

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Improvements in or relating to Sheet Metal Pull Tabs for Containers

We, CONTINENTAL CAN COMPANY, INC., of 633, Third Avenue, New York 17, State of New York, United States of America, a Corporation organized and existing under the laws of the State of New York, United States of America, do hereby declare the invention, for which we pray that a patent, may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in containers of the easy opening type, and more particularly to a sheet metal pull tab which is particularly adapted to be secured to a removable portion of a container to facilitate the tearing away of the removable portion.

In the customary easy opening container, the removable portion is defined by one or more score lines including a starting portion which is generally V or generally U shaped. The pull tab is secured to that part of the removable portion of the container immediately adjacent the starting portion of the score line so that when an upwardly directed force is applied to the pull tab, the container will be ruptured along the starting portion of the score line, after which the removable portion of the container may be readily removed by exerting a tension on the pull tab sufficient to tear the container along the score line. The pull tabs currently in use have met with numerous objections. In the first place, if the pull tabs are not of sufficient rigidity, when an initial upwardly directed force is applied thereto, in lieu of rupturing the container along the starting portion of the score line, the pull tab will bend or fold and not function to transmit the upwardly directed force to the removable portion of the container. On the other hand, the pull

tab must be retained as thin as possible due to the fact that the pull tab must be entirely recessed within the end of the container in order to avoid interfering with any mechanism which operates on the container. It is, therefore, a primary object of this invention to provide a sheet metal pull tab which is of a cross section wherein the thickness of the pull tab is held at a minimum while the necessary strength is imparted to the pull tab.

A major deficiency of existing pull tabs is that they are stamped from sheet metal and the edges of the pull tabs are raw edges. Accordingly, when one grips the existing pull tab and there is any slippage between one's fingers and the pull tab, very often the raw edges of the pull tab cut or slice one's fingers. It is, therefore, another object of this invention to provide a sheet metal pull tab which is provided with an underturned edge portion extending about the entire portion of the pull tab which is gripped by one's fingers in the normal use of the pull tab, said underturned edge portion serving to both protect the raw edge of the metal of the pull tab and reinforce the pull tab against undesired bending or folding.

Still another deficiency of existing pull tabs is that when the pull tabs are made to lie closely adjacent the container end, it is extremely difficult to engage one's fingers beneath the pull tab for the purpose of exerting the necessary upwardly directed force thereon. In the average container construction, approximately 14 inch pounds are required to effect the rupture of the associated container along the score line starting portion. It is obvious that such a lifting force cannot be applied with one's finger nails beneath a pull tab, and therefore, it is necessary that one's fingers can readily

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engage under the end of the pull tab. In view of this, it is still another object of this invention to provide a pull tab which is formed of sheet metal and which is of a rigid construction, the pull tab having a free end thereof upwardly offset from the remainder of the pull tab whereby the extreme free end of the pull tab may be readily engaged and lifted so that the pull tab may transmit to the container the necessary force to effect the rupture of the container along the Starting portion of the score line thereof.

A further difficulty encountered with existing pull tabs is that after the initial rupture of a container occurs, sufficient tension must be applied to the removable portion of the container to effect the tearing thereof from the container. As a result, a proportionally large pull must be exerted on the pull tab. However, since the pull tab is formed of sheet metal which has very smooth surfaces, it is difficult to obtain the necessary grip on the pull tab. Therefore, it is a still further object of this invention to provide a sheet metal pull tab which is so configured whereby not only is the desired strength imparted to the pull tab, but also effective gripping surfaces are presented.

In order that the invention may be clearly understood one embodiment thereof will now be described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a fragmentary top perspective view of a can of the easy opening type particularly adapted for dispensing a liquid and shows the can provided with a pull tab formed in accordance with this invention.

Figure 2 is an enlarged plan view of the pull tab of Figure 1 and shows the specific outline thereof.

Figure 3 is an enlarged longitudinal vertical sectional view taken along the line 3-3 of Figure 2 and shows the specific longitudinal cross section of the pull tab.

