Feb. 8, 1966 K. D. BIXLER ETAL 3,233,818

RECLOSABLE CARTON AND BLANK

Filed July 15, 1964 2 Sheets-Sheet 1

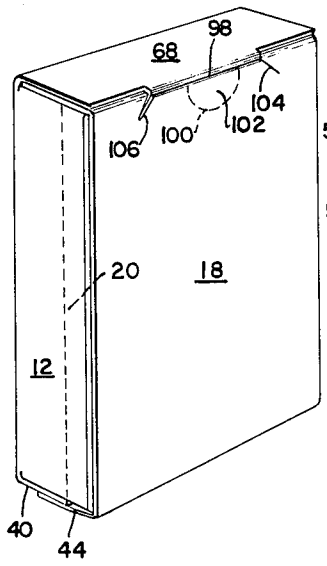



FIG. 5.

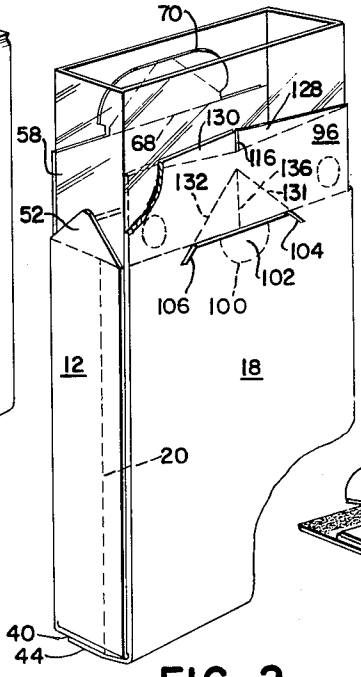



FIG. 2.

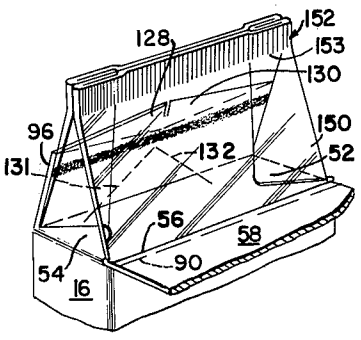



FIG. 3.

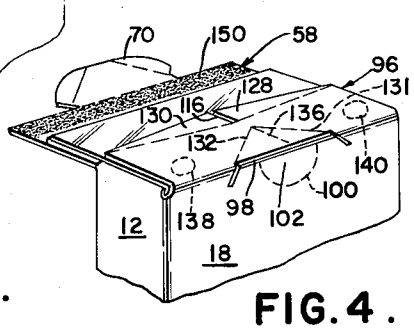



FIG. 4.

