

[54] **DISPENSER CARTON** 3,071,304 1/1963 Brastad 229/14 BL
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Ohio 3,223,230 12/1965 Bianchi 229/14 BL X
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York, N.Y. 3,640,447 2/1972 Forbes, Jr. 229/14 BA

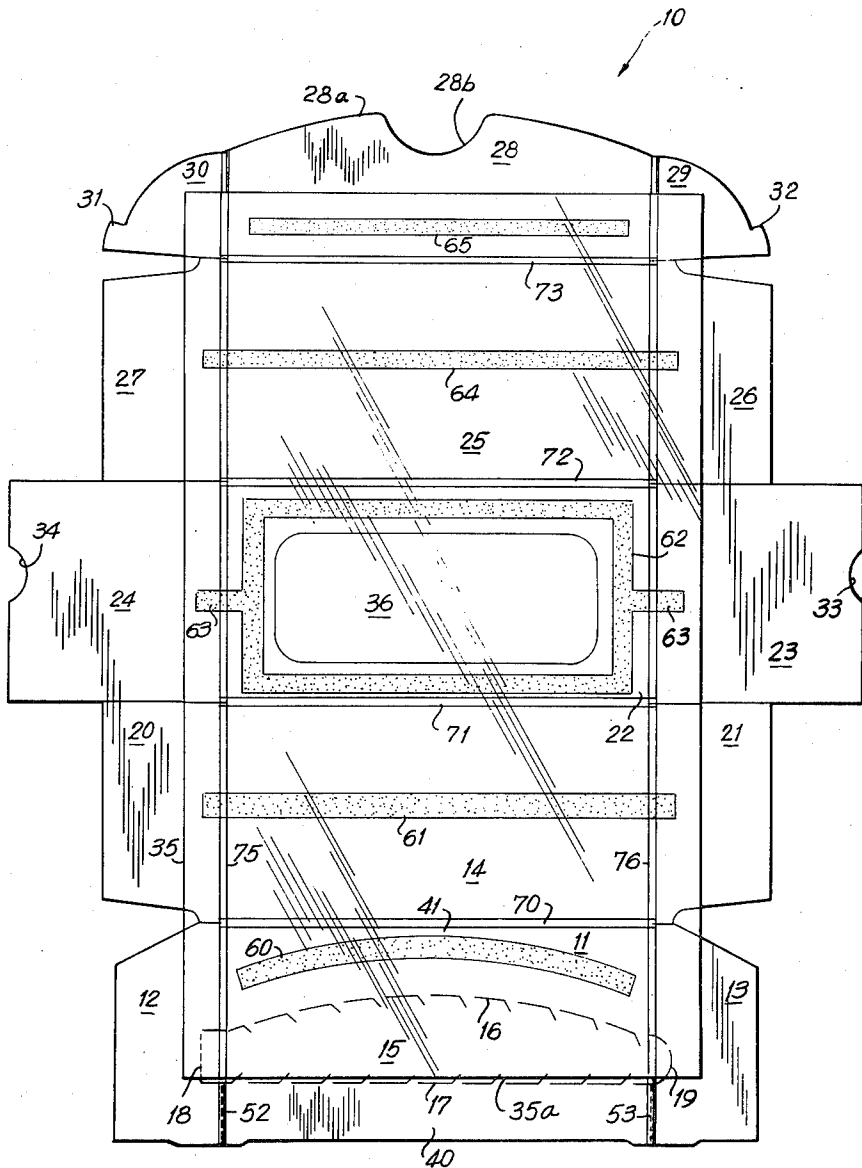
[22] Filed: **Oct. 26, 1973** *Primary Examiner*—Billy S. Taylor
[21] Appl. No.: **410,291** *Attorney, Agent, or Firm*—Alfred L. Michaelsen

[52] **U.S. Cl.** 229/17 S; 206/395; 206/492;
229/14 BA; 229/51 TS
[51] **Int. Cl.**² **B65D 5/56**; B65D 5/54; B65D 5/72
[58] **Field of Search** 229/17 S, 17 B, 14 BL,
229/14 B, 14 BW, 14 BA, 14 R, 51 TS;
206/395, 494; 242/55, 53; 225/41, 48, 49

[56] **References Cited**
UNITED STATES PATENTS
1,973,237 9/1934 Vilas 229/17 B

[57] **ABSTRACT**
A carton or box, preferably made of paperboard, which includes a front panel having at least one tear line so disposed that, upon tearing, a portion of the front panel and an underlying fold-out panel may be moved to a dispensing position. The box may be provided with an interiorly disposed flexible sheet of material.

