July 25, 1944. C. L. GILBERT 2,354,369

BOTTLE CARRIER

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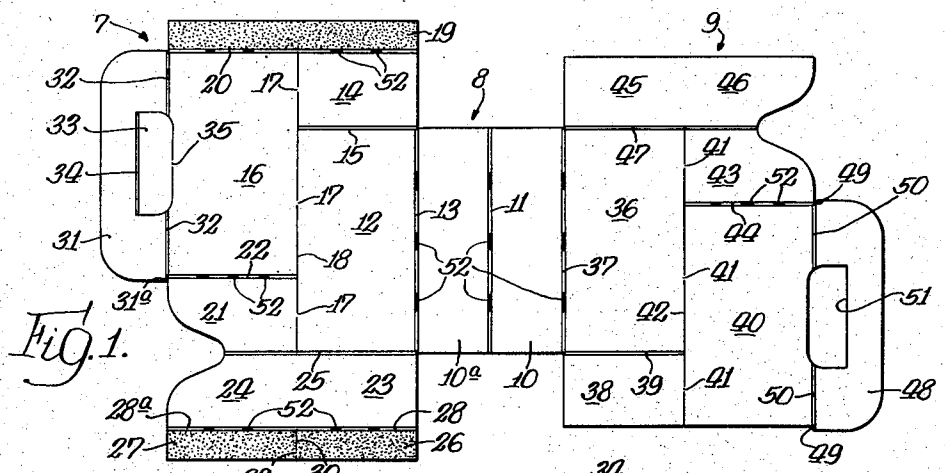


Fig. 1.

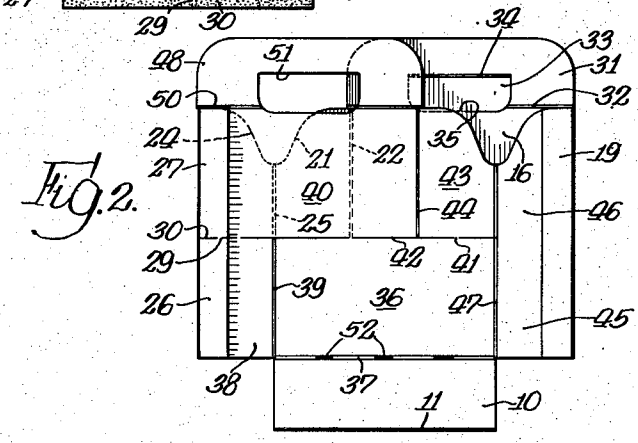


Fig. 2.

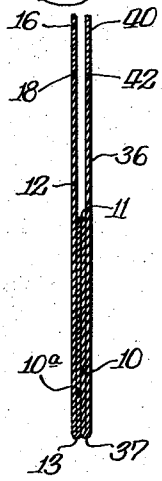


Fig. 7.

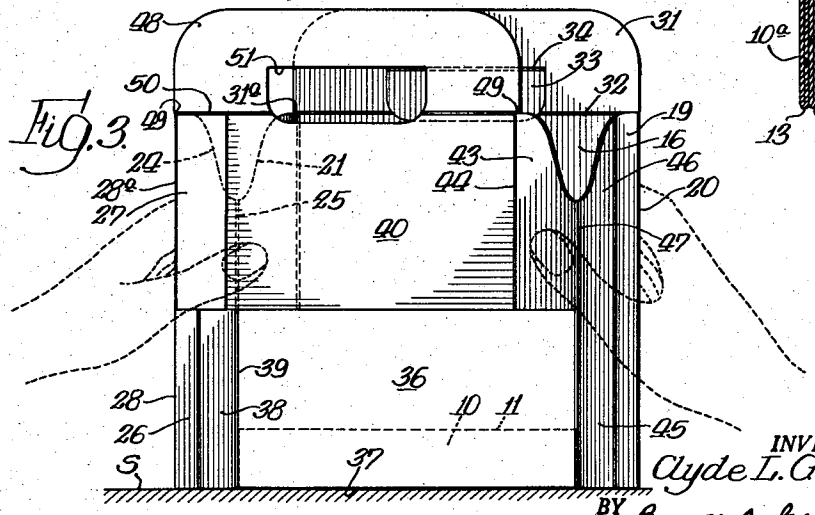


Fig. 3.

