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3,229,889

CELLULAR DISPLAY CARTONS

Filed Oct. 2, 1963

4 Sheets-Sheet 1

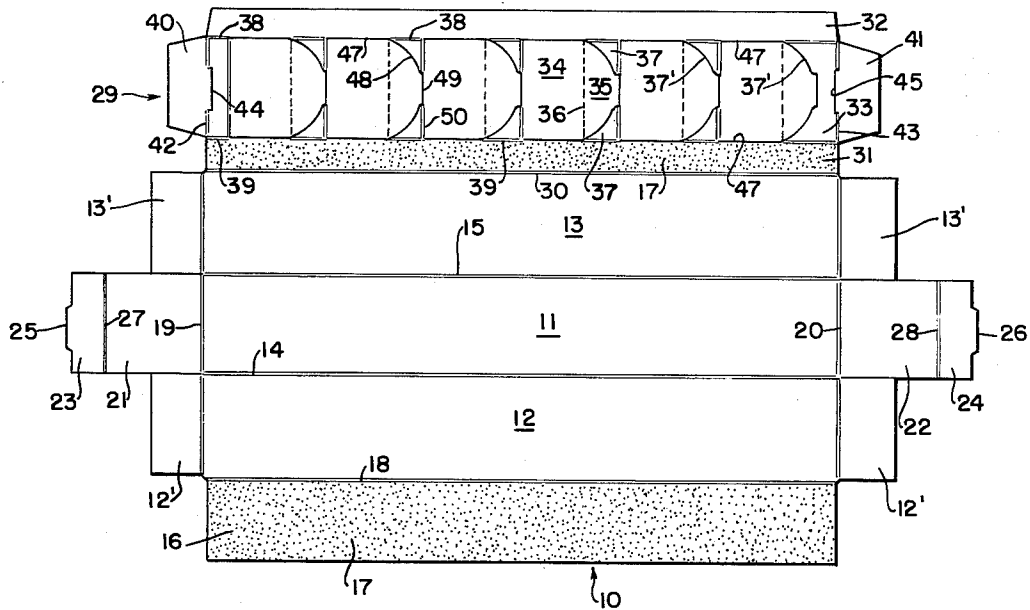


FIG. 1

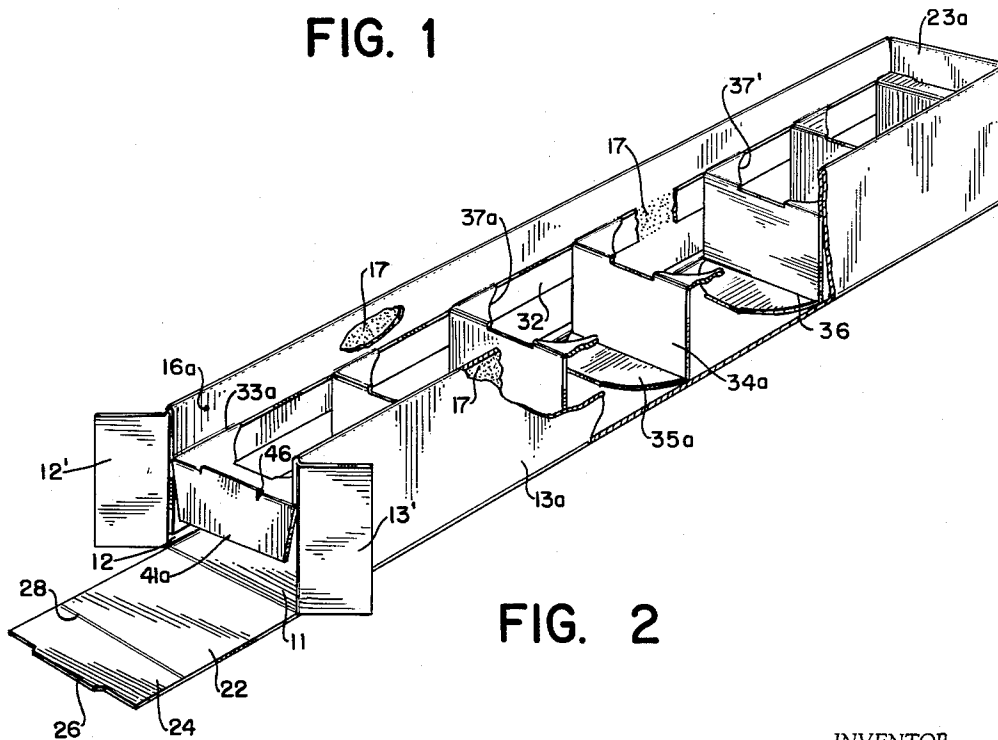


