Feb. 11, 1969 J. F. OLSON 3,426,955

COMBINATION BAG AND BOX

Filed Sept. 16, 1966

Sheet 1 of 2

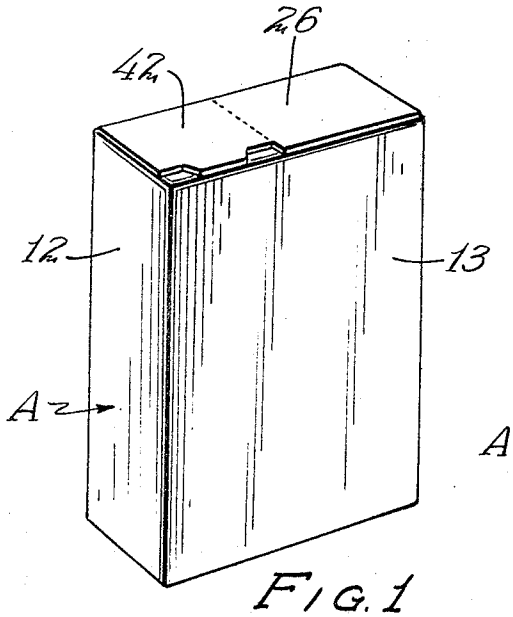


FIG. 1

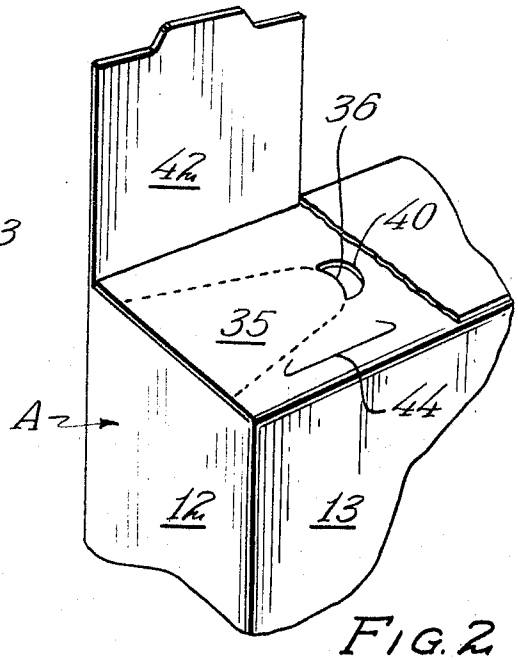


FIG. 2

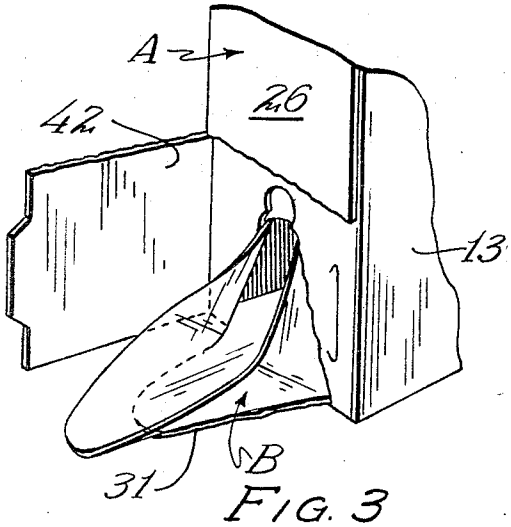


FIG. 3

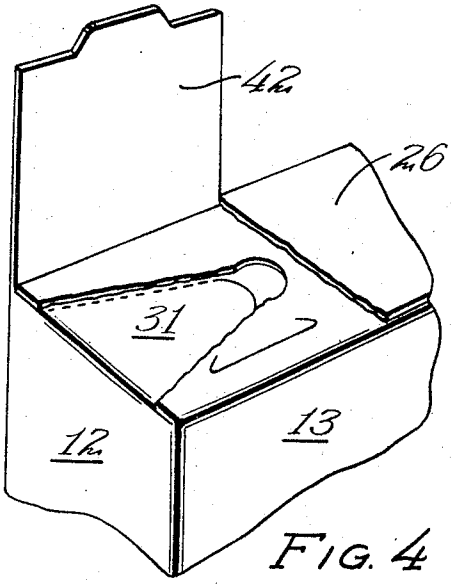


FIG. 4

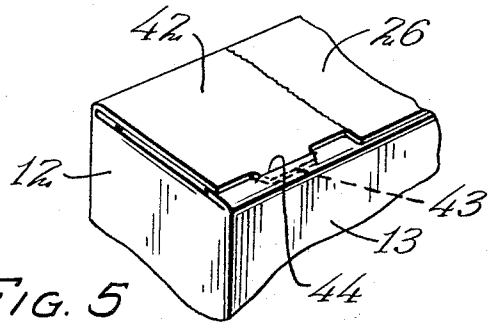


FIG. 5

INVENTOR

JEROME F. OLSON

BY Robert M. Dunning

ATTORNEY

