July 31, 1956 P. C. COLLURA 2,756,900

BOTTLE CARRIER WITH INTEGRAL PARTITIONS

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Fig. 1.

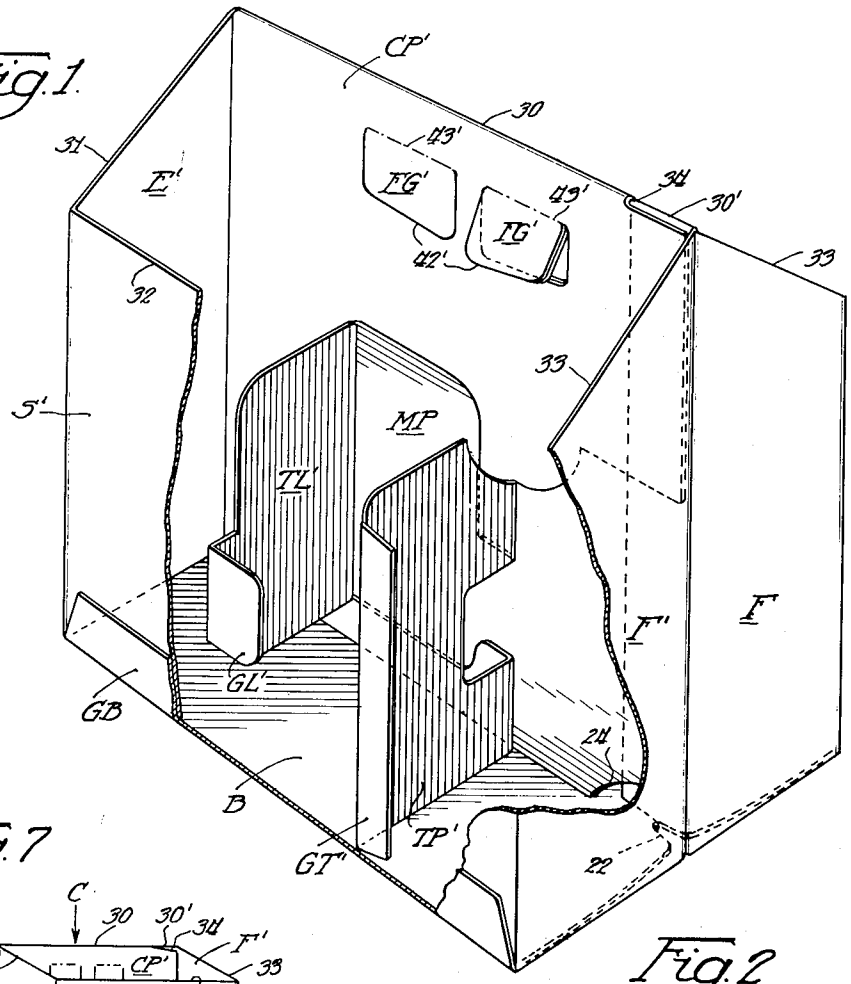


Fig. 7

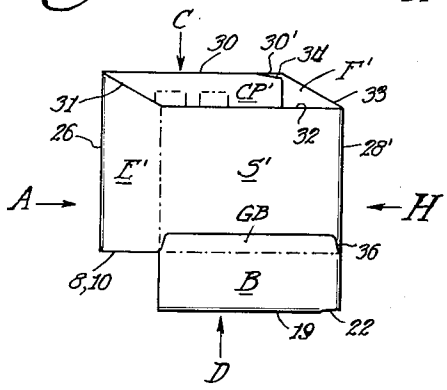
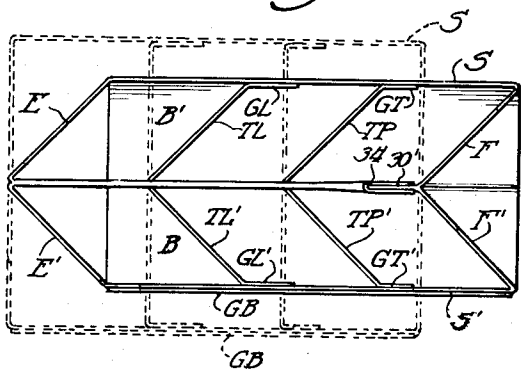