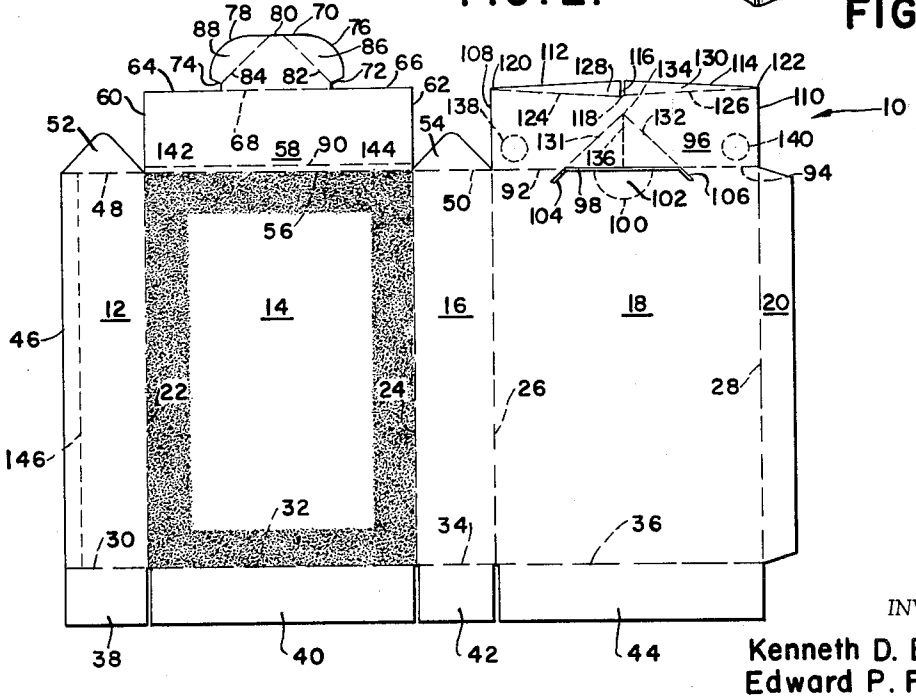



FIG. 1.

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RECLOSABLE CARTON AND BLANK

Filed July 15, 1964 2 Sheets-Sheet 2

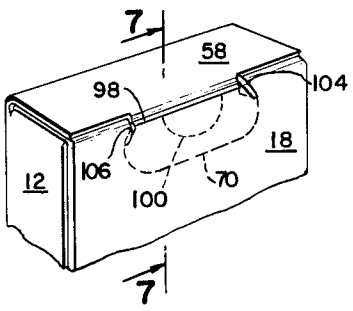



FIG. 6.

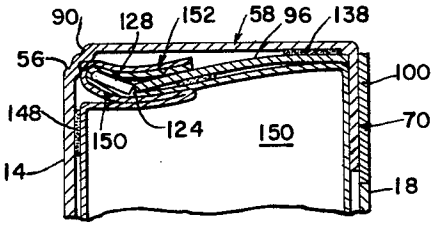



FIG. 7.

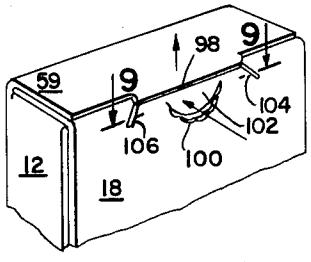



FIG. 8.

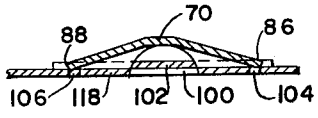



FIG. 9.

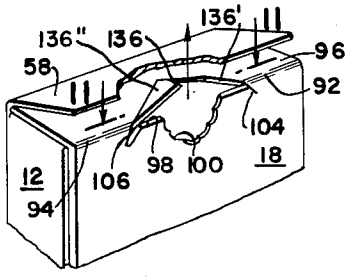



FIG. 10.

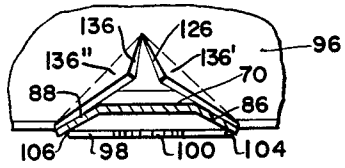



FIG. 11.

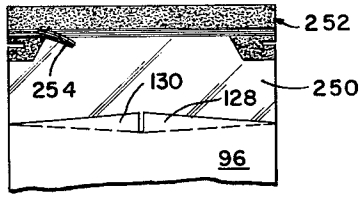



FIG. 12.

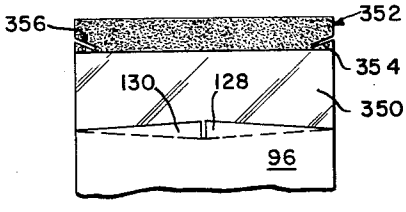



FIG. 13.

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3,233,818

# RECLOSABLE CARTON AND BLANK

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16 Claims. (Cl. 229—39)

This invention relates particularly to an improved blank providing a closure for cartons, and to an improved carton closure for hinged lid cartons particularly adaptable for use with a foldable lining or product-containing bag.

