

Feb. 1, 1966

M. I. WILLIAMSON

3,232,518

HINGED COVER CARTON

Filed Feb. 14, 1964

4 Sheets-Sheet 1

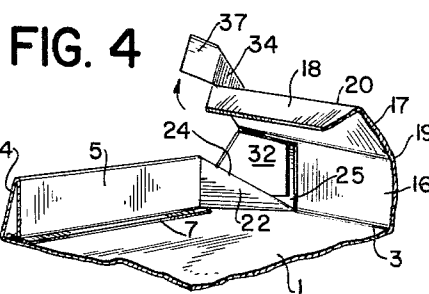
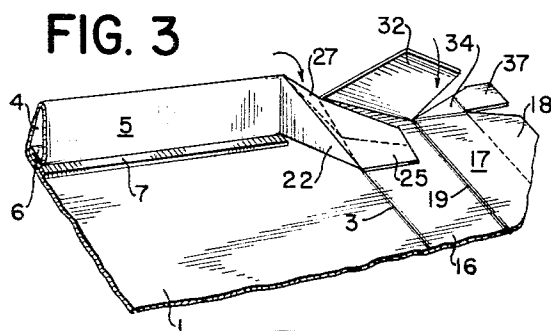
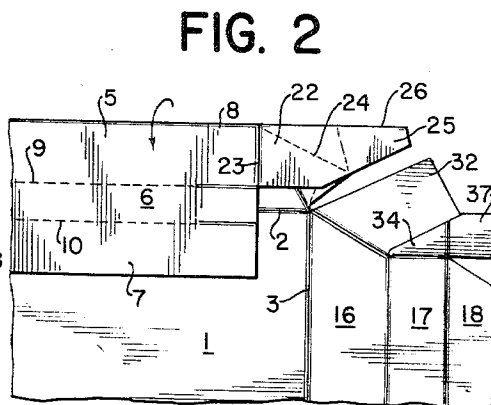
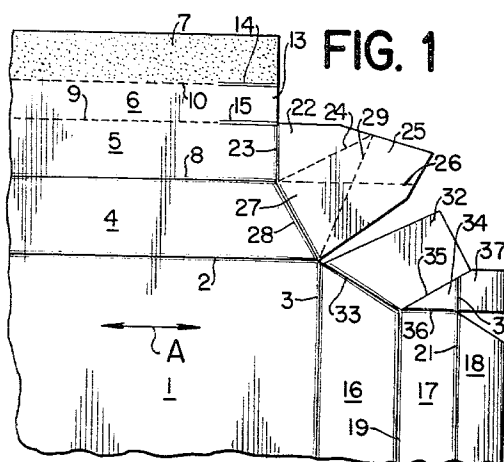


FIG. 5

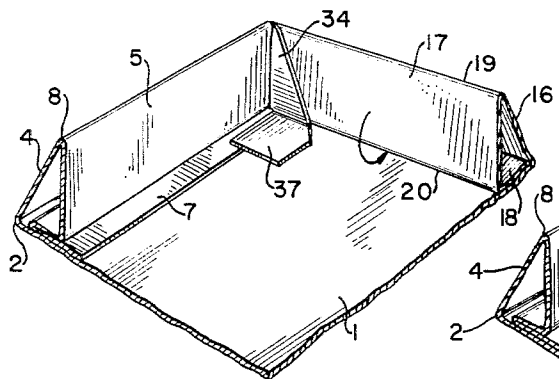
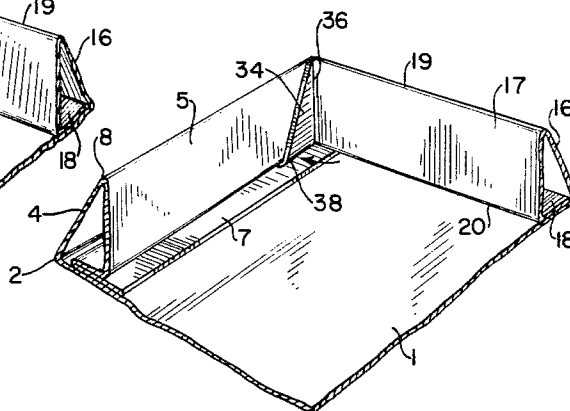


