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Forte

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[45] **May 20, 1975**

[54] **X-SHAPED CARTON**

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[73] Assignee: **Anchor Hocking Corporation,** Lancaster, Ohio

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[52] **U.S. Cl.** ..... **206/426;** 206/429; 206/435; 229/39 B; 229/41 B

[51] **Int. Cl.** **B65d 85/44**

[58] **Field of Search** ..... 229/39 B, 40, 41 B; 206/418–422, 426–436, 196

[56] **References Cited**

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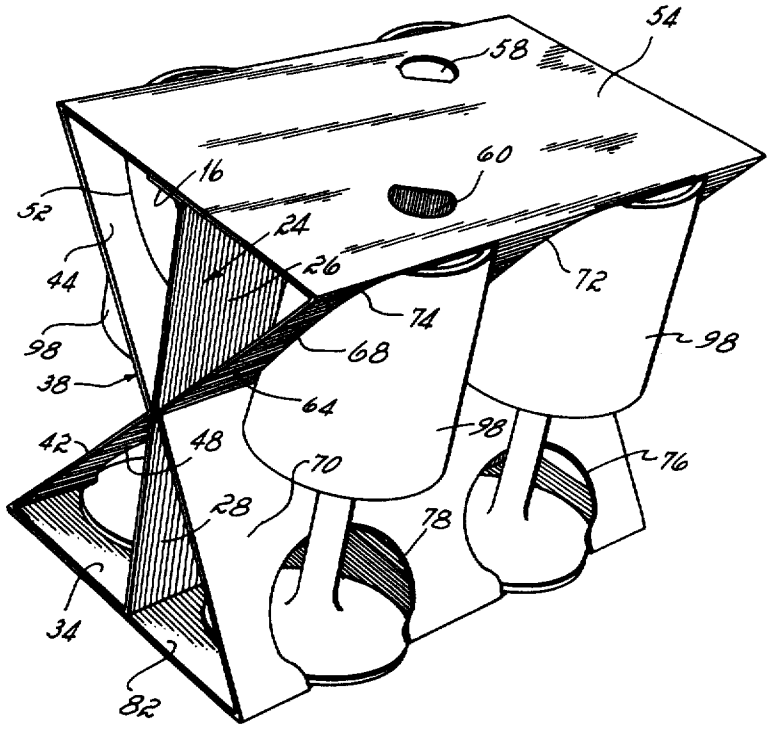
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Assistant Examiner—Douglas B. Farrow
Attorney, Agent, or Firm—Wood, Herron & Evans

[57] **ABSTRACT**

A carton for glassware which is X-shaped in end view, is made from a single piece blank. The carton can be folded flat for shipping even when fully glued up, and is erected for use in a simple "pop-in" operation.

