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2,814,428

CONTAINER WITH IMPROVED PULL TAB SIDE SEAM

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FIG. 1

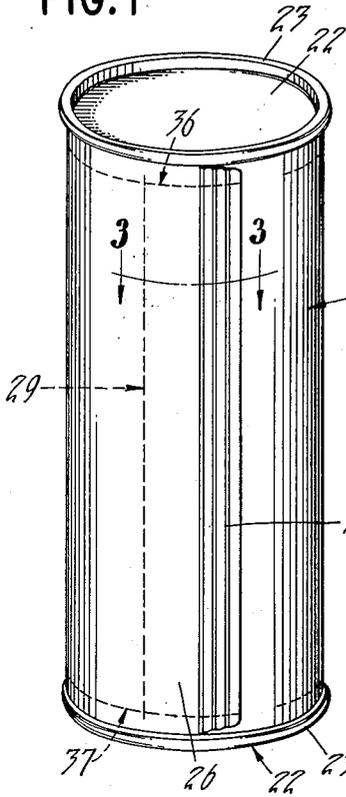


FIG. 2

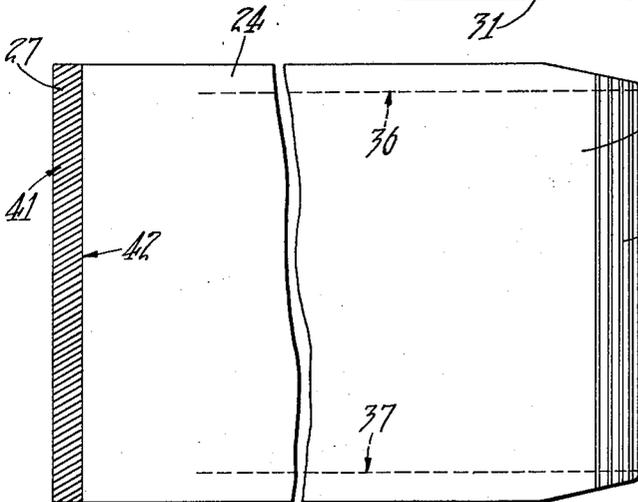


FIG. 3

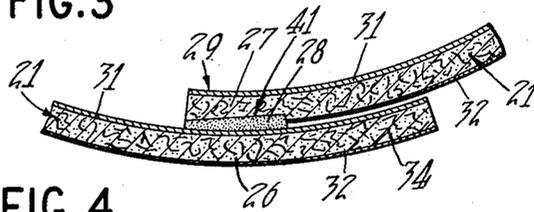


FIG. 4

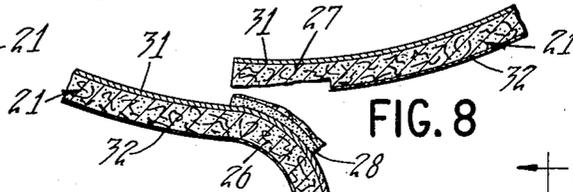


FIG. 9

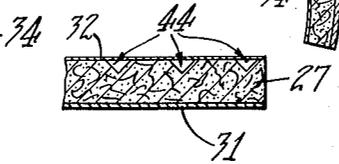


FIG. 7

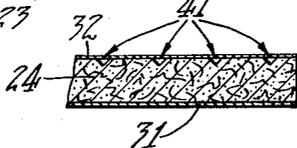


FIG. 6

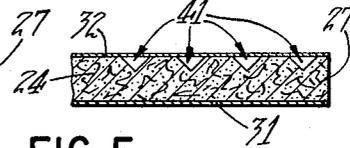
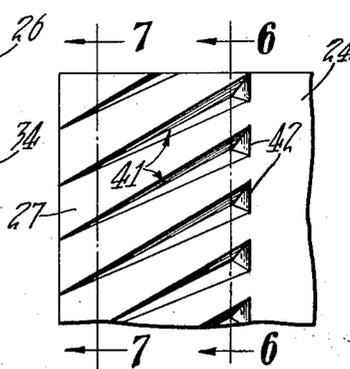


FIG. 5



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1

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CONTAINER WITH IMPROVED PULL TAB SIDE SEAM

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6 Claims. (Cl. 229—51)

The present invention relates to tubular fibre containers having pull tabs along the side seams for opening the containers and has particular reference to a novel feature in the side seam which permits of clean opening of the seam without delamination of the fibrous material from which the containers are made.