6 Claims, 5 Drawing Figures



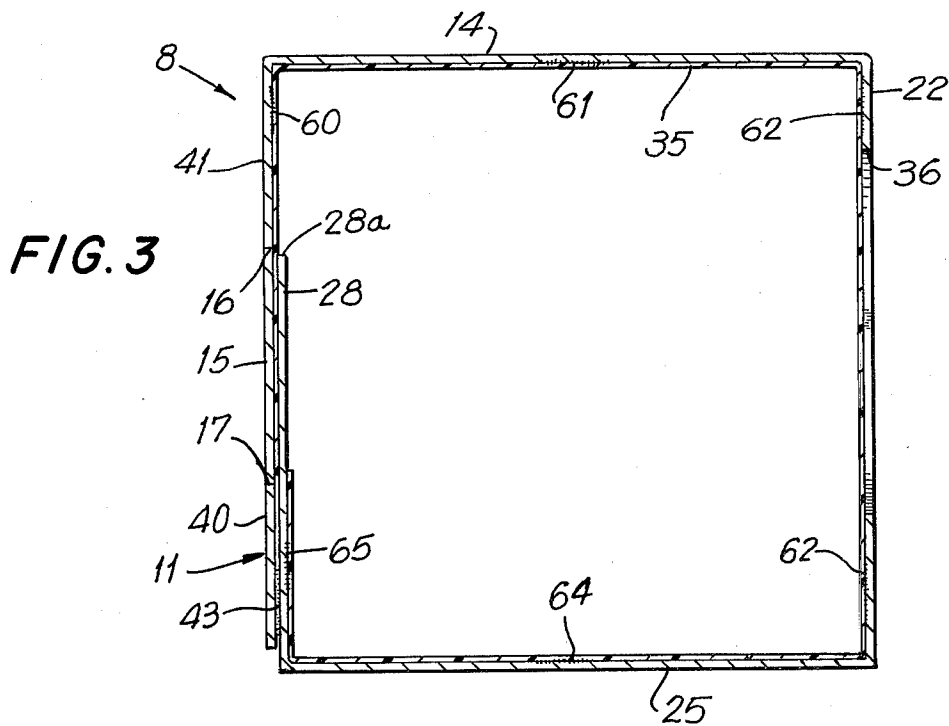
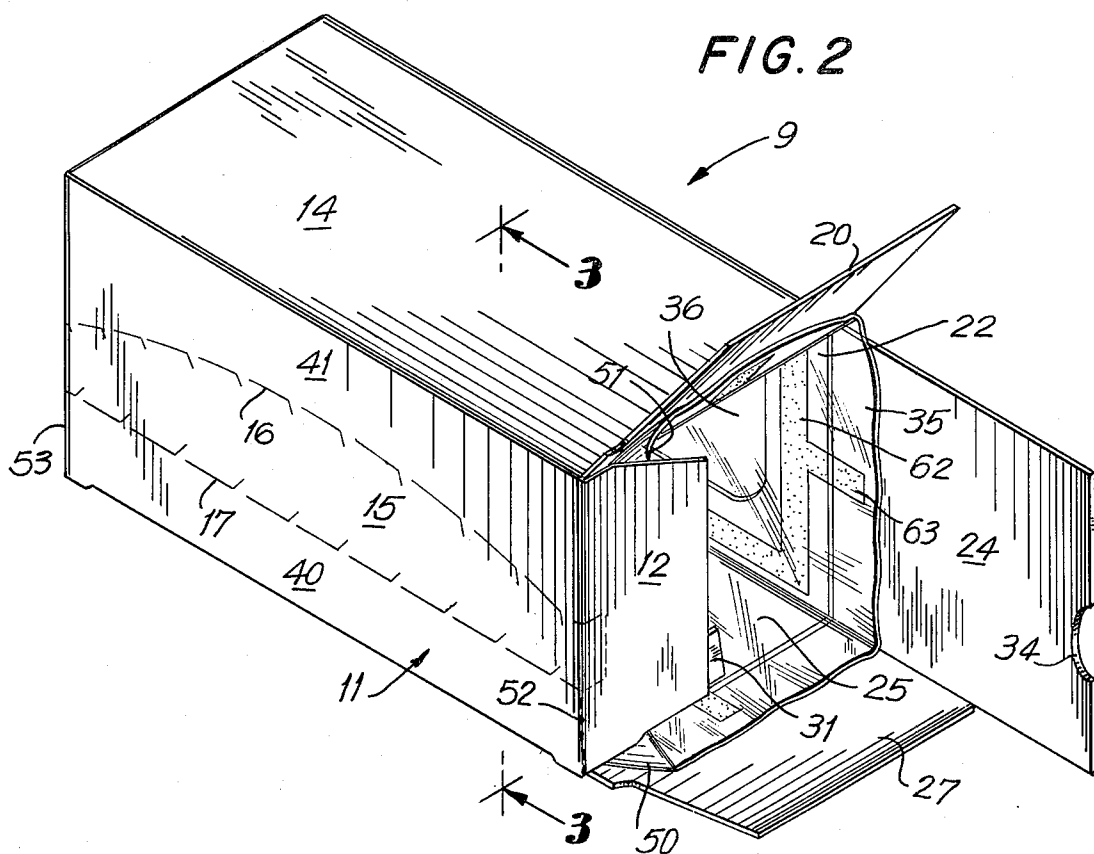


