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[54] REMOVABLE TAPE FOR RECLOSEABLE
CARTON
4 Claims, 13 Drawing Figs.

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[52] U.S. CL. 229/45,
229/37, 229/51 AS
[51] Int. Cl. B65d 45/00
[50] Field of Search. 229/45, 51,
37, 44; 93/1 TS

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ABSTRACT: An erected frozen food carton comprises top and bottom closures connected together by vertically disposed front, back and side panels. The sealed top closure has a continuous cut line formed completely through at least a portion of three of the panels to form a recloseable cover. A removable tape is adhesively secured over the cut line and is adapted to be removed to permit at least a portion of the end panel to be opened to expose the carton contents.

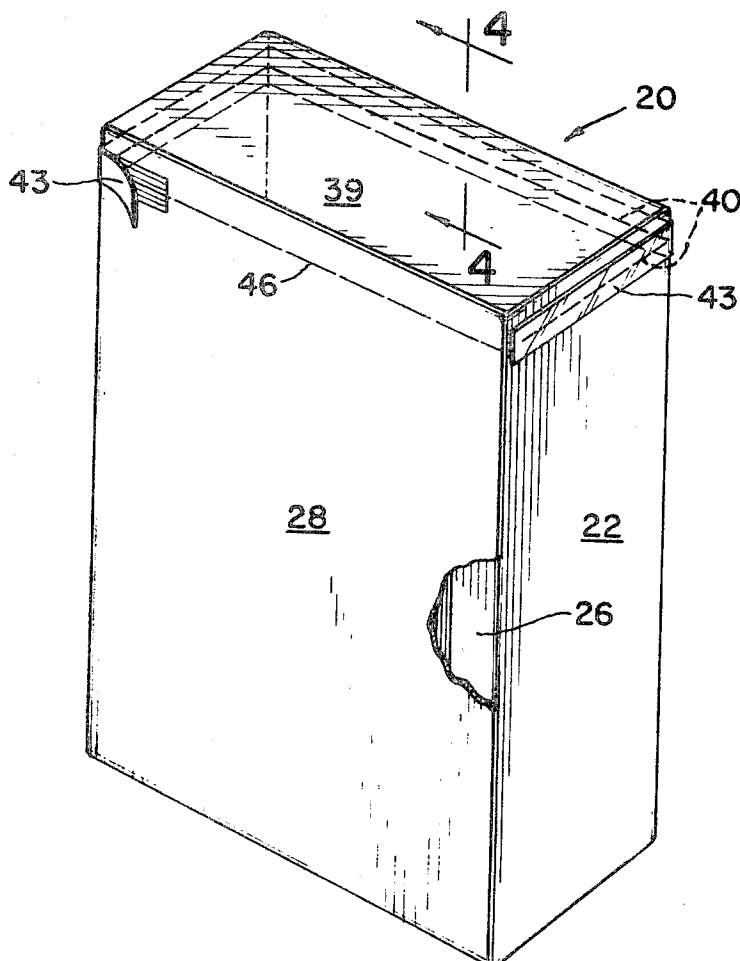


FIG 1

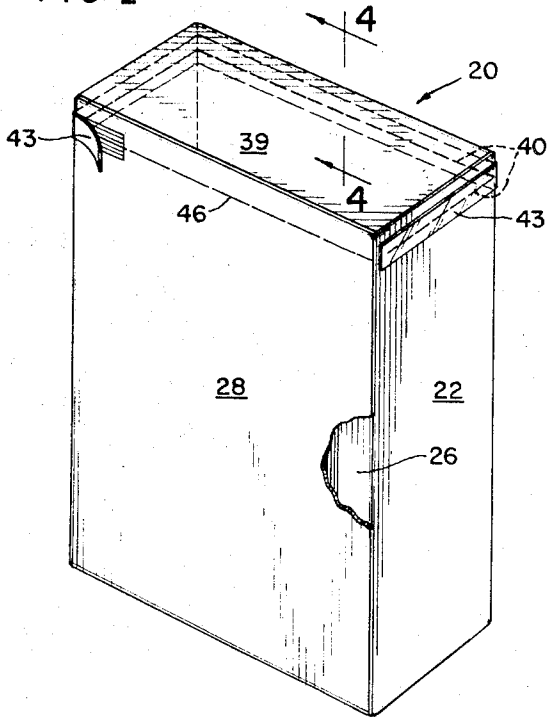


FIG. 2

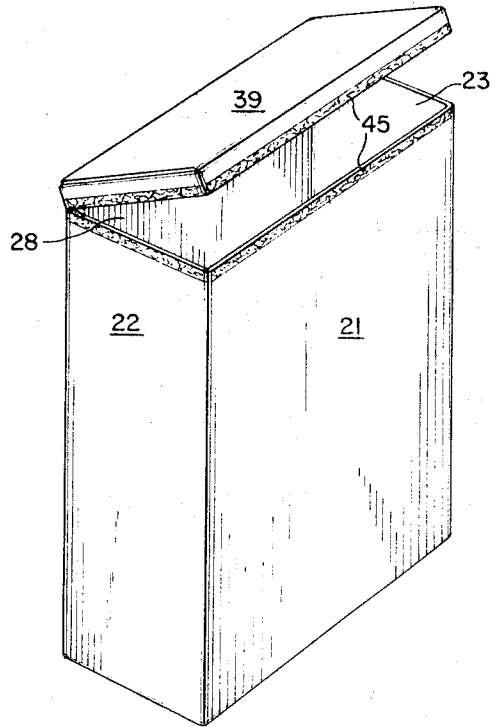


FIG. 3

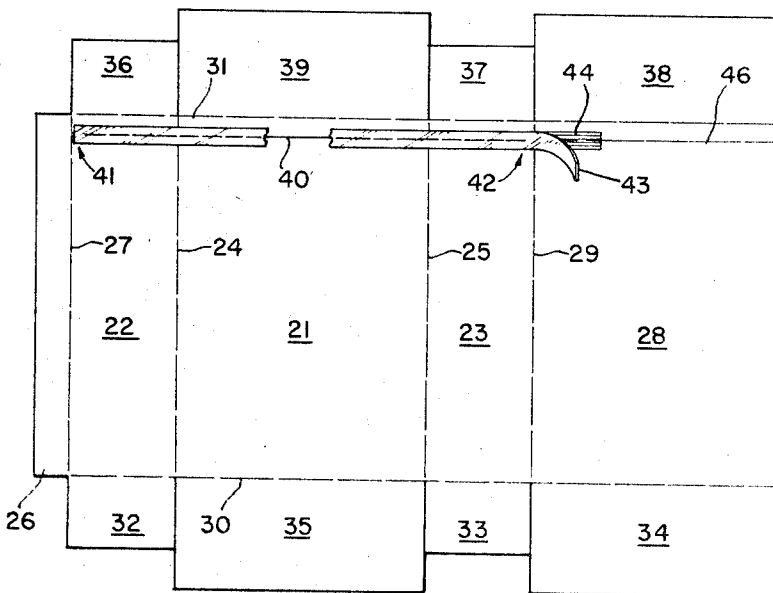
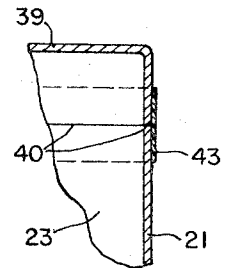


