United States Patent

[11] **3,565,328**

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[22] Filed **May 15, 1969**
[45] Patented **Feb. 23, 1971**
[73] Assignee **Bemis Company, Inc.**
Minneapolis, Minn.

[54] **MULTIWALL PINCH CLOSURE BAG WITH OPENING FEATURE**
8 Claims, 7 Drawing Figs.

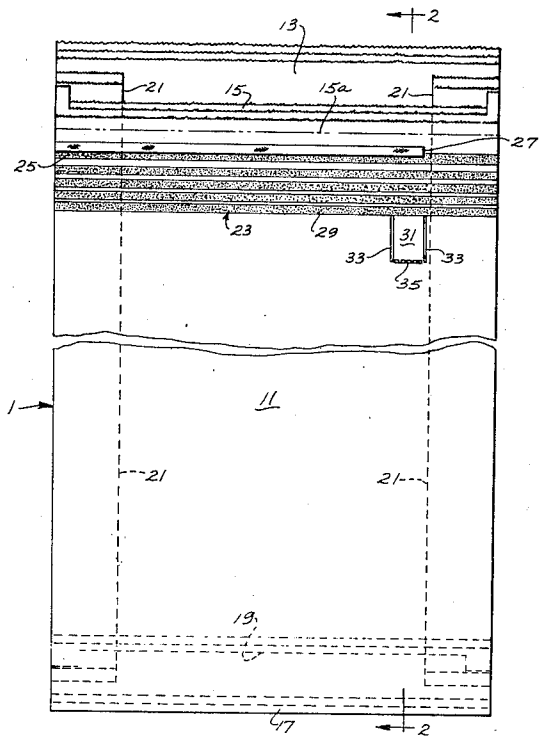
[52] **U.S. Cl.** **229/55;** 229/51
[51] **Int. Cl.** **B65d 33/04,** B65d 17/00, B65d 5/70
[50] **Field of Search** ..... 229/55, 51 (is), 51 (As), 57, 66

[56] **References Cited**
UNITED STATES PATENTS

3,203,620	8/1965	Becker	229/57
3,227,359	1/1966	Hanlon	229/66

Primary Examiner—David M. Bockenek
Attorney—Koening, Senniger, Powers and Leavitt

ABSTRACT: A multiwall bag having a pinch closure provided with a tab and a tear strip for opening the bag at the closure. The tab is constituted by a portion of the outer ply of the bag defined by perforations in the outer ply, the tab extending lengthwise of the bag from the edge of the folded-over flap of the pinch closure. The tear strip extends crosswise of the bag under the flap and is adapted to be pulled to tear an opening in the closure after pulling the tab.



