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J. E. VOEGE ET AL

3,046,847

BAG

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FIG. 1.

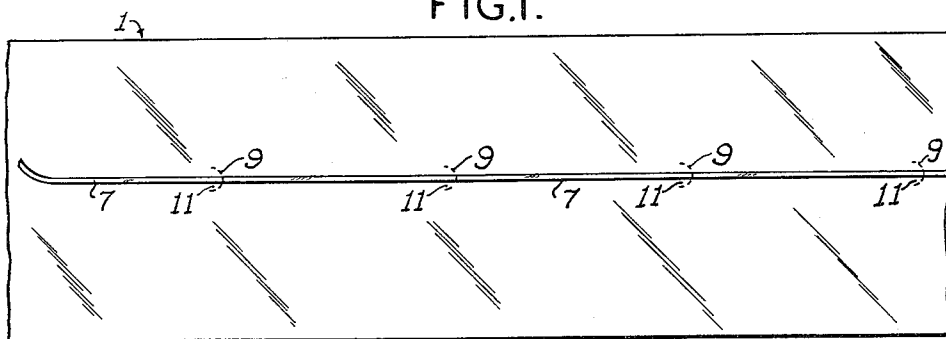


FIG. 2.

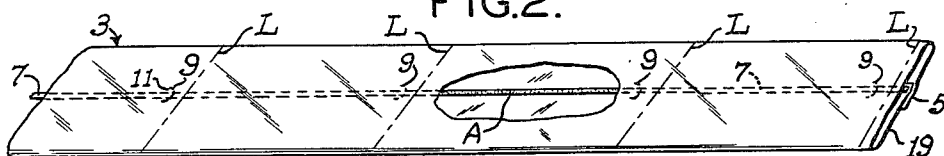


FIG. 3.

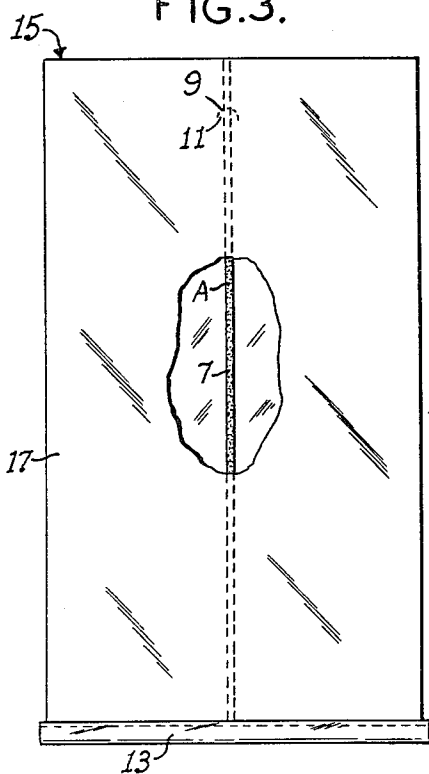


FIG. 4.

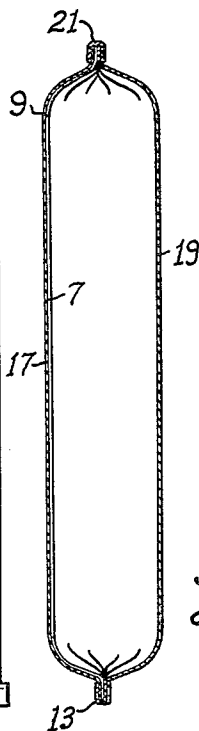


FIG. 5.

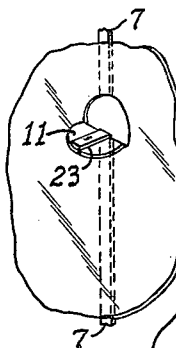
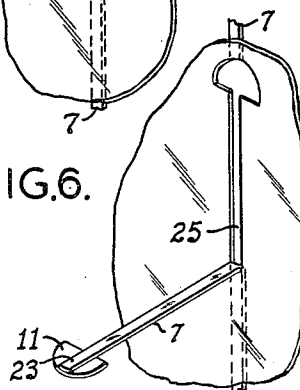


FIG. 6.



