ABSTRACT

This disclosure relates to the protection of a raw edge which results in the opening of a container by tearing either completely or partially therefrom a panel portion. The panel portion is normally defined by a score line along which the container is ruptured, thereby permitting the displacement of the displaceable panel portion. The resultant raw edge is very sharp and may cause injury. It is proposed to mask the resultant raw edge by applying to the container a band of adhesive compound on at least one surface thereof with the adhesive compound being bonded to the container at opposite sides of the score line. When this displaceable panel portion is displaced, the compound will remain attached to the container surrounding the dispensing opening formed in the displacement of the panel portion and automatically mask the raw edge.

8 Claims, 4 Drawing Figures
SCORE EDGE PROTECTION

This invention relates in general to new and useful improvements in easy opening container construction, and more particularly to means for masking the resultant raw edge formed when a dispensing opening is formed in the container through the displacement of a panel portion thereof.

BACKGROUND OF THE INVENTION

It is well known to provide easy opening container construction by forming a weakening line in one panel of a container with the weakening line being in the form of a score defining a displaceable portion of such panel. Normally, the displaceable panel portion is fully removable although in certain container construction it is feasible to permit the displaceable panel portion to remain attached to the container panel in folded or hinged relation with respect thereto. The displacement of the displaceable panel portion is effected by a tearing of the container panel along the score line. This obviously results in a raw edge which, if contacted by one's body, may cut or scrape one. This, obviously, is undesirable.

In the past, it has been known to apply a compound to one side of a container panel along a line of weakening formed therein with the compound extending to both sides of the weakening line. Such an arrangement is shown in the patent to Rabak U.S. Pat. No. 2,723,778. However, in accordance with this patent, the weakening line is not in the form of a score, but is in the form of a cut and the material is in the form of a sealing compound which ruptures during the opening of the container without masking the cut edge defining the dispensing opening.

In the patent to Stec U.S. Pat. No. 3,447,713 there is disclosed a device which is primarily an anti-implosion ring, but which is disclosed as a score shield. However, in lieu of being simply a band of compound which may readily directly applied to the container panel, in Stec the score shield is in the form of a relatively rigid ring which is either adhesively bonded to the underside of an end panel or is secured in the corner between and in the unit in a container body. The Stec patent in no way suggests the use of an inexpensive compound which extends across a weakening line of an easy opening container panel and which is initially bonded to the container panels on opposite sides of a weakening line.

SUMMARY OF THE INVENTION

In accordance with this invention, the undesired raw edge resulting from the displacement of a removable panel portion of an easy opening container by a tearing operation is accomplished by simply applying to the container panel a band of adhesive compound, which adhesive compound extends to opposite sides of the weakening line and which compound has sufficient cohesion to resist tearing apart whereby when a displaceable panel portion is displaced, the band of compound will remain adhered to the main portion of the container and will mask the resultant raw edge.

A principal feature of the adhesive compound is that it may be a conventional compound which is readily available and which may be applied in the same manner as compound which is now applied to end units for the sealing of seams whereby the added expense of the adhesive compound is relatively low and therefore commercially feasible.

A further feature of the invention is that the adhesive compound, being one acceptable in the canning industry will be well known for its non-contamination properties and therefore clearly acceptable.

A further feature of the invention is that the customary container is provided with a corner into which the adhesive compound may flow with the corner defining a boundary of the band of adhesive compound and furthermore providing for a maximum of adhesion between the band of compound and that portion of the container which remains after the displaceable panel has been displaced.

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 drawing.

In the drawing:

FIG. 1 is a bottom perspective view of an end unit incorporating the band of adhesive compound.

FIG. 2 is an enlarged fragmentary vertical sectional view taken along the line 2—2 of FIG. 1 and shows specifically the relationship of the adhesive compound to the end unit construction.

FIG. 3 is an enlarged fragmentary sectional view taken through one end of a container and shows the progressive stripping of the displaceable panel portion from the band of compound.

FIG. 4 is a fragmentary sectional view similar to FIG. 3 and shows the displaceable panel unit displaced and the band of compound masking the resultant raw edge.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIG. 1 an end unit which is generally identified by the numeral 5. The illustrated end unit 5 is a conventional easy opening end unit which has been modified in accordance with this invention.

As is best shown in FIG. 2, the end unit 5 includes a central end panel 6 which is surrounded by a shock absorbing bead 7, the bead 7 being partially formed by a continuation of a chuck wall 8. The chuck wall 8 terminates in the usual seaming curl 10.

The end unit 5, being an easy opening end unit, is provided with a line of weakening in the form of score 11, defining a displaceable panel portion 12. The illustrated end unit 5 is in the form of a full opening end unit with the result that the displaceable panel portion 12 is formed of a major portion of the end panel 6 and is entirely removable. However, the configuration of the score line 11 and the displaceable panel portion 12 defined thereby may vary in accordance with the desired configuration of the dispensing opening. It will also be readily apparent that it is not absolutely necessary that the displaceable panel portion 12 be fully removable.