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SHEET 1 OF 2

FIG. 1

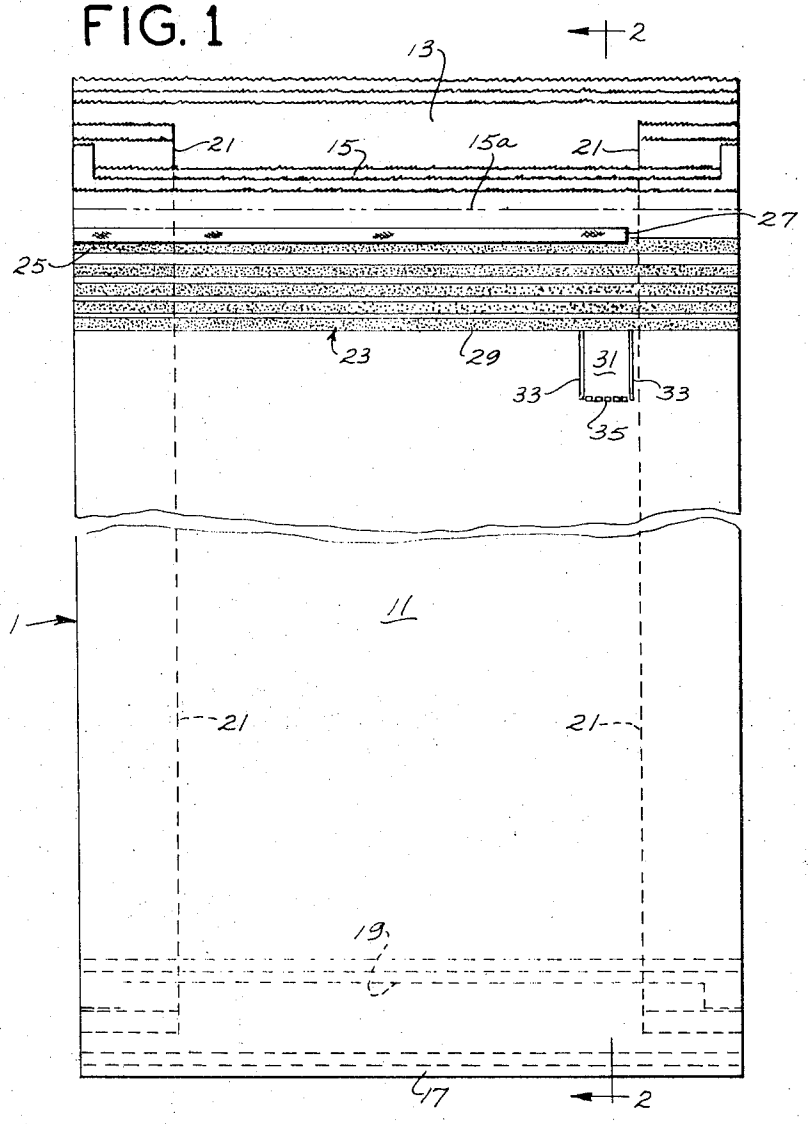
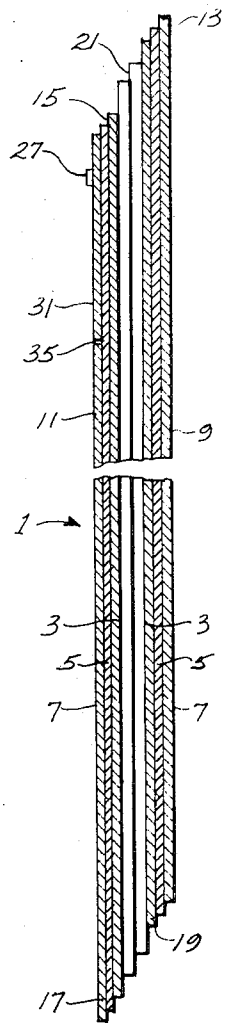