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Fig. 4.

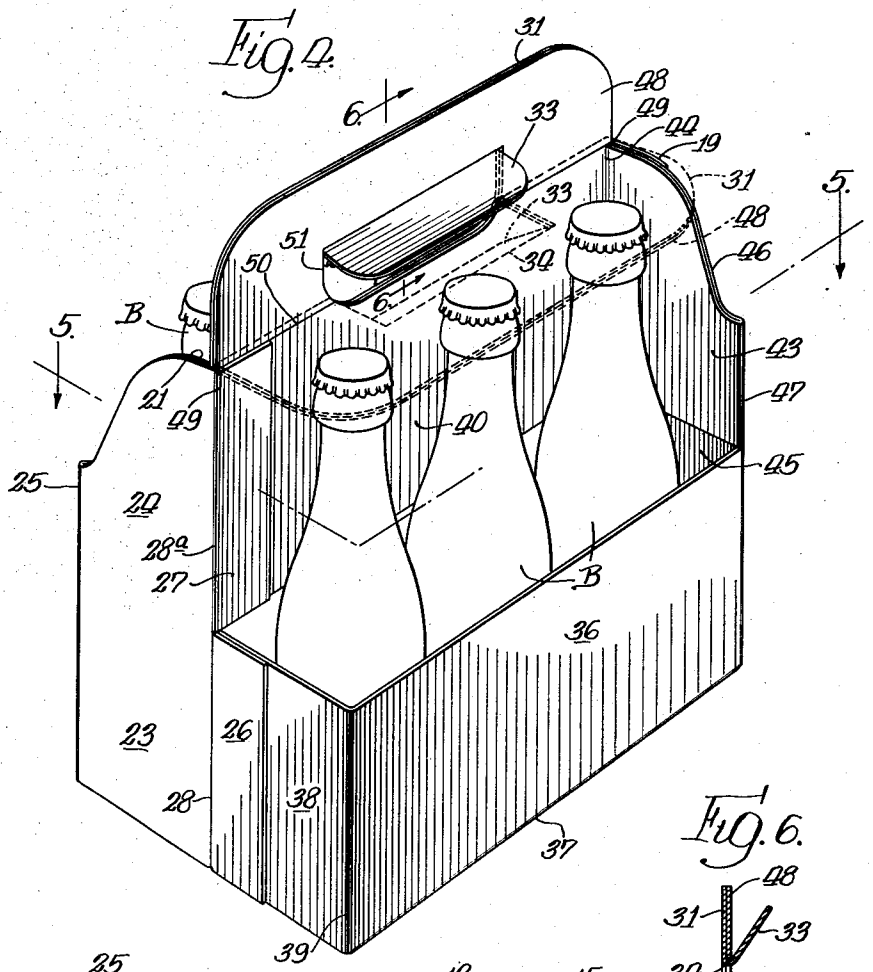
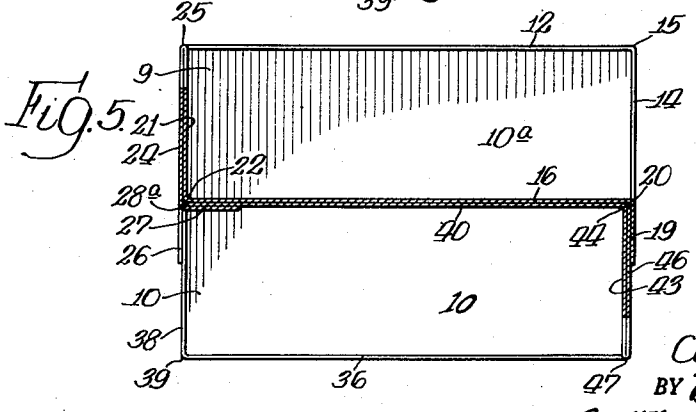


Fig. 6.

