

United States Patent

[11] 3,604,589

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[56]

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[54] **ANTIFRACTURE COIN FOR PANELLED CAN ENDS**
20 Claims, 10 Drawing Figs.

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220/44
[51] Int. Cl. **B65d17/24,**
B65d 51/16
[50] Field of Search 220/54, 48,
44, 27, 53; 215/46

ABSTRACT: An easy opening can end having a relatively large tear panel defined by a first rupturable score is weakened by a second inner nonrupturable score that takes part of the flexure of the can end that is caused by impacts of the contents of the can during shipment. In addition, the pull tab creates a large vent opening in the can end well before it initiates severance along the first score.

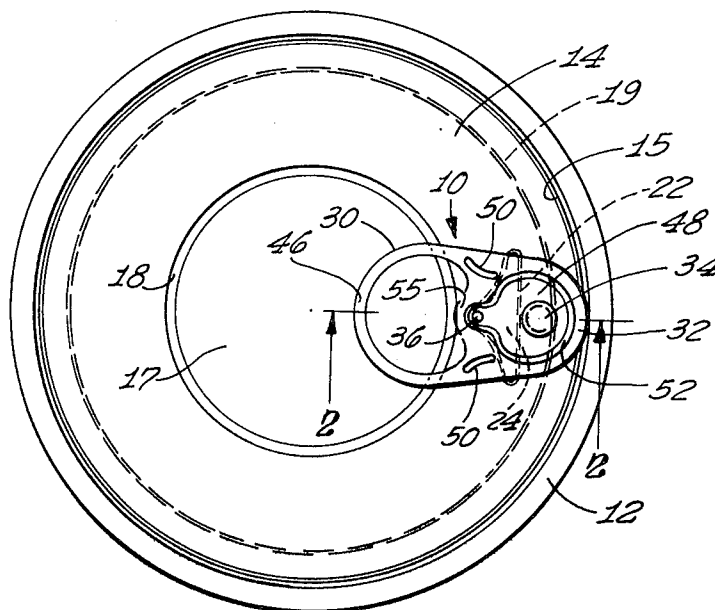


Fig. 1

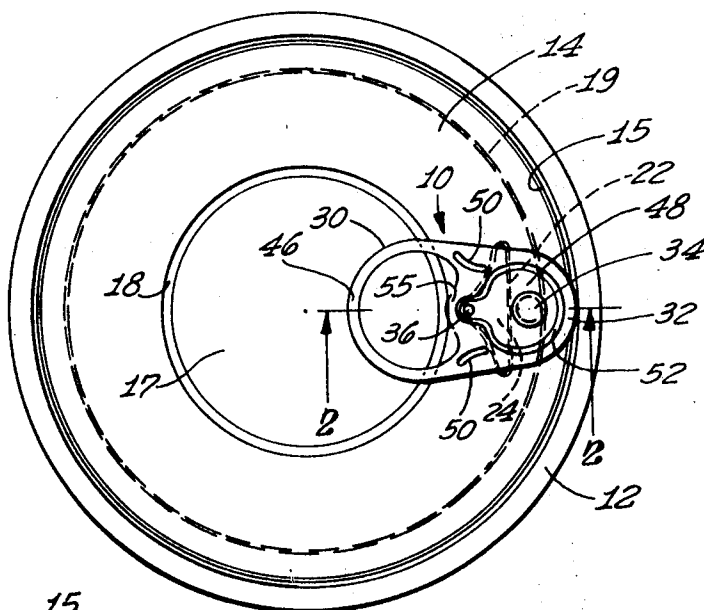


Fig. 3

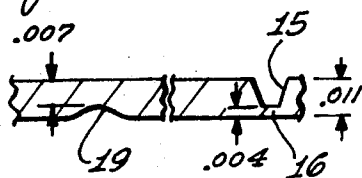


Fig. 2

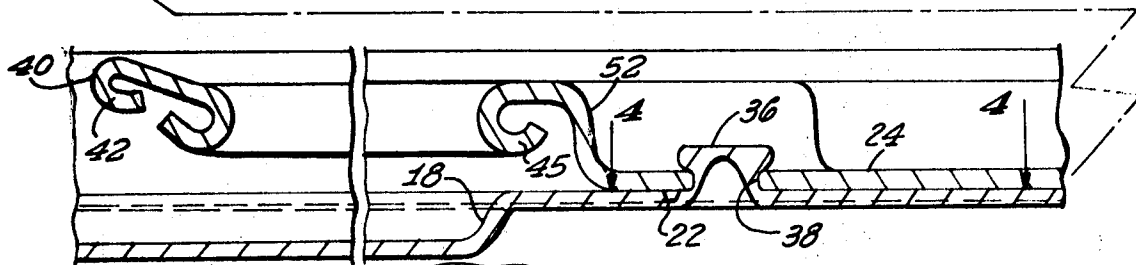
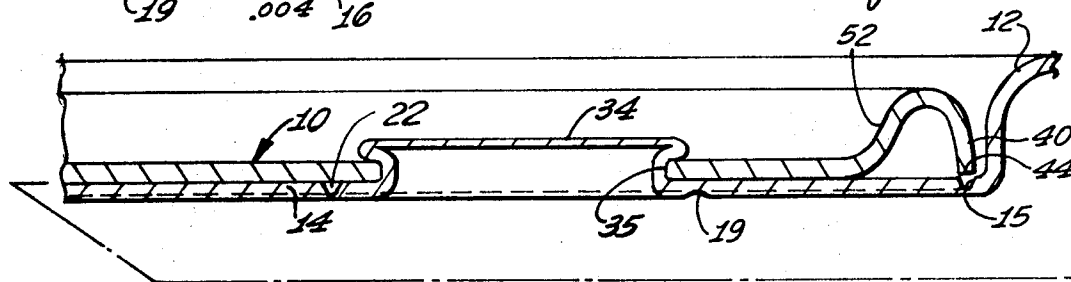
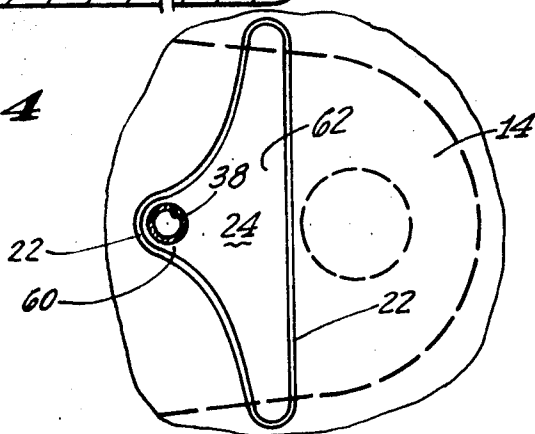
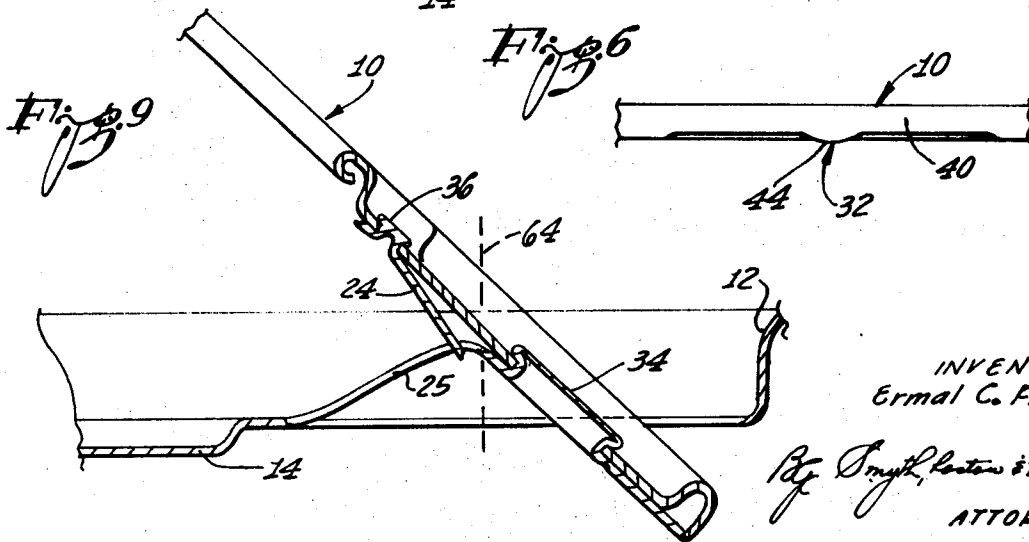
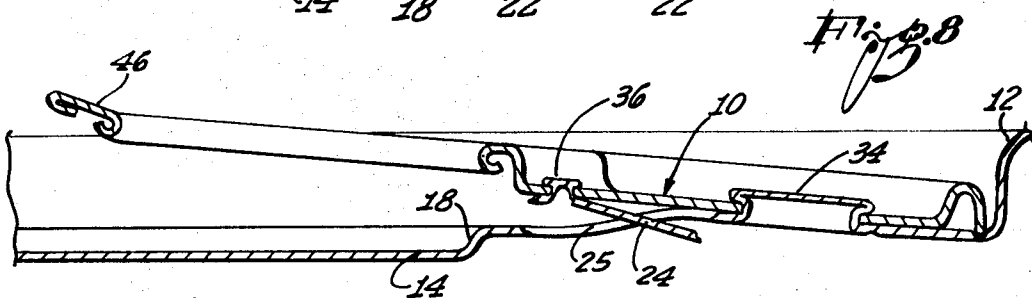
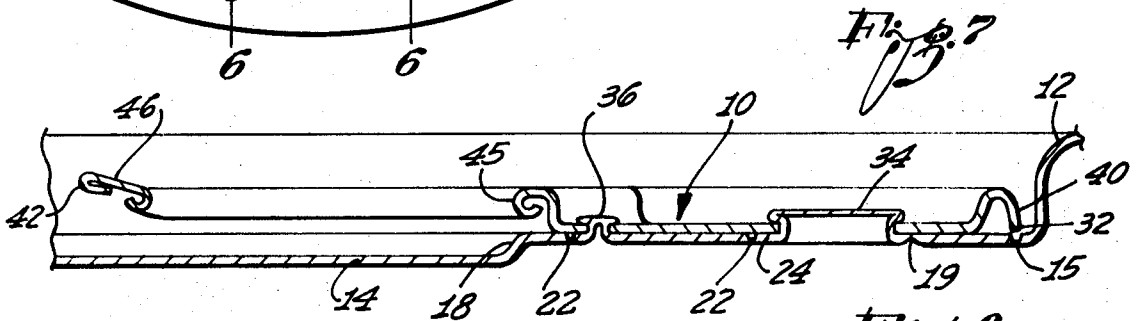
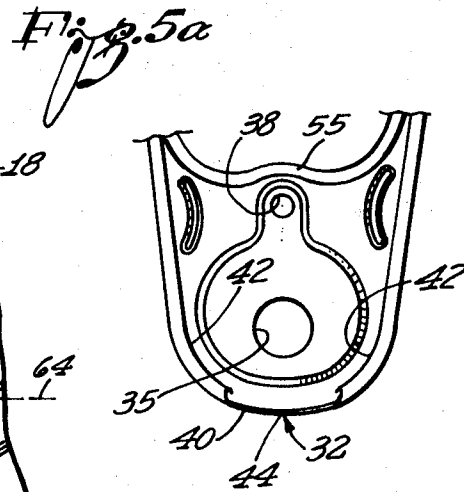
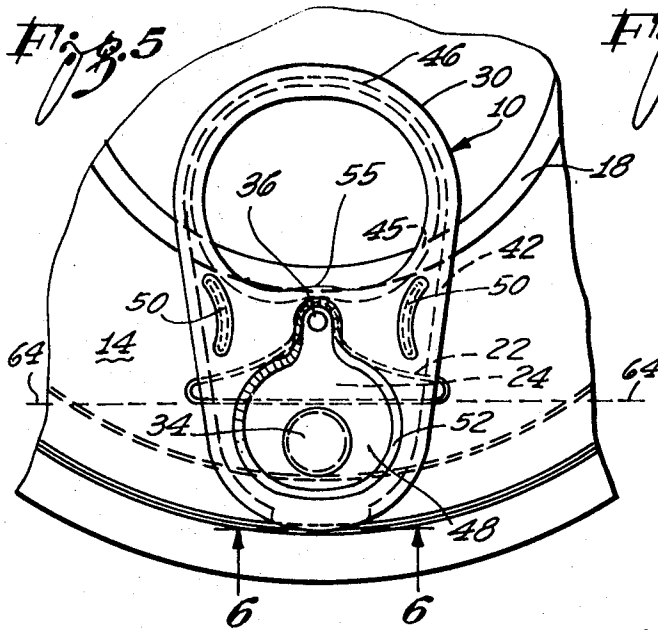