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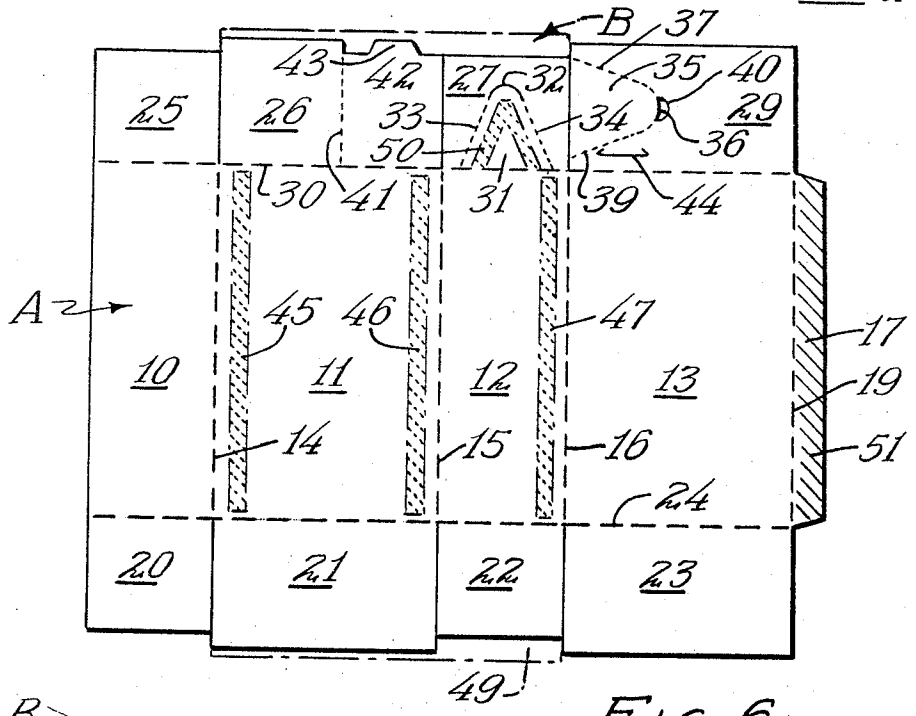


FIG. 6

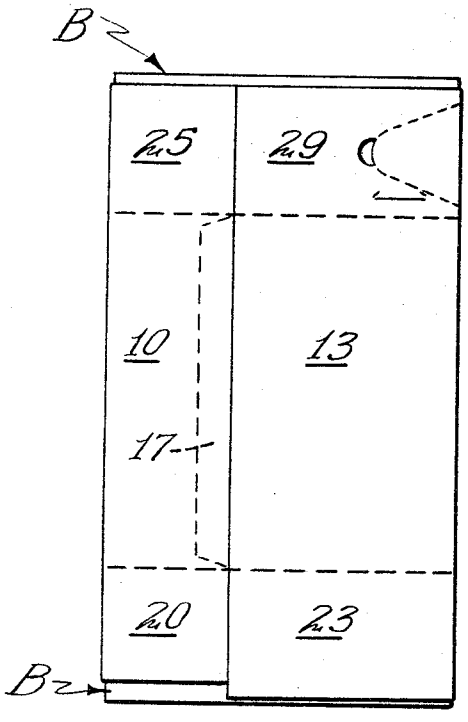


FIG. 7

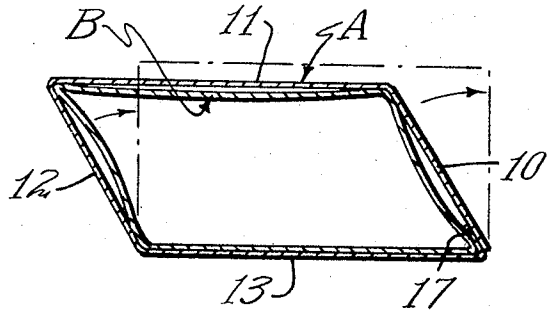


FIG. 8

INVENTOR
JEROME F. OLSON
BY Robert M. Dunning
ATTORNEY

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COMBINATION BAG AND BOX

Jerome F. Olson, South St. Paul, Minn., assignor to Hoerner Waldorf Corporation, St. Paul, Minn., a corporation of Delaware

