Nov. 6, 1962 E. L. ARNESON 3,062,404

ARTICLE CARRIER

Filed March 7, 1960 2 Sheets-Sheet 1

Fig. 1

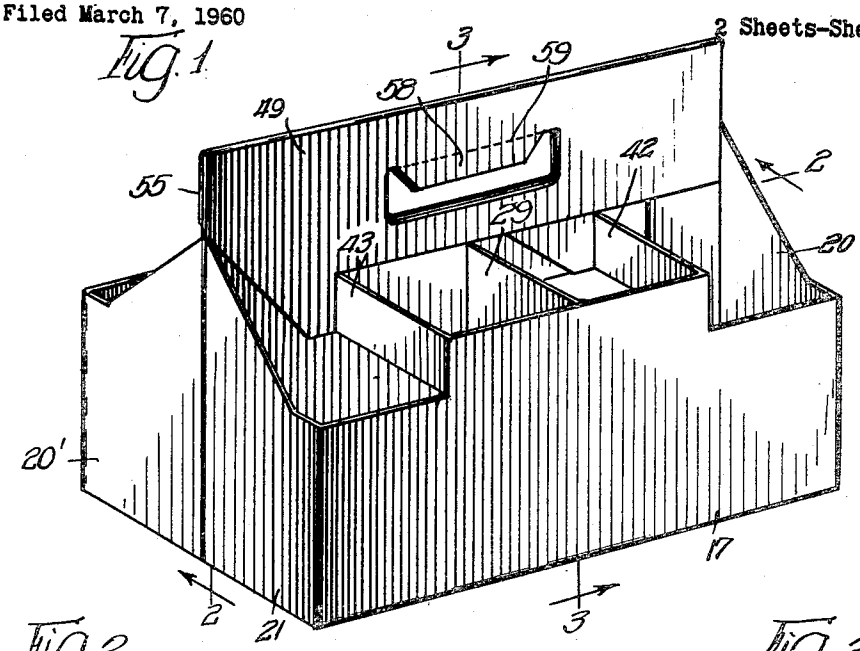


Fig. 2

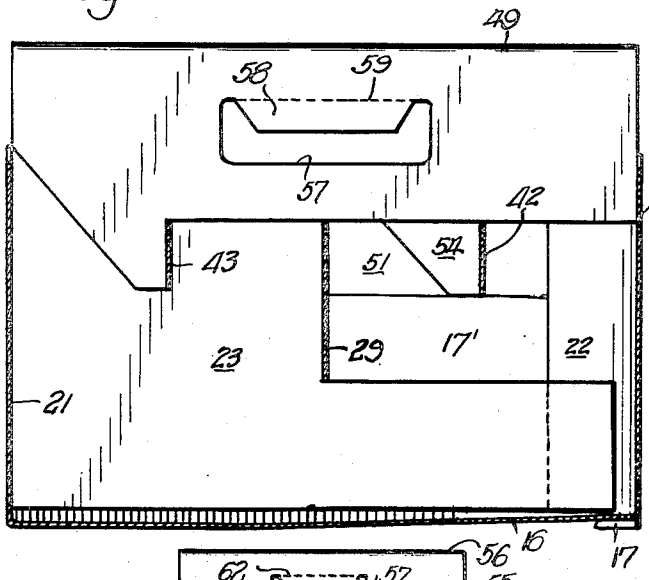
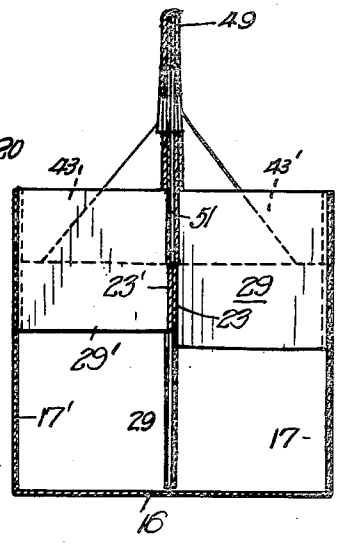


