CONTAINER WITH DUAL TAPE OPENING DEVICE

Filed March 28, 1966
CONTAINER WITH DUAL TAPE OPENING DEVICE
Stanley Edward Rohowetz, Barrington, Ill., assignor to
American Can Company, New York, N.Y., a corporation
of New Jersey
Filed Mar. 28, 1966, Ser. No. 538,021
6 Claims. (Cl. 220--53)

ABSTRACT OF THE DISCLOSURE

A can which is easily openable without the use of opening tools and which may withstand the pressure developed when the can is used to heat process comestibles. The can has a body which is slat about the major portion of its periphery, the slit terminating adjacent to, and on either side of the side seam, an inner tape which completely covers the slit and which itself is covered by a outer tape except for a grasping tab on the inner tape projecting beyond one end of the outer tape so that when the tab is pulled, the inner tape will tear through the outer tape to permit the end of the can to be moved upwardly with respect to the can body.

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 dual 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. One of the most popular of such features is easy opening. 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 United States 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 removal therefrom of an easily pealable 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, discloses a preferred embodiment thereof.

In accomplishing the above objects, an easily opened container is provided having an opening within the body for subsequent removal of the product packaged therein. Overlying the opening and a marginal area of the wall adjacent the opening is a narrow, inner tape. An outer, wider tape overlies the inner tape. Marginal parts of the outer tape extend over and adhesively secure the outer tape to the outer surface of the inner tape and also the wall adjacent the inner tape. A tab is provided on the inner tape which projects outwardly beyond the end periphery of the outer tape so that when the tab is pulled away from the wall, the inner tape pulls from the wall, tears the outer tape, and uncover the opening.

Referring to the drawings:

FIGURE 1 is a perspective view of a container embodying the present invention;
FIG. 2 is a plan view of a container body blank incorporating a dual tape according to the invention;
FIG. 3 is a plan view of a portion of a container body blank showing a modified form of the dual tape;
FIG. 4 is an enlarged sectional view taken at 4--4 in FIG. 1;
FIG. 5 is an enlarged sectional view taken at 5--5 in FIG. 1; and
FIG. 6 is a view similar to FIG. 5 but showing initiation of an opening operation.

As a preferred or exemplary embodiment of the instant invention, the drawings show a tubular container 10 with a dual tape 11 covering a circumferential opening or slit 12 in the body wall 15 which extends less than 360° around the body and terminates near the side seam 16 in the body wall. Incidentally, if the container were rectangular in horizontal cross-section, the slit could extend around only three sides of the body. In each instance, the unslit portion 17 of the wall, remaining between the ends of the slit, serves as a hinge wherein the upper portion of the container may be swung to fully open position.

At least the upper end of the container 10 may be closed by an end member 18 secured to the body wall 15, such as by a double seam 19 that projects slightly outwardly from the body wall 15.

The dual tape 11 comprises an inner tape 21 and an outer tape 22. The inner tape 21 is preferably of a material having relatively high tensile strength such as a metal, or a high strength thermoplastic product such as nylon, which is a synthetic polyamide made by interaction of a dicarboxylic acid with a diamine, or Mylar, which is a polyethylene terephthalate. It has been found than an aluminum tape 1/4 inch wide and 0.005 inch thick, has the strength and flexibility required.

The outer tape 22 is of relatively low tearing strength. It may be of material such as metal, metal foil, paper or plastic. For the outer tape 22, a 0.002 inch thick aluminum tape, with a relatively high 1419 temper, will function properly in opening the container 10.

The outer tape 22 may be secured along its marginal portions to the container wall 15 and the subjacent inner tape 21 by a non-peelable adhesive 26 such as a thermosetting or thermoplastic resin adhesive or a solder, dependent upon the material or materials of which the tape and the container wall are made. For the hereinbefore mentioned Al--Al dual tape, a high shear bondling polyurethane adhesive provides adequate bonding. The non-peelable adhesive provides a bond which will resist peeling beyond the tearing strength of the outer tape 22.

The inner tape 21 may be bonded to the container wall 15 by a peelable adhesive 26, which may be pres-
sure sensitive. The peelable adhesive provides a good seal, but its bond between the inner tape and container wall is weaker than the tensile strength of the inner tape and thus does not resist peeling when the inner tape is pulled from the container wall to tear through the outer tape and open the container.

One adhesive having such low peel properties is a polyurethane-poly carbonate blend sold by the 3M Corporation as X8-420. This adhesive gives a tape peel force of about 2-3 pounds per linear inch of tape width. Thus, for the aforementioned Al—Al dual tape, the total force required for opening is only 1-3 pounds, which includes the force to tear the outer tape.

As shown in FIGS. 1, 2 and 4 through 6, a portion of the inner tape is left projecting as a tab beyond an end of the outer tape and is free to be grasped and pulled to open the container in the manner hereinbefore described. The tab may also be hemmed, as shown in FIG. 4.

As shown in FIG. 3, the tab is an integral portion of the dual tape beyond a scored, notched or otherwise transversely weakened portion of the outer tape. This tab may be a folded portion of the dual tape, or left free from or loosely held to the container body so that it may be readily gripped and pulled to effect the opening operation as the inner tape is removed.

If desired, the peripheral portion of the outer tape, closest to the end member, may extend into the double seam to decrease the possibility of accidental separation of the dual tape from the body wall.

It is thought that the invention and many of its attendant advantages will be clearly 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 a preferred embodiment thereof.

I claim:

1. An easily opened container comprising in combination:
   a body wall having a side seam and a slit extending through said wall about a major portion of the periphery thereof and terminating adjacent to, and on either side of said side seam;
   an inner narrow tape overlying said slit and a marginal area of said wall adjacent said slit;
   an outer wider tape overlying said inner tape and having marginal portions extending over and adhesively secured with non-peelable adhesive to said wall adjacent the said inner tape; and
   a tab on said inner tape projecting outward beyond the periphery of said outer tape whereby a pull on said tab away from said wall peels said inner tape from said wall, tears said outer tape and uncovers said slit.

2. A container of claim wherein an adhesive having low peel resistance secures said inner tape to said marginal area of the wall around said opening.

3. A container of claim wherein at least one of said tapes is of thermoplastic material and adhesion is effected by the application of heat thereto.

4. A container of claim wherein an end member is secured to the body wall in a seam which projects outwardly from said wall and a lateral portion of said outer tape extends into said seam.

5. A container of claim wherein said inner tape is a polyethylene terephthalate narrow ribbon, and said outer tape is a wider tape of aluminum foil coated with a thermoplastic resin adhesive.

6. A container of claim wherein said outer tape is adhesively secured with a non-peelable adhesive to the outer surface of said inner tape.

References Cited

UNITED STATES PATENTS

3,096,905 7/1963 Kenney ~~~~~~~~~~ 220—53
3,186,581 6/1965 Schneider et al. ~~~~~ 220—53

FOREIGN PATENTS

722,518 1/1955 Great Britain.

THERON E. CONDON, Primary Examiner.

G. T. HALL, Assistant Examiner.