FIG. 6



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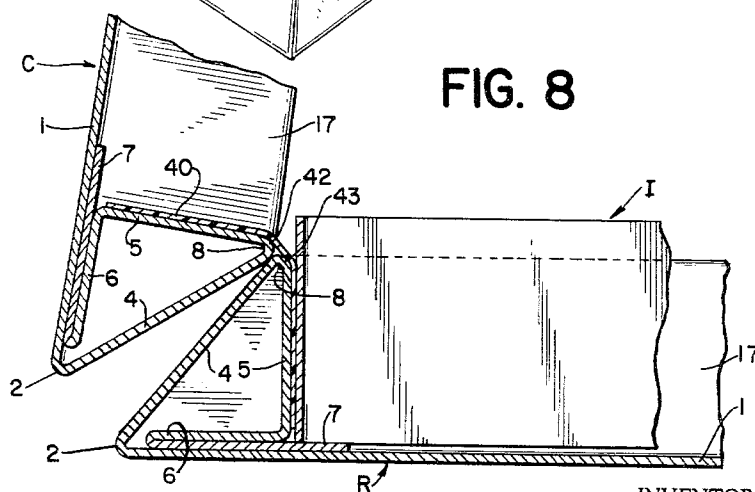
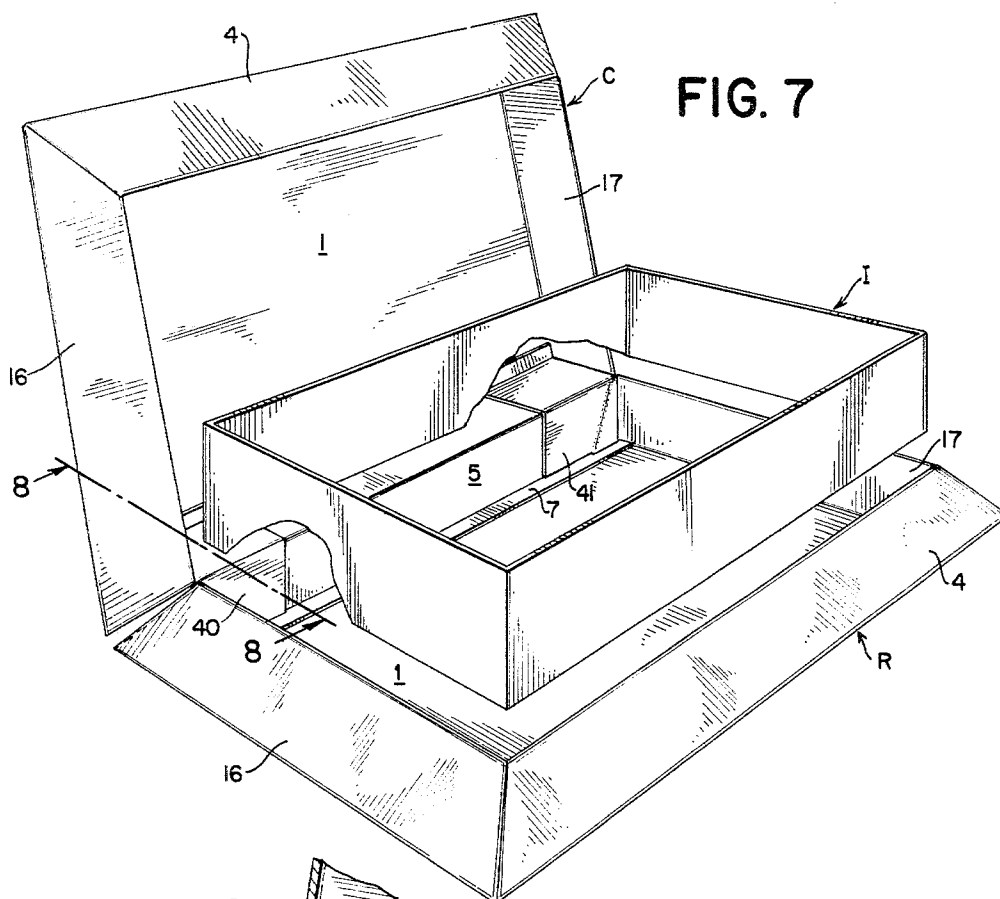
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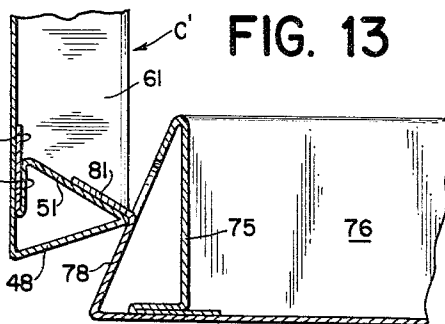
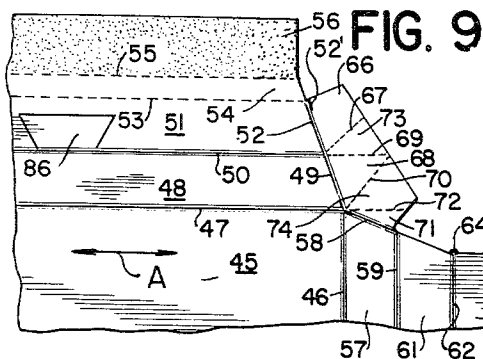