FIG. 2



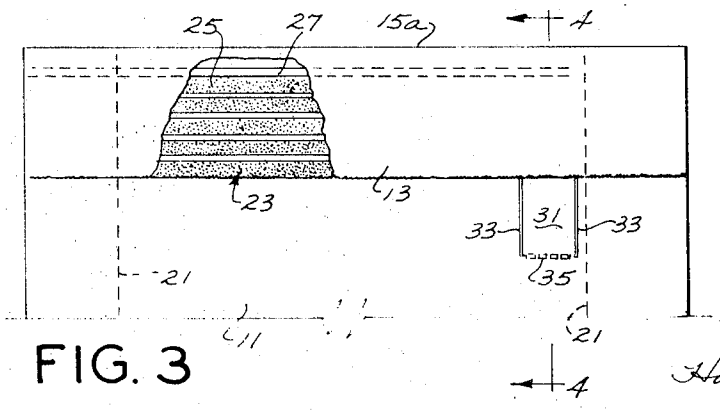


FIG. 3

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FIG. 4

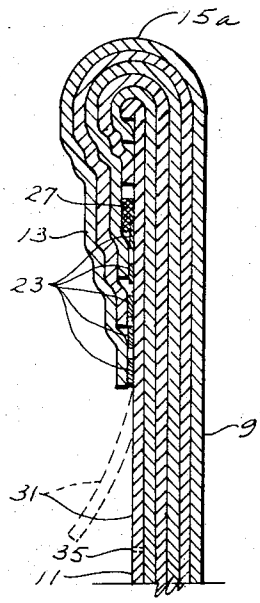
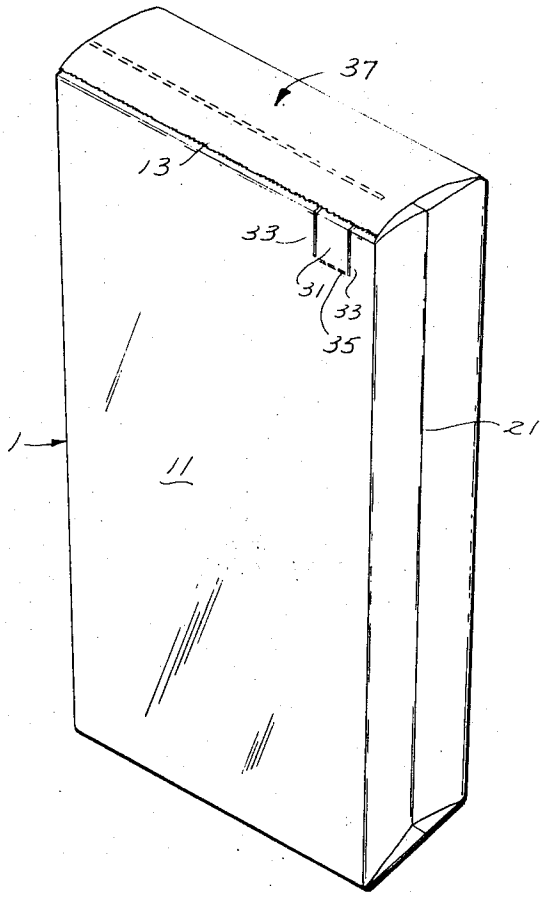


FIG. 5



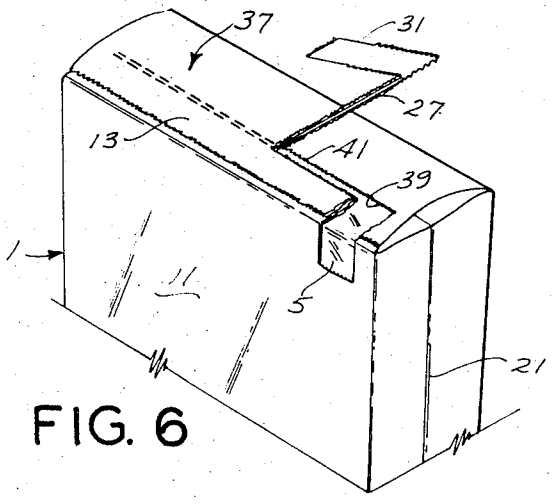
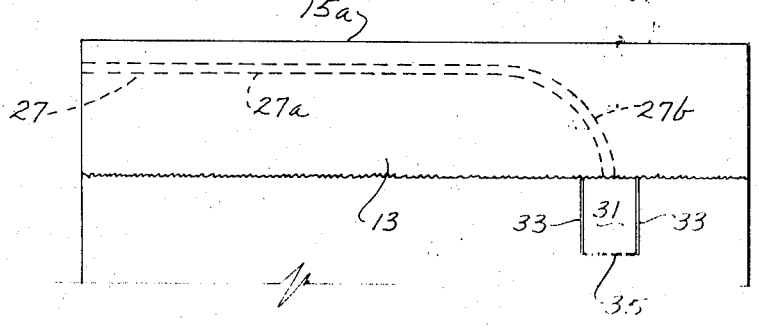


FIG. 6

FIG. 7



MULTIWALL PINCH CLOSURE BAG WITH OPENING FEATURE

BACKGROUND OF THE INVENTION

This invention relates to multiwall pinch closure bags and more particularly to the provision of an easy opening feature for such bags.

The invention is especially concerned with multiwall pinch bottom bags, i.e., an open-mouthed multiwall bag having a pinch bottom formed in the course of the manufacture of the bag and having a formation at the mouth end adapted to be formed into a pinch closure after the bag has been filled through its mouth. The pinch bottom is formed by a closure flap constituting an extension of one wall of the bag which is folded over on the outside of and adhered to the other wall of the bag across the width of the bag. Reference may be made to Becker U.S. Pat. No. 3,203,620, issued Aug. 31, 1965, for an example of such a bag.

