Jan. 27, 1970 W. A. BRASTAD 3,491,937

EASILY OPENABLE CARTON

Filed May 17, 1968

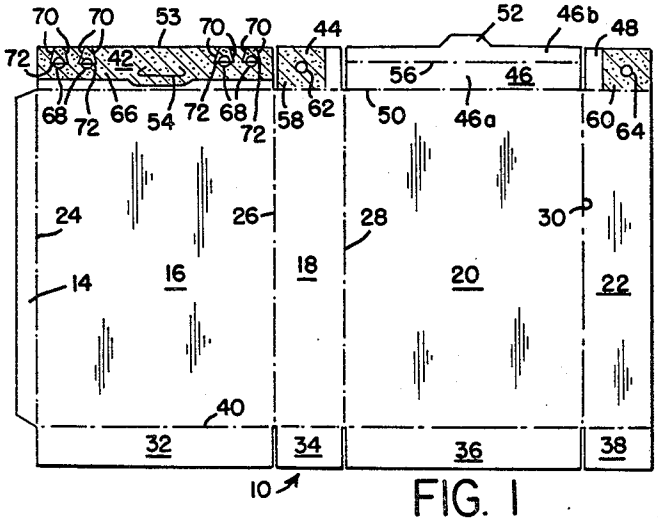


FIG. 1

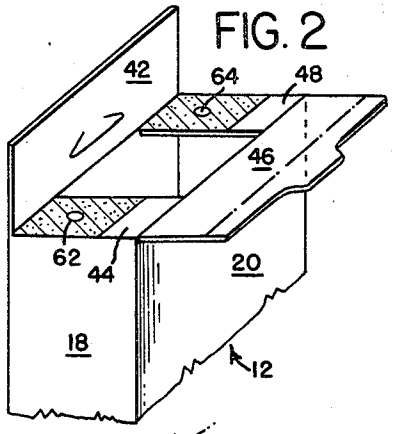


FIG. 2

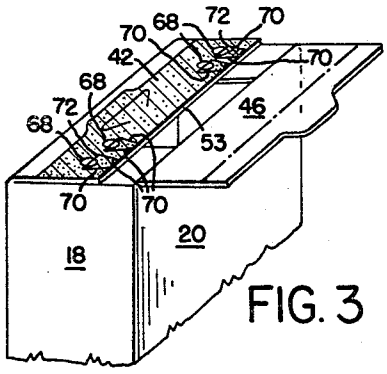


FIG. 3

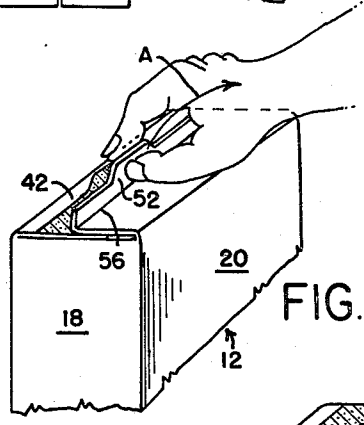


FIG. 5

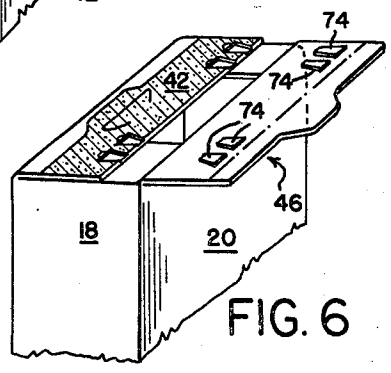


FIG. 6

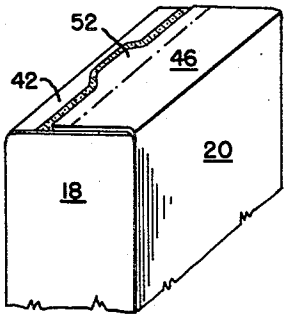


FIG. 4

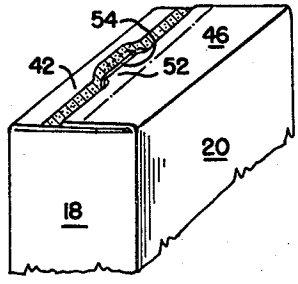


FIG. 7

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EASILY OPENABLE CARTON

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ABSTRACT OF THE DISCLOSURE

A carton end closure formed of two flaps adhesively held together at a number of distinct points. On both sides of each of these distinct points of adherence the overlapped flap is cut partially through. The partial cuts extend from the sides of such points of adherence to the free edge of the overlapped flap.

