May 18, 1965 E. L. ARNESON 3,184,102

ARTICLE CARRIER

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Fig. 1

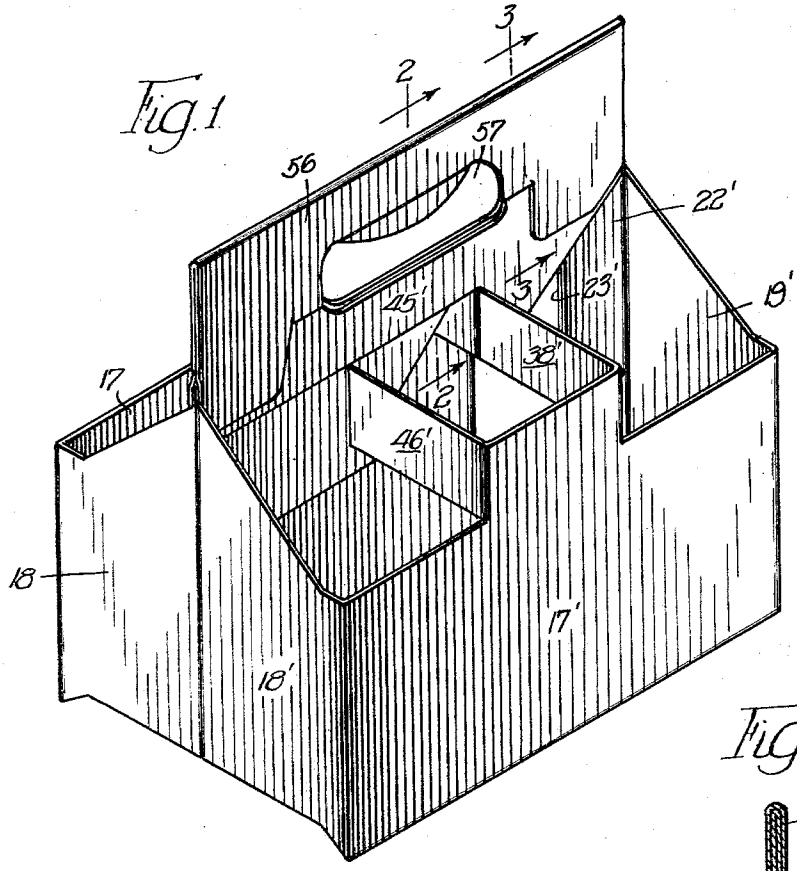


Fig. 3

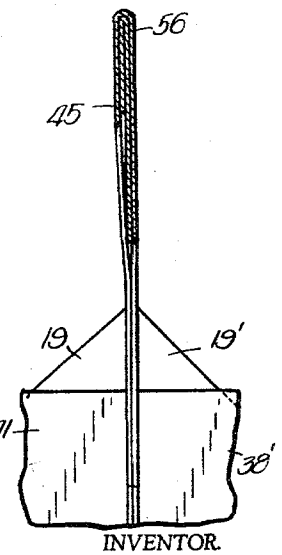
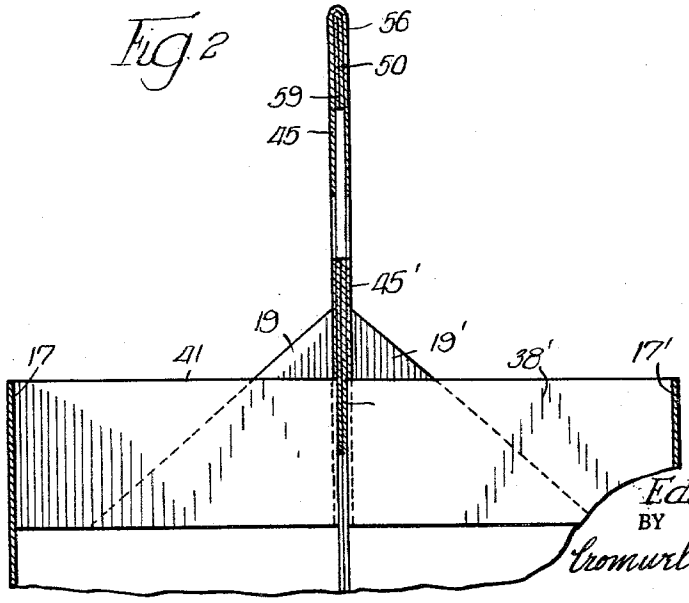


