Feb. 19, 1963 G. V. SKOWRONSKI 3,078,028

DISPLAY CARTON

Filed Jan. 23, 1961 4 Sheets-Sheet 1

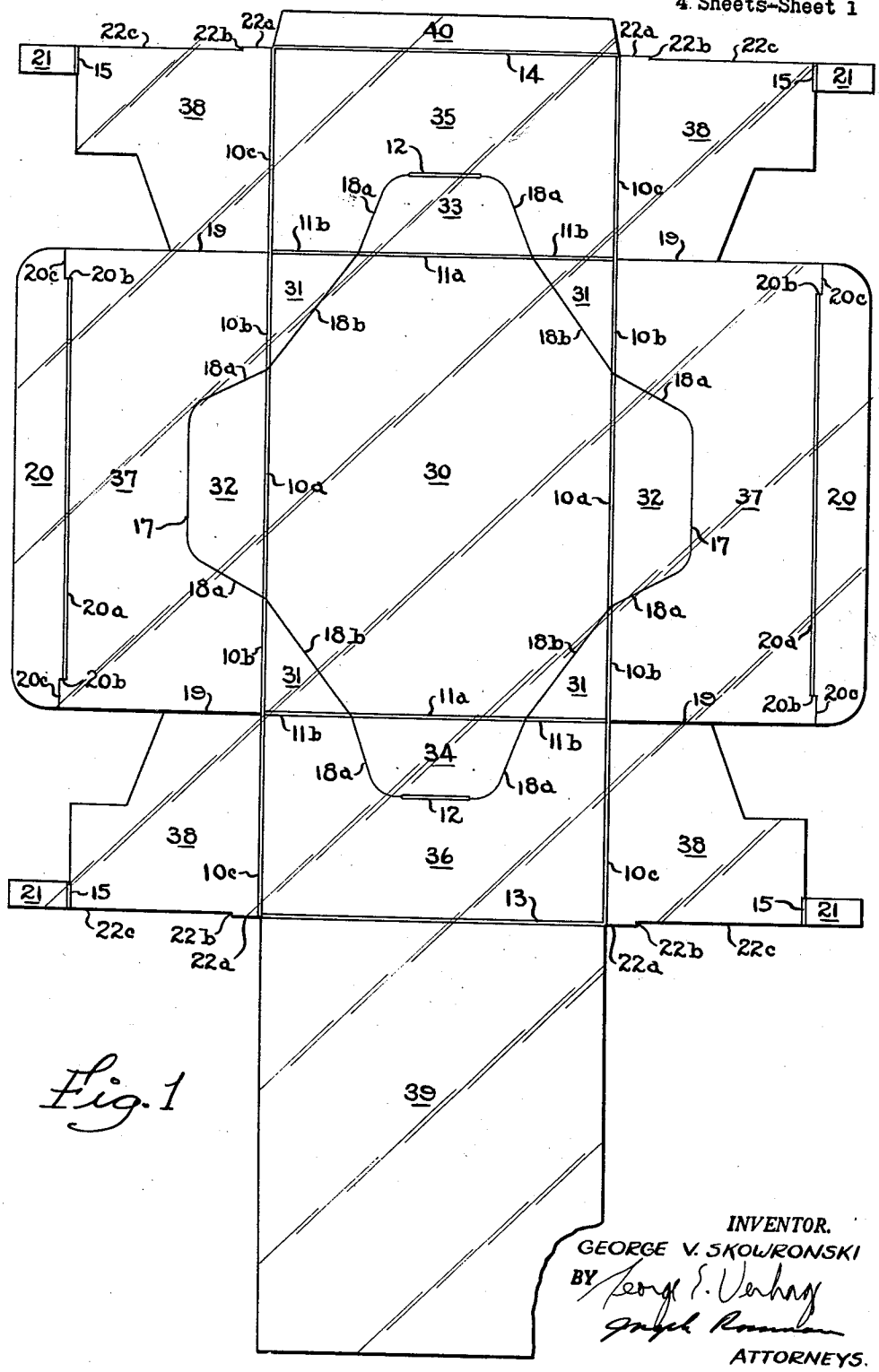


Fig. 1

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Filed Jan. 23, 1961 4 Sheets-Sheet 2