The demand for linings produced from foil, impervious plastic bags, etc., in paperboard, etc. cartons, is constantly increasing according to modern packaging practices. When a portion of the packaged contents is used, and the carton is to be reclosed, it is highly desirable to maintain the remaining contents in a relatively "fresh" condition. In this regard, it is important to substantially seal the lining to prevent air from reaching the carton contents; particularly in the case of comestibles.

Primary objects of the present invention are to provide a novel carton and blank for producing a reclosable package; to provide a novel closure for a reclosable carton; to provide novel means for affording tight resealing of a lined reclosable carton and package; to provide an improved lock tab for a reclosable carton; to provide novel means for forming a tight seal on a reclosable carton including a hinged cover panel.

These together with other and more specific objects and advantages of the present invention will become apparent from the following description taken in conjunction with the drawings forming a part thereof in which:

FIG. 1 is a plan view of the novel blank of the invention;

FIG. 2 is a perspective view of the erected blank having a flexible, sealable substantially transparent bag disposed therein;

FIG. 3 is a fragmentary perspective view of the structure of FIG. 2 opposite that shown in FIG. 2 and showing the upper portion of the bag sealed prior to closing the package;

FIG. 4 is a fragmentary perspective view showing the next step of closing the package;

FIG. 5 is a perspective view of the closed package;

FIG. 6 is a fragmentary perspective view similar to FIG. 5 and showing by means of dotted lines relative position of the lock tab of the carton;

FIG. 7 is an enlarged fragmentary vertical section taken substantially on the plane of line 7—7 of FIG. 6;

FIG. 8 is a view similar to FIG. 6 and showing the manner in which a displaceable tab is depressed for initiating opening of the package;

FIG. 9 is a fragmentary horizontal section taken substantially on the plane of line 9—9.

FIG. 10 is a fragmentary perspective view similar to FIGS. 6 and 8 and showing the relative position of the portions of the inner closure flap of the package;

FIG. 11 is a fragmentary, enlarged sectional view looking substantially on the plane of line 11—11 of FIG. 10, showing the relative portion of the cooperating parts of the closure tab as the carton is being opened.

FIG. 12 is a fragmentary elevation showing the sealed upper edges of a bag closed in a manner somewhat different from that disclosed in FIG. 3; and

FIG. 13 is a fragmentary elevation of still another type of bag closure.

First referring to FIG. 1, a one-piece blank of paperboard or any other suitably scored and die-cut material is indicated generally at **10**. The blank **19** comprises a



first end wall **12**, a first side wall **14**, a second end wall **16**, a second side wall **18**, and a glue flap **20**. The panels **12–18** and glue flap **20** are hingedly connected to each other on mutually parallel fold lines **22**, **24**, **26** and **28** which extend the height of the walls and glue flap. The walls **12–18** have respectively connected by means of lower marginal fold lines **30**, **32**, **34** and **36** suitable die-cut bottom closure flaps **38**, **40**, **42** and **44** separated from each other by means of suitable die-cuts colinear with the respective fold lines **22–28**.

The structure identified above is substantially conventional as will be recognized by those skilled in the art. Additionally, the glue flap **20** could be formed along the vertical margin **46** of the end wall **12** as will be recognized by those skilled in the art.

The end walls **12** and **16** include an upper margin defined by transverse fold lines **48** and **50**, respectively, to which are hingedly connected triangular orienting flaps **52** and **54** which serve to tuck in side portions of a flexible and impervious sealing bag, as will be subsequently described in detail.

The side wall **14** includes an upper marginal fold line **56** colinear with fold lines **48** and **50**, and to which is hingedly connected a rectangular, outer closure flap **58**. The flap **58** includes die-cut side margins **60** and **62** colinear with the fold lines **22** and **24**, respectively, and includes an upper margin formed by spaced segmental die cuts **64** and **66** parallel to the fold line **56** and an intervening fold line **68**.

