

[54] OPENING ARRANGEMENT FOR
DRUMHEAD CARTONS[75] Inventors: **Dennis M. Gorski**, Allendale;
George Vrana, Ridgewood, both of
N.J.[73] Assignee: **Rexham Corporation**, New York,
N.Y.[22] Filed: **Aug. 6, 1973**[21] Appl. No.: **386,159**[52] U.S. Cl. **229/17 R; 206/264; 206/273;**
229/51 C; 229/51 TC[51] Int. Cl. **B65d 5/54**[58] Field of Search 229/51 C, 51 TS, 51 TC,
229/51 SC, 51 D, 17 R, 7 R, 37 R, 44 CB, 14
BA; 206/264, 265, 268, 273[56] **References Cited****UNITED STATES PATENTS**

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Primary Examiner—John W. Huckert*Assistant Examiner*—Stuart S. Levy*Attorney, Agent, or Firm*—Mandeville and Schweitzer[57] **ABSTRACT**

A drumhead carton is provided for holding and dispensing the contents thereof incrementally. The carton incorporates an improved reclosable opening with a "pop-open" feature, and a positive lock-tab arrangement for maintaining the carton in its closed condition. The arrangement herein is especially appropriate for the application of sealing membranes to maintain the contents of the package fresh prior to use. A combination arrangement is also provided for the initial opening of the carton in that the sealing membrane is broken simultaneously with the raising of the opening flap to provide ready access to the contents of the package without undue damage to the integrity of the carton and its sealing membrane.

