet metal, but which is so constructed wherein it has the necessary beam strength while at the same time may be readily secured to a tear strip in sealed relation thereto.

Another object of this invention is to provide a novel pull tab and tear strip assembly wherein both the tear strip and the pull tab are formed of metal and the pull tab is provided with a pair of nibs which pierce the tear strip and bend therebeneath, the openings required in the tear strip for the passage of the nibs being sealed by completely encasing each nib in a covering of sealing compound.

Another object of this invention is to provide a novel tear strip pull tab assembly wherein the pull tab is formed of sheet metal and has a pair of depending nibs, and the tear strip has narrow slits for receiving the nibs, the metal of the tear strip adjacent each slit being slightly deformed to facilitate the passage of a nib therethrough, and the metal being returned to its normal position during the folding over of the nib beneath the tear strip with the metal, when it returns to its original position, tightly clamping and forming interlock with the nib.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing.

In the drawing:

FIGURE 1 is a fragmentary top perspective view of a can incorporating the pull tab and tear strip assembly of this invention.

FIGURE 2 is an enlarged fragmentary plan view of the can of FIGURE 1.

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FIGURE 3 is an enlarged fragmentary transverse vertical sectional view taken along the line 3—3 of FIGURE 2.

FIGURE 4 is an enlarged fragmentary vertical sectional view taken along the line 4—4 of FIGURE 3.

FIGURE 5 is an enlarged fragmentary vertical sectional view similar to FIGURE 4 showing the nibs prior to their bending over beneath the tear strip.

FIGURE 6 is an enlarged fragmentary vertical sectional view taken along the line 6—6 of FIGURE 5.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a can which is generally referred to by the numeral 10. The can 10 includes the conventional can body 11 which has the upper end thereof closed by a can end which is generally referred to by the numeral 12. The can end 12 is formed partially in a conventional manner in that it includes a recessed end panel 13 and is secured to the can body 11 by means of a conventional double seam. The can end 12 is of the easy opening type and includes a tear strip and pull tab assembly in accordance with this invention, the assembly being generally referred to by the numeral 15.

The pull tab and tear strip assembly 15 includes a tear strip 16 which is formed integrally with and of the metal of the end panel 13. The tear strip 16 is defined by a peripheral score line 17. As is best shown in FIGURE 2, the score line 17 at the radially inner end thereof includes a pointed starter portion which is referred to by the numeral 18. The radially inner end of the tear strip 16 is generally considered the starting end and has secured thereto a pull tab which is formed in accordance with this invention and is generally referred to by the numeral 20. The pull tab 20 is formed of sheet metal and generally includes a body portion 21 and a pull ring portion 22. The pull ring portion 22 defines a finger receiving opening 23 which is of a sufficient size to readily receive one's finger to facilitate the gripping thereof.

The body portion 21 of the pull tab 20 is of a generally channel cross section and includes a web 24 which is disposed uppermost. Along the opposite side of the web 24, the metal of the body portion 21 is downwardly and inwardly curled to define opposite edge reinforcements 25, as is best shown in FIGURE 4. The edge reinforcements 25 also extend about the pull ring 22, as is clearly shown in FIGURE 3. At this time it is pointed out that the metal of the pull tab 20 defining the pull ring 22 is also curled about the periphery of the finger receiving opening 23 to define a further reinforcement 26.

That portion of the body portion 21 which overlies the starting end of the tear strip 16 is in the form of a recessed panel 27. The panel 27 extends transversely of the pull tab 20 and is elongated in the transverse direction. The undersurface of the panel 27 lies substantially coplanar with the undersurfaces of the edge reinforcements 25, as is clearly shown in FIGURE 4.

The recessed panel 27 has struck therefrom a pair of nibs 28 from adjacent portions of the panel. Each of the nibs 28 is generally triangular in outlines, as is shown in FIGURE 6.

The pull tab 20 also includes a pair of depressed ribs 29 which extend longitudinally from the recessed panel 27 to the adjacent end of the pull tab 20. A further longitudinally extending rib 30, which is also depressed, is formed in the body portion 21 intermediate the recessed panel 27 and the finger receiving opening 23.