FIG. 4

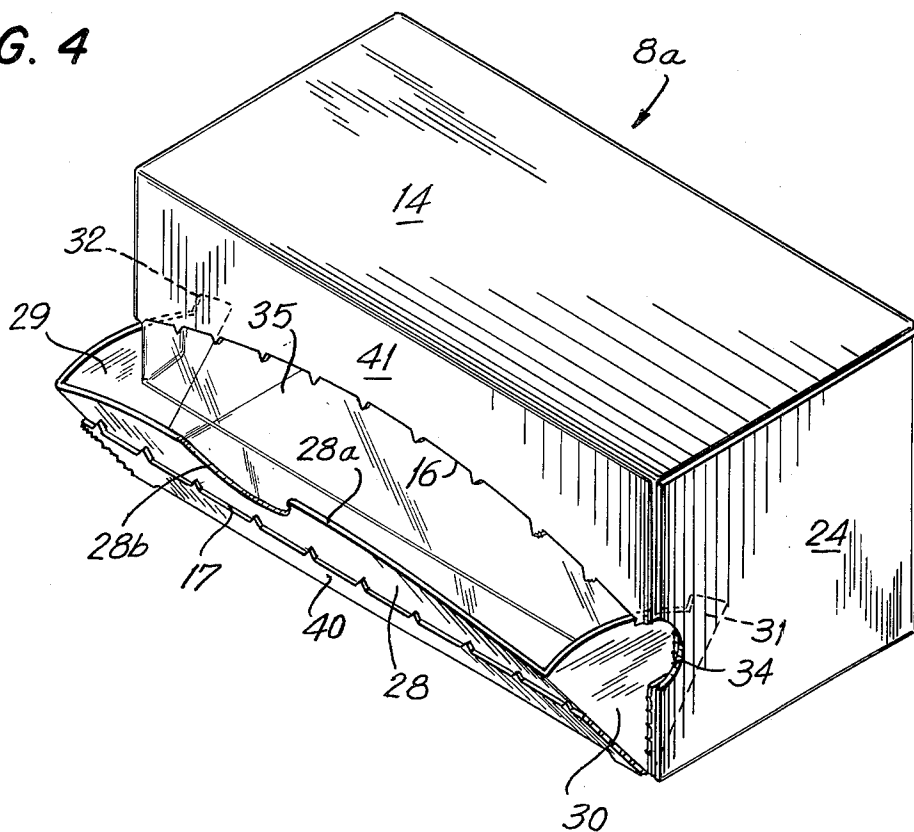
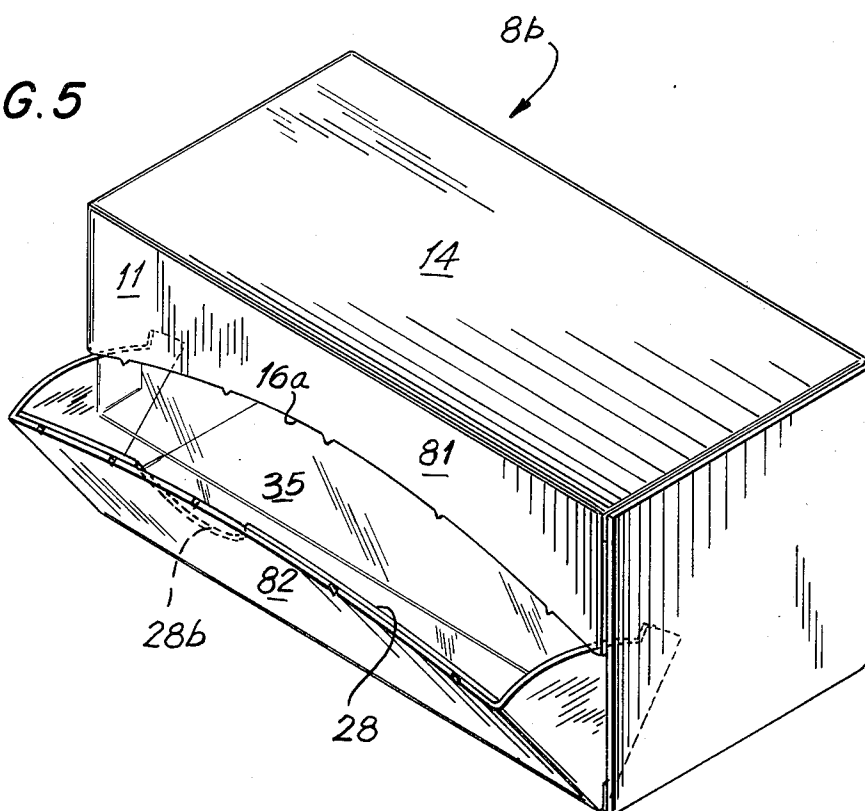