Certain products, such as biscuit dough and the like are packaged in composite containers comprising a tubular fibre body and metal end closures permanently secured thereto. The side seam edges of the body preferably are joined in an adhesively secured lap side seam. To facilitate opening of the container a flap or tab extension on the outer lap is provided along the entire length of the seam on the outside of the body so that it may be readily gripped and pull-raised to break the seam open.

In containers of this nature, a strong adhesive bond at the side seam is required to withstand considerable internal pressure which is often present in the contents of such containers. With such a strong bond, it has been found that when the tab is pulled outwardly to break the seam, the bond holds to such an extent as to cause the outer skin of the fibre material to break and thereby cause delamination of the fibre material so that a thin sheet or "onion skin" is left in place when the tab is peeled back to open the container. This "onion skin" must be removed with some trouble before the container is fully opened. This is of considerable annoyance to the consumer when trying to open the container.

An object of the instant invention is the provision of means in the side seam of such a container which overcomes this difficulty and which permits of a clean breaking of the seam so that the container is fully open upon pulling away of the side seam tab.

Another object of the invention is the provision in such a container of a means for weakening one of the fibrous components of the side seam on the appropriate side of the seam so as to control the delamination of the fibrous structure in such a manner as to effect a clean breaking open of the seam without the formation of an "onion skin."

Another object is the provision of such means which may be readily formed in the blank from which the container body is made and which is efficient in operation.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective view of a sealed composite container embodying the instant invention;

Fig. 2 is a plan view of a flat blank from which the body of the container shown in Fig. 1 is made, portions of the blank being broken away;

Fig. 3 is an enlarged fragmentary sectional view of the side seam of the container, the view being taken along a plane indicated by the lines 3—3 in Fig. 1;

2

Fig. 4 is a view similar to Fig. 3 showing the seam broken cleanly when the outer flap tab is pulled away.

Fig. 5 is an enlarged plan view of a corner of the blank at the upper left as viewed in Fig. 2;

5 Figs. 6 and 7 are sectional views taken substantially along the lines 6—6, 7—7 in Fig. 5;

Fig. 8 is a view similar to Fig. 5 and showing a modified form of the invention; and

10 Fig. 9 is a sectional view taken substantially along the line 9—9 in Fig. 8.

As a preferred or exemplary embodiment of the instant invention the drawings illustrate a composite container for products such as biscuit dough, pie dough, frozen citrus concentrates and the like products. Such a composite container preferably comprises a fibre material body 21 (Fig. 1) and sheet metal top and bottom closure members 22 made from tin plate, black iron or the like material and secured to the body in suitable end seams 23.

15 The fibre body 21 preferably is made from a one-piece flat blank 24 (Fig. 2) bent into cylindrical shape to produce a tubular or cylindrical body with opposing marginal edge portions, i. e. inner and outer faces, respectively, of outer and inner laps 26, 27, secured together by adhesive 28 (Fig. 3) to produce a lap side seam 29 which holds the body together.

The inner surface of the body 21 preferably is protected by a gasproof, moistureproof, waterproof and greaseproof coating material or liner such as a metal foil 31 (tin or aluminum). The outer surface of the body 21 preferably is protected by a gasproof, moistureproof, waterproof and greaseproof coating substance 32 such as a microcrystalline wax plastic such as Saran (polyvinylidene chloride), Mylar (oriented polyester resin) or other suitable materials. These coating materials preferably are applied to the flat blank 24 and as a result extend into the lap side seam 29.

To open the container, the flat blank 24 along its side seam marginal edge portion 26 is provided with a flap or tab 34 (Figs. 2, 3 and 4) which extends for nearly the full length of the edge portion. This tab 34, after formation of the blank into the body 21, projects freely on the outside of the body for the full length of the side seam 29 as shown in Figs. 1, 3 and 4. In opening the container, the tab 34 is pulled outwardly and back in a direction along the outer periphery of the container body 21 to break open the side seam 29 and peel or tear away the side of the body along a pair of spaced and parallel score lines 36, 37 (Figs. 1 and 2) disposed adjacent the end closures 22 and extending around the body for nearly its full circumference.

