March 1, 1955 E. L. ARNESON 2,703,198

PAPERBOARD CARTON

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Fig. 1.

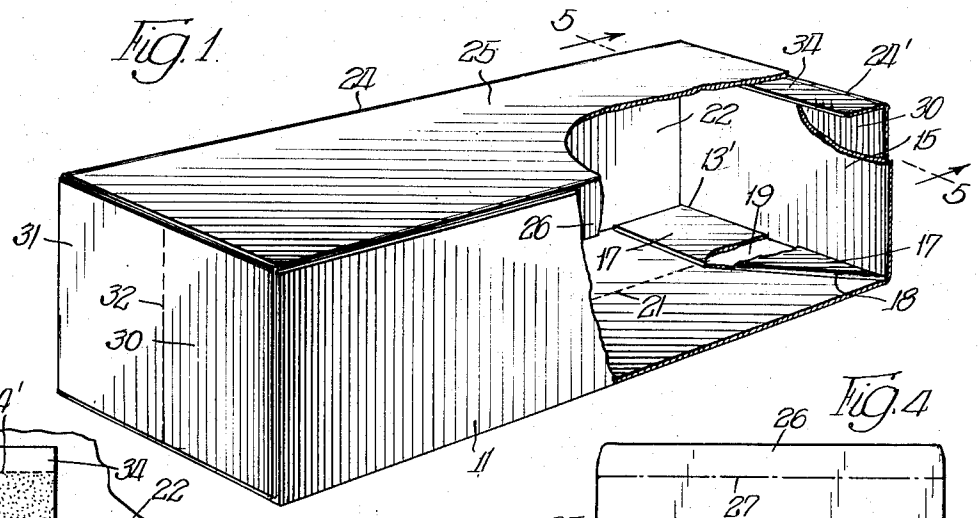


Fig. 3.

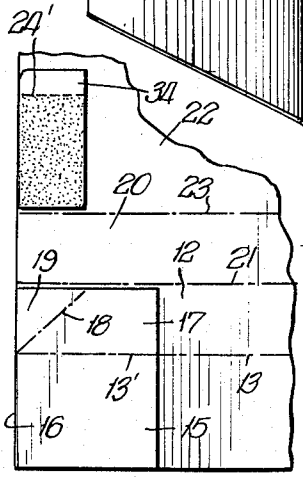


Fig. 4

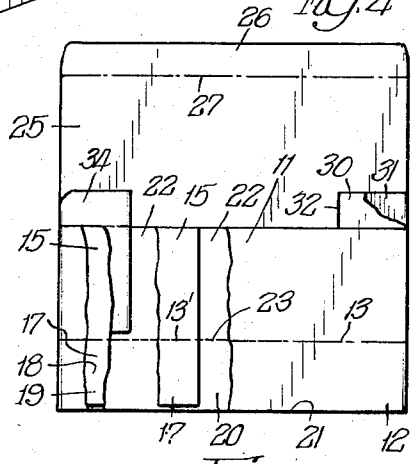


Fig. 2.

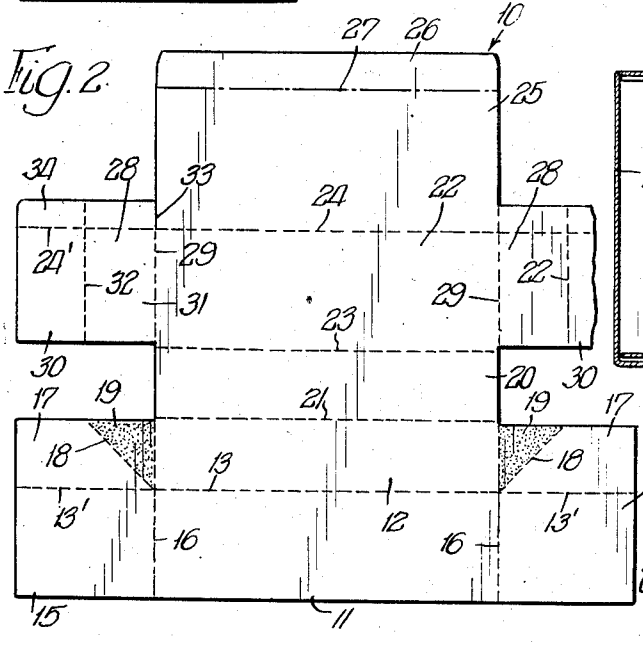
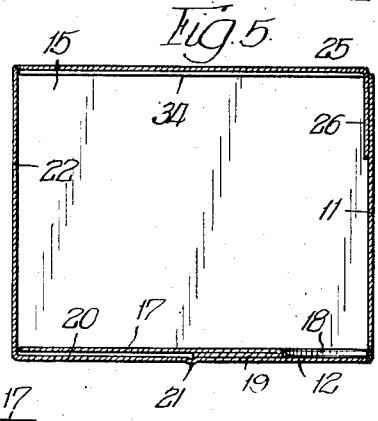