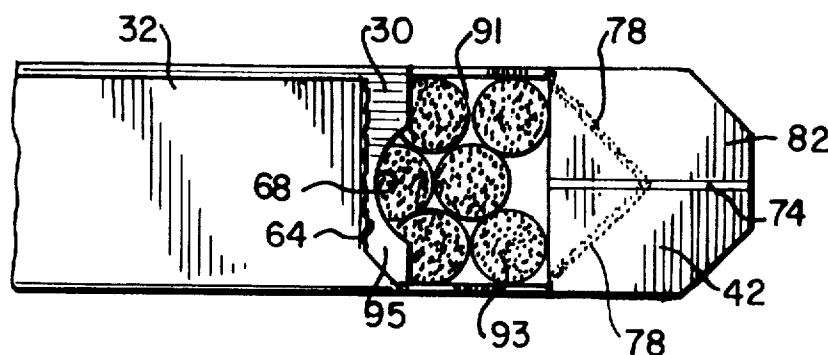
2 Claims, 11 Drawing Figures

FIG. 1

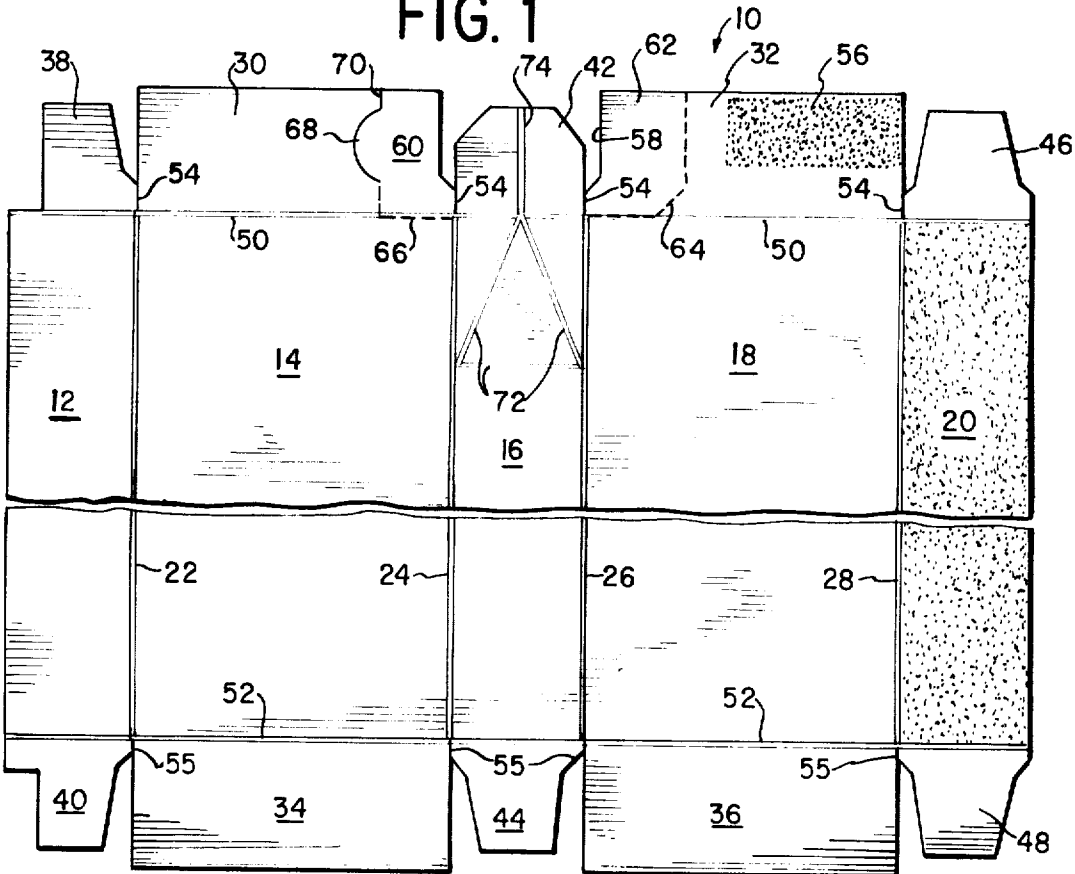


FIG. 2

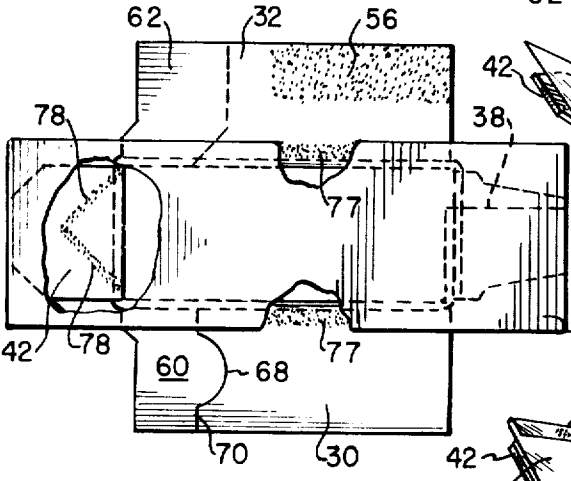


FIG. 3

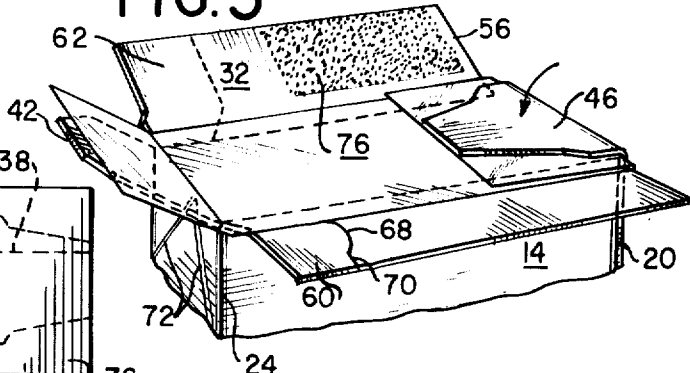


FIG. 4

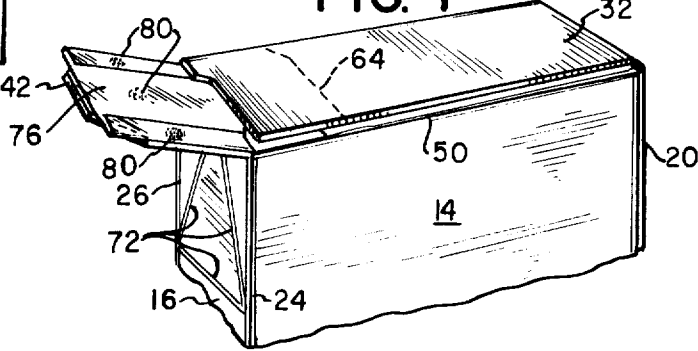


FIG. 5

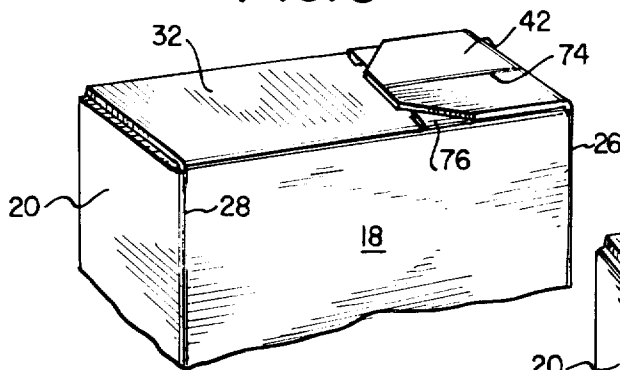


FIG. 6

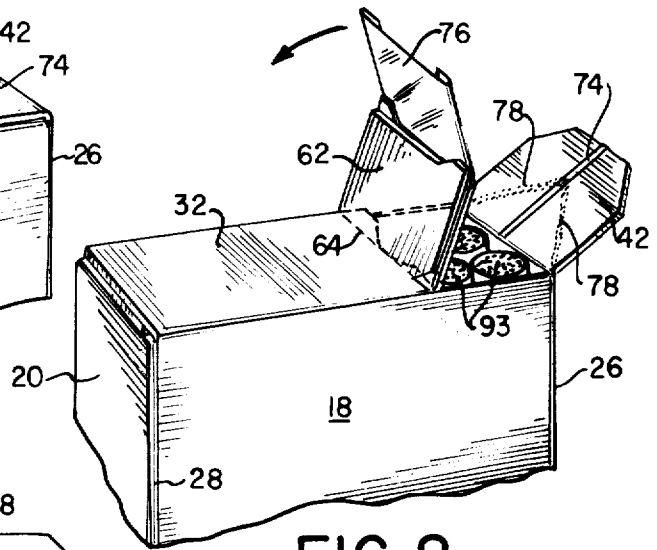


FIG. 7

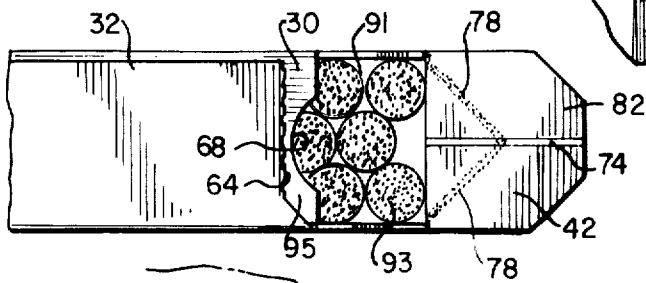


FIG. 8

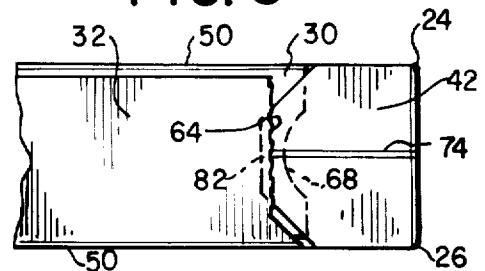


FIG. 9

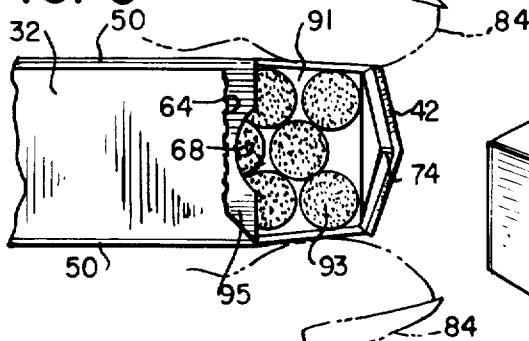


FIG. 10

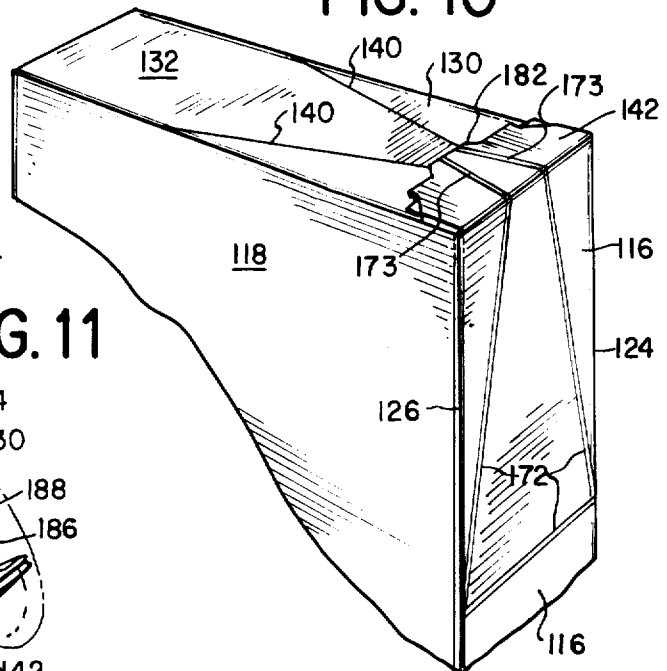
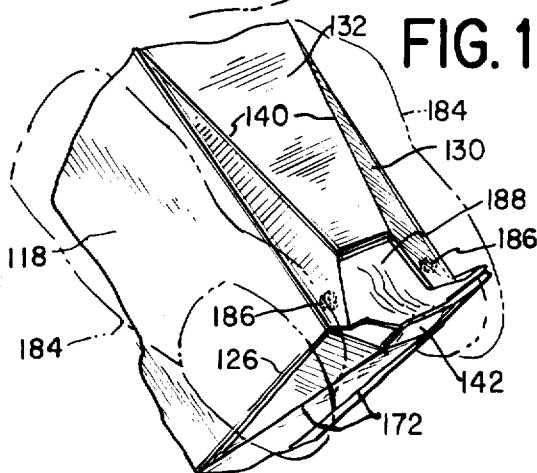


FIG. 11



OPENING ARRANGEMENT FOR DRUMHEAD CARTONS

STATEMENT OF THE INVENTION

In its most general form, this invention relates to an improved arrangement for the opening orifice of a drumhead carton in order to obtain repeated ready access to the contents thereof and for dispensing those contents incrementally as desired. More precisely, this invention relates to an opening arrangement for drumhead cartons in which the opening flap is so arranged to be grasped and opened simultaneously with the opening of a sealing membrane for such cartons only in the area of the opening orifice so that the package will remain in a relatively sealed form. Thus, it may be easily reclosed and reopened repeatedly for gaining access to the contents without undue damage to the carton and its sealing arrangement.