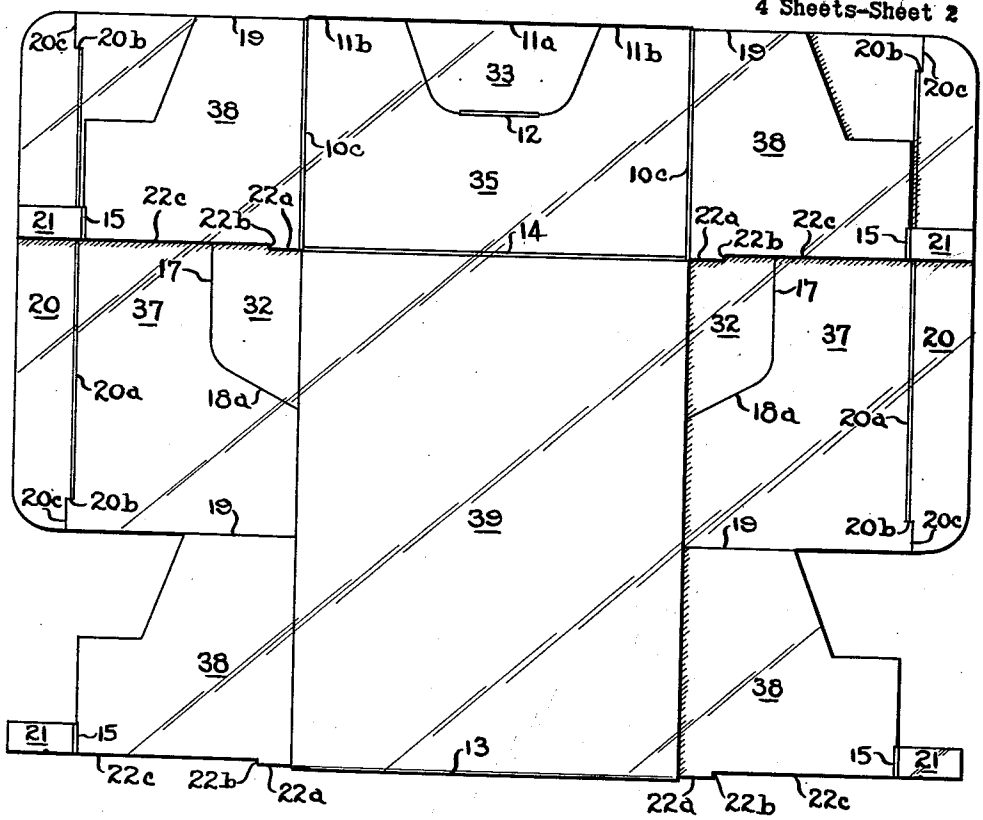


Fig. 2

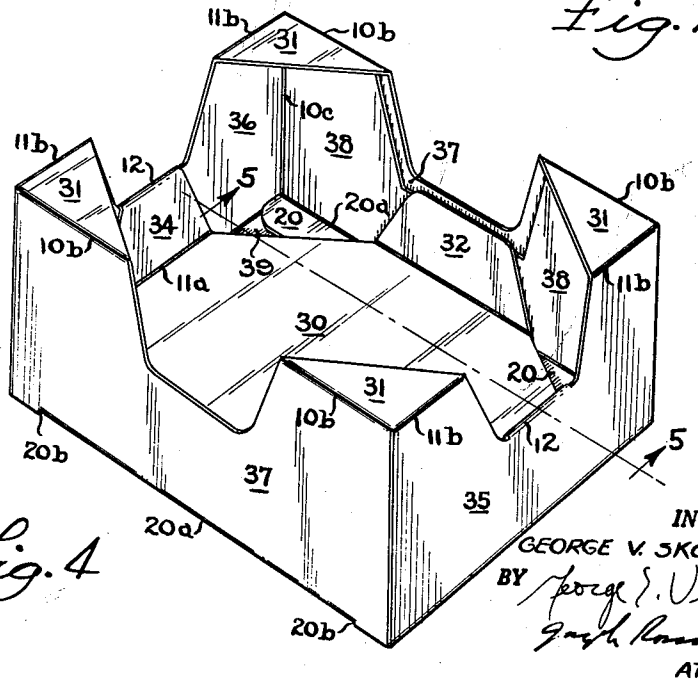


Fig. 4

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DISPLAY CARTON

Filed Jan. 23, 1961 4 Sheets-Sheet 3

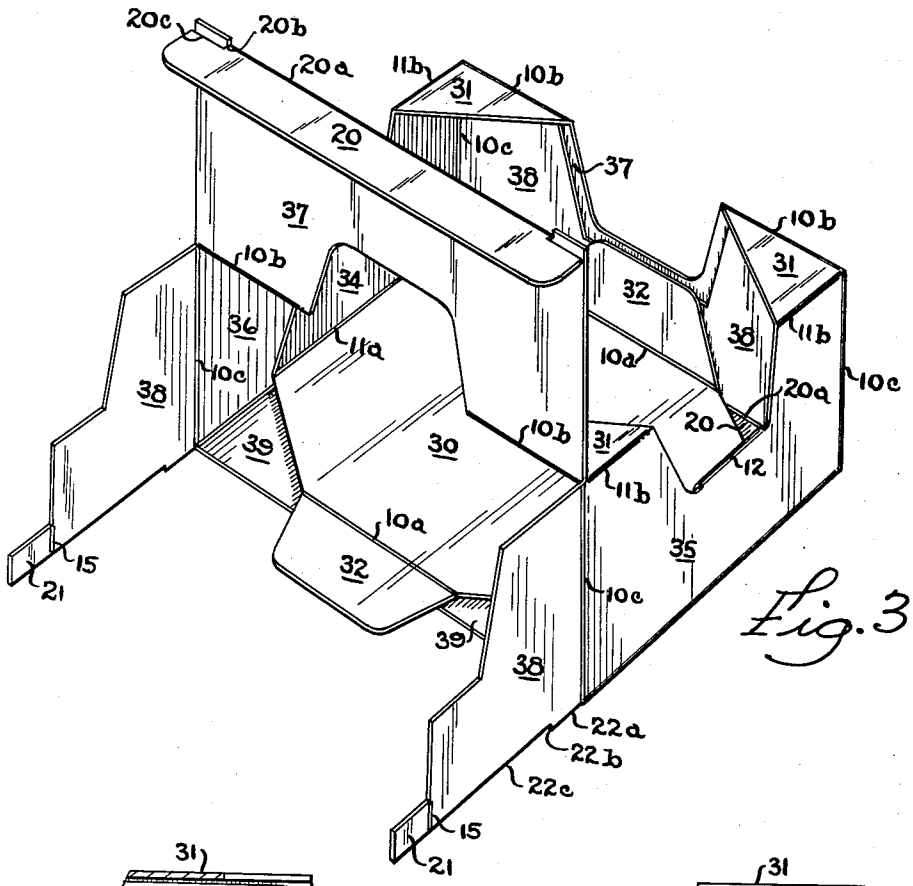


Fig. 3

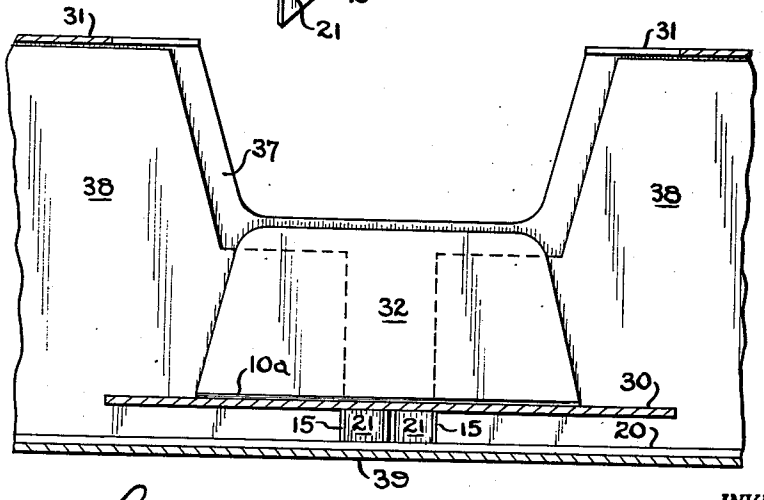


Fig. 5

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DISPLAY CARTON

Filed Jan. 23, 1961

4 Sheets-Sheet 4

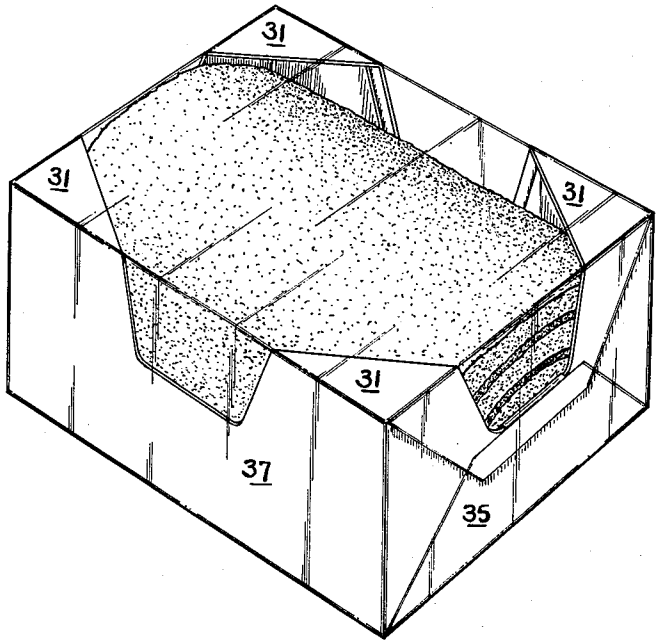


Fig. 6

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3,078,028

DISPLAY CARTON

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8 Claim. (Cl. 229—30)

This invention relates to a cushioned display carton which may be made from a single blank. More specifically, the invention may with particular advantage be used as a carton for the display packaging of food products.

It is desirable when displaying certain foods to employ a windowed carton. Usually these cartons are six sided with a portion of top panel removed to form a window opening. These cartons are usually either completely overwrapped or else have a sheet of transparent material attached to the perimeter of and covering the opening. Rather than merely employ a carton blank with the center portion of the top panel removed and unused, it is considerably more economical to employ an integral blank wherein the removable center portion of the top panel drops down to form the bottom panel in the completed carton. This reduces the overall area of the blank required since allowance of extra material around the perimeter of the blank for forming the bottom panel is eliminated.