It has been heretofore proposed to provide for opening a pinch bottom bag for pouring out its contents by providing a paper tab, a separate component from the bag proper, extending lengthwise of the bag under the folded-over adhered flap of the pinch bottom, with the arrangement such that by pulling this tab, the portion of the flap overlying the tab is torn away from the remainder of the flap to form a pouring opening. This has presented a problem as regards incorporation of the tab in the closure, since it involves application of the tab as a separate piece to the bag. Moreover, it necessitates adherence of the tab to the wall of the bag which underlies the flap in order to provide a tight pinch bottom closure. This adherence, unless relatively weak, interferes with the pulling of the tab and, if made weak for this purpose, may unduly weaken the closure. Also, the tab alone provides only a relatively small pouring opening.

SUMMARY OF THE INVENTION

Accordingly, among the several objects of this invention may be noted the provision of any easy-open feature for a multiwall pinch bottom bag which provides for tearing the closure open without requiring application of any separate tab to the bag and which does not unduly weaken the pinch bottom closure; and the provision of such a feature adapted for tearing an opening in the closure with this opening extending laterally of the bag for a considerable extent to facilitate pouring out the contents of the bag.

In general, the invention involves the provision of a tear tab constituted by a portion of the outer ply of the bag, which is a multi-ply bag, as distinguished from a separate tear tab. As a further feature, a tear strip may be incorporated in the closure which, on pulling the tab, may be pulled to tear a relatively long opening in the closure extending laterally of the bag. Other objects and features will be in part apparent and in part pointed out hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation of a bag tube to be formed into a bag according to this invention;

FIG. 2 is a longitudinal section on line 2–2 of FIG. 1, with the tube spread slightly open, and with thicknesses exaggerated;

FIG. 3 is a front elevation of the upper part of the FIG. 1 bag tube with a pinch closure flap folded over and sealed;

FIG. 4 is a section on line 4–4 of FIG. 3;

FIG. 5 is a perspective view of a bag of this invention as it appears when filled and closed at its mouth;

FIG. 6 is a view showing the use of the tab and tear strip of the invention; and

FIG. 7 is a view showing a modification.

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

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, first more specifically to FIGS. 1 and 2, there is indicated at 1 a multi-ply paper bag tube made in a known manner for the formation of pinch-type closures at each of its ends. As herein illustrated, the bag tube 1 is a three-ply tube. The inner of the three plies is designated 3, the intermediate ply is designated 5, and the outer ply is designated 7. One wall of the tube is designated 9 and the other wall of the tube is designated 11. For the formation of pinch-type closures at the ends of the tube, wall 9 has an extension 13 at one end of the tube (its upper end as illustrated) projecting beyond the respective edge 15 of wall 11, and wall 11 has a corresponding extension 17 at the other (lower) end of the tube projecting beyond the respective edge 19 of wall 9.

As illustrated, the tube is a gusseted tube, the gussets being indicated at 21, and the gussets and plies are shown stepped, but the principles of the invention are equally applicable to a flat bag (i.e., a bag without gussets) and to a bag without stepping of the plies. Hence the particular stepped configuration will not be described in detail as it is not critical insofar as the present invention is concerned. What is important is that extension 13 of wall 9 constitutes a closure flap adapted to be folded over on the outside of wall 11 on a fold line 15*a* approximately at the level of the upper edge 15 of wall 11 and adhered to wall 11 in suitable manner to form a pinch-type closure. Reference may be made to the aforesaid U.S. Pat. No. 3,203,620 for details of such a pinch-type closure bag.

A pattern of adhesive generally indicated at 23 is applied to the outside of wall 11 for adherence of the folded-over flap or extension 13 to the wall 11. As herein illustrated, this pattern involves a plurality of stripes of adhesive, preferably a hot melt adhesive, although various other types of adhesive are also suitable. The stripes are applied to the outside of wall 11 extending thereacross from one side of the bag tube 1 to the other in the area which is to underlie the folded-over flap 13. The uppermost stripe of adhesive is specially designated 25; it is spaced somewhat downward from the upper edge 15 of wall 11. Adhered to the outside of wall 11 is a tear strip 27 extending across the bag tube 1 from one side thereof (its left side as shown in FIGS. 1 and 3) to near its other side. As shown, the tear strip does not extend entirely across the width of the bag, although it may be of such length if so desired. The tear strip is positioned between adhesive stripe 25 and the upper edge 15 of wall 11. It may be made of any suitable material, for example, a strong tough paper or a textile cord or the like, and the term "strip" is intended to include any and all such materials so used. It may be adhered to wall 11 by a hot melt adhesive or any other suitable adhesive. As herein illustrated, it is adhered in place by the adhesive of stripe 25 along the lower edge of the strip only, leaving the strip relatively free ultimately to be pulled.