Hingedly connected to the fold line **68** is a lock tab **70** including flanking notch portions **72** and **74**, from which extend arcuate margins **76** and **78**, respectively, connected by an intermediate margin **80** substantially parallel to the fold line **68**. Extending in converging relationship substantially from terminal ends of the fold line **68** and at the inner portion of the notches **72** and **74**, respectively, are converging fold or score lines **82**, **84**, respectively, wihch extend to the margin **80**. The fold line **82** and arcuate margin **76** define a displaceable tab **86**, and the fold line **84** and arcuate margin **78** define a similar displaceable tab **88**. The closure flap **58** has extending therethrough, between side margins **60** and **62**, a fold or score line **90** which is spaced slightly above the fold line **56**; the function of this fold line being illustrated in FIG. 7, for example, as will subsequently be described in detail.

The side wall **18** has an upper margin formed by spaced score or fold lines **92** and **94** colinear with fold lines **48**, **56** and **50** and to which is hingedly connected an inner closure flap **96**. Extending between the fold lines **92** and **94** is a cut or slot **98** providing a female opening for the lock tab **70**. Formed centrally of the cut line or slot **98** and extending into the side wall **18** thereat is a U-shaped, severable line **100** forming a displaceable tab **102**. Flanking the slot **98** are a pair of angular nicks or cuts **104** and **105** which extend into the side wall **18** and facilitate closure, opening and reclosure of the carton.

The inner closure flap **96** is defined by die-cut side margins **108** and **110**, respectively, colinear with the score or fold lines **26** and **28**, and an upper pair of shallow-angled, converging marginal edges **112** and **114** interrupted by an intermediate notch or slot **116**. Extending toward the base **118** of the slot or notch **116** from the terminal ends **120** and **122** of the margins **112** and **114**, respectively, are shallow converging score or fold lines **124** and **126** forming bag-pinching segments **128** and **130** (see FIGS. 4 and 7, for example).

Also extending into the inner closure flap **96** in the same general direction of the notches or slots **104** and **106** are converging fold lines **131** and **132** which terminate at the upper end **134** of a downwardly extending, severable or perforated score line **136** terminating at the slot **98**.

Formed adjacent the terminal ends of the score lines **92** and **94** in the inner closure flap **96**, i.e., on the side opposite shown in FIG. 1, are preferably circular, delaminable areas **138** and **140** which will have adhesive applied thereto to adhere to the inner surface of the closure flap **58** at the areas **142** and **144** shown by phantom lines in FIG. 1.

The blank **10** is assembled as a tube by folding glue flap **20** onto the inner surface of side wall **18**, and folding end wall **12** and side wall **14** and fold line **24** into overlying relationship with respect to walls **16** and **18** so that portion **146** of the end wall **12** will adhere to glue flap **20** (see FIG. 2, for example).

The inner surface of the side wall **14** (see FIG. 1) has any suitable adhesive-receiving area **148** to which adheres one side of an impervious, flexible bag **150** which will be filled with a commodity that may be partialy used or removed from the bag and generally requiring a tight reclosure to preserve the freshness of the remainder. Additionally, the areas **142** and **144** will only adhere to the delaminable portions **138** and **140** of the inner closure flap **96** due to the use of print-release varnish which promotes adhesion only in the selected areas.

The bag **150** will be closed at its bottom in any suitable manner and the bottom closure flaps **38–44** will also be closed in the conventional manner; for example, the flaps **38** and **42** will be disposed in parallel relationship with the flap **40** underlying the outer closure flap **44** as seen in FIGS. 2 and 5, for example.

Considering FIG. 2, the bag **150** will have an open top and will be filled with the commodity, such as coconut, confection sugar, rice, etc. The upper edge of the bag **150** will be hermetically sealed by means of a suitable seal indicated generally at **152**. Next, the end wall, triangular flaps **52** and **54** will be folded inwardly to engage opposite sides of the bag **150** and provide folds as clearly seen in FIG. 3. The flaps **52** and **54** can be folded inwardly prior to forming the seal **152** to facilitate the proper orientation of the upper end of the bag prior to forming the seal **152**.

