Aug. 16, 1966 H. N. NELSON 3,266,666

TISSUE DISPENSING CARTON HAVING A DETACHABLE CONTROL PANEL AS AN INTEGRAL PART OF THE TOP WALL

Filed Jan. 12, 1965 2 Sheets-Sheet 1

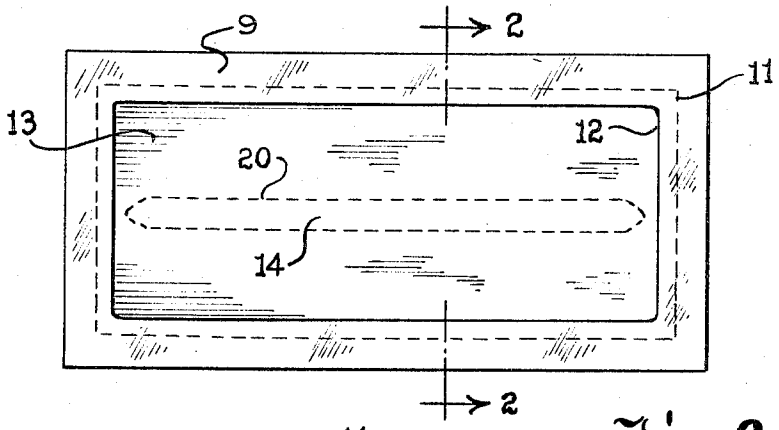


Fig. 1

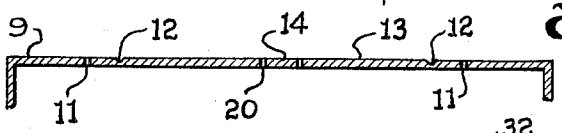


Fig. 2

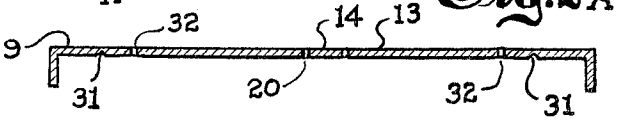
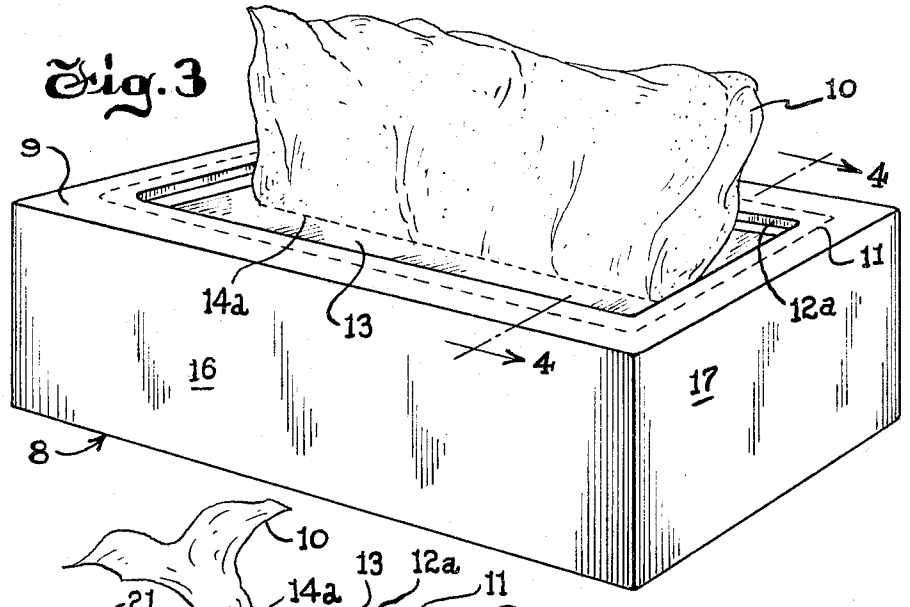