FIG. 2

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4 Sheets-Sheet 2

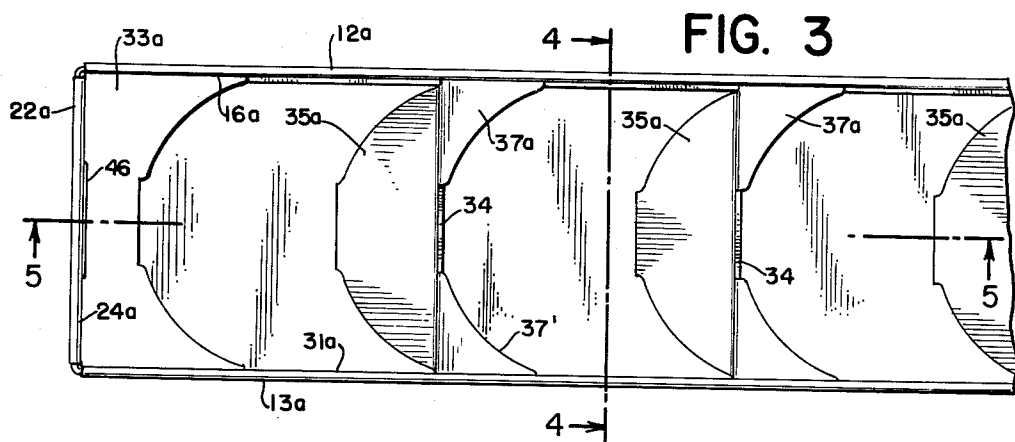


FIG. 4

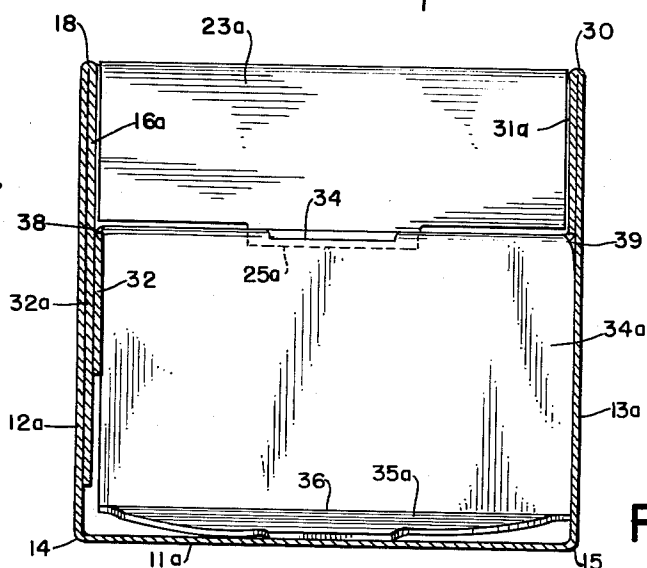
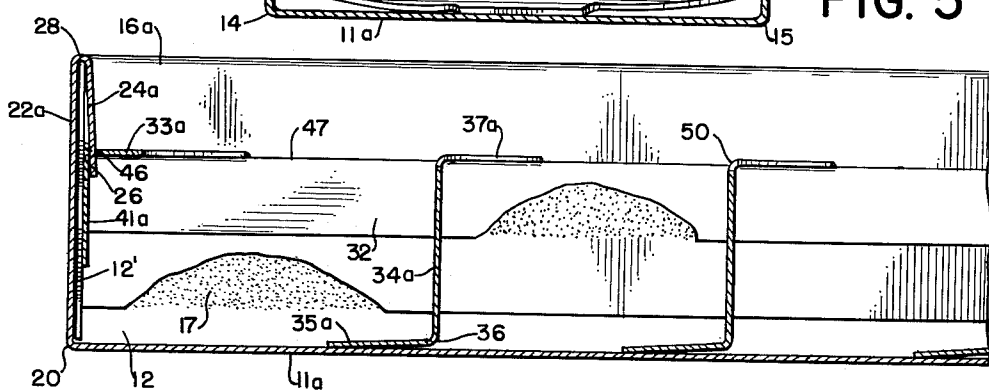


