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3,232,474

OPENING MEANS FOR SEALED CONTAINERS

Filed Sept. 24, 1963

2 Sheets-Sheet 1

FIG. 1.

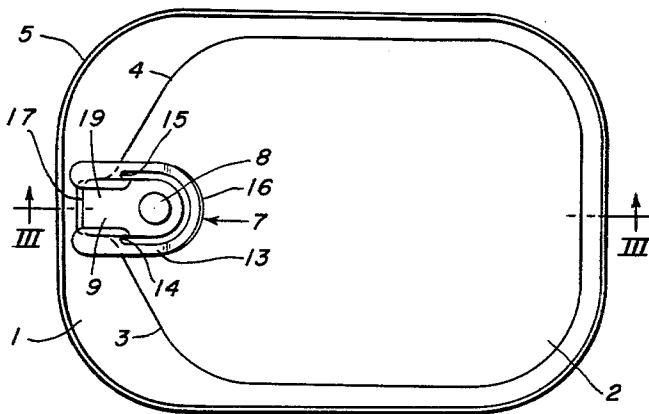


FIG. 2.

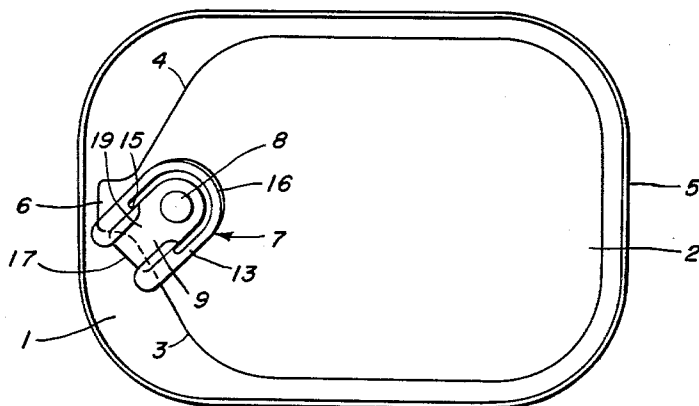


FIG. 3.

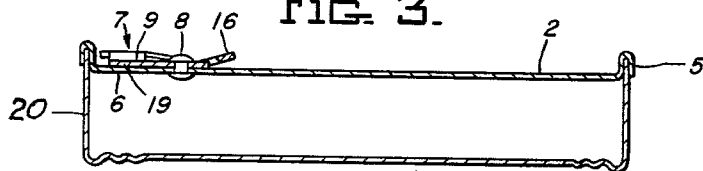
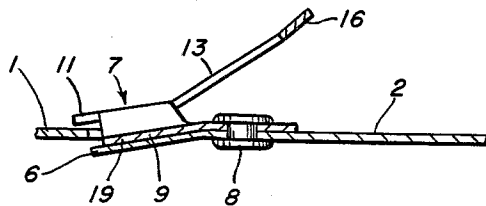


FIG. 4.



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FIG. 5.

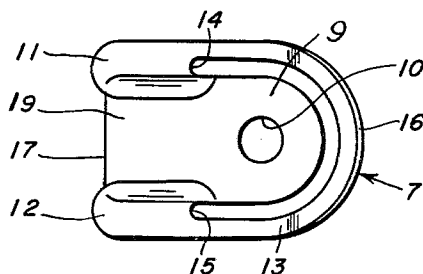


FIG. 7.

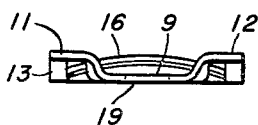


FIG. 6.

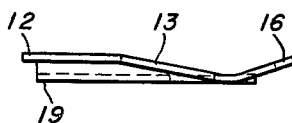


FIG. 9.