Next, the inner closure flap **96** is folded into overlying relationship with respect to the flaps **52** and **54** as seen in FIG. 4, and the segments **128** and **130** will be disposed at the fold lines **56** and **90** of the outer closure flap. Next, the outer closure flap **58** will be folded onto the outer surface of the flap **96** with bag **150** adhering only to the circular delaminable segments **138** and **140** due to adhesive-prohibiting varnish being deposited on the outer surface of the flap **96**. Finally, the male lock tab **70** will be inserted in the slot **98**, the flanking slots **104** and **106** facilitating entry of the male slot into the slot **98** and the package will be assembled as seen in FIGS. 5–7.

As previously mentioned, FIGS. 6 and 7 show the package in an initially closed condition. In order to open the package, pressure is applied against the perforated segment **102** in the manner shown in FIGS. 8 and 9. When inward pressure is applied on the perforated segment **102**, the male lock tab **70** is collapsed inwardly, as seen in FIG. 9 on the converging score or fold lines **82** and **84**.

Due to continued pressure, the severable perforated line **136** yields, separating triangular segments **136'** and **136''** which will swing upwardly and permit the inwardly yielding lock tab **70** and the flanking segments **86** and **88** thereof to move to the position shown in FIG. 11, wherein the outer closure flap **58** may be readily lifted. The delaminable glue spot segments **138** and **140** will permit the ready lifting of the outer closure flap **58**. Next, the flap **96** is moved aside so access may be had to the upper sealed edge **152** of the bag **150**.

The seal **152** is ruptured, preferably tearing along line **153**; see FIG. 3, and a portion of the contents of the bag **150** may be used. After a sufficient amount of the product has been removed from the bag **150**, the bag may be refolded in the manner shown in FIG. 3 and the inner closure flap **96** is folded in the manner shown in FIG. 4. Next, the outer closure flap **58** is folded onto the flap **96**, it being noted that the elongated and triangular segments **128** and **130** will have the upper edge of the bag **150** folded thereover. Further, these segments will be pinched at the fold lines **56** and **90** formed at the outer closure flap **158**, as clearly shown in FIG. 7. The reclosure of the package is completed by inserting the male locking tab **70** through the slot **98** formed in the upper edge of the front wall **18**, and the flanking slots **104** and **106** will readily accommodate the reinsertion of the lock tab **70**.



Considering FIG. 12, the slightly modified embodiment of the sealed bag is indicated generally at **250** and includes transversely of the upper edge a modified sealing assembly **252**. The seal **252** incorporates a circumferential removable tear strip **254** facilitating removal and opening of the upper edge of the bag **250**.

Another embodiment of sealed bag is indicated at **350** in FIG. 13, and includes in the sealing assembly **352** a pair of cuts or nicks **354** and **356** which facilitate tearing the seal **352** transversely of the bag.

Although the means for reclosing the package and tightly sealing the bag is shown in detail with respect to the specific lock tab and accommodating slot structure, portions of the disclosed novel combination are usable independently as will be apparent to those skilled in the art.

Obviously, many modifications may be made without departing from the basic spirit of the invention, and therefore within the scope of the appened claims the invention may be practiced other than is specifically claimed.

We claim:

**1.** In a one-piece blank for producing a carton used to form a reclosable sealed package and including two pairs of alternately disposed, rectangular end and side walls connected on mutually parallel fold lines and including upper marginal fold lines; the improvement comprising;

an inner closure flap foldably connected to the upper marginal edge of one of said side walls;

said inner closure flap including a female slot extending through said coextensive with an intermediate portion of said upper marginal fold line and flanked by diverging terminal notches extending into said one of said side walls;

an outer closure flap foldably connected to the upper margin of said other side wall,

said outer closure flap including a male lock tab foldably connected to a free margin of said outer closure flap opposite said upper marginal fold line of said other side wall and having a length substantially equal to the length of said female slot,

said lock tab including lateral, displaceable segments formed by fold lines in said tab and converging from the fold line along said free margin, said inner closure flap including a pair of converging fold lines extending in converging relationship generally from the terminal ends of said female slot and intersecting intermediately of said inner closure flap,

said inner closure flap including a severable perforated line extending from the intersection of said converging score lines to said female slot for forming a pair of adjacent, triangular and displaceable segments for facilitating opening of a package formed from said blank.