The present invention relates to improvements in carton closures. More particularly, it pertains to an improved closure formed of two flaps having an arrangement of adhered spots and partial cuts which permit easy separation of such flaps and control the delamination thereof when the outermost of such flaps is pulled outwardly and away from said carton closure.

Cartons formed of paperboard such as bleached kraft, white coated paper newsboard, chipboard and similar materials are well known to the art and are widely used. Cartons made of these materials which are securely closed to protect their contents and to avoid premature accidental opening are sometimes difficult to open without the aid of a knife or other opening instrument. One common structure which is used to open such cartons is a closure formed of two overlapping flaps releasably adhesively held together, with the outermost of said flaps having an opening tab portion attached thereto and projecting therefrom which when pulled upwardly and away from the closure causes said flaps to separate. When said flaps separate they are folded back and access to the carton contents is gained. It has been found when using this common structore that at times the flaps are so securely held together by the adhesive that pulling the opening tab member upwardly and away from the closure causes one or the other of said overlapping flaps to delaminate over large areas rather than separate neatly from each other.

Accordingly, it is one object of the present invention to provide an opening structure which for a given amount of adhesion between two end closure flaps decreases the possibility of large area delamination of either of the flaps of the closure as they are pulled apart.

Another object is to provide a closure formed of two adhesively held together overlapping flaps with a pull tab portion projecting from a free edge of the outermost of said flaps with inexpensive means so when said tab is lifted upwardly and away from said closure the stresses created are more evenly distributed and there is less likelihood of said tab tearing off and/or said outermost flap tearing before said flaps are separated.

Other objects and advantages of the present invention will be apparent from the following description in which certain preferred embodiments of the invention are disclosed.

In the drawings which form a part of this application,

FIGURE 1 is a plane view of a carton blank for forming one embodiment of the present invention;

FIG. 2 is a perspective view of a carton end closure formed from the carton blank of FIG. 1 with some of the closure flaps being folded to close the carton end;

FIG. 3 is a perspective view similar to FIG. 2 with another of the closure flaps being folded to close the carton end;

FIG. 4 is a perspective view of the carton of FIGS. 2 and 3 with all of the closure flaps folded to close the carton end;

FIG. 5 is a perspective view of the carton of FIGS. 2–4 illustrating the manner in which the carton is opened by pulling the opening pull tab portion of the outermost closure flap upwardly and away from the end closure;

FIG. 6 is a perspective view of the carton of FIGS. 2–5 with the outermost flap having been pulled away from the end closure shown in FIG. 4; and

FIG. 7 is a perspective view of the carton embodying the present invention which has been reclosed by tucking the pull tab of the opening tab portion of the outermost flap into a slit formed in the other flap of the end closure.

In FIGURE 1 a blank **10** is illustrated for forming the carton end closure of the present invention. The blank **10** for forming the carton **12** (illustrated in FIG. 2) is formed out of paperboard material such as bleached kraft, white coated paper newsboard, chipboard or other materials well known to the carton art.

The blank **10** is shown with the surface which later becomes the outside of the carton **12** being uppermost. The blank **10** comprises a glue panel **14**, a front side panel **16**, a first end side panel **18**, a rear side panel **20**, and a second end side panel **22**. These side panels are hingedly connected at score lines **24**, **26**, **28**, and **30**, as shown in FIG. 1. Hingedly attached to the lower portions of the side panels **16**, **18**, **20**, and **22**, are bottom end flaps **32**, **34**, **36** and **38**, respectively. Said bottom flap attachment is along a score line **40**. Hingedly attached to the upper portions of the side panels **16**, **18**, **20**, and **22**, are top end closure flaps **42**, **44**, **46**, and **48**, respectively. The flaps **44** and **48** are sometimes hereinafter referred to as tabs. Said top flap attachment is along a score line **50**.