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U.S. Cl. 229—17 7 Claims
Int. Cl. B65d 5/56, 17/24, 25/40

ABSTRACT OF THE DISCLOSURE

The invention discloses a bag in box combination in which a flat bag having one closed lower end is folded within a carton blank. The carton blank includes alternate side and end walls connected in tubular relation by an internal glue flap. Closure flaps are hinged to the upper and lower edges of the side and end walls to form carton closures. The bag is secured to the carton blank in such a manner as to open up when the carton is squared up. One end wall top closure flap includes a partially detachable area hinged to the upper edge of the end wall to which the closure flap is secured. The bag is secured to this area. This side wall closure flap overlying the end wall closure flaps is provided with a detachable area. The other or uppermost side wall closure flap is divided into two sections by a weakened line of separation extending from the end of this flap to the fold line connecting it to its side wall. One section overlying the detachable area may be hinged up to expose the detachable area.

This invention relates to an improvement in combination bag and box and deals particularly with a carton including a bag of plastic film and in the method of forming the structure.

The packaging of fluids, semi-fluids, and flowable materials in paperboard cartons has substantially increased in recent years. Most such packages include an outer shell of paperboard, and an inner bag of plastic sheeting or similar material. The contents of the package are usually hermetically sealed within the inside bag, while the outside shell or paperboard carton serves to protect the bag and to hold it in a rectangular shape.

One of the major difficulties in producing packages of this type lies in the fact that the operation of filling the bag and inserting the bag into the outer carton is often impractical due to the high labor costs involved. In order to be practical, it is almost necesary to secure the bag to the inside surface of the carton blank so that when the carton is opened up from flat form to rectangular form, the inside bag will also open up. This operation is complicated by the fact that the bags are usually formed of a tube of plastic which is sealed flat across one end. If the flat sealed bag is secured to the inner surface of the carton blank and to the closure flaps, the scoring of the carton tends to close the flaps to which the bag is connected. This usually requires that the bag tear loose from the majority of the closure flaps during the closing operation. On the other hand, if the bag is originally not anchored to at least two of the closure flaps when the carton blank is flat, the bag is usually folded or wrinkled when the carton is sealed along the manufacturer's joint.

It has been found that by using an adhesive which remains permanently tacky, such as resin, emulsion glue or a latex container adhesive, the bag may be secured flat in the blank and will remain in place during the formation of the manufacturer's joint. At the same time, when the carton is squared up the bag will tear free of three of the closure flaps during this operation.

A further difficulty, which has been experienced in cartons containing bags, lies in the fact that it is difficult

to open the inside bag without opening the entire end of the carton. In structures in which the bag is to contain a material which is used from time to time, it is desirable to provide a means of pouring out a small portion of the products at a time. A feature of the present invention resides in the provision of a weakened line of separation defining a potential flap in one of the closing flaps to which the surface of the bag end is secured. The flap is located along the fold line connecting the closing flap to its carton side wall. By tearing the flap along the weakened line and hinging this area upwardly, a portion of the bag end will be drawn through the aperture left in the closure flap so that it is readily accessible for opening.

A further feature of the present invention resides in the fact that the flat bags may be adhered to a surface of the flat paperboard blanks in one operation, and the blanks thus formed may be completed by applying adhesive to both sides of the glue flap when the manufacturer's joint is formed. This not only seals the carton but also attaches the wall of the bag body to the outer shell inwardly of the manufacturer's joint to insure the proper opening of the bag when the carton is squared up.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

FIGURE 1 is a perspective view of the filled carton in closed form.

FIGURE 2 is a perspective view of a corner of the carton showing the first step of opening the carton.

FIGURE 3 is a perspective view of a corner of the carton after it has been opened and the bag unsealed.

FIGURE 4 is a perspective view of the carton after it has been partially reclosed.

FIGURE 5 is a perspective view of the reclosed carton.

FIGURE 6 is a diagrammatic view of the blank from which the carton is formed.

FIGURE 7 is a plan view of the flat folded carton.