FIG. 4



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FIG. 5

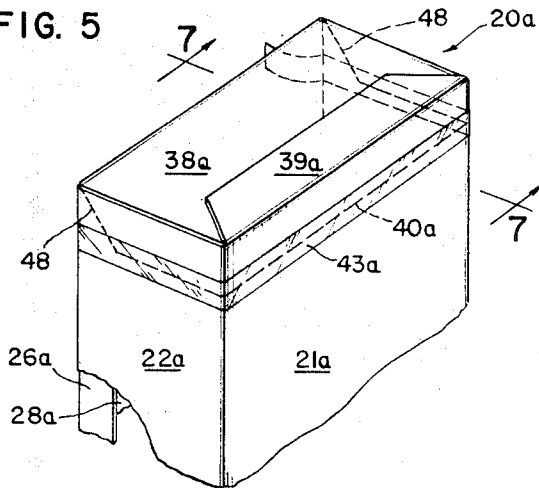


FIG. 6

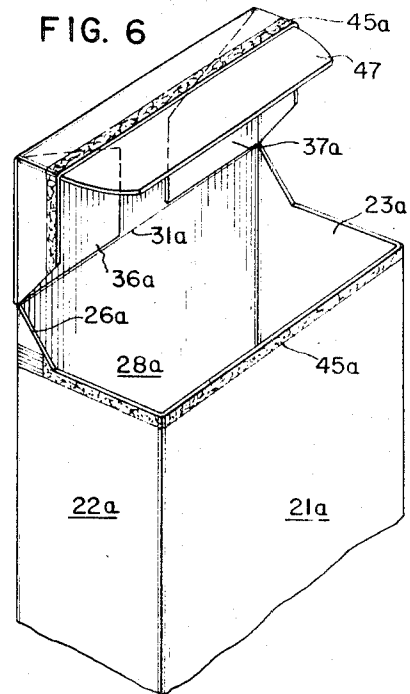


FIG. 7

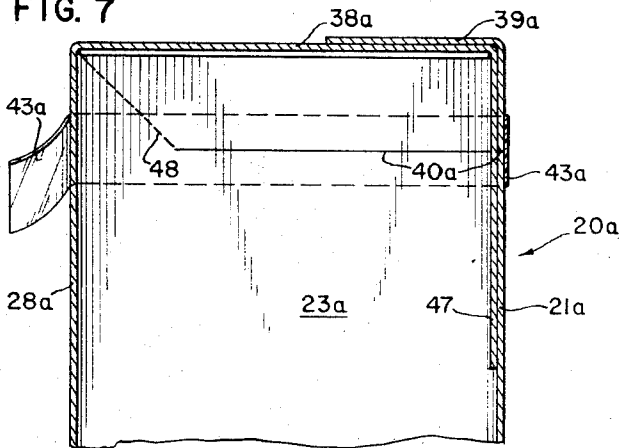


FIG. 9

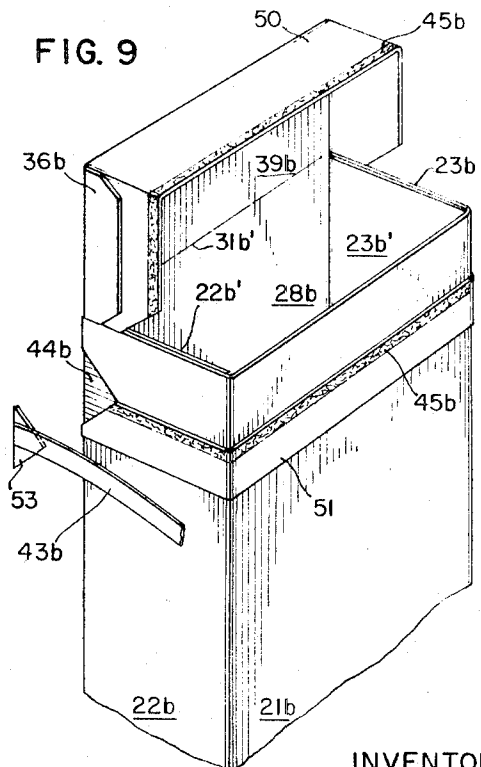
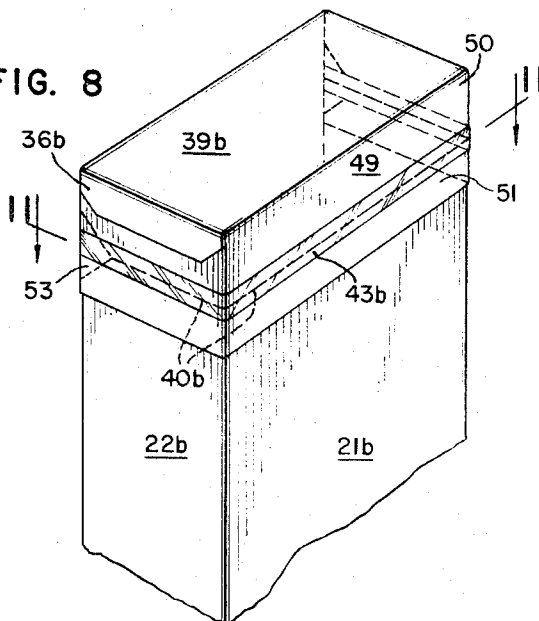


