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3,501,046

PULL TAB CONFIGURATION

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2 Sheets-Sheet 1

FIG. 1

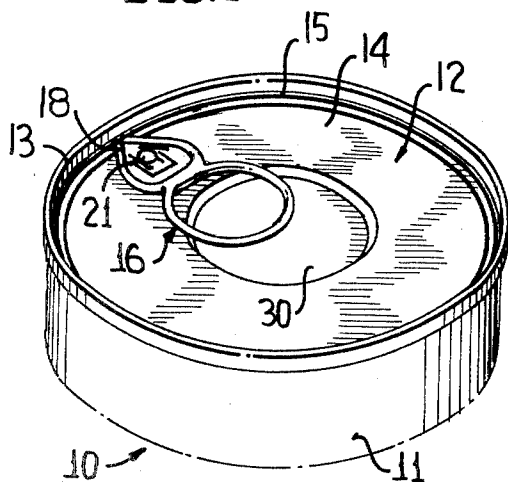


FIG. 2

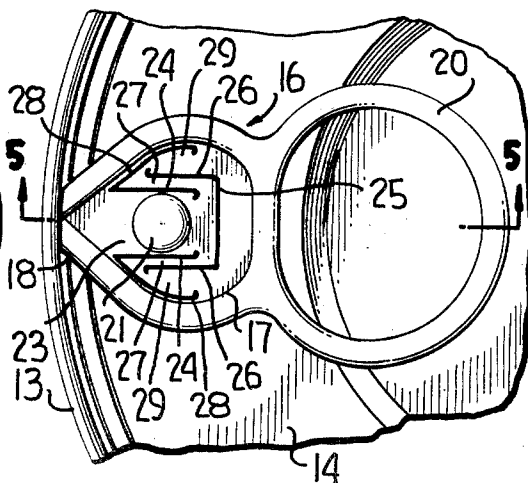


FIG. 3

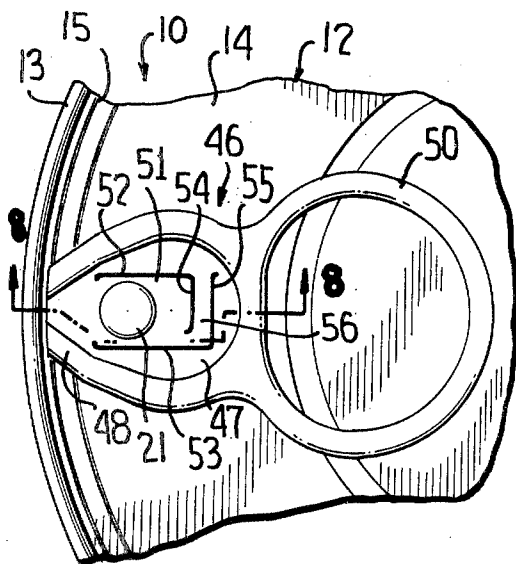
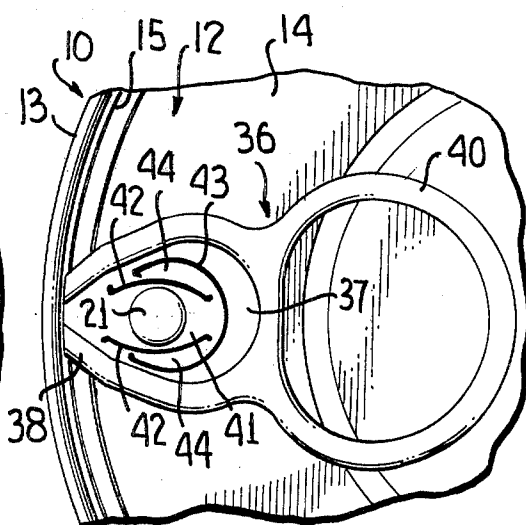


FIG. 4



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PULL TAB CONFIGURATION

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7 Claims

ABSTRACT OF THE DISCLOSURE

This subject relates to a pull tab which is particularly adapted for use with easy opening containers to facilitate the opening thereof. The pull tab includes a securing portion, which is adapted to have a rivet passed therethrough, which is connected to the remainder of the pull tab in hinged relation and by means of connecting strap means whereby a grip portion of the pull tab may be initially lifted with a minimum of force until it reaches an elevated position wherein it may be readily grasped, after which a lifting force will be directed to the securing portion to facilitate the opening of the associated container.