Fig. 3



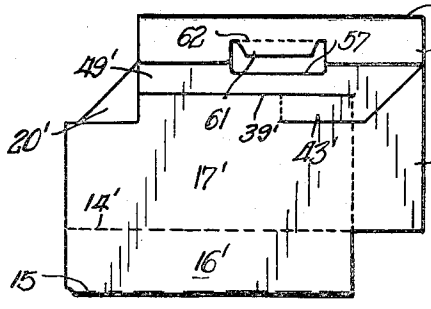


Fig. 7

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Fig. 4

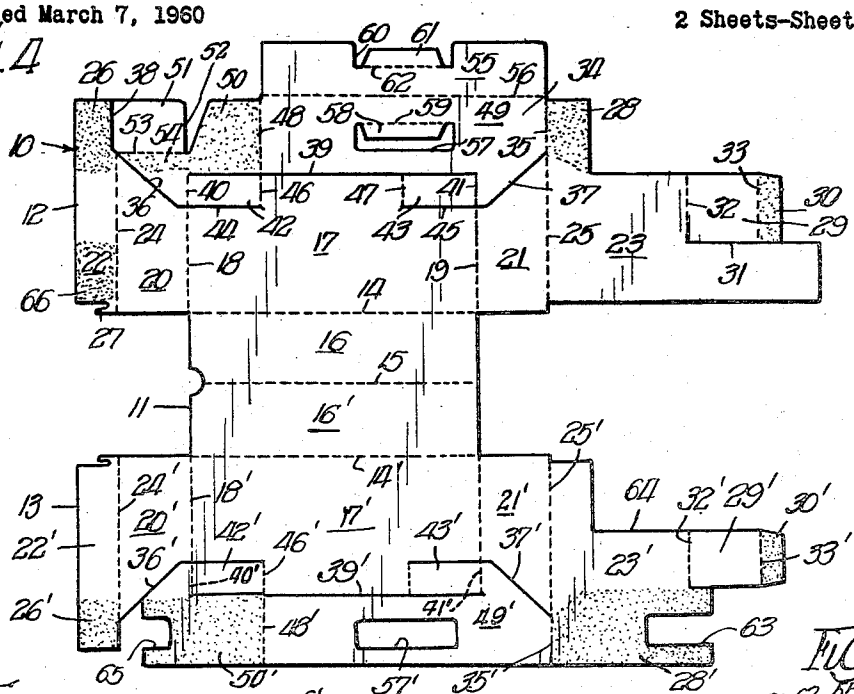


Fig. 5

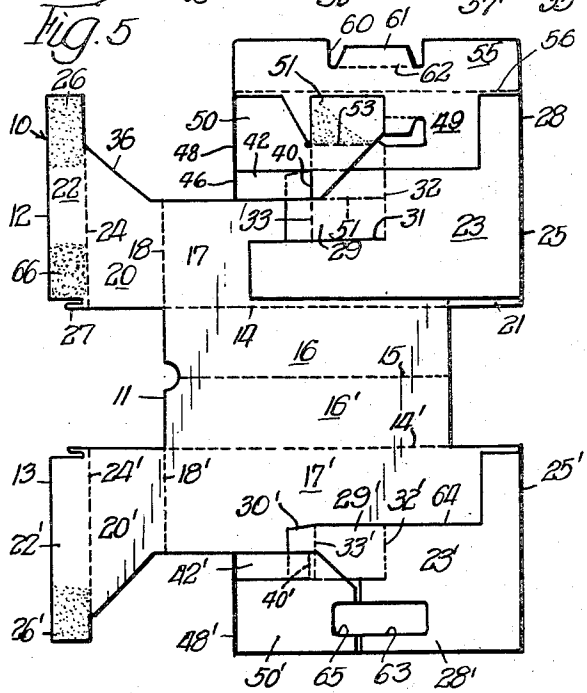
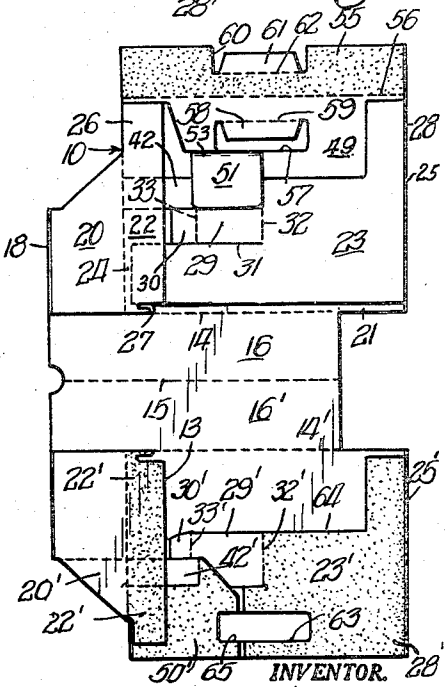