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Original application July 22, 1953, Ser. No. 369,664, now Patent No. 2,888,187, dated May 26, 1959. Divided and this application Feb. 26, 1959, Ser. No. 795,791 5 Claims. (Cl. 93-35)

This invention relates to methods of manufacturing bags, and more particularly to a method of manufacturing paper or the like bags with means for tearing an opening in the bag.

This application is a division of our copending application Serial No. 369,664 for Bag, issued as U.S. Patent 2,888,187, May 26, 1959.

Among the several objects of the invention may be noted the provision of a method for economically manufacturing bags made of paper or the like with means for readily tearing an opening in the bag to empty the bag contents; the provision of a method of manufacturing bags of this class wherein the tearing means comprises a tearing member, such as a strip or a cord, for tearing an opening in one of the walls of the bag; and the provision of a method of manufacturing bags of the class described wherein the tearing member is wholly on the inside of the bag and wherein the bag has means whereby the user may readily obtain a grasp on an end of the tearing member to pull it to tear an opening in one of the walls of the bag. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the methods hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which one of various possible embodiments of the invention is illustrated,

FIG. 1 is a plan illustrating initial steps in the method of manufacturing bags of this invention, more particularly showing a portion of the length of a paper web with a tearing member secured thereto;

FIG. 2 is a perspective showing a continuous tube made from the web illustrated in FIG. 1 which is subsequently segmented to form bags of this invention;

FIG. 3 is a plan of a bag made in accordance with this invention before a top closure is applied thereto;

FIG. 4 is a cross section illustrating the FIG. 3 bag as it appears when filled and with a top closure applied thereto, the contents of the bag being omitted;

FIG. 5 is a fragmentary perspective illustrating an initial step in tearing an opening in the bag; and,

FIG. 6 is a view similar to FIG. 5 illustrating the tearing of the bag.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, there is shown at 1 in FIG. 1 a portion of the length of a continuous web of paper, such as kraft paper. This may be a single-ply or multi-ply web, as desired. A single-ply web is shown, to simplify the description. The web 1 is continuously fed to a tuber (not shown) in which the web is formed into the tube 3 shown in FIG. 2 with a pasted longitudinal seam 5 in one wall of the tube. This follows conventional practice in the art of bag manufacture, utilizing well-known standard equipment for forming bag tubing.

In accordance with this invention, a continuous length of tearing member material 7 is combined with the web 1 to extend longitudinally of the web generally along the longitudinal center line of the web as the web travels toward the tuber. Material 7 is illustrated as a strip, but may be a cord. In either case it is preferably ad-

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hesively secured to the paper web. The adhesive is indicated at A. Any suitable strip material, such as a narrow fabric tape or a cellophane tape, may be used.

The web 1 with strip 7 thereon travels through a perforating device (not shown) before it reaches the tuber, the perforating device being designed to form a line of perforations 9 traversing the strip 7 and defining a thumb tab 11, the lines of perforations recurring at bag length intervals. As shown, the line of perforations is generally of U-shape, the strip 7 extending between the sides of the U and across the base of the U. The perforations partly sever the thumb tab 11 from the paper and also partly sever the strip 7 so that the tab 11 may be readily broken away from the paper on the line of perforations, with concurrent breaking of the strip 7 at the line of perforations.

In the tuber, the web 1 with strip 7 thereon, and prepared as described with the lines of perforations 9 recurring at bag length intervals, is continuously formed by folding of portions of the web on longitudinal fold lines and by adhering together the longitudinal margins to form a longitudinal tube seam into the continuous tube 3 shown in FIG. 2 with the strip 7 on the inside and extending lengthwise of the tube. Then the tube is segmented into individual bag lengths by cutting along lines such as illustrated at L in FIG. 2 transversely of the tube, these cut lines being located adjacent to but spaced from the base ends of the U-shaped lines of perforations 9. One of these bag lengths is shown in FIG. 3 provided at its end opposite the line of perforations 9 with a conventional closure indicated at 13, such as a taped and stitched closure, to form a bag 15. It will be observed that the bag 15 has the U-shaped line of perforations 9 defining the thumb tab 11 adjacent its upper end (which is open in FIG. 3). The tear strip 7 extends from the top to the bottom ends of the bag on the inside of the front wall 17 of the bag, being adhesively secured thereto. The strip traverses the tab 11, extending across the base of the U (which is directed toward the upper end of the bag). The strip is perforated by the line of perforations 9 and hence partly severed where it crosses the base of the U. The lower end of the strip is caught in the bottom closure 13. The back wall of the bag, which includes the longitudinal tube seam, is designated 19.