Fig. 5.



INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys

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PAPERBOARD CARTON

Edwin L. Arneson, Morris, Ill., assignor to Morris Paper Mills, Chicago, Ill., a corporation of Illinois

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4 Claims. (Cl. 229—41)

The present invention relates to improvements in a simple, inexpensive paperboard carton having an improved automatic set-up "crash fold" bottom feature enabling the same to be readily and quickly erected and locked in article receiving condition, strongly resistant to accidental collapse. The carton is particularly well adapted for the use of florists in packaging corsages, bouquets, and the like.

It is a general object of the invention to provide a paperboard carton characterized by a bottom and pairs of side and end walls disposed at right angles to one another, in which the structure which defines the end walls of the carrier is associated with the bottom and with the side walls in an improved manner to facilitate erection thereof and to strongly brace the carton in its set-up condition.

More specifically, it is an object of the invention to provide a simple, automatic set-up type of carton, in which an improved end wall and flap structure is associated with the opposed front and rear side walls, including a double thickness, full width end wall having a flap which is partially adhered by a foldable gusset to the carton bottom and which is hinged to one of the side walls in a manner to engage as a strut across the end margin of the erected carton, exerting retaining or locking action on the end wall as a whole by this strut effect, as well as by frictional wedging engagement with the opposite side wall.

The foregoing statements are indicative in a general way of the nature of the invention. Other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

A single embodiment of the invention is presented herein for purpose of illustration and it will be appreciated that the invention may be incorporated in other modified forms coming equally within the scope of the appended claims.

In the drawings,

Fig. 1 is a perspective view of the carton, partially broken away and in section, illustrating the latter in its operative, erected condition, with the improved wall bracing parts at the end thereof in bracing and locking relation to the carton bottom and ends;

Fig. 2 is a fragmentary top plan view illustrating the paperboard blank from which the carton is constructed;

Figs. 3 and 4 are, respectively, fragmentary plan views, partially broken away, showing successive steps in the manipulation of the blank of Fig. 2 in completing the carton, Fig. 4 illustrating the carton in completed, knock-down condition; and

Fig. 5 is a view in transverse vertical section along a line corresponding approximately to line 5—5 of Fig. 1, further showing the strut-like bracing relation of certain end wall flaps to the bottom side and end walls thereof.

The invention is illustrated in an adaptation to a simple, inexpensive florist's carton for packaging corsages, bouquets, etc. However, its principles are also well adapted for application to other types of cartons in which an automatic set up, firmly braced, "crash fold" construction is desired.

Referring to Fig. 2 of the drawings, the carton is constructed from the flat paperboard blank **10** illustrated therein. This blank comprises an outer or front side wall panel **11** of elongated rectangular shape extending along one lateral edge of the blank, which wall panel is hingedly articulated to a rectangular, half width, bottom forming panel **12** by means of a crease **13** paralleling its outer

margin. Rectangular inner end wall members **15** are hingedly connected to the respective opposite ends of the wall panel **11** and bottom forming panel **12** by means of creases **16**; and extensions of the crease **13**, designated **13'**, define like end wall bracing flaps **17** in the material of the respective wall members **15**. A 45 degree crease **18**, extending outwardly from the juncture of creases **13'** and **16**, subdivides each of the flaps to define a triangular glue receiving and gusset forming area **19** at the inner, upper corner thereof.

