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 [21] Appl. No. **845,201**
 [22] Filed **July 28, 1969**
 [23] **Division of Ser. No. 730,411, May 20, 1968,**
Pat. No. 3,497,131.
 [45] Patented **July 20, 1971**
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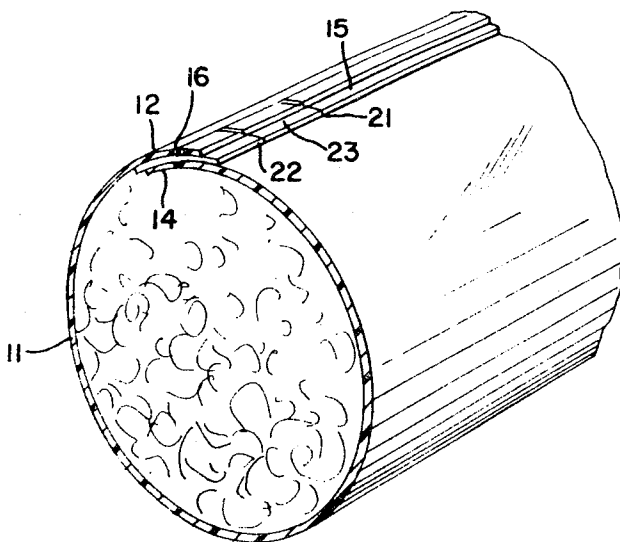
[54] **METHOD OF FORMING A PACKAGE WITH EASY
 OPENING DEVICE**
3 Claims, 4 Drawing Figs.

[52] U.S. Cl. 53/14,
 53/28
 [51] Int. Cl. **B65b 61/18**
 [50] Field of Search 53/14, 133,
 137, 180; 93/1 TS, 82; 99/171; 229/51 C, 51 S, 51
 AS, 66; 156/203, 466

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ABSTRACT: A package and a method of forming the same wherein a plastic film is formed into a tube and filled with a flowable product, margins of the film being overlapped and sealed with a tear strip in the seam thus formed which is fabricated of a material having a tear strength greater than the film, which has a width sufficient to extend along both sides of the seal line and a length sufficient to extend the full length of the package so that the ends thereof are anchored in the ends of the package which are gathered and sealed with bendable clips of metal or similar material. A pair of longitudinally spaced transverse slits are cut in the outside edge of the tear strip and the film margin to facilitate tearing either circumferentially or longitudinally so as to open the package.



