June 28, 1966 L. D. SMITH 3,258,156

CARTON

Filed March 7, 1960

FIG. 1

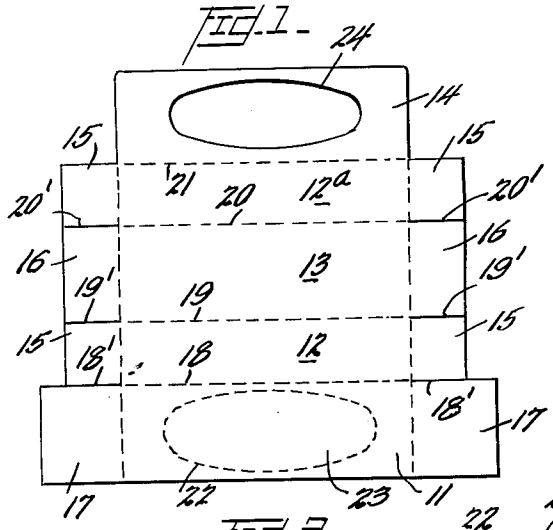


FIG. 4

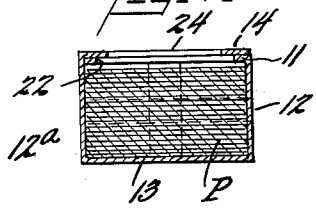


FIG. 2

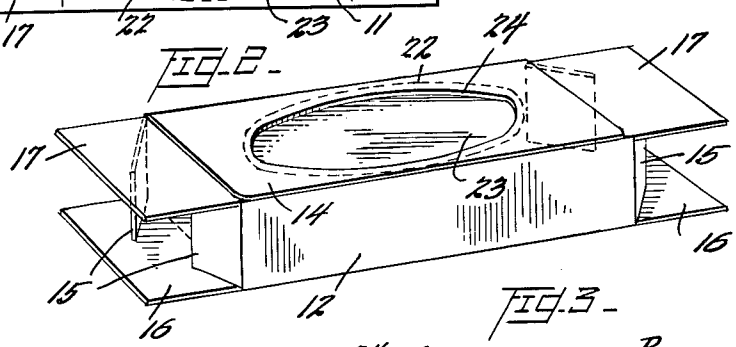


FIG. 3

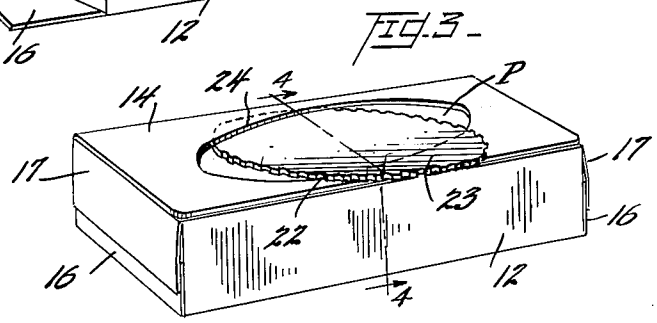
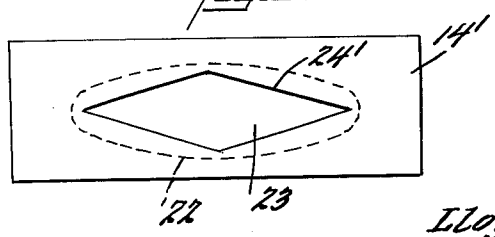


FIG. 5



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CARTON

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2 Claims. (Cl. 221—63)

This invention relates to cartons and more particularly to cartons adapted to serve as dispensers for products such as facial tissues and the like.

Some of the cartons presently being used in packaging facial tissues, paper napkins, etc., utilize easily removable panels or flaps defined by lines of weakening which penetrate an exposed surface, or a surface which is exposed, at least during the dispensing operation. Another form of carton which has been used is that in which a hinged flap is utilized to cover a removable or cut-out panel section.

Both of the above-mentioned types of cartons have shortcomings. If the former type is used, rough edges caused by tearing along the lines of weakening are exposed during the dispensing of the product. Such rough edges are unsightly and (depending upon its locations) frequently make it difficult to remove the product without tearing, especially if the product must be slid across the rough edge in the dispensing operation. If the latter type of carton is used, it is generally more difficult to remove the products because the hinged flap is in the way. If such was not the case, i.e., if the flap were to remain in an upstanding position after being folded back with the first use, this would make the package unwieldly to store as well as unattractive. Furthermore, this latter type of carton can be conveniently used from one side only. Another objection pertaining to both types of carton is that each is weakened considerably by the cut-outs.

Another drawback which present manufacturing practice has not been able to eliminate mechanically is the tendency of parts of the surface layer of the board immediately surrounding a removable panel to separate from lower layers and tear loose with the panel upon removal thereof. In addition, there is a tendency for the board to continue tearing in the direction of its grain upon commencement of tearing along the line of weakening. Both of these tendencies frequently result in a very unattractive dispensing opening.

