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3,406,865

PULL TAB FOR OPENING CONTAINER

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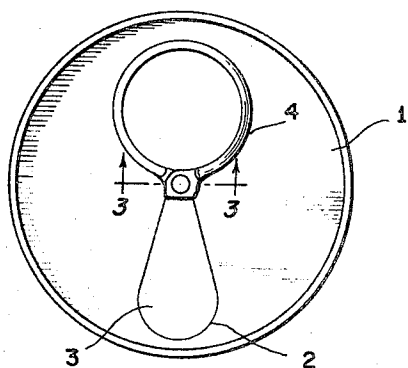


FIG. 1

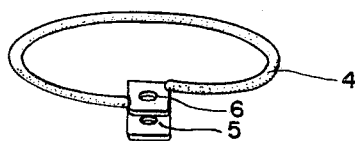


FIG. 2

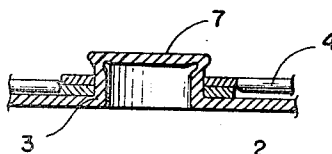


FIG. 3

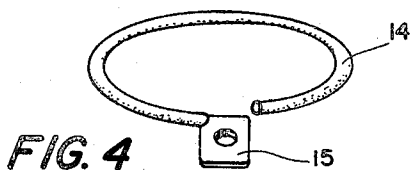


FIG. 4

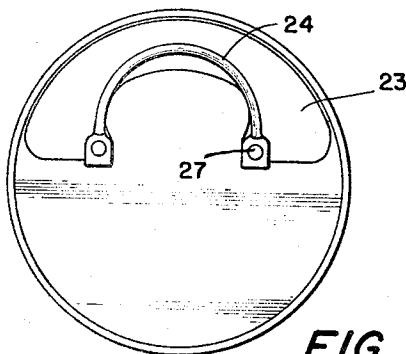


FIG. 5

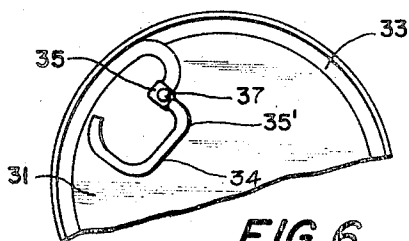


FIG. 6

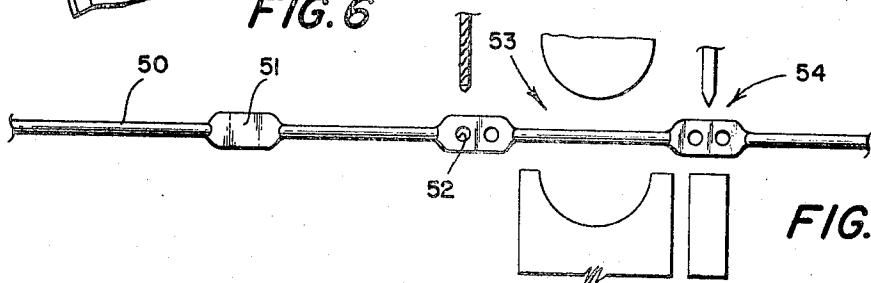


FIG. 8

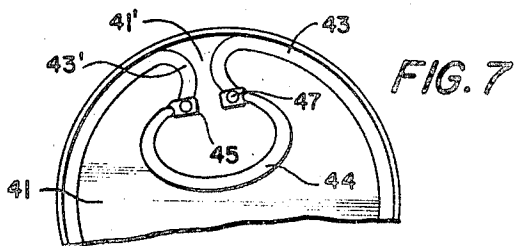


FIG. 7

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PULL TAB FOR OPENING CONTAINER

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ABSTRACT OF THE DISCLOSURE

The wall of a container is formed with a panel defined by a score or weakening line and a pull tab is secured to the panel to rupture the line and separate the panel from the container. The pull element is in the form of a lever with a flattened end providing a fulcrum along one edge and riveted to the panel adjacent the weakening line, the other end acting as a lever to apply force to the rivet and rupture the weakening line.

The element is cheaply and simply manufactured by flattening and punching for the rivets and bending the elements into arcuate or other shape.

