Feb. 6, 1968 W. L. ELLIS 3,367,531

SEAM RELEASE CONTAINER

Filed March 22, 1966

Fig. 1

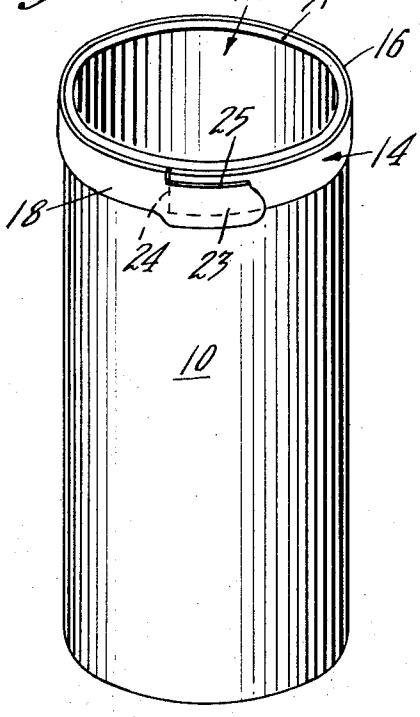
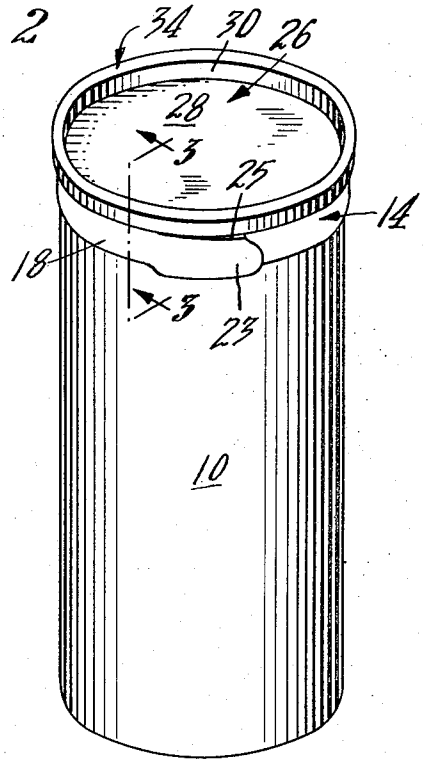


Fig. 2



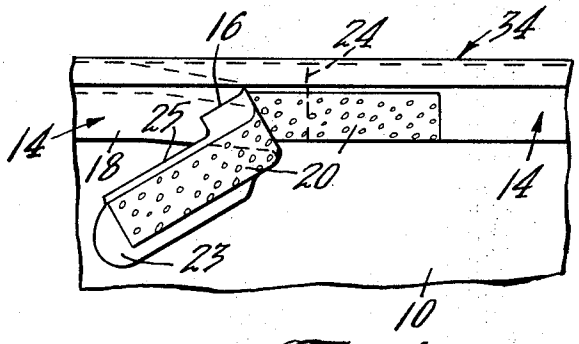
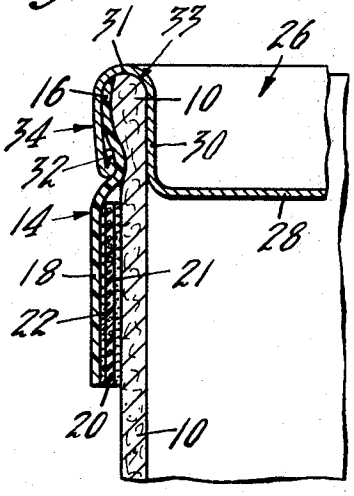


Fig. 4

Fig. 3



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SEAM RELEASE CONTAINER

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The present invention relates to a container which may be manually openable without the necessity of using tools. In particular, this invention relates to a container having a manually detachable seam release strip for easy opening of the container.

Containers which are manually openable by the pulling out of a strip from within the end seam securing an end closure to a container body to thereby loosen this securement, so-called seam release containers, are known in the art. Examples of such containers are disclosed and described in United States Patent 3,142,433 and in co-pending application Ser. No. 370,801, filed May 28, 1964. Other examples of such seam release containers could be cited from the prior art.

