July 25, 1944. C. L. GILBERT 2,354,370

BOTTLE CARRIER

Filed Aug. 2, 1943 2 Sheets-Sheet 1

Fig. 1.

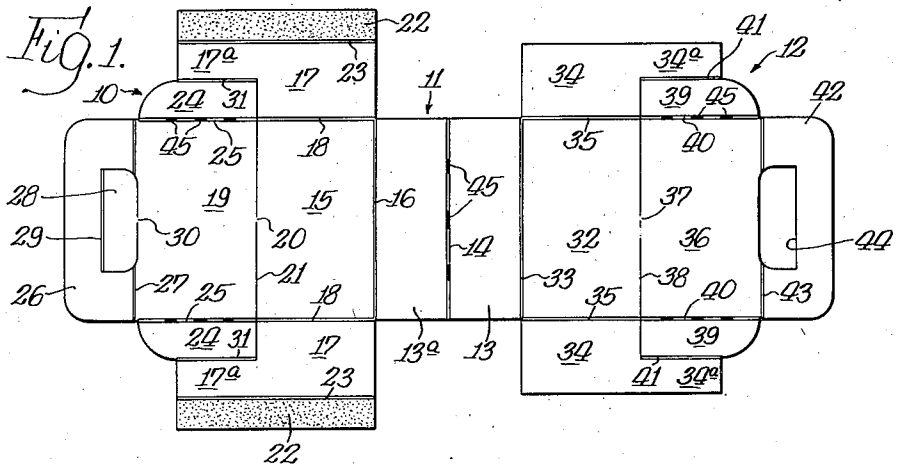


Fig. 2.

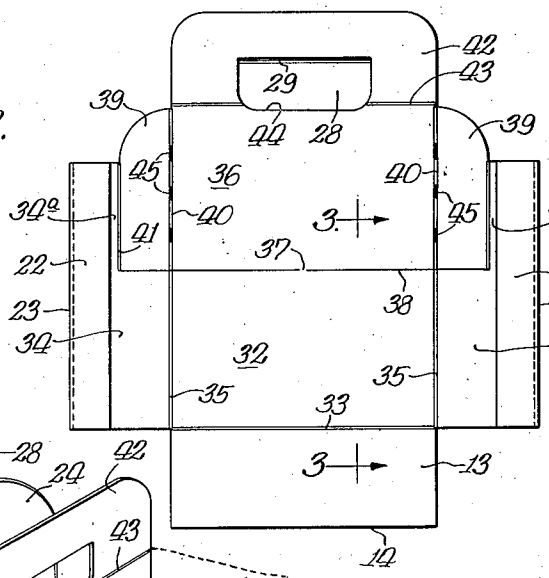


Fig. 3.

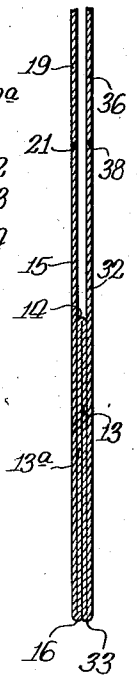
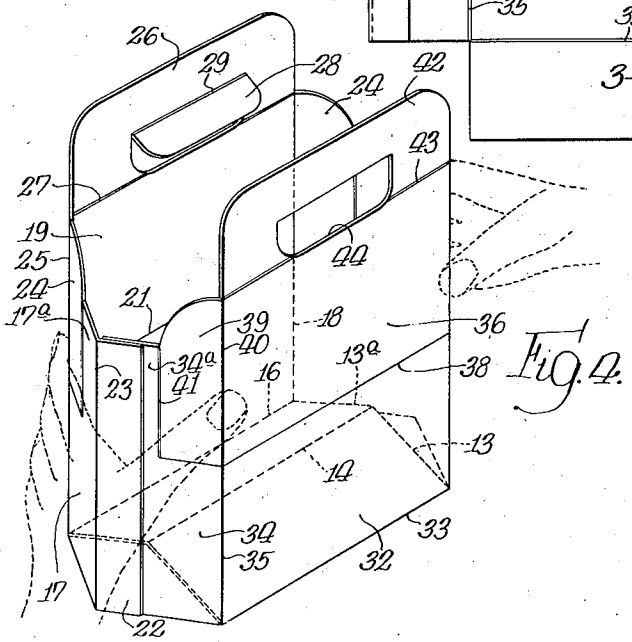


Fig. 4.