A second half width, bottom forming panel **20**, identical in size and shape to the panel **12**, is foldably connected thereto by a longitudinally extending crease **21**, which is thus disposed centrally of the two panel bottom. The panel **20** is in turn hingedly connected to an inner or rear wall panel **22** by means of a crease **23** paralleling crease **21**. Bottom forming panels **12** and **20** are disposed in outwardly and downwardly folded relation about medial crease **21** in its completed, folded but knocked-down condition illustrated in Fig. 4, being in flush face-to-face engagement with one another.

Rear wall panel **22** is identical in size and shape to the front wall panel **11**, its upper margin being defined by the longitudinal crease **24** which hingedly connects a cover panel **25** to the wall. Cover panel **25** has a tuck flap **26** foldably connected thereto by crease **27**.

An outer end wall member **28** is hingedly connected to each of the opposite ends of the wall panel **22** by means of an end marginal crease **29**, and each of these wall members is subdivided into two similar panels **30**, **31** of equal width by means of a medial vertical crease **32**. The over-all width of wall member **28** equals that of wall member **15** and also that of the two panel bottom **12**, **20**.

The upper portion of the wall member **28** is separated from the remainder of the blank by a short slit **33**, which is an extension of crease **29**, to produce a flap **34** which is foldable relative to the remainder of the wall member **28** about an extenstion **24'** of crease **24**. Flaps **34** are adapted to be folded inwardly of the upper margins of the end walls **28** of the completed carton, in parallel relation to its bottom and immediately underlying the cover panel **25**, as clearly illustrated in Fig. 1 of the drawings.

In assembling the carton from the blank **10**, adhesive is first applied to the triangular glue flap **19** of the flap **17** of each of the inner end wall forming members **15**, as indicated by stippling in Fig. 2. Members **15** are then folded inwardly and downwardly (see Fig. 3), causing the glued gusset areas **19** to adhere to the adjacent areas of the bottom forming panel **12**. Immediately after or coincident with this folding operation, the inner panels **31** of the outer end wall forming members **28** are folded inwardly and downwardly onto rear wall panel **22** and the outer, hingedly articulated panels **30** are then folded reversely or outwardly, bringing them in face-to-face engagement with panels **31**. This leaves the blank in the condition shown in Fig. 3.

Adhesive is next applied to the exposed outer surface of the respective panels **30**, beneath the flap defining crease **24'** thereof, as indicated by stippling in Fig. 3. The front wall panel **11** and associated bottom forming panel **12**, together with the inner end wall members **15**, are next folded inwardly and downwardly about the medial bottom crease **21**, causing the glued area of panel **30** to adhere to the wall forming member **15** is a corresponding area of the latter located outwardly of the crease **13'**. On the opposite side of this crease the flap **17** is free to move relative to the bottom and the end wall.

The carton is shown in completed knock-down condition in Fig. 4. The respective non-subdivided inner end wall forming members **15** lie immediately inwardly of the front wall panel **11** and conjoined bottom forming panel **12** in parallel relation thereto. Outer end wall flaps **30**, **31** are disposed in that order immediately to the rear of the members **15**, in a collapsed side-by-side relation, flap **30** being adhered to the hinged side of end member **15**. Rear wall panel **22** lies immediately to the rear of the hinged panel **31**, with its attached cover **25** and tuck flap extending outwardly. The completed carton is shipped and stored in this flat knock-down condition.

In erecting the carton, it is only necessary to exert upward force on the medial bottom crease **21** to bring panels **12, 20** to flat condition, while urging or guiding the full width end wall forming panels **15** outwardly in opposite directions about their hinge creases **16**. The members **15** swing away from the front wall **11**, breaking outwardly in the endwise direction about creases **13'** and **18**, inasmuch as triangular gusset **19** is secured to the carton bottom. Flap **17** slides outwardly along the carton bottom while hinging about its 45 degree crease **18**. Thus the crease **13'** which foldably connects the flap **17** to member **15** ultimately engages across and braces the inner bottom margin of the dual panel, outer end wall member **28** when the end and side walls are completely spread to flat condition. Since the width of the member **15** and its flap **17** equals that of the two-panel carton bottom **12, 20**, the free edges thereof have frictional sliding engagement with the adjacent surface of the inner wall member **22** in moving outwardly into position, thus resisting return or inward movement of the parts. Thus the panel **15** is held strongly in its outwardly extended position, even when the flap **17** is not held down by the contents of the carton. The 45 degree crease **18** acts as a backbone against which compression of the flap **17** is sustained. This strut-like action of the flap **17**, arising from its integral connection to the bottom by adhered gusset **19**, when coupled with the aforementioned frictional resistance to displacement, inherently resists inward collapse, and holds the outer end wall panels **30, 31** in a laterally stretched, substantially coplanar relation.

