

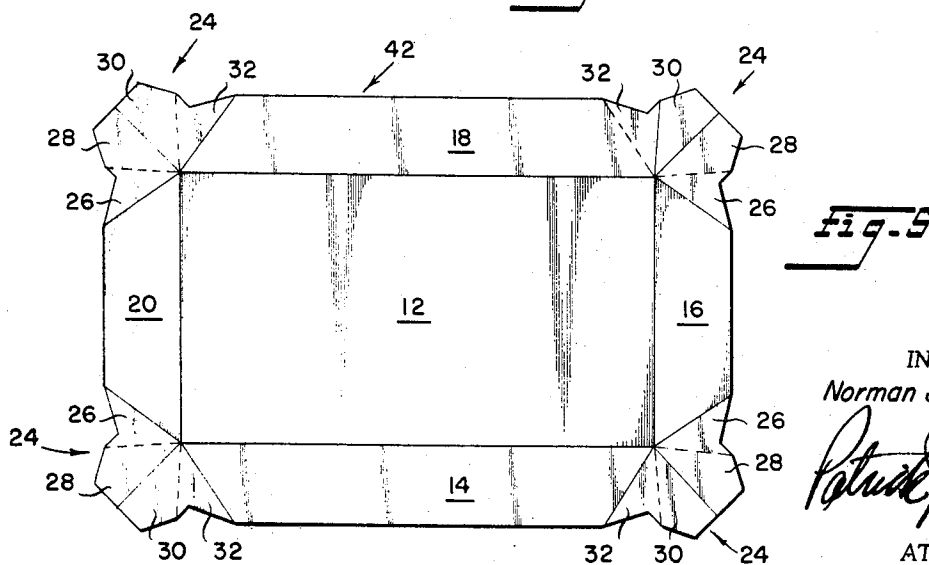
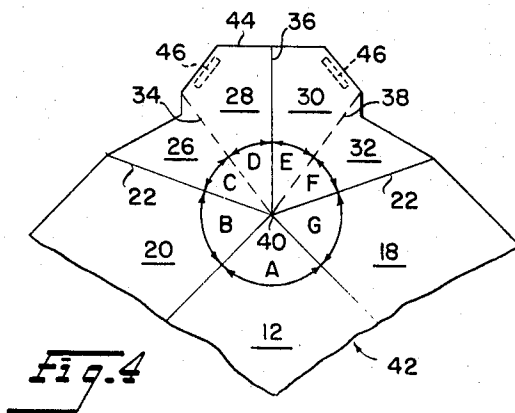
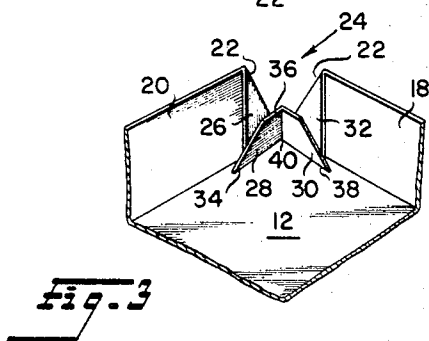
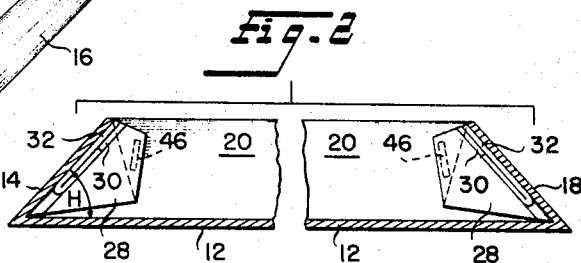
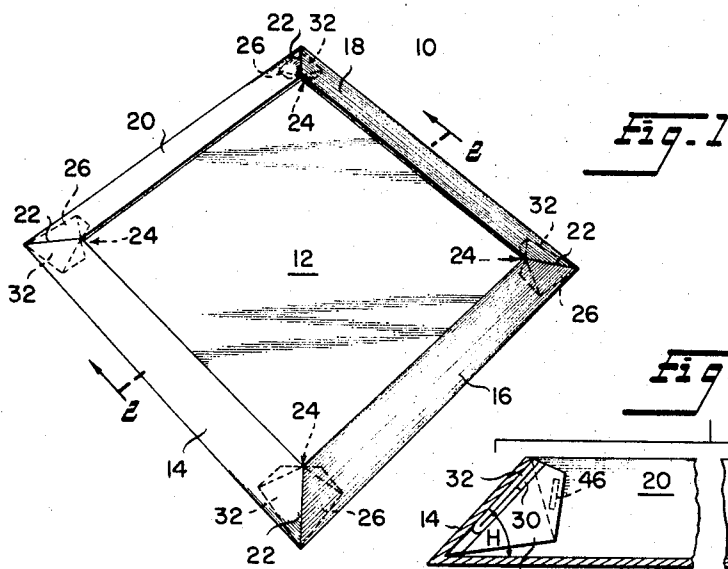
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FOLDABLE CARTON AND BLANK WITH PLEATED CORNER