Figure 4 is an enlarged transverse vertical sectional view taken along the line 4-4 of Figure 3 and shows the specific transverse cross section of the pull tab.

Referring now to the drawing in detail, reference is first made to Figure 1 wherein there is illustrated a conventional type of container which is generally referred to by the numeral 10. The illustrated container 10 is in the form of a conventional beverage can and includes a can body 11 to which there is secured a can end 12 of the easy opening type by means of a conventional double seam 13. The can end 12 includes an end panel 14 which is provided with a score line 15 defining a tear out portion 16. The tear out portion 16 includes

an elongated part 17 which includes the starting part of the tear out portion 16 and which carries an integral rivet 18 which is utilized in the securement of a pull tab to the tear out portion 16 for the purpose of facilitating the rupture of the end panel 14 along the score line 15. The illustrated pull tab 20 incorporates the specific features of this invention.

Referring now to the drawings in detail, it will be seen from Figure 2 that the pull tab 20 is generally rectangular in outline and from Figure 4 that the pull tab 20 is of a shallow dished formation having lateral flanges extending longitudinally thereof. In cross section the pull tab 20 includes a central, lowermost web 21 which is provided along the opposite sides thereof with upstanding flanges 22. A lateral flange 23 extends outwardly from each of the upstanding flanges 22. The lateral flanges 23 lie in a plane disposed in spaced parallel relation to the plane of the web 21. The lateral flanges 23 terminate at their outer edges in edge portions 24 which are turned under the lateral flanges 23.

In Figure 2 it is shown that the left end of the web 21 is rounded as at 25. An upstanding flange portion 26 extends around the rounded end 25 of the web 21. The upstanding flange portion 26 connects together the two upstanding flanges 22, and the upstanding flange portion 26 may be considered a continuous flange.

It will be readily apparent that the upstanding flange portion 26 is generally U shaped in outline. A similarly shaped lateral flange portion 27 extends outwardly from the upstanding flange portion 26 and connects together the two lateral flanges 23. The outer edge of the lateral flange portion 27 also terminates in a downturned edge portion 28. The edge portion 28 connects together the edge portions 24 and the edge portions 24 and 28 may be considered to form a continuous lateral while the wing flanges 23 and 27 serve to form a continuous wing flange.

It is to be noted that the web 21 is of a constant width for a major portion of the length thereof. However, remote from the curved end portion 25 the web 21 is widened as at 29. The web 21 is widened to provide sufficient space for the formation of an opening 30 therethrough. The opening 30 receives the rivet 18 with the head of the rivet 18 tightly clamping against the web 21 surrounding the opening 30. It is also to be noted that the upstanding flanges 22 are contoured in accordance with the change in shape of the web 21 and define a space of sufficient size to receive the head of the rivet 18. Although the web 21 is of an increased width at the right hand

end of the pull tab 20 and the upstanding flanges 22 follow the contour of the web 21, the outer edges of the lateral flanges 23 remain straight and the lateral flanges 23 are decreased in width in accordance with the increase in width of the web 21.

It is to be noted that the pull tab 20 is provided with a pointed end edge 31 at the end thereof adjacent the opening 30. The pointed end edge 31 includes a rounded nose portion 32 which may be brought into contact with the end panel 22 when utilizing the pull tab 20 for the purpose of rupturing the end panel 14 along the score line 15.

It is to be understood that when the pull tab is positioned on the end panel 14, it is tightly clamped against the surface thereof by the clamping action of the rivet 18. In order to facilitate the engagement of the end of the pull tab 20 remote from the rivet 18 and the lifting of the pull tab 20, the end of the pull tab 20 remote from the rivet 18 is folded upwardly along a transverse fold line 33. The folding of the pull tab 20 along the fold line 33 results in the lateral flange portion 27 lying in a plane disposed in angular relationship to the plane of the web 21. In this manner the edge portion 28 and the underside of the lateral flange portion are elevated above the upper surface of the end panel 14 and one's fingers may be engaged therebeneath to effect the gripping thereof and exerting an upwardly directed force thereon.