In the manufacture of easy opening containers, there has been a continuous desire to provide a pull tab arrangement which will permit the opening of a container with a minimum of effort. When the container has the easy opening construction formed in the end thereof, much care must be given to the mounting of the pull tab so that the pull tab does not form an obstacle to the securement of the container end to the container body. At the same time, the pull tab cannot project above the outline of the container in any way so as to interfere with either stacking or packaging thereof. As a result, normally a pull tab is positioned tightly against the adjacent surface of the associated can end. While provisions have been made for engaging the grip portion of such a pull tab, such as by recessing the underlying panel portion of the container end, in the past, for the most part, pull tabs have had the deficiency of requiring a relatively great lifting force at the time the pull tab cannot be properly gripped.

In view of the foregoing, it is the primary object of this invention to provide a pull tab which has a securing portion that may be rigidly secured to an associated container panel and wherein the securing portion is hingedly connected to the remainder of the pull tab and connected thereto by strap means so as to facilitate the initial positioning of the pull tab in enclosed overlying relation to the associated container panel and at the same time permitting the pull tab to be easily lifted to the point where it may be readily gripped, after which the strap means exert the required lifting force on the securing portion to facilitate the opening of the associated container in the usual manner.

Another object of this invention is to provide a novel pull tab which may be readily formed of sheet metal and which may have a customary configuration, the pull tab being provided with cut lines so as to be of a lanced configuration and wherein there is an initial freedom of movement of the body of the pull tab relative to the securing portion, followed by slack taking up in strap means connecting the body to the securing portion, after which the pull tab functions as a rigid unit in the opening of a container.

A further object of this invention is to provide a novel pull tab which has a lanced configuration in the area of the rivet receiving securing portion thereof and wherein the pull tab may be readily formed utilizing conventional

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type equipment and in the usual manner so as to be economically feasible.

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 drawings:

In the drawings:

FIGURE 1 is a top perspective view of an upper portion of an easy opening container and shows the pull tab secured in position thereto.

FIGURE 2 is an enlarged, fragmentary plan view of the container of FIGURE 1 and shows more specifically the details of the pull tab.

FIGURE 3 is an enlarged fragmentary plan view similar to FIGURE 2 and shows the second form of pull tab construction.

FIGURE 4 is another fragmentary horizontal view showing still another form of pull tab.

FIGURE 5 is a fragmentary vertical sectional view taken along the line 5—5 of FIGURE 2 and shows the pull tab in a partially elevated position wherein a lifting force of consequence is being first applied to the securing portion.

FIGURE 6 is a fragmentary vertical sectional view similar to FIGURE 5 and shows the relationship of the pull tab to the container end after the initial rupture of the container end.

FIGURE 7 is a tranverse vertical sectional view taken along the line 7—7 of FIGURE 6 and shows further the details of the pull tab after the initial opening of the container.

FIGURE 8 is an enlarged fragmentary vertical sectional view taken along the line 8—8 of FIGURE 3 and shows the pull tab of FIGURE 3 in its partially elevated position at the time an opening force is initially being applied to the container end.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a conventional container which is identified by the numeral 10 and which is in the form of a can. The container or can 10 conventionally includes a can body 11 which has secured to one end thereof in closing relation a can end, which is generally referred to by the numeral 12. The can end 12 is secured to the can body 11 in the conventional manner by means of a double seam 13. The can end 12 illustrated in FIGURE 1 includes an end panel 14 which is almost entirely defined by a peripheral weakening or score line 15. All of the end panel 14 within the weakening line 15 is removable as a unit in the opening of the can 10. In order to facilitate the rupture of the can end 12 along the weakening line 15, there is provided a pull tab, which is generally referred to by the numeral 16, the pull tab being the subject of this invention.

The pull tab 16 is of a one-piece construction and is preferably formed of sheet metal although other materials may be utilized. Basically speaking, the pull tab 16 includes a body 17 having one end in the form of a fulcrum end 18 and the opposite end in the form of a grip end 20. The grip end 20 is preferably in the form of a finger receiving ring or loop. The various portions of the pull tab 16 may be suitably reinforced in any conventional manner, the reinforcement of the pull tab 16 not being a part of this invention and therefore, not being described in detail here.

The pull tab 16 is preferably secured to the removable portion of the end panel 14 by means of a rivet 21 which is formed integrally with the end panel 14. As is best illustrated in FIGURE 5, the rivet 21 passes through an aperture 22 in the pull tab 16. That portion of the body 17 of the pull tab having the aperture formed therein is

considered to be a securing portion and is identified by the numeral 23. It is to be understood that the securing portion is hingedly connected to the remainder of the body 17 adjacent the fulcrum end 18 and is connected to the body 17 by suitable strap means to be described in detail hereinafter.

The securing portion 23 and the strap means are formed by lancing the body 17 and are defined by a plurality of lines resulting from the lancing of the body 17.