FIG. 10

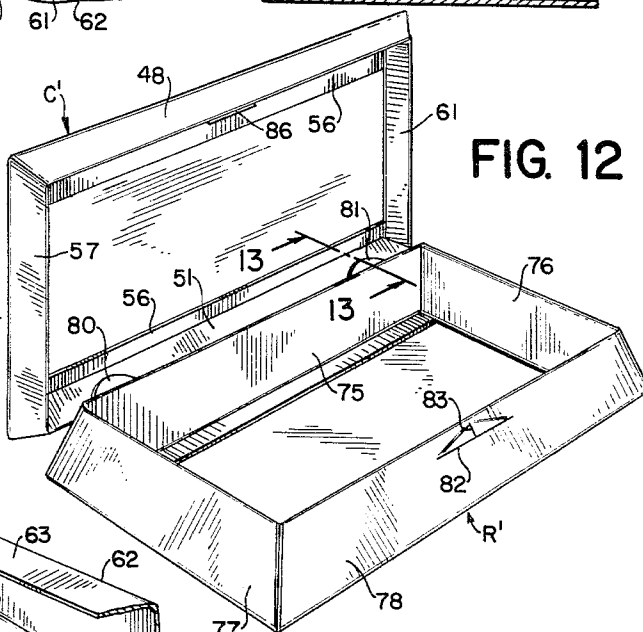
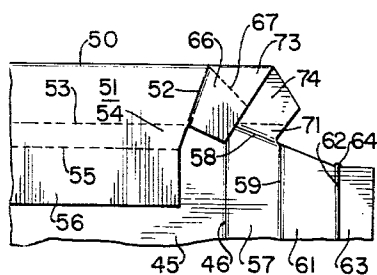