Fig. 5.



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BOTTLE CARRIER

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Application April 19, 1943, Serial No. 483,569

6 Claims. (Cl. 229—52)

This invention relates to containers, and has to do more particularly with carriers for transporting bottles of soft drinks and analogous articles.

My invention is directed to a carrier of the character stated which possesses adequate strength and rigidity, may be set up and collapsed or folded with expedition and facility, possesses long life and is capable of repeated reuse and does not require the use of staples, stitching or other permanent fastening means for maintaining it in set up condition. I also provide automatic locking means for maintaining the carrier in set up condition, such locking means being quick releasable for collapsing or folding of the carrier. More specifically, I provide a carrier having a body portion, box-like in character and open at its top for machine loading, and carrying means comprising carrying panels extending upward from the body, the latter comprising side and end walls of single thickness and the carrying panels being connected to the end walls at diagonally opposite corner portions of the body, such connections preferably comprising elements providing multiple thickness of the material from which the carrier is formed so as to impart desired rigidity and strength thereto. Further objects and advantages of my invention will appear from the detail description.

In the drawings:

Figure 1 is an inner plan view of a blank from which the carrier of my invention is formed, the blank being shown in its fully extended position;

Figure 2 is a side view of the blank of Figure 1 after it has been folded and the parts thereof secured together in proper relation to produce the carrier of my invention by setting up the folded blank;

Figure 3 is a side view of the blank of Figure 2, on an enlarged scale, illustrating the operation of setting up this blank to produce the carrier;

Figure 4 is an isometric side view of the completely set up and loaded carrier produced from the blank of Figures 2 and 3;

Figure 5 is a sectional view taken substantially on line 5—5 of Figure 4, on a reduced scale, with the bottles omitted from the carrier;

Figure 6 is a detail sectional view taken substantially on line 6—6 of Figure 4; and

Figure 7 is a fragmentary vertical sectional view of the folded carrier with the bottom thereof folded upward and inward between the side panels.

The carrier of my invention is formed from a one piece blank cut from a sheet of cardboard, boxboard or other suitable material, of proper thickness. The blank is intended to be set up to produce the carrier, as above stated, and in the following description of the blank the various elements thereof will be described with reference to the positions which they occupy in the set up carrier.

Referring to Figure 1, the blank is shown as comprising three sections 7, 8 and 9, respectively, of generally rectangular shape. Sections 7 and 8 are cut and scored to provide a bottom wall comprising two panels 10 and 10a of equal width connected together at their inner edges along a central lengthwise fold line 11, a side panel 12 connected at its lower edge to the outer edge of panel 10a along a fold line 13, an end panel 14 of the same height as side panel 12 and connected to the latter along the fold line 15, a carrying panel 16 nicked to panels 12 and 14 at several points 17 but otherwise separated from panels 12 and 14 by being cut along a line 18, and a glue lap 19 extending along the inner edges of panels 14 and 16 and connected thereto along a fold line 20. Section 7 further includes a connecting panel 21 attached to the other end of panel 16 along a fold line 22, an end panel 23 having an upward extension providing a supporting panel 24, the panels 23 and 24 being connected to panel 12 and the outer edge of connecting panel 21 along a fold line 25, glue laps 26 and 27 connected to the inner edges of panel 23 and supporting panel element 24 along fold lines 28 and 28a, respectively, the laps 26 and 27 being nicked together at 29 and being otherwise separated from each other by a cut along a line 30, and a handle flap 31 extending upward from the upper edge of carrying panel 16, there preferably, although not necessarily, being a fold line 32 extending along the juncture between flap 31 and panel 16. Handle flap 31 extends a short distance beyond fold line 22, at 31a, about ⅛ of an inch, and this flap 31 and the upper portion of panel 16 are cut to provide a locking tab 33 of substantially rectangular shape disposed at the mid-portion of handle flap 31 and connected thereto at its upper edge along a fold line 34, flap 33 being nicked to panel 16 at its lower edge, at 35.