FIG. 5



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4 Sheets-Sheet 3

FIG. 6

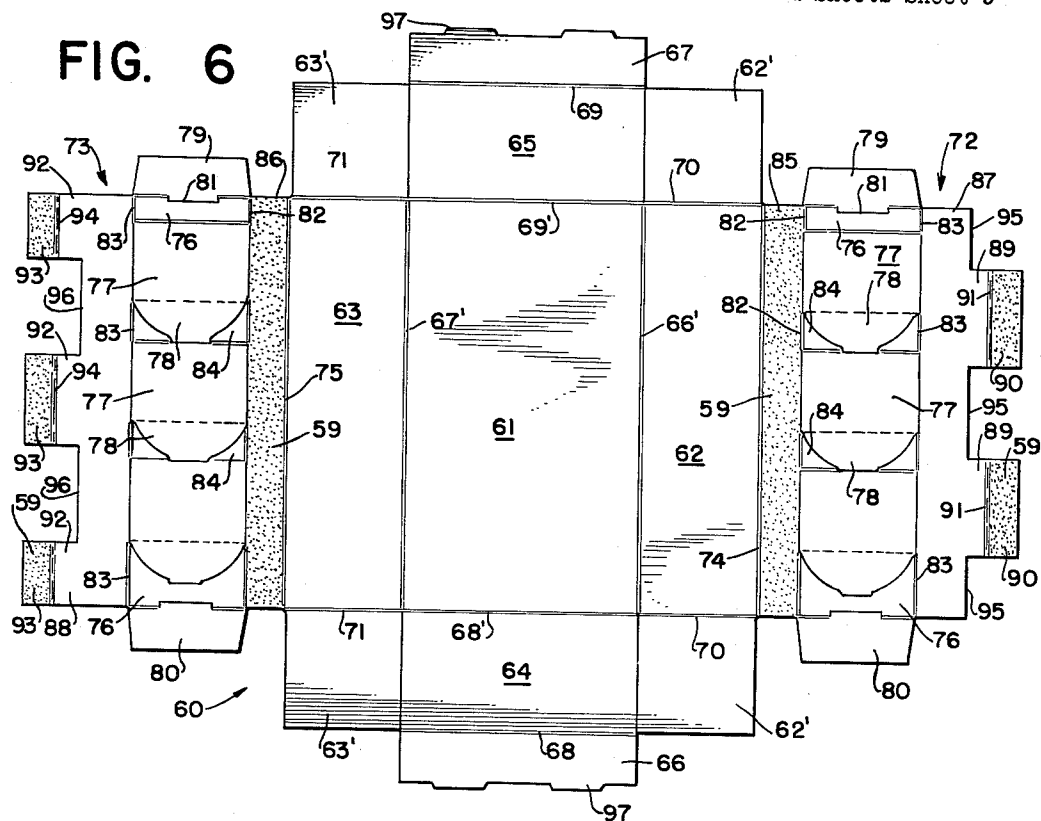
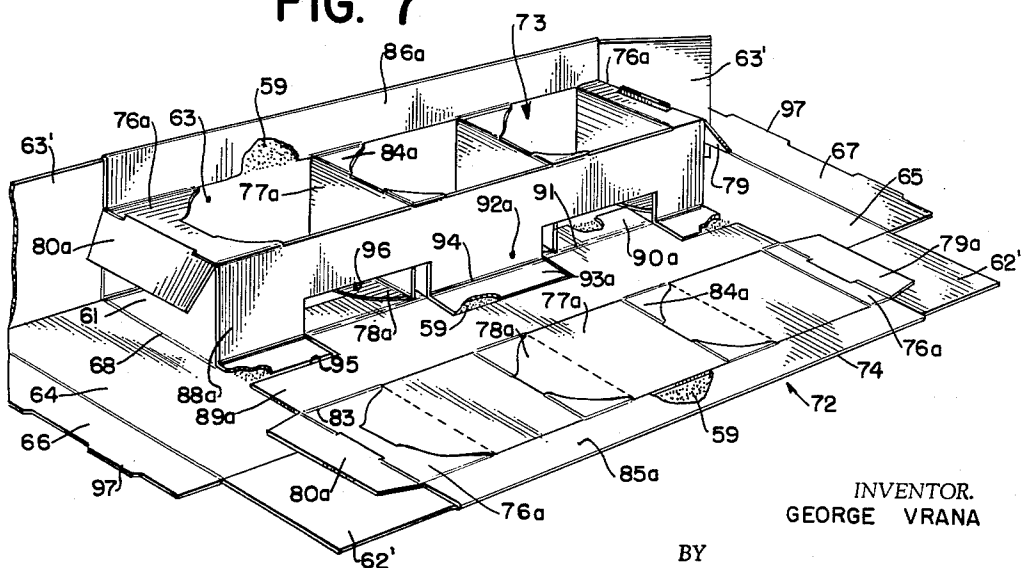