50 In order to facilitate clean breaking of the side seam 29 when the tab 34 is peeled back around the body, the side seam marginal edge portion 27 of the body 21 is weakened by a controlled breaking down of the fibrous structure of the body material. This preferably is brought about by knurling the side seam marginal edge portion 27 of the blank 24 on the surface which is the outer surface of the container. For this purpose the edge portion 27 is provided with a longitudinal band or series of spaced and parallel diagonally disposed knurl marks, serrations or depressions 41 which preferably are cut or pressed into the blank by a die or roller action.

65 The knurl marks 41 preferably are shallow at their outer ends, i. e. adjacent the outer edge of the blank as shown in Figs. 5 and 7 and progressively deepen as they extend inwardly away from the edge of the blank as shown in Figs. 5 and 6, terminating along a substantially straight line 42 (Fig. 2) inwardly of the outer seam edge of the blank. These knurl marks partially break down the fibrous structure of the material. The deep ends of

3

the knurl marks also form what is virtually a score line extending parallel with the seam.

Hence when the marginal edge portion 27 of the body 21 is incorporated in the side seam 29, the knurl marks 41 are disposed between the overlapped outer and inner laps or members 26, 27 of the seam and are embedded in the adhesive 28 as best shown in Fig. 3. The shallow ends of the knurl marks 41 are disposed adjacent the interior of the body.

Thus when the tab 34 is pulled back to open the container it pulls against the inner lap 27, first adjacent the deep ends of the knurl marks 41 where the fibrous structure of the material is broken down to the greatest extent by the knurl marks and hence the surface or face of this weakened structure breaks through and clings to the outer lap 26. As the pulling on the tab continues, the broken surface of the material causes a clean delamination of the inner lap 27 and causes the delaminated portion to peel off with the outer lap 26 as shown in Fig. 4. The peeling action continues until the delaminated portion reaches the terminal edge of the inner lap 27 and then breaks off cleanly as shown in Fig. 4 with the result that no "onion skin" is formed on the inner face of the outer lap 26 and the side seam is thus cleanly broken so that full opening of the container may be continued without trouble or annoyance.

Where a protective film 31 or 32 is used on the outside of the body 21, the knurl marks 41 may be formed in the body blank before or after application of the film to the blank. The film readily breaks through at the deep ends of the knurl marks and in no way interferes with the delamination of the fibrous material of the body at the side seam as described above.

As a modified form of the invention as disclosed in Figs. 8 and 9, diamond shaped marks, depressions or indentations 44 are provided instead of the diagonally disposed knurl marks 41 to break down the fibrous structure of the material at the side seam. These diamond shaped marks 44 when used, are provided in the side seam in the same relative location as the knurl marks 41. The diamond shaped marks 44 preferably are made in varying depths, shallow marks being disposed adjacent the terminal edge of the edge portion 27 of the blank 24, and gradually deeper marks progressively disposed inwardly of the terminal edge, so that the deepest marks are disposed farthest from the terminal edge. These deepest marks 44 may be made as half diamond shape as shown in Fig. 8, with a flat edge 45 being aligned transversely of the blank and parallel with the terminal edge of the blank to simulate an interrupted score line. In operation the diamond shaped marks 44 produce the same result, in the same manner as the knurl marks 41.

4

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A container comprising a tubular fibre body having opposed marginal edge portions overlapped and adhesively secured together to provide a lap side seam having an outer lap and an inner lap, a pull tab extending from said outer lap of said seam for pulling said laps apart to break said seam to open said container, and a series of depressions formed in substantially the entire outer face of said inner lap to partially break down and weaken the fibrous structure of the material therealong so that when said laps are pulled apart to break the seam said weakened outer face of the inner lap adheres to and is completely torn away with said outer lap.

2. A container of the character defined in claim 1 wherein said depressions nearest the terminal edge of said inner lap are shallow and wherein said depressions inwardly of said terminal edge are deeper to facilitate controlled delamination of said inner lap.

3. A container of the character defined in claim 1 wherein said depressions are diamond shape and of varying depths progressing deeper from said terminal edge inwardly thereof.

4. A container of the character defined in claim 1 wherein said container body is provided with a protective film extending into said side seam and wherein said depressions are provided in the inner lap portion of said film as well as said inner lap.

5. A container of the character defined in claim 1 wherein said depressions are diagonally disposed spaced and parallel knurl marks.

6. A container of the character defined in claim 5 wherein said knurl marks are continuous depressions extending inwardly from the terminal edge of said inner lap and progressively deeper inwardly from said terminal edge.

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