FIG. 12

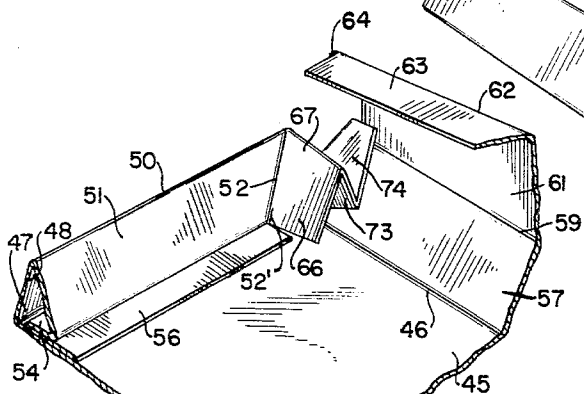


FIG. 11

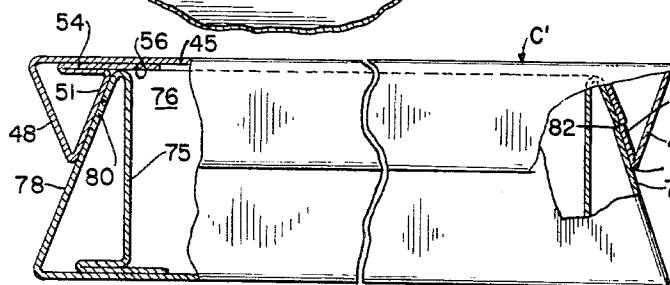


FIG. 14

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FIG. 15

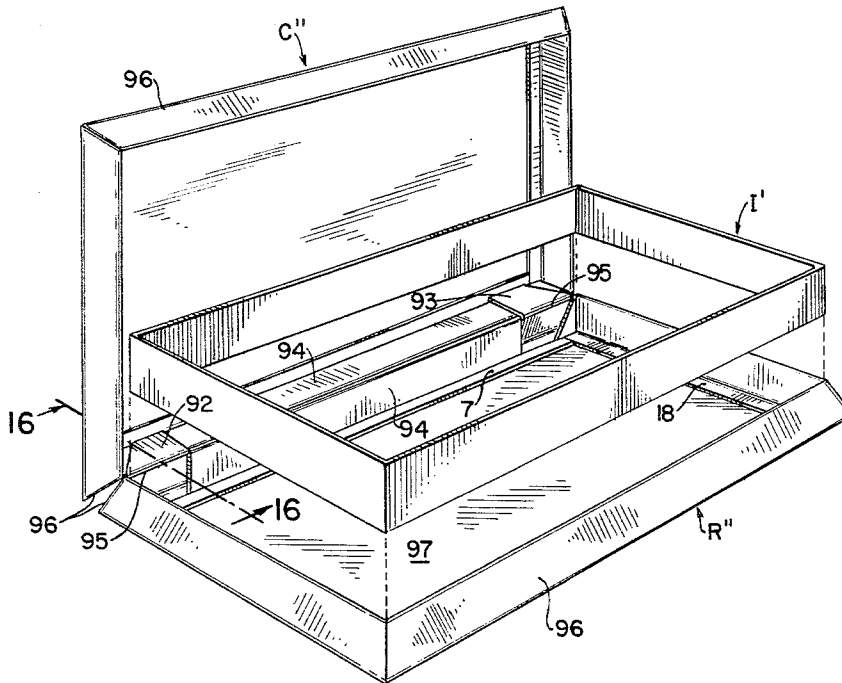
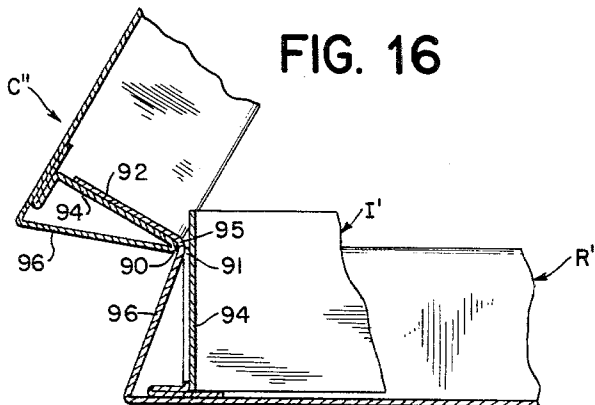


FIG. 16



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HINGED COVER CARTON

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6 Claims. (Cl. 229—44)

This invention relates to cartons, and has for its object the provision of an improved carton of the type having hollow side and end walls of triangular cross-sectional shape consisting of a receptacle and a cover in hinged connection to the receptacle.

The carton of the invention comprises a receptacle and a cover which are generally identical in exterior appearance, each being formed preferably of a single sheet blank and each having upright inner and sloping outer side and end walls of triangular cross-sectional shape. The outer side walls of the receptacle and cover are each sloped at an acute angle with respect to the top of the cover and the bottom of the receptacle respectively, and when the cover is in its closed position the angles formed by the outside surfaces of the sides and ends are obtuse angles. This construction not only gives a carton which can withstand a considerable load but a carton which is stable and rigid, especially with respect to flexing.