Fig. 2A

Fig. 3



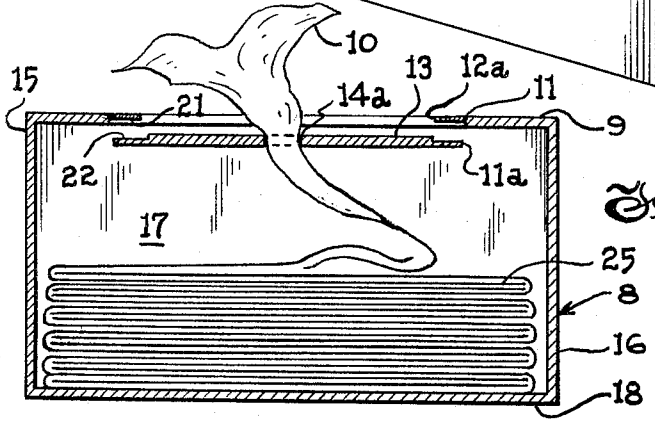


Fig. 4

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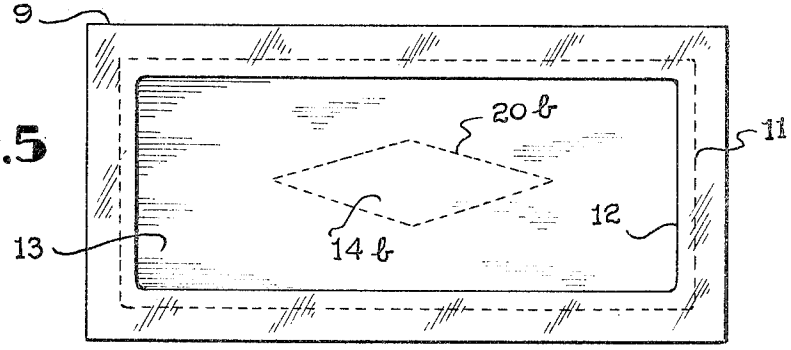
Fig. 5



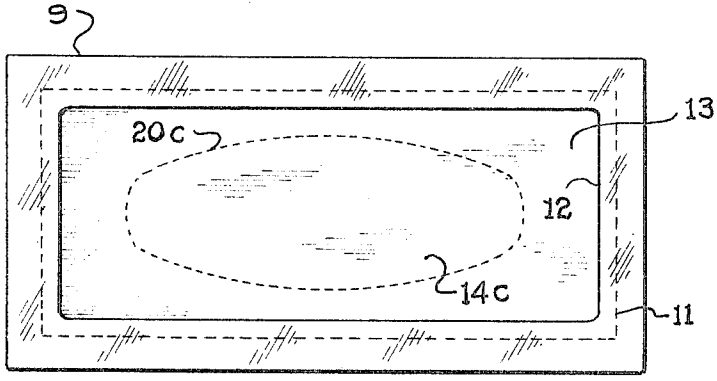
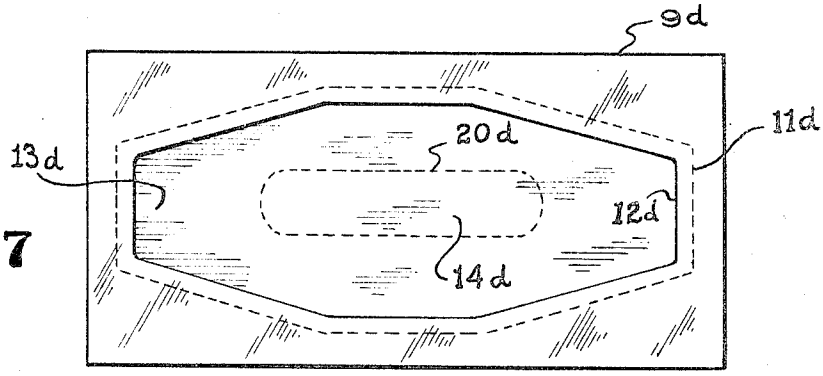


Fig. 6

Fig. 7



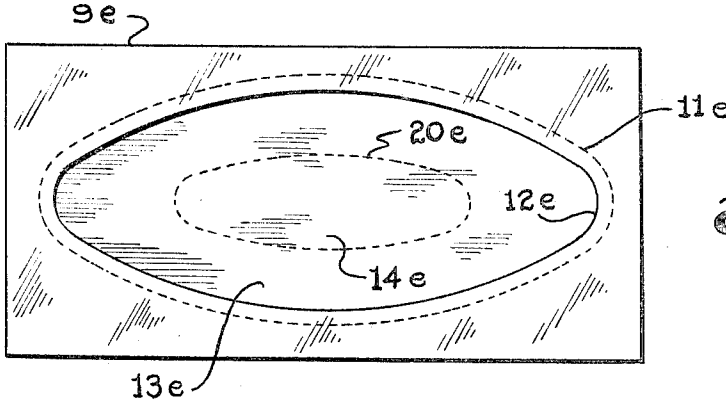


Fig. 8

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TISSUE DISPENSING CARTON HAVING A DETACHABLE CONTROL PANEL AS AN INTEGRAL PART OF THE TOP WALL

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Filed Jan. 12, 1965, Ser. No. 424,918
9 Claims. (Cl. 221—48)

This invention relates to tissue dispensing cartons and more specifically to improvements in the construction of cartons especially adapted for dispensing interleaved tissues.