Fig. 4



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ANTIFRACTURE COIN FOR PANELLED CAN ENDS

BACKGROUND OF THE INVENTION

The invention pertains to easy-opening containers of the full panel pullout type wherein the wall of the container has a rupturable score defining a relatively large removable panel and a tab is connected to the removable panel to serve as lever means for initiating severance along the rupturable score. When the handle end of the tab is lifted to carry out the lever action, the tab first creates a vent opening in the container wall and then the working end of the tab fulcrums against the container wall to initiate severance of the panel. Once the severance is initiated, the user pulls on the tab to tear the panel away from the container wall. Tabs of this type are commonly known as front opening tabs.

One of the problems to which the invention is directed relates to the likelihood of the container wall failing during shipment as the result of repeated impacts of the contents of the container against the container wall. For example, various types of nuts are vacuum packed in easy opening containers of the full panel pullout type and during shipment such a container is vibrated and repeatedly joggled, especially when the shipment is by truck, and the consequent repeated flexure of the container wall at the rupturable score too often causes fatigue failure at the score.

Containers of this type are commonly used on products which are maintained at a pressure which is either substantially below atmospheric pressure or substantially above atmospheric pressure. If the container is maintained at subatmospheric pressure, the container should be vented to permit atmospheric air to flow into the container for pressure equalization across the container wall prior to severance of the tear strip thereby to prevent any possibility of the tear strip being projected away from the container at high velocity in a hazardous manner. On the other hand, if the container is maintained at above atmospheric pressure, venting is desirable to permit air to escape from the container for pressure equalization across the container wall prior to initiation of severance of the tear panel to prevent the tear panel from being thrown into the interior of the container by impulsion.

A second problem to which the invention is directed is to provide adequate assurance that the container is effectively vented before severance of the tear panel is initiated. In a vacuum packed container of the full panel pullout type, for example, it is common for the vacuum to drop to a magnitude of approximately 15" in response to the severance of a vent rivet by the pull tab before the pull tab initiates severance of the tear panel. It has been found, however, that the vacuum should be reduced still further, say to a magnitude below 10" before severance of the tear panel is initiated.