The tear strip 16 is provided with a pair of slits 31 for the reception of nibs 28. The metal of the tear strip 16 immediately adjacent each of the slits 31 is downwardly depressed to form a flange 32. When the flanges 32 are depressed, as shown in FIGURE 5, the slits 31 are of a

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sufficient size to freely receive the nibs 28. However, the width of each slit 31, if the associated flange 32 was in its original plane, is narrower than the thickness of the associated nib 28.

The pull tab 20 is assembled with the tear strip 16 by first aligning the nibs 28 with the slits 31 and forcing the pull tab 20 downwardly until the undersurface of the recessed panel 27 is flush with the upper surface of the tear strip 16 and the nibs 28 have passed through the tear strip 16, as is shown in FIGURE 5.

The nibs 28 are then outwardly folded and clinched beneath the tear strip 16. In the clinching of the nibs 28 beneath the tear strip 16, the flanges 32 are forced back into the original plane of the tear strip 16. When the flanges 32 are forced back into their original plane, the flanges 32 bite into and clampingly engage the nibs 28 in the plane of the tear strip 16. This is clearly shown in FIGURE 4.

After the pull tab 20 has been mechanically secured to the tear strip 16 by the folding and clinching of the nibs 28, the tear strip 16 is sealed by the application to the underside thereof sealing compound as at 33 in FIGURE 4. It is to be noted that the sealing compound 33 completely encases the nibs 28 and assures the complete sealing of the slits 31 formed in the tear strip 16.

It will be readily apparent that the pull tab 20 may be easily applied to the tear strip 16 by automatic mechanism and the tear strip sealed after the application of the pull tab. It will also be apparent that any working of the pull tab 20 which may possibly occur prior to the use thereof in removing the tear strip 16 will not result in the breaking of the seals formed by the sealing compound 33. Also, it will be readily apparent that the nibs 28 will provide a sufficient mechanical connection between the pull tab and the tear strip to assure the proper functioning of the easy opening feature of the can end 12 at all times.

Although only a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor variations may be made in the arrangement of the various components of the pull tab and tear strip assembly of this disclosure without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A pull tab and tear strip assembly comprising a removable tear strip forming an integral part of a container, and a separate pull tab rigidly secured to said tear strip, said pull tab being formed of sheet metal and having a panel portion generally in face-to-face overlying relation to a portion of said tear strip, and a pair of nibs struck from said panel and passing through said tear strip, said nibs being bent over behind said tear strip to securely attach said pull tab to said tear strip.

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2. The assembly of claim 1 wherein said tear strip has slits receiving said nibs, and a sealing compound is disposed on said tear strip sealing said slits around said nibs.

3. The assembly of claim 2 wherein the portion of each nib bent over behind said tear strip is completely encased in said sealing compound.

4. The assembly of claim 1 wherein said nibs are transversely spaced and longitudinally disposed.

5. The assembly of claim 1 wherein said tear strip has preformed slits receiving said nibs and said slits are of a width less than the thickness of said nibs, metal of said tear strip adjacent each slit being displaced in the direction of nib passage through the respective slit and on the side thereof towards which said nib is bent, and the displaced metal having been reformed and tightly gripping each nib within the plane of said tear strip.

6. The assembly of claim 1 wherein said pull tab is longitudinally reinforced against bending and is of a generally channel shape cross section and includes a web and depending edge reinforcing, and said panel portion being depressed below said web and having an under surface disposed substantially coplanar with the under surface of said edge reinforcing.

7. The assembly of claim 6 wherein said web has at least one depressed longitudinal rib formed therein on each side of said panel portion.

8. The assembly of claim 1 wherein said tear strip has preformed slits receiving said nibs and said slits are of a width less than the thickness of said nibs, metal of said tear strip adjacent each slit being displaced in the direction of nib passage through the respective slit and on the side thereof towards which said nib is bent, the displaced metal having been reformed and tightly gripping each nib within the plane of said tear strip, and a sealing compound is disposed on said tear strip sealing said slits around said nibs.

9. The assembly of claim 1 wherein said tear strip has preformed slits receiving said nibs and said slits are of a width less than the thickness of said nibs, metal of said tear strip adjacent each slit being displaced in the direction of nib passage through the respective slit and on the side thereof towards which said nib is bent, the displaced metal having been reformed and tightly gripping each nib within the plane of said tear strip, and the portion of each nib bent over behind said tear strip is completely encased in said sealing compound.

References Cited

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G. T. Hall, *Assistant Examiner*.