Fig. 6



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3,062,404

ARTICLE CARRIER

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Filed Mar. 7, 1960, Ser. No. 13,015
10 Claims. (Cl. 220—113)

This invention relates to article carriers which are adapted to be fabricated from flexible paperboard material and is more particularly concerned with improvements in a carrier of the sort which is commonly used in the packaging, display and transportation of bottled or canned beverages or the like.

It is a general object of the invention to provide a strong and rugged article carrier of the type which comprises a container body and a partition structure for dividing the container into a plurality of article accommodating cells wherein the container and the partition structure are formed from a single blank of paperboard or like sheet material so as to provide a larger than normal number of cells with the employment of a minimum amount of the material.

It is a more specific object of the invention to provide an improved cellular article carrier which is characterized by an adequately strong, stiff, central suspending panel member for supporting the weight of a relatively large package, which suspending member also serves as a longitudinal partition separating rows of articles positioned on opposite sides thereof and a plurality of cross partition members extending between the suspending member and the side walls with certain of the cross partition members being in the form of straps cut from the upper corners of the side walls and other cross partition members being hinged extensions on the panels forming the central suspending member whereby the carrier, when set up, is adapted to receive a number of bottles in excess of six.

It is a further object of the invention to provide a bottle carrier characterized by a multiply rigid suspending and longitudinal partition member subdividing its interior into two halves and by sets of cross partition elements for each half with one element of each set being arranged in integrally connected relation with a panel forming a ply of the longitudinal partition member and being hinged at the free end thereof to a side wall, and the remaining cross partition elements of each set thereof being cut from the upper corners of the side wall and integrally hinged to the longitudinal partition member, thereby enabling the carrier to be produced with sufficient cells to adapt the same to eight bottle capacity.

These and other objects and advantages of the invention will be apparent from a consideration of the bottle carrier which is shown by way of illustration in the accompanying drawings wherein:

FIGURE 1 is a perspective view of an article carrier in set up and empty condition which has incorporated therein the principal features of the invention;

FIGURE 2 is a longitudinal sectional view taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a cross section taken on the line 3—3 of FIGURE 1;

FIGURE 4 is a plan view of the inside face of the prepared blank from which the carrier is formed, the view showing adhesive applied to certain areas of the blank preliminary to executing the first folding operations;

FIGURE 5 is a plan view of the blank shown in FIGURE 4 following certain folding and gluing operations;

FIGURE 6 is a plan view of the blank shown in FIGURE 5 following further folding and gluing operations; and

FIGURE 7 is a plan view of the completed carrier in flat, knocked down condition.

Referring to the drawings, the illustrated form of the carrier is fabricated from a generally rectangular paperboard blank 10 which is cut and creased as shown in FIGURE 4. The blank 10 is divided into a bottom forming center section 11 and two wall and partition forming side sections 12 and 13 by parallel, longitudinally extending crease lines 14 and 14' which are equally spaced in the direction transversely of the blank on opposite sides of a medial longitudinal crease line 15, the latter dividing the bottom forming section 11 into two equal bottom wall panels 16 and 16'. Since the blank sections 12 and 13 are divided, to a large extent, into wall and partition forming panel elements by identical creasing and cutting lines, only one of these sections will be fully described, and corresponding parts in the same relationship on the opposite side of the medial crease line 15 will be indicated by the same numerals primed.

