Aug. 20, 1968 S. E. ROHOWETZ 3,397,810

CONTAINER WITH TAPE OPENING DEVICE

Filed March 28, 1966 2 Sheets-Shect 1

Fig 1.

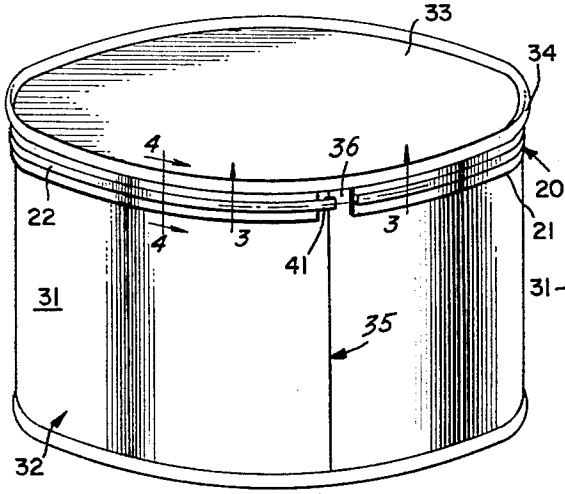


Fig 2.

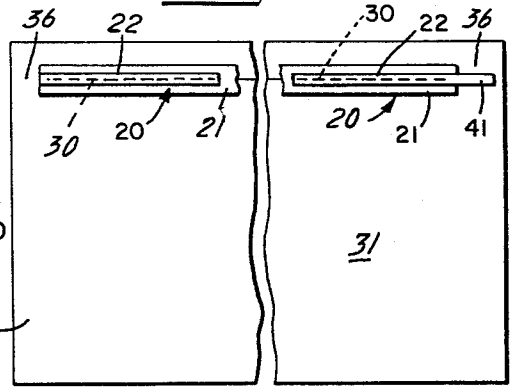


Fig 3.

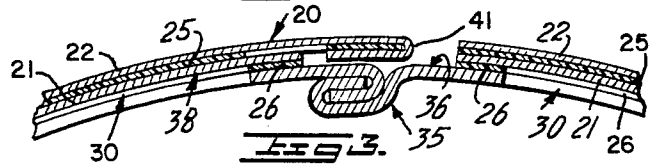


Fig 4.

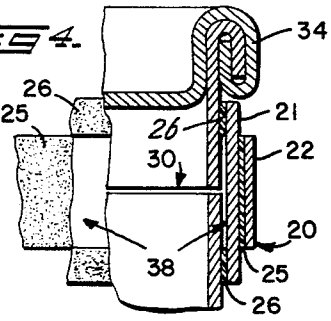


Fig 5.

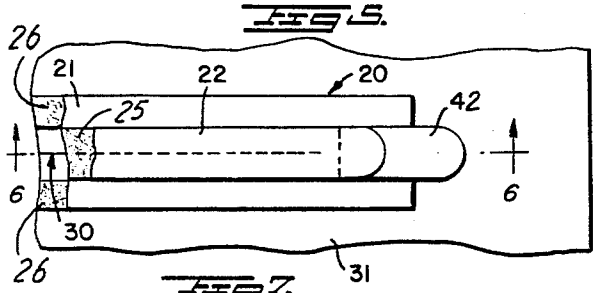


Fig 6.

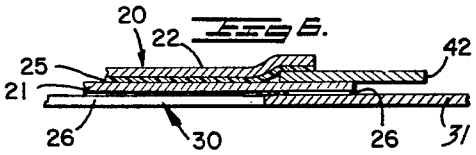


Fig 7.

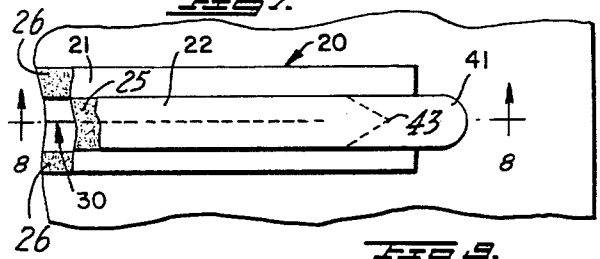


Fig 8.