FIG. 7



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4 Sheets-Sheet 4

FIG. 8

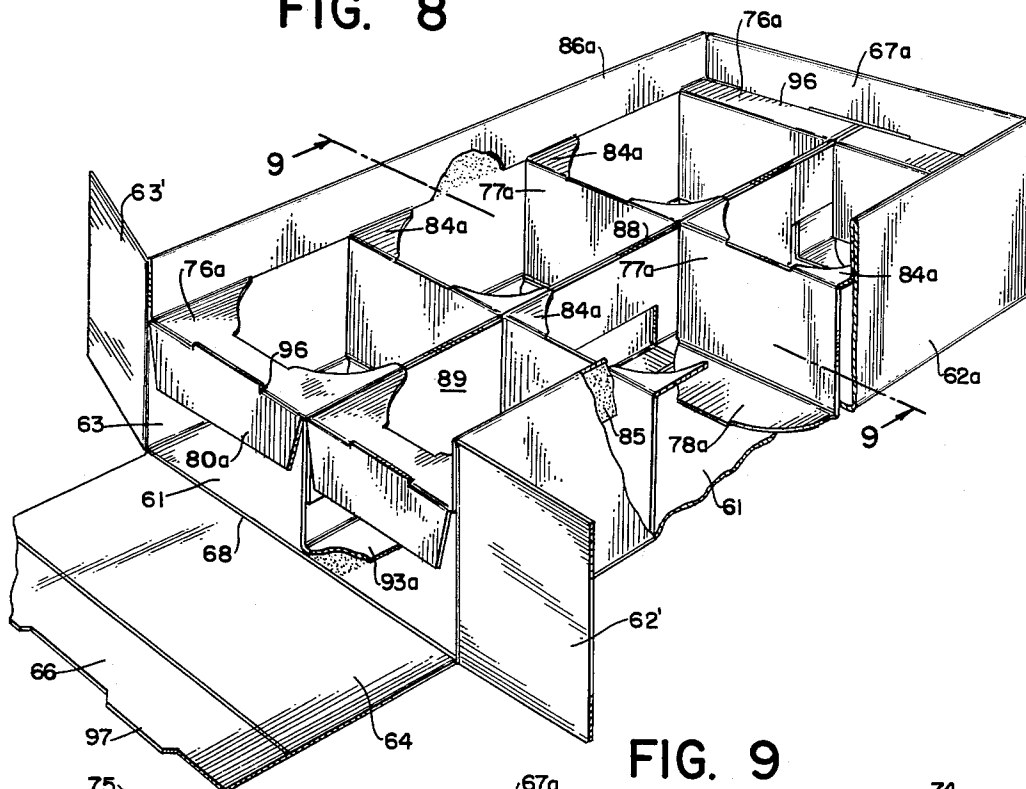
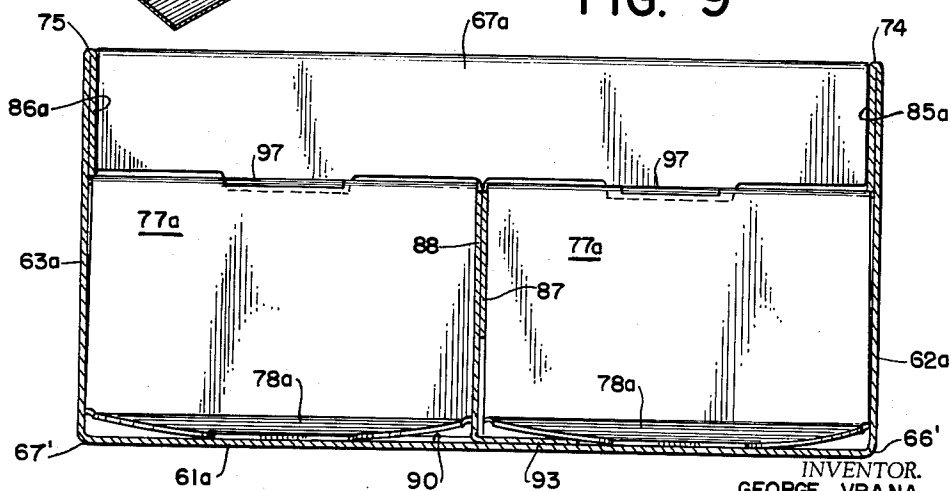