**2.** The structure as claimed in claim **1** in which said one side wall includes a displaceable segment intermediately of said female slot and extending therebelow into said one side wall.

**3.** In a one-piece blank for producing a carton used to form a reclosable sealed package and including two pairs of alternately disposed, rectangular end and side walls connected on mutually parallel fold lines and in-

cluding upper marginal fold lines; the improvement comprising;

an inner closure flap foldably connected to the upper marginal edge of one of said side walls;

said inner closure flap including a female slot extending through and coextensive with an intermediate portion of said upper marginal fold line and flanked by diverging terminal notches extending into said one of said side walls;

an outer closure flap foldably connected to the upper margin of said other side wall,

said outer closure flap including a male lock tab foldably connected to a free margin of said outer closure flap opposite said upper marginal fold line of said other side wall and having a length substantially equal to the length of said female slot,

said lock tab including lateral, displaceable segments formed by fold lines in said tab and converging from the fold line along said free margin, said inner closure flap including delaminatable, glue spot portions for detachable engagement with portions of said outer closure flap when the carton is erected from said blank.

4. In a one-piece blank for producing a carton used to form a reclosable sealed package and including two pairs of alternately disposed, rectangular end and side walls connected on mutually parallel fold lines and including upper marginal fold lines; the improvement comprising;

an inner closure flap foldably connected to the upper marginal edge of one of said side walls;

said inner closure flap including a female slot extending through and coextensive with an intermediate portion of said upper marginal fold line and flanked by diverging terminal notches extending into said one of said side walls;

an outer closure flap foldably connected to the upper margin of said other side wall,

said outer closure flap including a male lock tab foldably connected to a free margin of said outer closure flap opposite said upper marginal fold line of said other side wall and having a length substantially equal to the length of said female slot,

said lock tab including lateral, displaceable segments formed by fold lines in said tab and converging from the fold line along said free margin, said end walls including triangular flaps hingedly connected to the upper marginal edges thereof.

5. In a one-piece blank for producing a carton used to form a reclosable sealed package and including two pairs of alternately disposed, rectangular end and side walls connected on mutually parallel fold lines and including upper marginal fold lines, the improvement comprising:

an inner closure flap foldably connected to the upper marginal edge of one of said side walls, said inner closure flap including a female slot extending through and coextensive with an intermediate portion of said upper marginal fold line,

said inner closure flap including a free margin remote from the fold line thereof with said one side wall,

said inner flap including fold lines spaced inwardly of said free margin and defining at least one displaceable flap portion;

an outer closure flap foldably connected to the upper margin of said other side wall,

said outer closure flap including a male lock tab foldably connected to a free margin of said outer closure flap opposite said upper marginal fold line of said other side wall and removingly receivable in said female slot.



6. The structure as claimed in claim 5 in which said inner closure flap comprises a pair of shallow-angled converging fold lines extending toward each other from the terminal ends of the free margin of said inner closure flap, a notch extending from the intersection of said shallow angle converging fold lines to the free margin of said inner closure flap,

said outer closure flap comprising a second fold line extending the width of said outer closure flap and parallel to the hingle line thereof with said other side wall for accommodating the displaceable flap portion at the free edge of said inner closure flap when said blank is formed into a rectangular carton.

7. The structure as claimed in claim 5 in which said inner closure flap includes terminal notches flanking said female slot and extending into said one of said side walls, said male locking tab including lateral, displaceable segments formed by fold lines in said tab and converging from an intermediate free margin portion of said outer closure flap.