The top end flap **46** has a tab **52** extending therefrom while the top end flap **42** has a free edge **53** and an inverted C-type slit **54** therein. The tab **52** and the slit **54** are designed and positioned so that when the carton **12** (see FIG. 2) has been opened once and it is desired to reclose said carton, the tab **52** can be inserted into the slit **54** as shown in FIG. 7.

The closure flap **46** has a closure flap portion **46*a*** and an opening portion **46*b*** which includes the pull tab **52**. The portions **46*a*** and **46*b*** are contiguous along a predetermined line **56**. The line **56** has means associated therewith to facilitate the upward bending of the opening portion **46*b*** including the tab **52** relative to the closure flap portion **46*a*** along said line when a force is exerted on said tap upwardly and away from the end closure of the carton as is illustrated by arrow A in FIG. 5. In the preferred embodiment this means is a score line coincident with the line **56**. The score line extends completely across the base of the opening portion from one end of the closure flap **46** to the other end of the closure flap **46**.

To secure the carton body in its tubular shape as is illustrated in FIG. 2, the glue panel **14** is adhesively bonded to the inner surface of the second side end panel **22**, i.e., the surface of said panel **22** which cannot be seen in FIG. 1.

The closure flaps or tabs **44** and **48** which are hingedly attached to the end side panels **18** and **22**, respectively, are provided with a glue resistant material such as varnish at selected areas **58** and **60**, respectively, on the upper surfaces. In the area **58** a circular area or spot **62** is left free from adhesive resistant material and thus only the adhesive which penetrates spot **62** will tend to hold the flap **42** against the flap **44** when flap **42** is placed to overlie said flap **44**. This spot **62** may be supplemented by auxiliary varnish free areas which also will be susceptible to glue and will strengthen the union between the flap **42** and the flap **44**. Similarly, the area **60** has a circular area

or spot **64** which is left free from adhesive resistant material and thus only the adhesive which penetrates the spot **64** will tend to hold the flap **42** against the flap **48** when flap **42** is placed to overlie said flap **48**. The area **64** may also be supplemented by auxiliary varnish free areas which will be susceptible to glue and will strengthen the union between the flaps **42** and **48**. Limiting the areas of adhesive attachment between flap **42** and flaps **44** and **48** as set forth provides a limited readily releasable adhesive bond between flap **42** and flaps **44** and **48** when an aqueous adhesive is applied to the spots **62** and **64**. This limited readily releasable bond permits ready separation of said flaps when a force is exerted thereon, while at the same time bonding said flaps together against premature accidental separation.

As shown in FIG. 1, the top surface of flap **42** is provided with a glue resistant material such as varnish in the area **66**. In this area **66**, which lies beneath the closure flap portion **46***a*, the closure flap portion **46***b*, and the pull tab **52** of the flap **46**, are located a number of distinct areas or spots **68** which are left free from adhesive resistant material and thus the adhesive which penetrates the distinct areas or spots **68** will tend to hold the closure flap **46** against the flap **42**. These distinct areas **68** may be supplemented by auxiliary varnish free areas which will also be susceptible to glue and will strengthen the union between the closure flap **46** and the flap **42**.

Extending from each side of each of the distinct areas or spots **68** to the free edge **53** of the flap **42** are partial cuts **70**. These cuts **70** extend partially through the closure flap **42** from the upper surface thereof toward the bottom surface thereof, i.e., from the surface seen in FIG. 1 toward the surface of flap **42** which cannot be seen in FIG. 1. As shown in FIG. 1, the cuts **70** which extend from either side of one particular circular area **68** are angled to converge toward each other. In addition to the partial cuts **70**, additional partial cuts **72** are also made in the upper surface of the closure flap **42**. These cuts **72** extend across the distinct areas **68** and extend partially through flap **42** from the upper readily visible surface of the flap **42** toward the bottom surface of the flap **42**. The cuts **70** and **72** can extend from 25% to 75% through the closure flap **42**, with the preferred range being from 40% to 60% through the closure flap **42**. In any event, the cuts **70** and **72** should extend through the flap **42** at least as far as the adhesive used to bond the flaps **42** and **46** penetrates flap **42**.