SUMMARY OF THE INVENTION

With reference to the first problem of avoiding structural failure of the easy-opening can end during shipment, the rupturable score that defines the tear panel lies close to the periphery of the container wall. Since the rupturable score lies so close to the chuck wall or chime of the can end, the sheet material just outside of the area of the rupturable score is stiffened by the chuck wall and does not yield perceptively to impacts by the contents of the container against the end wall of the container. Inwardly of the periphery of the tear panel, however, the end wall functions as a sensitive diaphragm in response to impact of the can's content and the repeated flexure of the metal at the rupturable score fatigues the thin work-hardened residual web of metal along the score.

The invention solves this problem by weakening the sheet metal of the can end to provide a second nonrupturable score that is spaced radially inwardly of the rupturable score. The second nonrupturable score provides a second residual web of metal for hinge action in response to flexure, the second inner residual web being substantially stronger than the first outer residual web to insure that severance will occur only at the outer residual web.

The second inner nonrupturable score serves its purpose by sharing the flexure of the container wall that occurs in response to repeated impacts by the contents of the container. Consequently the flexure of the residual web at the outer rupturable score is reduced well below the magnitude of flexure that would cause structural failure of the web.

The invention teaches that the second problem of adequate preliminary venting of the container in advance of severance of the tear panel may be insured by a number of features which work together to that end. One of these features is the provision of a relatively large vent opening by defining a relatively large removable vent portion of the container wall by means of a second rupturable score so that initial lifting of the pull tab lifts away the vent portion to form a relatively large vent opening. The provision of a large vent opening that has several times the area of the usual vent opening shortens the time interval required for pressure equalization across the container wall and thus promotes the desired time delay between the formation of the vent opening and the rupturing of the container wall.

Another feature for promoting adequate preliminary venting is provision for effective stiffening of the pull tab by stiffening formations thereof along its whole length to enable the pull tab to function as a rigid lever. If the tab yields by flexure in response to the load imposed by the venting operation, the flexure delays the venting of the container and thus shortens the time interval between the venting of the container and the initial severance of the tear panel.

A third feature for promoting adequate preliminary venting is the attachment of the pull tab to the vent portion of the container wall at a point of the pull tab that is spaced relatively far from the working or fulcrum end of the pull tab. When the pull tab is initially lifted through a given angle to function as a lever, the magnitude of the upward pull on the removable vent portion of the container wall depends upon the distance from the fulcrum end of the pull tab to the point where the pulling action occurs. Thus increasing the distance from the fulcrum end of the tab to the point of the tab that is connected to the removable vent portion of the container wall advances the point in time at which the vent action occurs.

A still further feature of the invention for insuring effective venting of the container prior to the severance of the tear panel is the forming of the pull tab to the working end or fulcrum end of the pull tab with a relatively blunt nose for initiating rupture of the container wall. Blunting the working end of the pull tab amounts to somewhat lessening its puncturing efficiency to require greater pressure and greater angular movement of the tab to initiate severance of the tear panel. Thus, in effect, this feature slightly delays initial rupture of the container wall and thus increases the time interval between the vent action and the rupturing of the metal.

It is apparent that the total or cumulative effect of these four features is to insure that the pressure differential across the container wall is reduced to an insignificant magnitude before severance of the tear panel is initiated.

The features and advantages of the invention may be understood from the following detailed description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which are to be regarded as merely illustrative:

FIG. 1 is a plan view of a can end incorporating a preferred embodiment of the invention;

FIG. 2 is a fragmentary section on an enlarged scale taken as indicated by the line 2—2 of FIG. 1;

FIG. 3 is a greatly enlarged fragment of FIG. 2 showing a cross section of the rupturable outer score and the nonrupturable inner score;

FIG. 4 is a fragmentary plan view of the can end showing a rupturable score line that defines a removable vent portion of the can end;

FIG. 5 is an enlarged plan view of the pull tab;

FIG 5a is a bottom plan view of the forward portion of the pull tab;

FIG. 6 is a fragmentary elevational view of the front or fulcrum end of the tab as seen along the line 6—6 of FIG. 5;

FIG. 7 is a sectional view similar to FIG. 2 on a reduced scale showing the normal position of the pull tab prior to manipulation of the pull tab;

FIG. 8 is a similar sectional view showing the pull tab initially lifted through a small angle with consequent removal of the vent portion of the container wall; and

FIG. 9 is a similar view showing the pull tab at the completion of its lever action in preparation for use of the tab as pull means for completing the severance of the tear panel.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

FIG. 1 is a plan view of an easy-opening can end or end wall embodying a selected practice of the invention, the can end being provided with a suitable pull tab, generally designated 10. The can end, which may be made of a suitable aluminum alloy, has the usual peripheral flange 12 by means of which the can end is assembled to a cylindrical can body (not shown), the flange forming part of the usual chuck wall or chime of the finished can. For the purpose of providing a relatively large removable circular tear panel 14, the end wall is weakened by a circular rupturable score 15 that lies close to the peripheral flange 12. The score 15 is impressed from the outer face of the can end and as indicated in FIG. 3, the score is trapezoidal in cross section with two relatively sharp corners, the score forming a residual web 16 of work-hardened metal adjoining the inner face of the can end. In addition, the can end is depressed over a concentric area to form a depression 17 defined by a surrounding offset shoulder 18. The depression 17 provides clearance under the inner end of the tab 18 and the circular shoulder 18 stiffens the can end.

