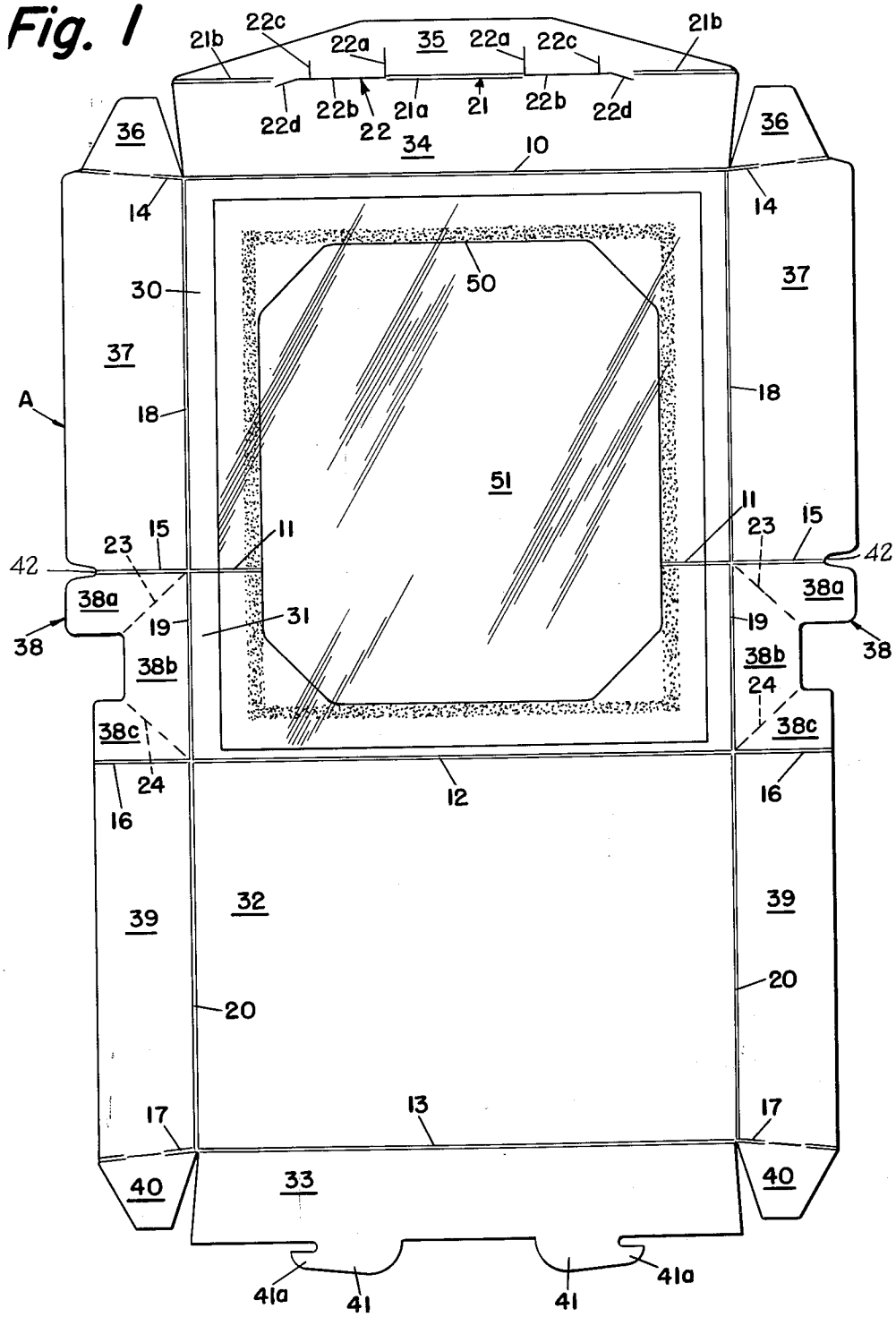
Feb. 6, 1962 N. J. ASMAN ET AL 3,019,958