The side section 12 of the blank is divided by transversely extending, longitudinally spaced crease or score lines and longitudinally extending cutting lines into a side wall panel 17 which extends between the parallel transverse crease lines 18 and 19, end wall panels 20 and 21 at opposite ends of the end wall panel 17 which are separated from the latter by the parallel transverse crease lines 18 and 19, and longitudinal partition forming panels 22 and 23 which are separated from the adjoining end wall forming panels 20 and 21 by parallel transverse crease lines 24 and 25. The one longitudinal partition panel 22 has an extended marginal portion 26 along its top forming edge which is taken from the side margin of the blank and which is adapted to be trapped between panel elements of the handle structure when the carrier is set up. This panel also has a hook forming notch 27 at its inner or bottom forming edge. The other longitudinal partition panel 23 has an extended edge portion 28 which is taken from the side margin of the blank and which is also adapted to be trapped between panel elements of the handle structure when the carrier is set up. The longitudinal partition panel 23 has the end portion thereof, at the end of the blank, cut and scored to provide a cross partition panel 29 and a glue flap 30. The cross partition panel 29 and its glue flap 30 are freed from the inner portion of the longitudinal partition panel 23 by the longitudinally extending cutting line 31 so that they may hinge about a transverse score line 32 and the glue flap 30 is separated from the cross partition panel by a score line 33 which is parallel with the score line 32. The maximum dimension of the longitudinal partition panel 23 in the longitudinal direction of the blank is slightly less than the corresponding dimension of the side wall panel 17 while the dimension thereof between the parallel, transverse score lines 25 and 32 is approximately one-half the dimension of the side wall 17 in the corresponding direction, or twice the dimension in the same direction of the adjoining end wall panel 21. The corresponding dimension of the partition panel 22 is preferably no less than one-half the dimension of the adjoining end wall panel 20 in the longitudinal direction of the blank. The corner of the blank from which the longitudinal partition and cross partition panels 23 and 29 are taken is cut away so that the dimension, in the transverse direction of the blank, of the main portion of the longitudinal partition panel 23, that is, the portion beyond the extension 28, is the same as the corresponding dimension of the side wall panel 17.

A center divider and longitudinal partition and handle forming section 34 extends between the crease lines 24 and 25 and outwardly in the direction of the side edge of the blank from the side wall panel 17. This partition and

handle forming section 34 is hingedly connected to the extended end portion 28 of the one longitudinal partition panel 23 by an extended portion 35 of the crease line 25. The section 34 is freed from the end wall forming panels 20 and 21 by diagonal cutting lines 36 and 37, from the extension 26 of the longitudinal partition panel 22 by the transverse cutting line 38 and from the side wall panel 17 by the longitudinally extending cutting line 39 which extends between outer hinge forming sections 40 and 41 of the transverse crease lines 18 and 19, respectively. The crease lines 40 and 41 form the inner hinges for relatively narrow cross partition forming straps 42 and 43 which are cut from the corners of the side wall panel 17 on the longitudinally extending cutting lines 44 and 45, the latter terminating short of the longitudinal center of the panel and extending parallel with the end portions of the longitudinal cutting line 39. Transverse crease lines 46 and 47 extend between the spaced inner ends of the cutting lines 44 and 45 and the cutting line 39 to form the outer hinges of the cross partition straps 42 and 43, which straps extend, in the set up position of the carrier, between the side walls 17 and the longitudinal partition and handle structure. Each of the cross partition straps 42 and 43 has a dimension in the longitudinal direction of the blank which is approximately equal to one-half the corresponding dimension between the transverse score lines 46 and 47.