8. The structure as claimed in claim 6 in which said inner closure flap includes a pair of converging fold lines extending in converging relationship generally from the terminal ends of said female slot and intersecting intermediately of said inner closure flap, said inner closure flap including a severable line extending from the intersection of said converging score lines to said female slot for forming a pair of adjacent, triangular and displaceable segments for facilitating the opening of a package formed from said blank.

9. The structure as claimed in claim 5 in which said end walls include triangular flaps hingedly connected to the upper marginal edges thereof.

10. In a reclosable package including a rectangular carton including opposed pairs of end and side walls having upper closure flaps connected to upper marginal fold lines on said walls, the fold lines between one of said side walls and the closure flap hingedly connected thereto including a female slot having flanking notch portions extending into said one side wall, the closure flap hingedly connected to one side wall including converging fold lines extending from the terminal ends of said female slot and intersecting intermediately of said closure flap, and a severable score line extending from the intersection of said converging fold lines to said female slot and forming displaceable triangular segments in said closure flap, the closure flap hingedly connected to said other side wall including a male lock tab hingedly connected to the free margin thereof for removable receipt in said female slot, said male lock tab including displaceable lateral segments hingedly connected to said male lock tab for removable receipt in said flanking notch portions in said one side wall of the carton.

11. The structure as claimed in claim 10 in which one side wall includes a displaceable segment adjacent to and depending from said female slot for facilitating opening of the carton.

12. The structure as claimed in claim 10 in which said inner closure flap includes delaminatable glue spot portions engageable with overlying portions of said outer closure flap.

13. The structure as claimed in claim 10 in which said end walls include triangular closure flaps hingedly connected to the upper marginal fold lines thereof.

14. A reclosable package comprising a rectangular carton including opposed pairs of end and side walls having upper closure flaps connected to upper marginal fold lines of said walls, a flexible bag containing a product and disposed in said carton and having an upper portion extending above the upper marginal fold lines of said walls, one of said side walls having an intermediate female slot formed in the upper marginal fold line thereof, the closure flap hingedly connected to the upper marginal

fold line of said one side wall including displaceable segments in the free marginal edge thereof positionable adjacent the upper marginal fold line of said other side wall, the closure flap foldably connected to said other side wall including a male lock tab foldably connected to the free marginal edge thereof and removably receivable in said female slot, said other closure flap including a transverse fold line adjacent to and spaced from the upper marginal fold line of said other side wall for providing a space for receiving the displaceable portion of said first mentioned inner closure flap.

**15.** The structure as claimed in claim **14** in which said end walls include triangular closure flaps engageable with said flexible bag for providing tucks in opposite side portions thereof.

**16.** The structure as claimed in claim **14** in which said inner closure flap includes converging fold lines extending from terminal ends of said female slot and intersecting intermediately of said inner closure flap, a severable perforated line extending from the intersection of said converging fold lines to said female slot for forming triangular segments in said inner closure flap, said one side wall including flanking notch portions extending into said one side wall at terminal ends of said female slot, said male lock tab including a pair of angularly related fold lines defining displaceable lock tab segments at opposite sides of said lock tab.

**References Cited by the Examiner**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 288,254 | 11/1883 | Munson. | |
| 1,984,371 | 12/1934 | Hazard et al. | 229—45 X |
| 2,170,378 | 8/1939 | Orstrom | 229—14 |
| 2,335,913 | 12/1943 | Buttery | 229—14 |
| 2,422,899 | 6/1947 | Hogdal | 229—14 |
| 2,427,858 | 9/1947 | Hogdal | 229—14 |
| 2,432,052 | 12/1947 | Waters | 229—14 |
| 2,675,160 | 4/1954 | Buttery | 229—45 X |
| 2,762,552 | 9/1956 | Hickin. | |
| 2,933,229 | 4/1960 | Bensel | 229—45 X |
| 3,037,684 | 6/1962 | Andrews et al. | 229—39 X |
| 3,051,367 | 8/1962 | Enihorn | 229—14 |

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