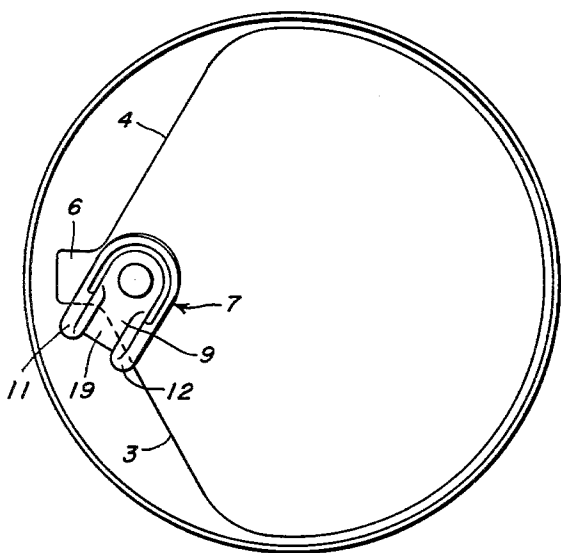
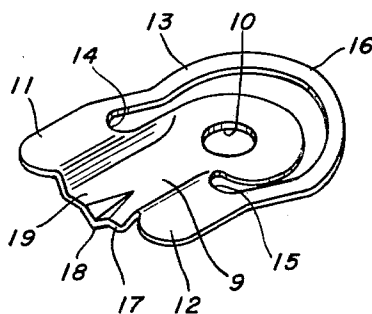


FIG. 8.



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OPENING MEANS FOR SEALED CONTAINERS

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5 Claims. (Cl. 220—54)

This invention relates to opening means for sealed containers, especially metal cans or containers used for storing and shipping foodstuffs. More specifically this invention relates to large diameter containers which have relatively large prescored tear-out areas to facilitate easy removal from the container of solid or semi-liquid substances.

There has been a need for an opening means, especially on large diameter circular and rectangular containers, whereby the consumer may quickly, safely and smoothly tear out a relatively large panel in order to remove the contents therein. This is particularly so where the customer desires to remove the contents whole, such as in the case of sardines, and certain meat products. There has been a continuing need to find a simpler more efficient means of opening these types of containers.

It is an object of this invention to provide a simple efficient opening means for sealed containers.

It is another object of this invention to provide an opening means for producing relatively large openings in large diameter containers to facilitate easy removal of solid or semi-liquid substances therefrom.

It is also an object of this invention to provide a novel tab opening device that will facilitate the easy removal of a tear-out panel from the container wall.

More specifically another object of this invention is to provide an opening means for large diameter containers wherein a container wall has a relatively large tear-out panel defined by a score line and an opening device permanently attached to the tear-out panel, which facilitates easy removal of said tear-out panel.

In accordance with this invention there is provided a container wall having a score line to define a tear-out panel of desired size and shape. A portion of the tear-out panel has a rupturing section, which may be tongue shaped, apex shaped, or some other similar shape to facilitate initial opening of the container wall as herein-after described. Attached to the tear-out panel is a tab opening device adapted to overlie the rupturing section of the tear-out panel. The tab opening device is attached at a spot intermediate of its ends to the tear-out panel. One end of the tab opening device is a severing member, which serves to initially sever the container wall. In the preferred embodiment of my invention the severing member has raised panels that extend outside the score line defining the rupturing section of the tear-out panel. The other end of the tab opening device has a partially cut-away lifting member that extends on each side of and past the point of attachment of the opening device to the tear-out panel.

The tab opening device may be rotatably attached to the tear-out panel as by riveting so that the tab opening device may be initially displaced through an arc suitably to prevent accidental rupture by the tab opening device severing member of the score lines during shipment and storage of the containers. When opening of the container is desired the tab opening device is rotatably moved about the rivet axis so that the severing end of the tab opening

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device overlies the rupturing section of the tear-out panel.

To remove the tear-out panel from the container wall the severing end of the tab opening device is depressed as by finger pressure to initially sever the wall along the score line defining the rupturing section of the tear-out panel. In the preferred embodiment of my invention the raised panels which extend outside the score lines prevent the tab opening device severing member from being depressed too far into the container after the initial severing is completed. By this action the wall is severed at the score line along both sides of the rupturing section of the tear-out panel and to a point approximately adjacent to the point of attachment of the tab opening device to the tear-out panel. The partially cut-away lifting member at the other end of the tab opening device is then bent outwardly from the container wall. With the cut-away lifting member extending past the point of tab opening device attachment the pulling force exerted on the lifting member is concentrated adjacent to the ends of initial severance along the score line. By pulling on the lifting member severing continues along the score line so that eventually the entire tear-out panel is separated from the container wall and the panel can be removed easily to allow access to the container contents.