Section 9 of the blank is suitably cut and scored to provide a side panel 36 connected at its lower edge to the outer edge of bottom panel 10 along a fold line 37, an end panel 38 connected to one end of panel 36 along a fold line 39, a carrying panel 40 nicked to panels 36 and 38 at several points 41 and otherwise separated therefrom by being cut along a line 42, a connecting panel 43

attached to one end of panel 40 along a fold line 44, and an end panel 45 having an upwardly extending supporting panel element 46, panel 45 and element 46 being connected to the end of panel 36 and the connecting panel element 43 along a fold line 47. Carrying panel 40 is provided with a handle flap 48 extending upward therefrom and projecting at each end, at 49, a short distance, about ⅛ of an inch, beyond carrying panel 40, flap 48 preferably, but not necessarily, being connected to the upper edge of carrying panel 40 along a fold line 50. Handle flap 48 is provided with an opening 51 therethrough of the same length as tab 33 but slightly wider, about $\frac{1}{32}$ of an inch, than this tab. The tab 33 is slightly offset, about $\frac{1}{16}$ of an inch, from the center of panel 16 in the direction of fold line 22, and opening 51 is slightly offset, about $\frac{1}{16}$ of an inch, from the center of panel 40 in the direction of fold line 44. This offsetting of tab 33 and of opening 51 allows for the thickness of the blank when it is set up to form the carrier and assures that the tab 33 will be disposed in accurate register with opening 51, as will appear more fully in considering the carrier in its set up form.

The nicking together of those elements of the blank which are otherwise separated by being cut apart, assures that all of the elements of the blank will be retained in a common plane, which facilitates folding of the blank and securing together of certain parts thereof to produce the carrier. The nicks or elements securing the otherwise separated parts of the blank together are provided by forming the cutting edge of the knife used for cutting such parts from each other with nicks or non-cutting areas of slight extent so that, in the cutting operation, the parts otherwise separated by the cut are held together by uncut restricted areas of the blank, termed "nicks," or nicked together, as it is termed in this art.

The panels 14 and 38 are of the same width and height, being equal in width to bottom panels 18 and 18a, respectively, and in height to side panels 12 and 36, respectively, which side panels are of the same height and length. Likewise, the carrying panels 16 and 40 are of the same dimensions, as are the connecting panels 21 and 43. The ends panels 23 and 45, the upper edges of which may be considered as in the planes of the cuts 18 and 42, respectively, are of the same dimensions as the end flaps 14 and 38, and the supporting panel elements 24 and 46, constituting continuations of the panels 23 and 45, respectively, are of the same contour and dimensions, being of the same width as end panels 23 and 45, respectively. It is not essential that the end panels 14, 38, 23 and 45 be of the same width as the bottom panels 18 and 18a. In certain cases, the end panels may be of slightly greater width than the bottom panels, and in other cases may be of slightly less width than the bottom panels. Preferably certain of the fold lines, such as fold lines 11, 13, 20, 22, 28, 28a, 37 and 44, are provided with suitably spaced lengthwise slits 52 extending through the material of the blank, to facilitate the folding operation.

After the blank has been cut and scored in the manner above described, section 9 thereof is folded over onto section 7, along the bottom fold line 11, and the inner faces of the glue laps 19, 26 and 27 are coated with glue or other suitable adhesive, as indicated by the stippling in Figure 1, after which glue lap 19 is turned over onto end panel 45 and supporting panel element 46, and glue laps 26 and 27 are turned over onto end panel 38 and carrying panel 40, the glue laps preferably being maintained under pressure until the glue or adhesive has set. During this glueing operation, the parts of the blank remain nicked together and upon completion of the glueing operation the folded blank, which may also be considered as the folded carrier, appears as in Figure 2. The carrier in its folded condition lies flat and is well adapted for shipment in bundles or bales or, if desired, in suitable containers. The folded blank or carrier of Figure 2 may readily be set up to provide a carrier ready for loading.