It will also be apparent that the generally U shaped upstanding flange portion 26, in association with the generally U shaped edge portion 28, will afford proper gripping surfaces for one's forefinger and thumb. Thus, the pull tab 20 may be effectively gripped for both the initial upward lifting thereof and the application of a tensile stress to the tear out portion 16 after the initial rupture of the end panel 14.

A careful study of the pull tab 20 will make it readily apparent that the pull tab may be readily formed from sheet metal in a simple series of stamping and forming operations so that the pull tab 20 is economically feasible. At the same time, it will be readily apparent that due to the specific cross section of the pull tab 20, a maximum strength may be obtained with a minimum of metal and at the same time the thickness of the pull tab may be held to a minimum as is required in order to properly recess the pull tab 20 within the confines of the can end 12. The edge portions 24 and 28 serve the dual purpose of placing the raw edges of the metal from which the pull tab 20 is formed in a position wherein they cannot be readily engaged with one's fingers and they serve

to reinforce the edge portions of the pull tab 20. These advantageous features are in addition to the aforementioned advantageous grip features of the pull tab.

Although only a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor modifications may be made therein within the scope of the appended claims.

WHAT WE CLAIM IS:—

1. A sheet metal pull tab for a tearable container portion, said pull tab being of a shallow dished cross section, and including a first end portion adapted to be secured, for example by a rivet, to a tearable container portion, said pull tab having lateral flanges and a second end portion terminating in underturned edge portions whereby exposed raw edges accidentally engageable when the pull tab is gripped are eliminated.

2. A sheet metal pull tab for a tearable container portion, said pull tab being of a shallow dished cross section, and including a web having sides and ends, a narrow upstanding flange extending along the sides and one end of said web and a lateral flange extending outwardly from said upstanding flange along the sides and said one end of said web, and an underturned edge portion along the periphery of said lateral flange thereby forming a rigid structural unit.

3. A sheet metal pull tab according to Claim 2, wherein said web one end is rounded and said upstanding flange and said lateral flange are of a similar rounded configuration.

4. A sheet metal pull tab according to Claim 2 or Claim 3, wherein said lateral flange at said web one end is upwardly directed thereby facilitating the lifting and gripping of said pull tab.

5. A sheet metal pull tab according to any one of Claims 2 to 4, wherein said web is widened at the other end thereof to provide clearance for a rivet, and a rivet receiving opening is formed through said web other end.

6. A sheet metal pull tab according to any one of Claims 2 to 4, wherein said pull tab is generally rectangular in outline, said web is widened at the other end thereof to provide clearance for a rivet with said lateral flange being proportionally narrowed, and a rivet receiving opening is formed through said web other end.

7. A sheet metal pull tab according to any one of Claims 2 to 6, wherein said underturned edge portion is disposed entirely between the planes of said web and said lateral flange.

8. A sheet metal pull tab according to Claim 7, wherein the underturned edge



tab

end of the pull tab 20 and the upstanding flanges 22 follow the contour of the web 21, the outer edges of the lateral flanges 23 remain straight and the lateral flanges 23 are decreased in width in accordance with the increase in width of the web 21.

to reinforce the edge portions of the pull tab 20. These advantageous features are in addition to the aforementioned advantageous grip features of the pull tab.

Although only a preferred embodiment 70 of the invention has been specifically illustrated and described herein, it is to be understood that minor modifications may be made therein within the scope of the appended claims.

WHAT WE CLAIM IS:—

1. A sheet metal pull tab for a tearable container portion, said pull tab being of a shallow dish cross section, and including a first end portion adapted to be secured, for example by a rivet, to a tearable container portion, said pull tab having lateral flanges and a second end portion terminating in underturned edge portions whereby exposed raw edges accidentally engageable when the pull tab is gripped are eliminated.