In FIG. 1, the location of the edge of flap 13 after it has been folded over is indicated at line 29. The outer ply 7 of wall 11 is formed to provide a tab 31 as a portion of the outer ply only, this tab extending lengthwise of the bag tube from line 29 toward the opposite end of the tube from the flap 13 on a line which intersects the tear strip 27 adjacent the right side of the bag tube. For this purpose, the outer ply 7 is formed with openings defining the periphery of the tab, the tab being joined to the surrounding portion of the outer ply between these openings, and being adapted to be torn loose from the outer ply. More particularly, as shown in FIGS. 1—3, the tab is defined by side slits 33 extending lengthwise of the tube downward from the line 29 and a line of perforations 35 spanning the lower ends of the side slits 33. The slits 33 are made of such length as to enable the ultimate user to insert his forefinger through one or the other of the slits and grasp the tab to tear it loose from the outer ply 7 along the line of perforations 35. It will be understood that other suitable slitting or perforation of the outer ply may be utilized to provide the tab. The slits and perforations may be readily provided in the outer ply 7 in the course of manufacture of the bag tubes 1

from which bags of this invention are made. In this regard, it will be understood that the bag tubes **1** may be manufactured as described in U.S. Pat. No. 3,203,620 by combining three webs of paper, forming the combined webs into tubing, and segmenting the tubing into the tubes **1**. The slits and perforations **33** and **35** which define the tab **31** may be formed in the outer ply web prior to its being combined with the other ply webs, as will be readily understood. The disposition of the slits and perforations is such that the tab is maintained in the plane of the outer ply throughout the manufacture of the bags and their subsequent filling and handling, until the ultimate user tears it loose along the line of perforations **35**. The inner plies are intact in the region of the slits and perforations.

As shown in FIGS. **3** and **4**, the flap **13** is folded over on line **15***a* to lie on the outside of wall **11** and is adhered to the latter by the adhesive **23** to form a pinch closure. This is what is termed a factory closure or pinch bottom, being formed at the bag factory. The other end of the bag (which would be the lower end as illustrated) is left open for filling the bag. The folded-over flap **13** overlies the tear strip **27**, the latter lying between the uppermost stripe **25** of the pattern of adhesive **23** and the line of fold **15***a* of the closure.

FIG. **5** shows the bag as it appears after it has been filled and closed at its mouth end, showing the factory closure end of the bag with the tab **31** at the top. It will be noted that the bag squares out when filled and its ends are of generally rectangular conformation. At the rectangular end conformation **37** of the bag which includes the factory closure, the edge of the flap **13** extends across the bag from one end to the other of the rectangular end conformation **37**, and the tab **31** extends out from the region of wall **11** adjacent and underneath the edge of flap **13** adjacent one of the corners of the bag (the right-hand front corner as illustrated) partly within the rectangular end conformation **37** and around into the wall of the filled bag designated **11**.

FIG. **6** shows how the rectangular end conformation is opened by tearing the tab **31** loose from the outer ply **7** along the line of perforations **35**, and pulling the tab. As previously mentioned, the tab **31** may be torn loose from the outer ply **7** along the lines of perforations **35** by inserting the forefinger under the tab via one of the slits **33**, grasping the tab between the thumb and forefinger, and pulling it back toward edge **13**. Then, on continuing such pulling of the tab, a portion of flap **13** which extends back from the tab is torn loose away from the remainder of the flap to form an initial opening **39** in the rectangular end conformation **37**. A portion of the outer ply **7** underlying flap **13** in which the tab is rooted comes into play as part of the tab to effect this tearing of the flap. It is to be noted that this portion of the outer ply is unadhered to the underlying intermediate ply **5**, and hence pulls away freely from the intermediate ply.