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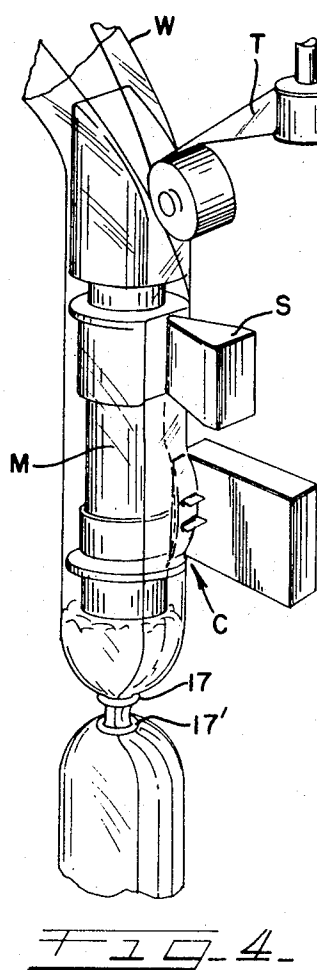
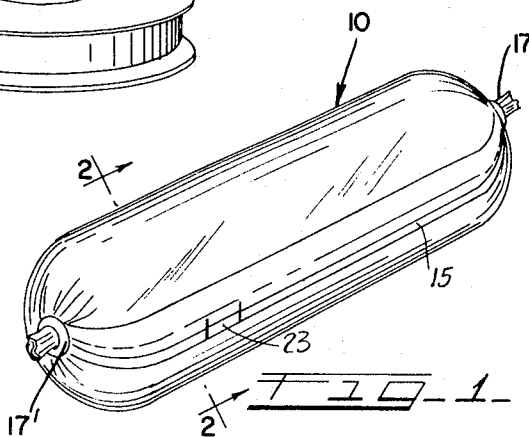
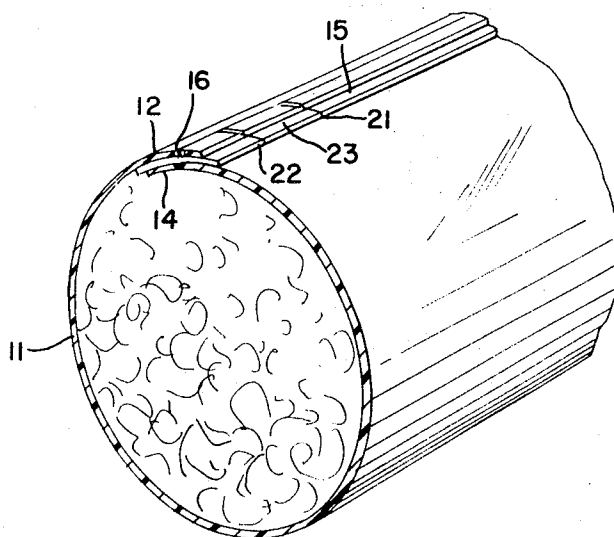
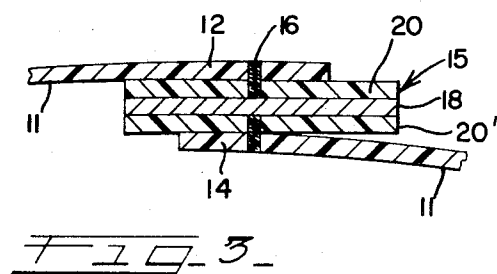


FIG. 2

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METHOD OF FORMING A PACKAGE WITH EASY OPENING DEVICE

This application is a division of my application Ser. No. 730,411, filed May 20, 1968 now Pat. No. 3,497,131 dated Feb. 24, 1970. This invention relates to packaging and is more particularly concerned with improvements in a method of fabricating a package of plastic film with a tear strip means for facilitating opening of the package.

Various types of packages have been developed for use in the marketing of foodstuffs or similar products which are in a flowable state. One package which is designed particularly for this purpose is formed by feeding the product into a tube of relatively thin, pliable plastic film material and closing the ends of the tube by gathering and sealing the end portions of the tube with bendable metal clips. One such package which has been employed successfully for some time in the packaging of foodstuff, particularly, comminuted meat products, spreads, cheese and the like, is described in Pat. No. 2,831,302, granted to H. A. Jensen and A. H. Eberman, on Apr. 22, 1958. In this package a film is employed which generally has a relatively high resistance to tearing or puncturing so as to withstand, without injury, the relatively rough handling encountered in the marketing of the package. The package has a longitudinal or axially extending seal formed in overlapping margins of the film material which has been effected by the use of electronic equipment resulting in the welding of the plastic film along a relatively narrow line. When this package is formed from a film having a low moisture transmitting characteristic, for example, "Saran," which has been used extensively for packaging meat products, the resultant package has a relatively long shelf life and the product is not subject to rapid deterioration. However, because of the resistance of the package film to tearing, it is generally necessary for the consumer to cut or puncture the film with a knife or other sharp instrument in order to open the package. Various schemes have been proposed for providing this type of package with tear strip or tear cord arrangements so as to facilitate opening of the same but none of the arrangements proposed have proven successful. For various reasons they have not been acceptable to the manufacturers of this package or to the consumers who use it. It has long been recognized that a satisfactory device for facilitating the opening of this package which would not require the use of any kind of a tool would make the package more acceptable to the user and would be quickly adopted by the manufacturers provided it did not increase the cost unduly. A general object, therefore, of the present invention is to provide a package of this character having an improved easy opening feature which may be incorporated in the package without detracting from its appearance and without an appreciable increase in the cost of producing the same.

It is a more specific object of the invention to provide in a package for a flowable product which is formed by overlapping and sealing the margins of a film so as to provide a tube, filling the tube with a flowable product and gathering and closing the same at opposite ends by application of a bendable clip, an easy opening device which is incorporated in the longitudinal seam and which is so constructed that it facilitates opening the package by tearing the packaging film either longitudinally along the seam or transversely about the periphery of the tube.