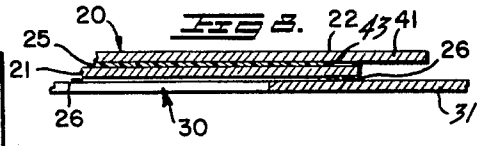


Fig 9.

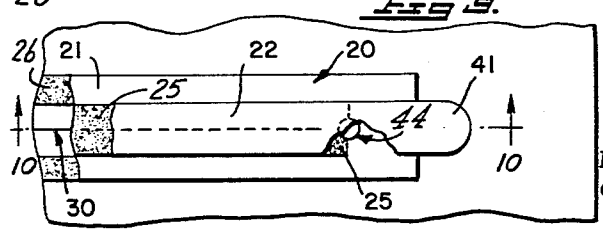
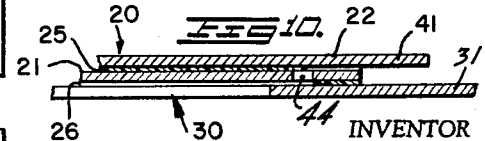


Fig 10.



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Fig 11.

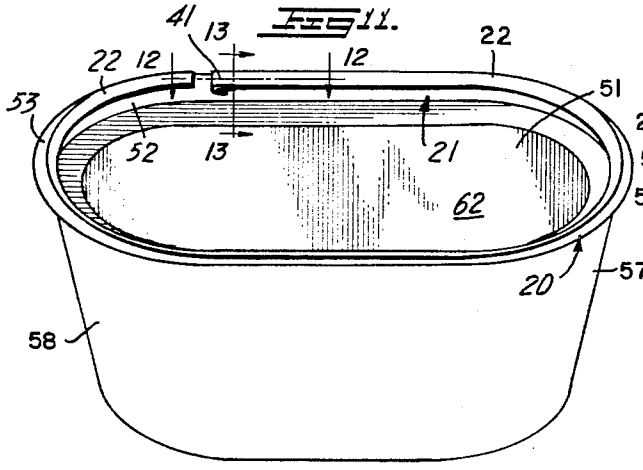
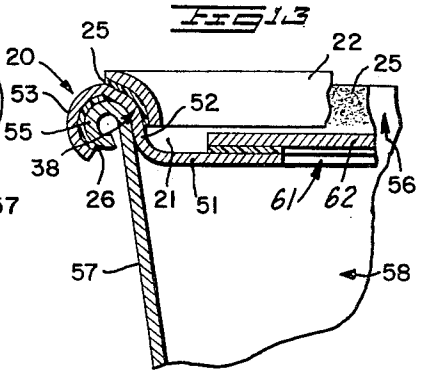


Fig 13



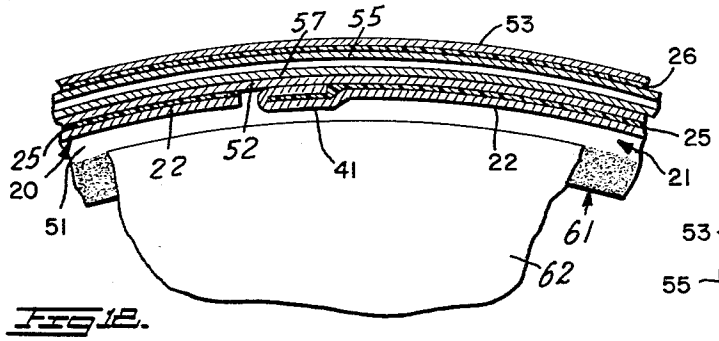


Fig 12.

Fig 14.

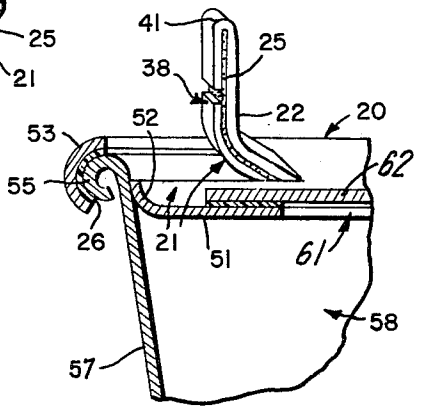
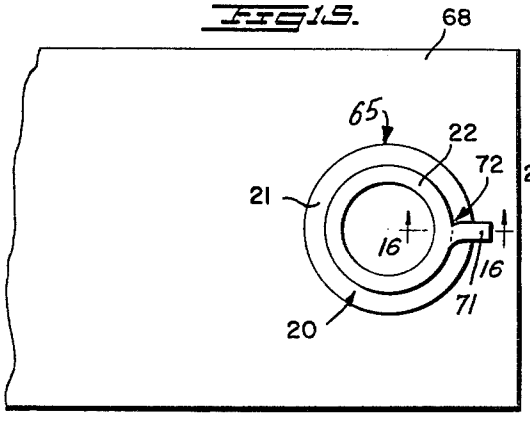