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Fig. 5.

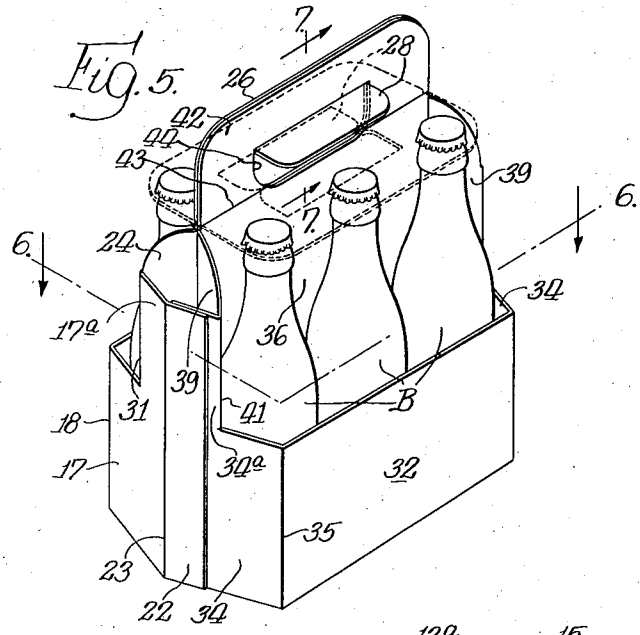


Fig. 7.

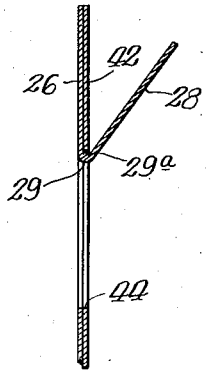


Fig. 6.

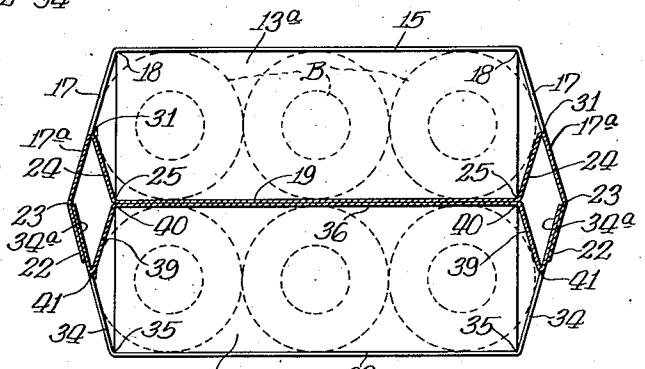
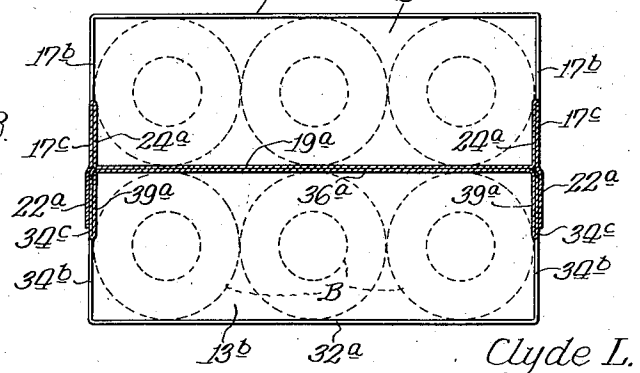


Fig. 8.



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UNITED STATES PATENT OFFICE

2,354,370

BOTTLE CARRIER

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Application August 2, 1943, Serial No. 496,991

9 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. The carrier has a body portion, boxlike in character and open at its top, 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 by means comprising elements providing multiple thickness of the material from which the carrier is formed so as to impart desired rigidity and strength thereto.