2. A sheet metal pull tab for a tearable container portion, said pull tab being of a shallow dish cross section, and including a web having sides and ends, a narrow upstanding flange extending along the sides and one end of said web and a lateral flange extending outwardly from said upstanding flange along the sides and said one end of said web, and an underturned edge portion along the periphery of said lateral flange thereby forming a rigid structural unit.

3. A sheet metal pull tab according to Claim 2, wherein said web one end is rounded and said upstanding flange and said lateral flange are of a similar rounded configuration.

4. A sheet metal pull tab according to Claim 2 or Claim 3, wherein said lateral flange at said web one end is upwardly directed thereby facilitating the lifting and gripping of said pull tab.

5. A sheet metal pull tab according to any one of Claims 2 to 4, wherein said web is widened at the other end thereof to provide clearance for a rivet, and a rivet receiving opening is formed through said web other end.

6. A sheet metal pull tab according to any one of Claims 2 to 4, wherein said pull tab is generally rectangular in outline, said web is widened at the other end thereof to provide clearance for a rivet with said lateral flange being proportionally narrowed, and a rivet receiving opening is formed through said web other end.

7. A sheet metal pull tab according to any one of Claims 2 to 6, wherein said underturned edge portion is disposed entirely between the planes of said web and said lateral flange.

8. A sheet metal pull tab according to Claim 7, wherein the underturned edge

It is to be noted that the pull tab 20 is provided with a pointed end edge 31 at the end thereof adjacent the opening 30. The pointed end edge 31 includes a rounded nose portion 32 which may be brought into contact with the end panel 22 when utilizing the pull tab 20 for the purpose of rupturing the end panel 14 along the score line 15.

It is to be understood that when the pull tab is positioned on the end panel 14, it is tightly clamped against the surface thereof by the clamping action of the rivet 18. In order to facilitate the engagement of the end of the pull tab 20 remote from the rivet 18 and the lifting of the pull tab 20, the end of the pull tab 20 remote from the rivet 18 is folded upwardly along a transverse fold line 33. The folding of the pull tab 20 along the fold line 33 results in the lateral flange portion 27 lying in a plane disposed in angular relationship to the plane of the web 21. In this manner the edge portion 28 and the underside of the lateral flange portion are elevated above the upper surface of the end panel 14 and one's fingers may be engaged therebeneath to effect the gripping thereof and exerting an upwardly directed force thereon.

It will also be apparent that the generally U shaped upstanding flange portion 26, in association with the generally U shaped edge portion 28, will afford proper gripping surfaces for one's forefinger and thumb. Thus, the pull tab 20 may be effectively gripped for both the initial upward lifting thereof and the application of a tensile stress to the tear out portion 16 after the initial rupture of the end panel 14.

A careful study of the pull tab 20 will make it readily apparent that the pull tab may be readily formed from sheet metal in a simple series of stamping and forming operations so that the pull tab 20 is economically feasible. At the same time, it will be readily apparent that due to the specific cross section of the pull tab 20, a maximum strength may be obtained with a minimum of metal and at the same time the thickness of the pull tab may be held to a minimum as is required in order to properly recess the pull tab 20 within the confines of the can end 12. The edge portions 24 and 28 serve the dual purpose of placing the raw edges of the metal from which the pull tab 20 is formed in a position wherein they cannot be readily engaged with one's fingers and they serve



tab



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portion extends the full height of said upstanding flange.

9. A sheet metal pull tab for a tearable container portion, said pull tab having a recessed web, an upstanding flange extending longitudinally of and around said web at one end thereof, said upstanding flange including a lateral flange which extends outwardly therefrom and terminates in downturned edge portions, said upstanding flange and said downturned edge portions forming abutments facilitating the gripping of said pull tab.

10. A pull tab according to claim 9,

wherein the portion of the upstanding flange which extends around said one end of the web and the downturned edge portions associated therewith are generally U-shaped in outline thereby further facilitating the gripping of said pull tab.

11. A sheet metal pull tab substantially as herein described with reference to and as illustrated in the accompanying drawings.

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