HINGE COVER CARTON

Filed March 28, 1961 2 Sheets-Sheet 1

Fig. 1



Feb. 6, 1962 N. J. ASMAN ET AL 3,019,958

HINGE COVER CARTON

Filed March 28, 1961 2 Sheets-Sheet 2

Fig. 2

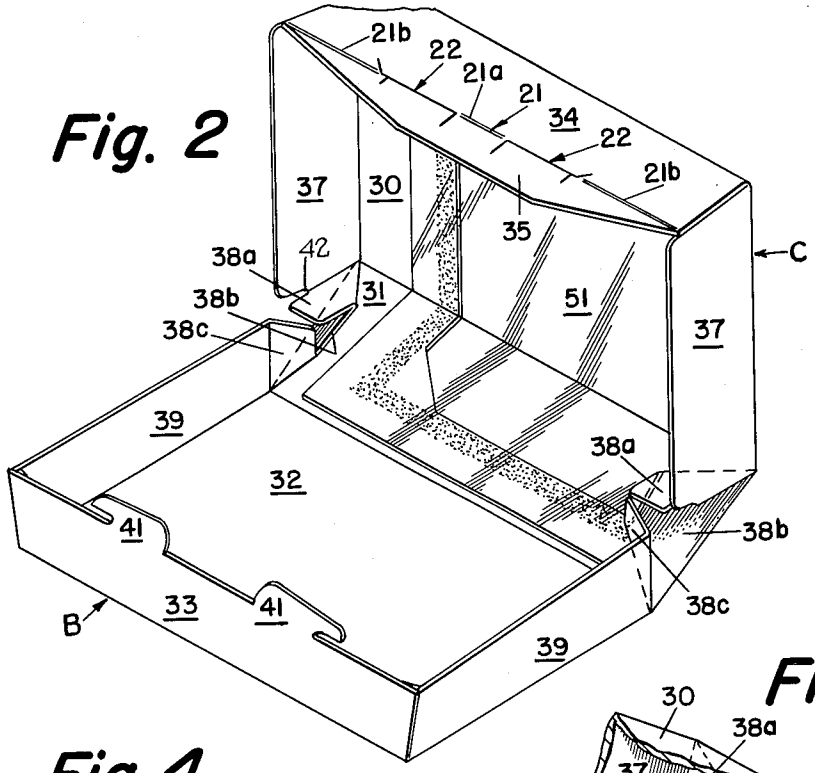


Fig. 3

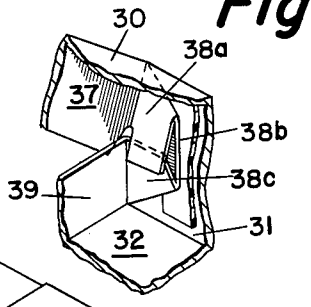


Fig. 4

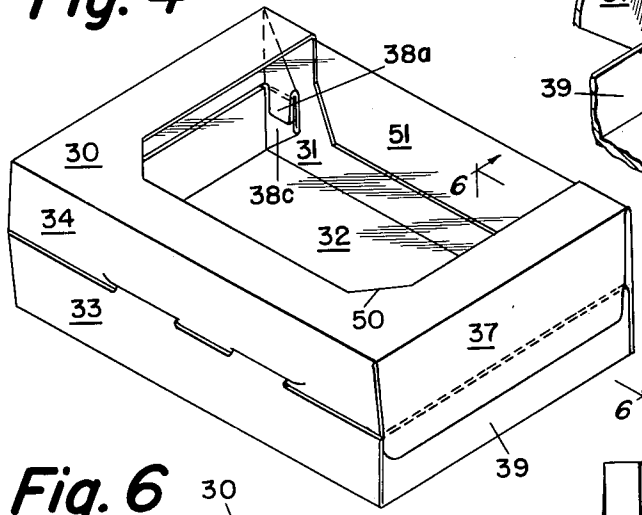


Fig. 5

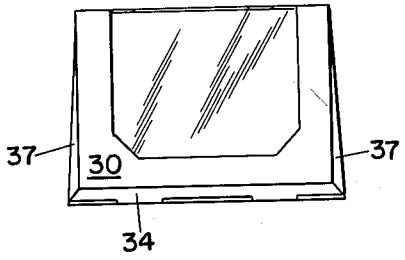
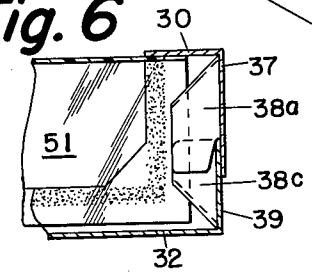


Fig. 6



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3,019,958

HINGE COVER CARTON

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5 Claims. (Cl. 229—31)

This invention relates to a unitary folding carton having reinforced rear corners. More specifically, the carton may be used advantageously for packaging relatively heavy contents which require a strong carton construction.

It is now customary to employ a variety of unitary folding cartons in the packaging of relatively heavy items such as different kinds of fruit. The weight of such contents makes it imperative to provide a strong rigid carton construction. Many of the folding cartons now employed do not have sufficient rigidity to prevent a bending or twisting of the filled carton when handled. Such bending or twisting readily disengages the closing means, greatly increasing the chances of an untimely opening of the carton and a spilling of the contents.

It is therefore the principal object of the present invention to provide a rigid unitary folding carton having a reinforced rear corner construction.

Further details, advantages and objects of the invention will be apparent from the following specification and appended drawings wherein:

FIGURE 1 is a plan view of an integral blank suitably cut and scored to form a unitary folding carton,

FIGURE 2 is a perspective view of a carton made from the blank shown in FIGURE 1 set up and partially closed,

FIGURE 3 is a fragmentary perspective view of the carton shown in FIGURE 2 at a further stage in closing the carton,

FIGURE 4 is a perspective view of the closed carton,

FIGURE 5 is a top view of the closed carton, and