The above and other features of the invention will be better understood from the following detailed description, taken in reference to the accompanying drawings forming part of the specification and in which:

FIG. 1 is a plan view of rectangular container wall showing the score line and the tab opening device;

FIG. 2 is a plan view of the opening means shown in FIG. 1 with the tab opening device in storage and shipment position;

FIG. 3 is a sectional view taken on line III of FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view of the container after initial rupture by the severing member of the tab opening device;

FIG. 5 is a plan view of the tab opening device;

FIG. 6 is a side view of the tab opening device;

FIG. 7 is an end view of the tab opening device;

FIG. 8 is a perspective view of an alternative form of the tab opening device; and

FIG. 9 is a plan view of an alternative form of container wall and scoring thereof.

The invention is illustrated in FIGS. 1-4 in the preferred embodiment and is shown in relation to a metallic rectangular-shaped container wall 1 adapted to be secured by conventional seaming or any other convenient means to the body of the container 20. A removable tear-out panel 2 is defined in the container wall 1 by score lines 3 and 4. Score lines 3 and 4 converge and are joined together near the periphery 5 of the container wall to form a rupturing section 6 of the tear-out panel 2. The rupturing section 6 shown in FIGS. 1-4 is tongue shaped, however, any shape having a relatively small area such as a rounded apex or the like would be satisfactory. The score lines 3 and 4 form a single continuous score line defining the area to be removed and may assume other shapes or configurations within the scope of this invention. Normally the score line will follow the container wall periphery 5 closely in order to provide as large a tear-out panel 2 as possible, thus allowing easy access to the container contents.

A tab opening device 7 with a base 9 is attached to the tear-out panel 2. The attachment may be by any of

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several well-known means, such as by welding or riveting, including both separate and integral type. Preferably, however, the attachment is by a rivet 8, shown in the drawings as the separate type riveting means, so that the tab opening device 7 can be rotatably moved. FIG. 2 shows the tab opening device 7 with rivet attachment 8 in its normal position during shipment and storage of the container. In this position the container wall will not be accidentally ruptured, as might be caused by stacking. FIG. 1 shows the tab opening device in its normal position if attached by welding means or, if rivet attached, after it has been rotatably moved about the rivet axis and the severing member 19 aligned with and overlying the rupturing section 6 of the tear-out panel 2. In FIGS. 5-7 the tab opening device shown in the preferred embodiment has a relatively flat base 9 with an aperture 10 for attaching the device to the tear-out panel 2 by rivet means. This aperture, of course, will not be necessary if a welding attachment means is used. The severing member 19 of the base 9 acts as the means for initially severing the score lines 3 and 4 defining the rupturing section 6 of the tear-out panel 2. The configuration of the severing member 19 should be close to the shape of the rupturing section 6 of the tear-out panel 2 defined by score lines 3 and 4 but slightly smaller so that when the tab opening device 7 is aligned with and overlies the rupturing section 6 it will fit within score lines 3 and 4 defining the rupturing section 6. If desired, the base 9 may have a stress concentrator 18 on the forward terminal end 17 as shown in FIG. 8 to aid in initially severing the score lines 3 and 4. In the preferred embodiment of my invention, panels 11 and 12 are raised above the base 9 and extend outwardly from the subjacent base 9. When the tab opening device is in position for opening the container, as shown in FIG. 1, the raised panels 11 and 12 extend out beyond a substantial portion of the score lines 3 and 4 defining the rupturing section 6 of the tear-out panel 2. A cut-away lifting member 13 extends longitudinally on each side of and past the point of the attachment of the opening device 7 to the tear-out panel 2 and terminates at points 14 and 15. The lifting member 13 as shown in the drawings is "horse-shoe" shaped, however, it may assume other shapes or configurations within the scope of this invention. The end 16 of the lifting member 13 may be upturned slightly to permit a fingernail to be inserted to initiate lifting.

FIG. 9 shows the tab opening device 7 rotatably attached to a circular container wall and in its normal position during shipment and storage. The score lines 3 and 4 follow the container wall periphery rather closely to define a large tear-out panel to provide easy access to the container contents.