7 Claims, 7 Drawing Figures



PATENTED MAY 20 1975

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SHEET 1 OF 2

Fig. 1

Fig. 4

Fig. 5

Fig. 3

Fig. 2

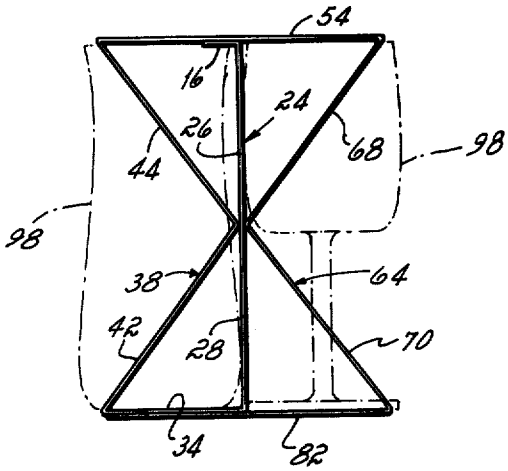

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Fig. 6

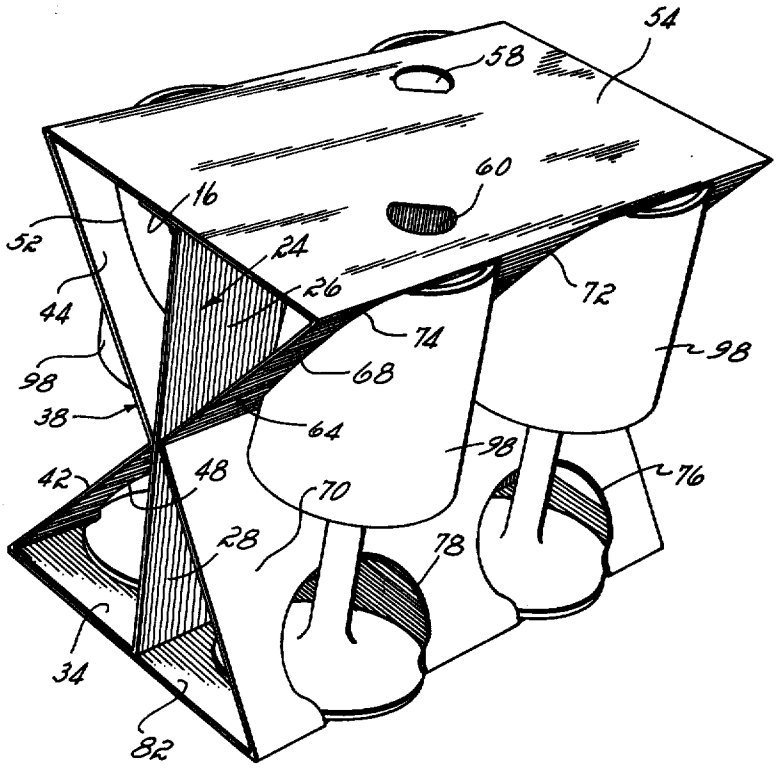

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Fig. 7

X-SHAPED CARTON

BACKGROUND OF THE INVENTION

This invention relates to a carton for displaying glassware. When glued, the carton can be flattened for storage and shipment, and it is easily erected from the collapsed state to receive the glassware.

Cartons for glass articles are known in the prior art which can be assembled by scoring, folding and gluing a single piece carton blank and which can be flattened for shipment. U.S. Pat. No. 2,940,653 shows a carton for light bulbs made from a single piece blank of paperboard, assembled to receive two light bulbs with a centrally disposed wall to prevent the bulbs from contacting each other. The container itself, when not holding ware, can be flattened so that it will take up very little space, thereby reducing the cost of storage and shipment of the container itself. That carton container is designed to protect light bulbs and the bulbs themselves are largely surrounded by the carton walls and, consequently, the carton is not well suited to displaying the articles.

Another collapsible carton is shown in U.S. Pat. No. 3,199,762. That carton is made from a single piece carton blank which, when scored, folded and glued, forms a boxlike structure which has two "pop-in" end walls and a "pop-out" bottom wall to permit the assembled carton to be flattened for easy storage. Because that carton is also designed to surround the glass articles it contains, it also is unsuitable for displaying the articles. In addition, that container requires score lines that run both parallel to and angulated to the axes of the carton blank. Such an irregular arrangement of score lines makes it relatively difficult to assemble such cartons, as compared to cartons having only score lines which are all parallel to each other.

BRIEF DESCRIPTION

In contrast, the carton to which this invention is directed can be made from a single piece blank, can be flattened for storage, etc., after all gluing operations on it have been completed, can easily be erected to present an unusual X-shaped appearance (as viewed endwise) and when erected forms a strong carton which provides good visibility and display of articles inserted in it.

It is a further advantage of this structure that no score lines are required on its top or bottom walls, which would tend to weaken them by facilitating their bending or buckling. The basic carton can easily be configured to engage and grip different shapes of glass articles, including both stemware and tumblers.

In a preferred embodiment, the carton of the invention is constructed from a generally rectangular single sheet carton blank having a plurality of parallel transverse score or fold lines. The carton includes a central divider wall with a score line parallel to and midway between the upper and lower edges of the divider wall. A top wall and a bottom wall are disposed in parallel spaced relation to each other with the divider wall extending perpendicularly between them. The upper and lower edges of the divider wall are aligned along the mid-lines of the top and bottom walls, respectively. A pair of side walls flexibly join the outer edge of the top wall with the outer edge of the bottom wall, on each side of the central divider wall. Each side wall includes an upper portion and a lower portion flexibly joined together along a fold line which is parallel to the score line on the central divider wall.

The carton itself is flattenable to a collapsed condition wherein the top and bottom walls are in close proximity and the side and divider walls are all folded along their respective fold and score lines. The carton can be thus flattened by folding each side wall to form an inwardly facing V, that is, a V-like structure (as seen in end view) with the opening thereof facing toward the divider wall. The top and bottom walls are brought together to collapse the divider wall along its score line. When flattened, the divider wall and the side walls are folded in half, and the carton has minimal height.