The carrier of my instant invention is in the nature of an improvement over the carrier of my copending application, Serial No. 483,569, filed April 19, 1943. The more important improvements of my present carrier, over that of my carrier disclosed in my said copending application, reside in; connecting the carrying panels to the central portions of the end walls of the carrier by elements which, when the carrier is in use, define reinforcing and supporting structures of increased strength and rigidity, which structures preferably are tubular with a view to increased rigidity thereof; the provision of a blank from which the carrier is to be formed having the elements thereof so arranged that the blank may be folded and glued together with facility and minimum delay, thereby rendering possible increased production; the provision of continuous glue laps at the ends of the carrier, whereby folding over and gluing thereof is facilitated and increased strength is imparted to the carrier; the provision of a carrier of such character that it may readily be constructed for either hand loading or machine loading, as desired; and the provision of a carrier of simpler construction, and which may be produced at lower cost, than the carrier of my above referred to copending application. 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 sectional view, on an enlarged scale, taken substantially on line 3—3 of Figure 2, but with the bottom folded up between the front and the back panels preliminary to setting up of the carrier;

Figure 4 is an isometric side view of the blank of Figure 2, illustrating the operation of setting up this blank to produce the carrier;

Figure 5 is an isometric side view of the completely set up and loaded carrier produced from the blank of Figures 2 and 4;

Figure 6 is a sectional view taken substantially on line 6—6 of Figure 5, with the bottles omitted from the carrier and indicated in dotted lines;

Figure 7 is a detail sectional view, on an enlarged scale, taken substantially on line 7—7 of Figure 5; and

Figure 8 is a view similar to Figure 6, of a modified form of carrier embodying my invention.

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 10, 11 and 12, respectively, of generally rectangular shape. Sections 10 and 11 are cut and scored to provide a bottom wall comprising two panels 13a and 13 of equal width connected together at their inner edges along a central lengthwise fold line 14, a side panel 15 connected at its lower edge to the outer edge of panel 13a along a fold line 16, end panels 17 each of the same height, for one-half of its width, as side panel 15 and connected to the latter along the fold line 18, a carrying panel 19 nicked to panel 15 at 20 but otherwise separated therefrom by being cut along a line 21, and glue laps 22 extending along the inner edges of panels 17 and connected thereto along fold

lines 23. Section 10 further includes a connecting panel 24 at each end of panel 19, attached thereto along a fold line 25, and a handle flap 26 extending upward from the upper edge of carrying panel 19, there preferably, although not necessarily, being a fold line 27 extending along the juncture between flap 26 and panel 19. Handle flap 26 and the upper portion of panel 19 are cut to provide a locking tab 28 of substantially rectangular shape, disposed at the midportion of handle flap 26 and connected thereto at its upper edge along a fold line 29, flap 28 being nicked to panel 19 at its lower edge, at 30. The inner half of each of the end panels 17 is of materially greater height than the outer half thereof, as shown, providing an upward extension constituting a supporting panel 17a integral with panel 17, attached at its outer edge to the adjacent connecting panel 24 along a fold line 31, and at its inner edge to the adjacent glue lap 22 along the upper portion of fold line 23. The two supporting panels 17a are integrally connected to the end panels 17 and the glue laps 22 are both continuous throughout their length, which is conducive to increased strength and rigidity of the carrier and provides a simple form of blank which may be handled to best advantage in the operation of folding over and gluing the glue laps, with a corresponding saving in cost of production; as will appear more fully later.