An important object of the invention is to provide an improved construction for tissue dispensing cartons having as an integral part of its upper wall an easily detachable control panel or element which, when detached, cooperates with the interleaved tissues to provide individual "pop-up" dispensing while insuring against tissue fallback, particularly in relatively deep dispensing cartons.

An equal important object is to provide an improved carton structure in which the means which permits easy detachment of the detachable panel from its integrated association with the upper wall is such that the panel, after detachment, is larger in its planar dimensions than the size of the opening left in the wall of which it once was an integral part.

Other objects and advantages will become apparent to persons skilled in the art upon examination of the drawings and description, as will various modifications of the invention, without departure from the concepts herein taught and defined in the appended claims.

In the drawings, in which like parts are identified by the same reference numeral:

FIG. 1 is a plan view of the top wall of a carton incorporating the invention.

FIG. 2 is a section taken through lines 2—2 of FIG. 1.

FIG. 2*a* is a view similar to FIG. 2 but showing an alternate arrangement.

FIG. 3 is a perspective view of a dispensing carton containing interfolded tissue in which the control element has been detached from the upper wall and a tissue pulled therethrough ready for dispensing.

FIG. 4 is a section taken through line 4—4 of the carton of FIG. 3.

FIGS. 5, 6, 7 and 8 are plan views similar to FIG. 1 showing various other embodiments of the invention.

A major problem inherent to the dispensing of interleaved tissues from deep dispensing cartons occurs when, after more than half of the tissues have been used, the tissue following in sequence the one previously dispensed, falls back through the dispensing slot and is retrieved only with difficulty. One solution to the problem has been to introduce between the top of the interleaved tissue stack and the upper wall of the carton, an element or control panel of paperboard or the like which has an opening in its central portion and is free to move between the tissue stack and the upper panel of the carton as tissues are extracted therethrough. This panel is of a size somewhat smaller than the interior of the carton or receptacle to fit loosely therein, but is of a larger size than the opening in the upper panel of the carton so that it is retained therein during the dispensing operation. While this construction functions satisfactorily, the extra cost of providing each carton with the required separate piece of paperboard or plastic stock is a substantial part of the packaging overhead which it is desirable to eliminate.

One method of eliminating the extra cost entailed by the use of a separate panel has been by the employment of a construction in which the panel is an integral part of the

upper wall of the carton, to be separated or detached therefrom when it is desired to utilize it as a control panel. This basic concept is described in copending application Serial No. 342,500, filed February 4, 1964.

While the construction described in the above-identified patent application works satisfactorily in most cases, it has now been found that the arrangement of the lines of fracture in the upper panel can be so modified that certain disadvantages with respect to panel detachment and the subsequent dispensing operation of the carton could be eliminated. In the previous structure, it was found that the paperboard many times tore along its grain transverse of the opening when detachment of the panel along conventional perforated lines of fracture was attempted. In many cases the panel was torn so badly it was rendered useless. It was also found that, during dispensing, the panel sometimes was pulled through the opening left in the top wall because the detached panel was actually somewhat smaller than the wall opening which was left in the top wall when the panel was detached. The instant application provides an easily detached panel which overcomes these disadvantages. The improved structure provides easy fracture of the top wall to insure against accidental tearing of the upper carton wall when detachment is desired. It also provides a resulting panel which is larger after removal than the opening which is left in the top wall. The larger size of the panel insures against inadvertent withdrawal therethrough during the dispensing operation.

In the drawings, the illustrated embodiment of the invention comprises a box-like receptacle or carton **8** which is formed of side walls **15** and **16**, end wall **17** and an opposed end wall not shown, a bottom wall **18** and a top wall **9**. The carton **8** is preferably made from relatively inexpensive material such as cardboard, laminated sheet stock, or the like, so that it may be easily disposed of when emptied. The carton is of unitary construction with side, top and bottom walls being integral and the end walls formed by conventional overlapping and gluing of end flaps. Top wall **9** is provided with lines of weakness **11**, **12** and **14**, hereinafter defined, which enable portions of the wall to be easily detached in a particular manner to provide a control member or panel **13** having a centrally disposed dispensing opening **14***a*.