The carton can be brought to a substantially rigid erect condition suitable for holding and displaying glassware and the like, by moving the top and bottom walls apart from one another and popping in the V's formed by the side walls so that each side wall forms an outwardly facing V with the flexible fold line between the upper and lower portion thereof disposed substantially adjacent the score line on the divider wall. These outwardly facing, back-to-back V's thereby form an "X" appearance as viewed endwise, with the divider wall running up the middle and the top and bottom walls extending across its edges, to the upper and lower ends of the V's. In this X-shaped erect configuration, openings in the upper and lower portion of each side wall engage the upper and lower parts respectively of articles such as glassware, and hold the articles in the carton.

DESCRIPTION OF THE DRAWINGS

The invention can be further described and its features and advantages explained in connection with the accompanying drawings, wherein:

FIG. **1** is a plan view of a preferred form of single sheet blank from which the container of the invention is constructed;

FIG. **2** is an end view of a carton constructed from a blank of the type shown in FIG. **1**, in partly erected condition with its side walls arranged to form inwardly facing V's;

FIG. **3** is a perspective view of the partially erected carton with the side walls positioned to form inwardly facing V's, prior to inverting the V's to complete the erection of the carton;

FIG. **4** is an end view of the carton as it is being flattened from the partly erected condition, to a collapsed condition for storage;

FIG. **5** is a diagrammatic end view showing the side walls being inverted inwardly for erecting the carton to its X shape;

FIG. **6** is an end view of the carton after it has been erected for receiving glassware; and

FIG. **7** shows a perspective view of the assembled carton with stemware mounted therein.

DETAILED DESCRIPTION

Referring first to FIG. **1**, the numeral **10** refers generally to a single sheet blank from which the preferred embodiment of the carton is constructed. In its preferred form, blank **10** is made from a foldable boxboard or other creasable paperboard, although other materials can be used.

Blank **10** is generally rectangular in outline and has an imaginary longitudinal axis shown by the dotted line **12**. The blank is either folded or scored along several

spaced, parallel fold or score lines **14** which extend transversely of the blank, i.e., perpendicular to the imaginary axis **12**. These fold or score lines **14** define the positions at which the blank **10** is folded during assembly of the carton. As will be made clear, some of the folds **14** are preferably solid creases while others are perforated rules to permit easier folding of the blank along them.

Between adjacent pairs of score lines **14**, different sections of the cartons are defined. Specifically, a first flap **16** is located between the rightmost edge **18** of the blank **10** (as viewed in FIG. **1**) and a score line **20**. Line **20** is preferably a perforated rule, that is, a fold with portions of the blank being perforated along it. The width of the first flap **16** is indicated by the arrow labeled *a*. An adhesive material is applied to this flap for gluing the carton together.

A divider wall portion **24** is between score line **20** (which in use comprises its upper edge) and another score line **22** (which in use comprises its lower edge). Line **22** is also preferably of the perforated rule type. The divider wall portion **24** is divided into an upper half **26** and a lower half **28** by a score line **30**, preferably of the perforated rule type, disposed midway between and parallel to the score lines **20** and **22**. The halves **26** and **28** have widths designated by the arrows *b*. The divider wall **24**, as will become more clear later, becomes a central divider wall dividing the assembled carton so as to prevent the articles on its opposite sides from contacting each other.

Disposed between score line **22** and another score line **32** is a second flap portion **34**. Score line **32** is preferably a solid crease. This flap portion **34** has a width designated by arrow *c*, and preferably has an adhesive applied on it on the same side of the blank **10** as the adhesive on flap **16**.

Disposed between the score line **32** and another score line **36**, preferably of the solid crease type, is a side wall designated generally by **38**. As will become clearer later, the score lines **32** and **36** respectively form in use lower and upper margins to foldably attach the side wall **38** to the top wall **54** and the bottom wall **82**. Midway between the score lines **32** and **36** of side wall **38** is a fold line **40**, preferably of the perforated rule type, which divides it equally into a first lower side wall portion **42** and a first upper side wall portion **44**. The side wall portions **42** and **44** have widths designated by the arrows *d*.

The lower side wall portion **42** has two holes or cutouts **46** and **48**, shaped to receive the particular item which is to be packaged in the carton. For holding stemware of the type shown in FIG. **7**, the shape of these holes **46** and **48** is somewhat D-shaped with the straight edge of the D disposed along the score line **32** and the curved edges being disposed entirely within the lower side wall portion **42**, for holding the base of stemware as will be described. (When the carton is to be used for tumblers, rather than the stemware shown, the holes **46** and **48** are made with a shape such that the side wall portion **42** will engage the outside of the tumbler, near its base.)

The upper side wall portion **44** has holes **50** and **52**. For use with stemware as shown, these holes **50** and **52** are substantially D-shaped with the straight edge thereof disposed along the score line **36** and the curved edge thereof disposed entirely within the upper side wall portion **44**. The curved edge of the holes **50** and **52** is shaped to grip the exterior surface of such glassware. (These holes should be generally elliptical for most tumblers.)