FIG. 8



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FIG. 10

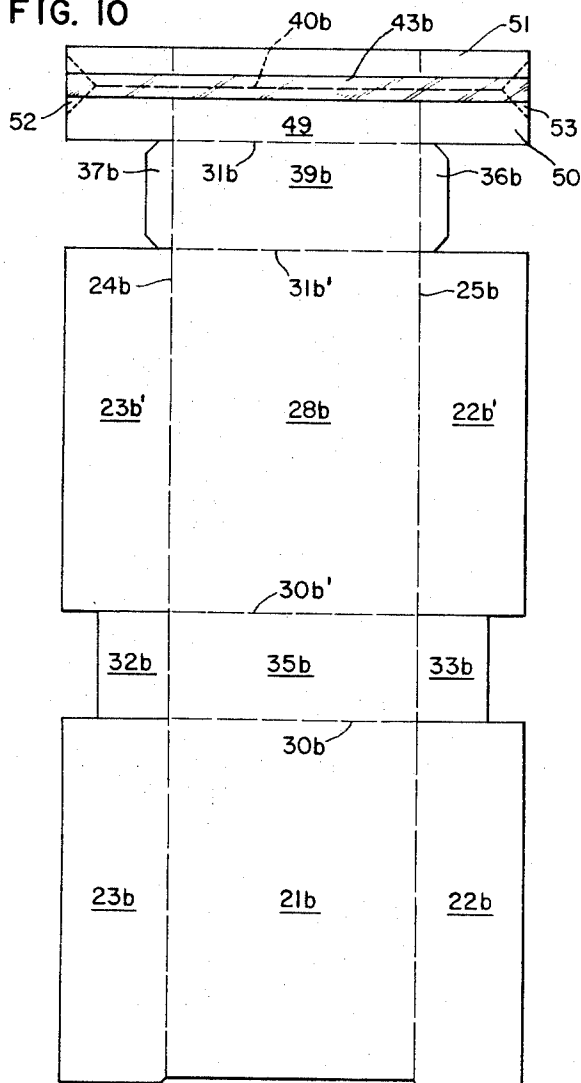


FIG. 11

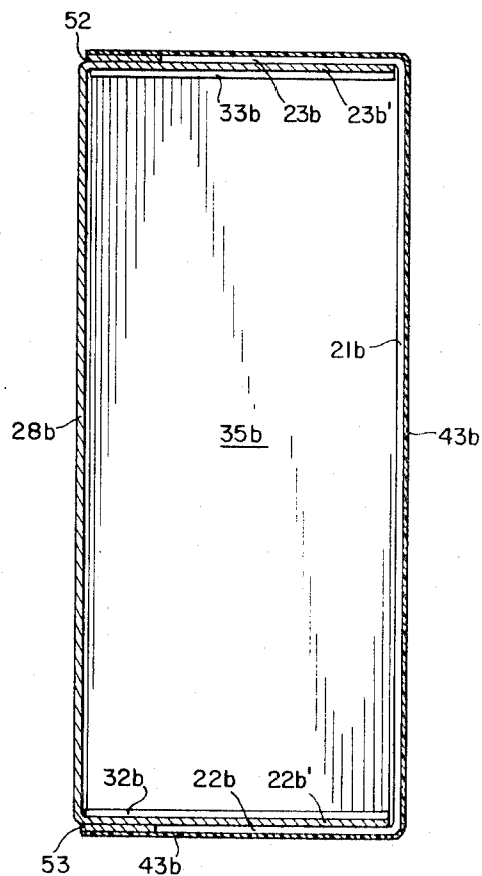


FIG. 12

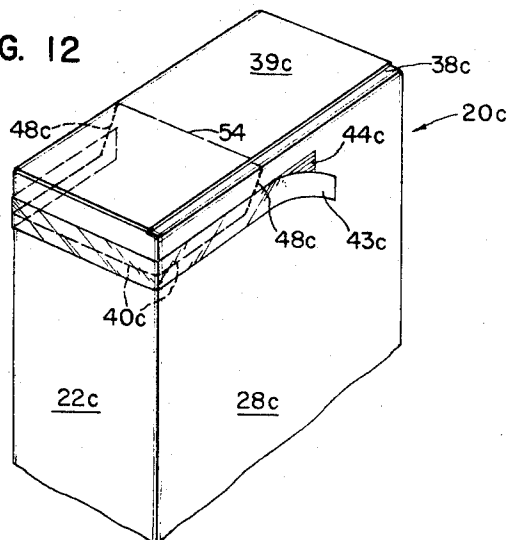
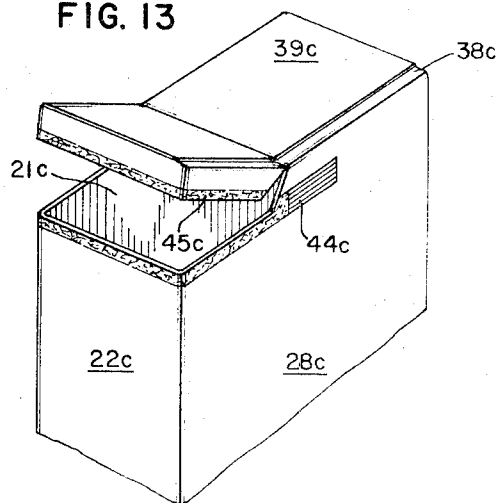


FIG. 13



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REMOVABLE TAPE FOR RECLOSEABLE CARTON

Numerous tear strip and other standard "easy openers" have been proposed for expeditiously opening a closed carton. Single-structure frozen food cartons, for example, pose unique problems since conventional tear strip arrangements tend to induce leakage and generally do not adapt themselves for the expeditious opening of the sealed carton. In addition, such arrangements are oftentimes structurally complex and unduly expensive to manufacture.

An object of this invention is to overcome the above, briefly described problems by providing an economical carton end closure adapted to be opened expeditiously. Such end closure comprises opposed side panels connected to opposed front and back panels. An end panel is connected to each of the side, front and back panels and an at least substantially continuous cut line is completely formed through at least a portion of three of the side, front and back panels to define a recloseable cover. A removable tape is adhesively secured over the cut line to permit the cover to be opened upon removal of the tape to expose the carton's contents. Hinge means, preferably in the form of a scoreline, permits the cover to be opened and to remain attached to the end closure.

Other objects of this invention will become apparent from the following description and accompanying drawings wherein:

FIG. 1 is a back-side isometric view of an erected carton embodying novel features of this invention therein;