To prevent fatigue of the residual web 16 by repeated flexure of the end wall of the can by impact of the contents of the can against the end wall in the course of shipment, the can end is weakened along a second circular nonrupturable coin or score 19 that lies radially inwardly from the rupturable score 15. The second inner nonrupturable score or coin 19 is impressed from the inner face of the can end to leave a relatively thick residual web 20 that adjoins the outer face of the can end. There is no possibility of the can end being ruptured along the second inner score 19 by flexure of the can end during shipment because the residual web 20 is relatively thick and relatively lightly work-hardened and because, furthermore, the cross-sectional configuration of the inner score is curved and free from any sharp corners as may be seen in FIG. 3.

I am aware that the Jasper U.S. Pat. No. 3,406,866 teaches that a nonrupturable score may be positioned radially inwardly from a rupturable score that defines a large tear panel but in that disclosure the purpose of the nonrupturable score is to increase the strength of the adjacent rupturable score by reducing strain risers or stress at the rupturable score and to have this effect, the inner nonrupturable score must be relatively close to the outer rupturable score. As stated in the Jasper patent, the center-to-center spacing between the outer rupturable score and the inner nonrupturable score when both scores are impressed from the outer face of the container wall is in the range of 0.050 inch to 0.125 inch, the optimum spacing being on the order of 0.080 inch and when the two scores are too far apart the inner nonrupturable score has no influence on the strength of the outer rupturable score.

In the present embodiment of the invention the inner nonrupturable coin or score 19 is on the inner face of the container wall instead of being on the outer face as taught by Jasper. Within the scope of the invention, however, the nonrupturable score 19 may be on the outer face of the container wall but at a spacing of more than one-eighth inch from the rupturable score 15.

The nonrupturable coin or score 19 serves its purpose by flexing in response to impact of the can contents during shipment, the inner nonrupturable score sharing with the outer rupturable score some of the impact-responsive flexure of the can end and thus reducing the amount of flexure at the outer rupturable score. In this manner, the magnitude of the impact-responsive flexure of the residual web 16 of the outer rupturable score 15 is substantially lowered from a magnitude that would cause fatigue failure during shipment.

In effect the two residual webs 16 and 20 function as hinges in their flexural responses to impacts against the can end during shipment. The hinge at the outer residual web 16 opens outwardly of the can wall as may be seen in FIG. 3 and the hinge at the inner residual web 20 opens inwardly of the can wall. Thus in any flexure of the can end either outwardly or inwardly, one of the two hinges opens slightly and the other of the two hinges closes slightly.

The can end if further provided with a rupturable score 22 which as best shown in FIG. 4 defines what may be termed a vent portion 24 of the can end which preferably is elongated as shown. Removal of the vent portion 24 creates a corresponding vent opening 25 in the can top as shown in FIG. 8.

The tab 10 has a ring-shaped handle end 30 and an opposite working end or fulcrum end 32 for initiating rupture of the can end along the outer score 15. The tab 10 is connected to the tear panel 14 at a first point represented by a first relatively large rivet 34 which is a hollow rivet that is integral with the can end in a well known manner. The hollow rivet 34 extends through a circular aperture 35 of the tab as best shown in FIG. 2.

In the like manner, the tab 10 is connected to the tear panel 14 in the area of the vent portion 24 at a second point represented by a second smaller rivet 36 that is also an integral part of the can end, the second rivet extending through a second small aperture 38 in the tab as shown in FIG. 2. It is to be noted that the second point of attachment of the tab to the tear panel at the second smaller rivet 36 is intermediate the handle end of the tab and the first point of attachment at the first rivet 34.

A feature of the invention is the manner in which the tab 10 is stiffened longitudinally by stiffening formations to avoid any significant degree of flexure when the tab is lifted to exert rupturing force on the vent portion 24 of the can end and subsequently to exert downward rupturing force on the can end at the outer score 15. For this purpose, the entire periphery of the pull tab is reinforced by a downwardly extending flange 40 which is curled inwardly as indicated at 42 except at the working end 32 of the tab where, as shown in a bottom plan view in FIG. 5a, the inwardly curled portion is cut away to narrow the flange 40 and to leave the flange 40 extending straight downward. As shown in FIG. 6, the straight portion of the flange 40 at the working end 32 of the tab is formed with a relatively blunt nose 44 which, as may be seen in FIG. 2, is poised intermediately over the outer rupturable score 16.