Fig 15.



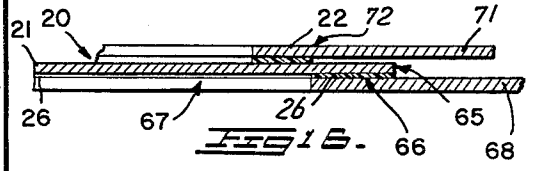


Fig 16.

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3,397,810

CONTAINER WITH TAPE OPENING DEVICE

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Filed Mar. 28, 1966, Ser. No. 538,020
10 Claims. (Cl. 220—53)

ABSTRACT OF THE DISCLOSURE

A container in which the entire end may be hinged upwardly without the use of a tool or implement and yet is strong enough to withstand internal pressures created when the product is heat processed. A slit close to the end seam and extending less than 360° around the side wall of the container is covered with a laminated tape closure having an inner tape adhered along the marginal side portions thereof to the side wall, and a narrower outer tape which is adhered to the inner tape so that when a tab on the end of the outer tape is pulled outwardly, the outer tape and the portion of the inner tape between its adhered marginal side portions are pulled free of the container to permit the lid to be hinged upwardly about the portion of the side walls between the ends of the slit.

This invention relates generally to hermetically sealed containers having an easy opening feature, and to the means for effecting such opening. In particular, the opening feature is dependent upon a novel tape sealing and opening device for containers which may be heat processed after filling.

In recent years, there has been considerable development in the consumer packaging field which has added appeal to the consumer because of various convenience features which they offer. However, although it is comparatively simple to incorporate easy opening features in containers made of relatively soft, tearable materials such as paper and plastic, it is more difficult in the case of relatively rigid sheet metal cans which are closed by means of permanently sealed end members secured to the container body by such means as a double seam. A number of manual opening features have been incorporated in the ends of such containers, but an opening tool is generally necessary when it is desired to remove the end together with a narrow portion of the body adjacent the double seam.

One such opening feature which removes the entire closure end together with a portion of the body adjacent the double seam is shown in U.S. Patent 3,186,581. Although this container has proven to be successful in the packaging of comestibles that are not processed subsequent to packaging, such as coffee, it is not amenable to the packaging of comestibles which must be heat processed after having been hermetically sealed within the container.

It is therefore an object of the invention to provide a manually openable hermetically sealed container.

Another object of the invention is to provide an easily opened container which may be manufactured at high speed on automated equipment.

A further object is to provide a tear tape easily opened container which may be subjected to conventional high temperature food processing without leaking.

Yet another object is the provision of a heat processable can which may be easily opened merely by the manual removal therefrom of a sealing tape.

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

The above objects are accomplished by providing a container having a manually openable laminated tape closure secured over an opening in the container. The inner laminate covering the opening has a peripheral portion overlying and secured to a marginal portion of the container surrounding the opening. The outer laminate overlies and is secured to an underlying portion of the inner laminate, whereby removal of the outer laminate also removes that portion of the inner laminate underlying the outer laminate thereby opening the container.