FIG. 5



DISPENSER CARTON

BACKGROUND OF THE INVENTION

1. Field to Which the Invention Pertains

This invention pertains to cartons or boxes and particularly to boxes manufactured of paperboard. More specifically, this invention pertains to boxes which are used to package products or a product which is in the form of a roll of sheet material. While a box which embodies the instant invention may be used to package a wide variety of rolled sheet material, it is particularly useful for packaging a rolled sheet product which is to be intermittently withdrawn or dispensed from the box and which is of such a nature as to make it desirable to insulate the product from dust, dirt or other foreign material. An example of such a product is a roll of closed end polyethylene tubes which are to be sequentially withdrawn from the box, torn from the roll and subsequently used as a disposable inner liner in an infants nursing bottle. Generally speaking, such polyethylene tubes or sacs are sterilized during their manufacture and it is obviously desirable that this sterilized condition be maintained. Consequently, it becomes desirable to package such a product in a box or carton which will provide the maximum degree of product isolation.

Of course, in addition to maximizing the integrity of the packaged product, it is also desirable, from an economic point of view, to provide a box which employs a minimum amount of material and which can be manufactured at a relatively low cost. In this connection, two points are significant. First, such boxes are generally erected from flat paperboard blanks. Therefore, to minimize the cost of the final package, it is desirable to employ a box which can be erected from a blank which is not overly large or unduly complex in shape. Second, the blank and the resulting box are preferably of such a design as to permit the use of reasonably standard packaging machines.

Finally, in addition to such considerations as maintaining the integrity of the packaged product and minimizing the construction and erection cost of the box, it is obviously desirable that the box should be of such a nature that it is readily usable by the consumer of the packaged product. Thus, when it is desired to provide a box for packaging a roll of flattened polyethylene sacs for use as disposable baby bottle liners, the package which is employed would be so constructed and arranged so as to permit rapid access to the packaged product while, nevertheless, continuing to maintain the integrity of the product to the maximum extent possible.

A box or carton which satisfies the above described criteria and the blank from which such box may be erected is the specific field to which this invention pertains.

2. Prior Art

The prior art discloses a substantial number of box or carton configurations which may be used as containers for shipping or dispensing a roll of sheet material. For example, a substantial and complex prior art has developed with respect to dispensing cartons for items such as waxed paper and rolls of aluminum foil. Exemplary of such prior art cartons are the constructions disclosed in U.S. Pat. Nos. 2,115,867, 2,115,887, 2,115,853, 1,581,191, 3,178,086 and 3,547,328. In general, the carton constructions disclosed in these and other prior

art patents are primarily concerned with providing such features as serrated cutting edges, windows in the walls of the carton, and various forms of multi-wall box constructions which provide guide passages for the web to be dispensed.