The longitudinal partition and handle forming section 34 of the blank is divided by a transversely extending crease line 48 which is aligned with the crease line 46 into a handle forming panel 49 and a handle reinforcing panel 50, the latter extending between the crease line 48 and the cutting line 38 and having a rectangular flap 51 cut therein. The flap 51 is separated from the panel 50 by a transversely extending V-shaped cut 52, with the apex of the latter terminating in outwardly spaced relation to the intersection of the transverse crease line 40 with the longitudinal cutting line 39 and at the end of a longitudinal score line 53 which extends from the intersection of the cutting lines 36 and 38 so that the rectangular flap 51 is free to fold inwardly about the crease line 53 into overlying relation with the triangular portion 54 of the panel which extends in the area bounded by the diagonal cutting line 36 and the score lines 53 and 40. A cover flap 55 extends laterally of the blank and is separated from the handle forming panel 49 by the longitudinally extending crease line 56. The handle forming panel 49 has a hand hole 57 cut therein with a reinforcing flap 58 which is adapted to hinge about the longitudinal score line 59. The cover flap 55 has a cut out hand hole 60 with a reinforcing flap 61 hinged about the longitudinal score line 62.

At the other side of the blank the corner from which the longitudinal partition and cross partition panels 23' and 29' are taken is cut so that the laterally extending portion 28' has a dimension in the longitudinal direction of the blank which is larger than the corresponding dimension of the panel extension 28 and is provided with a hand hole 63. Also, the inner side of the longitudinal partition panel 23' and the cross partition panel 29' are both cut away at 64 as shown in FIGURE 4 to permit nesting of the blanks when cutting from sheets of large dimension. The handle reinforcing panel 50' on this side of the blank is not subdivided but is somewhat smaller than the panel 50 and is provided with a handle hole 65 positioned to align with the hand hole 57' when the panel 50' is folded over onto the panel 49' in assembling the carrier.

The blank 10, when cut and creased, is glued and folded to provide the carrier which is illustrated in FIGURE 1. In setting up the carrier from the blank, adhesive is applied to the handle reinforcing panels 50 and 50', to the laterally extended portions 26, 26' and 28, 28' of the longitudinal partition panels 22, 22' and 23, 23', to the cross partition glue flaps 30 and 30', and to the area indicated at 66 on the longitudinal partition panel 22. The longitudinal partition panels 23, 23' are first folded inwardly about the score lines 25, 35 and 25', 35'. The handle reinforcing panels 50 and 50' are next folded in about the score lines 46, 48 and 46', 48' after which the longitudinal partition panels 22 and 22' with their adjoining end wall forming panels 20 and 20' are folded inwardly about the crease lines 18 and 18' so as to bring the blank into the condition shown in FIGURE 6. The hinge reinforcing panel or flap 51 is provided with an adhesive as shown in FIGURE 5 and folded downwardly about the score line 53. Adhesive is then applied to the exposed faces of the panels 22', 50', 23', 28' and the handle covering panel 55, as shown in FIGURE 6, after which the partially folded blank is folded about the medial score line 15. Finally, the handle cover panel 55 is folded about the crease line 56 which completes the gluing and folding of the blank and provides the collapsed carrier as shown in FIGURE 7 which, when opened up, has the form shown in FIGURE 1.

While specific materials and particular details of construction are referred to in describing the illustrated form of the carrier, it should be understood that other materials and different structural details may be resorted to within the spirit of the invention.

I claim:

1. In an article carrier formed from a blank of flexible sheet material, a pair of rectangular bottom panels foldably connected to each other along a central fold line, side wall panels foldably connected to the side edges of the bottom panels, end wall panels foldably connected along vertical hinge lines to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming panel connected along a vertical hinge line to the inner edge thereof, said longitudinal partition panels having upper marginal portions extending above the top edge of the side wall panels and being connected in face-to-face, paired relation at each end of the carrier, a pair of handle forming sections spanning the space between and secured to said upper marginal portions of said longitudinal partition panels, said handle sections being foldably connected at one end thereof along vertical hinge lines to the upper marginal portions of an adjacent pair of said longitudinal partition panels, handle reinforcing panels connected along vertical hinge lines at the other ends of said handle sections and inwardly folded so as to extend between the latter, a pair of relatively narrow cross partition straps foldably connected to each of the side walls on parallel vertical hinge lines in the upper margins thereof which are spaced apart approximately twice the length of said straps, the cross partition straps of each pair thereof being foldably connected at their opposite ends along vertical hinge lines to a handle section and a handle reinforcing panel, respectively, and a pair of center cross partition panels integrally hinged to the inner ends of a pair of said longitudinal partition panels and having flaps at their outer ends connecting said center cross partition panels on vertical hinge lines to the side wall panels intermediate the hinge connections therewith of said cross partition straps.