The carton, in accordance herewith, is especially appropriate for such contents as cigarettes, for example, where it is desirable to remove only a portion of the contents at any one time, and to maintain the contents relatively fresh after opening for a period of time. Included herein are provisions for a "pop-open" feature so that with the application of pressure adjacent the orifice of the carton, the reclosed flap will pop-open for dispensing further portions of the contents of the carton.

BACKGROUND OF THE INVENTION

As is well known, many airtight, sift-proof and moisture proof paperboard carton constructions for liquid and pulverulent materials are formed from parallelepiped piped cartons and have their opposite ends tightly sealed by "safety shield" members or "drumhead" membranes adhered to the carton end flaps and dust flaps. Moreover, many arrangements have been included with such applications for maintaining the sealing engagement of these membranes to the carton at the corners thereof in order to maintain the total seal of the cartons prior to the use of the contents thereof, including so-called "tufted" corners for engaging in a more complete manner the sealing membrane at the corners of the carton. These areas are notoriously difficult to maintain in sealed engagement particularly with shiftable contents.

However, with the development of these various applications of sealing membrane to drumhead cartons, one of the difficulties engendered in their use is the fact that when the cartons are opened, many times the sealing membrane is so damaged or destroyed that it is difficult to reclose the cartons and to maintain them in use for subsequent incremental dispensing of the contents thereof. This is particularly true as the adherence of the membranes have been improved. That is, the user of the carton, in attempting to gain access to the contents must rip and tear, thus destroying the integrity of the carton for repeated reuse.

SUMMARY OF THE INVENTION

With this invention, by contrast, arrangements are provided for gaining ready access to the contents of the carton in a manner whereby the carton and the greater portion of its sealing membrane adjacent the opening area thereof, are maintained so that the carton may be readily reclosed and reopened repeatedly for incre-

mental dispensing of the contents. That is, provision is made for an opening flap which provides access to a breakaway portion of the top panels of the carton, which breakaway portion may be readily removed. If a sealing membrane is used, it may be removed simultaneously by gripping an accessible tab to the sealing membrane for breaking away the portion of the membrane adjacent the opening. Thus, only that portion of the carton proper, as well as the sealing membrane therefor, which defines the opening orifice for the carton in the first place, is broken away during the opening of the carton. Moreover, the opening flap is reclosable and provided with a locking tab and a locking abutment for the tab so that the package may be readily reclosed as desired. Included herewith, also, is an arrangement for a "pop-open" feature for the reclosed flap by the application of pressure adjacent the reclosed flap. Moreover, the closing flap may serve simultaneously as a dispensing spout for the contents of the package depending upon the particular contents utilized with the package.