Section 12 of the blank is suitably cut and scored to provide a side panel 32 connected at its lower edge to the outer edge of bottom panel 13 along a fold line 33, end panels 34 connected to the ends of panel 32 along fold lines 35, a carrying panel 36 nicked to panel 32 at 37 and otherwise separated therefrom by being cut along a line 38, and connecting panels 39 attached to the ends of panel 36 along fold lines 40, each end panel 34 having an integral upwardly extending supporting panel element 34a, attached at its outer edge to the adjacent connecting panel 39 along a fold line 41. Carrying panel 36 is provided with a handle flap 42 extending upward therefrom preferably, but not necessarily, connected to the upper edge of carrying panel 36 along a fold line 43. Handle flap 42 is provided with an opening 44 therethrough of the same length as tab 28 but slightly wider, about $\frac{1}{16}$ of an inch, than this tab. The distance from the upper edge of handle flap 26 to the upper edge of score 29 of locking tab 28 should be about $1\frac{5}{16}$ inches, and the distance from the upper edge of handle flap 42 to the upper edge of opening 44 should be about $1\frac{1}{8}$ inches. That accommodates the welt formed when the locking tab 28 is bent up into operative position, when the folded and glued blank is set up to form the carrier and assures that the tab 28 will be disposed in accurate register with opening 44, 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 noncutting 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 end panels 17 and 34 are of the same height, being of the same height as the side panels 15 and 32, and the supporting panel elements 17a and 34a are also of the same height. But panels 34 are slightly narrower than panels 17, to accommodate the welts formed by the scores 23 when the carrier is folded or collapsed. The carrying panels 19 and 36 are of the same dimensions, as are the connecting panels 24 and 39, and the supporting panel elements 17a and 34a. The bottom panels 13a and 13 are each of the same width as that of the bottles or containers to be carried and, in a carrier intended to receive six bottles of six ounce size, arranged in two rows of three bottles each, the bottom wall of the carrier, comprising the panels 13a and 13, is approximately $\frac{7}{8}$ of an inch shorter than one row of bottles. The panels 15 and 32, and 19 and 36, are of the same length as the bottom panels and, likewise, are approximately $\frac{7}{8}$ of an inch shorter than one row of bottles. Preferably certain of the scores of fold lines, such as fold lines 14, 25 and 40, are provided with suitably spaced lengthwise slits 45 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 12 thereof is folded over onto section 10, along the bottom fold line 14, and the inner faces of the glue laps 22 are coated with glue or other suitable adhesive, as indicated by the stippling in Figure 1, after which glue laps 22 are turned over onto end panels 34 and supporting panel elements 34a, with the inner edges of panels 34 and extensions 34a thereof spaced a short distance outward from fold lines 23, the glue laps preferably being maintained under pressure until the glue or adhesive has set. This operation is performed by a suitable machine. In that connection, it will be noted that the blank shown in Figure 1 is symmetrical, with the sections 10, 11, and 12 thereof disposed on a common axis or center line, and that each of the glue laps 22 is formed as one continuous strip of material. That facilitates feeding of the blanks to the machine and expedites the gluing operation, with resulting increase in output and decrease in cost of production. During this gluing operation, the parts of the blank remain nicked together and upon completion of the gluing 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 14, and is thereby moved from its outer position shown in Figure 2 into its inner position shown in Figure 3, in which the bottom panels 13 and 13a are disposed between side panels 15 and 16 parallel therewith, the carrier being pressed flat so as to break the scores 14, 16 and 33. After that has been done, the nicks 20 and 37 are severed by relative movement between the side panels and the carrying panels, the carrier is opened up in bag form, with the carry-

ing panels aligned with and extending upward from the side panels and the corner scores are broken by forcing the ends inward and the side panels toward each other. The carrier, in its opened up condition, is then placed upon a table top or other flat surface, nick 30 is severed and locking tab 28 is bent upward along score 29 toward handle flap 42, and pressure is exerted by the thumbs and fingers at reverse fold scores 25 and 40 and upon connecting panels 24 and 39, as indicated in Figure 4, so as to force the connecting panels inward and break the scores 25 and 40 and 31 and 41.

In the continued setting up operation, the carrying panels 19 and 36 are brought into their positions shown in Figure 5, disposed back to back, with the connecting panels 24 and 39 extending at an inclination outwardly from the panels 19 and 36 to the outer edges of the supporting panel elements 17a and 34a, respectively, and tab 28 of handle flap 26 inserted through opening 44 of handle flap 42 serving as a locking member effective for restraining the handle flaps 26 and 42 against relative endwise movement. The panels 13 and 13a are then in 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 5 and 6, the connecting panels and the supporting panels provide a tubular structure, of approximately diamond or rhombic shape in cross section, connecting the carrying panels to the central portion of the end walls of the carrier. That will be clear from Figure 6 showing in horizontal section the tubular structures referred to. These tubular structures possess considerable strength and rigidity and materially strengthen the carrier as a whole. 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 of the body of the carrier is of rigid tubular construction, and the glue laps 22 provide, with end panels 34 double thickness of material at the ends of the body. 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.