A top wall **54** is bounded on the right by the score line **36** and on the left by another score line **56** which is preferably of the solid crease type. The wall **54** has a width between the score lines **36** and **56** designated by arrow *e*.

Two holes **58** and **60** are optionally formed in top wall **54**. These are located at positions directly above the glassware held by the carton (FIG. **7**), to permit a purchaser to insert his fingers in them to carry the carton.

Disposed to the left of the score line **56** and to the right of another score line **62**, preferably of the solid crease type, is another side wall portion shown generally at **64**. As will become clearer later, the score lines **56** and **62** respectively form, in use, upper and lower margins to foldably attach the side wall **64** to the top wall **54** and the bottom wall **82**. The side wall portion **64** is divided in half by a fold line **66**, preferably of the perforated rule type, so as to form a second upper side wall portion **68** and a second lower side wall portion **70**, each having a width identified by arrow *f*. The upper side wall portion **68** has two holes **72** and **74**, corresponding to holes **50** and **52**. The lower side wall portion **70** has two holes **76** and **78**, corresponding to holes **46** and **48**.

Located to the left of the score line **62** and extending to the left edge **80** of the carton blank **10**, a distance indicated by *g*, is a bottom wall **82**.

Carton Assembly

As viewed in FIGS. **2** and **3**, the carton blank of FIG. **1** is folded along the score lines for assembly, so as to form two substantially identical cells, indicated generally at **84** and **86**, with divider wall **24** disposed centrally between them. The first flap **16**, as viewed in FIG. **2**, is folded along the score line **20** so as to be disposed substantially perpendicular to divider wall **24**, line **20** thus forming the upper edge of the divider wall. Flap **34** is arranged perpendicularly to divider wall **24** and parallel to the first flap **16**, line **22** thus forming the lower edge of wall **24**.

Top wall **54** is disposed above flap **16** substantially perpendicularly to wall **24**, and an adhesive secures flap **16** to the underside of top wall **54**, so that the divider wall is attached medially at its upper edge to the top wall **54**. In a similar manner, bottom wall **82** is adhesively secured medially to flap **34**. The adhesive may be coated on flaps **16** and **34** when the blank is cut. In FIG. **1**, the precoated adhesive is disposed within the cross-hatched areas on panels **16** and **34**; in use, these adhesive areas are secured to the areas **90** and **91** respectively, on panels **54** and **82**.

Disposed on the left side of the carton (as seen in FIG. **2**) is the side wall **38** which joins the leftmost edge of top wall **54** with the leftmost edge of flap **34**. The upper side wall portion **44** and the lower side wall portion **42** of wall **38** have a combined length of *2d* (FIG. **1**), which is greater than the height (*2b*) of divider wall **24**, and the side wall therefore forms an inwardly facing V, that is, the opening of the V formed by the upper side wall portion **44** and the lower side wall portion **42** faces inwardly toward divider wall **24**. Similarly, on the right side of the carton shown in FIG. **2**, the other side

wall also forms an inwardly facing V. In this condition the carton is partially erected.

As viewed in FIG. **4**, the semi-erected carton of FIGS. **2** and **3** can be compressed or flattened by applying a force thereto in the direction indicated by the arrows labeled **88**, i.e., perpendicular to the top and bottom walls. When this is done side walls **38** and **64** and divider wall **24** fold along their score lines **40, 66** and **30** respectively, so that the side walls **38** and **64** and the divider wall **24** are folded in half, to a collapsed condition. When so flattened, the carton presents a substantially planar body of minimal height which takes up a small amount of space thereby minimizing storage and shipping costs.

Carton Erection

The carton is shown being erected in FIG. **5**. The phantom line **100** shows the side walls **38** and **64** in their semi-erect position. A force is applied to the score lines **40** and **66** in the direction indicated by the arrows **92** and **94** (i.e., parallel to the top and bottom walls). This force causes the side walls to move across the center position shown by the solid line **102** to the erected position shown by the dotted line **104** where the V's defined by the side walls **38** and **64** are popped in or inverted so as to form an outwardly facing V configuration as shown in FIGS. **6** and **7**. When the side walls **38** and **64** have thus been popped in to erect the carton, the carton as seen endwise takes on an "X-like" configuration, with top and bottom walls joining the arms of the X. This is a surprisingly strong configuration when the carton is filled with glassware. As can be seen, there are no score lines on either of the top or bottom walls **54** or **82**, so that they resist the concave bending seen in FIG. **5**, and tend to remain planar.

