United States Patent

Grieve

[15] **3,640,446**

[45] **Feb. 8, 1972**

[54] **CARTON WITH TUCK-IN CLOSURE FLAP**

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[73] Assignee: **General Foods Corporation, White Plains, N.Y.**

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[52] **U.S. Cl.**.....**229/17 R,** 229/51 TC

[51] **Int. Cl.**.....**B65d 5/54**

[58] **Field of Search**.....229/17 R, 7 R, 51 TS, 51 TC, 229/37, 39

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[57] **ABSTRACT**

The inner top closure flap of a rectangular carton is scored to permit easy opening, at least a portion of the inner flap remaining intact to constitute a lip beneath which a corresponding portion of the outer closure flap may be tucked to retain the flaps in reclosed position.

8 Claims, 6 Drawing Figures

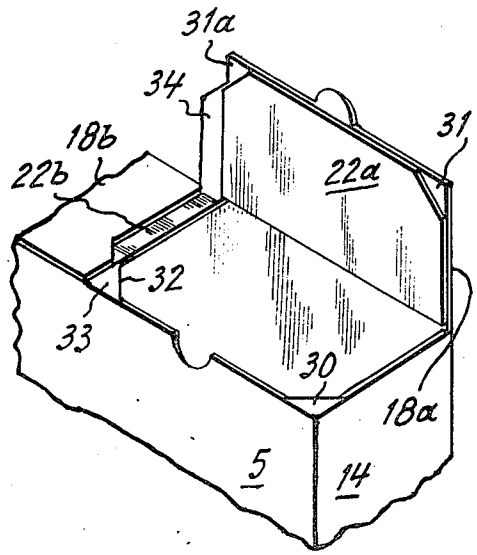


FIG. 1.

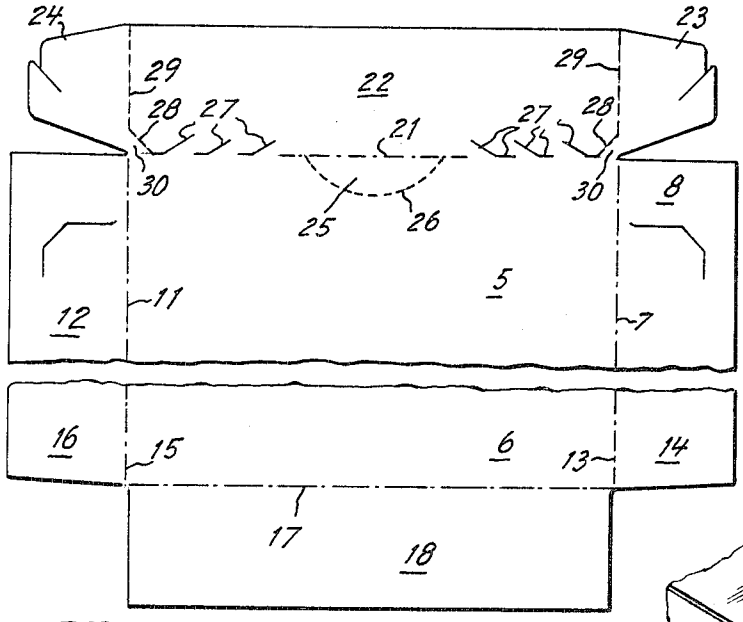


FIG. 6.

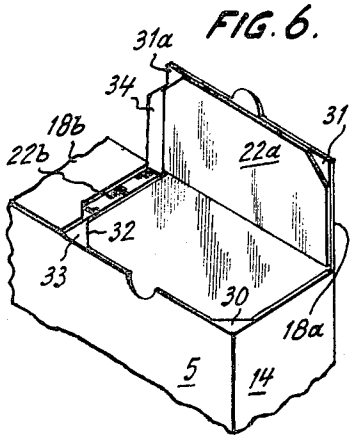
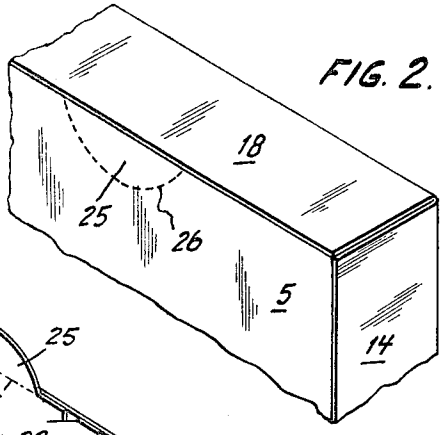


FIG. 2.