It will be clear, from what has been said, that the end walls of the carrier are of somewhat greater length than the width of the bottom wall, comprising the panels 13a and 13. In the fully set up condition of the carrier, the end panels 17 converge outwardly with the supporting panels 17a, and the end panels 34 likewise converge outwardly with the supporting panels 34a, as shown in Figure 6. When the carrier is loaded, the bottles B are disposed in two rows of three bottles each, resting upon the bottom wall of the carrier at opposite sides of the panels 19 and 36. The end panels are disposed to contact snugly the end bottles of each row, as shown, and are effective for holding the bottles against undesirable looseness or play. The locking tab 28 is bent upward into approximately its position shown in Figure 7, when carrying the loaded carrier by hand, the score 29 then forming a welt 29a, which is accommodated by the increased distance of opening 44 from the upper edge of handle flap 42, relative to the distance of tab 28 from the upper edge of handle flap 26, previously referred to.

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 moving the side panels 15 and 32 together. As the side panels 15 and 32 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 13 and 13a are disposed upward between the side panels 15 and 32, as in Figure 3, though they may be disposed outward of the side panels, as in Figure 2, if desired.

The material of which the blank is formed possesses appreciable resiliency so that, once the locking tab 28 has been forced through opening 44, it thereafter is resiliently urged toward the handle flap 42. Consequently, in again setting up the carrier, when the handle flaps 19 and 36 are brought into proper final relation to each other, tab 28 extends through opening 44, 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 locking tab 28 being hinged along the fold line 29 at its upper edge, may be moved from its position shown in Figure 5 upward to its position shown in Figure 7, 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 27 and 43 are not essential to my invention, but are preferred as permitting folding of the handle flaps 26 and 42 downward from their full line positions shown in Figure 5 to their dotted line positions, for stacking of loaded carriers, in which latter positions, the handle flaps seat on the caps or tops of the bottles.

The carrier so far described is not best suited for machine loading, and is intended more particularly for hand loading, since approximately ninety per cent of bottle carriers are loaded by hand. The modified form of carrier shown in Figure 8 is particularly suitable for machine loading. The bottom wall thereof, comprising panels 13b and 13c are equal in length to a row of bottles, as are the side panels 15a and 32a, and the end walls, respectively comprising the end panels 34b and the associated supporting panels 34c and glue lap 22a, and the end panels 17b and the associated supporting panels 17c and glue lap 22a, are of the same width as the bottom wall. In the fully set up condition of this carrier, the connecting panels 24a seat flat against the inner faces of supporting panels 17c, and the connecting panels 39a seat flat against the inner faces of supporting panels 34c, providing therewith flat tubular structures of considerable strength and rigidity connected to the central portions of the ends of the carrier. The connecting flaps also provide locking elements effectively holding the carrying panels 19a and 36a against relative movement away from each other, assuring that the carrier is maintained in fully set up condition for loading, and the continuous glue laps provide effective reinforcement for the carrier, as before. Referring further to Figure 8, it will be noted that the carrier, in its fully set up condition, defines two open top rectangular compartments each corresponding in length and width to a row of bottles, and is, therefore, well suited for loading by machines

presently used for that purpose. The carrier of Figure 8 is otherwise similar to that of Figures 1 to 7, inclusive, and further description thereof is not thought to be necessary.

While I have illustrated and described herein, by way of example, carriers suitable for transporting six bottles of six ounce size, it is to be understood that the carriers of my invention may be made of various sizes for transporting any suitable number of bottles or containers, and bottles or containers of various sizes.

It will be understood that the carriers illustrated herein show preferred forms 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 having side and end walls each formed of a single thickness of material and a one piece bottom wall extending between and connecting said side walls, carrying panels extending upward from said body disposed in substantially the lengthwise medial plane thereof, and tubular structures connecting said panels to said end walls centrally thereof.

2. A bottle carrier of the character described comprising, an open top bottle receiving box-like body having side and end walls and a bottom wall extending between and connecting said side walls, each of said end walls comprising two panels hinged together at their inner edges along a fold line substantially in the lengthwise medial plane of said body and said bottom wall comprising two integral panels connected together at their inner edges along a fold line in said plane, two carrying panels extending upward from said body disposed in a plane substantially midway between said side walls, and tubular structures connecting said panels to said end walls.