Fig. 2



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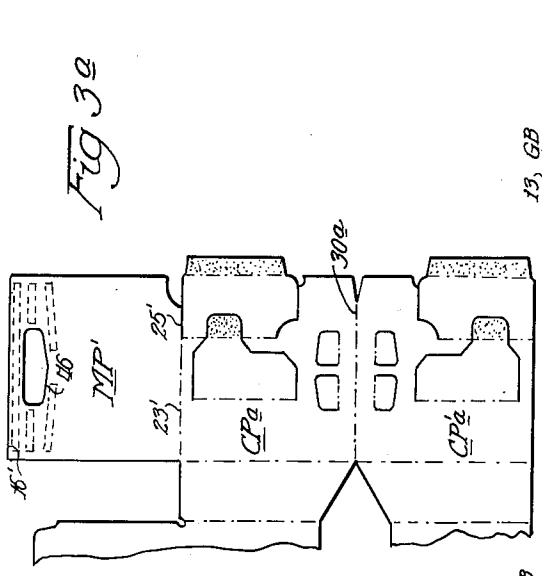


Fig. 3a

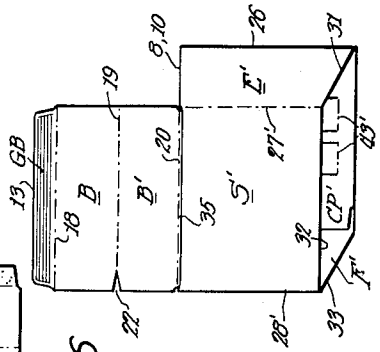


Fig. 6

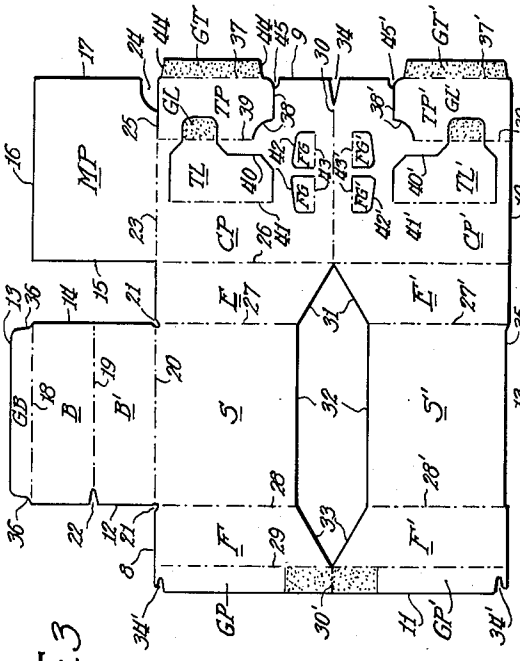


Fig. 3

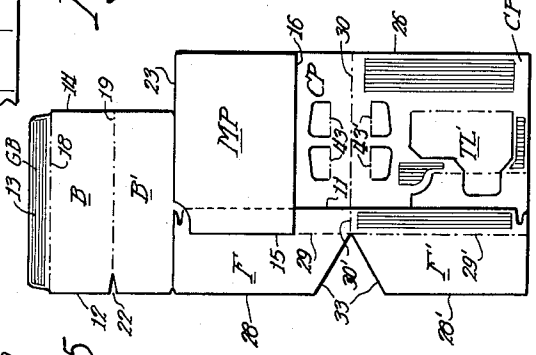


Fig. 5

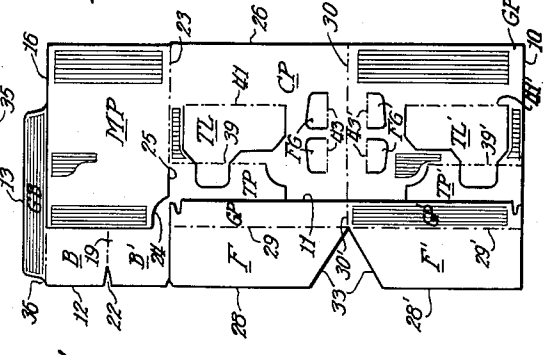


Fig. 4

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BOTTLE CARRIER WITH INTEGRAL PARTITIONS