FIG. 9



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1

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CELLULAR DISPLAY CARTONS

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5 Claims. (Cl. 229—28)

The present invention relates to display cartons erectable from collapsed tubes and particularly to cellular display cartons which have exceptional rigidity in all lengths and sizes. More specifically, the cellular display cartons of the present invention are of the general type which is constructed in a manner such that only the finished or printed surface of the carton blank is visible when the carton is erected and filled with merchandise to be displayed.

The display cartons of the present invention includes body portions, having base, side and end walls, and an integral divider structure which is adhesively secured to areas of the body portions in the formation of the collapsed carton tube. In accordance with the principles of the invention, containers may be provided in any length, including extra-long lengths which are desirable for unusual displays but which heretofore have been difficult to manufacture economically in commercially acceptable forms. The cartons are divided into one or two rows of compartments by divider platforms which are glued between walls of the carton and have a series of spaced divider panels foldably suspended therefrom. The divider panels have integral tongue portions extending therefrom and arranged to act frictionally against the bottom wall. The combination of the glued platforms and the suspended divider panels with friction tongues acting against the bottom wall, in accordance with the principles of the invention, gives the cartons exceptional strength and great resistance to crushing regardless of the overall carton length. This is of especial importance in many of the contemplated applications which include the display packaging of fragile or delicate spherical objects such as Christmas tree ornaments, fancy fruits, and the like in extra-long, eye-catching display cartons.

The display cartons of the present invention are characterized by their ease of manufacture and require only a minimal number of folding and gluing steps to complete a flattened carton tube, from which they may be easily and manually erected into a completed, commercially desirable display unit.

To appreciate more fully the above and other aspects of the present invention, reference should be had to the following detailed description taken in conjunction with the accompanying drawings; in which:

FIG. 1 is a plan view of a carton blank for a display carton having a single row of six compartments and embodying the principles of the present invention;

FIG. 2 is a perspective view of a carton embodying the principles of the invention and having six compartments in a single row;

FIG. 3 is a fragmentary top plan view of the carton of FIG. 2;

FIG. 4 is an enlarged cross-sectional view of the carton of FIG. 2 taken along line 4—4 of FIG. 3;

FIG. 5 is a fragmentary longitudinal cross-sectional view of the carton of FIG. 2 taken along line 5—5 of FIG. 3;

FIG. 6 is a plan view of a carton blank for a display carton having two rows of three compartments and embodying the principles of the present invention;

FIGS. 7 and 8 are perspective views of a carton made with the blank of FIG. 6 in partially erected form; and

FIG. 9 is a cross-sectional view of the carton of FIG. 8 taken along line 9—9 thereof.