The receptacle and cover preferably each have upright inner walls and the receptacle may include a removable insert or a liner the upright sides of which extend into the cover when it is closed. Such a liner can be used to increase the capacity of the receptacle and to provide an alignment and securing means for the cover when it has telescoped thereover.

The cover and receptacle are each preferably formed of a single blank having foldable panels for the side walls and end walls and corner panels which are folded together and secured by overlapping panels of the side walls and end walls to interlock the panels forming the side and end walls.

The cover is preferably in such hinged connection to the receptacle in relation to the outer slopes of the walls of the receptacle and cover that when the cover is fully open it is supported in an upright position by the walls in face-to-face contact in a stable position. This permits viewing the merchandise in the receptacle and the use of the cover for advertising.

These and other novel features of the invention will be better understood after considering the following discussion and the accompanying drawings in which—

FIGS. 1-8 illustrate one embodiment of a triangular wall carton construction which may be used in forming a carton of the invention.

FIG. 1 is a fragmentary plan view of a sheet blank illustrating an arrangement of panels for forming the side walls, end walls and corner construction of the cover and receptacle of the carton of FIGS. 7 and 8;

FIG. 2 is a plan view of the blank of FIG. 1 in an initial stage of forming the carton;

FIGS. 3-6 illustrate in fragmentary perspective views further stages in forming a carton from the blank of FIG. 1;

FIG. 7 is a perspective of a complete carton of the invention with parts removed to illustrate other parts,

FIG. 8 is a sectional view at 8-8 of FIG. 7.

FIGS. 9-11 illustrate a carton blank to form another carton shown in FIGS. 12-14.

FIG. 9 is a fragmentary plan view of a carton blank illustrating the side, end and corner panels thereof for forming the cover of the carton of the invention as shown in FIG. 12;

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FIG. 10 is a plan view illustrating an initial stage in forming the carton cover from the blank of FIG. 9;

FIG. 11 is a fragmentary perspective view illustrating a further stage in forming the carton cover.

FIG. 12 is a perspective view of the carton as a whole with cover formed from the blanks of FIGS. 9, 10 and 11;

FIG. 13 is a fragmentary enlarged sectional view at 13-13 of FIG. 12;

FIG. 14 is a view similar to FIG. 13 of the complete carton with the cover closed.

FIG. 15 illustrates a carton in another embodiment of the invention with parts removed to illustrate other parts and with the liner in an outer position, and

FIG. 16 is a sectional view at 16-16 of FIG. 15 with the liner in position.

In each of the blanks illustrated in the drawings or used in forming the cartons, the grain of the paper board extends in the longitudinal direction of the side wall panels as shown, for example, by the arrow A on FIGS. 1 and 9. This direction of grain is important in the mechanical folding of the side wall panels and in the subsequent formation of the carton. There is the further advantage in that the transverse folding of the end panels results in flat exterior surfaces free of bulging which would be the case if the grain were in the longitudinal direction of the end panels.

The blanks illustrated in FIGS. 1 and 9 each have two similar side wall panels and end wall panels, and the corner forming panels are practical equivalents in forming either the receptacle or the cover of the illustrated cartons.

The carton blank illustrated in FIGS. 1-6 comprises a rectangular bottom panel 1 formed within side and end fold lines 2 and 3. Each side wall consists of an outer panel 4, an inner panel 5, a reverse fold panel 6 and a glue flap 7. These panels are folded along the fold lines 2 and 8 and the weakened lines 9 and 10. Each end wall consists of an outer panel 16, an inner panel 17 and a tuck panel 18. These panels are foldable along fold lines 3, 19, and 20.

The corner forming structure comprising panel 22 attached to the inner side wall panel 5 along the fold line 23 and extends to the weakened line 24. Panel 25 is formed along the weakened line 29. Panel 27 extends from the outer panel 4, is foldable along fold line 28, and is formed between the weakened lines 24 and 29, and weakened line 26, which is an extension of primary fold line 8, and extends across both panels 25 and 27.

The flap 32 extends from the outer end panel 16 and is foldable along fold line 33. The panel 34 extends from the inner end panel 17 to the cut line 35 and is foldable along the fold line 36. The tab 37 extends from the panel 34 and is foldable along the fold line 38.