Fig. 2



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Fig. 4

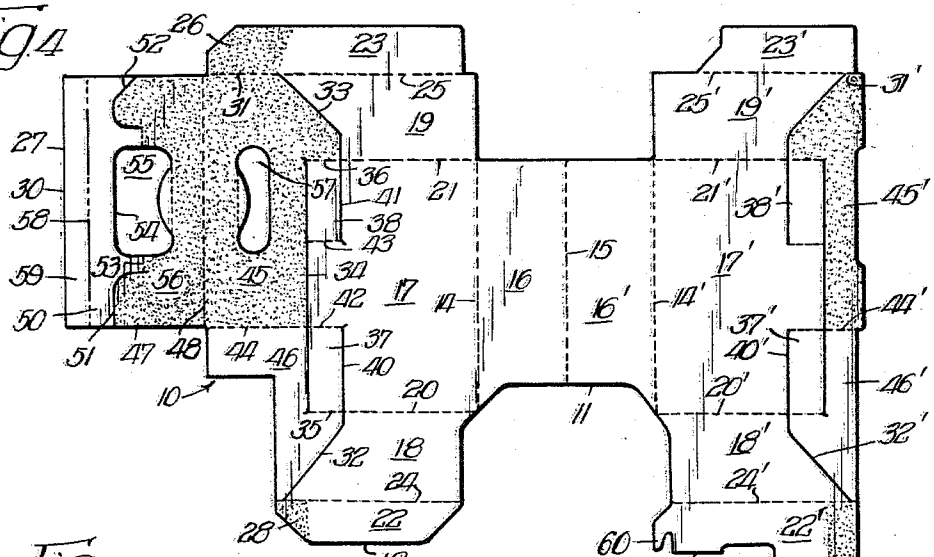


Fig. 5

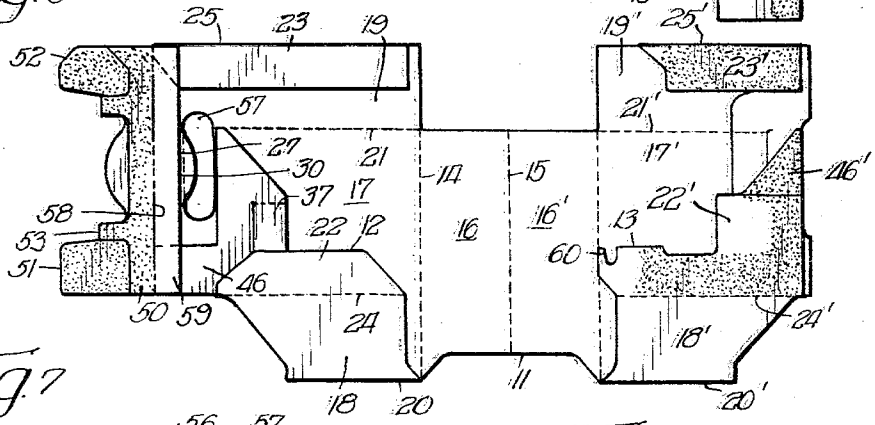


Fig. 7

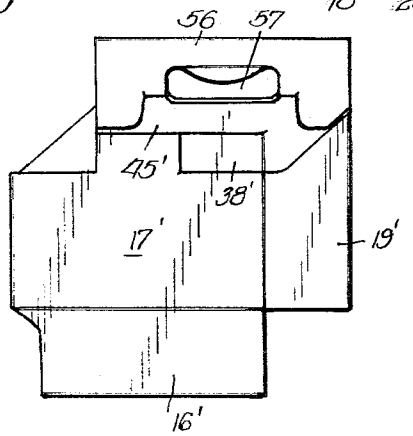
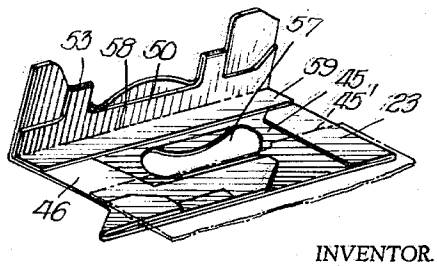


Fig. 6



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Fig. 8.

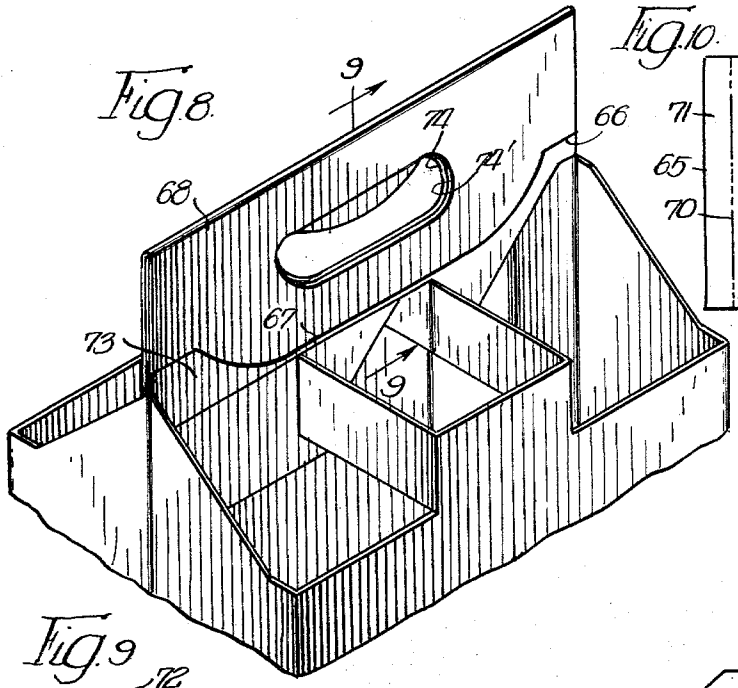


Fig. 10.

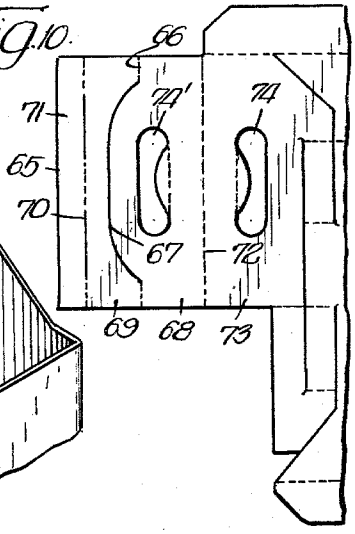


Fig. 13.

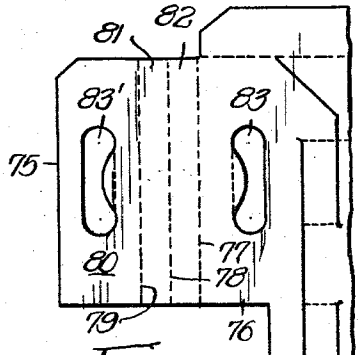


Fig. 9

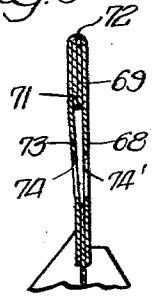
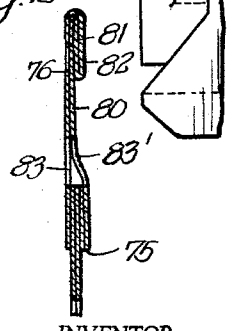


Fig. 11

Fig. 12



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3,184,102

ARTICLE CARRIER

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Filed Oct. 3, 1962, Ser. No. 228,066
7 Claims. (Cl. 220—113)

This invention relates to cellular article carriers of the type which are formed from a paperboard blank or like sheet material and which are designed to provide a strong and sturdy center partition and handle construction dividing two rows of upwardly opening cells for bottles or like articles.

