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[50] Field of Search..... 221/63,
44-63; 229/51; 206/45.16, 45.31, 57

[56] **References Cited**
UNITED STATES PATENTS
3,116,154 12/1963 Rumsey, Jr. 99/175
3,007,605 11/1961 Donovan 221/47

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[54] **DISPENSING CARTON**
1 Claim, 3 Drawing Figs.

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229/51, 206/57
[51] Int. Cl..... B65h 1/00

ABSTRACT: A tubular carton having a reinforced dispensing opening in one panel thereof. The dispensing opening is defined by straight lines and has rounded edges formed by folding under portions of the opening and adhering the same to the underside of the panel in which the opening is formed.

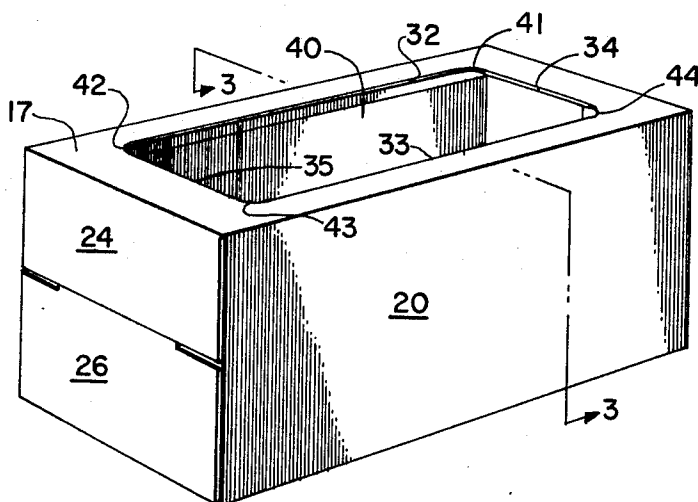


Fig. 1

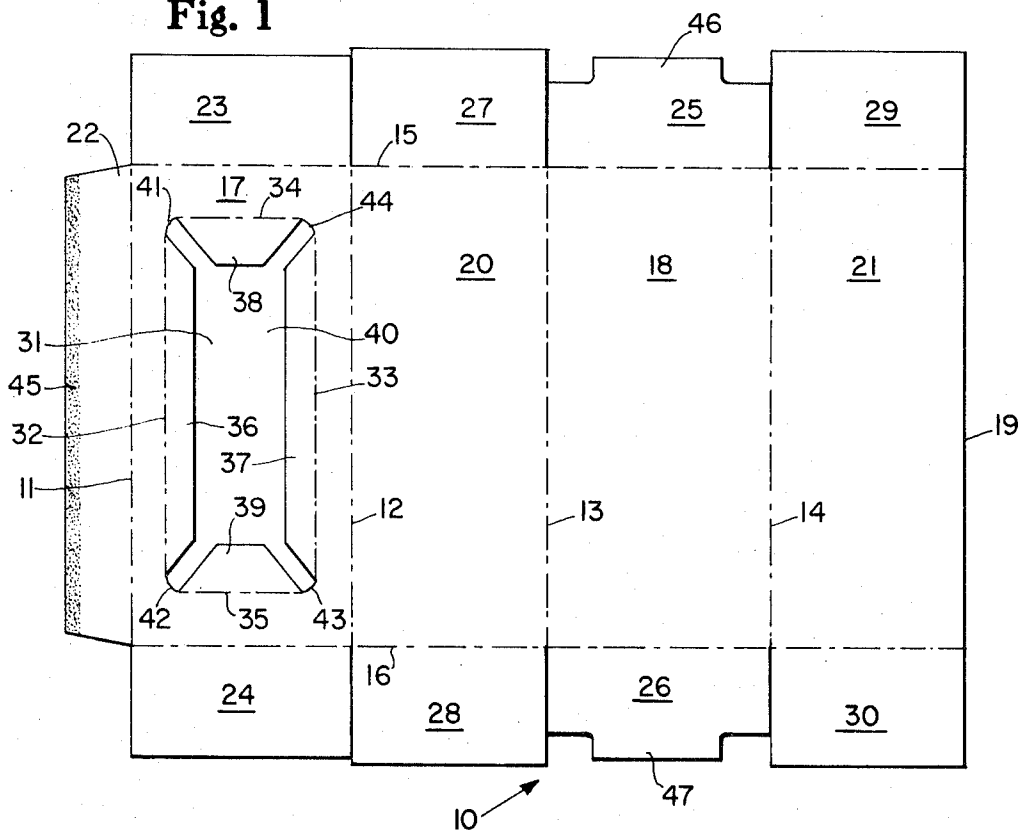


Fig. 3

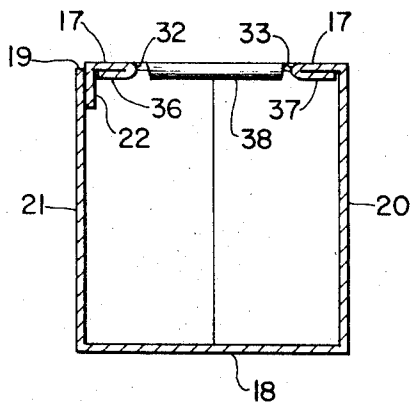
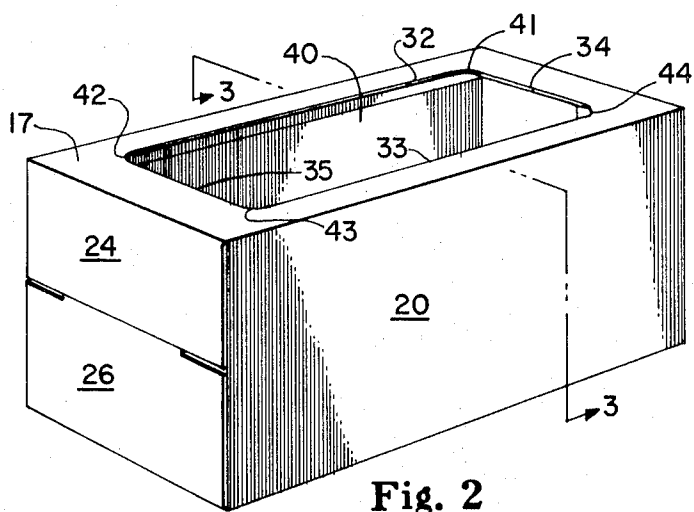


Fig. 2



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DISPENSING CARTON

BACKGROUND OF THE INVENTION

This invention relates to tubular cartons and, more particularly, to tubular cartons which have a dispensing opening formed in one of the panels to permit manual withdrawal of the product therein packaged.

Dispensing openings in tubular cartons are normally defined by a series of perforations impressed in a panel to form a severance line whereby a portion of a panel of the carton can be removed to provide access to the contents. An example of such a dispensing opening formed in a tubular carton intended for the packaging of facial tissues is shown in U.S. Pat. No. 3,266,665, issued Aug. 16, 1966, to S. J. Eakens. As therein shown, the dispensing opening is of a generally rectangular form and comprises a series of spaced cuts to define a line of perforations which when ruptured permits the removal of that portion of the panel, thereby exposing the tissues and permitting ready withdrawal thereof.

However, when openings of the type disclosed in the Eakens patent are formed, a number of problems result. First of all, the edges of the dispensing opening are sharp because of the cuts which pass completely through the board. Because of the fact that between those cuts are portions of the board which have been torn, the frictional drag upon withdrawal of the tissues from the package is large by reason of the sharp edges and the protrusions where the board has been torn, and depending upon the sharpness of the edge and the number of intermediate uncut areas, it is possible to snag portions of the tissues as they are being withdrawn. In addition, the appearance of such a dispensing opening is undesirable in that it is not a uniform opening since it is defined by clean, spaced cuts with ragged, torn portions therebetween, but it also is of a color which may often be very different from the color of the top panel in which the opening is formed. This results from the fact that the board usually used for making cartons of this type is either white throughout, or is gray, and since the top panel in which the opening is formed is usually of a different color, the appearance of the gray or white opening detracts from the overall pleasing appearance of the carton. Additionally, when a large dispensing opening is formed with resulting long, narrow edges, the edges of the opening bow upward because of the natural tendency of the board adjacent a score line to return to its flat state. Increasing the board thickness only increases the tendency of the board to bow upward and also results in higher carton costs.

It is an object of the present invention to obviate the above-described difficulties.