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

Another object of the present invention is to provide a sealed carton which has means therein for producing an exposed dispensing opening defined by die-cut edges and which is constructed so as to reinforce the face having the dispensing opening located therein while permitting convenient access to said opening.

Briefly stated, in accordance with one aspect of this invention, there is provided a dispensing carton comprising a rectangular seal end carton with marginally interconnected top, bottom, front and back panels and with a glue flap of substantially the same dimension as the top panel. The top panel has a removable section which is outlined by a continuous line of weakening and shaped so as to have a greater dimension along one axis than along the other. The glue flap has an opening or cut-out of substantially the same shape but of smaller dimension than the removable section of the top panel, and is adhesively attached to the top panel at points lying outside of the confines of the

continuous line of weakening, the cut-out being substantially centrally registered within such confines. Upon detachment of the removable section, the rough edge along the line of weakening on the remaining portion of the top panel is hidden from external view by the overlapping cut edge of the glue flap and is located so that the projections on the rough edge do not become hooked into a tissue and cause tearing when the same is withdrawn from the carton.

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as the present invention, it is believed that the invention will be better understood from the following description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a plan view of a blank of a carton of this invention;

FIGURE 2 is a perspective view showing the carton of FIGURE 1 in the process of being formed;

FIGURE 3 is a perspective view illustrating the way in which the removable section of the top panel of the packed and sealed carton of FIGURE 1 may be withdrawn;

FIGURE 4 is a section taken along the line 4—4 of FIGURE 3 following withdrawal of the removable section; and

FIGURE 5 is a plan view of modified form of this invention.

Referring to FIG. 1, there is shown a cut and scored blank for a rectangular seal end carton. The carton comprises top panel **11**, front panel **12**, bottom panel **13**, back panel **12***a*, glue flap **14**, side flaps **15**, inner end flaps **16**, and outer end flaps **17**. Parallel transverse score lines **18**, **19**, **20** and **21** separate the various panels and glue flap. Cuts **18'**, **19'** and **20'** are made along paths aligned with the correspondingly numbered scores, and are coextensive with and serve to disengage the edges of adjoining side and end flaps.

Substantially centrally located within top panel **11** is a continuous line of perforations **22** defining a removable section **23**. The line of perforations **22** is shown to be generally ellipitical in shape, although this shape may be varied somewhat. Glue flap **14** has a substantially centrally located opening or cut-out defined by die-cut edge **24**. The cut-out is slightly smaller than removable section **23**, but preferably has the same shape as that section and is designed to overlap the perforations **22** in panel **11**.

Upon the completion of the printing and cutting of the carton blank shown in FIG. 1, the blank is glued in the form of a flat sleeve. To accomplish this object, panel **11** and the attached outer end flaps **17** are folded inwardly 180° along score line **18**. An adhesive is then applied either to the parts of the outer surface of panel **11** which lie without the continuous line of weakening **22** defining removable section **23** or to corresponding parts of the inner surface of flap **14**. Next, glue flap **14**, panel **12***a* and the side flaps **15** attached thereto are folded inwardly 180° along score line **20**. Since panels **11** and **13** are substantially the same width and since panels **12** and **12***a* are substantially the same width, this last step places the inner surface of the glue flap **14** directly over the outer surface of panel **11**, with the die-cut edge **24** registered within the confines of line of weakening **22**. Upon pressing glue flap **14** against the panel **11** the two become adhesively united. This folding and gluing operation may, of course, be performed by devices which are well known

in the art and which form no part of this invention. Further, the specific means of attachment, whether it be glue, staples, stitching or the like is not of great importance so long as the panel and flap are united in some manner. Preferably, however, the uniting agent is an adhesive such as glue.

The carton may be formed from the glued sleeve in the same manner as commonly done in connection with other seal end cartons: the sleeve is erected or "squared," the product is inserted, the side flaps **15** are folded inwardly, inner end flaps **16** are folded inwardly over the side flaps **15**, an adhesive is applied to the outer side of inner end flaps **16** (or to the inner side of outer end flaps **17**), and outer end flaps **17** are folded inwardly and become adhesively attached to inner end flaps **16**. FIGURE 2 shows a partially formed carton; however, the product was omitted from the figure in the interest of clarity. Automatic packaging equipment suitable for performing the carton erection, filling, and sealing steps outlined above is commercially available and also forms no part of this invention.