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FOLDABLE CARTON AND BLANK WITH PLEATED CORNER

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9 Claims

ABSTRACT OF THE DISCLOSURE

A carton blank having bottom and side panels and having a reinforced web corner comprising only four essentially triangular panels hingedly connected to one another and to adjacent side panels. A display carton is constructed from the blank by forming two adjacent pleats from the four corner panels, the pleats being shaped to permit line abutment of adjacent side edges of adjacent side panels thereby forming an attractive butt corner joint reinforced by the underlying pleats on both sides.

BACKGROUND OF THE INVENTION

This invention pertains to foldable carton blanks and to cartons erected from such blanks. In particular, the invention pertains to an improved carton with an attractive one-piece continuous and reinforced corner construction, and to a carton blank from which such a carton can be erected.

Cartons having bottom and side panels variously formed of one uncut piece of material are well known, the corners being constructed with a plurality of triangular panels folded in diverse ways. See, for instance, U.S. patents such as Hall 1,271,033, Roehrl 2,386,062, Lange 2,643,812, and Doll et al. 3,316,102. The carton corners illustrated in those patents are unduly complex in shape or in manner of folding as compared with the present invention. In addition, these prior art structures provide unequal reinforcement of the two side panels connected by the corner, thereby adding to the difficulty of manufacture. It is therefore highly desirable to produce a one-piece essentially uncut carton blank which can be simply folded into an attractive display-type carton having strengthened and sloped corners providing equal reinforcement to all side panels.

BRIEF SUMMARY OF THE INVENTION

These prior art disadvantages are overcome by the novel carton blank of the present invention. In particular, a carton blank is provided having a web or bridge corner comprising only four essentially triangular panel portions hingedly connected to one another and to the adjacent side panels. A carton is constructed from the carton blank by forming two adjacent inwardly extending pleats from the four corner panels, each pleat being adhesively secured to its adjacent side panel. The pleats are shaped to cause the abutment of adjacent side edges of adjacent side panels, which with the underlying attachment of the hinge-connected pleats, forms an exceptionally strong, attractive and yet mechanically simple joint.

DETAILED DESCRIPTION

Reference is made to the drawings for a more detailed description of the invention in which:

FIG. 1 is a perspective view of one embodiment of the carton of this invention;

FIG. 2 is a side section of the carton taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary perspective view of a carton blank corner shown partly erected;

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FIG. 4 is an enlarged fragmentary view of a corner of the carton blank of FIG. 5; and,

FIG. 5 is a plan view of one embodiment of a carton blank of this invention.

Referring now to the drawings, a carton 10 is shown having a rectangular bottom panel 12 to which are hingedly connected side panels 14, 16, 18 and 20 of trapezoidal configuration. Lateral folded edges 22 of adjacent side panels about one another as seen in FIG. 1 and incline upwardly and inwardly. As an example of use, such a carton may receive merchandise therein fully occupying the available opening overlying bottom panel 12, and be overwrapped with transparent film. Thus the contents are attractively displayed, wherein the inclined sides provide a "picture frame" appearance.

With further respect to the instant carton structure, the same includes web-like bridge panels 24 linking adjacent side panels between edges 22. Each bridge panel 24 comprises four adjacent hingedly connected corner panel portions 26, 28, 30 and 32 separated from one another by linear fold lines 34, 36 and 38. These fold lines commonly intersect along with the fold lines at side edges 22 at corner 40 of bottom panel 12.

In erecting carton 10, corner panel portions 26 and 28 (and similarly 30 and 32) are brought into face-to-face contact with one another to form a corner pleat, as clearly seen in FIG. 3. This folding action causes folded side edges 22 of adjacent side panels to be brought into abutting relationship thereby to form a trim, strong corner. To further strengthen the corner assembly, the pleat formed from corner panel portions 26 and 28 may be brought into and held securely in face-to-face contact with its adjacent side panel as by means of adhesive 46 (FIG. 2). Pleats 30, 32 can similarly be brought into contact with side panel 18.