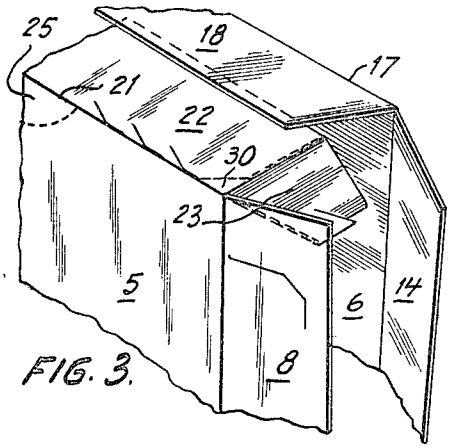


FIG. 3.

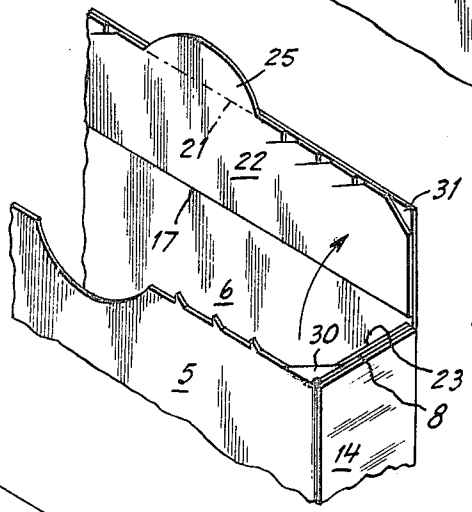


FIG. 4.

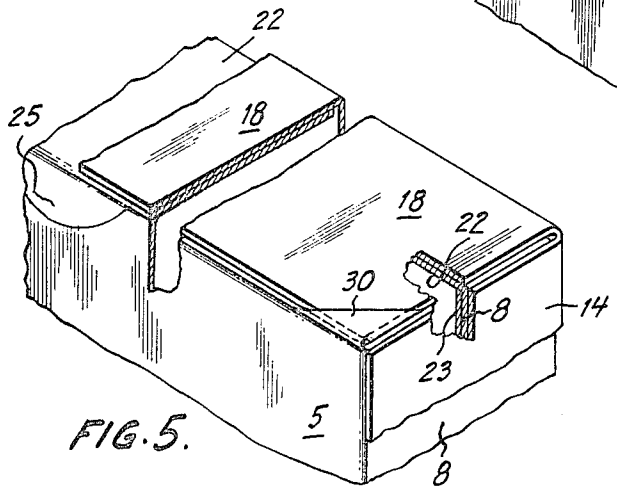


FIG. 5.

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CARTON WITH TUCK-IN CLOSURE FLAP

BACKGROUND OF THE INVENTION

This invention relates to cartons adapted for packaging of granular, powdery or other types of free-flowing products and has particular reference to such a carton having an easy-open closure which may be reclosed and retained in the reclosed position after the initial opening to thereby protect product remaining in the carton from possible contamination or spillage.

Cartons heretofore developed for similar purposes and having an easy opening and positive reclosing feature have generally required additional amounts of board and complex scoring patterns rendering the cartons relatively expensive to manufacture and therefore rather impractical. Furthermore, they also usually required application of glue in an irregular and precisely located pattern which presented registration problems during the erecting and closing operations on a filling line. Also, prior cartons developed for these purposes generally provided an open area or pouring orifice of dimensions substantially less than that of the entire closure flaps.