Before describing this invention in more detail, it may be well to note that the cartons, in accordance herewith, are appropriate for use with such contents as salt, or sugar, for example, which are to be dispensed incrementally over a period of time. The carton is particularly appropriate for use as a cigarette pack in that the contents thereof may be dispensed incrementally and repeatedly while maintaining the contents in a relatively fresh manner over a period of time. The sealing membranes used, in accordance herewith, may be thermoplastic or metallic foil laminates, as desired, and as well known. Foil laminates are particularly appropriate herein for use with cartons for cigarette packs.

As purely illustrative of an arrangement of carton blank which may be used for constructing the drumhead carton of this invention, one may note the attached drawings in which a carton blank is shown, as well as a carton in various stages of erection, of the configuration utilizing the reclosable opening arrangement noted above.

IN THE DRAWINGS

FIG. 1 is a plan view of a blank for use in constructing a drumhead carton embodying and for practicing this invention;

FIG. 2 is a top plan view of a drumhead carton after erection, and showing the application of a sealing membrane to the opened top flaps thereof;

FIGS. 3, 4 and 5 show the sequence of initial closing of a representative drumhead carton erected from the blank of FIG. 1;

FIGS. 6, 7, 8 and 9 show a sequence of initial opening of a drumhead carton erected from the blank of FIG. 1, and the various forms of use of the openable and reclosable features of the invention herein;

FIG. 10 is a showing of a further embodiment of a drumhead carton of the invention herein; and

FIG. 11 is a perspective view of the carton of FIG. 10 showing the opening and pour spout features thereof.

DESCRIPTION OF PREFERRED EMBODIMENT

Referring to the drawings, in which like reference characters refer to like parts throughout the several views thereof, a blank is shown in FIG. 1 for erection into a drumhead carton and is indicated generally at 10, and includes successively articulated end wall 12,

side wall 14, end wall 16, side wall 18 and glue flap 20 articulated in the manner shown along fold lines 22, 24, 26 and 28. As will be understood, glue flap 20 in the erected form of the carton blank will be glued to end wall 12. Successively articulated along score line 52 to the bottom of the above noted end and side walls are glue flap 40, major flap 34, dust flap 44, major flap 36 and dust flap 48. In addition, articulated to these same side and end walls at the top thereof along score line 50 are a plurality of top flaps including glue flap 38, major top flap 30, dust flap 42, major top flap 32 and dust flap 46. As can be seen in FIG. 1, the extensions of the major fold lines 22, 24, 26 and 28 dividing the various top and bottom flaps are cuts 54 and 55. It is within the purview of this invention, that these cuts may be discontinuous and not extend clear to their respective top and bottom score lines 50 and 52 so as to provide "tufted" corners in the manner of U.S. Pat. No. 2,795,364 for the purpose of providing enhanced upward engagement of the carton for receiving sealing membranes at each end thereof.

As can be seen in FIG. 1, further, major top flap 30 has a separate panel portion 60 which is divided from the rest of flap 30 by an L-shaped discontinuous cut 66 and a cut 68 which is partially semi-circular in form and partially straight in form. Cut 68 is interrupted at 70 by a breakaway nick.

Major top flap 32 also has a separate divided panel 62 which is separated from the panel by a substantially L-shaped perforated or discontinuous cut 64. Major top flaps 30 and 32 have cutout portions 56 and 58, the purpose of which will be described below. Flap 42 has a score line 74 and end wall panel 16 has a plurality of score lines 72 forming a triangular shaped section in the panel. The use of these score lines will be described below. Glue area 56 on major top flap 32 extends only over a portion of the major flap and stops at a point spaced from perforated cut 64, the use of which will be described below.