While boxes or cartons of the type disclosed by the prior art have satisfied many packaging requirements, they have often been constructed from large or complex blanks which may be either expensive from a material point of view and/or expensive from a box fabrication point of view. Additionally, so far as I am aware, the prior art does not disclose any form of simple paperboard blank combination which can be erected to form a box or carton having provision for excluding dust or fine particles and which is also readily openable.

SUMMARY OF THE INVENTION

In accordance with the instant invention, an improved five panel paperboard blank is provided and includes a sheet of flexible material which overlies the interior side of the blank. The flexible sheet extends transversely beyond the longitudinal score lines which foldably connect the five panels of the blank to end flaps, but does not extend beyond the longitudinal terminal edges of the end flaps. The flexible sheet is adhesively secured to at least the outer two panels of the aforementioned five panels, while the side portions of the flexible sheet are substantially unsecured to the end flaps. Thus, when such blank is erected to form a box, the unsecured side portions of the flexible sheet material wrap around the corners of the end flaps to form gussets which provide a dust seal in each of the corners of the resulting box.

Preferably, the paperboard blank includes a wall forming end panel (or first panel) which is provided with a transversely disposed tear strip that extends substantially across the associated end panel. Additionally, two spaced apart tear lines are provided which extend from the terminal edge of the first end panel to the adjacent edge of the aforementioned tear strip. In this manner, the blank may be erected such that the fifth panel is disposed behind the end panel containing the tear strip thereby providing a box construction which will function as a dispenser carton when the tear strip is removed and the fifth panel is moved outwardly into a dispensing position. By appropriately dimensioning the flexible sheet of material, a dust cover is provided over the dispenser opening. Additionally, if the flexible sheet of material is transparent, an aperture may be provided in one of the center panels of the five panel paperboard blank whereby a window is automatically provided in the resulting box.

Description of the Drawings

FIG. 1 is a plan view of a paperboard blank constructed in accordance with a preferred embodiment of my invention.

FIG. 2 is a perspective view of the blank of FIG. 1 in a partially erected condition.

FIG. 3 is a sectional view taken along the section lines 3—3 of FIG. 2.

FIG. 4 is a perspective view of a box resulting from erecting the blank of FIG. 1.

FIG. 5 is a perspective view of a fully erected box and showing an alternate embodiment of my invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIG. 1, there is shown a plan view of a box blank 10 which is preferably made of paperboard. Those skilled in the art to which this invention pertains will recognize the blank 10 of FIG. 1 as belonging to a class of box blanks which are generically referred to as five panel blanks. Thus, the blank 10 of FIG. 1 includes five foldably connected panels, viz. panels 11, 14, 22, 25 and 28. These five panels are foldably connected by transverse score lines 70, 71, 72 and 73. Additionally, the blank includes longitudinal score lines 75, 76 which foldably connect the five panels 11, 14, 22, 25 and 28, to end flaps 12-13, 20-21, 24-23, 26-27 and 29-30, respectively.

Those skilled in the art will also appreciate that the end flaps used on a five panel blank may assume a variety of shapes, and, thus, the end flap configuration shown in FIG. 1 is only representative of one form of end flaps which may be used with a five panel blank. Additionally, those skilled in the art will also recognize that the panel 28 is generally used as a closure panel since panels 11, 14, 22 and 25 are essentially wall forming panels. As used herein, panels 11 and 28 may be referred to as end panels.

In accordance with a preferred embodiment of my invention, a five panel blank of the type shown in FIG. 1 is provided with a flexible sheet of material 35 disposed on the interior side thereof, i.e. on the side of blank 10 which will form the interior of a box when the blank 10 is erected to form a box or a carton. For reasons which will hereinafter be apparent, it is preferred that the flexible sheet material 35 is also transparent. Cellophane and polyolefin films are examples of flexible, transparent sheet material which can be employed.