SUMMARY OF THE INVENTION

The carton according to the present invention does not require the use of additional board or other carton stock material and provides an easy-open and positive reclosable construction wherein the area of the opening or orifice may be substantially coextensive with the overall area of the top closure flaps. This is achieved by placing tear lines along the fold line joining the inner top closure flap with a face panel of the carton, said lines extending from a thumb punchout tab preferably at the center portion of said panel to a point near the side edges of said closure flap. From these points the tear lines run at an angle to said fold line and inwardly of said closure flap to the side edges, respectively of said closure flap so that when the carton is opened by tearing along said tear line, substantially the entire inner closure flap will be separated from said face panel leaving only small triangular corner sections of said inner closure flaps intact and still connected to said face panel. Upon reclosure, said corner sections which are in register with corresponding corner sections of the outer closure flap, which is adhered by any suitable means to the inner closure flap, serve as lips under which the corresponding corners of the outer flap may be tucked to retain the closure flaps in the reclosed position.

In applications where a full-size opening or orifice is not required or desired, tear lines may be placed across the widths of both the inner and outer closure flap so as to leave a substantial portion of the closure flaps intact when the carton is open. In this type of application, the weakened or tear line in the outer flap could be along a single straight line with the weakened or tear line across the inner flap being angled near the flap's bent edge to thereby provide a retaining lip for the corresponding corner of the outer closure flap. With the latter application of the invention, if desired the transverse weakened or tear lines across the respective inner and outer flaps could be located out of register with one another, with the line of the inner flap located to define a smaller opening than that defined by the tear line of the outer flap, whereby the area of the inner flap bordering the opening will be in register with a marginal area of the removable portion of the outer flap so as to limit the movement of the closure flaps during reclosure to prevent them from being pushed into the interior of the carton.

BRIEF DESCRIPTION OF THE DRAWING

Reference may be had to the following specification for a more complete description of the invention, the features contributing thereto and the advantages accruing therefrom, when read in conjunction with the accompanying drawing wherein:

FIG. 1 is a fragmentary view in plan of an individual carton blank as cut and scored for erecting into a carton having an easy-open reclosable tuck-in closure flap in accordance with the invention;

FIG. 2 is a fragmentary view in perspective of the carton in closed condition prior to opening;

FIG. 3 is a fragmentary view in perspective of the carton blank of FIG. 1 in the process of being erected into the filled and closed carton of FIG. 2;

FIG. 4 is a fragmentary view in perspective of the carton of !FIG. 2 after being opened and with the closure flaps in the open position;

FIG. 5 is a fragmentary view in perspective of the carton of FIGS. 2 and 4 with the closure flaps reclosed and secured in the reclosed position.

FIG. 6 is a fragmentary view in perspective of a carton illustrating the invention in a slightly modified form.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to FIG. 1, a carton embodying the present invention is formed from a carton blank cut from a web of cardboard, such as box board, paperboard or other semirigid packaging material. The blank illustrated in FIG. 1 is designed for erection into a rectangular carton and shows the surface of the blank which ultimately becomes the exterior surface of the resulting carton. The blank is divided by a pattern of scoring into a plurality of panels or walls and flaps which include a face panel 5 which may be considered the front wall of the resulting carton. In this instance the front face panel 5 is substantially coextensive in area with the rear face panel 6, both of which are broken away in FIG. 1, for space saving reasons, since the bottom portion of the carton may be of conventional construction, and its illustration is thought not to be necessary for a full disclosure of the invention.

A scored line 7 to facilitate folding extends along the juncture of the front face panel 5 with a side panel 8, and a scored line 11 extends along the juncture of the face panel 5 with the opposite side panel 12. The rear face panel 6 is similarly joined to side panels 14, 16 along scored lines 13, 15, respectively. Also joined to the rear face panel 6 along a horizontal scored line 17 is a closure flap 18 which serves as the outer top closure flap of the erected carton.