As shown in FIGURES 1 and 2, top wall **9** is provided with a first closed line **11** of regularly spaced perforations in a symmetrically oblong configuration. The line shown is substantially parallel to, and spaced inwardly from, the edges of wall **9**. The spaced perforations comprising line **11** extend entirely through the carton in the conventional manner. Spaced inwardly from line **11** and substantially parallel thereto is a second closed line of weakness **12** of the type known as a cut-score; i.e., a continuous cut which extends partially into one surface of the paperboard to completely cut through the surface fibers, and preferably penetrating about halfway through the board. In the embodiment shown in FIGS. 1 and 2, cut-score line **12** extends only part way through wall **9** from the outer surface thereof. In any event, the cut-score line **12** clearly cuts through the outer surface of wall **9**, but leaves unsevered a substantial amount of connecting material along the inner surface of the wall **9**. Since paperboard material is of a generally laminar construction, when panel **13**, defined by lines of weakness **11** and **12**, is pushed inwardly to detach it from wall **9** along its lines of weakness, the panel delaminates easily about halfway through its thickness in the area extending between cut-score line **12** and perforated line **11**, and then tears off completely as the delaminated portion reaches and intercepts perforated line **11**. Thus cut-score line **12** provides a frangible line which resists severance when outward forces are applied, but severs easily in an inward direction when inwardly

directed forces are applied. The thus obtained delamination and detachment results in the formation of an outer lip **21** on wall **9** and an inner lip **22** on detached panel **13**. Thus panel **13** whose outer dimension is defined by edge **11***a*, is substantially larger than the opening in top wall **9** as defined by edge **12***a*. It has been found that lips **21** and **22** function as desired even when they are as small as ⅛" wide. However, it is preferred that they be ¼" or wider.

The top wall **9** is also provided with a third closed line of regularly spaced perforations **20** in the central portion thereof which define a removable strip **14** to form the familiar elongate dispensing slot **14***a* in the center of the wall. The type of perforations and the dispensing slot shown are, of course, old and in themselves are not claimed as novel except in combination with the other structure of the top wall.

When tissues **10** are dispensed from an interleaved stack through opening **14***a*, the panel **13** moves upwardly against wall **9** but is prevented from being drawn through the large opening in wall **9** formed when panel **13** was detached as described above, due to the fact that panel **13** with its lip **22** is larger than the opening **12***a* and its lip **21**.

A similar result to that described above may be obtained by an alternate arrangement in which the cut-score line is located on the interior face of the carton wall as shown in FIG. 2*a*. Top wall **9**, removable strip **14**, and detachable panel **13** remain the same and are identified by like numbers. However, cut-score line **31** in FIG. 2*a* is positioned on the underside of the top wall to define the outer periphery of detachable panel **13** in the same manner as perforated line **11** defines the outer periphery of the panel in FIG. 2; and perforated line **32** in FIG. 2*a* is positioned interiorly of cut-score line **31** to define the interior dimension of the top wall opening when panel **13** is detached, in the same manner as cut-score line on the surface of wall **9** defines the interior dimension of the top wall opening in FIG. 2. It will be noted that the alternate arrangement of the perforations and cut-score lines in FIG. 2*a* also produces the desired results, i.e., a frangible line which resists severance when outward forces are applied, but severs easily when inwardly directed forces are applied, and because of the delamination of the paperboard along its natural laminar lines within the board, provides a panel which is larger in dimension than the opening left in the wall when the panel is detached. While this alternate embodiment also functions in a satisfactory manner, from a production standpoint the arrangement shown in FIG. 2 is much more practical and is therefore preferred.

The invention defined herein has two advantages over prior structures. The combination of cut-score line **12** with perforated line **11** provides easier more positive opening and at the same time provides a pair of co-acting lips **21** and **22** which prevent panel **13** from being inadvertently drawn through opening **12***a* during the dispensing process.

For use in this improved carton, interleaved tissues **25** may be unbonded, i.e., not attached to one another, or they may be attached by small bonds, i.e., small uncut portions between sheets. When bonded tissues are used, it is necessary that the dispensing slot **14***a* be long and narrow as shown in FIGS. 1 to 4, or of some other restrictive dimension to assist in breaking the bonds because of frictional resistance during dispensing, such as opening **14***b* defined by line of weakness **20***b* in FIG. 5.

When unbonded tissues are employed, the dispensing opening may be larger and less restrictive, for example, of an oval configuration such as is commonly employed for non-interleaved tissues. Such an opening is illustrated at **14***c* as outlined by line of weakening **20***c* in FIG. 6. This type of opening also provides the user with the choice of extracting either one tissue or a handful, as desired.

It is understood that the detachable panel may be of other configurations than the rectangular form previously described. Other typical configurations are shown in FIGS. 7 and 8. In FIG. 7, like parts to those shown in FIG. 1 are identified with the suffix *d* and in FIG. 8 with the suffix *e*. An important requirement is that the dimension of the panel running lengthwise of the carton be substantially longer than the width of the carton to prevent its inadvertent planar rotation therein.