However, most of the prior art containers suffer from a common deficiency which makes them unsuitable for present day demands for high speed, automated production. This deficiency is the registration and attachment of the seam release strip to the container body by some high speed, automated means so that upon subsequent attachment of the end closure to the container body, the seam release or pull-out strip will be properly oriented with respect to the securement of the end closure to the body, i.e., with the pull out strip secured in the end seam attaching the closure to the body.

The above cited patent solves this problem by making the pull-out strip from a portion of the body itself, but weakening the edge of this pull-out strip. While such a construction is reasonably satisfactory, it does not meet the high standards required for consumer acceptance. It has been found that with this construction, the force required to rupture the connection of the pull-out strip to the body and remove the strip from the end seam is somewhat higher than is considered acceptable to meet consumer demands.

In the co-pending application, cited hereinbefore, the above problem was eliminated by using a strip separate from the body and partially enclosed in the end closure seam. In order to facilitate removal, only the lower peripheral portion of the strip was adhesively secured to the body. A peripheral line of weakness was placed within the strip such that the portion of the strip between the lower adhesively secured portion and the edge of the strip within the closure seam could be manually grasped and pulled along the line of weakness in order to withdraw the strip from within the end seam and to separate the closure from the body. Thus, the lower portion of the strip adhesively secured to the body would remain in place during opening.

The instant invention involves a simpler construction which permits more economical manufacture without increasing the force required to remove the release strip from the container seam.

It is therefore an object of the instant invention to provide a construction for a container, which container when filled with product and closed, will enable the consumer of the product to open the closed container easily by manual manipulation without the need of special opening tools.

Yet another object is to provide a construction for a container which may be readily made on high speed, automated equipment.

A further object is to provide a construction for a container which meets the demands of consumer acceptance.

Numerous 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.

To accomplish the above objects, a tubular container body is provided with a separate pull-out or seam release strip by adhesively securing the strip to the outside wall surface of the body adjacent an open end of the body. The strip is so positioned on the body that the edge of the strip is mechanically enclosed within the end seam securing the end closure to the open end of the body. This edge of the strip, within the end seam, and the body underlying this strip are not adhered to each other. A foamed elastomeric band, adjacent to the end seam, lies between the strip and the body and is adhesively secured to both the strip and the body with a non-peelable adhesive. This adhesive lies both between the band and the strip, and the band and the body. The bond formed by the adhesive has a shear strength greater than the tearing strength of the foam band so that when the strip outside the end seam is grasped and manually pulled away from the body, the band fractures longitudinally as the strip and its edge portion are withdrawn from the end seam and entirely separated from the container. This separation loosens the securement of the closure to the body for easy removal of the end and opening of the container.

Referring to the drawings:

FIGURE 1 is a perspective view of an open ended container body having a pull-out strip secured in place;

FIG. 2 is a perspective view similar to FIG. 1, but showing the end closure secured to the body;

FIG. 3 is an enlarged fragmentary, sectional view taken substantially along the line 3—3 in FIG. 2; and

FIG. 4 is an enlarged fragmentary, elevational view showing the relationship of the elements during removal of the seam release strip.

As a preferred embodiment of the instant invention, FIG. 1 shows a tubular container body **10**, formed primarily of fiber and preferably by spiral winding, although the body may be convolutely wound. If desired, the fiber body **10** may have associated therewith other materials such as a fluid impervious ply of aluminum foil, or a plurality of fiber plies to provide rigidity and strength, or combinations of other materials. It is also within the scope of the instant invention that the body **10** be made of a material other than fiber, such as plastic, e.g. polyethylene, or sheet metal, e.g. aluminum, steel or tin plate.

Completely surrounding the body, adjacent its open upper end **12**, is a seam release strip **14** preferably made of a resilient, but tough, i.e. relatively high tensile strength plastic; but it is to be understood that other mateirals having the necessary resiliency and tensile strength, such as metallic foil-backed paper or plastic film-backed paper, may also be used. Metal strip, by itself, is somewhat impractical because in strip thicknesses needed to provide efficient seam release, metal is too stiff. For efficient seam release, the strip should have a thickness of at least 3 mils, and preferably 10 to 15 mils. Thicknesses less than the minimum would probably not have sufficient tensile strength and would not provide enough clearance after removal to satisfactorily loosen the closure attachment to the body. The upper limit on strip thickness is generally governed by economics.