Also joined to the front face panel 5 along a scored line 21 extending across the entire edge of said panel is a flap 22 representing the inner top closure flap of the erected carton. Extending from each side of the flap 22 are short flaps 23, 24 which are appropriately shaped and slit so as to engage with a mating slit in the end panels 8, 12, respectively, and thereby serve as locking tabs for interlocking the top closure flap 22 with the side panels after the respective panels and flaps have been folded into the intended carton configuration. Although flaps 23, 24 are in the present instance designed to interlock with the side panels 8, 12, respectively, the interlocking feature should not be considered a necessary or essential aspect of the invention since the same inventive results would be achieved if the flaps 23, 24 were not of the interlocking type but were adhered to the side panels 8, 12, respectively, by a glue, adhesive or other equivalent means.

Easy-opening of the carton, once erected and closed, is achieved by providing a thumb punchout tab 25 in the top and, preferably, central area of face panel 5, which punchout tab is defined by an arcuate line of weakening 26 extending from and terminating at the aforementioned scored line 21. This line of weakening may comprise a series of spaced slits or perforations of any suitable type of sufficient depth and continuity to enable the tab 25 to be severed from panel 5 upon application of moderate pressure by the thumb of the user. Extending outwardly from each terminus of the weakened line 26 along the scored line 21 and partly superimposed thereon are continuations of the line of weakening 26 so as to constitute in effect a tear line for enabling substantially complete separation between the flap 22 and panel 5. The weakened or tear lines superimposed on the scored line 21 may be of any suitable type to achieve good separation, and in the present in-

stance take the form of paired, spaced-apart slits 27 cut partially through the thickness of the carton stock material, one slit of each of the several pairs being in alignment with one another and in register with the scored line 21, the other slit of each pair being disposed at an inclined angular relation thereto. The tear lines comprised of the slits 27 terminate at points short of the side edges of flap 22, whereupon each weakened tear line continues along a section 28 thereof, at an angle to the scored line 21 and inwardly of the flap 22, to a side edge of flap 22. Therefrom, each weakened line continues by a section 29 thereof coincident with and along a side edge of flap 22, which may if desired also be defined by a scored line, to terminate at the free edge of the flap. In the present instance, sections 28, 29 of the weakened tear lines are comprised of spaced slits cut at least partly through the thickness of the carton stock material. It will be noted that sections 28 of the weakened line define small triangular corner sections 30 of the inner closure flap 22 in conjunction with the front and side edges of the flap.

FIG. 3 illustrates clearly the relationship between the respective face panels and closure flaps of the resulting carton. As the blank is being folded to bring the face panels 5, 6 into parallel opposed relationship, the inner top closure flap 22 is folded down along scored line 21 so as to lie beneath the outer top closure flap 18 when it is folded down along scored line 17. Tabs 23, 24 are folded down so as to lie inwardly of the side panels 8, 12, respectively, with which they interlock. Side panels 14, 16 are then folded to overlie the side panels 8, 12 to which they are secured preferably by glue or other suitable adhesive. FIG. 2 illustrates these parts of the carton when in their fully erected and closed condition.

Opening of the carton is accomplished by exerting pressure on the thumb punchout tab 25 which will readily separate along the perforated line 26 to enable grasping the top closure flaps 18, 22 and pulling them upwardly along the free edge of the outer flap 18 to cause the inner flap 22 to tear away from face panel 5 along the scored fold line 21 weakened by the perforations or slits 27 as aforesaid. As the closure flaps are pulled away, they swing about the scored fold line 17 whereat the outer flap 18 is joined to the face panel 6, and the tearing continues progressively along sections 28 and then sections 29 of the weakened line until the carton is fully open, as illustrated in FIG. 4. In this position full access may be had to the carton contents, or the carton may be tipped for pouring out of the contents or a portion thereof, depending upon the nature of the product.