The ring-shaped handle portion of the tab is further reinforced by a downward and inwardly curled inner circumferential flange 45 and preferably the outer end of the ring-shaped handle is flattened as indicated at 46 in FIG. 5. The flattening of the outer end of the ring-shaped handle together with the provision of the depression 26 in the can end provides liberal clearance under the handle end of the tab for the convenience of the user in the initial manipulation of the tab.

Additional longitudinal stiffening of the tab 10 is provided by depressing a pear-shaped area 48 of the tab and by further forming the tab with two outwardly offset ribs 50 near the opposite longitudinal sides of the tab. The depressed pear-shaped area 48 includes both of the rivets 34 and 36 and forms a continuous offset stiffening shoulder 52 around the depressed area. It is to be noted that the two ribs 50, which are preferably arcuate as shown, overlap the longitudinal zone of the inner circumferential flange 45 of the ring-shaped handle and also overlap the longitudinal zone of the continuous offset shoulder 52 around the depressed area 48, these overlapping

relationships serving to stiffen the tab from the handle end 30 of the tab to the working end 32.

It is to be noted that for the purpose of spacing the small vent rivet 36 at a maximum distance from the working end 32 of the tab, the depressed area 48 is of a pear-shaped configuration that provides a bay encompassing the vent rivet 36, the finger opening of the handle of the tab being slightly reentrant or inwardly bulging as indicated at 55 to provide room for the bay and the vent rivet therein.

A feature of the invention is the shape and size of the vent portion 24 as defined by the rupturable score in FIG. 4, the shape being characterized by a relatively narrow leading end 60 and a relatively broad trailing end 62.

Preferably the width of the trailing end of the vent portion 24 is at least half the width of the portion of the tab 10 that lies above the vent portion. In the present embodiment of the invention as shown in FIG. 5 the width of the trailing end 62 of the vent portion 24 is at least approximately the full width of the corresponding portion of the tab. It is to be noted that the portions of the score 22 that define the opposite sides of the leading end 60 of the vent portion extend generally radially of the can end and are in general in approximate alignment with the longitudinal axis of the tab 10.

It is well known that it is easier to sever sheet metal along a score line that is in alignment with the applied severing force than to sever sheet metal along a score line that is transverse to the applied force. Thus the orientation of the leading end 60 of the vent portion relative to the longitudinal axis of the pull tab 10 favors easy initial severance of the vent portion when the tab is initially lifted to a relatively low angle of inclination. When the tab is subsequently lifted to a higher angle the leverage is more favorable, and the leverage progressively increases as the severance of the vent portion 24 progresses to the widened trailing end 62 of the vent portion.

It is further important to note that because of the relatively great width of the trailing end 62 of the vent portion 64 and the closeness of the trailing end to the rivet 34, the consequent vent opening 25 has a substantial weakening effect on the tear panel 14 to reduce the resistance to bending of the tear panel by the continued lifting of the tab. Thus the widening of the trailing end 62 of the vent portion 24 reduces the effort required to initiate severance of the tear panel 14 at the rupturable score 15.

The manner in which the pull tab serves its purpose may be readily understood by reference to FIGS. 7, 8 and 9. FIG. 7 shows the tab 10 at its normal position lying close to the tear panel 14 with the ring-shaped handle end of the tab overhanging the depression 26 in the can end. When the tab is initially lifted to a relatively low angle as shown in FIG. 8 the tab fulcrums on its working end and pulls upward on the vent portion 24 to sever the vent portion from the tear panel and thus form the previously mentioned vent opening 25 in the tear panel. Since the vent rivet 36 is spaced so far from the working end of the tab, the upward inclination of the tab through the small angle shown in FIG. 8 lifts the vent rivet 36 to a relatively high level for effective severance of the vent portion 24.

Continued lifting of the tab 10 causes the can end to bend for hinge action along the dotted line 64 in FIG. 5 by virtue of weakening of the can end by the vent opening 25. Further lifting of the handle end of the tab eventually causes the blunt nose 44 of the tab to initiate severance of the tear panel 14 along a portion of the outer rupturable score 15, the tab swinging to the position shown in FIG. 9 in response to initial rupture of the metal. The operator may then pull rearwardly and upwardly on the tab to complete the severance of the tear panel 14.

It is apparent that the invention insures that the pressure differential across the thickness of the tear panel will be drastically reduced by venting if not completely eliminated before the rupture of the metal at the outer score 15 occurs to initiate severance of the tear panel. To this end the area of the vent opening 25 is many times the area of the vent rivet 36 instead of being of substantially the same area. The large area of the

vent opening permits immediate air flow of large volume into the interior of the can if the can is under a vacuum of immediate air flow of large volume out of the interior of the can into the atmosphere if the interior on the can is pressurized. Thus the large area of the vent opening 25 shortens the period of time required for adequate venting of the container and the relatively large spacing of the vent rivet 36 from the nose of the tab advances the point in time at which the vent opening is formed relative to the point in time at which the nose of the tab ruptures the metal at the outer score 15. In addition, the blunt configuration of the nose 44 of the tab serves the same purpose by delaying the initial rupture of the sheet metal.

My description in specific detail of the presently preferred embodiment of the invention will suggest various changes, substitutions and other departures within the spirit and scope of the invention.