2. In a multi-cellular article carrier which is formed from a blank of flexible sheet material, a pair of rectangular bottom panels foldably connected to each other along a central fold line, side wall panels foldably connected to the side edges of the bottom panels, end wall panels foldably connected to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming panel connected along a vertical hinge line to the inner edge thereof, said longitudinal partition panels having upper marginal portions extending above the top edge of the side wall panels, said longitudinal partition panels being in face-to-face relation at each end of the carrier, a pair of handle forming sections spanning the space between and secured to said upper marginal portions of said longitudinal partition panels, which handle

sections are foldably connected at one end thereof to the upper marginal portions of an adjacent pair of said longitudinal partition panels, handle reinforcing panels foldably connected at the other ends of said handle sections and trapped between said handle sections, a pair of relatively narrow cross partition straps hinged at one end to each of the side walls at the upper margins thereof on hinge lines which are spaced apart approximately twice the length of said straps, the cross partition straps of each pair thereof being hinged at their opposite ends to a handle section and a handle reinforcing panel, respectively, and a pair of foldable center cross partition panels cut from the inner marginal ends of a pair of said longitudinal partition panels and having a hinged connection at their outer ends with the side wall panels at points intermediate the hinge connection therewith of said cross partition straps.

3. An article carrier formed from paperboard sheet material comprising a pair of rectangular bottom panels foldably connected to each other along a central fold line, side wall panels hinged to the outer edges of the bottom panels, end wall panels connected along vertical hinge lines to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming panel connected along a vertical hinge line to the inner edge thereof, said longitudinal partition panels having upper marginal portions extending above the top edge of the side wall panels and being secured in paired relation at each end of the carrier, said longitudinal partition panels at one end of the carrier having extension portions for reinforcing the center of the carrier with one of said extension portions extending to and connected with one of said longitudinal partition panels at the other end of the carrier, a pair of handle forming sections spanning the space between and secured to said upper marginal portions of said longitudinal partition panels, said handle sections being connected at one end thereof along vertical hinge lines to the upper marginal portions of an adjacent pair of said longitudinal partition panels, handle reinforcing panels connected along vertical hinge lines at the other ends of said handle sections and extending between the latter, a pair of relatively narrow cross partition straps hinged at one end to each of the side walls adjacent the upper margins thereof, the cross partition straps of each pair thereof being hinged at their opposite ends to a handle section and a handle reinforcing panel, respectively, on vertical hinge lines spaced a distance corresponding to twice the length of each said cross partition straps, and a pair of hinged cross partition panels cut from the inner margins of said longitudinal partition panel extension portions and connected at their outer ends to the side wall panels on vertical hinge lines substantially in the center of said side wall panels whereby to divide the carrier into two rows of four cells each.

4. An article carrier formed from paperboard sheet material comprising a pair of rectangular bottom panels connected to each other along a central fold line, side wall panels hinged to the outer edges of the bottom panels, end wall panels connected along vertical hinge lines to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming panel connected along a vertical hinge line to the inner edge thereof, said longitudinal partition panels having upper marginal portions extending above the top edge of the side wall panels and being secured in paired relation at each end of the carrier, said longitudinal partition panels at one end of the carrier having extension portions for reinforcing the center of the carrier with one of said extension portions connected with one of said longitudinal partition panels at the other end of the carrier, a pair of handle forming sections spanning the space between and secured to said upper marginal portions of said longitudinal partition panels, said handle sections being connected at one end thereof along vertical hinge lines to the upper marginal portions of an adjacent pair of said longitudinal partition panels, handle reinforcing panels connected along vertical hinge lines at the other ends of said handle sections and