Upon reclosure, the flaps 18, 22, which it is understood are adhered together by glue or the like applied to bond the areas exclusive of corner sections 30 in the course of the closing operation, are folded down into their original closed position whereat the free corner sections 31 of the outer flap 18 are brought into overlying registration with the corresponding corner sections 30, formerly part of the inner flap 22, but which were separated from the inner flap and remained intact with the carton during the easy-open operation by reason of the angled section 28 of the easy-open tear line. It will be noted that said corner sections 30 are attached along one side to face panel 5 and along an adjacent side to the locking tabs 23, 24, respectively. To complete the reclosure, the flaps 18, 22 are pushed with sufficient force to yieldably bend the corner sections 31 to an extent at which they will clear the edge of the corner sections 30 and snap beneath said corner sections 30 which thereupon become retainer or locking lips for retaining the closure flaps in the reclosed position. The reopening of a carton may be readily accomplished merely by again grasping the thumb punchout tab 25 and pulling upwardly on the closure flaps with sufficient force to yieldably bend the corner sections 31 to a degree whereat they will clear the edge of the retainer lips 30, thereby enabling the flaps to be swung upwardly to the fully opened position illustrated in FIG. 4.

FIG. 6 illustrates a slightly modified embodiment of the invention adaptable for applications wherein more restricted access to the product is preferred or desired. According to this embodiment, the top closure flaps are constructed and operate similarly to those of the previously described embodiment except that each is provided with a tear line running transversely of the flap so that only portions 18*a*,, 22*a* at one end of the closure flaps are torn away from the carton upon opening, with the remaining portions 18*b*, 22*b* remaining intact. The weakened tear line of the inner flap runs along a line having an angled section 32 which during the tearing open of closure portions 22*a*, 18*a* causes severance from what would otherwise be an angular corner section 33 of the removable portion 22*a* of the inner closure flap. This corner section 33 serves the same function with respect to the corner 31*a* formed in the removable portion of the outer closure flap as do the corner sections 30, 31 previously described.

The weakened tear line in the outer flap of the FIG. 6 embodiment may extend across the flap so as to provide in addition to the angular corner 31*a* a marginal portion 34 which is devoid of glue or adhesive and in the closed position lies in register with and overlying a strip of inner flap portion 22*b* bordering the opening or orifice of the carton. In this manner the inward movement of the removable flaps is restricted and limited to thereby prevent inadvertent pushing of the closure flaps completely through the orifice and into the interior of the carton, the retaining lips 33, 30, however, serving at the same time to retain the flaps upon reclosure in the fully closed position.

It will of course be apparent that should a restricted or partial orifice be desired at other than one side of the top closure flaps, the offset transverse tear line feature of the latter embodiment could readily be duplicated so as to define therebetween a reclosable flap at any desired location in the top of the carton. In such a construction, inward movement of the flaps would be limited along both sides thereof.

I claim:

1. In a carton for a free-flowing product formed of semirigid packaging material and having a generally tubular configuration of rectangular cross section, which carton includes a pair of opposed face panels of substantially the same dimensions;

a. an inner closure flap joined along a first fold line to one of said face panels and of a shape and size substantially coextensive with the cross sectional area of said carton so as to substantially enclose one end of said carton, said flap being joined along a second fold line at one side thereof to a folded flap overlying and attached to a sidewall panel of said carton;

b. an outer closure flap joined along a third fold line to the other one of said face panels and of substantially the same dimensions as said inner closure flap, said outer flap being adhered to said inner flap and having at least a side end portion thereof openable about said second fold line and formed with a free corner section; and

c. a weakened line along which at least a portion of said inner flap underlying the openable portion of said outer flap is severable from said carton to open same, said weakened line extending partly along said first fold line and continuing obliquely across said inner flap to said second fold line to define in conjunction with said first and second fold lines an interior triangular corner section in register with said free corner section of the openable portion of said outer closure flap, said weakened line continuing along said second fold line to the free edge of said inner closure flap, said interior corner section remaining joined to said one face panel and said folded flap when said inner flap portion is severed from said carton and disposed to engage said free corner section when tucked there-beneath during carton reclosure to retain the openable portion of said outer closure flap in the reclosed position.

2. The invention according to claim 1 wherein;

a. the opposite side of said inner closure flap is joined along a fourth fold line to a folded flap attached to the opposite sidewall panel of said carton; and

b. said weakened line extends obliquely from said first fold line across said inner flap to said fourth fold line to define an interior corner section at the opposite side of said inner closure flap in register with a free corner section of said outer closure flap.