The invention is particularly adapted to be incorporated in a carrier of the type which is characterized by opposed pairs of vertical, flexible side and end walls, by a longitudinal partition and handle structure extending in a vertical plane between the end walls and parallel to the side walls, and by flexible cross partition members which are disposed in longitudinally spaced, vertical planes and which are hinged at vertical fold lines to the respective side walls and to the longitudinal partition and handle structure. The carrier is formed, for example, from a blank which can be cut from paperboard stock or sheets previously imprinted on one side thereof with little waste in cutting. The blank is cut, creased and folded with certain partition forming portions being adhesively secured so as to provide a collapsed bottom panel having side wall forming panels foldably connected thereto and having a raised center section with inturned cross partition forming straps hinged to the ends thereof, paired end panels foldably connected to the side wall panels and joined in hinged relation by integrally inturned center partition securing flaps, with a multiple ply longitudinal partition and handle member formed by a pair of handle sections which are foldably connected at one end thereof to end extensions of adjacent center partition securing flaps and a handle facing flap foldably connected to the top edge of one of the handle sections and adhesively secured to the other handle section.

The principal object of the invention is to provide in a cellular article carrier a multi-ply center divider panel or longitudinal partition structure which includes handle forming panels with special provision for reinforcing the latter and providing therein extra thickness of material.

A more specific object of the invention is to provide in a carrier of the type described a multi-ply center divider or longitudinal partition and handle structure which includes reinforcing panels taken out of the handle forming panels and folded so as to provide at least four thicknesses of material in the area adjacent the top edge of the longitudinal partition and handle structure.

It is a further object of the invention to provide in a carrier of the type described a center divider and longitudinal partition structure which includes a pair of hingedly connected outer handle panels and rib forming inner handle reinforcing panels which are taken at least in part from one of the outer handle panels.

It is another object of the invention to provide in a carrier of the type described a center divider and longitudinal partition and handle structure having a pair of outer handle panels which are connected along a top edge forming hinge line and a reinforcing panel which is taken from the outermost handle panel and which is folded upon itself and overlaps a portion of the innermost handle panel which is adjacent the hinge connection between the two outer handle panels.

These and other objects and advantages of the invention will be apparent from a consideration of the several

forms of article carrier which are shown by way of illustration in the accompanying drawings wherein:

FIGURE 1 is a perspective view of an article carrier having embodied therein the principal features of the invention, the carrier being shown in set up, empty condition;

FIGURE 2 is a fragmentary vertical section taken on the line 2—2 of FIGURE 1, to an enlarged scale;

FIGURE 3 is a fragmentary vertical section taken on the line 3—3 of FIGURE 1, to an enlarged scale;

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 preparatory to executing the first folding operations;

FIGURE 5 is a plan view of the blank shown in FIGURE 4, following certain further folding and adhesive applying operations;

FIGURE 6 is a fragmentary perspective view of the handle forming portion of the blank illustrating further folding operations;

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

FIGURE 8 is a perspective view of the top portion of a modified form of the carrier;

FIGURE 9 is a fragmentary vertical section taken on the line 9—9 of FIGURE 8, to an enlarged scale;

FIGURE 10 is a plan view of the handle forming portion of the blank from which the carrier of FIGURE 8 is formed;

FIGURE 11 is a perspective view of the top portion of a further modification of the carrier;

FIGURE 12 is a fragmentary vertical section taken on the line 12—12 of FIGURE 11, to an enlarged scale; and

FIGURE 13 is a plan view of the handle portion of a blank from which the carrier of FIGURE 11 is formed.