It is to be understood that the displaceable panel portion 12 will be removable or displaceable in the customary manner and that for this purpose the end unit 5 will be provided with a selected form of pull member (not shown) which may be secured to the panel portion 12 in any desired manner, such as by the illustrated conventional rivet 13.

It is to be understood that when the panel portion 12 is removed from the end panel 6, a tearing of the metal of the end panel 6 along the score line 11 occurs, leav-
ing a very sharp raw edge. This raw edge, if engaged by one's fingers or hand, will often cut or scrape. In accordance with this invention, the raw edge will automatically be masked by means of a band 14 of adhesive compound which is preferably secured to the underside of the end panel 6 in alignment with the score line 11 and projecting on opposite sides thereof, that is outwardly and inwardly thereof. The adhesive compound 14 may be selected from well known types of adhesive compounds and is preferably one which will directly bond to the coatings which are commonly applied to end units. In the case of plain end units, it may be of the type which will directly bond to the plain metal of the end unit.

At this time, it is pointed out that the shock absorbing bead 7 is partially defined by an internal flange 15 which is disposed adjacent the score line 11 and which, together with the adjacent portion of the end panel 6 defines a corner 16. The flange 15, when it exists, may be utilized as a boundary for the adhesive compound of the band 14 as it is applied. Also, by applying the adhesive compound to the band 14 in the corner 16, a greater adhesion of the band 14 to the unit 5 outwardly of the score line 11 and to the displaceable panel portion 12 is assured.

The end unit 5 will be secured to a container body 17 in any conventional manner, including the illustrated double seam 18 (FIG. 3). It will be seen that in the preferred embodiment of the invention, the band 14 of adhesive compound is fully applied to the end unit 5 prior to the securement of the end unit 5 to the container body 17. This permits the ease of application of the adhesive compound and the adhesive compound may be readily applied in any conventional manner, preferably by extruding the same from a nozzle onto the end unit while the end unit is rotating. It is to be understood, however, that the invention does not preclude the application of the band 14 of adhesive compound after the seaming of the end unit to the container body and in the event the end unit is not provided with a shock absorbing bead, the adhesive compound of the band 14 could extend into the corner of the container.

With particular reference to FIG. 3, it will be seen that when the displaceable panel portion 12 is being displaced with respect to the adjacent portion of the end panel 6 and rupture along the score line 11 has been effected, there is a peeling of the panel portion 12 from the band 14 although the adherence of the adhesive material of the band 14 to the displaceable panel portion 12 will be sufficient to effect a slight pulling of the material of the band 14 around the resultant raw edge 20 of the end panel 6. This is best shown in FIG. 4 wherein the raw edge 20 is illustrated as defining a dispensing opening 21 formed in the end unit 5.

It is to be understood that adhesive material of the band 14 is sufficiently cohesive so as to assure against the internal separation thereof while the panel portion 21 is being peeled therefrom.

While numerous adhesive compounds will known to can manufacturers may be utilized in the formation of the band 14, specific tests were initially successfully run utilizing both the plain and coated end units with the adhesive compound of the band 14 formed of the following compounds:

1. No. 5021 Chem-o-Sol
2. Darex No. 1-DA-4B

All of the above compounds are commercially available compounds well known to can manufacturers.

Although only a preferred embodiment of the invention has been specifically illustrated and described, it is to be understood that minor variations may be made in the disclosed method of protecting a score edge without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed as new:

1. A container panel having a displaceable panel portion defined by a line of weakening and adapted to form a dispensing opening when said panel portion is displaced, and a band of adhesive compound secured to at least one surface of said container panel in alignment with said line of weakening and extending on both sides of said line of weakening, and said band of compound having a sufficient bond with said container panel portion to remain attached to said container panel when said displaceable panel portion is displaced and sufficient cohesion to resist tearing apart and to be separated from said displaceable panel portion when said displaceable panel portion is displaced to mask a resultant raw edge formed along said line of weakening.

2. The container panel of claim 1 wherein said band of compound is formed of a readily extrudable material and is formed in place.

3. The container panel of claim 2 wherein said compound is a conventional gasket-type compound.

4. The container panel of claim 1 wherein there is a flange disposed adjacent to said line of weakening and defining in combination with said panel a corner, said band of compound extending into said corner and being bonded to said flange assuring a firm bond between said band of compound with said panel outwardly of said line of weakening.

5. The container panel of claim 4 wherein said flange is integrally formed with said container panel.

6. The container panel of claim 4 wherein said flange defines a border for said band of compound during the application thereof.

7. The container panel of claim 4 wherein there is a positive bond between said band of compound and said displaceable panel portion.

8. The container panel of claim 1 wherein there is a positive bond between said band of compound and said displaceable panel portion.