In the packaging of certain foods, it is desirable to construct the cartons in such a manner as to minimize damage to the product due to dropping. Several methods including the use of packing, suspension of the product off the bottom of the carton by side pressure means and separate cradle means have been employed to prevent contact between the commodity and the bottom of the package. Such methods prevent damage to the packaged commodity if any portion of the bottom is broken or crushed.

The above mentioned methods of the prior art have proved unsatisfactory from several standpoints. For instance, the addition of a packing material is time consuming, not well suited to large scale, quick loading procedures and the packing clings to the commodity necessitating separation by the consumer. In the case of suspension by pressure means against the sides of the commodity, slippage and deformation of the commodity commonly occurs. The use of separate cradle means involves additional material and is time consuming to completely set up the carton.

According to the present invention a carton utilizing the drop down of a portion of what would normally be the top panel to form a cushion panel can be constructed from a single piece of material so that the carton can be readily machine loaded, closed and provide positive means for suspending the commodity at a distance from the bottom of the carton to prevent dropping damage to the packaged commodity. The carton of this invention after being loaded and closed can be overwrapped or have transparent sheet material attached to the window opening to form an attractive windowed display package.

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

FIGURE 1 is a plan view of a single blank suitably cut and scored to form a carton having a cushioning panel for suspending the commodity to be contained therein at a predetermined distance from the bottom of the carton,

FIGURE 2 is a plan view of the blank of FIGURE 1 following folding and gluing of the bottom panel,

FIGURE 3 is a perspective view of the blank of FIGURE 1 partially set up to form the carton shell,

FIGURE 4 is a perspective view of the closed carton,

FIGURE 5 is a sectional end view of the closed carton taken along 5—5 of FIGURE 4, and

FIGURE 6 is a perspective view of the closed carton containing the commodity and overwrapped with a transparent sheet material.

Referring to FIGURE 1, the carton is made of a single foldable blank of flexible material such as paperboard. The blank is divided by score lines 10*a*—10*c*, 11*a*—11*b*, 12—14 and cut lines 17, 18*a*—18*b* and 19 into hingedly connected panels and flaps, including cushion panel 30, top panels 31, inner end panels 32, inner side panels 33, 34, outer side panels 35, 36, outer end panels 37, closure flaps 38, bottom panel 39 and glue flap 40.