SUMMARY OF THE INVENTION

Briefly stated, in accordance with one aspect of the present invention, a tubular carton is provided with a dispensing opening in its top wall, the dispensing opening defined substantially completely by straight lines formed by rounded edges. The rounded edges are provided by folding under portions of the top wall which extend into the dispensing opening. The folded-under edges are adhesively secured to the inner surface of the top wall and provide a two-layer supporting structure along the periphery of the dispensing opening to increase the stiffness thereof and prevent upward bowing of the edges of the top panel which surround the dispensing opening.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of a carton blank suitably cut and scored and from which a carton can be formed according to the present invention.

FIG. 2 is a perspective view of a carton formed from the blank of FIG. 1.

FIG. 3 is a cross-sectional view of a carton embodying the present invention, taken along the line 3-3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, and particularly to FIG. 1, there is shown a flat carton blank 10 from which a tubular carton embodying the present invention can be formed. Carton blank 10 comprises parallel longitudinal score lines 11, 12, 13, and 14, and parallel transverse score lines 15 and 16. Score lines 11, 12, 15, and 16 define top panel 17 of the carton formed from blank 10, while score lines 13, 14, 15, and 16 define bottom panel 18 of the carton. Similarly, score lines 12, 13, 15, and 16 define side panel 20 while score lines 14, 15, 16 and marginal edge 19, define side panel 21 of carton. An additional, narrower panel 22 is hingedly connected along score line 11 to top panel 17 and serves as a glue lap panel to form a manufacturer's joint. The outer surface of panel 22 is glued to the inner surface of side panel 21 adjacent marginal edge 19 when the carton blank 10 is formed into a tubular carton (see FIG. 3). As will be apparent to those skilled in the art, side panels 20 and 21 and top and bottom panels 17 and 18, respectively, can readily be interchanged without altering the basic structure or utility of carton blank 10 or the carton formed therefrom.

Carton blank 10 includes end closure means which can take the form of flaps adapted to be interfolded and sealed with adhesive to permit closure of both ends of the carton when the same is in erected condition and the product has been placed therewithin. End flaps 23 and 24 are hingedly attached to top panel 17 by means of score lines 15 and 16, respectively, while end flaps 25 and 26 are hingedly attached to bottom panel 18 by means of score lines 15 and 16, respectively. Similarly, side flaps 27 and 28 and side flaps 29 and 30 are hingedly attached to side panels 20 and 21, respectively, by means of score lines 15 and 16. Although shown and described in terms of flaps which are adhesively sealed to each other, other closure means such as tuck tabs and the like, which are well known to those skilled in the art, can also be employed.

Dispensing opening 31 is formed in top panel 17 of carton blank 10 and is defined by longitudinal score lines 32 and 33, and transverse score lines 34 and 35, from which flaps 36, 37, 38, and 39, respectively, extend. The center portion 40 of the top panel is removed in the course of die cutting the blank 10. As shown, dispensing opening 31 is of generally rectangular configuration, and has rounded corners designated 41, 42, 43, and 44, respectively. However, it is not necessary that this particular configuration be employed and dispensing opening 31 can be formed from a rectangular opening having square corners (not shown), if desired. The configuration of dispensing opening 31 must be such that it is formed substantially entirely of straight lines defined by scores impressed in top panel 17, from each of which scores a flap extends.

The board from which carton blank 10 can be formed can be any of a number of types of cartonboard, such as, for example, solid bleached sulfate, while patent coated cylinder board, and the like, all of which are well known to those skilled in the art. Although the particular board material used is not critical, the solid bleached sulfate board is preferred for use with facial tissues since it presents a hard, smooth surface preferred for printing and is uniformly white throughout its thickness. Similarly, the thickness of the board is not critical and it is also well within the skill of those versed in the art to select a board of suitable thickness, although when a solid bleached sulfate board is utilized to package a stack of facial tissues a board having a thickness of about 20 mils is preferred.

Dispensing opening 31 is formed by infolding flaps 36, 37, 38, and 39 about score lines 32, 33, 34, and 35, respectively, until the inner surfaces of the flaps meet the inner surface of top panel 17. This relationship is shown most clearly in the cross-sectional view of FIG. 3 wherein longer flaps 36 and 37 are folded about score lines 32 and 33, respectively, and lie adjacent the inner surface of top panel 17. The dispensing opening flaps are adhesively secured in this position so that they do not spring back when the folding pressure is removed.