As shown in FIG. 1, the flexible, transparent sheet material 35 overlies a substantial portion of the interior side of the five panel blank 10. More specifically, the longitudinal edges of the sheet 35 extend transversely beyond the longitudinal score lines 75, 76 and are disposed intermediate the edges of the end flaps. Although the exact location of the longitudinal edges of the sheet 35 with respect to the edges of the end flaps is, to some degree, a matter of choice, the longitudinal edges of the sheet 35 should not extend transversely beyond the terminal or exposed edges of the end flaps. The sheet material 35 is secured to at least the end panels 11, 28, by an adhesive material or the like. Preferably, the sheet material is secured to each of the five panels as indicated by the shaded areas 60-65. If the flexible sheet material 35 is also transparent, one of the center panels, i.e. either panel 14, 22 or 25, maybe provided with an aperture 36 in panel 22, in which event it is preferable to peripherally secure the sheet 35 to the associated panel as shown by the shaded area 62.

While the zone of attachment between the flexible sheet 35 and the five panels may extend transversely somewhat beyond the longitudinal score lines 75, 76, it is preferable that the longitudinal side portions of the flexible sheet 35 are substantially unsecured to the end flaps, particularly in the areas adjacent to the intersections of the longitudinal score lines 75, 76, with the transverse score lines 70, 71, 72 and 73.

In accordance with the preferred embodiment of my invention as shown in FIG. 1, the end or wall forming panel 11 is provided with a transversely disposed tear strip 15 which is defined by tear lines 16 and 17. Prefer-

ably, the tear strip 15 extends substantially across the wall forming panel 11 and onto the associated end flaps 12 and 13. As shown in FIG. 1, the longitudinal edges of the tear strip 15 are defined by the longitudinal tear lines 18, 19. Additionally, it may be noted that there are provided two spaced apart longitudinal tear lines 52, 53 which extend from the terminal or exposed edge of the wall forming panel 11 to the adjacent edge 17 of the tear strip 15. For reasons which will hereinafter become apparent, it is preferable to so dimension the flexible sheet of material 35 that the transverse edge 35a is adjacent to or lies within the region of the tear line 17.

Additionally, for reasons which will also become apparent hereinafter, it is desirable to provide certain other features which are present in the blank 10 of FIG. 1. For example, the cut outs 33-34 on the end flaps 23, 24 as well as the arcuately shaped flaps 29, 30 which include retaining tongues 31, 33.

Referring now to FIG. 2, there is shown a partially erected box or carton 9 which may be formed from the blank 10 of FIG. 1. For purposes of description, the box 9 of FIG. 2 will be referred to as including a front wall 11, a top wall 14, a back wall 22 and a bottom wall 25.

As may be seen in FIG. 2, the box 9 is only partially erected in that the end flaps 20, 27 and 24 have been folded to their closed position. However, in order to appreciate one aspect of my invention, it is constructive to consider the positioning of the end flaps 30 and 12 as shown in FIG. 2, particularly with regard to the resulting configuration of the exposed flexible sheet 35. Thus, it will be seen that when the end flaps 30 and 12 are folded at a right angle with respect to their associated panels, the flexible sheet of material 35 wraps around the corners of the end flap 12, as shown at 50, 51. In this manner, gussets are formed in the flexible sheet material located at the corners of the end flap 13 and, as will be apparent from considering FIG. 2, the gussets will be maintained in face abutting relation when the end flaps 20 and 27 are folded at a right angle to their respective panels. Similarly, upon the folding of the end flaps 20, 27, gussets will be formed in the sheet material located in the rear corners of the box and these gussets will be closed when the end flap 24 is folded at a right angle to the panel 22 so as to seal the end of the box.

Of course, it will be appreciated that the end panels are glued in a conventional manner so as to form an end closure means.

Thus, it will be seen that by providing a five panel paperboard blank having a flexible sheet of material overlying the interior side thereof as hereinbefore described, a box may thereafter be formed from such a blank and the resulting box will include sealed corners wherein such corner sealing is automatically provided by the gussets formed in the flexible sheet of material when the end flaps are sequentially closed. In this manner, a box is provided which will substantially prevent the infiltration of dust and other foreign material.