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Application February 8, 1952, Serial No. 270,710

1 Claim. (Cl. 220—113)

The invention herein set forth in a presently preferred embodiment, relates to carrier cartons for use in storing and shipping bottles, cans, or other items ready packaged in plural number per carton so that the ultimate consumer conveniently may purchase a carton filled with the particular item and in quantity desired and carry the same by hand. More specifically the invention resides in a carrier carton, of the type mentioned, composed from a single integral piece or blank of sheet material such as paperboard, and so cut, scored, slit, folded and secured as to provide every part, including a center partition and handle member, side, end and bottom walls, and transverse partitions effecting division of the carton interior into separate cells along each side of the center partition, from that one piece or blank of material.

Cartons of the carrier type mentioned are well known and extensively used. Some are inexpensive to manufacture but may be weak and unsatisfactory in use. Others, while strong and rugged, may be expensive to manufacture by reason of the quantity of material required or by reason of their structurally complicated design. One very satisfactorily strong and inexpensive carrier carton recently revised utilizes a single uncomplicated blank requiring a minimum of expense in manufacture, but employs portions cut and folded from the center panel or partition in the creation of transverse partitions to divide the carrying space into compartments or cells for reception of individual items such as bottles. This arrangement while generally satisfactory and strong, does tend to weaken the carton, particularly the center partition which serves as the handle and carries the entire load of carton and contents, and leaves gaps or openings extending through the center partition creating an unfinished appearance and giving the user the impression that the carton is weak regardless of what the fact may be.

Accordingly, one of the principal objects of the instant invention resides in the provision of a simple, inexpensive and strong carton of the type specified, in which all of its parts including the center or longitudinal partition, the transverse partitions and the end, side and bottom walls are composed from a single integral piece or blank of material and wherein the transverse partitions, while formed or cut from the center partition, do not leave openings extending from side to side to create an impression of weakness, the construction also being such as actually to add substantial strength to the carton without proportionately increasing the cost or rendering the manufacturing machinery or operations or the setting-up operations more complicated or costly or otherwise detracting from the simplicity of the basic blank or the final product.

Another important object is to provide a collapsible carton from a single piece or blank of material of such form and construction that it may be made quickly and easily by simple cutting, scoring, folding and adhesive application operations using conventional automatic or other machinery.

Still another important object is to provide a collapsible

carrier carton constructed from a single blank of foldable material of generally rectangular outline, with a central panel or partition structure dividing the carton into two compartments and with panels or partitions cut from the parts of the blank of which the center partition is composed and extending transversely of the center partition from each side thereof to divide each of said two compartments into a plurality of cells or cubicles for reception of articles to be carried, the arrangement also being such that some of the transverse partitions are cut from other transverse partitions without destroying the functional utility of either.

Further objects as well as the advantages and uses of the invention will be or should become apparent and understood after reading the following description and claim and after viewing the accompanying drawings in which:

Fig. 1 is a perspective view of the carton as it appears in expanded condition ready to receive articles such as bottles, parts being broken away to reveal the appearance of the interior;

Fig. 2 is a top view of the carton as it appears (full lines) at an intermediate stage during a setting-up operation, and (dotted lines) at the stage of complete expansion;

Fig. 3 represents the carton blank as it appears after being cut from the sheet material of which it is made and slit and scored and coated with adhesive over predetermined areas, ready for the first folding operation;

Fig. 3A is a view, corresponding to that of Fig. 3, of a similar form of blank wherein one of the parts has been modified;

Figs. 4, 5 and 6, respectively, represent the carton blank of Fig. 3 at each of several folding stages, Fig. 4 at the stage resulting from folding two sections inwardly, one partially over the other, Fig. 5 at the next succeeding stage of folding, and Fig. 6 after the folding operation following that of Fig. 5, there being but one additional fold to make thereafter; and

Fig. 7 is a side view of the carton after being formed from either the blank of Fig. 3 or that of 3A, and as it appears in its flat or folded condition ready to be set-up or expanded into its condition for use as shown in Fig. 1, the illustration being upside down with respect to the showing in Fig. 6.