Referring now to FIG. 2, the erected carton is shown with the four top flaps in their open horizontally extended position. Applied to the top surfaces of the open extended top flaps is sealing membrane 76 which is shown with portions thereof broken away for clarity. As can be seen in FIG. 2, areas 77 of the major flaps have glue applied for receiving sealing membrane 76, which may be of a variety of materials. Preferably, it will be a foil laminate with the metallic foil portion facing downwardly toward the interior of the carton. As can be seen further in FIG. 2, glue line 78 on dust flap 42 is chevron shaped so that those portions of sealing membrane 76 externally of the chevron shaped glue line 78 are not adhered to dust flap 42. This provides a loose grasping tab for that portion of sealing membrane 76.

Referring now to FIGS. 3 and 4, these figures show the sequence of folding of the top major and dust flaps. That is, as shown in FIG. 3, dust flap 46 and its respective portion of sealing membrane 76 is folded first. Thereafter, major flap 30 is folded in and major flap 32 with its adhesive portion 56 is folded against major flap 32 to hold these two flaps folded into appropriate position, as shown in FIG. 4. Subsequently, glue is applied on dust flap 42 at points 80 prior to folding dust flap 42 into its closed position, as shown in FIG. 5. It will be noted that the position of the carton has been reversed in FIG. 5 from the position shown in FIG. 4, so as to

show more precisely the lifting tab portion 82 of dust flap 42.

The opening sequence of the drumhead carton erected from the blank of FIG. 1 is shown in FIGS. 6-9, inclusive. Referring to FIG. 6, for example, lifting tab 82 of dust flap 42 is lifted to break engagement of dust flap 42 from major top flap 32 at adhesive points 80. Subsequently, the loose non-adhered end portion of membrane 76 externally of adhesive line 78 on dust flap 42 is grasped and pulled away from dust flap 42. This action serves to tear away the sealing membrane 76 from dust flap 42 and a portion of the top of the erected carton. This action also serves to break open the carton proper by separating the panels 60 and 62 from their respective major top flaps 30 and 32, as shown in FIG. 6. This entire section of the top of the carton is removed along discontinuous cuts 62, 64 and cut 68 to expose an opening 91 for dispensing the contents of the carton, which contents may be cigarettes 93, for example. Further, as can be seen in FIG. 7, a platform 95 is provided from a small portion of major top flap 30 because of the configuration of the separated panels 60 and 62 of the adjacent major top flaps 30 and 32. Thus, when the carton is reclosed after the dispensing of a portion of the contents thereof, opening tab 82 of dust flap 42 may be slipped over the platform portion 95 of major flap 30 and under major flap 32, as shown in FIG. 8. This is possible because of the shortened adhesive application 56 between the top major flaps.

FIG. 9 shows the "pop-open" feature of the dispensing carton, in accordance herewith. In this connection, it should be noted that prior to the final sealing of the cigarette pack or carton, as shown and described above, score lines 72 and 74 are pre-broken. Thus, after the carton has been originally opened and reclosed and is in the form as shown in FIG. 8, the user merely has to place his fingers 84, as shown in phantom in FIG. 9, in the position shown and apply a small amount of pressure. This pressure causes a slight buckling of score lines 72 and 74 causing the lock tab 82 of dust flap 42 to be "sprung" from under its locked position between major flaps 30 and 32 to the open position shown in FIG. 9 for dispensing further quantities of the contents of the carton.

In the modification of the carton shown in FIG. 10, this arrangement is more appropriate for cartons containing pulverulent material. That is, the opening tab arrangement of dust flap 142 serves simultaneously to open a package and to provide a pour spout arrangement for dispensing the contents of the package. Thus, as can be seen in FIG. 10, score lines 172 do not provide a true triangular configuration in the panel 116, but rather extend as score lines 173 in dust flap 142. With this arrangement, moreover, top flaps 130 and 132 have cutout portions such as 140 shown in FIG. 10 for major top flap 132. Moreover, major top flap 132 has score line 142 and major top flap 130 has a score line following substantially along the same borderline as the cutout 140 of major flap 132.

Dust flap 142 is spot sealed at points 186 (FIG. 11) and the sealing membrane 188 is adhered over the entire surface of dust flap 142. Thus, when the carton is opened by lifting tab 182 of dust flap 142, the package is substantially opened. Thereafter, the user may break away only a small portion of the sealing membrane 188 from engagement with dust flap 142. Again, the ar-

range-ment in this embodiment is such that the score lines 172 and 173 are pre-broken, thus when pressure is applied by fingers 184, shown in phantom in FIG. 11, the contents of the package may be readily poured using the slightly distorted dust flap 142 as a pouring spout. Moreover, this pressure application will serve to cause the popping open of dust flap 142 for this dispensing action. In this connection, it will be noted that lifting tab portion 182 of dust flap 142 is configured to fit between the narrowed edges 199 of major top flaps 130 and 132.