FIG. 2 is a front-side isometric view of the FIG. 1 carton, but shows the carton in an opened condition;

FIG. 3 is a plan view of a blank employed to form the FIG. 1 carton;

FIG. 4 is a sectional view taken in the direction of arrows 4-4 in FIG. 1;

FIG. 5 is a partial isometric view of a second carton embodiment;

FIG. 6 is an isometric view illustrating the FIG. 5 carton in its opened condition;

FIG. 7 is an enlarged sectional view taken in the direction of arrows 7-7 in FIG. 5;

FIG. 8 is a partial isometric view of a third carton embodiment;

FIG. 9 is an isometric view illustrating the FIG. 8 carton in its opened condition;

FIG. 10 is a plan view of a blank employed to form the FIG. 8 carton;

FIG. 11 is an enlarged cross-sectional view taken in the direction of arrows 11-11 in FIG. 8;

FIG. 12 is a partial isometric view of a fourth carton embodiment; and

FIG. 13 is a view similar to FIG. 12, but shows the carton in an opened position.

The FIG. 1 carton may be formed out of the cut and scored blank illustrated in FIG. 3. The blank comprises a front panel 21 having side panels 22 and 23 hingedly connected to opposite edges thereof by parallel scorelines 24 and 25, respectively. A manufacturer's flap 26 is hingedly connected to side panel 22 by a scoreline 27 and a back panel 28 is hingedly connected to side panel 23 by a scoreline 29.

Parallel scorelines 30 and 31, disposed perpendicular relative to the aforementioned scorelines, define flaps adapted to form the bottom and top carton end panels or closures. The bottom closure is preferably formed by first folding side panel flaps 32 and 33 inwardly and by then superimposing a back panel flap 34 thereover. A front panel flap 35 is then superimposed over the latter three flaps and adhesively secured thereto to form the multilayered bottom end panel or closure.