I claim:

1. In an easy-opening wall of a container having a rupturable score indented from the outer face of the container wall and defining a relatively large tear panel,

the improvement to prevent fatigue failure of the wall at the rupturable score by repeated flexure of the wall caused by repeated impacts of the container content against the container wall during shipment of the container, comprising:

the provision of a second nonrupturable score indented from the inner face of the container wall and spaced radially inwardly from the rupturable score to share with the rupturable score the repeated flexure of the container wall and thus lessen the magnitude of the repeated flexure at the rupturable score,

the two scores forming flexible hinges to flex in response to outward and inward bulging of the container wall, one hinge opening slightly and the other hinge closing slightly in response to either outward or inward bulging of the container wall.

2. An improvement as set forth in claim 1 in which the second nonrupturable score is of rounded cross-sectional configuration without sharp corners.

3. In an easy-opening wall of a container having a rupturable line of weakness defining a relatively large tear panel,

the improvement to prevent fatigue failure of the wall at the rupturable line of weakness by repeated flexure of the wall caused by repeated impacts of the container content against the container wall during shipment of the container, comprising:

the provision of a second nonrupturable line of weakness radially inward from the rupturable line of weakness to share with the rupturable line of weakness the repeated flexure of the container wall and thus lessen the magnitude of the repeated flexure at the rupturable line of weakness,

the second nonrupturable line of weakness being a score of rounded cross-sectional configuration without sharp corners.

4. In an easy opening wall of a container having an internal pressure substantially different from atmospheric pressure wherein a rupturable line of weakness defines an at least partially removable tear panel and a vent portion of the container wall is removable to form a vent opening to equalize the pressure across the thickness of the wall and wherein a pull tab of sheet material has a handle end for manual manipulation and has a working end overhanging the tear panel to fulcrum against the tear panel to initiate severance of the tear panel, the tab being attached to the tear panel at a first point intermediate the two ends of the tab and being attached to said vent portion at a second point intermediate the first point and the handle end of the tab for removal of the vent portion,

the improvement to assure adequate venting of the container prior to the initial rupture of the container wall at said line of weakness, comprising:

the tab having stiffening formations to make the tabs substantially rigid to prevent time-delaying flexure of the tab when the tab is lifted to create the vent opening,

said stiffening formations including an offset area that encompasses said two points and forms a continuous stiffening shoulder around the area,

said area having a bay extending toward the handle end of the tab encompassing said second point and spacing the second point substantially from the working end of the tab to advance the timing of the venting of the container relative to the timing of the initial severance of the tear panel.

5. An improvement as set forth in claim 4 in which the handle portion of the tab has stiffening flanges and in which the tab is further formed with longitudinal stiffening ribs spaced from said bay on opposite sides thereof and extending towards the handle end of the tab, the longitudinal zone of said ribs overlapping both the longitudinal zone of said stiffened handle portion and the longitudinal zone of said continuous stiffening shoulder to prevent such flexure of the tab between the handle end and the second point as would significantly delay the timing of the venting of the container relative to the timing of initial manual lift of the handle end of the tab.

6. An improvement as set forth in claim 5 in which said handle portion forms an opening for the user's finger and the rim of the opening is flanged to stiffen the handle portion.

7. An improvement as set forth in claim 6 in which said opening is re-entrant to accommodate the bay and thus permit increased spacing of said second point from the working end of the tab.

8. An improvement as set forth in claim 6 in which the tab has a stiffening marginal flange extending along both sides of said handle portion and along both longitudinal sides of the tab to the working end of the tab for further stiffening of the length of the tab.

9. An improvement as set forth in claim 8 in which the working end of the tab is rounded in plan configuration and said stiffening marginal flange is continuous around the working end of the tab.

10. An improvement as set forth in claim 4 in which said area except for said bay is of generally circular configuration.

11. An improvement as set forth in claim 4 in which the working end of the tab is relatively blunt to delay initiation of severance of the tear panel by the tab.

12. In an easy opening wall of a container having an internal pressure substantially different from atmospheric pressure wherein a rupturable line of weakness defines an at least partially removable tear panel and a vent portion of the container wall is at least partially removable to form a vent opening to equalize the pressure across the thickness of the wall and wherein a pull tab of sheet material has a handle end for manual manipulation and has a working end overhanging the tear panel to fulcrum against the tear panel to initiate severance of the tear panel, the tab being attached to the tear panel at a first point intermediate the two ends of the tab and being attached to said vent portion at a second point intermediate the first point and the handle end of the tab for removal of the vent portion,

the improvement to facilitate severance of the tear panel and to assure adequate venting of the container prior to initiation of the severance to the tear panel, comprising:

the tab being substantially rigid throughout its length to avoid time-delaying flexure of the tab when the handle end of the tab is lifted,

said vent portion of the container wall being within the area of said tear panel and adjacent the region where the tab is attached to the tear panel,

the tab being attached to said vent portion by a rivet and the cross dimension of the vent portion being many times the cross dimension of the rivet to shorten the time required for effective venting of the container,

at least the leading end and the two sides of said vent portion being defined by a rupturable score, (the leading end of said vent portion being relatively narrow and extending towards the handle end of the tab, said leading end being in general alignment with the longitudinal axis of the tab with said rivet near the tip of the leading end whereby ini-

tial severance of the vent portion is facilitated by the rupturable score on opposite sides of the leading end being in approximate alignment with the severance force exerted by the tab,)

said vent portion having a relatively wide trailing end adjacent the region where the tab is attached to the tear panel whereby severance of the trailing end substantially weakens the tear panel adjacent said region with consequent lowering of the resistance of the tear panel to bending by the tab to reduce the force required to initiate severance of the tear panel by the tab.