FIGURE 8 is a horizontal sectional view through the walls of the carton as it is squared up toward rectangular form.

The carton A is formed on the blank best illustrated in FIGURE 6 of the drawings. The blank A includes an end wall **10**, a side wall **11**, a second end wall **12**, and a second side wall **13** which are hangedly connected in series along parallel fold lines **14**, **15**, and **16**. A glue flap **17** is hingedly connected to an edge of the blank, such as the edge of the side wall **13**, along a fold line **19** which is parallel to the previously described fold lines.

Bottom closure flaps **20**, **21**, **22** and **23** are foldably connected to the lower edges of the wall panels along a fold line **24** which is at right angles to the previously described fold lines. Top closure flaps **25**, **26**, **27**, and **29** are foldably connected to the upper edges of the wall panels **10**, **11**, **12**, and **13** along a substantially common line of fold **30**. The fold line **30** is parallel to the fold line **24**.

The end wall closure flap **27** is provided with a generally triangular or U-shaped partially detachable area **31**. This partially detachable area **31** is degned by a generally U-shaped cut line **32**, the ends of which are connected by diverging weakened lines of separation **33** and **34** which terminate at the fold line **30**. In order to gain access to the partially detachable area **31**, a registrable detachable area **35** is provided in an edge of the closure flap **29**. This detachable area **35** is defined by a generally U-shaped cut line **36**, and diverging weakened lines of separation **37** and **39** which extend from the ends of the U-shaped cut line **36** to the end edge of the closure flap **29** which is substantially aligned with the

fold line **16**. When the end and side walls **12** and **13** are folded into right angular relation, the closure flap **29** is folded over the closure flap **27**, the entire area of the partially detachable portion **31** may be exposed by removing the slightly larger and similarly shaped detachable area **35**. If desired, a U-shaped cut line **40** may be provided in the flap **29** having its ends in communication with the U-shaped cut line **36** so as to form a crescent-shaped aperture in the panel **29** to simplify the grasping of the detachable area **35**.

The flap **26** which is the outermost flap of the series, when the carton is closed is divided into two sections by a weakened line of separation **41** which extends at right angles to the fold line **30**, or parallel to the end edges of the flap **26**. The area **42** on one side of the weakened line **41** is cut to provide a short locking tongue **43**. A generally U-shaped slit **44** is provided in the closing flap **29**. This slit **44** is designed to accommodate the locking tongue **43** when the carton is reclosed.

The bag B is of a width substantially equal to the combined widths of the wall panels **11** and **12**, and is of a length slightly greater than the combined lengths of the wall panels and the closing flaps connected thereto. The bag B is preferably attached overlying the panels **11** and **12**, and secured thereto along strips of adhesive **45** and **46** in the panel **11** near the fold lines **14** and **15** respectively, and along a third strip of adhesive **47** extending the height of the end wall panel **12** near the fold line **16**. The end **49** of the bag B which overlies the bottom closing flaps **21** and **22** is sealed closed along a transverse seam while the opposite or upper end of the bag is open. As is also indicated, the surface of the bag is also attached to the partially detachable area **31** along an area of adhesive **50** which generally follows the contour of the area **31**.

In the closing of the carton, adhesive is applied to both sides of the glue flap **17**, one such area being indicated at **51**. The adhesive area **51** is preferably the same type of adhesive as is used in the areas **45**, **46**, **47** and **50**. The adhesive is of a type which remains permanently tacky, such as resin, emulsion glue, or a latex adhesive. The adhesive applied to the undersurface of the glue flap **17** may be of any type capable of adhering the paperboard surfaces together.

When the wall panel **13** and glue flap **17** is folded along the fold line **16**, the glue flap comes into contact with the upper surface of the bag. The wall panel **10** is then folded to overlie the glue flap **17** and to be adhered thereto. A flat carton blank having the flat bag therein is formed in this manner.

When the bag is used, the various wall panels are squared up, and the bag opens up with the carton due to its adhesive attachment with three of the carton walls. The bottom of the carton is sealed in the conventional manner, usually by folding the flaps **20** and **22** into coplaner relation and folding the flaps **21** and **23** into surface contact beneath the flaps **20** and **22**. The carton thus formed is filled in any desired manner, and the top of the bag is usually sealed together. This is usually done while the flaps **25** and **27** have been folded outwardly into a common plane. The top of the carton is then closed by folding the flaps **25** and **27** inwardly into a common plane, folding the flap **29** downwardly into face contact with the inner flaps **25** and **27**, and folding the flap **27** down over the flap **29**. The area **42** of the flap **26** is not securely adhered to the removable area **35** of the flap **36**.