This invention relates to a container of sheet material, usually metal, in which one wall is formed with an integral, tear-out portion or area having a weakened periphery, such as a score line, extending about the area to provide a panel or tear strip which is removed by rupturing the wall along the weakening line under suitable force. This force necessary to separate the portion along the weakening line may be applied by a pull element or tab which is engaged by the fingers to tear the portion from the container.

Many types of cans and tins are formed with a separable tear-out portion in one wall, with a flat pull tab secured to the strip or panel. The tab is gripped and pulled to tear the portion loose from the remainder of the top wall. A firm grip on the tab is required to remove the tear-out portion, and this action is especially difficult for anyone not having strong, muscular fingers. The tab in some instances has been made in the shape of a ring cut from sheet metal, but this formation has the defect of exposing the fingers to sharp edges of sheet material or of an additional step of folding or rolling the material to provide a smooth edge.

This invention resides in forming a pull element or tab which is much more effective, as only slight force is required to engage the tab, and is also simpler and cheaper to manufacture. The pull tab of this invention is formed from a strip of metal, riveted to the tear-out element or portion, and bent to provide a loop or bail for engagement by either the fingers or a tool. This simple construction utilizes material in its cheapest form, for example, round wire, and the pull tab may be produced by the simplest manufacturing methods.

It is the primary object of this invention to make a pull element or tab for a tear-out portion or removable area of a container of sheet material from a strip such as wire and form such strip into a curved element or loop which is easily engaged by the fingers without risk of injury and without need for a substantial gripping force.

Other objects and advantages of the invention will be apparent from the descriptions and illustrations of the embodiments which are set forth in this specification and the accompanying drawings.

In the drawings:

FIGURE 1 is a plan view of a can with one form of pull tab.

FIGURE 2 shows the pull tab of FIGURE 1 before assembly.

FIGURE 3 shows in cross section, taken on line 3-3 of FIGURE 1, the attachment of the pull tab to the panel in the end wall.

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FIGURE 4 shows a modified form of pull tab which may be attached to the can of FIGURE 1.

FIGURES 5, 6 and 7 show modified forms of can and pull tab.

FIGURE 8 illustrates the method of forming the pull tab of FIGURE 1.

In the form shown in FIGURE 1, the end wall 1 of the can has an area delineated by a weakened line or score line 2 to form a panel 3 which may be separated along the score line. A pull element or tab 4, formed of strip material such as wire, is bent into a loop as seen in the figure. The ends 5 are flattened as shown in FIGURE 2 and openings 6 are formed through the flat ends. Adjacent one edge, the panel 3 is pressed out to form a riveting boss 7 which is extended through the openings 6 and is headed over to secure the pull tab to the panel.

The loop of the pull element or tab may be left open, as shown in FIGURE 4. The pull tab 14 is flattened at one end 15 only, and the material is bent into an open loop. The flat end is riveted to the separable panel in the same manner as in FIGURE 1.

A different form of removable panel with another variation in the pull element or tab is shown in FIGURE 5. The panel 23 is designed for drinking from the can, and may be removed by a bail-shaped pull tab 24. The ends 25 of the tab are spaced and riveted to opposite ends of the panel at 27, so that a strong pull may be exerted on the panel to loosen it from the can, and a convenient opening is provided.

The tear strip 33 shown in FIGURE 6 extends around the periphery of the end wall and is designed to remove the entire end wall 31 from the can. The pull tab 34 is especially arranged for initially rupturing the strip. The tab 34 is riveted to one end of the strip 33 at 37 and then is bent substantially at right angles at 35¹ adjacent its flat end 35 and then formed into an open loop. The loop may be raised to rotate the flat end about an axis perpendicular to the rivet to tear loose the end of the strip, and then the strip may be easily removed by pulling on the loop, completely separating the end wall of the can. Removal of the end wall attached to the tear strip may be assured by omitting the inward score line at one point.

A bail-shape pull element 44 may be used with a peripheral tear strip 43 as shown in FIGURE 7. The ends of the tear strip extend inwardly from the periphery and these ends are riveted at 47 to the flattened ends 45 of the pull element 44. The ends 45 of the pull element are aligned along an axis perpendicular to the rivets, so that lifting the bail member 44 rotates the ends 45 about the axis to rupture the ends of the tear strip, in a manner similar to the action of the pull element in FIGURE 6. The entire tear strip 43 may then be removed, leaving the end wall connected by a narrow portion 41' to the container. If desired, this narrow portion may be omitted and the end wall completely separated in the same manner as in FIGURE 6.