Generally considered, the carton or carrier is a two compartment or section container each compartment or section providing a plurality (in this instance, three) cells, tubes or cubicles which receive and support the bottles or other items to be disposed in them in separated relation to one another, the two compartments or sections lying on opposite sides of a center partition which also serves as a handle by which the carton and its contents may be carried. End and side walls at each side of the center partition and a bottom wall extending from side wall to side wall beneath the center partition and from end wall to end wall, complete the carton although the details of these structural parts as hereinafter described more clearly reveal the invention.

The blank shown in Fig. 3 is of rectangular shape in over-all outline with two parts, each also of generally rectangular shape, projecting from one and the same marginal edge, designated **8**, of the blank, the other three marginal edges being designated **9**, **10** and **11**. One of the two projecting parts is designed to form the bottom wall of the carton and is bounded by the marginal edge **8** and marginal edges **12**, **13** and **14**, while the other projecting part is likewise bounded by marginal edge **8** and edges **15**, **16** and **17**, the last mentioned edge being a continuation of edge **9**. A score line **18** parallel to edges **8** and **13** segregates a glue flap GB from two bottom wall panels B and B′ which are of equal dimensions

by reason of a median score line **19** parallel to score line 18 and a score line **20** which is coextensive with a portion of edge 8. At the junctures of edges **12** and **14** with edge 8, shallow notches **21** serve to relieve the several adjacent parts when the folding and securing operations are performed as will later be understood. A V-shaped notch **22** at the left hand end of score line **19** serves a locking function later to be described.

Spaced a predetermined distance along edge 8 from the bottom wall panels B, B' and segregated by a score line **23**, coextensive with a portion of edge **8**, from the rest of the blank is the other part or panel, designated MP, which projects from edge **8**. A notch **24** is provided in the edge **17** adjacent to score line **23** and a slit **25**, for clearance of the bottom wall lock to be described. The panl MP is to form one of three plies of the center partition and functions after manners later related. The score line **23**, instead of being a simple score or fold line, may be alternately scored and slit or perforated if so doing will facilitate hinging or folding of the panel about score line 23 to bring the panel into flat and continuous face to face contact with two other panels or plies of material between which it is to lie as will appear. The slit **25** separates the panel MP from an adjacent part to be described.

The blank is scored parallel with the edges **9** and **11** with a series of score lines **26**, **27—27'**, **28—28'** and **29** which extend across the blank from edge **8** to edge **10** at predetermined spaced distances from one another, and also along a median score line **30—30'** which equally divides the blank between edges **8** and **10** to which this last mentioned score line is parallel. These several score lines divide the blank into a double glue flap or panel GP, GP', a pair of end wall panels F, F', a pair of side panels S, S', a second pair of end panels E, E', and a pair of center partition panels CP, CP'. The center part of the blank across the side walls, S, S' and end walls E, E' and F, F', is cut away equally at each side of the line of score line **30**, **30'**, thereby defining top edges for the end walls E, E', side walls S, S' and end walls F, F', respectively designated **31**, **32** and **33**, as will be understood.

The edge **9** at score line **30** is notched or slotted as at **34** to relieve the same at a fold juncture with glue flaps GP, GP', as will later be made clear. Likewise, the marginal edge **10** along the bottom edge of side wall S' is cut away as indicated at **35** to relieve the same over the line of juncture with glue flap GB to which the side wall S' is to be joined, as will be explained more fully, and for cooperative relief purposes the sides of glue flap GB are cut away as indicated at **36**.

