

Nov. 4, 1952

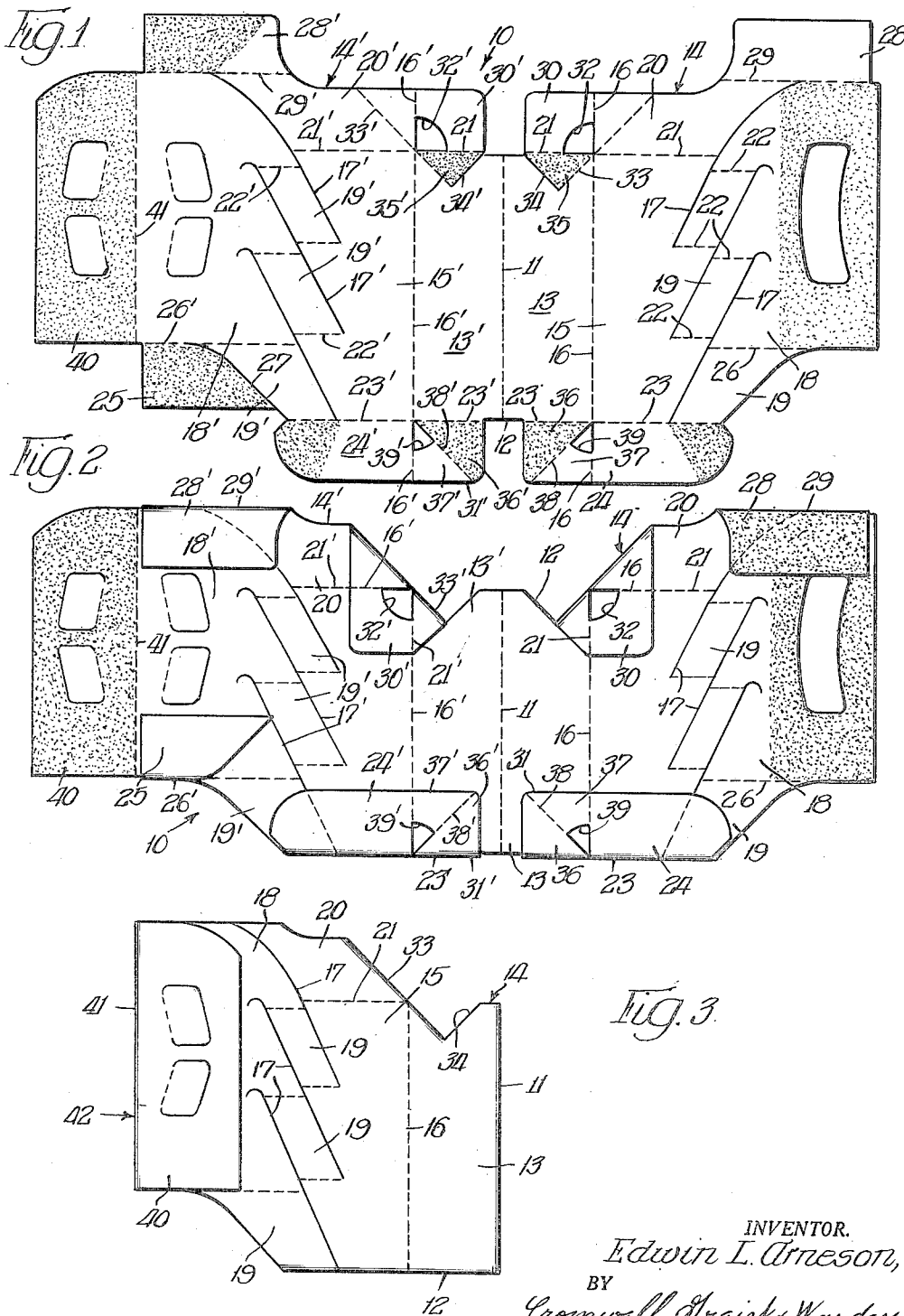
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2,616,611