FIGURE 6 is a partial sectional view of the closed carton taken along line 6—6 of FIGURE 4 showing the corner construction.

Referring to FIGURE 1, the carton is made of a single foldable blank "A" of flexible material such as paperboard. The blank "A" is divided by score lines 10—13, 15, 16, 18—21, alternate cut and score lines 14, 17 and cut lines 22 into hingedly connected panels, flaps and webs including top panel 30, rear panel 31, bottom panel 32, lower front panel 33, upper front panel 34, closing flap 35, glue flaps 36, 40, upper end panels 37, webs 38 and lower end panels 39. A window opening 50 is cut in top panel 30 and rear panel 31 when the blank is formed.

Webs 38 are divided by perforation lines 23, 24 into portions 38*a*, 38*b*, and 38*c* which will be discussed more fully hereinafter. Cut lines 22*a*, 22*b*, 22*c* and 22*d* comprising locking slits 22 are located in upper front panel 34 and closing flap 35. Male locking tabs 41 with hook portions 41*a* are inserted in locking relationship in locking slits 22 when the carton is closed, as will be described more fully hereinafter.

After the blank is formed, adhesive is applied to the blank in close proximity to the edge of the window opening 50 in the area indicated in FIGURE 1. A sheet of transparent material 51, such as cellophane, is then adhered along the edge thereof to the edge of the opening indicated by 50. The formed blank with the adhered window is shown in FIGURE 1.

In forming the carton adhesive is applied to the outer side of glue flaps 36, 40 which is opposite the side of the blank to which the window is adhered. The glue flaps 36, 40 are then infolded at right angles to end panels 37, 39 respectively. The end panels 37, 39 and

front panels 34, 33 are then folded inwardly so that the free edges of end panels 37, 39 bearing the glue flaps and the free edges of front panels 34, 33 abut each other. At the completion of the folding, flaps 36, 40 are adhered on the outer side to the inner side of front panels 34, 33, respectively. The tapered carton in this stage of construction may be shipped to the user in a stack of nested cartons.