Referring to FIG. 3, there is shown a cross-sectional view of the box 9 of FIG. 2. As seen in FIG. 3, the box includes a front wall 8 which is comprised of the front panel 11 and the fold-out panel 28. When examining FIG. 3, a number of construction features are significant. For example, it should be noted that the terminal or exposed edge 28a of the fold-out panel 28 is disposed adjacent the transverse tear strip 15. While the

precise location of the terminal edge 28a is somewhat a matter of choice, the edge 28a should not be located above the tear line 16. Another significant factor with respect to the construction shown in FIG. 3 is the fact that the front panel 11 is shown as being divided into an upper portion 41 and a lower portion 40 by the tear strip 15. In this connection, it may be noted that the front panel 11 is adhesively secured to the fold-out panel 28 only in the region of the lower portion 40 as shown at 43. Finally, as clearly shown in FIG. 3, the sheet of flexible material 35 extends peripherally around the interior of the box 9 from the inner surface of the fold-out panel 28 to the inner surface of the front panel 11. More particularly, it may be noted that in accordance with the preferred embodiment of my invention, the portion of the flexible material 35 which is disposed between the front panel 11 and the fold-out panel 28 extends or hangs downwardly from the glued area 60 to the lower tear line 17. Hereinafter, the benefits associated with these construction features will become apparent.

Referring to FIG. 4, there is shown a fully erected box 8a which is in the configuration which such a box would assume when ultimately used by the final consumer. To obtain the box configuration shown in 8a, the following steps would be involved. First, the end of the tear strip 15 would be grasped through the cut out 34 and the tear strip would then be removed from the box. As will be evident from a brief reconsideration of FIG. 3, when the tear strip 15 is removed, the upper portion of the fold-out panel 28 will be exposed and, particularly, the cut out portion 28b will be clearly accessible. Thus, the user would insert a finger through the transverse aperture resulting from the removal of the tear strip and would grasp the fold-out panel using the cut out 28b. Thereupon, the fold-out panel would be pulled outwardly so as to hinge about the bottom front edge of the box. At this point, it will be appreciated that the lower portion 40 of the front panel 11 is still adhesively secured to the fold-out panel 28. However, as outward pressure is applied to the fold-out panel 28, the sides of the lower portion 40 will fail along the vertical extending score lines 52 and 53 and, thus, the lower portion 40 will separate from its associated end flaps. In this manner, the fold-out panel 28 along with the lower portion 40 may be folded outward to provide a dispensing opening. The fold-out panel 28 maybe rotated outwardly until the tongues 31, 32 engage the interior side of the upper portion 41 of the front panel 11. Thus, the box configuration of FIG. 4 is obtained.

Considering the box configuration of FIG. 4 together with the sectional view shown in FIG. 3, another attribute of my inventive construction will be apparent. Thus, referring to FIG. 3, it will be seen that initially a portion of the flexible material 35 is disposed between the tear strip 15 and the fold-out panel 28. Additionally, a close inspection of FIG. 3 will also reveal that the portion of the flexible material 35 which is interposed between the front panel 11 and the fold-out panel 28 is in the nature of a flap hanging downwardly from the point of adhesive securement 60. Thus, as the fold-out panel 28 is initially rotated outwardly, the downwardly depending portion of the flexible material 35 will also move outwardly. However, upon further outward movement of the fold-out panel 28, the downwardly depending portion of the flexible material 35 will fall

back so as to provide a dust flap which covers the aperture resulting from the removal of the tear strip 15.

Thus, referring to FIG. 4, it will be seen that there is provided a unique dispensing carton which includes a fold-out or dispensing panel that is not visible or exposed until the tear strip 15 is removed. In this manner, the dispensing panel or fold-out panel 28 may be maintained in a clean and sanitary condition until the box is to be used. Additionally, when it is desired to withdraw articles from the box, the dispensing or fold-out panel may easily be moved into position while nevertheless maintaining a flap or dust cover over the opening through which a web would be dispensed. Additionally, as previously described, the corners of the box shown in FIG. 4 include dust sealing gussets formed from the flexible sheet of material.

Although a preferred embodiment of my invention has hereinbefore been described, it will be appreciated that other embodiments or variations thereon will be perceived by those skilled in the art without departing from the scope of my invention. For example, referring to FIG. 5, there is shown a box 8b which generally corresponds in construction and function to the box 8a of FIG. 4. However, as distinguished from the construction of FIG. 4, the box 8b of FIG. 5 does not employ a tear strip. Rather, the front panel 11 is provided with a single tear line 16a which divides the front panel 11 into an upper portion 81 and a lower portion 82. Additionally, the height of the fold-out panel 28 is adjusted such that the terminal edge thereof is substantially aligned with the tear line 16a. Thus, to open the box 8a, the lower portion 82 is depressed inwardly in the region of the cut out 28b so as to cause a failure at the tear line 16a. Thereupon, the user would insert a finger behind the fold-out panel 28 in the region 28b and would pull outwardly so as to propagate a failure along the tear line 16a and ultimately along the vertical tear lines corresponding to the vertical tear lines 52, 53 shown in the construction of FIG. 2. Thus, it will be seen that a configuration as shown in FIG. 5 is obtained which is substantially similar to the configuration or construction of FIG. 4 although the initial box and blank construction possess some differences.