Referring to the drawings, the preferred form of the carrier which is illustrated in FIGURES 1 to 7 is fabricated from a generally rectangular paperboard blank 10 which is cut and creased as shown in FIGURE 4. The blank 10 is divided in the longitudinal direction into a bottom forming center section 11 and two wall partition forming end sections 12 and 13, by parallel, transverse crease lines 14 and 14' which are equally spaced from medial transverse crease line 15, the latter dividing the bottom forming section 11 into two equal bottom wall forming panels 16 and 16'. Since the blank sections 12 and 13 are divided, to a large extent, into wall and partition forming elements by identical creasing and cutting lines, only one of these sections will be fully described, and corresponding parts of the same relationship on the opposite side of the medial crease line 15 will be indicated by the same numerals primed.

The end section 12 of the blank is subdivided by longitudinally extending, transversely spaced crease lines and transversely extending cutting lines into a plurality of panels including side wall panel 17, end wall panels 18 and 19 at opposite sides thereof, which are separated from the side wall panel 17 by parallel score lines 20 and 21 extending longitudinally of the blank and longitudinal partition forming panels 22 and 23 which are separated from the adjoining end wall forming panels 18 and 19 by the crease lines 24 and 25 which extend longitudinally of the blank. One longitudinal partition panel 23 has an extended outer end portion 26 which terminates short of the end edge 27 of the blank and is adapted to be trapped between the panel elements and the handle structure when the carrier is set up. The other longitudinal partition panel 22 has an extended outer end portion 28 which is also adapted to be trapped between panel elements and the handle structure when the carrier is set up.

A center divider or longitudinal partition and handle forming portion 30 extends between the crease lines 24 and 25 and outwardly in a longitudinal direction to the end edge 27 of the blank from the side wall panel 17. This partition and handle forming portion 30 is hingedly connected to the extended end portion 26 of the one longitudinal partition panel 23 by an extended portion 31 of the crease line 25 and is freed from the end wall forming panels 18 and 19 by diagonal cutting lines 32 and 33 and from the side wall panel 17 by the transverse cutting line 34 which extends between outer hinge forming portions 35 and 36 of the crease lines 20 and 21, respectively. The crease lines 35 and 36 form the inner hinges for relatively narrow cross partition forming straps 37 and 38 which are cut from the corners of the side wall panel 17 on the transversely extending cutting lines 40 and 41, the latter terminating short of the longitudinal center of the panel and extending parallel with the end portions of the transverse cutting line 34. Longitudinal crease lines 42 and 43 extend between spaced inner ends of the cutting lines 40 and 41 and the cutting line 34 to form the outer hinges which connect the cross partition straps 37 and 38 with the side wall, these straps extending in the set up position of the carrier between the side wall 17 and the longitudinal partition and handle structure.

The longitudinal partition and handle forming portion 30 of the blank 10 is divided by a longitudinally extending crease line 44 which is aligned with the crease line 42, into an outer handle panel 45 and an inner handle reinforcing panel 46. A handle reinforcing and cover panel 47 extends outwardly of the outer handle panel 45 being separated therefrom by the hinge forming crease line 48, the latter being adapted to form the top edge of the handle structure. A handle reinforcing panel 50 is cut from the panel 47 on lines 51 and 52 which extend inwardly from the end edges to the ends of transverse score line 53 which is interrupted by a cutting line 54 defining a hand hole aperture 55 which extends partly into the reinforcing panel 50 and partly into the adjoining handle cover forming portion 56 of the panel 47. The inner portion of the hand hole aperture 55 is contoured so as to align with the outlines of the hand hole aperture 57 provided in the center of the outer handle panel 45 when the panel 56 is folded about the score line 48 into face engagement with the handle panel 45. The outer portion of the cutting line 54 frees the center portion of the handle reinforcing panel 50 while the cutting lines 51 and 52 free the end portions so that the panel 50 may hinge about the crease line 53 into face engagement with the panels 56 and 45. The handle reinforcing panel 50 is subdivided by a hinge forming crease line 58 extending transversely of the blank which is parallel with the crease line 48 and aligns with the latter when the panel 50 is folded inwardly about the hinge line 53. Crease line 58 divides from the main portion of the panel 50 a reinforcing flap 59 which is adapted to hinge about the crease line 58 when the panel 50 is folded inwardly about the crease line 53 and the panel 56 is folded inwardly about the crease line 48.