Manufacturer's flap 26 is adhesively secured to inner surface portions of back panel 28 (FIG. 1) to form a tubular carton, comprising the pairs of opposed side and front and back panels, adapted to be filled with a commodity. The top panel or closure is formed in substantially the same manner as the bottom closure in that folded side panel flaps 36 and 37 have a

back panel flap 38 folded thereon. Front panel flap 39 is then superimposed over flaps 36-38 and adhesively secured thereto to form a tightly sealed, multilayered end panel.

The carton opening means comprises an at least substantially continuous cut line 40 formed completely through panels 21-23. Although the cut line is preferably continuous, in certain carton applications "nicks" are formed in the cutting knife to interrupt cut 40 at spaced intervals, i.e., to form a limited number of small joining webs across the cut to ensure against premature separation thereat. The cut line extends along the entire width of intermediate panel 21 and lies in a plane parallel to a plane containing the end panel to define a recloseable cover.

In the illustrated embodiment, the cut line terminates slightly short of scorelines 27 and 29 at the back panel to provide full seal areas at 41 and 42, respectively (FIG. 3). A tape 43 is adhesively secured to panels 21-23 to completely cover the cut line. An adhesive area 44 may be formed on panel 28, such as by imprinting an adhesive material thereon, to prevent at least one end of the tape from adhering thereto to facilitate expeditious removal thereof from the carton.

U.S. application Ser. No. 717,810, filed on Apr. 1, 1968, now Pat. No. 3,515,037 by Ernest C. Pellaton for "Apparatus and Method for Forming Taped Articles," discloses an apparatus and method for applying plastic tape 43 to the blank. It particular, in one carton application a paperboard blank was fully coated on each side with a barrier or heat-sealable adhesive coating (e.g. polyethylene) adapted to firmly secure the tape thereto when heated. The tape is preferably laminated to comprise a thin inner layer of polyethylene or other suitable adhesive and a thin outer layer, such as a polyester-based composition or Mylar, exhibiting a substantially higher tensile strength than the inner layer.

The tape-to-carton, polyethylene-to-polyethylene seal and the exceptionally high tensile strength of the tape's outer layer facilitates expeditious removal of the tape, as indicated in FIG. 2. Such removal will normally effect a slight tearing at the contacted surface portions of the paperboard to leave roughened and sterile pouring edge portions 45. The tape's outer layer is unaffected by the application of heat thereto and thus facilitates precise application of the tape to the blank primarily since the outer layer will not become tacky nor will it interfere with the sealing rolls or cutoff equipment.

The above-described tape opening means is highly dependable since it will assure expeditious and complete opening of the carton's recloseable cover. Hinge means or scoreline 46, formed across the entire width of the back panel and lying in the same horizontal plane containing cut line 40, permits the opened cover to remain attached to the carton. Various conventional opening means presently on the market generally comprise perforated or cut tearlines formed on the carton board. In order to function properly such standard tearlines must be perfectly applied to the board and thus pose a difficult manufacturing problem. In addition, the formed tearlines oftentimes do not afford a high degree of gas protection and tend to induce contamination and/or leakage of the retained product.

FIGS. 5-7 illustrate a second carton end closure embodiment. It should be noted that numerals identical to those appearing in FIGS. 1-4 depict similar structures, with the numerals appearing in FIGS. 5-7 being accompanied by a subscript *a*. Structures appearing in the FIGS. 8-11 and FIGS. 12 and 13 embodiments are numbered in a like manner, with the numerals appearing therein being accompanied by the subscripts *b* and *c*, respectively.

The FIGS. 5-7 end closure comprises opposed side panels 22a and 23a hingedly connected by vertically disposed scorelines to opposed front and back panels 21a and 28a, respectively. An end panel or closure comprises a flap 38a hingedly connected by a scoreline 31a to the back panel and secured to a narrow, overlying flap 39a hingedly connected by a scoreline to the front panel. An additional tuck flap 47 (FIG. 6) is hingedly connected by a scoreline to flap 38a and extends

away from the end panel and past a cut line 40a. The tuck flap abuts inner surface portions of the front panel but is not secured thereto.