In setting up the carrier it is held in inverted position with the handle edges resting upon a table top, or other suitable flat surface, and the bottom is forced inward, by pressure exerted at the fold line 11, and is thereby moved from its outer position shown in Figure 2 into its inner position shown in Figure 7, in which the bottom panels 18 and 18a are disposed between side panels 12 and 36 parallel therewith. After that has been done, the folded carrier is placed in upright position, with the lower edges of the side panels and the end panels resting upon a table top or other suitable flat surface *s*. The carrier is then grasped at opposite ends thereof, as indicated in Figure 3, it being noted, as will be clear from the above, that in the folded condition of the carrier the fold lines 11, 28, 28 and 28a are disposed in a common plane. Pressure is then exerted at the fold lines 28 and 28a, so as to force the end panels at each end of the carrier toward the end panels at the opposite end. At the same time that the ends of the carrier are subjected to pressure, connecting panel 43 is subjected to pressure, by the thumb of the right hand, in a direction inward and toward the inner face of supporting panel element 46, and connecting panel 21 is subjected to pressure inward and toward the inner face of supporting panel element 24. During this operation the end panels at each end of the carrier operate as toggles, which exert a considerable pressure, forcing the side panels 12 and 36 away from each other, and at the same time the carrying panels 16 and 40 are being moved inward and lengthwise relative to each other, the result being that a shearing effect is exerted upon the nicks 17, 29 and 41, which readily tears them apart permitting separation of panels 16 and 21 and glue lap 27 from panels 12 and 14 and glue flap 26, and separation of panels 40 and 43 from panels 36 and 38.

In the continued setting up operation, the carrying panels 16 and 40 are brought into their positions shown in Figures 4 and 5, disposed back to back, with the connecting panels 21 and 43 disposed at the inner faces of the supporting panel elements 24 and 46, respectively, and tab 33 of handle flap 31 aligned with opening 51 of handle flap 48. Tab 33 is then pressed toward opening 51, so as to break the neck 35, after which tab 33 is bent about its fold line 34 so as to extend through opening 51, as in Figures 4 and 6. Tab 33 then functions as a locking member effective for restraining the handle flaps 31 and 48 and the associated carrying panels 16 and 36 against relative endwise movement. As the panels 12 and 36 are moved apart during the setting up operation, the outer edges of the bottom panels 18 and 18a are moved outward and the latter panels assume a substantially horizontal position, in which they constitute the bottom of the carrier.

In the fully set up condition of the carrier,

shown in Figures 4 and 5, the carrying panels and the associated connecting and supporting panels constitute two panel structures of substantially Z-shape in horizontal section and disposed in interfitting relation, such panel structures being reversely related and attached to the body of the carrier at diagonally opposite corner areas thereof. That will be clear from Figure 5 showing in horizontal section the panel structures referred to. It will be seen that the side and end walls of the body of the carrier are of single thickness, the connection between the carrying panels and each end of the body of the carrier is of double thickness, the glue lap 19 provides, with end panel 45 and supporting panel 46 double thickness of material at the end of the body and triple thickness of material at one end of the supporting and carrying panel structure, glue lap 26 providing double thickness of material, with panel 38, at the other end of the body of the carrier, and glue lap 27 provides, with the adjacent end portions of panels 16 and 40, triple thickness of material at the latter end of the carrier. The carrier, when in its fully set-up condition, is thus effectively braced and has desirable rigidity imparted thereto, so as to retain its shape and have adequate strength for supporting the load of the bottles. The side and the end walls of the body of the carrier are of single thickness, which is conducive to simplicity and low cost of production, being well capable of withstanding the stresses to which they are subjected in use, in view of the manner in which the carrier is reinforced by multiple thicknesses of material, as above described. It will be noted that the body of the carrier is defined by the side panels 12 and 36 and the end panels 14 and 23 and 38 and 45, the bottom and the end fold lines of the carrier body being disposed in a common plane, which is the lengthwise medial plane of the carrier body, when the carrier is in its fully set up position. The body of the carrier is open at its top and, accordingly, is particularly suitable for machine loading of bottles B of soft drinks or other materials or comestibles into the carrier, the latter usually being of proper dimensions to receive a row of three bottles at each side of the carrying flaps. It will be understood that the dimensions of the carrier may be varied as desired, within limits.