The resultant carton is very inexpensive, maintains a stable condition on a supporting surface, so that a number of the cartons may be set up prior to filling. Cover **25** is engaged inwardly of the front wall **11** by means of the tuck flap **26** when the carton has been filled, and is stably supported and sealed at its ends by the inturned flaps **34**.

What I claim is:

1. A paperboard carton comprising opposed side walls, a bottom integrally hinged to and extending between said walls, said bottom being subdivided by a medial crease into similar panels, and a self bracing end wall structure at each end of the carton, comprising a first end wall member integrally hinged by a first vertical crease to one side wall and medially creased to subdivide the same into panels, a second flat uncreased end wall member integrally hinged by a second vertical crease to the other side wall, said last named member being adhesively secured to a panel of the first end wall member, a bracing flap integrally connected to the bottom of said second end wall member by a crease which parallels and outwardly abuts and braces its bottom margin when the carton is erected, and a glue element integrally connected to said flap by a crease extending from a junction of the flap-connecting crease with said second vertical crease, said glue element underlying said flap in said erected condition and being adhesively secured to a bottom panel to sustain in the plane of the bottom the bracing action of said flap on the end wall structure.

2. A carton as set forth in claim 1, in which said second end wall member and flap are of width equal to the space between said side walls and have frictional engagement with the latter in said erected condition.

3. A collapsible paperboard carton comprising a pair of opposed side walls, a medially hinged bottom wall integrally connected at its side margins to said side walls, and an end wall structure foldably connected to corresponding ends of said side walls, said structure comprising an inner end wall panel integrally hinged by a vertical crease to the end margin of one side wall, which panel is substantially equal in width to the space between said side walls and extends therebetween when the carton is erected, an outer end wall forming member integrally hinged by a vertical crease to the end margin of the other side wall and extending between the walls in erected condition, said last named member being subdivided by a medially extending vertical crease and being adhered to the inner end wall panel in the subdivided part thereof remote from its hinge to said other side wall, said inner panel being provided with an end wall bracing flap integrally hinged to the bottom margin thereof by a crease which engages across the outer end wall member at the bottom thereof when the carton is erected, with said bracing flap disposed in face-to-face relation to said bottom wall and thereby exerting a strut-like action on said outer end wall member, said flap having a gusset hinged thereto by a diagonal crease extending from a junction of said flap-hinging crease with said first named vertical crease, said gusset being disposed in underlying relation to said flap in flat face-to-face engagement with and between the same and said bottom wall in the area of the gusset between said diagonal crease and said flap-hinging crease, and means securing said gusset to said bottom wall, whereby said gusset acts as an abutment for said strut-like action.

4. A collapsible paperboard carton comprising a pair of opposed side walls, a medially hinged bottom wall integrally connected at its side margins to said side walls, and an end wall structure foldably connected to corresponding ends of said side walls, said structure comprising an inner end wall panel integrally hinged by a vertical crease to the end margin of one side wall, which panel is substantially equal in width to the space between said side walls and extends therebetween when the carton is erected, an outer end wall forming member integrally hinged by a second vertical crease to the end margin of the other side wall and extending between the walls in erected condition, said last named member being subdivided by a third, medially extending vertical crease and being adhered to the inner end wall panel in the subdivided part thereof remote from its hinge to said other side wall, said inner panel being provided with an end wall bracing flap integrally hinged to the bottom margin thereof by a crease which engages across the outer end wall member at the bottom thereof when the carton is erected, with said bracing flap disposed in face-to-face relation to said bottom wall and thereby exerting a strut-like action on said outer end wall member, said flap having a gusset hinged thereto by a diagonal crease extending from a junction of said flap-hinging crease with said first named vertical crease, said gusset being disposed in underlying relation to said flap in flat face-to-face engagement with and between the same and said bottom wall in the area of the gusset between said diagonal crease and said flap-hinging crease, and means securing said gusset to said bottom wall in an area of the latter between said second and third vertical creases, whereby said gusset acts as an abutment for said strut-like action.

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