Projecting outwardly beyond the edge **9** and from each of center partition panels CP, CP' adjacent to edges **8** and **10**, respectively, are glue flaps GT, GT' which, along score lines **37**, **37'**, respectively, aligned with edge **9**, are integrally connected with transverse partition panels TP, TP'. Panel TP is cut from panel CP along slit lines **25** and **38** but one edge remains integrally connected therewith along a score line **39**. Similarly panel TP' is cut from panel CP' along slit line **38'**, remaining integrally connected with panel CP' along score line **39'**. Adjacent to each transverse partition panel TP, TP' is another transverse partition panel TL, TL', respectively, also cut from the respective center partition panels CP, CP' along respective slit lines **40**, **40'** which terminate at the ends of score lines **41**, **41'** where these panels TL, TL' remain integrally connected with the respective panels CP, CP'. The slit lines **40**, **40'** pass through the respectively adjacent parts of transverse partition panels TP, TP' to excise glue flaps GL, GL', respectively therefrom. The score lines **39**, **39'** are aligned with one another as are score lines **41**, **41'** and all are parallel with score lines **26**, **27** etc. and perpendicular to score line **30** and edges **8**, **10**. Score lines **39**, **39'** are placed one third and score lines **41**, **41'** two thirds, of the distance from edge **9** to score line **26**, in other words, in effect dividing each of the panels CP, CP' into three parts when the transverse panels are erected as occurs in the completed and set-up carton. Score lines **39**, **39'** are continued across the panels TL, TL' at their junctures with glue flaps GL, GL' for folding purposes.

Also cut from each of the panels CP, CP' in spaced relation to one another along and adjacent to score line **30** by slits **42**, **42'** but held against complete removal and for hinging purposes by score lines **43**, **43'**, are finger grip tabs FG, FG' which, when displaced by swinging them about score lines **43**, **43'** to one side or the other of panels CP, CP' in the resultant carton, leave finger openings in the center partition adjacent to its upper edge or boundary to permit the carton to be gripped for carrying. The glue flaps GT, GT' may have their ends relieved at the junctions with panels TP, TP' as indicated at **44** in Fig. 3 to facilitate bending at the contact of those flaps and panels with the side walls S, S' and the corners of panels CP, CP' adjacent to slits **38**, **38'** similarly may be relieved as indicated at **45**, **45'**. The corners of the opposite outside ends of glue flaps GP, GP' are notched as indicated at **34'** for cooperative locking engagement with notch **22** when the carton is set up ready for use.

Prior to the first folding operation adhesive is applied to glue flaps GL, GL', GT, GT' and areas of glue flaps GP, GP' adjacent to score line **30'**, as indicated by stippling in Fig. 3. Then all of the parts and panels to the right of score line **26** are folded over, about that score line, onto the parts and panels to the left of that score line, and, following thereafter, the glue flaps GP, GP' together with end panels F, F' are folded over onto the parts to the right about score line **28**, **28'** to bring glue flaps GP, GP' and the adhesive thereon into overlapping contact with the then uppermost margins adjacent to edge **9** of the panels CP, CP', the adhesive contacting only the panels CP, CP' and not either of transverse partition panels TP, TP'. This brings the carton blank into the folded condition illustrated in Fig. 4.

Following the folding operations just described adhesive is applied over those areas of glue flaps GB and GP' and panels MP, CP and CP' as indicated in Fig. 4 by the fineline hatching. Thereafter, panel MP is swung or folded downward about score line **23** into face to face contact with panel CP with the resulting appearance shown in Fig. 5. In this folded position, panel MP is secured along one marginal edge to glue flap GP as well as to panel CP at selected places and extends entirely across and over the areas of panels TP and TL, extending toward the fold line to such extent that its free edge **16** falls just short of finger grip tabs FG, FG', a distance substantially greater than one half of the distance from score line **23** toward score line **30**. Of course, the panel MP which forms the middle ply of the three ply center partition may be extended a greater or lesser distance over panel CP (and panel CP') as may be desired, Fig. 3*a*, to be described, showing one modified arrangement, but it is preferable to have it extend over and to conceal all of each opening formed when the transverse partition panels TP, TL, TP' and TL' are extended in their carton-open positions for reasons heretofore stated.

Immediately after the inward or downward folding of panel MP, the parts and panels below (viewing Fig. 5) the score line **30** are folded about that score line to lie upon the corresponding parts and panels above the score line, thereby producing the structure as it appears in Fig. 6. Next the bottom wall panel B together with glue flap GB is folded down about score line **19** to overlie bottom wall panel B', the glue flap GB making contact with and becoming secured to the bottom or lower edge margin of side wall panel S'. This completes the folding and adhesive-securing operations on the carton and the resulting flat or folded product is shown in Fig. 7 wherein the carton appears in a position rotated 180° in the plane of the drawing sheet about one corner.