After the carrier has once been set up and the separable elements thereof have been broken apart, in the manner above described, it may thereafter be folded, when empty, by merely withdrawing the locking tab 33 from opening 51 and then imparting relative endwise movement to the carrying panels 16 and 40, so as to prevent movement of tab 33 through opening 51, after which the carrier may be collapsed or folded, by moving the side panels 12 and 36 together. As the side panels 12 and 36 move toward each other, the bottom folds upward and inward between those panels. In its fully collapsed or folded condition, the carrier appears as in Figure 2, except that the bottom panels 18 and 18a are disposed upward between the side panels 12 and 36, as in Figure 7.

The material of which the blank is formed possesses appreciable resiliency so that, once the locking tab 33 has been forced through opening 51, it thereafter is resiliently urged toward the handle flap 48. Consequently, in again setting up the carrier, when the handle flaps 31 and 48 are brought into proper final relation to each other, tab 33 automatically springs through opening 51, locking the parts together in the manner previously described. The carrier constructed in this manner possesses long life, may be reused repeatedly, and may quickly be set up for use or collapsed or folded for storage, in the manner described.

The extensions 49 of handle flap 48 are of proper magnitude to project over the upper edges of the superposed supporting panel elements at the ends of the supporting and carrying panel structure, as will be clear from Figure 4, which is desirable as being conducive to restraining the parts against any objectionable relative vertical movement. The locking tab 33 being hinged along the fold line 34 at its upper edge, may be moved from its position shown in Figure 4 upward to its position shown in Figure 6, so as to provide a more or less rounded surface of appreciable width for transporting the carrier, avoiding discomfort such as would result from supporting the weight of the carrier and the contents thereof from a narrow or sharp edge. The fold lines 32 and 50 are not essential to my invention, but are preferred as permitting folding of the handle flaps 31 and 48 downward from their full line position shown in Figure 4 to their dotted line position, for stacking of loaded carriers. In their dotted line position, the handle flaps seat on the caps or tops of the bottles and in stacking the carriers should be alternately reversed, to avoid leaning of the stack toward one side, as will be understood.

It will be understood that the carrier illustrated herein shows a preferred form only of my invention and that changes in details of construction and arrangement of parts may be resorted to without departing from the field and scope thereof, and I intend to include all such variations, as fall within the scope of the appended claims, in this application.

I claim:

1. A bottle carrier of the character described comprising, an open top bottle receiving box-like body portion having single thickness side and end walls hinged together at their edges and a one piece bottom wall extending between and connecting said side walls and integrally hinged at its side edges to the lower edges thereof, said end and bottom walls having central fold lines disposed substantially in the lengthwise medial plane of said body portion, and two reversely related panel structures each comprising a carrying panel having at one end a supporting panel element extending upward from one of said end walls and at its other end a connecting panel element secured to the outer edge of the other supporting panel element, said carrying panels being positionable back to back substantially in said medial plane by relative endwise movement in opposite directions, and said connecting panel elements being positioned at the inner face of said supporting panel elements, in the act of setting up said carrier, said carrying panels having interengaging means locking them against relative endwise movement.