Supporting tabs 21, hingedly connected along score lines 15, project from closure flaps 38. Locking tabs 20 are hingedly connected along score lines 20*a* to outer end panels 37. Score line 20*a* is located inward of the outer edge of the outer side panel 37 as defined by cut lines 20*c* so that when the locking tab is folded about score line 20*a* it lies inward of the outer edge of the outer side panel. The bottom edges of closure flaps 38 are cut at 22*b*, a distance approximately equal to the thickness of the blank, so that edge portion 22*c* lies inward of outer edge portion 22*a*. Edge portions 22*a* of closure flaps 38 are essentially equal in length to cut lines 20*c* of locking tabs 20. When the carton is closed, edge portion 20*c* of locking tab 20 seats behind edge portion 22*a* of closure flap 38 in locked relationship as will be more fully explained herein.

After the blank has been formed, adhesive is applied to the underside of glue flap 40. The side panel with glue flap 40 connected thereto is folded inwardly along score line 11*a*—11*b* to lie flat in superposed relationship on cushion panel 30. Bottom panel 39 is then folded inwardly along score line 13 to lie flat in superposed relationship on cushion panel 30 and adhered along the outer edge to glue flap 40. The glued carton blank is shown in FIGURE 2. The carton blank in this stage may be shipped to the user where it can be readily set up, loaded and locked in the user's plant.

In setting up the carton, the glued blank of FIGURE 2 is squared to form a carton shell. Cushion panel 30 is then dropped down out of the top panel by folding inner side panels 33, 34 outwardly and downwardly from their initial position in the squared shell. Inner side panels 33, 34 are parallel to and in abutting relationship with outer side panels 35, 36, respectively. The double thickness of the side panels provides additional strength to prevent the inward collapse of the carton when loaded. This stage in the carton erection is shown in FIGURE 3. Outer end panel 37 is shown in raised position to facilitate depiction of the end construction.

The location of the cushion panel 30 with respect to the top and bottom panels is determined by score lines 12 in the side panels. Score lines 12 are located closer to the upper edges of the carton than to the bottom edges. Thus the height of the inner side panels 33, 34 is less than the height of the portions of the outer side panels 35, 36 from score lines 12 to the bottom edge of said outer side panels. Hence when folded down, cushion panel 30 will be parallel to, but suspended above bottom panel 39. Thus the distance between cushion panel 30 and bottom panel 39 in the erected carton is established by the predetermined location of score lines 12 in the carton blank. The actual distance employed between the bottom panel, and cushion panel is determined by a balancing of economic considerations. Preferably, the paperboard or other material employed should be resilient, yet stiff enough to prevent undue depression of the cushioning panel when the carton is loaded. Since the thicker the material the greater

the cost, a thinner more flexible material would be advantageous from the economic standpoint. But this would necessitate a greater distance between the bottom and cushioning panels either reducing the loading area per given carton size or else increasing the size of the particular carton necessary for a given commodity, both of which add to the production costs.

In order to close the carton shell, inner end panels **32** are folded upwardly and inwardly along score lines **10***a* so as to stand approximately perpendicular to cushion panel **30**. Supporting tabs **21** are then folded inwardly along score lines **15** to approximately right angles with closure flaps **38**. Closure flaps **38** are then folded inwardly against inner end panels **32** in superposed relationship. When closure flaps **38** are adjacent to inner end panels **32**, supporting tabs **21** abut each other between bottom panel **39** and cushion panel **30**. Locking tabs **20** are folded down about score lines **20***a* to a position perpendicular to outer end panels **37**. Outer end panels **37** are then folded down along score lines **10***b* with locking tabs **20** inserted between bottom panel **39** and the bottom edges of closure flaps **38** in locked relationship. The closed carton is shown in FIGURE 4.

FIGURE 5 is an end sectional view showing the end support for cushion panel **30**. Cushion panel **30** is supported on all four edges. Panel **30**, as defined by score lines **11***a*, is hingedly connected along its side edges to inner side panels **33** and **34**. Supporting tabs **21** are interposed between the cushion panel **30** and the bottom of the carton. The height of the supporting tabs is correlated with score lines **12** so as to maintain the end edges of the cushion panel **30** the same distance as the side edges are from the bottom panel **39**.

Prior to the closing of the carton shell shown in FIGURE 3 the commodity to be packaged can be readily inserted either by hand or by machine. The carton is then closed and overwrapped to form the finished display package shown in FIGURE 6. Alternatively the carton may be closed first, then the commodity to be packaged inserted through the top and an overwrap applied. A transparent sheet material, which forms an outside window when adhered to the periphery of the window opening, may be employed rather than an overwrap, if maintaining the freshness of the commodity to be packaged is not critical.