2

Referring to FIG. 1 of the drawings, a one piece carton blank 10, with its unfinished or printed side exposed, is cut and scored in accordance with the invention to provide the elements of the new and improved display carton. For the sake of added clarity in the drawings, the letter "a" will be added to the reference numerals in FIGS. 2-5, where appropriate, to indicate the decorated or finished side. Specifically, the blank of FIG. 1 includes a rectangular bottom wall panel 11, typically having a length many times its width, and side panels 12, 13 articulated thereto, along longitudinal score lines 14, 15, respectively. As shown, the side panels 12, 13 have end flaps 12', 13' articulated thereto, and a decorative panel 16, having an adhesive coating 17 on its unfinished face, is articulated to the side panel 12 along a score line 18. Attached to the remaining edges of the bottom wall panel 11 along score lines 19, 20 are end panels 21, 22. A pair of tuck flaps 23, 24 having locking tabs 25, 26 are connected to the last-mentioned flaps along score lines 27, 28, respectively.

In accordance with the invention, a divider structure, indicated generally at 29, is articulated to the side panel 13 along a longitudinal score line 30 and includes a glue-carrying panel 31, a glue flap 32, and a divider platform 33 integrally supported therebetween along spaced longitudinal score lines 38, 39. The panel 31 carries an adhesive coating 17 on its unfinished side while the glue flap 32 carries an adhesive coating 17 on its finished side 32a.

In accordance with the principles of the invention, the divider platform 33, includes a series of straight cuts 47 and arcuate cuts 48 defining a plurality of divider panels 34, each of which has an oval friction tongue 35 joined therewith along a perforated hinge line 36. The cuts 48 are substantially arcuate but include U-shaped portions 49 coincident with transverse score lines 50 to facilitate bending of the divider panels out of the plane of the divider platform. The friction tongues are shaped such that pairs of three-cornered gusset portions 37 of the divider platform sections 33 remain to suspend the divider panels therefrom when the carton is erected, as will be described in detail hereinafter. The arcuate cuts 48 provide arcuate bearing surfaces 37' in the divider platform 33 for supporting spherical objects, such as glass ornaments which may be contained in the cells to be formed. Advantageously, the radius of the bearing surfaces 37' may be chosen with relation to the radius of the spherical objects being packaged and the cell size to retain such fragile objects immovably in the cells by slight interference fits.

The end portions of the divider platform have end flaps 40, 41 articulated thereto along score lines 42, 43. These end flaps rigidify the end platform sections when the carton is erected. As shown in FIG. 1, U-shaped cuts 44, 45 define tabs along edges of the end flaps which form locking slots 46 (FIG. 2) when the carton is erected.

In accordance with the principles of the invention, carton blanks may be simply and quickly formed into flat tubes from which display cartons may be easily formed by hand through the squaring of the tube. To this end the blank shown in FIG. 1 may be efficiently folded and glued into a tube using conventional machinery and methods as follows: Initially, the decorative panel 16 is folded along the score line 18 and adhered to the unfinished side of the side panel 12. Then the divider panel is folded along the score line 30 and the glue panel 31 is joined to the unfinished side of the panel 13. The carton tube is completed by a third folding step in which the side panel 12, with the decorative panel 16 adhered thereto, is folded over the divider panel to secure the glue flap 32 adhesively to the divider panel 16.

A display carton embodying the principles of the invention and having a single row of compartments may be manually erected by squaring the flat-folded carton tube so that the side walls 12, 13 are perpendicular to the bottom 11, as shown in FIGS. 2-5. The ends of the display carton may then be erected by folding the platform flaps 40, 41 downwardly to form the locking slots 46, folding the end flaps 12', 13' inwardly, folding the end panels upwardly, folding the tuck flaps over the end flaps, and inserting the locking tabs into the locking slots to lock the carton in its erected form. Individual compartments or cells are formed easily and quickly by pressing the divider panels downwardly out of the plane of the platform panel 33 and into a perpendicular relation therewith as best shown in FIGS. 4 and 5. The appended friction tongues 35 will bend along the line of perforation and will tend to hold the divider panels in their desired cell-forming positions. Furthermore, the tongues function importantly to provide transverse carton rigidity and to give added resistance to crushing.