The cut lines include a pair of longitudinally extending lines 24 which define the opposite sides of the securing portion 23. The cut lines 24 are disposed in partially telescoping relation within a generally U-shaped cut line 25, the cut line 25 including longitudinal portions 26 which are disposed adjacent the cut lines 24 and spaced therefrom to define straps 27.

It is also to be noted that the ends of the cut lines 24 are disposed remote from the U-shaped cut line 25 have connected thereto other generally longitudinally extending lines 28 which also generally follow the contour of the body 17. The cut lines 28 cooperate with the cut line portions 26 to define outer straps 29. The straps 29 are connected at the forward ends thereof to the forward ends of the straps 27 whereas the rear ends of the straps 29 are connected to the body 17. On the other hand, the rear ends of the straps 27 are connected to the rear part of the securing portion 23.

Referring now to FIGURE 5 in particular, it will be seen that in the initial position of the pull tab 16, it lies flat or substantially flat on the upper surface of the end panel 14. In order to facilitate the initial lifting of the pull tab 16, the central portion of the end panel 14 may be recessed as at 30 in underlying relation to the grip end 20.

It is to be understood that the pull tab 16 will freely slide relative to the securing portion 23 along a fold line extending transversely of the body 17 at the intersections of the cut lines 24 and 28. Thus, when the pull tab 16 is initially lifted from its position lying against the pull tab 4, very little pressure is required although the fulcrum end 18 pivoting about its point of engagement with the end panel 14. During pivoting of the pull tab 16 with respect to the securing portion 23, the straps 27 and 29 are hinging relative to one another and to the body 17 and the securing portion 23 while at the same time bending due to the inherent resiliency of the material from which the pull tab 16 is formed. When the pull tab 16 is in the approximate position of FIGURE 5, the straps 27 and 29 will reach the limits of their respective bending and hinging and as a result, an upwardly directed force will be applied to the securing portion 23 by the straps 27 and 29.

In view of the fact that the securing portion 23 is rigidly anchored to the end panel 14 by means of the rivet 21, it will be seen that the upwardly directed force on the securing portion 23 will in turn have a reaction as a downwardly directed force on the body 17 of the pull tab 16. This results in the functioning of the pull tab 16 as a lever with the fulcrum end 18 exerting the desired leverage force downwardly on the end panel 14 along the weakening line 15 to effect the initial rupture of the end panel 14 in the manner clearly shown in FIGURE 6. Once initial rupture occurs, the removable part of the end panel 14 may be torn entirely free by pulling the pull tab 16 upwardly and generally rearwardly.

Reference is now made to FIGURE 4 wherein the can 10 is illustrated as being provided with a slightly modified form of pull tab generally referred to by the numeral 36. The pull tab 36 is basically of the same general configuration as the pull tab 16 and includes a body 37 which is configured at one end to define a fulcrum end 38 and at the opposite end to define a grip end 40. The pull tab 36 is secured to the end panel 14 by means of the rivet 21 which passes through a securing portion 41 thereof.

The body 37 is of a lanced configuration so as to define

both the securing portion 41 and strap means connecting the same to the body 37. The lancing includes a pair of longitudinally extending cut lines 42, which are slightly arcuate in outline, and which extend on opposite sides of the rivet 21 to define the securing portion 41. The lancing also includes a generally U-shaped cut line 43 which extends generally about the rear portions of the cut lines 42 and combine therewith to define straps 44 disposed on opposite sides of the securing portion 41. It will be noted that the folded part of each strap 44 is connected to the body 37 while the rear portion of each strap 44 is connected to the securing portion 41. It is further to be noted that the securing portion 41 is hinged relative to the remainder of the pull tab 36 along a transverse line which extends between the forward ends of the cut lines 42.

The general relationship of the pull tab 36 with respect to the can end 12 and the function thereof will be substantially the same as that described with the pull tab 16. It is to be understood that when the pull tab 36 is initially lifted, there will be an immediate hinging of the pull tab relative to the securing portion 41 while at the same time there will be a relative hinging and bending of the straps 44 relative to the body 37 and the securing portion 41. At this time little force is required to initially lift the pull tab 36. Thereafter, however, the straps 44 reach the limit of their hinging and folding with the result that the pull tab 36 functions as a lever with the fulcrum end 38 being forced downwardly as the upward movement of the central portion of the pull tab 36 is restrained by the connection thereof to the securing portion 41 so as to effect the rupture of the end panel 14 along the weakening line 15.