To close the carton, web portions 38*b* are folded inwardly toward rear panel 31. Simultaneously with the infolding of web portions 38, rear panel 31 is folded upwardly about score line 12 and top panel 30 is folded upwardly about score line 11. The carton at this stage of closing is shown in FIGURE 2, top panel 30, extending perpendicularly to bottom panel 32. The carton is essentially composed of a receptacle portion "B" comprising bottom panel 32, rear panel 31, front panel 33 and end panels 39 and a cover portion "C" comprising top panel 30, front panel 34 and end panels 37. As the folding of the top and rear panels 30 and 31 about score lines 11 and 12, respectively, continues, web portions 38*b* infold to lie in superposed contacting relationship on rear panel 31. During this stage web portions 38*a* and 38*c* infold towards each other tending to overlie web portions 38*b*, as shown in FIGURE 3.

It is important to note in FIGURE 3 the interrelation of the various elements making up the rear corners of the carton. As the web portions 38*a* and 38*c* are infolded to overlie web portion 38*b*, portion 38*a* with a downward extending tab overlies web portion 38*c* holding 38*c* back towards the rear panel 31. The tab of portion 38*a* is formed by the cutting away of part of the corner of portions 38*a* and upper end panels 37 adjacent their intersection at score lines 15. This cutting away produces slots 42 into which the upper edges of lower end panels 39 are inserted when the carton reaches the degree of closing shown in FIGURE 3.

The carton is closed by folding the top panel 30 down to lie approximately parallel with the bottom panel 32. During this folding, closing flap 35 is broken inward slightly along scores 21*a*, 21*b*. This opens locking slits 22 so that male locking tabs 41 can be inserted therein. When the locking tabs are inserted, hook portions 41*a* seat behind the area of the upper front panel 34 which is intermediate cut line 22*d* and an extension of cut line 22*b*. After the tabs are inserted in locking relationship the carton is essentially tamperproof since the tabs 41 must be distorted to be removed. The extension of the upper end panels 37 down over the lower end panels 39 in conjunction with the locking means prevents the front panels from moving relative to each other along their longitudinal edges. FIGURE 4 shows the closed, essentially tamperproof carton with the rear corner construction showing through the carton window 51.

FIGURE 5 is a top view of the closed carton showing the irregular shape of the closed carton. End panels 37 and 39 form a straight line at the rear corners of the carton but taper outwardly toward the front corners. Further, upper and lower front panels 34, 33, taper outwardly to their point of intersection from the top and bottoms to which they are attached. This irregular shape is due to the rear corner construction comprising this invention which folds the end panels of the starting tapered carton into a line at the rear corners.

FIGURE 6 shows in section the detailed rear corner construction of the closed carton. End panels 37 and 39 are maintained in a vertical position by engagement of lower end panels 39 in the slots 42 formed by portions 38*a* and upper end panels 37. When male locking tabs 41 are engaged in slits 22 in locking relationship, the upper and lower end panels 37 and 39, cannot move relatively to each other in a plane parallel to the top and bottom

panels 30 and 32. Therefore web portions 38*a*, 38*b* and 38*c* lie superposed against the rear panel 31 of the carton. The reinforcing webs 38 increase the resistance of the carton to crushing and distortion.

Although the embodiment as described employs glue flaps for securing the end panels to the front panels, other means such as locks or staples may be employed. For instance, in place of glue flaps, male locking tabs may extend from the lateral edges of the front panels to engage female locking slits located in the end panels. The use of locks would be particularly advantageous when using a rectangular rather than a tapered carton. When a rectangularly shaped carton is desired, the carton blanks rather than partially completed, nested cartons are shipped to the user. Since a rectangular carton shell cannot be nested, it is not economical to ship it in partially set up condition. The ultimate user may set up the flat carton blank either by hand or by machinery. Any conventional locking arrangement may be employed since the end closure means does not form an essential part of the invention. Furthermore, other conventional means may be employed to secure the upper and lower front panels, rather than the locking arrangement shown in the drawings. The window may be omitted if desired to provide a uniform carton strength.