As shown in FIG. 2 the side wall panels are folded along the primary fold line 8 and its weakened extension 26 and the glue flap 7 is secured to the bottom panel 1.

In view of the preferred longitudinal grain direction of the side walls as previously described, it is desirable to control the initial folding of the side wall panels along the primary fold line. This is effectively accomplished by weakening the end extensions of the primary fold line to more accurately initiate and conclude the mechanical folding.

As shown in FIG. 3 the side wall is turned to an upright position with the reverse fold panel 6 overlying the bottom panel and the glue flap 7. The panel 22 is in an upright position with the panel 25 folded along the weakened line 24 and overlying the panel 16. The flap 32 is in a position to be moved into contact with panel 25.

As shown in FIG. 4 the end panels are turned along the fold line 3 to carry the outer panel 16 and the contacting panels 25 and 32 to an upright position. On fur-

ther turing, these panels assume the position shown in FIG. 5. As shown in FIG. 6 the panel 34 (which may be eliminated) has been pivoted along the fold lines 36 and 38 so as to enable the tab 37 to be tucked under the reverse fold panel 6 thereby additionally securing the end wall panels to the side wall panels of the resulting stable receptacle and cover of the carton illustrated in FIG. 7. It will be understood that the carton blank described in FIGS. 1 to 6 is applicable to form only the receptacle of the carton of FIGS. 12 to 14. By changing the proportions of all the side and end wall panels the inner wall of the carton may be either vertical or sloped.

The receptacle forming blank as shown in its erected position in FIG. 6 has the inner walls 5 and 17 in an upright or vertical position with respect to the bottom panel 1 and the outer walls 4 and 16 slope inwardly thus forming hollow walls of triangular cross-section. The outer side and end walls form acute angles relative to the bottom panel.

Having accurately predetermined the respective height of the outer and inner side wall panels 4 and 5 and the necessary width of the reverse fold panel 6, and having applied adhesive to the glue flap 7 to bond it to the bottom panel 1 by folding each side of the blank along fold line 8 as shown in FIG. 2, the side walls may be raised from their flat collapsed status to their desired triangularly hollow form as shown in FIG. 3 with the inner wall panels 5 in truly vertical position relative to the bottom panel 1 of the blank.

By also accurately predetermining the respective height of the outer and inner end wall panels 16 and 17 and the precise shape of the several corner forming panels 22, 25 and 27 as well as that of the corner locking flap 32 and folding all properly into position, as indicated in FIGS. 3 and 4, both the side walls and the end walls are brought to their desired and true triangularly hollow form and securely locked together as shown in FIG. 6.

Due to the longitudinal gluing of its hollow triangular side walls which, in flat status as shown, can be done at high speed on standard folding and gluing equipment, and due to the secure interlocking of its corner forming panels as shown, this receptacle (and/or cover) thus formed of relatively light gauge paper board, is extremely strong, rigid and resistant to warp or twist and makes a most attractive and useful container for many articles of merchandise.

The complete carton illustrated in FIG. 7 comprises a cover C and a receptacle R each formed as illustrated in FIGS. 1-6. Preferably a rectangular insert I is inserted into the receptacle and rests on the bottom with its walls extending above the receptacle as shown in FIG. 8. When the cover is closed it telescopes over the extending insert and this not only enlarges the capacity of the receptacle but it provides a stabilizing and centering member for the cover.

The cover may have a hinged connection of any suitable type with the receptacle. As illustrated in FIGS. 7 and 8 sheets of strong flexible material such as plastic or webbing 40 and 41 are adhesively attached to the inner walls 5 of both the cover and the receptacle to form a pivotal joint which is approximate the edges 42 and 43. The edges 42 and 43 are formed along the fold lines 8 of the cover and receptacle. When the cover is fully opened the outer wall panels 4 of both the cover and receptacle are in bearing contact and this enables the cover to assume a stable open position. The cover may be merely swung to its erected position to display the contents of the receptacle. There are other advantages to this hinged connection of the cover to the receptacle for the inside of the cover may be printed with display advertising or instructions which can be readily seen when the carton is opened for display purposes on a shelf or counter.