FIG. 4 shows the bag in section as it appears after filling and after a top closure 21, such as a conventional taped and stitched closure, is formed. The bag contents are purposely omitted from FIG. 4. It will be seen that the upper end of the strip 7 is caught in the top closure. Tab 11 is spaced inward from the upper end of the bag length to provide space for forming closure 21 outward from the tab.

To open the bag to empty its contents, the thumb tab 11 is broken away from the front wall of the bag at the line of perforations 9, strip 7 being concurrently broken on the line of perforations to provide a strip end indicated at 23 in FIG. 5 secured to the thumb tab 11. The tab 11 with the strip end 23 in manipulated to the outside of the bag, as illustrated in FIG. 5, and the tab and strip end are grasped between the thumb and forefinger and pulled down to tear the front wall of the bag along the side edges of the strip, as shown in FIG. 6. This provides a narrow slit 25 in the front wall of the bag which may be readily spread to form a large opening for emptying the contents of the bag. It will be observed that with the line of perforations 9 adjacent the top of the bag, and with the strip 7 extending all the way to the bottom of the bag, the slit 25 may extend substantially the full height of the bag.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above methods

without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. The method of making bags with means for tearing an opening in the bag comprising the steps of combining a continuous tearing member with a continuous web of bag material with the tearing member extending longitudinally of the web, perforating the web and tearing member to form lines of perforations defining thumb tabs recurring at intervals corresponding to bag lengths and traversing the tearing member, folding the web longitudinally with the tearing member thereon and prepared with the lines of perforations into a tube with the tearing member on the inside and extending lengthwise of the tube and adhering together the longitudinal margins of the web to form a longitudinal tube seam, segmenting the tube into individual bag lengths by cutting along lines transversely of said tube and adjacent to but spaced from the base ends of the thumb tabs, said lines being so located that the base end of the thumb tab of each bag length is adjacent to but spaced inward from one end of the bag length to provide space for forming a closure at said one end outward from said thumb tab, each bag length thereupon having a tearing member on the inside thereof extending from end-to-end of the bag length and extending across the thumb tab of the bag length, and forming an end closure at an end of each bag length.

2. The method set forth in claim 1 wherein the tearing member is a strip and is adhesively combined with the web.

3. The method of making bags with means for tearing an opening in the bag comprising the steps of combining a continuous tearing member with a continuous web of bag material with the tearing member extending longi-

tudinally of the web, cutting through the web on tab-defining lines traversing the tearing member and at least partly severing the tearing member with said tab-defining lines recurring at intervals corresponding to bag lengths and defining tabs adapted to be broken away for providing ends of said tearing member to be grasped and pulled for tearing purposes, folding the web longitudinally with the tearing member thereon and prepared with said tab-defining lines into a tube with the tearing member on the inside and extending lengthwise of the tube and adhering together the longitudinal margins of the web to form a longitudinal tube seam, and segmenting the tube into individual bag lengths by cutting along lines transversely of said tube and spaced from the tab-defining lines and recurring at bag length intervals, said transverse lines being so located that a tab is included in each bag length adjacent but spaced inward from one end of the bag length to provide space for forming a closure at said one end outward from said tab, and each bag length thereupon having a tearing member on the inside thereof extending from end-to-end of the bag length and extending across the tab of the bag length.

4. The method set forth in claim 3 wherein the tearing member is adhesively combined with the web.

5. The method set forth in claim 4 wherein the tab-defining lines are each generally of U-shape and wherein the tearing member extends between the sides of the U and across the base of the U.

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