Referring to the drawings:

FIGURE 1 is a perspective view of a container embodying the invention;

FIG. 2 is a plan view of a blank for the body of the container in FIG. 1;

FIG. 3 is an enlarged sectional view taken substantially along the line 3—3 in FIG. 1;

FIG. 4 is an enlarged sectional view taken substantially along the line 4—4 in FIG. 1;

FIGS. 5, 7 and 9 are enlarged fragmentary views of a portion of the blank in FIG. 2, but showing modifications of the tape closure;

FIGS. 6, 8 and 10 are sectional views taken substantially along the lines 6—6, 8—8 and 10—10 in FIGS. 5, 7 and 9 respectively;

FIG. 11 is a perspective view of a container showing another embodiment of the invention;

FIG. 12 is an enlarged sectional view taken substantially along the line 12—12 in FIG. 11;

FIG. 13 is an enlarged sectional view taken substantially along the line 13—13 in FIG. 11;

FIG. 14 is the same view as FIG. 13 but showing a portion of each of the closure laminae being removed in the initial stage of the opening operation;

FIG. 15 is a partial plan view of the container embodying a modified form of the invention; and

FIG. 16 is an enlarged sectional view taken substantially along the line 16—16 in FIG. 15.

As a preferred or exemplary embodiment of the instant invention, the drawings illustrate a laminated tape closure, generally designated 20, comprising an inner or closure lamina 21 and an outer or opening lamina 22, each made of metal foil, paper, plastic or a composite material. The inner lamina 21 is preferably of weaker tear strength, either by virtue of thickness or material, than the outer or opening lamina 22, for a purpose which will be explained hereinafter.

The laminae are bonded or secured together by adhesive means 25 which may be a non-peelable adhesive such as a thermosetting or thermoplastic resin adhesive, or a solder, dependent upon the material or materials of which the laminae are made. The non-peelable adhesive 25 should provide a bond which will resist peeling beyond the tearing strength of the inner or closure lamina 22.

The inner or closure lamina 21 may be similarly bonded to a container around the container opening by non-peelable adhesive means 26.

Either or both laminae 21, 22 may be coated with adhesive or, if the laminae are of thermoplastic material, they may need no adhesive and be bonded together by a suitable application of heat and pressure.

As shown in FIGS. 1 through 10, the laminae 20 are bands or tapes, and the opening in the container is a slit 30 that extends around less than 360 degrees of the body wall 31 of a container 32. At least the upper end of the container 32 is closed by an end member 33 that

is secured, as by a double seam **34**, to the body **31**.

The slit **30** may be disposed close to the bottom of the double seam **34**, in which case, a marginal portion of the inner tape **21** lies within the double seam **34**. This construction is useful when a small headspace above the product is desired.

Both ends of the slit **30** terminate short of the body side seam **35**, leaving between them an unslit portion **36** of the body **31** that serves as a hinge portion about which the top of the container may be swung after the closure **20** has been torn open.

As shown in FIG. 4, the inner tape **21** is bonded at **26** to the container body **31** along the margins or peripheral portions of the tape **21**. These margins are spaced laterally from the slit **30** and also extend around both ends of the slit **30** to seal the opening, thus leaving a central portion **38** unbonded and free from the container wall. Therefore, when a tab **41**, at the end of the narrower tape **22** is manually gripped and pulled, the tape **22** and that free portion **38** of the inner tape **21** to which tape **22** is bonded are simultaneously removed to uncover the slit **30**.

The tab **41** is not bonded to the closure tape **21** or the container body wall **31** and may be an integral part of the narrow pull tape **22**, folded back upon and bonded to itself, as shown in FIG. 3. The tab may also be a separate member **42** bonded to the end of the tape **22** as shown in FIGS. 5 and 6.

As shown in FIGS. 7 and 8, the pattern of the bonding area of the adhesive **25** may, at the end adjacent the tab **41**, terminate beyond then end of slit **30** in a pattern of gradually decreasing width that ends in a central point directed to the tab, and could be of the generally wedge-shaped form shown in FIG. 7. This pattern causes the full effect of the initial pull on the tab **41** to be concentrated at the leading point **43** in the bond and thus facilitates initial tearing away of the inner or closure tape **21** along diverging lines to the lateral edges of the bond between the tapes **21, 22**.

In FIGS. 9 and 10, the inner tape **21** is weakened, as by a central opening **44** at the end of the bonded area so that the force of the initial pull on tab **41** is directed simultaneously to opposite lateral portions of the bonded area between the tapes to assure proper tearing of the inner tape **21** to the full width of the bonded area.

In FIGS. 11 through 14, the inner lamina **21** comprises a countersunk panel **51** united by a countersink wall **52** to an outwardly disposed flange or curl **53** that overlies a curl **55** which extends around the upper end **56** of a wall **57** of a container **58**. The adhesive **26** which unites the curls **53** and **55** extends inwardly from the outer edge of curl **53** to a line extending around the top of curl **55**.