It should be appreciated from FIGS. 2-5 that in its erected condition the display carton of the invention has only decorated or finished surfaces exposed above the plane of the divider platform, which, as illustrated, is advantageously above the center line of the side walls. It is to be understood that the term "decorated surface" includes printed surfaces or the more attractive surface of a paperboard which has a reverse side having suitable properties of strength but a less attractive appearance. Upon completion, the carton may be overwrapped with cellophane or the like, to provide an especially attractive package. Moreover, the carton lends itself to construction in unusually long, eye-catching lengths, due to the structural rigidity provided at all sections therealong by the friction tongues and the glued panels 31, 32.

An alternate embodiment of the invention, having twin rows of cells and substantially the same advantages and attributes of the carton of FIGS. 1-5, may be constructed from the carton blank 60 shown in FIG. 6 with its unfinished side up. In FIGS. 7-9, for more clarity of disclosure, the finished or decorated side of the carton blank will be indicated by the addition of the letter "a" to the reference numerals where appropriate.

Specifically, the carton blank 60 includes a rectangular base panel 61, having side wall panels 62, 63 and end wall panels 64, 65 articulated thereto along score lines 66'-69', respectively. The end wall panels 64, 65 have tuck flaps 66, 67 connected thereto along crease lines 68, 69, while the side wall panels have end flaps 62', 63', hingedly connected thereto along score lines 70, 71, respectively.

In accordance with the principles of the invention, the side wall panels 62, 63 have divider structures, generally indicated at 72, 73, articulated thereto along score lines 74, 75, respectively. The divider structures 72, 73 are similar to divider structure 29 described hereinabove, and include a divider platform 76 having divider panels 77 and friction tongues 78 formed therein in the same manner that the divider panels 34 and tongues 35 of the single row carton are formed. Thus, the divider platform 76 also includes platform flaps 79, 80, U-shaped locking cuts 81, longitudinal score lines 82, 83, and three-cornered portions 84. Similarly to the carton blank of FIG. 1, the divider structures 72, 73 include glue panels 85, 86, respectively, and are integrally connected therealong to the side wall panels 62, 63. The glue panels have adhesive 59 applied to their unfinished sides.

In the two-row carton construction, the divider structures 72, 73 have supporting wall panels 87, 88 articulated to the platforms 76 along score lines 83. The supporting wall panel 87 has a series of legs 89 disposed along the free edge thereof, each leg having a glue flap 90 associated therewith along a crease 91. Likewise, the supporting wall panel 88 has a series of legs 92 disposed along the free edge thereof, each leg having a glue flap

93, carrying adhesive 59 on its unfinished side, associated therewith along a crease 94. However, in accordance with the invention and as shown clearly in FIG. 6, the legs 89, 92 are disposed along alternate longitudinal areas of the blank 60. Thus, the legs 92 are located opposite openings 95 between the legs 89, and the legs 89 are disposed opposite openings 96 between the legs 92. It will be appreciated that in the manufacture of the carton of the invention a series of blanks may be laid out consecutively on a sheet of paperboard with the legs 89 and 92 interlocked, or nested, to realize a savings in paperboard. The structural purpose of this specific relationship will be explained in detail hereinafter.

A flattened carton tube for the two-row embodiment of the invention may be formed simply and expeditiously by only two folds which may be performed consecutively or simultaneously, as desired or found necessary. Specifically, the divider structures 72, 73 are folded inwardly along score lines 74, 75. The supporting wall panels are then adhesively secured to the base panel 61 in a dovetailed or interlocked fashion, while the glue panels 85, 86 overlies and are adhesively secured to the upper portions of the side wall panels 62, 63. Thus, in the flat, folded condition, the score lines 91, 94 will lie along the central longitudinal axis of the base panel 61 and the glue flaps 90, 93 will lie alternately to either side thereof in the openings 96, 95, respectively.

Erection of the two-row display carton of the invention may be accomplished simply by squaring each of the divider panels, substantially as shown in FIGS. 7 and 8, folding the platform flaps 79, 80 downwardly to form locking slots 96, folding the end flaps 62', 63' inwardly, folding the end panels 64, 65 upwardly, and then inserting locking tabs 97 of the tuck flaps 66, 67 into the locking slots 96. Completion of the individual compartments is effected, in a manner similar to that used in the single row carton, by depressing the divider panels 77 from the plane of the divider platform 76, so that they are substantially perpendicular to the base panel 61 and maintained in that position by the friction tongues 78, as shown best in FIGS. 8 and 9.