Having pulled back the tab **31** and ripped the flap **13** open, the right-hand end of the tear strip **27**, which is adhered between the torn-away portion of the flap **13** and the torn-away portion of the outer ply **7**, is exposed and inherently pulled away from the bag, and may then be pulled toward the left to tear a long opening **41** in the rectangular end conformation **37** extending laterally of the bag all the way from opening **39** to the left end of the rectangular end conformation **37**. The torn-away portion of the flap **13** and the torn-away portion of the outer ply may be utilized as means for grasping the end of the tear strip **27** to pull it.

As shown in FIGS. **1—4**, the tab **31** is located toward the right side of the bag, and the tear strip **27** extends straight across the bag from the left side of the bag to a point generally in the line of the right side of the tab. The tear strip may be applied to the bag tube after the application of the pattern of adhesive **23**, being applied before the adhesive sets so as to adhere the strip to the tube. The stripes of adhesive may be applied, for example, by feeding the bag tubes in the direction transverse to their length through a stripe-applying instrumentality, and applying the tear strips to the tubes as they are fed past said instrumentality.

FIG. **7** shows a modification in which the tear strip **27** has a straight portion **27***a* extending across the bag from the left side toward the right side, and an end portion **27***b* angled (as by being curved) toward the tab.

It is to be expressly understood that, under certain circumstances as, for example, where a small pouring opening is all that is needed or is preferred, the tear strip **27** may be omitted, and the pouring opening made simply by means of the tab **31** alone. In such case, it may sometimes be desirable to locate the tab at the center of the pinch bottom closure, rather than toward one side.

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 constructions 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 in a limiting sense.

I claim:

1. A multi-ply paper bag having a pinch closure at one end comprising a closure flap at said one end constituted by an extension of one wall of the bag folded over on the outside of the outer wall of the bag and adhered thereto across the width of the bag, the outer ply of the bag in said other wall having openings therein defining the periphery of a tab extending lengthwise of the bag in the outer ply of said other wall from the region of said other wall adjacent and underneath the edge of the folded-over flap, the tab being joined to the surrounding portion of the outer ply between the openings, and being adapted to be grasped and pulled to tear the ply of the bag inward of the outer ply being intact in the region of said openings.

2. A bag as set forth in claim **1** wherein the outer ply is formed with slits defining the sides of the tab and a line of perforations defining the end of the tab, the slits permitting insertion of a finger to tear the tab loose from the outer ply along the line of perforations.

3. A multi-ply paper bag having a pinch closure at one end comprising a closure flap at said one end constituted by an extension of one wall of the bag folded over on the outside of the other wall of the bag and adhered thereto across the width of the bag, a portion of the outer ply of the bag in said other wall constituting a tab extending lengthwise of the bag from the edge of the folded-over flap, the tab being adapted to be grasped and pulled to tear the flap to provide an opening at said end of the bag, further having a tear strip extending across said other wall of the bag under said flap, pulling the tab to tear the flap exposing the tear strip so that the latter may be pulled to tear an opening in the closure extending laterally of the bag.

4. A bag as set forth in claim **3** wherein the tab is located toward one side of the bag.

5. A bag as set forth in claim **4** wherein the tear strip is located between the adhesive which secures the flap to said other wall of the bag and the fold on which the flap is folded over.

6. A bag as set forth in claim **5** wherein the tear strip is adhered in place by said adhesive along the edge of the strip opposite said fold.

7. A bag as set forth in claim **5** wherein the tear strip extends straight across the bag.

8. A bag as set forth in claim **5** wherein the tear strip has a portion extending straight across the bag from the other side of the bag toward said one side and an end portion angled toward said tab.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,565,328 Dated February 23, 1971

Inventor(s) Harold D. Hudson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On title page, on line below "Minneapolis, Minn." add -- a corporation of Missouri --. Column 4, line 34, after "the" (first occurrence) insert --flap to provide an opening at said end of the bag, the--.

Signed and sealed this 25th day of May 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

WILLIAM E. SCHUYLER,
Commissioner of Pater