The longitudinal partition forming panel 22' of the section 13 at the other end of the blank is provided at its bottom forming edge with a hook formation 60 which is adapted to engage with the edge margin of the bottom wall panels 16 and 16' when the carrier is opened up for the reception of bottles so as to hold the carrier in set up condition.

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 forming panels 45, 45' and 56 and to the end portions of the longitudinal partition panels 22, 22' and 23. The panels 46 and 46' are then folded inwardly about the crease lines 44 and 44'.

The longitudinal partition panels 23, 23' are folded inwardly about the crease lines 25, 31 and 25', 31' while the corresponding panels 22 and 22' at the other side of the blank along with their adjoining end wall forming panels 18 and 18' are folded inwardly about the crease lines 20 and 20'. The panel 50 is folded inwardly about the crease line 53 into face engagement with the panels 45 and 56. This brings the blank into the condition shown in FIGURE 5. Adhesive is then applied to the exposed faces of the panels 22', 23', 46' and 50. The two sections of the blank are then folded about the medial crease line 15 after which the handle panel 56 is folded about the crease line 48 as indicated in FIGURE 6 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.

In the modification of the carrier which is shown in FIGURES 8 to 10, the blank for forming the carrier is cut and scored or creased as shown in FIGURE 4 except for the handle reinforcing and cover forming panel portion 65 which is divided by a transverse crease line 66 and the C-shaped cutting line 67 into a main handle cover forming panel portion 68 and an outer handle reinforcing panel portion 69 with the latter subdivided by the transverse crease line 70 to provide a relatively narrow, reinforcing panel 71 along the outside edge. The crease line 70 is adapted to align with the crease line 72 which separates the handle reinforcing and cover panel 65 from the outer handle panel 73 so that when the panels are folded after glue is applied, the reinforcing flap or strip 71 and the adjoining portion of the reinforcing panel 69 are folded upon each other and lie adjacent the top edge forming hinge line 72 as shown in FIGURE 9 so as to provide four thicknesses of material in area of the handle between the finger receiving apertures 74, 74' and the top edge 72.

In the modification of the carrier which is illustrated in FIGURES 11 to 13, the blank is cut and creased as in FIGURE 4 except for the handle reinforcing and cover forming panel portion 75 which is separated from the main outer handle panel 76 by the transverse crease line 77. The panel portion 75 is subdivided by parallel crease lines 78 and 79 into a handle cover panel 80 and two relatively narrow reinforcing panels 81 and 82 of equal width and extending between the panels 76 and 80. When the blank is glued up and folded, the panel portion 75 is hinged about the crease line 78 into engagement with the outer handle panel 76 and the two relatively narrow reinforcing panels 81 and 82 between the score line 78 and the two adjacent score lines 77 and 79 are folded down about the score lines 77 and 79 into engagement with the outside face of the handle cover panel 80 and adhered thereto by an adhesive so as to provide four thicknesses of material between the top edge of the handle and the finger accommodating apertures 83, 83' as shown in FIGURE 12.

The several forms of the invention are illustrated as embodied in a carrier having strap-type cross partitions. It is not to be construed as limited to strap-type carriers but may be incorporated in full depth partition and similar carriers which employ a multiple panel partition and handle structure.