The present invention provides a carton that can be made from a unitary blank. The carton can be readily set up, filled with the commodity to be packaged, and locked by automatic machinery. The carton provides a maximum of window area, yet retains its original shape with bending and bulging minimized by support along all four edges of the cushioned panel. The carton minimizes damage to the packaged commodity caused by dropping, by its cushion panel suspending the commodity above the bottom panel at a predetermined distance.

Although the cushion panel **30** in the specific embodiment is provided with supporting tabs **21** at the end edges, it is apparent that if a lesser degree of support is required, the cushion panel may be suspended from the inner side panels only. This embodiment is not preferred due to the greater degree of carton distortion when suspension is along two edges only. Since the particular end closure means i.e. the locking tabs, do not form part of the invention, other appropriate locking means, stapling or gluing may be employed. In place of the overwrap, a sheet of transparent material may be adhered at its periphery to the edge of the opening defined by score lines **12** and cut lines **17** and **18***a*—**18***b*. It is apparent that the size and shape of the carton and the material from which it is formed may be varied in numerous ways according to the desires of those skilled in the art without departing from the spirit of the invention.

I claim:

1. A unitary carton blank adapted to be formed into a display carton having window openings, said blank being suitably cut and scored to form a central panel defined by a pair of longitudinal parallel spaced score lines and a pair of transverse parallel spaced score lines; a pair of opposed side panels hingedly attached to said central panel along said longitudinal score lines; a pair of opposed end panels hingedly attached to said central panel by said transverse score lines and having end closure means hingedly attached thereto; a bottom panel hingedly attached to one of said side panels along the longitudinal edge opposite the said central panel; said central panel being divided by angular cut lines near the corners thereof into a cushion panel and top panels located at the corners of said central panel; said side panels bearing internal score lines lying nearer to the longitudinal edge thereof adjacent said central panel than to the opposite longitudinal edge, the ends of said internal score lines being connected by cut lines with the adjacent ends of said angular cut lines whereby said side panels are divided into inner side panels lying adjacent the longitudinal edges of said cushion panel and outer side panels lying outside said connecting cut lines and said internal score lines joining them.

2. The carton blank of claim 1 wherein said outer side panels have dust flaps hingedly attached to the lateral edges, said dust flaps having supporting tabs hingedly attacehd to the edge opposite said outer side panels.

3. The carton blank of claim 1 wherein said end panels bear internal cut lines lying nearer the edge adjacent said central panel than to the opposite edge, the ends of said internal cut lines being connected by cut lines with the adjacent ends of said angular cut lines whereby said end panels are divided into inner end panels lying adjacent the lateral edge of said cushion panel and outer end panels lying outside said connecting cut lines and the internal cut lines joining them.

4. The carton blank of claim 3 wherein said outer side panels have dust flaps hingedly attached to the lateral edges, said dust flaps having supporting tabs hingedly attached to the edge opposite said outer side panels.

5. A cushioned display carton formed of a single blank suitably cut and scored comprising a pair of opposed outer side panels being cut away at their upper central portions; polygonal top panels hingedly connected to the lateral portions of the upper edges of the outer side panels located at the ends of said carton and of size to close only a portion of the top of the carton; a pair of opposed inner side panels hingedly connected to said outer side panels at score lines which form the upper edges of said inner side panels and are intermediate the upper and lower edges of said outer side panels, the height of said inner side panels being appreciably less than the distance from said score lines to the lower edges of the outer side panels; a cushion panel hingedly connected along an opposite pair of side edges to the lower edges of said inner side panels at a distance from the lower edge of said carton equal to the difference in height between the lower edges of said inner side panels and the lower edges of said outer side panels; a pair of opposed end panels attached at their upper edges to said top panels; a bottom panel hingedly attached to the lower edges of said outer side panels and closure means hingedly connected to the end edges of said carton for maintaining the carton in permanent set-up form with said cushion panel being suspended an appreciable distance above the bottom panel and to provide a continuous window opening comprising the cut away portions of said outer side panels and the unclosed portion of the top of the carton.