With respect to the embodiments of my invention hereinbefore described, it is to be understood that certain descriptive phrases have been used to facilitate an understanding of my invention and such phrases are not to be construed as limiting the scope of my invention. For example, although the embodiments of my invention hereinbefore described have been referred to as having front, bottom, back and top walls, it will be appreciated that such words are used only in a relative sense. Thus, the front wall hereinbefore described which includes the front panel and the fold-out panel could, instead, be so disposed as to be viewed as a back wall or a top wall or a bottom wall.

Similarly, although the utility of my invention has hereinbefore been described with reference to a roll of sheet material, it will be understood that other and different products could advantageously be packaged within a box or carton which embodied my invention.

As a result of the various embodiments which can be resorted to without departing from the scope of my invention, it will be understood that the embodiments of my invention hereinbefore recited are by way of example while the scope of my invention is to be determined by the claims appended hereto.

I claim:

1. In combination with a box having a bottom wall, a back wall, a top wall, a front wall and an end closure means, the improvement which comprises:

- a. a front panel foldably connected to said top wall, said front panel including,
 - i. at least one transverse tear line extending across said front panel, said at least one tear line dividing said front panel into an upper portion and a lower portion, and
 - ii. a pair of spaced apart tear lines extending downwardly from said transverse tear line to the edge of the lower portion of said front panel;
- b. a fold-out panel foldably connected to said bottom panel and disposed behind said front panel the terminal edge of said fold-out panel disposed adjacent to said transverse tear line;
- c. means for adhesively securing at least a part of the lower portion of said front panel to said fold-out panel;
- d. a sheet of flexible material extending peripherally around the interior of said box from the inner surface of said fold-out panel to the inner surface of said front panel;
- e. means for securing said sheet to said fold-out panel; and
- f. means for securing said sheet to said front panel only at a location between said transverse tear line and the fold line which connects said front panel to the adjacent panel, the terminal portion of said sheet which extends beyond said location of securement being disposed between said front panel and said fold-out panel whereby said terminal portion of said sheet provides a dust cover when said box is opened.

2. In combination with a box having a bottom wall, a back wall, a top wall, a front wall and an end closure means, the improvement which comprises:

- a. a front panel foldably connected to said top wall, said front panel including,
 - i. at least one transverse tear strip extending across said front panel, said tear strip dividing said front panel into an upper portion and a lower portion,

and

- ii. a pair of spaced apart tear lines extending downwardly from said transverse tear strip to the edge of the lower portion of said front panel;
 - b. a fold-out panel foldably connected to said bottom panel and disposed behind said front panel the terminal edge of said fold-out panel being disposed adjacent to said transverse tear strip;
 - c. means for adhesively securing at least a part of the lower portion of said front panel to said fold-out panel;
 - d. a sheet of flexible material extending peripherally around the interior of said box from the inner surface of said fold-out panel to the inner surface of said front panel;
 - e. means for securing said sheet to said fold-out panel; and
 - f. means for securing said sheet to said front panel only at a location between said transverse tear strip and the fold line which connects said front panel to the adjacent panel, the terminal portion of said sheet which extends beyond said location of securement being disposed between said front panel and said fold-out panel whereby said terminal portion of said sheet provides a dust cover when said box is opened.
3. The box of claim 2 wherein said fold-out panel further includes end flaps foldably connected to the sides of said fold-out panel and disposed within said box, each of said end flaps including a retaining tongue.
4. The box of claim 3 wherein said sheet of flexible material is transparent and one of said walls other than said front wall is provided with an aperture.
5. The box of claim 3 wherein said sheet material extends transversely along the interior of said box beyond the vertical edges of the walls of said box whereby an overlapping web of said sheet material is formed in the corners of said box.
6. The box of claim 3 wherein said sheet of flexible material extends along the inner surface of said front panel beyond said upper portion of said front panel.

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