The continuous cut line is completely formed through the entire width of the front panel but only extends over a portion of the widths of the side panels. Each end of the cut line intersects a perforated or other suitably formed diagonal tearline 48 which in turn intersects a corner of the end closure at the end panel. A removable tape 43a completely covers the cut line and is adhesively secured thereover to form the integrated end closure. An adhesive area may be formed on surface portions of the side panels which underlie the free ends of the tape for preventing the tape from adhering to such surface portions.

As shown in FIG. 6, upon removal of the tape, sterile-pouring-edge portions 45a are formed similar to edge portions 45 (FIG. 2). Flap 47 may be then placed behind front panel 21a when the carton is closed and held in such position due to its inherent resiliency. Tearlines 48 form ramp portions when broken to permit the recloseable cover to be pivoted at hinge means or scoreline 31a, formed at the intersection and connection of the back and end panels.

FIGS. 8, 9 and 11 illustrate a third carton end-closure embodiment employed in a carton formed out of the cut and scored blank illustrated in FIG. 10. The blank comprises a front panel 21b having pairs of side panels 23b-23b' and 22b-22bq; hingedly connected to opposite edges thereof by parallel scorelines 24b and 25b, respectively. Parallel scorelines 30b, 30b', 31b and 31b' cooperate with the other scorelines to define front panel 21b, bottom end panel 35b, back panel 28b, top end panel 39b and a closure flap 49.

The closure flap, which in part aids in forming the recloseable cover, comprises portions 50 and 51 separated by a cut 40b completely formed therethrough. A tape 43b is secured over the cut in the manner above described. Triangularly shaped tabs 52 and 53 are formed in flap 49 by V-shaped perforated tearlines to aid in the removal of the tape. As shown in FIG. 8, flap 49 is superimposed over outer surface portions of the front and side panels and has only portion 51 thereof adhesively secured thereto.

Flaps 36b and 37b are adhesively secured to portion 50 which in turn is not adhesively secured to panel 21b, 22b or 23b. An adhesive area 44b may be formed at each end of the tape to underlie tabs 52 and 53 to facilitate expeditious removal of the tape. Upon such removal, it should be noted that the tape forms sterile-pouring edge portions 45b on each of portions 50 and 51 of flap 49.

FIGS. 12 and 13 illustrate a fourth carton end closure constructed out of a blank similar to the blank illustrated in FIG. 3. However, in this embodiment a cut line 40c is formed to ex-

tend over the entire width of an intermediate side panel 22c but only over a limited portion of the widths of front and back panels 21c and 28c. The end panel comprises superimposed and secured flaps 38c and 39c, having scorelines 54 (one shown) formed thereon to provide hinge means defining a recloseable cover adapted to be opened upon removal of the tape (FIG. 13).

The hinge means is formed on the end panel to extend between the front and back panels and is located between the side panels. A perforated tearline 48c intersects each end of cut 40c and hinge means 54. It should be further noted that an adhesive area 44c may be formed on panels 21c and/or 28c (FIG. 13) to prevent the tape from adhering thereto.

What I claim is:

1. A carton end closure comprising opposed side panels each connected to opposed front and back panels, end flaps connected to said side, front and back panels, means forming an at least substantially continuous cut line, lying in a plane disposed substantially parallel with respect to a plane containing said end flaps therein, completely through said side and front panels, said cut line extending along the entire width of said front panel and at least a substantial distance along the widths of said side panels and terminating at each end thereof short of said back panel and being spaced from said end flaps to define a recloseable cover with portions of said panels and said end flaps,
- a removable tape, positioned exteriorly on said carton, completely covering and extending substantially laterally beyond both sides of said continuous cut line,
- adhesive means securing said tape to outer surface portions of said front and side panels underlying said tape laterally beyond both sides of said cut line to completely cover and seal said cut line, and
- hinge means comprising a scoreline formed on said end closure for permitting said cover to be opened and to remain attached to said carton end closure upon removal of said tape.
2. The invention of claim 1 wherein said scoreline and said cut line each substantially lie in the same plane, said plane being disposed substantially parallel with respect to a plane containing said end flaps therein.
3. The invention of claim 1 wherein said scoreline is formed at the intersection and connection of said back and end flaps.
4. The invention of claim 1 wherein outer surface portions of said panels underlying said tape are coated with a heat-sealable plastic material and said tape comprises a layer of plastic material exhibiting a substantially higher tensile strength than the coating of said heat-sealable plastic material.

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