Limiting the areas of adhesive attachment between flaps **42** and **46** to the distinct areas **68** provides a limited adhesive bond between said flaps when an adhesive is applied to the areas **68**. This type of bond together with the partial cuts **70** and **72** permits ready separation of the flaps **42** and **46** when a force is exerted on the pull tab **52** upwardly and away from the end closure as shown by arrow A in FIG. 5, while at the same time facilitating, controlling, and directing the delamination of the flap **42**. This type of bond also holds said flaps together against premature accidental separation.

To close the carton end, the end closure flaps **44** and **48** are folded across the end of the carton as illustrated in FIG. 2 and an adhesive is applied to the distinct areas or spots **62** and **64** of the uppermost surfaces of end flaps or tabs **44** and **48**. The first closure flap **42** is then closed as in FIG. 3 and an adhesive is applied to the distinct areas **68**. The adhesive applied can be either an aqueous adhesive or a hot melt adhesive just as long as the bond between the flaps **42** and **46** caused thereby is limited to the distinct areas **68** between the partial cuts **70**. The distinct area can take shapes other than circles, for example, diamonds, rectangles and squares. In addition, the partial cuts **70** and **72** could be in the flap **46** to control delamination.

It will be noted that the width across the narrow dimension of the first closure flap **42** is less than the width of the carton end so that said flap does not cover the entire carton end when said flap is folded as shown in FIG. 3.

The second closure flap **46** is then folded down about hinge line **50** to partially overlie the first closure flap **42** to complete the sealed carton which appears in its closed form in FIG. 4. As shown in FIG. 4, the second closure flap **46** extends less than the width of the carton across the end closure and the pull tab **52** which is connected to closure flap **46** extends further across said end closure.

As shown in FIG. 5, the carton **12** is easily opened by grasping the tab **52** and bending said tab upwardly and away from the first flap **42**. This causes the tab **52** to fold about hinge line **56**, into the position shown in FIG. 5. Now, when additional force is applied to the tab **52** in the direction of the arrow A, the adhesive bond between closure flap **46** and flap **42** causes the flap **42** to delaminate. This delamination begins at the distinct areas **68** and is controlled to remain within the areas bounded by the partial cuts **70** and **72** and the free edge **53** of the flap **42**. The partial cuts **70** and **72** facilitate and control this delamination of the flap **42** so that it extends from the distinct areas **68** to the free edge **53** of the flap **42**. The delaminated parts of flap **42** are shown by the numerals **74** in FIG. 6. By grasping flap **42** and exerting an upward force thereon the adhesive bond between flap **42** and flaps **44** and **48** causes slight delamination in flaps **42**, **44** and/or **48** if hot melt adhesive had been used in the distinct areas **62** and **64** and said flap **42** can be moved to the position shown in FIG. 2. However, the varnish free areas, **62** on flap **44**, and **64** on flap **48** are sufficiently small so that the glue in said areas readily releases the flaps joined together thereby when a force is exerted to separate said flaps and extensive delamination does not occur. The bond created in these areas is thus a limited bond for ready separation of the flaps joined thereby when a force is exerted on said flaps, while at the same time bonding said flaps together against premature accidental separation.

Reclosure of the open package shown in FIG. 2 without the use of adhesive bond is effected by moving the flap **42** back to the position shown in FIG. 3, then moving the flap **46** into the position shown in FIG. 6 and tucking the tab **52** into the slit **54**.

In view of the principles set forth herein, I have shown some of the ways of carrying out the present invention and some of the equivalents which are suggested by these disclosures.

Now, therefore, I claim:

1. A carton end closure for a carton body comprising a first flap, a second flap at least partially overlying said first flap, said first flap having a free edge underlying said second flap, means providing an adhesive bond between said first and second overlapping flaps in distinct areas of such flaps, and at least said first flap having partial cuts, each of said distinct areas having one of said partial cuts extending from one side toward the free edge of said first flap and having another one of said partial cuts extending from the opposite side toward the free edge of said first flap, said first flap having an additional partial cut extending between said partial cuts positioned on either side of each of said distinct areas, each such additional partial cut for each said distinct area being positioned further from said first flap free edge than at least a portion of said distinct area.

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U.S. Cl. X.R.

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