6. A cushioned display carton formed of a single blank suitably cut and scored comprising a pair of opposed outer side panels being cut away at their upper central portions; polygonal top panels hingedly connected to the lateral portions of the upper edges of the outer side panels located at the ends of said carton and of size to close only a portion of the top of the carton; a pair of opposed inner side panels hingedly connected to said outer side panels

at score lines which form the upper edges of said inner side panels and are intermediate the top and bottom edges of said outer side panels, the height of said inner side panels being appreciably less than the distance from said score lines to the lower edges of the outer side panels; a cushion panel hingedly connected along an opposite pair of side edges to the lower edges of said inner side panels at a distance from the lower edge of said carton equal to the difference in height between the lower edges of said inner side panels and the lower edges of said outer side panels; a pair of opposed end panels attached at their upper edges to said top panels; a bottom panel hingedly attached to the lower edges of said outer side panels and closure means hingedly connected to the end edges of said carton; said closure means having supporting tabs hingedly attached thereto, said supporting tabs located in the closed carton between and in contact with the top of said bottom panel and the bottom of said cushion panel at the lateral edges of said panels so as to support said cushion panel at a distance from said bottom panel and to provide a continuous window opening comprising the cut away portions of said outer side panels and the unclosed portion of the top of the carton.

7. A cushioned display carton formed of a single blank suitably cut and scored comprising a pair of opposed outer side panels being cut away at their upper central portions; polygonal top panels hingedly connected to the lateral portions of the upper edges of the outer side panels located at the ends of said carton and of size to close only a portion of the top of the carton; a pair of opposed inner side panels hingedly connected to said outer side panels at score lines which form the upper edges of said inner side panels and are intermediate the top and bottom edges of said outer side panels, the height of said inner side panels being appreciably less than the distance from said score lines to the lower edges of the outer side panels; a cushion panel hingedly connected along an opposite pair of side edges to the lower edges of said inner side panels at a distance from the lower edge of said carton equal to the difference in height between the lower edges of said inner side panels and the lower edges of said outer side panels; a pair of opposed end panels attached at their upper edges to said top panels, said end panels comprising a pair of opposed outer end panels being cut away at their upper central portions hingedly connected at the lateral portions of their upper edges to said polygonal top panels, a pair of opposed inner end panels located between, parallel to and in contact with said outer end panels with each conforming to the shape of the portion cut away in the outer end panels and with the bottoms of the cut out portions in the outer end panels coinciding with the tops of said inner end panels intermediate the top and bottom edges of said outer end panels, said inner end panels being hingedly connected at their lower edges to said cushion panel; a bottom panel hingedly attached to the lower edges of said outer side panels and closure

means hingedly connected to the end edges of said carton for maintaining the carton in permanent set-up form with said cushion panel being suspended an appreciable distance above the bottom panel and to provide a continuous window opening comprising the cut away portions of said outer side panels and the unclosed portion of the top of the carton.

8. A cushioned display carton formed of a single blank suitably cut and scored comprising a pair of opposed outer side panels being cut away at their upper central portions; polygonal top panels hingedly connected to the lateral portions of the upper edges of the outer side panels located at the ends of said carton and of size to close only a portion of the top of the carton; a pair of opposed inner side panels hingedly connected to said outer side panels at score lines which form the upper edges of said inner side panels and are intermediate the top and bottom edges of said outer side panels, the height of said inner side panels being appreciably less than the distance from said score lines to the lower edges of the outer side panels; a cushion panel hingedly connected along an opposite pair of side edges to the lower edges of said inner side panels at a distance from the lower edge of said carton equal to the difference in height between the lower edges of said inner side panels and the lower edges of said outer side panels; a pair of opposed end panels attached at their upper edges to said top panels, said end panels comprising a pair of opposed outer end panels being cut away at their upper central portions hingedly connected at the lateral portions of their upper edges to said polygonal top panels, a pair of opposed inner end panels located between, parallel to and in contact with said outer end panels with each conforming to the shape of the portion cut away in the outer end panels and with the bottoms of the cut out portions in the outer end panels coinciding with the tops of said inner end panels intermediate the top and bottom edges of said outer end panels, said inner end panels being hingedly connected at their lower edges to said cushion panel; a bottom panel hingedly attached to the lower edges of said outer side panels and closure means hingedly connected to the end edges of said carton; said closure means having supporting tabs hingedly attached thereto, said supporting tabs located in the closed carton between and in contact with the top of said bottom panel and the bottom of said cushion panel at the lateral edges of said panels so as to support said cushion panel at a distance from said bottom panel and to provide a continuous window opening comprising the cut away portions of said outer side panels and the unclosed portion of the top of the carton.

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