The upper edge **16** of the strip is contiguous to the periphery of the open end **12**. However, the exact registration of the edge **16** and body periphery is not absolutely necessary so long as the edge **16** and a reasonable width of the strip **14** are eventually enclosed within the end seam.

The lower edge **18** of the strip **14**, that portion not enclosed in the end seam, is secured to the body **10** by a foamed elastomeric band **20** (FIG. 3) disposed between the inner surface of the lower edge **18** and the outside of the body **10**. Adhesive layers **21** and **22** secure the band **20** to the body **10** and lower edge **18** of the strip **14** respectively.

As shown, for easy application, the foamed elastomeric band **20** is peripherally continuous; but, if desired, the band **20** could be discontinuous, since the function of the adhesively secured band **20** is to hold the strip **14** in position on the body **10** until the upper edge **16** is engaged within the end seam, which will be more fully described hereinafter.

The adhesive bonds formed by the adhesive layers **21**, **22**, should be relatively non-peelable and also exhibit relatively high shear strength so that the strip **14** will lie adjacent the body **10**, without accidental separation, until it is desired to open the container.

Although a number of foamed materials and adhesives may be useful and have the desired properties, it has been found that a double coated foamed pressure sensitive tape, #4032, sold by 3M Corporation, St. Paul, Minn. will exhibit this high peel resistance and shear strength. This tape is a $\frac{1}{32}''$ foamed polyurethane having pressure sensitive adhesive on both surfaces of the tape. It is to be understood that any elastomeric foam tape with suitable adhesive may be used, the hereinbefore mentioned material being used for illustrative purposes only.

In the preferred embodiment illustrated, the length of the strip **14** is slightly greater than the circumference (periphery in the case of a non-cylindrical body) of the body **10** so that the strip **14** not only extends around the body **10** in adhesive attachment thereto, but also overlaps itself to provide a grasping tab **23**. While the overlapping construction is preferred, it is not absolutely necessary. In other words, the length of the strip **14** could be equal to or slightly less than the circumference of the body **10** whereby the end of the tab **23** meets or is just short of the transverse edge **24** (FIG. 4) of the strip **14**.

The purpose of the tab **23** is to permit initial grasping and pulling of the strip **14**. To this end, the tab **23** may be free of any adhesive attachment to the subjacent surface, but is preferably partially adhered to the subjacent surface. By this partial adherence, the tab **23** is held substantially in conformity to the contour of the body **10**, i.e. is prevented from extending outwardly from the body **10**, thereby minimizing damage to the tab or container during shipping or handling and possibly pulling the strip **14** so as to open the container.

This partial adherence is accomplished by extending the foamed band **20** onto the inside surface of the tab **23**, thus adhering the subjacent surface adjacent the free end of the tab.

The upper edge **25** of the tab **23** is cut down from the remainder of the upper edge **16** of the strip **14** to insure against this edge **25** being enclosed within the end seam in a manner more fully described hereinafter.

FIGS. 2 and 3 illustrate the container body **10** having a pull strip **14** secured thereto as previously described, but with a metal end closure, generally designated **26**, closing the open end **12**. The end closure **26** comprises a central panel **28** merging at its periphery with an upstanding countersink wall **30**, thence substantially horizontally, outwardly over the upper periphery **31** of the body **10** and thence downwardly in a hemmed skirt **32** to provide a substantially U-shaped channel **33**.

Within the channel **33** and compressed between the wall **30** and skirt **32** is the upper periphery of the body **10** and the upper edge **16** and portions adjacent thereto of the strip **14** to frictionally lock the end closure **26** to the body **10** in an end seam **34**.