As noted in the objects, this invention is especially applicable to relatively deep cartons. Relatively deep cartons include those in which the vertical dimension is more than about two inches.

It will be seen that the described invention provides useful improvements in the art of dispensing cartons for interleaved tissues. Numerous variations within the scope of the appended claims will be apparent to those skilled in the art.

What is claimed is:

1. An improved carton especially adapted for the sequential dispensing of interleaved tissues disposed in stacked relation therein, said carton being of elongated rectangular shape having top, bottom, side and end walls, said top wall having as an integral part of its structure a detachable central panel, said panel being defined by

(a) a first line of weakness in the form of a closed line inwardly spaced from the edges of said top wall to define a detachable panel of symmetrical oblong configuration having substantial width and having a lengthwise dimension substantially longer than the width of said top wall,

(b) a second line of weakness spaced inwardly from, and substantially parallel to, said first line,

(c) one of said lines of weakness comprising a series of spaced perforations extending completely through said top wall,

(d) the other of said lines of weakness comprising a continuous cut-score located on one face of said top wall and extending from said face partially through said wall, and

(e) a manually removable portion centrally disposed within said central panel area, said portion being defined by a closed line of weakening wholly within said central panel.

2. An improved carton especially adapted for the sequential dispensing of interleaved tissues disposed in stacked relation therein, said carton being of elongated rectangular shape having top, bottom, side and end walls, said top wall having as an integral part of its structure a detachable central panel, said panel being defined by

(a) a first line of weakness in said wall comprising a series of spaced perforations extending completely through said wall and forming a closed line inwardly spaced from the edges of said wall to define a detachable panel of symmetrical oblong configuration whose lengthwise dimension is substantially longer than the width of said top wall,

(b) a second line of weakness spaced inwardly from and substantially parallel to said first line and comprising a cut-score having a continuous cut extending from the top surface of said wall partially therethrough, and

(c) a manually removable portion centrally disposed within the panel area defined by said lines of weakness, said portion also being defined by a closed line of discontinuous perforations.

3. An improved carton especially adapted for the sequential dispensing of interleaved tissues disposed in stacked relation therein, said carton being of elongated rectangular shape having top, bottom, side and end walls, and said top wall having as an integral part of its structure a detachable central panel, said panel being defined by

(a) a first line of weakness in said wall comprising a cut-score on the inner face of said wall in the form of a closed line inwardly spaced from the edges of said wall to define a detachable panel of symmetrical oblong configuration whose lengthwise dimension is

substantially longer than the width of said top wall,

(b) a second line of weakness spaced inwardly from and substantially parallel to said first line and comprising a series of spaced perforations extending completely through said wall, and

(c) a manually removable portion centrally disposed within said lines of weakness defined by a closed line of discontinuous perforations.

4. An improved carton especially adapted for the sequential dispensing of interleaved tissues disposed in stacked relation therein, said carton being of elongate rectangular shape and having a top wall with a detachable central panel forming an integral part of the structure thereof, said panel being defined by

(a) a first line of weakness spaced inwardly from and parallel to the marginal edges of said wall and comprising a discontinuous series of perforations extending completely through said walls,

(b) a second line of weakness spaced inwardly from and parallel to said first line and comprising a cut-score having a cut extending from the top surface of said wall partially through but not penetrating said wall, and

(c) a manually removable section centrally disposed within the outline of said panel and defined by a closed line of discontinuous perforations.

5. In combination, an elongate rectangular tissue dispensing carton having substantial depth and including top, bottom and side walls, a stack of interleaved tissues disposed within said carton, and a detachable tissue dispensing control element forming an integral part of the structure of said top wall, said element before detachment being defined by:

(a) a first closed line of weakness comprising a series of spaced perforations in symmetrical configuration, said line being spaced from the outer edges of said wall to define a panel of oblong dimension in which the lengthwise dimension is substantially longer than the width of said top wall,

(b) a second line of weakness spaced inwardly from and substantially parallel to said first line and comprising a cut-score having a cut extending from the top surface of said wall partially therethrough, and

(c) a manually removable portion centrally disposed within the panel area defined by said lines of weakness and also defined by a closed line of discontinuous perforations.

6. The combination of claim **5** in which said first and second lines of weakness define a substantially rectangular panel.

7. The combination of claim **5** in which said first and second lines of weakness define a substantially oblate panel.

8. The combination of claim **5** in which the interleaved tissues are detachably bonded to one another.

9. The combination of claim **5** in which the interleaved tissues are unbonded to one another.

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