The present invention provides a web corner carton construction which requires a minimum of paperboard stock. A window may be employed to provide a display carton. The window may be inserted, the carton blank shipped flat if a rectangular carton is to be formed or if a nested carton is desired the carton blank may be glued and partially set up to a tapered shell. Either the blank or the tapered shell, which may be shipped in nested form to the user, are readily set up by hand or machinery, filled and closed.

The carton is particularly suitable for the packaging of fresh fruit such as pears and peaches. If an overwrap is employed with a carton having a window opening, food products such as cakes and doughnuts which must be sealed in to maintain freshness may with advantage be packaged in the carton comprising this invention. The carton without a window can be used as a multi-purpose combination food container and tray. Initially the carton is filled with food at a drive-in restaurant and served to the customer, who then opens the carton to form a tapered tray for eating purposes. It is to be understood that the size and shape of the carton and the material from which it is formed may be varied in numerous ways by those skilled in the art without departing from the spirit of the invention.

We claim:

1. A tamperproof folding carton formed of a single blank to provide a receptacle portion and a cover portion; said receptacle portion comprising a bottom panel, lower end panels, a lower front panel and a rear panel hingedly connected; said cover portion comprising a top panel hingedly connected to the upper edge of said rear panel, upper end panels and an upper front panel hingedly connected; webs hingedly connected to the rear edges of said upper and lower end panels and to the end edge of said rear panel, said webs being foldable along diagonal lines of weakness extending from the rear corners of said carton, said webs when folded lying in superposed relationship against said rear panel, the upper end panels and the webs extending therefrom being cut away adjacent their free edges to form slots extending along the score lines joining same; and the upper free edges of said lower end panels adjacent said rear panel being inserted in said slots.

2. The carton of claim 1 wherein the webs connected to said upper and lower end panels are of substantially the same height as the panels to which they are attached.

3. A tamperproof folding carton formed of a single blank suitably cut and scored to provide a receptacle portion and a cover portion; said receptacle portion comprising a bottom panel, lower end panels, a lower front panel and a rear panel hingedly connected; said cover portion comprising a top panel hingedly connected to the upper edge of said rear panel, upper end panels and an upper front panel hingedly connected; said lower end panels extending upwardly in overlapping relationship on the inside of said upper end panels; said upper front panel and said lower front panel being detachably connected; webs hingedly connected to the rear edges of said upper and lower end panels and to the end edges of said rear panel, each of said webs being divided by diagonal lines of weakness extending from the adjacent rear corners of the carton into a first portion connected to said rear panel and lying superposed against said rear panel, a second portion connected to one of said lower end panels and lying superposed against said first portion, a third portion connected to one of said upper end panels and lying superposed against said second portion; said third portion and the upper end panel to which it is connected being cut away adjacent their free edges to form a slot extending along the score line joining same; and the upper free edge of one of said lower end panels adjacent said rear panel being inserted in said slot.

4. The carton of claim 3 wherein the web portions connected to said end panels are of substantially the same height as the panels to which they are connected.

5. A reinforced carton construction for a carton, the carton including a receptacle portion with hingedly connected front, bottom, end and rear panels and a cover portion including hingedly connected top, end and front panels; said construction comprising webs hingedly connected to the end edges of said rear panel and to the rear edges of said end panels; said webs being foldable along diagonal lines of weakness extending from the rear corners of said carton, said webs when folded lying in superposed relationship against said rear panel, with said cover end panels and the webs connected thereto being cut away adjacent their free edges to form slots extending along the score lines joining same; and the upper free edges of said lower end panels adjacent said rear panel being inserted in said slots.

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