3. The invention according to claim 1 wherein;

a. the openable portion of said outer closure flap is defined by a weakened line running transversely from the free edge thereof to said third fold line in an area intermediate the side edges of said top closure flap, the weakened line in said top closure flap including a first portion starting at said first edge and perpendicular thereto to define therewith a free corner section, a second portion extending perpendicularly from said third fold line and offset from said first portion, said first and second portions being connected by an obliquely extending portion; and

b. the severable portion of said inner closure flap is defined in part by a weakened line extending perpendicularly from the free edge thereof and in line with the first portion of said outer flap weakened line, said perpendicular weakened line of the inner closure flap being connected to the weakened line extending along said first fold line by an obliquely extending portion defining one edge of an interior corner section in register with the free corner section defined by the weakened line of said outer closure flap.

4. In a carton for a free-flowing product formed of semirigid packaging material and having a generally tubular configuration of rectangular cross section which includes a pair of opposed face panels of substantially the same width;

a. an inner rectangular closure flap attached along a fold line at one edge thereof to one of said face panels and of a shape and size substantially coextensive with the cross-sectional area of said carton so as to substantially enclose when folded one end of said carton, said inner flap being joined along fold lines of opposed side edges thereof to flaps attached to respective sides of said carton;

b. an outer rectangular closure flap attached along another fold line to the other one of said face panels and disposed to overlie said inner closure flap, said outer flap being coextensive with and adhered in folded condition to said inner flap and having at least a portion thereof extending along said other fold line openable and formed with opposed free corner sections; and

c. a weakened line along which at least a portion of said inner flap is severable from said carton to open same, said weakened line extending along said first mentioned fold line and continuing inwardly across said inner flap to the side edges thereof to define in conjunction with said one edge and said side edges opposed interior corner sections thereof in register with and beneath which the opposed free corner sections of the openable portion of said outer closure flap may be tucked upon reclosure of the carton.

5. The invention according to claim 4 wherein:

a. said weakened line along which the severable portion of said inner flap separates therefrom to open said carton includes an arcuate section in said one face panel and defining with the fold line along which said inner flap is joined to said one face panel a removable tab to facilitate grasping said closure flaps.

6. In a carton blank formed with semirigid packaging material adapted to be erected into a carton of general tubular configuration rectangular in cross section and including a pair of rectangular face panels of substantially the same area joined along fold lines to a sidewall panel;

a. an inner closure flap joined along a first fold line to one entire edge of one of said face panels, said closure flap being joined at one side thereof along a second fold line to a foldable flap attachable to said sidewall panel in the carton erected from said blank;

b. an outer closure flap joined along a third fold line to one entire edge of the other said face panel, said inner and outer closure flaps being rectangular and having substantially the same dimensions; and

c. a weakened line along which a removable portion of said inner closure flap may be separated from said blank, said weakened line extending along said first fold line and including a section extending obliquely from said first fold line across said inner flap to said second fold line and thence along said second fold line to the free edge of said inner closure flap, said weakened line defining with unweakened portions of said first and second fold lines an interior corner section of said inner closure flap remaining joined with said one face panel and said foldable flap after separation from said inner closure flap of said removable portion, said interior corner section being disposed for registration with a free corner section of said outer closure flap in the carton erected from said blank.

7. The invention according to claim 15 wherein:

a. said inner closure flap is joined along a fourth fold line to a foldable flap attachable to the opposite sidewall panel of the carton erected from said blank; and

b. said weakened line extends from said first fold line obliquely across said inner flap to said fourth fold line and therealong to the free edge of said inner closure flap, said weakened line defining with unweakened portions of said first and fourth fold lines an interior corner section at the opposite side of the inner closure flap disposed for registration with a free corner section at the opposite side of said outer closure flap in the carton erected from said blank.

8. The invention according to claim 7 wherein:

a. said weakened line deviates from said first fold line into said one face panel over an arcuate path to define with said first fold line a manually removable tab attached to said inner closure flap along said first fold line.

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