Accordingly, as will be understood from the foregoing, a new drumhead carton is provided, in accordance herewith, for appropriately sealing the contents thereof simultaneously with providing easy opening and access to the contents. In addition, substantial destruction to the integrity of the carton and its sealing function is avoided. Thus, the arrangements herein provide for a reclosable carton so that the contents of the carton may be dispensed incrementally over a long period of time in a relatively simple manner. Moreover, the carton may be reclosed and "popped open" easily for the dispensing function. There is a reduced probability of spillage of the contents with the carton in its closed state and the freshness of the contents is maintained over a long period of time because of the very minor amount of destruction of the sealing properties of the carton during the initial opening function. Because of this maintenance of substantial sealing integrity of the carton after initial opening and repeated use, and because the blanks therefor may be erected utilizing existing packaging machinery, the arrangements of the invention herein are highly advantageous for commercial scale operations.

While the particular arrangements of carton herein disclosed form preferred embodiments of this invention, this invention is not to be limited to those particular arrangements, and changes can be made therein without departing from the scope of the invention which is defined in the appended claims.

We claim:

1. A one-piece sheet material blank for an end-fillable carton adapted to be end sealed with a sealing membrane comprising; first end wall, first side wall, second end wall, second side wall and glue flap panels; parallel vertical score lines consecutively articulating said panels; dust flaps at each end of said first and second end walls; first and second horizontal fold lines articulating said dust flaps to said first and second end walls; major flaps articulated at each end of said first and second side walls along said first and second horizontal fold lines; said first dust flap at the top of said second end wall having at least one substantially vertical score line extending therethrough adjacent the central region thereof; the edge of said first top dust flap opposite said first horizontal score line having opposed beveled corners forming an opening tab thereon; the

ends of said major flaps adjacent said first top dust flap having cutout portions; the end wall to which said first top dust flap is articulated having a plurality of substantially interconnected score lines adjacent said first horizontal fold line; a separate first breakaway panel formed in said first major top flap at the end thereof adjacent said first top dust flap; said first breakaway panel being defined by a cut having a straight portion and a semi-circular portion, an L-shaped discontinuous cut and said cutout portion of said first major flap; and a second breakaway panel formed in said second major top flap at the end thereof adjacent said first top dust flap; said second breakaway panel being defined by a substantially L-shaped discontinuous cut and said cutout portion of said major flap.

2. A reclosable drumhead carton fabricated from sheet material comprising successively articulated first end, first side wall, second end and second side wall panels; dust flaps at each end of said first and second end wall panels; first and second hinge lines articulating said dust flaps to said first and second end wall panels; major flaps articulated at each end of said first and second side walls along said first and second hinge lines; said first dust flap at the top of said carton being folded last to close said carton and spot sealed to adjacent top surfaces of the top major flaps for said carton; said first top dust flap having at least one pre-broken score line extending therethrough adjacent the central region thereof and a narrowed end opposite the hinge therefor forming an opening tab; the ends of said major flaps adjacent said first dust flap having cutout portions to define therebetween an opening orifice for said carton; the adhesive for adhering said major flaps together ending at a point spaced from said orifice to form a locking abutment for said opening tab; said end wall to which said first top dust flap is articulated having a plurality of pre-broken substantially interconnected score lines adjacent the hinge connection for said first dust flap; a sealing membrane applied to at least the inner surfaces of said first and second major flaps and said first and second dust flaps at the top of said carton; a separated first breakaway panel formed in a portion of said first major top flap adjacent said first top dust flap; said first breakaway panel being defined by a cut having a straight portion and a semi-circular portion, an L-shaped discontinuous cut and said cutout portion of said first major flap; in which said second major top flap has a separate second breakaway panel formed in a portion thereof adjacent said first top dust flap; said second breakaway panel being defined by a substantially L-shaped discontinuous cut and said cutout portion of said major flap; and adhesive for adhering that portion of said sealing membrane adjacent said first top dust flap being substantially chevron shaped to define a pull-tab for said membrane adjacent said orifice.

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