A further object of the invention is to provide in a tubular package having a longitudinal seam formed in overlapping margins of the packaging film and with the ends gathered and closed by bendable clips, an easy opening device which is in the form of a tear strip interposed between the film margins forming the longitudinal seam and extending the full length of the package with its ends anchored by the end closure clips.

Another object of the invention is to provide a tubular package having a relatively narrow, longitudinally extending seal formed in overlapping margins of the packaging film and end seals formed by gathering the tubular material and apply-

ing a bendable metal clip, wherein a tear strip which is formed of a material having a tear strength greater than the packaging film is interposed between the overlapped film margins and sealed to the oppositely disposed faces thereof with the tear strip extending the length of the package so that the ends are anchored by the end closure clips and with a side marginal portion extending outside of the seal forming area and accessible so that it may be gripped and torn to break the seal and open the package.

Still another object of the invention is to provide in a tubular package having a longitudinal seal formed by overlapping marginal portions of the packaging film, a longitudinally extending tear strip interposed between the seal forming margins with the side edge extending to the exterior of the package where it is accessible so as to be gripped and pulled to tear the package open, and spaced transverse slits in the exposed side edge of the tear strip for facilitating the tearing of the packaging material either transversely of the seam or longitudinally thereof.

These and other objects and advantages of the invention will be apparent from a consideration of the package and the method of forming the same which is shown by way of illustration in the accompanying drawings wherein:

FIG. 1 is a perspective view illustrating a package of tubular form which is fabricated according to the method of the present invention and which has incorporated therein the principal features of the invention;

FIG. 2 is a cross-sectional perspective, to an enlarged scale, taken on the line 2-2 of FIG. 1;

FIG. 3 is a fragmentary cross section through the seal area, to a still larger scale, the view showing the laminated tear strip element employed in the package of FIG. 1;

FIG. 4 is a perspective view, largely schematic, illustrating the method of forming the package of FIG. 1.

Referring to FIGS. 1 and 2 of the drawings, there is illustrated a package 10 which has incorporated therein an easy opening device embodying the principles of the invention.

The package 10 is in the form of a tube and is adapted to be fabricated from a single length of plastic film 11. The particular type of film employed will depend upon the nature of the product which is to be packaged. When the product is processed meat, such as, a sandwich spread or the like, the preferred packaging material is "Saran" which is highly resistant to the transfer of moisture and serves to retain the flavor in the product and resist deterioration so as to provide a relatively long shelf life. Other film materials may be employed such as "Pliofilm," polyethylene and the like, depending upon the nature of the product and the characteristics desired in the film.

In forming the package 10 the tubular shape is accomplished by overlapping and sealing the side marginal portions 12 and 14 of the film 11. In the package 10 illustrated in FIGS. 1 and 2, a relatively narrow tear strip 15 is interposed between the overlapped margins 12 and 14 of the film 11 and an "RF" or electronic-type seal 16 joins the tear strip 15 to the overlying and underlying film margins 12 and 14 throughout the length of the package. The package 10 is closed at its opposite ends by gathering the tube material and applying bendable clips 17 and 17' which may be formed, for example, of a suitable metal such as aluminum. The tear strip 15 extends the entire length of the package 10 so that its ends are anchored in the end seals formed by the clips 17 and 17'.

Preferably, the tear strip 15 is formed as a laminate (FIG. 3) with an interior ply 18 and exterior plies 20 and 20'. When the packaging material is "Saran" the exterior plies 20 and 20' are preferably the same material so as to readily seal with the packaging film when the electronic sealing occurs as shown in FIG. 3. The inner ply 18 is chosen for its tensile strength and resistance to the sealing action. A polyester film may be employed with the "Saran" which is not affected by electronic sealing but which may be surface bonded by heat or by other sealing methods to the "Saran" so as to form a laminate. Other combinations of materials may be employed with an adhesive

bond between the plies of the tear strip which will prevent delamination and with the center ply unaffected by the seam sealing action so as to permit tearing across the seal. The tear strip may be opaque, translucent or a contrasting color, as desired.