Pressure directed from opposite ends in the directions indicated by arrows A—H in Fig. 7 or from top and bottom, as indicated by arrows C—D in the same drawing figure, will effect expansion of the carton from its flat or collapsed form through the intermediate expanded stage shown in full lines in Fig. 2 to the completely expanded condition shown in dotted lines in Fig. 2 and in perspective in Fig. 1.

Fig. 3*a* illustrates a blank for an entirely similar carton wherein, except for that panel designated MP', every edge, part, panel, score line, slit and relief cut may be considered exactly like and corresponding to those of Fig. 3, for which reason specific description of those like parts will be omitted. In this form the panel MP' is of such dimension along a perpendicular from score line **23'**—slit **25'** to the edge **16'** as to be substantially equal to the distance measured perpendicularly from score line **23'**—slit **25'** to the score line **30***a* so that, when the blank is folded and secured after the manner taught in connection with the blank of Fig. 3, the edge **16'** will lie substantially at the fold line **30***a* or, in other words, between, at and along the connected top edges of the center partition panels or plies CP*a* and CP'*a*. Adhesive application to panel MP' may be made after the manner and over substantially the same areas as to panel MP although it is deemed preferable to apply adhesive as indicated by the dotted line hatching in Fig. 3*a*. In order to permit the fingers of the user to extend through the finger openings provided through the center partition plies or panels CP*a* and CP'*a*, a single opening **46**, with which each of the finger openings in CP*a* and CP'*a* will register, is formed in the panel or ply MP' adjacent to its edge **16'**.

Thus blanked, folded and secured, the carton or carrier is ideally adapted to its purposes for in either form it is strong and rugged despite the employment of relatively thin and light and inexpensive material. The blank form is simple and economical of shape and quantity of material required and, likewise, the scoring, folding and securing are of such character as readily to lend themselves to either hand or automatic operations by the usual types of carton making machinery. When expanding the carton to its set-up condition for loading and to hold it in its expanded condition, the bottom wall adjacent to the notch **22** will be pressed upwardly to engage the edge at the inner end of notch **22** in the combined and cooperative locking notches **34'**, **34'** which are formed in the outer ends of glue flaps GP, GP', the resulting interlock being illustrated in Fig. 1.

The invention being susceptible of other embodiments and modifications and those embodiments illustrated and described being variable without departing from the invention essence, I desire to be limited only by the invention spirit as reflected in the appended claim.

I claim:

A carrier carton formed from a one-piece blank of material such as paperboard, said carton having side wall panels and a center partition comprising a one piece inner center ply and two outer facing plies at opposite sides of and secured to said center ply, said one piece inner center ply being attached at its lower edge to the lower edge of one of said facing plies along a fold line, end wall panels at one end of said side wall panels respectively attached thereto at their outer ends along fold lines and respectively attached at their inner ends to the outer ends of said facing plies along fold lines, end wall panels at the other end of said side wall panels respectively attached thereto at their outer ends along fold lines and secured at their inner ends to one end of said inner center ply along fold lines, and two substantially rectangular transverse partition panels at each side of said center partition cut from the corresponding facing ply parallel therewith and connected thereto at their inner ends along substantially vertical fold lines spaced apart lengthwise of said center partition and remote from said end wall panels, one of said two transverse partition panels being cut in part from the other thereof and said other of said two partition panels extending to the lower edge of the corresponding facing ply and being equal in width to the distance between that ply and the corresponding side wall panel, said one of said two partition panels being spaced above the lower edge of the corresponding facing ply and being at its lower portion of the same width as said other partition panel, the width of the upper portion of said one partition panel being materially less than the distance between the fold lines at the inner ends of said two partition panels, said transverse partition panels at each side of said center partition being secured at their outer ends to the corresponding side wall panel along substantially vertical fold lines, said one piece inner center ply being of approximately the same length as the interior of said carton and covering the openings in said facing plies corresponding to said transverse partition panels.

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