The outer lamina **22** is a band or tape that extends circumferentially around, and is bonded to the inner lamina **21** with its upper or outer edge disposed over the top of the curl **55**. The tape **22** is thus bonded to the inner lamina **21** over an area of the latter that is not bonded to the container. Therefore, when the tab **41** is pulled, the tape **21** removes with it that free portion **38** of the closure lamina **21** bonded to it as shown in FIG. 14, thereby opening the closure by releasing its central panel **51**.

In the containers shown in FIGS. 1 through 14, the closure **20** may be secured to the container before it is filled through a top opening. In the container shown in FIG. 1, closure **20** may be applied while the body blank is flat, as in FIG. 2, and filling is effected through a fully open end of the container which is then closed by the end member **33**. In the container of FIG. 11, filling may be effected through an opening **61** in the closure **20**, and the opening subsequently closed and sealed by a disc **62**.

In FIGS. 15 and 16, the inner lamina **21** of the closure **20** is in the form of a disc bonded along a peripheral area **65** to an underlying margin **66** around an opening **67** in a wall **68** of a container. The outer lamina **22** is in the form of a band or ring substantially identical in shape and dimensions to those of the opening, overlying and in alignment with the opening. The ring **22** is bonded throughout its under surface to the closure disc **21**, and a pull tab **71**, which extends radially outwardly from the ring and is not bonded to the disc **21**, affords means for gripping the ring to pull and remove the central portion of the closure **20** from the opening.

The outer lamina **22** may be weakened, as by a notch **72** at the junction of the ring and tab to direct initial tearing across the ring so that subsequent tearing of the inner or closure lamina progresses in a circular direction around the edge of the opening.

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 forms hereinbefore described being merely preferred embodiments thereof.

I claim:

1. A container having an outwardly projecting end seam, an easily opened laminated tape closure secured over a slit in the container, said slit positioned close to said end seam and extending less than 360° around the body wall of said container, said closure comprising:

an inner tape covering the slit in the container and having a marginal portion overlying and secured to the portion of the container adjacent to said slit;

and an outer tape overlying and secured to an underlying portion of said inner tape, said outer tape having a tab which is not secured to the container thereby providing a grip whereby the outer tape and the underlying portion of the inner tape bonded thereto may be torn from the closure to open the container.

2. A container as set forth in claim **1** wherein non-peelable adhesive means bond said marginal portion of the inner tape to said container, and bond said outer tape to said inner tape.

3. A container as set forth in claim **1** wherein said outer tape overlies and is secured to that portion of the inner tape which overlies said opening in the container.

4. A container as set forth in claim **1** wherein said tab is a separate element secured to the end of the outer tape.

5. A container as set forth in claim **1** wherein said inner tape is secured to said container along continuous strips spaced from said slit thereby leaving a central area of said inner tape unsecured to the container wall, and said outer tape is narrower than said inner tape and is substantially as wide as and overlies said central area of the inner tape, whereby said central area of the inner tape is readily removed with the outer tape in the opening operation.

6. A container as set forth in claim **5** wherein said outer tape is secured to said inner tape by adhesive means substantially coextensive with said central area and extending to a terminal point beyond the end of said slit and short of the tab end of said tape, said inner tape being weakened at said terminal point of the adhesive means, whereby initial tearing of said inner tape is facilitated.

7. The container set forth in claim **6** wherein said inner lamina comprises a countersunk panel united by a countersink wall to an outwardly disposed flange having a peripheral portion bonded to the container surrounding said opening, and wherein said band is disposed along said countersink wall and inwardly of the outline of said bonded peripheral portion of the inner lamina, whereby removal of said band tears with it a strip of said countersink wall thereby freeing said countersunk panel and opening the container.

8. A container as set forth in claim **5** wherein said outer tape is secured to said inner tape by adhesive means

substantially coextensive with said central area and terminating beyond the end of said slit and short of the tab end of said second tape in a pattern of gradually decreasing width to a central point near said tab to facilitate initial tearing of the inner tape.

9. A container as set forth in claim **8** wherein said pattern is semicircular.

10. A container as set forth in claim **8** wherein said pattern terminates in a relatively sharp point.

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