To locate the point for the beginning of the tearing where desired and to facilitate the start of the tearing action, particularly, where the film material has substantial resistance to tearing, a pair of slits 21 and 22 are cut in the exposed margin of the tear strip 15 and adjacent portions of the outer film margin 12. The slits 21 and 22 extend in a direction transversely of the longitudinal axis of the tube and are of sufficient length to extend into the margin of the packaging film but terminating short of the seal 16, as shown in FIGS. 1 and 2. The material between the slits 21 and 22, indicated at 23, may be grasped and pulled in the direction of the seam or seal 16 to tear around the circumference of the package for opening the same. If desired, the material may be grasped adjacent the slit 21 in FIG. 1 and pulled in the longitudinal direction across the longitudinal seam 16 to tear along the latter for opening the package.

As illustrated in FIG. 4, the present package may be most conveniently made by feeding a continuous web W of a film material which is suitable for forming the package over the end of a hollow mandrel M through which the product is fed, folding the web to overlap side margins of the same and simultaneously feeding a continuous web T of the tear strip material between the overlapped film margins with the one side edge extending beyond the outside lap of the film material, sealing the multiply material formed by the overlapped film margins and the tear strip by means of an electronic sealing mechanism, indicated at S, so as to provide a continuous longitudinal seam, applying pairs of transverse slits 21 and 22 at the proper intervals by means of a slitting knife and cooperating anvil assembly, indicated at C, constricting the filled tube at intervals after it advances beyond the discharge end of the mandrel M, applying pairs of the closure clips 17, 17' to the constricted sections of the tube and cutting between the clips 17 and 17' of each pair thereof. These operations may be carried out mechanically by proper modification of the package forming machine disclosed in Pat. No. 2,831,302 so as to feed the tear strip and place the slits 21 and 22 in the proper location.

While particular materials and specific structural details have been referred to in describing the package illustrated and the method and apparatus for forming the same, it will be understood that other suitable materials and equivalent structural details may be resorted to within the spirit of the inven-

tion.

I claim:

1. A method of fabricating a package which comprises forming a tube of relatively thin, plastic film material having substantial resistance to tearing by overlapping side margins of the film and heat sealing the same to provide a longitudinal seam, feeding a tear strip between the overlapped side margins prior to the sealing of the overlapped margins with the tear strip positioned relative to the overlapped margins so that it spans the sealed area joining the same and a side edge thereof projects beyond the seam a sufficient distance to permit it to be readily grasped and pulled back across the seam area so as to tear open the same, cutting a pair of transverse slits in the tear strip which extend into the outermost film margin so as to facilitate tearing either around the tube or along the longitudinal seam, filling the tube with a predetermined quantity of flowable product and closing off and sealing the ends thereof with the ends of the tear strip extending into the sealed ends of the tube.

2. A method of fabricating a package which comprises forming into a continuous tube a web of relatively thin, plastic film material having substantial resistance to tearing by overlapping side marginal portions of the film material and heat sealing the same to provide a longitudinal seam, feeding a continuous tear strip having a tensile strength greater than the film material between the overlapped side marginal portions of the film material prior to the sealing of the overlapped marginal portions which tear strip has sufficient width and is positioned relative to the overlapped marginal film portions so that a portion of said tear strip is in the longitudinal seam forming area and a side edge thereof projects outside of said seam forming area a sufficient distance to permit it to be readily grasped and pulled back across the seam thereby to tear open the package, heat sealing the film and tear strip material so as to connect the same in the longitudinal seam forming area and leaving said side edge of the tear strip which projects outside of said seam forming area free so that it may be readily grasped, filling the tube with a predetermined quantity of flowable product and closing off and sealing the ends thereof with the ends of the tear strip extending into the sealed ends of the tube.

3. A method of fabricating a package as set forth in claim 2 and feeding a tear strip between the side marginal portions of the film material which is in the form of surface bonded laminations, and sealing the outside laminations of said tear strip to the overlapped marginal portions of the film material in the forming the longitudinal seam.

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