A method of forming pull tabs from a length of material is illustrated in FIGURE 8, using the tab 4 of FIGURE 1 as an example. A length of round wire 50 passes through the machine, is flattened at 51, openings are formed at 52, the intermediate portion is curved as at 53 and the tabs are severed successively between the openings in the flat portions as at 54.

The pull tab of this invention is easily engaged to exert a pull to open the container, without the need for applying a strong grip. The curved cross section of the loop avoids all possibility of sharp or rough edges injuring the fingers. The material used may be the most inexpensive, such as common round wire, and the manufacturing process is simple and accomplished on readily available machinery.

The invention has been explained and illustrated in the

several embodiments, and other possible applications of the invention will be apparent from the scope of the appended claims.

I claim:

1. In a container of sheet material, in which one wall is formed with a tear-out portion defined by a weakening line about its periphery so that said portion may be separated along said line when force is applied to remove said portion, a pull element formed as a lever having one end secured to said portion at a point adjacent said line, said pull element being a length of stiff, solid material flattened at said one end, the flattened end being riveted to said portion adjacent said line with its flattened side against the wall and overlying said weakening line and having a straight edge slightly spaced from said rivet, said pull element lying in the plane of said flattened end and against said wall of said container with its other end on the opposite side of said rivet from said straight edge, so that when said portion is moved away from said wall, the straight edge acts as a fulcrum and the lever exerts force on said rivet and ruptures said weakening line adjacent said pull element.

2. In a container of sheet material, in which one wall is formed with a tear-out portion defined by a weakening line about its periphery so that said portion may be separated along said line when force is applied to remove said portion, a pull element formed as a lever secured to said portion at a point adjacent said line, said pull element being a solid wire bent to form a loop lying completely in a plane, the ends of said loop being flat, said flat ends overlapping and being secured to said portion adjacent said line by a fastener element extending through said ends, said flat ends having their contacting faces lying in the plane of the loop and having straight sides on the side of said fastener element opposite said loop, so that said straight sides operate as a fulcrum when said loop is raised to act as a lever and rupture said weakening line.

3. In a container of sheet material, in which one wall is formed with a portion defined by a weakening line about its periphery so that said portion may be separated along said line when force is applied to remove said portion, a pull element formed as a lever secured to said portion adjacent said weakening line, said pull element being a stiff, solid wire bent to form a bail, the ends of said

bail being flattened and riveted to said portion at spaced points adjacent said line, said bail lying in the same plane as the flattened ends and against said wall, and said flattened ends having straight edges in the same line and on the opposite side of said rivets and across the said weakening line from said bail, so that said straight edges operate as a fulcrum when the bail is raised to act as a lever and to rupture said weakening line.

4. In a container of sheet material, in which one wall is formed with a panel defined by a weakening line about its periphery so that said panel may be separated along said line when force is applied to remove said panel, a pull element formed as a lever secured to said panel adjacent said line at a point in the angle defined by a bend in the weakening line, said pull element being a stiff, solid wire having an end flattened to form a flat end portion, said pull element lying in the plane of said flat end portion and said flat end portion having a straight edge operating as a fulcrum, said pull element extending from said flat portion with the other end of the pull element lying on the opposite side of said flat end portion from said straight edge, so that said straight edge acts as a fulcrum when said other end is raised to act as a lever to apply force to said panel at said point to rupture said weakening line.

5. The method of forming pull elements from a length of wire comprising the steps of:

- (1) successively flattening said wire at longitudinally spaced points,
- (2) forming two longitudinally spaced apertures in each flattened portion,
- (3) curving said wire between flattened portions to form a curved pull element and severing said elements between said apertures.

References Cited

UNITED STATES PATENTS

2,085,200	6/1937	Ljungstrom	220—54
3,313,446	4/1967	Harvey	220—54

Theron E. Condon, *Primary Examiner*.

George T. Hall, *Assistant Examiner*.