Reference is now made to FIGURE 3 wherein the can 10 is illustrated as having secured thereto by means of the rivet 21 a still further form of pull tab, which pull tab is generally referred to by the numeral 46. Like the pull tab 16, the pull tab 46 includes a body 47 which is configured at one end to define a fulcrum end 48 and at the opposite end to define a grip end 50. The body 47 is of a lanced configuration so as to define a securing portion 51 and strap means to be described in detail hereinafter.

It is to be noted that the lancing of the body 47 includes a pair of longitudinally extending cut lines 52 and 53 on opposite sides of the rivet 21 so as to generally define the securing portion 51. The cut lines 52 and 53 have the forward ends thereof in transverse alignment while the cut line 53 is of a greater length than the cut line 52.

The lancing of the body 47 also includes a pair of transverse cut lines 54 and 55 which extend in opposed relation from the rear ends of the cut lines 52 and 53, respectively, in longitudinally spaced relation so as to define a strap 56. The strap 56 extends transversely of the pull tab 46 and is connected at one end to the body 47 and at the opposite end to the securing portion 51.

It is to be understood that when the pull tab 46 is initially lifted, it will hinge relative to the securing portion 51 along a transverse fold line which extends between the forward ends of the cut lines 52, 53. Only slight force is required to initially lift the pull tab 46. As the pull tab 46 is lifted, the strap 56 will hinge relative to the body 47 and the securing portion 51 and will bend so as to have a spring like action due to the inherent resiliency of the material from which the pull tab 46 is formed.

It is to be understood that the pull tab 46 will normally lie flat on the end panel 14 and the minimum force will be required to effect the initial lifting thereof to the point where it may be readily gripped to effect the necessary lever action which results in the opening of the can 10.

At this time it is particularly pointed out that it is preferred that at the free end of each of the various cut lines, there will be a reversely turned cut so as to prevent undue tearing of the body 47.

Although several specific embodiments of lanced configurations have been illustrated and described, it is to be understood that other variations in the lanced configuration may be provided without departing from the general spirit of the invention.

We claim:

1. A pull tab comprising a body having a fulcrum end and a grip end, said body having a pivotable securing portion adjacent said fulcrum end, and strap means formed in said body and connecting said portion to the remainder of said body for facilitating initial pivoting of said body about said fulcrum end relative to said securing portion prior to applying a material force on said securing portion whereby the pull tab may be initially pivoted to a readily grippable position with a minimum of effort, said strap means being defined by a plurality of adjacent slits formed in said body.

2. The pull tab of claim 1 wherein said strap means are in the form of a spring element due to the inherent resiliency of the material from which said body is formed.

3. The pull tab of claim 1 wherein said strap means are defined by and said slits are portions of a pair of generally longitudinal cut lines defining opposite sides of said securing portion, and a U-shaped cut line opening away from said grip end and having received therein end portions of said longitudinal cut lines, said aforementioned cut lines defining a strap on each side of said securing portion connected to said securing portion at the end thereof adjacent said grip end.

4. The pull tab of claim 1 wherein said strap means are defined by and said slits are portions of a pair of generally longitudinal cut lines defining opposite sides of said securing portion, and a U-shaped cut line opening away from said grip end and having received therein end portions of said longitudinal cut lines, said aforementioned cut lines defining a strap on each side of said securing portion connected to said securing portion at the end thereof adjacent said grip end, and to said body adjacent said fulcrum end.

5. The pull tab of claim 1 wherein said strap means

are defined by and said slits are portions of a pair of generally longitudinal cut lines defining opposite sides of said securing portion, and a U-shaped cut line opening away from said grip end and having received therein end portions of said longitudinal cut lines, said aforementioned cut lines defining a strap on each side of said securing portion connected to said securing portion at the end thereof adjacent said grip end, and other generally longitudinal cut lines defining other straps connected to the first mentioned straps at the opposite ends thereof and to said body adjacent said grip end.

6. The pull tab of claim 1 wherein said securing portion is partially defined by a pair of longitudinal cut lines, and said strap means includes a transversely extending strap defined by said slits extending transversely in opposed relation from adjacent ends of said longitudinal cut lines, said strap having one end connected to said body and the opposite end connected to said securing portion.

7. A can comprising a body having an end unit attached thereto, said end unit including a removable panel portion, and a pull tab secured to said removable panel portion, said pull tab comprising a body having a fulcrum end and a grip end, said body having a pivotable securing portion adjacent said fulcrum end, and strap means formed in said body and connecting said securing portion to the remainder of said body for facilitating initial pivoting of said body about said fulcrum end relative to said securing portion prior to applying a material force on said securing portion whereby the pull tab may be initially pivoted to a readily grippable position with a minimum of effort, said strap means being defined by a plurality of adjacent slits formed in said body.

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GEORGE T. HALL, Primary Examiner