When the carton is to be opened to remove a portion of the contents, the locking tongue **43** is grasped and the area **42** of the outer flap **26** is hinged upwardly, tearing the flap along the weakened line of separation **41**. This exposes the removable area **35**. By engaging the end of this removable area and tearing the paperboard along the diverging weakened lines **37** and **39**, the area **35** may be separated and discarded. This discloses the slightly smaller partially detachable area **31**. This area **31** is

hinged upwardly along the fold line **30**, tearing the paperboard along the diverging lines **33** and **34**. As the area **31** is hinged upwardly, the portion of the bag which is adhered to the inner surface of this portion is pulled upwardly through the opening. As a result, a corner of the bag is automatically swung into readily accessible position. The bag corner may then be opened in any desired manner by breaking the adhesive seal or by cutting off a corner of the bag. The desired amount of the contents may then be removed from the bag. In reclosing the carton, the area **31** is merely swung down into the plane of the remainder of the closing flap **27**, the portion **42** of the flap **26** is folded down, and the locking tongue **43** inserted into the locking slit **44**. When in this position, the top closure appears as indicated in FIGURE 5 of the drawings.

I claim:

1. A combination bag and box including:

a rectangular carton having tubularly arranged side and end walls,

a bottom closure for the lower ends of said walls,

a tubular sheet plastic bag within said carton and being substantially coextensive with the walls of said carton,

a bottom and top closure on said bag,

top closure flaps hingedly connected to said side and end walls and folded into superposed relation with said end wall closure flaps innermost,

a partially detachable area in one of said end wall closure flaps said detachable area being hingedly connected to the end wall to which said one end wall closure flap is hingedly connected, and

means attaching the under surface of said one end wall closure flap to said bag and operable to pull a portion of the bag through said one end wall closure flap when said partially detachable area is hinged upwardly,

one of said side wall top closure flaps overlying said one end wall closure flap and in face contact therewith,

a detachable area in said one side wall top closure flap overlying said partially detachable area in said one end wall closure flap and operable when detached to expose said partially detachable area,

the other side wall top closure flap overlying said one side wall closure flap and secured in face contact therewith,

a weakened line of separation extending across the said other side wall closure flap from the end thereof to the hinge connection connecting said other side wall closure flap to the side wall to which it is hinged, permitting the portion of this closure flap overlying said detachable area to hinge independently of the remainder thereof.

2. The structure of claim **1** and in which said bag is attached to said carton body along both vertical edges of one side wall panel, the edge of said one end wall panel most remote from said one side wall, and to the edge of the other of said side wall panels along the edge thereof adjoining the other said end wall panel.

3. A flat folded structure adapted to form a bag and box structure including

a paperboard carton including a first end wall panel, a first side wall panel, a second end wall panel and a second side wall panel foldably connected in series,

a glue flap hinged to a panel at one end of said series and attached to the inner surface of the panel at the other end of said series,

top and bottom closure flaps connected to said panels and adapted to form end closures,

a flat bag overlying said first side wall panel and second end wall panel and secured thereto to extend substantially the full width thereof and overlying the closure flaps secured thereto,

said first end wall panel and said second side wall panel

overlying said bag with said glue flap secured to said bag,

one end of said bag being closed,

a partially detachable area in the top closure flap secured to said second end wall panel underlying the open end of the bag and hingedly connected to said second end wall panel along the fold line hingedly connecting said second end wall panel to its top closure flap, and

means attaching said partially detachable area to said bag.

4. The structure of claim 3 and in which said bag is attached to said first side wall panel adjoining opposite side edges thereof, and to said second end wall panel along the edge thereof adjoining said second side wall panel.

5. The structure of claim 4 and in which said glue flap is hinged to said second side wall panel.

6. The structure of claim 3 and including a weakened line of separation extending across said top closure flap hinged to said first side wall panel and providing a pair of closure flap portions, one of which is adapted to overlie said partially detachable area when said closure flaps are closed.

7. The structure of claim 6 and in which the closure flap secured to said second side wall panel overlies the open end of said bag and includes a detachable section adapted to overlie said partially detachable area at said closure flap secured to said second end wall panel when said closures are closed.

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DONALD F. NORTON, *Primary Examiner.*

U.S. Cl. X.R.

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