FIGS. 9-14 illustrate another embodiment of the invention in which the cover of the carton of FIG. 12 is formed of the blank illustrated in FIGS. 9, 10 and 11.

It is understood that the entire blank of FIG. 9 comprises two similar side walls, two similar end walls and four similar sets of corner forming panels. The top panel 45 is bounded by end fold line 46 and side fold line 47. The side wall comprises outer panel 48 formed between the fold lines 47 and 50, inner panel 51 formed between the primary fold line 50 and the weakened line 53. The reverse fold panel 54 is formed between the weakened lines 53 and 55. The glue flap or panel 56 is formed along the weakened line 55.

The end wall comprises outer panel 57 formed between the fold lines 46 and 59. The inner panel 61 is formed between the fold lines 59 and 62. The tuck in panel 63 is formed along the fold line 62. The projection 64 for locking the end panels extends from panels 61 and 63.

The corner-forming structure comprises panel 66 formed along fold line 52 and the weakened line 67. Panel 68 is formed along fold line 49 and weakened extension 69 of the primary fold line 50 and the weakened line 70. Panel 71 is formed along fold line 58 and weakened line 72 which if eliminated eliminates panel 71 which becomes a part of panel 74. The panel 73 is formed between lines 67 and 69 and the panel 74 is formed between the weakened lines 70 and 72, or if 72 is eliminated between the weakened line 70 and fold line 58.

FIG. 10 illustrates an initial stage in forming the cover in which the panels of the side wall are folded along fold line 50 and the glue panel 56 is adhesively secured to the top 45.

FIG. 11 illustrates a further stage in the formation of the cover part of the carton in which the panels of the side wall have been set to an erected position with the reverse fold panel 54 overlying the glue panel. The corner panels are in a stage of being folded and locked together with the end forming panels 57 and 61 about to be folded thereover. In a further stage of the formation the cover inner end panel 61 is brought to the position shown in FIGS. 12 and 13 and the panel 63 is tucked under the folded end corner panels and brought to a position so that the projection 64 engages the slit 52' in the side wall and locks the end wall to the side wall.

The blank of FIG. 9 when erected forms the cover C' of the carton of FIG. 12. The receptacle R' of this carton may be similarly formed with other triangular end and side walls as when using the blank of FIG. 1. It will be noted that the inner wall 51 of the cover slopes outwardly at an acute angle with respect to the top 45 and that the outer wall 48 slopes inwardly at an acute angle with respect to the top 45. The receptacle R' has inner walls 75 and 76 which are vertical with respect to the bottom, and the outer walls 77 and 78 are sloped inwardly with respect to the bottom at an acute angle.

The cover C' can have any suitable hinged connection with the bottom so that when it is in its closed position as shown in FIG. 14 the sloping inner side and end walls 51 and 61 of the cover lie flush against the sloping outer side and end walls of the receptacle and as a result of these sloping connections the cover is held in a stable position on the receptacle. The hinged connection illustrated is formed by cutting flaps 80 and 81 in one of the outer side walls 78 of the receptacle and adhesively securing these flaps to an inner side wall 51 of the cover (FIGS. 12 and 13). In this embodiment of the invention, when the cover is fully opened the outer side wall 48 of the cover comes to rest against the outer side wall 78 of the receptacle and this holds the cover in its open position. In a preferred embodiment of this carton the side wall opposite the hinged wall 78 of the receptacle R' has slits 82 and 83 which enable the edges of the slits to bulge outwardly, and the inner wall 51 of the cover is slit to form a projecting tab 86 (FIG. 14) which makes edge-to-edge contact with the edge of slit 82 to form a releasable lock for the cover.

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The carton illustrated in FIG. 15 comprises a cover C'' and a receptacle R'' both formed of carton blanks such as the blank illustrated in FIG. 1. However, instead of the tuck panel 18 being tucked under as in FIGS. 6 and 12, this panel is folded reversely and the glue flap 7 is cut back to make abutting edge-to-edge contact as shown in FIG. 15 at each inner corner.