Dispensing opening 31 thus formed includes a smooth, rounded, finished edge along each marginal portion thereof, which reduces the effort to withdraw tissues packaged therewithin since the sharp edges with the uncut sections which normally impede and snag the tissues are no longer present. Additionally, by infolding and gluing these flaps to the top panel, the stiffness of the top panel around the dispensing opening is increased so that the edges of the dispensing opening lie flat and do not tend to bow upward because of the natural tendency of folded board to spring back to its original, flat condition, as would be the case if the dispensing opening were not formed as described herein. A further advantage which accrues when the dispensing opening is formed as hereinabove described is that the appearance of the dispensing opening is improved in that the edges of the opening are the same color as the top panel. As shown on the drawing, with rounded corners 41, 42, 43, and 44, dispensing opening 31 is of a rounded, generally rectangular configuration and along its longer and shorter straight-sided edges it is of the same color as the top panel of the board except for the corners 41, 42, 43, and 44, which are the color of the interior of the board. As hereinabove described, dispensing opening 31 can be made completely rectangular with right-angled corners (not shown), if desired, to eliminate the white spots which appear in the opening shown and described. However, the rounded corners can be made with a small radius of curvature so as not to present an objectionable appearance.

After formation of the dispensing opening 31, carton blank 10 of FIG. 1 can be erected to provide a tubular carton of the type shown in FIG. 2 by successively folding the carton along longitudinal score lines 11, 12, 13, and 14, so that each of panels 17, 18, 20, 21, and 22 is perpendicular to each of its adjoining panels. When in this form the outer surface of the panel 22 is contiguous with the inner surface of side panel 21 near its marginal edge 19 as is most clearly shown in FIG. 3. These two panels are secured as by means of a suitable adhesive applied to the area 45.

The tissues or other material can then be inserted into the carton through the open ends. The ends are closed by infolding side flaps 27 and 29 and side flaps 28 and 30 until they are coplanar, and then folding end flap 25 over infolded side flaps 27 and 29, and end flap 26 over infolded side flaps 28 and 30. Thereafter end flap 23 is infolded in overlying relationship to side flaps 27 and 29 and the marginal edge area 46 of end flap 25. Similarly, end flap 24 is folded in overlying relationship to side flaps 28 and 30, and in overlying relationship to marginal edge area 47 of end flap 26. The end and side flaps can be secured to each other by means of adhesive applied to the outer surfaces of side flaps 27, 28, 29, and 30, and the marginal edge areas 46 and 47 of end flaps 25 and 26, respectively-

ly.

When generally rectangular dispensing openings such as illustrated in FIGS. 1 and 2 wherein each edge of the dispensing opening is substantially parallel to one pair of opposed edges of top wall 17 are desired and those openings comprise about 45 percent or more of the area of top panel 17, the ratio of the length of each of the longer edges of dispensing opening 31 to the width of the board between that edge and the closest parallel marginal edge of the carton can be about 8 or more. When the length to width ratio is 8 or more, the adhesively secured folded-under edge of the present invention provides a stiffening effect to that portion of the dispensing opening and thereby prevents the upward bowing of the board which would occur if no folded-under edge were present. However, if the area of the dispensing opening is less than about 45 percent of the area of top panel 17, the remaining portions of top panel 17 should be sufficiently self-supporting and not require reinforcement to prevent bowing. Preferably, the width of each of the folded underflaps is no greater than the minimum distance from the associated edge of the dispensing opening to the closest marginal edge of the top wall.

While particular embodiments of the invention have been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention, and it is intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

I claim:

1. In a tubular carton containing soft compressible tissues, said carton having opposed top and bottom panels and opposed side panels and including end closure means, said top and bottom panels connected alternately with said side panels, the improvement comprising: a dispensing opening equal in area to at least about 45 percent of that of said top panel being formed in said top panel, said dispensing opening being defined substantially completely by a rectangularly arranged series of straight score lines each of which integrally connects said top panel with a flap extending inwardly into said dispensing opening in the carton blank forming said carton, each said flap having a width no greater than the minimum distance from the edge of said dispensing opening to the closest marginal edge of said top panel, said flaps being folded under and adhesively secured to the inner surface of adjacent portions of said top panel to form a two layer supporting structure along the periphery of the dispensing opening and to provide smooth, rounded and finished edges around said dispensing opening whereby to minimize resistance to withdrawal of said tissues.

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