To remove the tear-out panel 2 from the container wall 1 the tab opening device 7, if rotatably attached to the tear-out panel 2, is positioned such that the base 9 thereof overlies and is in alignment with the rupturing section 6 of the tear-out panel 2. If immovably attached, as by welding, the tab opening device 7 will, of course, already be in alignment with the rupturing section 6. The severing member 19 of the tab opening device 7 is then depressed as by finger pressure whereby score lines 3 and 4 defining the rupturing section 6 are initially severed. The raised panels 11 and 12, which extend out beyond a substantial portion of the score lines 3 and 4, function as a stop to prevent the base 9 from being depressed too far into the container and its contents once the score line is initially severed. The lifting member 13 is then bent outwardly from the container wall 1 and will bend at points 14 and 15 which are intermediate the point of attachment 8 and the forward terminal end 17 of the base 9. The concentration of pulling effort on the lifting member 13 will therefore be adjacent to that portion of score lines 3 and 4 which have already been severed. Upon continuously pulling the lifting member

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13 score lines 3 and 4 are severed and the tear-out panel 2 is completely separated from the container wall 1 allowing access to the container contents.

What is claimed is:

1. A tab opening device for a sealed container having a container wall provided with a score line to define a tear-out panel having a rupturing section, said tab opening device being attached at its base to the tear-out panel, one end of said tab opening device being a severing member with a forward terminal end and in substantially the same shape and slightly smaller than said rupturing section and having raised panels extending laterally from the tab opening device base and spanning the score line and extending longitudinally at least to the forward terminal end of said severing member and the other end having a partially cut-away lifting member extending longitudinally on each side of and past the point of tab attachment, said tab opening device being attached to the tear-out panel so that the severing member of the tab opening device overlies the rupturing section of the tear-out panel.

2. A tab opening device for a sealed container having a container wall provided with a score line to define a tear-out panel having a rupturing section, said tab opening device being rotatably attached by a rivet to the tear-out panel, one end of said tab opening device being a severing member in substantially the same shape and slightly smaller than said rupturing section and the other end having a partially cut-away lifting member extending longitudinally on each side of and past the point of tab attachment, said tab opening device being rotatably attached to the tear-out panel so that the severing member can be rotatably moved about the vertical central axis of the rivet to overlie the rupturing section of the tear-out panel.

3. A tab opening device for a sealed container having a container wall provided with a score line to define a tear-out panel having a rupturing section, said tab opening device being rotatably attached at its base by a rivet to the tear-out panel, one end of said tab opening device being a severing member in substantially the same shape and slightly smaller than said rupturing section and having raised panels extending laterally from the tab opening device base and spanning the score line and the other end having a partially cut-away lifting member extending longitudinally on each side of and past the point of tab attachment, said tab opening device being rotatably attached to the tear-out panel so that the severing member of the tab opening device can be rotatably moved about the vertical central axis of the rivet to overlie the rupturing section of the tear-out panel.

4. A tab opening device for a sealed container having a container wall provided with a score line to define a tear-out panel having a tongue-shaped rupturing section, said tab opening device being rotatably attached at its base by a rivet to the tear-out panel, one end of said tab opening device being a severing member in substantially the same shape and slightly smaller than said rupturing section and having raised panels extending laterally from the tab opening device base and spanning the score line and the other end having a partially cut-away lifting member extending longitudinally on each side of and past the point of tab attachment, said tab opening device being rotatably attached to the tear-out panel so that the severing member of the tab opening device can be rotatably moved about the vertical central axis of the rivet to overlie the tongue-shaped rupturing section of the tear-out panel.

5. In combination with a sealed container having a container wall provided with a score line to define a tear-out panel, a portion of which is a rupturing section, means for producing an opening in said container wall comprising a tab opening device rotatably attached at its base by a rivet to the tear-out panel, one end of said

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tab opening device being a severing member in substantially the same shape and slightly smaller than said rupturing section and having raised panels extending laterally from the tab opening device base and spanning the score line and the other end having a partially cut-away lifting member extending longitudinally on each side of and past the point of tab attachment, said tab opening device being rotatably attached to the tear-out panel so that the severing member of the tab opening device can be rotatably moved about the vertical central axis of the rivet to overlie the rupturing section of the tear-out panel, whereby depressive pressure is exerted on the severing member to initially sever the wall along the score line defining the rupturing section whereupon the

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partially cut-away lifting member may be utilized to continue severing of the container wall along the score line and remove the tear-out panel.

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