extending between the latter, a pair of relatively narrow cross partition straps hinged at one end to each of the side walls adjacent the upper margins thereof, the cross partition straps of each pair thereof being hinged at their opposite ends to a handle section and a handle reinforcing panel, respectively, and being spaced in the longitudinal direction a distance approximately twice the length thereof, a pair of hinged cross partition panels cut from the inner margins of said longitudinal partition panel extension portions and connected at their outer ends on vertical hinge lines approximately in the center of the side wall panels whereby to divide the carrier into two rows of four cells each, and a flap member derived from an upper portion of one of said handle reinforcing panels and folded downwardly about a horizontal hinge line which is spaced vertically above the hinge lines connecting the cross partition straps and the cross partition panels to said handle sections and said longitudinal partition panel extension portions, said flap member having a depth sufficient to extend downwardly between the hinge connections of the cross partition panels with said longitudinal partition panel extension portions and being secured between said extension portions at said hinge connections so as to reinforce said hinge connections.

5. In an article carrier which is formed from paperboard sheet material and which has a pair of rectangular bottom panels connected to each other along a central fold line, side wall panels hinged to the outer edges of the bottom panels, end wall panels connected along vertical hinge lines to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming panel connected along a vertical hinge line to the inner edge thereof, said longitudinal partition panels having upper marginal portions extending above the top edge of the side wall panels and being secured in paired relation at each end of the carrier, a pair of handle forming sections spanning the space between and secured to said upper marginal portions of said longitudinal partition panels, said handle sections being connected at one end thereof along vertical hinge lines to the upper marginal portions of an adjacent pair of said longitudinal partition panels, handle reinforcing panels connected along vertical hinge lines at the other ends of said handle sections and extending between the latter, a pair of relatively narrow cross partition straps hinged at one end to each of the side walls adjacent the upper margins thereof, the cross partition straps of each pair thereof being hinged at their opposite ends to a handle section and a handle reinforcing panel, respectively, a pair of cross partition panels integrally hinged to inner edges of the longitudinal partition panels at one end of the carrier and connected at their opposite ends on vertical hinge lines to the center portions of the side wall panels whereby to divide the carrier into two rows of four cells each, and a hinge reinforcing flap derived from an upper marginal edge portion of one of said handle reinforcing panels and folded downwardly about a horizontal hinge line which is spaced vertically above the hinge lines connecting the cross partition straps and panels to said handle reinforcing panels and said longitudinal partition panels, respectively, and said flap member having a length and depth sufficient to extend downwardly between the hinge connections of said cross partition panels with the longitudinal partition panels and the hinge connections of an adjoining pair of cross partition straps with the respective handle reinforcing panels and being secured at opposite ends between said handle reinforcing panels and the hinge connections of said cross partition panels and said cross partition straps.

6. A carrier for a plurality of bottles comprising a bottom wall, laterally spaced upright side walls hinged to the side edges of the bottom wall, end walls hingedly connecting corresponding ends of the side walls, a multiply rigid suspending and longitudinal partition member hinged at opposite ends to the end walls and subdividing the carrier into two halves, a set of cell forming cross partition elements for each of said carrier halves, one element of each

set of said cross partition elements being a center panel of substantial depth which is integrally hinged at its opposite ends to the end edge of a panel forming a ply of said longitudinal partition member and to a side wall, respectively, the hinge connections of said center cross partition panel being spaced equal distances from the opposite end walls of the carrier, and the remaining cross partition elements of each set thereof being relatively narrow straps which are cut from the upper corners of the side wall and which are integrally hinged at opposite ends to said side wall and to a longitudinal partition member, said narrow cross partition elements being spaced equal distances in the longitudinal direction of the carrier from said center cross partition panel so as to divide each of said carrier halves into four cells whereby to provide the carrier with sufficient cells to accommodate eight bottles.