13. An improvement as set forth in claim 12 in which said handle end of the tab forms an opening for the user's finger and said opening has a reentrant portion to accommodate said leading end of the vent portion for increased spacing of the rivet from the working end of the tab to advance the timing of initiation of the venting of the container relative to the timing of lifting the handle end of the tab.

14. An improvement as set forth is claim 12,

in which the tab has a depressed area for stiffening of the tab;

in which said depressed area is formed with a bay encompassing said rivet;

in which the handle portion of the tab has stiffening flanges; and

in which the tab is further formed with longitudinal stiffening ribs spaced from said bay on opposite sides thereof and extending towards the handle end of the tab, the longitudinal zone of said ribs overlapping both the longitudinal zone of said stiffened handle portion and the longitudinal zone of said continuous stiffening shoulder to prevent such flexure of the tab between the handle end and the second point as would significantly delay the timing of the venting of the container relative to the timing of initial manual lift of the handle end of the tab.

15. In an easy opening wall of a container having an internal pressure substantially different from atmospheric pressure wherein a rupturable line of weakness defines an at least partially removable tear panel and a vent portion of the container wall is at least partially removable to form a vent opening to equalize the pressure across the thickness of the wall and wherein a pull tab of sheet material has a handle end for manual manipulation and has a working end overhanging the tear panel to fulcrum against the tear panel to initiate severance of the tear panel, the tab being attached to the tear panel at a first point intermediate the two ends of the tab and being attached to said vent portion at a second point intermediate the first point and the handle end of the tab for removal of the vent portion,

the improvement to facilitate severance of the tear panel and to assure adequate venting off the container prior to initiation of the severance of the tear panel, comprising:

the tab being substantially rigid throughout its length to avoid time-delaying flexure of the tab when the handle end of the tab is lifted,

the tab being attached to said vent portion by a rivet and the cross dimension of the vent portion being many times the cross dimension of the rivet to shorten the time required for effective venting of the container,

at least the leading end and the two sides of said vent portion being defined by a rupturable score,

the leading end of said vent portion being relatively narrow and extending towards the handle end of the tab,

said leading end being in general alignment with the longitudinal axis of the tab with said rivet near the tip of the leading end whereby initial severance of the vent portion is facilitated by the rupturable score on opposite sides of the leading end being in approximate alignment with the severance force exerted by the tab,

said vent portion having a relatively wide trailing end whereby severance of the trailing end substantially weakens the tear panel to bending by the tab to reduce the force required to initiate severance of the tear panel by the tab,

the tab having an offset area that encompasses said two points and forms a continuous stiffening shoulder around the area,

said area having a bay extending towards the handle end of the tab and encompassing said rivet, said bay overlying the leading end of the vent portion of the container wall.

16. An improvement as set forth in claim 15 in which said area except for said bay is of generally circular configuration with said trailing end of the vent portion underlying said circular part of said area.

17. An improvement as set forth in claim 15 in which the width of said trailing end of the vent portion is substantially more than half of the width of the circular portion of said area.

18. In an easy opening wall of a container having an internal pressure substantially different from atmospheric pressure wherein a rupturable line of weakness defines an at least partially removable tear panel and a vent portion of the container wall is removable to form a vent opening to equalize the pressure across the thickness of the wall and wherein a pull tab of sheet material has a handle end for manual manipulation and has a working end overhanging the tear panel to fulcrum against the tear panel to initiate severance of the tear panel, the tab being attached to the tear panel at a first point inter-

mediate the two ends of the tab and being attached to said vent portion at a second point intermediate the first point and the handle end of the tab point intermediate the first point and the handle end of the tab for removal of the vent portion,

the improvement to assure adequate venting of the container prior to the initial rupture of the container wall at said line of weakness and to reduce the effort required to manipulate the tab, comprising:

said vent portion lying close to said first point and being increased in width near the first point for adequate venting and to cause the removal of the vent portion to weaken the wall of the container along a line transversely of the tab near said first point to cause the wall to bend substantially as said line in response to further lifting of the tab after the vent portion is removed by the tab.

19. An improvement as set forth in claim 18 in which the width of said vent portion is at least half the width of the portion of the tab above the vent portion.

20. An improvement as set forth in claim 18 in which the width of said vent portion is at least approximately as wide as the portion of the tab above the vent portion.

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