As viewed in FIG. **7**, the article receiving holes in each side wall portion are aligned to receive an article **98** such as stemware, glassware or the like. In the preferred embodiment of the invention, divider wall **24** has substantially the same height as the article **98** so that the article **98** just fits between the top wall and the bottom wall. The perimeter of each opening is shaped to engage and hold the stemware.

While the foregoing description has been made with particular emphasis on a preferred embodiment for use with a particular shape of stemware, those of skill in the art will recognize that modifications in form may be made. For example, the carton according to the invention may be made from a plurality of rectangular sections shaped as described wherein the carton sections are joined by tape. It will also be recognized that the shape of the apertures in the side walls can be different than shown, although the shape of these holes preferably should conform to the shape of the particular article with which the carton is to be used.

The foregoing and other modifications in form only can be made without departing from the spirit and scope of the invention as defined by the following claims.

What is claimed is:

1. A carton for glassware or the like, comprising:

a central divider wall having upper and lower edges and a score line parallel to and midway between said upper and lower edges,

a top wall and a bottom wall each medially attached to said divider wall at the respective edges thereof, said top wall and said bottom wall being parallel to each other and generally perpendicular to said divider wall, and

a pair of side walls on opposite sides of said divider wall, each having upper and lower margins which are foldably attached to said top wall and said bottom wall respectively, each said side wall including an upper portion and a lower portion flexibly joined together along a central fold line parallel to said score line, each said side wall having a dimension between said upper and lower margins which is greater than the height of said divider wall, each said side wall being bent at said fold line to form a V, the V formed by each side wall being invertable between a collapsible position in which it opens inwardly toward said central divider wall, across a center position to an erected position in which it opens outwardly,

said divider wall being foldable along said score line by bringing said upper and lower edges toward one another when said side walls are in the said collapsible position,

said upper portions and said lower portions including openings to hold glassware therebetween when said side walls are in said erected position.

2. The carton of claim **1** wherein the fold lines of the respective side walls are disposed substantially adjacent said score line on said divider wall on opposite sides thereof, when said side walls are in said erected position.

3. The carton of claim **1** wherein said central divider wall, said top wall, said bottom wall and both said side walls are formed integrally from a single piece blank.

4. The carton of claim **3** wherein said blank is made of paperboard.

5. The carton of claim **1** wherein the height of said divider wall between said top wall and said bottom wall is substantially equal to the height of glassware to be inserted within said openings and said openings are shaped to conform with the sectional shape of the glassware where the glassware contacts the respective side wall.

6. An erected display carton comprising:

a central divider wall having an upper edge and a lower edge,

a first flap foldably joined to said upper edge of said divider wall, said first flap being disposed generally perpendicularly to said divider wall,

a second flap foldably joined to said lower edge of said divider wall, said second flap also being disposed generally perpendicularly to said divider wall,

a first lower side wall foldably joined with said second flap and converging inwardly toward said divider wall,

a first upper side wall foldably joined with said first lower side wall and diverging outwardly from said divider wall,

a top wall foldably joined with said first upper side wall, said top wall overlying and secured to said first flap,

a second upper side wall foldably joined with said top wall and converging inwardly toward said divider wall on a side thereof opposite from said first upper side wall,

a second lower side wall foldably joined with said second upper side wall and diverging outwardly from said divider wall,

a bottom wall foldably joined with said second lower side wall, said bottom wall overlying and secured to said second flap, and

a plurality of opposed openings in said first and second upper and lower side walls for receiving articles between said top and bottom walls.

7. An erected display carton made from a single piece carton blank comprising:

a central divider wall having an upper edge and a lower edge,

a first flap formed integrally at said upper edge of said divider wall, said first flap being disposed generally perpendicularly to said divider wall,

a second flap formed integrally at said lower edge of said divider wall, said second flap being disposed generally perpendicularly to said divider wall,

a first lower side wall formed integrally with said second flap and converging inwardly toward said divider wall,

a first upper side wall formed integrally with said first lower side wall and diverging outwardly from said divider wall,

a top wall formed integrally with said first upper side wall, said top wall overlying and secured to said first flap,

a second upper side wall formed integrally with said top wall and converging inwardly toward said divider wall, on a side thereof opposite from said first upper side wall,

a second lower side wall hinged to said second upper side wall and diverging outwardly from said divider wall,

a bottom wall formed integrally with said second lower side wall, said bottom wall overlying and secured to said second flap, and

a plurality of openings in said first and second upper and lower side walls for receiving articles between said top and bottom walls.

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