As shown in FIG. 16, the cover C'' is hinged to the receptacle R'' so as to form a pivotal connection along an assumed axis substantially embracing the edges 90 and 91. As shown in FIG. 15, the hinges used in this embodiment of the invention are formed by cutting flaps 92 and 93 near the ends of the inner side wall panel 94 of the receptacle and bending them backwards along the fold line 95 and attaching them adhesively or otherwise to the inner side wall panel 94 of the cover.

It will be noted that the outer side walls and end walls of the receptacle and cover slope inwardly at acute angles with respect to their respective bottom and top panels and that the inner side walls and inner end walls are vertical with respect to said panels. When the cover is swung to its fully open position the outer side wall panel 96 of the cover adjacent the hinges comes into bearing contact with the outer side wall panel 96 of the receptacle and thereby holds the cover in an upright inclined position in which it can remain for display purposes and the like.

The generally rectangular insert I' fits closely within the receptacle, rests upon the bottom 97 of the receptacle and projects above the upper edges of the receptacle as shown in FIG. 16. When the cover is closed the projected upper edges of the receptacle enter the cover and hold it in proper alignment with the receptacle.

I claim:

1. A carton comprising a receptacle and a cover hinged to the receptacle, the receptacle and cover each having side and end walls of triangular cross-sectional shape, and a bottom and top integral with the side and end walls respectively, the outer sides of the side walls and end walls being sloped at an acute angle to their respective bottom and top, the inner sides of the receptacle being vertical with respect to the bottom, each side and end wall of the receptacle and cover having an apex edge, hinge means connecting the receptacle to the cover whereby the pivotal connection is adjacent apex edges of the receptacle and cover, the hinge means comprising a sheet of flexible material and having its lower marginal portion adhesively secured to the inner wall of the receptacle and its upper marginal portion adhesively secured to the inner vertical wall of the cover.

2. A carton comprising a receptacle and a cover hinged to the receptacle, the cover and receptacle each having side and end walls of triangular cross-sectional shape and a bottom and top integral with the side and end walls, the outer sides of the side walls and end walls of the cover and receptacle being sloped at an acute angle to the

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respective bottoms and tops, the inner sides of the ends and sides of the cover being sloped at an acute angle with respect to the top, the inner sides of the receptacle being vertical with respect to the bottom, the depth of the cover walls being substantially less than the height of the receptacle walls, and hinge means effecting a pivot between the apex of a side wall of the cover and the mid portion of a sloping outer side wall of the receptacle, whereby when the cover is swung to fully open position the outer side wall of the cover is in face-to-face contact with the lower portion of the outer side wall of the receptacle and supports the cover in stable upright inclined position.

3. A carton as defined in claim 2 in which the outer side and end walls of the receptacle and the inner side and end walls of the cover have similar slopes whereby they make flush contact in closed position.

4. A carton as set forth in claim 1 in which the hinge means comprises two flap portions cut from the inner vertical wall of the receptacle and adhesively secured to the inner vertical wall of the cover.

5. A carton as set forth in claim 2 wherein the hinge means comprises two flaps cut in an outer sloping side wall of the receptacle and secured by adhesive to the inner sloping side wall of the cover.

6. A carton as set forth in claim 2 wherein the inner end wall of the receptacle has a triangular lengthwise projection at each end, said projection having a rectangular tab extending at right angles thereto, said triangular projection being folded into contact with the surface of the end portion of the adjacent inner side wall of the receptacle, and said tab being tucked beneath said side wall, thereby strengthening the carton to support the cover in fully open position.

References Cited by the Examiner

UNITED STATES PATENTS

189,898	4/1877	Morgan.	
914,321	3/1909	Syner.	
1,063,894	6/1913	Smith	229—8.55
2,242,741	5/1941	Betts et al.	229—34
2,318,198	5/1943	Clarke	229—34
2,519,831	8/1950	Frankenstein	229—34
2,522,325	9/1950	Williamson.	
2,605,954	8/1952	Williamson	229—34
2,765,113	10/1956	Williamson	229—34
2,893,620	7/1959	Williamson	229—34

FOREIGN PATENTS

1,116,896	2/1956	France.
884,054	12/1961	Great Britain.

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