To provide this frictional lock, it is necessary that at least one of the materials within the end seam **34** have some degree of resiliency or compressibility to enable the wall **30** or skirt **32**, or both, to obtain a grip on the contiguous material. If the body **10** and strip **14** do not provide sufficient resiliency, an auxiliary gasketing material may be used in the channel **33**. As best seen in FIG. 2, the upper edge **25** and therefore the entire tab **23** is outside the end seam **34** to permit the tab **23** to remain free for easy grasping.

In the manufacture of the instant container, the body **10** is first formed and its exterior surface suitably decorated. The shaped strip **14** with the foamed band **20** adhesively secured thereto is then adhesively secured to the body **10** adjacent one open end. Although the adhesive **21** is preferably pre-applied to the band **20**, it is also possible to apply the adhesive **21** to the body prior to securement of the strip **14** thereto. Thereafter, the end closure **26** is attached to the body **10** and strip **14** by means of the end seam **34**.

Filling of the container, thus formed, with a product is carried out from the open, lower end, i.e., the end of the body **10** remote from the closure **26**; whereupon a closure is secured to this lower, open end by conventional means to completely close the package.

To open the package thus formed, the tab **23** is grasped and pulled outwardly around the container to fracture the foamed elastic band **20** longitudinally and simultaneously disengage the upper edge **16** from the end seam **34**. It has been found that this longitudinal fracture will occur somewhere near the center of the band **20** so that a portion of the band **20** will remain secured to the strip **14** and the remainder will remain secured to the body **10** (FIG. 3).

This opening action is continued until the portion of the strip **14** within the end seam **34** is completely withdrawn therefrom, thereby loosening the attachment of the closure **26** to the body **10**. The closure **26** can then be easily lifted, also manually, off the body **10** thereby providing a full opening on one end of the container for removal of the product therein.

This full opening feature of the instant container is especially advantageous when the product is a frozen juice concentrate, or other frozen comestible since it leaves no end closure to act as an obstruction to the removal of a substantially solid block of product.

For dry products, such as coffee, not only is the opening feature advantageous, but also, the loose fit between the closure **26** and the body **10**, after opening, permits ready reclosure during the useful life of the container. However, if such containers require hermetic sealing, a non-tacky or adhesive sealing compound, such as a plastisol, may be placed on the countersink wall **30** to form a seal between the wall **30** and the end of the body **10**.

It is to be understood that the expressions "upper" and "lower" used hereinbefore are for the purpose only of describing the relative orientation of the parts and are not to be construed as limitations on the structure disclosed.

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 body;
   a closure secured to one end of said body by means of an end seam;
   a separate strip of resilient material surrounding the outside of said body, said strip partially within said end seam and said strip outside said end seam adhesively secured to said body;

an edge of said strip and a portion adjacent thereto, partially within said end seam, and said body underlying said strip portion being free of adherence to each other;

a foamed elastomeric band adjacent said end seam between said strip and said body and adhesively secured to both said strip and said body with a non-peelable adhesive lying both between said band and said strip and said band and said body;

and said adhesive forming bonds having shear strength greater than the tear strength of said foam band so that when said strip outside said end seam is grasped and manually pulled away from said body, said foam band fractures longitudinally as said edge and strip portion are withdrawn from said end seam and entirely separated from said container to loosen the securement of said closure to said body for easy separation of the end.

2. The container of claim **1** wherein said strip is thermoplastic.

3. The container of claim **2** wherein said body is principally made of fibre.

4. The container of claim **1** wherein said strip terminates in a tab adapted to remain outside of said end seam to permit manual grasping of said strip.

5. The container set forth in claim **4** wherein said tab is partially adhered to the subjacent surface to insure its substantial conformity to the body of the container.

6. The container of claim **4** wherein said tab overlaps a portion of said strip.

7. The container of claim **1** wherein said high shear strength bonds are formed by a pressure sensitive adhesive.

8. The container of claim **1** wherein there is an adhesive sealing compound between the inner end of said body within said end seam and said closure.

9. The container of claim **1** wherein said foamed elastomeric band is adapted to fracture longitudinally medially of its inner and outer surfaces.

10. The container of claim **1** wherein said band is a foamed thermoplastic.

References Cited

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