3. A bottle carrier of the character described comprising, an open top bottle receiving box-like body portion having side and end walls and a bottom wall each formed of a single thickness of material extending between and connecting said side walls, each of said end walls having two upwardly projecting supporting panel elements the inner edges of which are disposed substantially at the transverse center of the associated end wall, said panel elements being disposed at opposite sides of the lengthwise medial plane of said body portion, and two carrying panels disposed back to back substantially in said lengthwise medial plane and each having at each end thereof an outwardly extending connecting panel element disposed adjacent the inner face of one of said supporting panel elements and secured at its outer edge thereto.

4. A bottle carrier of the character described comprising, an open top bottle receiving box-like body portion having side and end walls and a bottom wall extending between and connecting said side walls, each of said end walls being of greater width than said bottom wall and having two upwardly projecting supporting panel elements the inner edges of which are disposed substantially at the transverse center of the associated end wall, said panel elements being disposed at opposite sides of the lengthwise medial plane of said body portion, and two carrying panels disposed back to back substantially in said lengthwise medial plane each having at each end thereof a connecting panel element extending at an outward inclination therefrom and secured at its outer edge to the outer edge of one of said supporting panel elements defining therewith tubular structures connecting said carrying panels to said end walls.

5. A bottle carrier of the character described comprising, an open top bottle receiving box-like body having side and end walls and a bottom wall extending between and connecting said side walls, each of said end walls comprising two end panel elements each having at its inner portion an upwardly extending supporting panel element, one of said end panel elements of each of said end walls having a continuous glue lap attached to the inner edge of said one end panel and the supporting panel element thereof with an intervening fold line, said glue lap being secured to the other end panel of the same end wall, and two carrying panels disposed back to back substantially in the lengthwise medial plane of said body having at their ends outward extending connecting panel elements secured at their outer edges to the outer edges of said supporting panel elements.

6. A bottle carrier of the character described comprising, an open top bottle receiving box-like body having side and end walls and a bottom wall extending between and connecting said side walls, each of said end walls comprising two panel elements secured together along a central fold line and each having at its inner portion a supporting panel element projecting upward therefrom, and two carrying panels disposed back to back substantially in the lengthwise medial plane of said body and each having at each end thereof an outwardly extending connecting panel element secured at its outer edge to the outer edge of the corresponding supporting panel element, said connecting panel elements being disposed adjacent and substantially parallel with said supporting panel elements thereby functioning as locking elements for restraining said carrying panels against relative movement one away from the other.

7. 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 forming therewith a substantially rectangular continuous strip, end panels substantially equal in width to one half the width of said bottom wall attached to the ends of said side panels along intervening fold lines and each provided at its inner portion with an upwardly extending supporting panel element, 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, carrying panels separated at their lower edges from the upper edges of said side panels, and connections between said carrying panels and said supporting panel elements whereby said carrying panels are disposable back to back substantially in the medial lengthwise plane of the carrier with their ends attached to the end panels, when said blank is secured together and set up to produce the carrier.

8. A one piece bottle carrier blank comprising side panels, a bottom wall extending between and connected to the lower edge of said side panels along intervening fold lines forming therewith a substantially rectangular continuous strip, end

panels substantially equal in width to one half the width of said bottom wall attached to the ends of said side panels along intervening fold lines and each provided at its inner portion with an upwardly extending supporting panel element, 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, carrying panels at the ends of said strip aligned therewith and separated at their lower edges from the upper edges of said side panels, and connections between said carrying panels and said supporting panel elements whereby said carrying panels are disposable back to back substantially in the medial lengthwise plane of the carrier with their ends attached to the end panels, when said blank is secured together and set up to produce the carrier.

9. 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 forming therewith a substantially rectangular continuous strip, end panels substantially equal in width to one half the width of said bottom wall attached to the ends of said side panels along intervening fold lines and each provided at its inner portion with an upwardly extending supporting panel element, 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, carrying panels at the ends of said strip aligned therewith corresponding in length to said side panels and separated at their lower edges therefrom, and connecting panels at the ends of each of said carrying panels separated at their lower edges from said end panels and connected at their inner and outer edges to the ends of said side panels and the outer edges of said supporting panel elements respectively along intervening fold lines.

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