It will be seen that the finished package is completely enclosed, with no lines of weakening exposed to view (line **22** underlies glue flap **14**) thereby providing a hidden opening device. To open the carton, pressure is applied downwardly on section **23** at various points near die-cut edge **24**. This pressure upon section **23** may cause a partial compression of the product P within the carton in order to move sufficiently to break the removable section **23** loose along line of weakening **22**. Upon complete separation of the section **23** from the balance of underlying panel **11** the top surface of the section **23** is brought to a level below the lower surface of panel **11**, at which point the section is slid under the panel toward one of the corners of the carton. In addition to the sliding movement, the section **23** is also rotated slightly on a vertical axis so as to place the free end of the section (that which is opposite the end previously placed near the corner) in a position where it may be grasped and used to remove the section from the carton. The removal is accomplished by bending the section slightly to enable the free end to clear edge **24** and then sliding the section out of the carton in a direction which is angularly disposed to the lengthwise axis of the cut-out, as illustrated in FIG. 3.

The opened carton of FIG. 4 exposes the product P, which is shown to be facial tissues in this example, without any unsightly ragged edges to detract from its appearance. It will be noted that the carton may be used conveniently from any side and can be neatly stored in a minimum of space. The double thickness of adhesively secured cardboard which surrounds the dispensing opening resulting from the removal of section **23** strengthens the top surface of the carton to compensate, in part, at least, for the removal of the central portion thereof.

The shape of the cut-out and of the removable section **23** is not necessarily elliptical; however, it must be such that the section can be manipulated for easy withdrawal from the carton. In this connection it has been found suitable to use other configurations such as rectangular, diamond, crescent, semi-circular and the like, the only apparent restriction with cartons fabricated from board commonly used in packaging consumer goods, i.e., board having a thickness greater than about 0.014", is that the section **23** and the cut-out must each be longer along one axis than it is along the other. Other parameters which must be taken into account in designing the opening device are the disparity between the dimensions of the section **23** and the cut-out in the glue flap, and the amount of horizontal cross-sectional area of the carton available for manipulation of the section. The many variations and combinations of shapes and sizes that are feasible in practicing the invention will be apparent to those versed in the art in the light of the detailed description.

In the particular embodiment shown, it has been determined that for a carton having a top panel **11** measuring $9\frac{13}{16}$" long and $4\frac{13}{16}$" wide, a very satisfactory dispensing opening may be formed with an elliptical removable section **23** measuring $7\frac{3}{8}$" along its major axis and $3\frac{11}{16}$" along the minor axis, and a glue flap with an uncut portion which overlaps the line of weakening **22** by $\frac{1}{8}$" along its entire length.

A modified form of this invention is disclosed in the plan view of FIG. 5. This modification teaches that it is possible to successfully combine a removable section of one profile with a flap opening of another configuration. Once more there is shown an elliptical removable section **23** defined by continuous line of weakening **22**; however, in this case the overlapping flap **14'** has a diamond shaped cut-out centered over the removable section **23**. As in any embodiment of this invention, the die-cut edge **24'** lies completely within the area of the section circumscribed by line of weakening **22**. The foregoing description of the manner of detachment and removal of section **23** of the embodiment of FIGURES 1–4 is equally applicable to that of FIGURE 5.

From the standpoint of design, it is preferable to make the cut-out substantially the same shape as the removable section **23**, and only slightly smaller in size. Such a design permits more flexibility in the selection of the sizes of dispensing openings which are feasible for use with a particular carton, and allows the removable section to be disengaged more easily. Another preferential feature is the use of elliptical or generally oval profiles for both the section and the cut-out, thereby gaining the maximum area of opening with the minimum amount of interference in the removal of the section.

It should be understood that "elliptical," as mentioned herein, is used in the sense that such a term is descriptive of any configuration having a major and a minor axis, rounded corners or ends, and having curvilinear sides bowed outwardly.

Many modifications of the above invention may be used and it is not intended to hereby limit it to the particular embodiments shown or described. The terms used in describing the invention are used in their descriptive sense and not as terms of limitation, it being intended that all equvalence thereof be included within the scope of the appended claims.

What is claimed is:

1. A dispensing carton containing soft compressible tissues, said carton being constructed of carton board and comprising marginally interconnected top, bottom, front, and back panels, said top panel having an entirely severable and wholly removable section integrally formed therein which is completely enclosed by a continuous line of weakening, said line of weakening comprising spaced perforations whereby said removable section is maintained in position prior to the opening of the carton and is adapted to be disengaged easily from said top panel, said removable section being of greater dimension along one axis than along the other to facilitate withdrawal of the disengaged removable section for dispensing purposes, a glue flap connected to the margin of one of said panels of said carton, said glue flap overlying and being of substantially the same dimension as said top panel, said glue flap and said top panel being permanently united by adhesive, but only at points without the confines of the continuous line of weakening, said glue flap thereby retaining said marginally interconnected panels in sleeve conformation, said glue flap having a cut-out therein of similar configuration but of smaller dimension than said removable section of said top panel, said cut-out being centrally registered within the boards of said removable section, whereby after detachment and withdrawal of the removable section the rough edge along the line of weakening on the remaining portion of the top panel is not visible to an observer.

2. A carton according to claim 1, in which the glue flap is integrally connected to said one of said panels and the cut-out in the glue flap and the removable section in the top panel are generally elliptical in shape.

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