7. A one piece article carrier forming blank which is cut and creased to divide the same into a bottom wall forming panel, side wall forming panels connected on hinge forming crease lines to the opposite sides of the bottom wall panel, an end wall forming panel hingedly connected to each end of said side wall panels, a center partition forming panel hingedly connected to each of said end wall panels, each of the center partition forming panels at the one end of the carrier having a cross partition forming panel cut from the margin at the end edge of the blank and foldable about a hinge forming crease line which extends transversely of said cross partition panel and which is spaced from the hinged connection with the end wall panel a distance equal to half the length of a side wall panel, a pair of handle forming sections hingedly connected at one end thereof to extensions of inner lateral edges of adjacent center partition panels and connected to the lateral edge portions of the side wall panels by cross partition forming straps, said straps being hingedly connected to the handle sections and to the side wall panels at opposite ends thereof, and a handle reinforcing panel hinged to the lateral edge of each of said handle sections which is opposite its hinged connection with the respective center partition panels and said handle reinforcing panel being cut free at the opposite edge thereof.

8. A carrier blank as recited in claim 7, and one of said handle reinforcing panels having a flap forming portion at the side edge of the blank which is freed at its inner edge on a transverse cutting line aligned approximately with the end edge of the adjoining side wall panel and extending inwardly of the edge of the blank to a hinge forming longitudinal crease line which is normal to the hinged connection between the handle section and the reinforcing panel straps, said flap having a length greater than the length of the adjacent cross partition strap and overlying the hinge connection of the cross partition strap with the handle reinforcing panel when said one handle reinforcing panel is folded inwardly about its hinged connection with its associated handle section and said flap portion is folded downwardly about said hinge forming longitudinal crease line.

9. A carrier for a plurality of bottles comprising a bottom wall, upright side walls hinged to the side edges of the bottom wall, end walls connecting corresponding ends of the side walls, a multiply rigid suspending and longitudinal partition member subdividing the carrier into two halves, a set of cross partition elements in each of said halves which are longitudinally spaced to divide the same into four bottle accommodating cells, each set of said cross partition elements including a panel element which is integrally connected at one end thereof to a panel forming a ply of said longitudinal partition member on a vertical hinge line spaced equal distances from the end walls, said panel element being cut from the end portion of said panel ply and having an integrally hinged glue flap at the end opposite said vertical hinge line which is secured to the side wall at the center thereof, and a pair of strap-like elements which are cut from the upper corners at opposite ends of the side wall and integrally hinged to said side wall on vertical hinge lines spaced equal distances from the adjacent end wall and from the hinged connections of said panel element with said side wall and the longitudinal partition member whereby to provide the carrier with sufficient cells to accommodate eight bottles.

10. A one piece article carrier forming blank which is cut and creased to divide the same into a bottom wall forming panel, side wall forming panels connected on hinge forming crease lines to the opposite sides of the bottom wall panel, an end wall forming panel hingedly connected to each end of said side wall panels, a center partition forming panel hingedly connected to each of said end wall panels, each of the center partition forming panels at the one end of the side wall panels having a cross partition panel cut from the margin at the end edge of the blank, a pair of handle forming sections hingedly connected at one end thereof to inner edge extensions of adjacent center partition panels and each said handle forming sections having handle reinforcing panels hinged to the edge thereof which is opposite its hinged connection with the respective center partition panel, said handle forming sections and handle reinforcing panels being connected to the side wall panels by cross partition forming straps which are hingedly connected thereto at one end, and one of said handle reinforcing panels having the marginal portion at the side edge of the blank cut into two panel sections, one of said panel sections constituting the outer corner of said handle reinforcing panel and being separated from the remainder of said handle reinforcing panel on a cutting line extending transversely of the blank from the side edge of the blank to the inner end of a hinge forming crease line which is parallel with the hinged connection between the bottom wall forming panel and the side wall forming panels and which is spaced inwardly of the side edge of the blank so that when said one handle reinforcing panel is folded into overlying relation with its associated handle section and said corner panel section is folded toward the center of the blank about said hinge forming crease line it will overlie the portion of said handle reinforcing panel adjoining the hinge connection therewith of the associated cross partition forming strap.

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