The double row carton, like the single row carton, is unusually rigid and is adaptable to be manufactured in any length without sacrifice of strength. As shown in FIG. 9, the supporting wall panels 87, 88 cooperate to form a two-ply spine for the carton which additionally contributes to the overall strength of the carton.

The display cartons of the present invention provide a decorative and rigid structure particularly useful for holding fragile objects which may be safely contained therein and overwrapped to provide a neat, attractive, and commercially acceptable display package. Moreover, the cartons may be manufactured simply and economically with existing machinery and in any reasonable length.

It should be understood that the specific embodiments of the invention herein illustrated and described are intended to be representative only, as certain changes may be made therein without departing from the clear teachings of the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

What is claimed is:

1. A recessed display carton, adapted to be erected from a carton blank having a predetermined finished side, comprising

- (a) a rectangular base wall having upstanding side and end walls connected thereto, said walls having finished sides on the outside of the carton,
- (b) at least one of said side walls having a divider structure connected thereto,
- (c) said divider structure including a divider platform panel and a glue panel, said panels being exposed on their finished sides in the erected form of said carton,

5

- (d) said glue panel extending from the upper edge of said side wall to said platform and being secured in overlying relation with said side wall,
- (e) glue flap means associated with said divider platform and secured to another of said carton walls, 5 beneath the plane of said divider platform,
- (f) divider panel means hingedly connected to and suspended from said divider platform along a line of weakness,
- (g) said divider panel means including tongue means frictionally engaging said base panel and thereby tending to hold said divider panel means in a predetermined relation with said base wall by said frictional engagement only, said predetermined relation being adjustable by sliding said frictionally engaged tongue means along said base panel and hinging said divider panel means along said line of weakness, 10
- (h) said divider platform being maintained in a plane parallel with said base panel and below the upper edges of said side walls to define the lower wall of a rectangularly prismatic recess, 20
- (i) said other side wall having panel means connected to the free edge thereof,
- (j) said panel means being folded upon said other side wall and adhered thereto above the plane of said divider platform, said panel means being exposed on its finished side, and 25
- (k) tuck panels connected to said end walls and extending downwardly therefrom to said divider platform, said tuck panels having their finished sides exposed in the erected condition of said carton, whereby said recess includes sides defined by said panel means, said tuck panels, and said glue panel, said recess thereby presenting five finished sides to view. 30

2. The carton of claim 1, in which

- (a) said panel means extends below the plane of said divider platform, and
- (b) said glue flap means is adhered to said panel means. 40

3. The carton of claim 1, in which

- (a) each of said side walls has a divider structure connected thereto,
- (b) supporting panel means are connected to said divider platform means and said glue flap means, 45
- (c) said glue flap means is adhered to said base wall,
- (d) said supporting panel means of each divider structure abut intermediate the carton side walls in a plane parallel thereto.

4. A carton blank for a cellular display carton comprising a single sheet of paperboard or the like, having

6

- (a) a rectangular base panel,
- (b) first and second side wall panels of predetermined height connected to said base panel along longitudinal score lines,
- (c) end wall panels of said predetermined height connected to said base panel along transverse score lines,
- (d) side flaps connected to said side wall panels along said transverse score lines,
- (e) tuck flaps connected to said end wall panels,
- (f) glue panels connected to said first and second side walls,
- (g) first and second platforms connected to said glue panels and having a series of divider panels formed therein by transverse score lines and substantially U-shaped cuts,
- (h) said divider panels including friction tongues defined by arcuate portions of said U-shaped cuts and transverse lines of weakness,
- (i) first and second support panels connected respectively to the longitudinal free edges of said first and second divider platform panels,
- (j) said support panels including spaced leg portions having glue flaps connected thereto,
- (k) said leg portions of said first support panel being alternately disposed from said leg portions of said second support panel,
- (l) said leg portions being adapted to assume a dovetailed relationship upon the folding of said glue panels and said divider platform panels back upon said side wall and base wall panels in the formation of carton tube.

5. The blank of claim 4, in which

- (a) adhesive means are included on said glue flaps and said glue panels on the same side of said sheet.

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