2. A bottle carrier of the character described, comprising an open top bottle receiving box-like body portion having single thickness side and end walls hinged together at their edges and a bottom wall extending between and connecting said side walls comprising two panels permanently connected together at their inner edges along a central fold line and permanently hinged at their outer edges to the lower edges of said side walls, said end walls having central fold lines disposed

substantially in the plane of said fold line of said bottom wall, and two interfitting reversely related panel structures of substantially Z-shape in horizontal section providing two carrying panels disposed back to back substantially in the lengthwise medial plane of said body portion and having connection to said end walls at diagonally opposite corner areas of said body portion.

3. A bottle carrier of the character described comprising, an open top box-like body portion having side and end walls and a bottom wall extending between and connecting said side walls comprising two integral panels connected together at their inner edges along a central fold line and integrally hinged at their outer edges to the lower edges of said side walls, each of said end walls having a central fold line substantially in the plane of said fold line of said bottom wall and an upwardly projecting supporting element the inner edge of which is substantially in the plane of the fold line of the associated end wall, said supporting elements being at opposite sides of the lengthwise medial plane of said body portion, two reversely related carrying panels each secured at one end to the inner edge of one of said supporting elements, and a connecting panel element at the other end of each of said carrying panels integrally connected thereto at its inner edge along a fold line and integrally connected at its outer edge to the outer edge of the corresponding supporting panel element along a fold line.

4. A one piece bottle carrier blank comprising side panels, a bottom wall extending between and connected to the lower edges of said side panels along intervening fold lines and forming with said side panels a substantially rectangular continuous strip, end panels substantially equal in width to one half the width of said bottom wall and attached to the ends of said side panels along intervening fold lines, glue laps attached to the inner edges of the end panels of one of said side panels along intervening fold lines and adapted for attachment to the inner portions of the end panels of the other side panel, certain of said end panels being provided with upwardly extending supporting panel elements, carrying panels separated at their lower edges from the upper edges of said side panels, and connections between said carrying panels and said glue laps and said supporting panel elements whereby said carrying panels are disposable substantially in the medial lengthwise plane of the carrier in back to back relation with their ends attached to the end panels, when said blank is secured together and set up to produce the carrier.

5. A one piece bottle carrier blank comprising side panels, a bottom wall comprising two panels hinged together at their inner edges extending between and connected to the lower edges of said side panels along intervening fold lines and forming with said side panels a substantially rectangular continuous strip, end panels substantially equal in width to said bottom panels attached to the ends of said side panels along intervening fold lines, oppositely related carrying panels each overlying and separated at its lower edge from the upper edges of the corresponding side panels and one of the end panels thereof, the other end panel of each side panel having an upwardly extending supporting element, a glue lap attached to the inner edge of said one end panel of one of said side panels and to the adjacent end edge of the associated carrying panel along an intervening fold line, glue laps attached to the inner edges of said other end panel and the supporting element thereof of said one side panel, and elements separated at their lower edges from the upper edges of said side panels connecting the outer edges of said supporting elements to the adjacent end edges of the respective carrying panels along intervening fold lines.

6. A one piece bottle carrier blank comprising side panels, a bottom wall comprising two panels hinged together at their inner edges extending between and connected to the lower edges of said side panels along intervening fold lines and forming with said side panels a substantially rectangular continuous strip, end panels substantially equal in width to said bottom panels attached to the ends of said side panels along intervening fold lines, carrying panels oppositely off-set relative to said strip a distance substantially equal to the width of said end panels each having its lower edge overlying and separated from the upper edges of the corresponding side panel and one of the end panels thereof, the other end panel of each side panel having an upwardly extending supporting element, a glue lap attached to the inner edge of said one end panel of one of said side panels and to the adjacent end edge of the corresponding carrying panel along a fold line, glue laps attached to said other end flap and the supporting element thereof of said one side panel, and elements separated at their lower edges from the upper edges of said side panels connecting the outer edges of said supporting elements to the adjacent end edges of the respective carrying panels along intervening fold lines.

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