The carton blank 42 is shown in more detail in FIG. 5 and the enlarged single corner view of FIG. 4. Outside edge 44 of corner panel portions 28 and 30 is contoured so as to not protrude into the display opening of the erected carton. The angles made by the edges or fold lines of all of the panels or panel portions which intersect corner 40 are designated in clockwise sequence in FIG. 4 as A, B, C, D, E, F and G. In order to produce a webbed carton corner which permits abutment of adjacent edges 22 of adjacent side panels, it is necessary that the pair of corner panel portion angles C and D (and similarly with angles E and F) be substantially equal to one another. Angles C and D, however, need not necessarily be equal to angles E and F.

Thus, actual display cartons have been constructed similar in appearance to that shown in FIGS. 1 and 2, as erected from a carton blank similar in appearance to that shown in FIGS. 3, 4 and 5. In one carton the corner angles were as follows: A, 90 degrees; B, 75 degrees; C, 30 degrees; D, 30 degrees; E, 30 degrees; F, 30 degrees, and G, 75 degrees. As in the drawings, corner panel portions 28 and 30 are slightly radially longer than portions 26 and 32 so that when formed into pleats 26—28 and 30—32, portions 28 and 30 could be adhesively secured directly to side panels 20 and 18, respectively, as by means of adhesive patches 46 on the opposite face of the panel portions.

Many variations of the above illustrated and described cartons and carton blanks are possible without departing from the inventions disclosed herein. Thus, the shape of the bottom panel can be varied as desired as can the shape of the side panels. The angles A, B, C, D, E, F and G may be varied to produce any corner construction desired so long as angle C is maintained substantially equal to angle D, and angle E likewise equal to angle F. In like manner, the configuration of bridge panel 24 may

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be varied as desired, and the carton and blank may be provided with additional panels such as, for instance, closing flaps hingedly secured to side panels 14, 16, 18 and 20. By proper selection of angles A through G, the angle H (FIG. 2) between bottom panel 12 and the side panels can be made to vary from slightly more than zero degrees to slightly less than 180 degrees.

The number of corner panel portions of bridge panel 24 according to the invention must always be exactly four, which minimum number also simplifies scoring, erecting, etc., as well as resulting in the advantageous structure set forth.

The carton and blank can be constructed from any desirable material such as paper, paperboard, metal or plastic foil, laminates, etc.

What is claimed is:

1. A blank erectable into a carton comprising a bottom panel having two side edges which form a corner, a pair of side panels hingedly connected to said bottom panel adjacent said corner, each of the side panels having a side edge which forms an acute side panel angle with the side edge of the bottom panel and which side edge of the side panel intersects the corner of the bottom panel so that when the blank is erected, the angled side edges of the adjacent side panels come into abutting relationship with each other and the side panels form an acute angle with respect to the bottom panel, and a bridge panel hingedly connecting the adjacent, side edges, said bridge panel comprising four hingedly connected adjacent corner panel portions, each of said corner panel portions having two linear side edge portions intersecting at the bottom panel corner, said bridge panel being foldable into two pleats, and each pleat comprising two adjacent corner panel portions, respectively foldable adjacent one of said side panels when the blank is erected.

2. A blank as defined in claim 1 wherein the angles between said two linear side edges of all said corner panel portions are substantially equal to one another.

3. A carton comprising a bottom panel having a plurality of edges and a plurality of side panels with each side panel hingedly connected to a respective edge of the bottom panel, said carton having a plurality of corners de-

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fined by the intersection of adjacent bottom panel edges, each side panel having an inclined side edge intersecting a corner so that adjacent side panels are in abutting relation along inclined side edges with each side panel forming an acute angle with respect to the bottom panel, a bridge panel hingedly connecting the adjacent side edges of the side panels, said bridge panels comprising four hingedly connected adjacent corner panel portions, each of said corner panel portions having two linear side edge portions intersecting at the bottom panel corner, said bridge panel being foldable into two pleats, and each pleat comprising two adjacent corner panel portions, respectively folded adjacent one of said side panels.

4. A carton as defined in claim 3 wherein each said pleat is disposed in face-to-face contact with the side panel thereadjacent.

5. A carton as defined in claim 4 wherein the angles between said two linear side edges of all said corner panel portions are substantially equal to one another.

6. A carton as defined in claim 5 wherein each said pleat is adhesively bonded to an adjacent side panel.

7. A carton as defined in claim 4 wherein said bottom panel is rectangular.

8. A carton as defined in claim 7 wherein said side panels are trapezoidal.

9. A carton as defined in claim 4 wherein the angles between said two linear sides of each pair of corner panel portions adjacent each side panel are, respectively, substantially equal to one another.

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229—32