While specific materials and particular details of construction are referred to in describing the illustrated forms of the carrier, it will 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 having a rectangular bottom panel, upstanding side wall panels connected to the side edges of the bottom panel and upstanding end wall panels connected to the end edges of the side wall panels, a longitudinal center partition and handle forming structure connected to the end wall panels, said longitudinal partition and handle structure comprising an outer handle

panel and a handle cover panel connected along one edge to the top edge of the outer handle panel and folded upon the latter, said outer handle panel and said handle cover panel having aligned hand holes, a handle reinforcing panel hingedly connected to the opposite edge of said handle cover panel and folded upon said handle cover panel, and said handle reinforcing panel having a relatively narrow strip portion extending along the margin opposite the hinged connection thereof and folded so that said handle reinforcing panel and said marginal strip portion are disposed between said outer handle panel and said handle cover panel so as to form four thicknesses of material in the top edge section of the longitudinal partition and handle structure above said hand holes.

2. In an article carrier as recited in claim 1, and said handle reinforcing panel being connected to said handle cover panel on hinge lines spaced inwardly of the end edges of said handle cover panel.

3. An article carrier comprising a rectangular bottom panel, side wall panels connected to the side edges of the bottom panel, end walls connected to the end edges of the side wall panels, each of said end wall panels having a longitudinal center partition forming flap connected along a vertical line to the inner edge thereof, said longitudinal partition flaps having vertically extending top portions and the respective longitudinal partition flaps at each end of the carrier being connected in face-to-face relation, a pair of handle forming sections spanning the space between and secured to the top portions of said longitudinal partition flaps, said handle sections being hingedly connected to each other along their top edges, and a pair of reinforcing strips which are integral with the handle sections and which are derived from one of said handle sections extending along said top edges, said reinforcing strips being hinged to each other and cooperating with said handle sections so as to form four thicknesses of material in the top edge of the handle forming sections.

4. An article carrier as recited in claim 3 wherein said handle forming sections are disposed in face to face relation and said reinforcing strips are folded against an outside face of one of said handle forming sections.

5. An article carrier as recited in claim 3 wherein said reinforcing strips are relatively narrow and said reinforcing strips are folded down upon each other and against the outside face of the one handle forming section so as to lie along the top margin thereof.

6. In an article carrier having a rectangular bottom panel, upstanding side wall panels connected to the side edges of the bottom panel, and upstanding end wall panels connected to the end edges of the side wall panels, a longitudinal center partition and handle forming structure connected to the end wall panels, said longitudinal partition and handle structure comprising an outer handle panel and a handle cover panel hingedly connected along one edge to the top edge of the outer handle panel and folded upon the latter, a handle reinforcing panel connected to the edge of said handle cover panel which is opposite said hinged connection and folded upon said handle cover panel, and said handle reinforcing panel having a narrow marginal portion which is folded to lie between said outer handle panel and said handle reinforcing panel along their top edges so as to reinforce said handle panels and form at least two additional thicknesses of material in the top edge section of the longitudinal partition and handle structure.

7. In a bottle carrier, a pair of rectangular bottom panels foldably connected to each other along a central fold line, side wall panels foldably connected to the outer 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 flap connected along a vertical hinge line to the inner edge thereof, said longitudinal partition flaps having top portions extending vertically above the top edge of the side wall panels and the respective longitudinal partition flaps at each end of the carrier being connected in face-to-face relation, a pair of handle forming sections spanning the space between and secured to the top extensions of said longitudinal partition flaps, said handle sections being foldably connected along their top edges and having aligned hand holes, and reinforcing strips extending along the top edges of said handle sections so as to form four thicknesses of material between the top edge section of the handle and the hand holes, said handle reinforcing strips being taken from one of the handle sections and being integrally hinged to each other and to said one handle section on hinge lines parallel with the top edges of said handle sections.

References Cited by the Examiner

UNITED STATES PATENTS

2,611,528	9/52	Vadner.	
2,646,918	7/53	Forrer	220—113
2,673,677	3/54	Ringler	220—111
2,688,421	9/54	Forrer	220—111
2,932,424	4/60	Arneson	220—113
2,932,425	4/60	Freeman	220—113
3,084,831	4/63	Arneson	220—113
3,107,811	10/63	Lemon	220—105

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