BOTTLE CARRIER

Filed Sept. 23, 1949

2 SHEETS—SHEET 1



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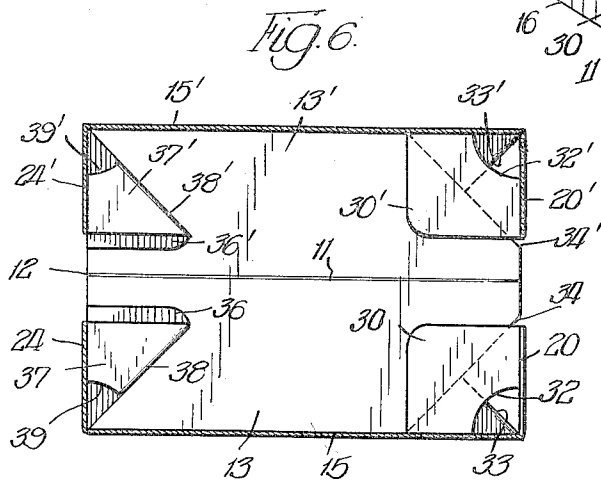
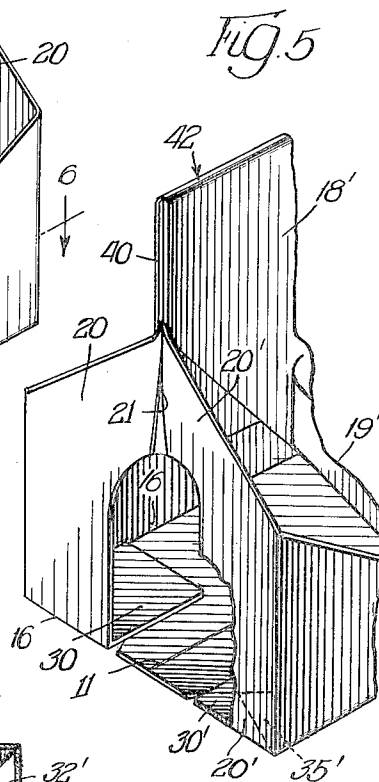
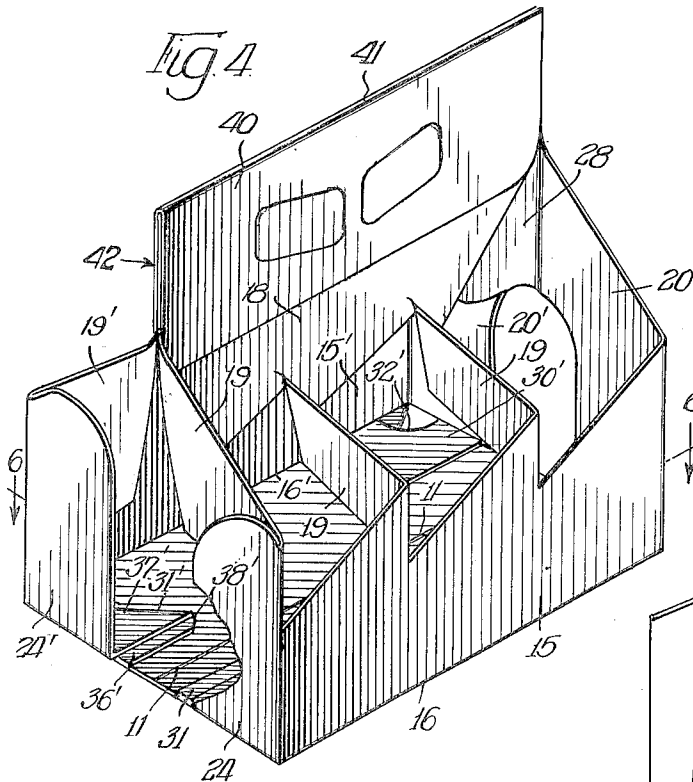
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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BOTTLE CARRIER

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9 Claims. (Cl. 229—28)

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The present invention relates to an improved and inexpensive, collapsible carrier for bottles or similar articles of uniform size and shape, which carrier is fabricated of flexible paperboard stock.

It is a common procedure to package bottled soft drinks, beer, etc., in flexible paperboard carriers for sale in drug stores, groceries and like establishments, these carriers usually being of a collapsible type which are erectible from a flat, knock-down condition to an operative expanded condition for the reception of the intended contents. A well known carrier of this sort is, in general, characterized by a pair of opposed side walls, a central, upright, combined partition and suspending panel disposed between and paralleling said walls and a plurality of cross partitions or cell dividing straps which are hingedly connected to said panel and to the respective side walls. Characteristically, these straps are hinged to the central suspending panel and side walls on vertical hinging creases. A further characteristic of this type carrier is that the cross partition straps are upwardly inclined to the central panel, being separated from the material of the suspending panel and the respective side walls by certain inclined slits in a preformed blank.

This type of carrier is cheaply manufactured because of the size of the blank required and the simplicity of the folding operations, and it lends itself to rapid folding and gluing on standard machinery, however it has certain disadvantages which the improvements of the present invention eliminate. For example, in its erected article receiving condition, it presents a quite weak end structure, its open ends being connected to the side walls only by a pair of relatively flimsy straps extending to the central panel, and being entirely unconnected to the bottom of the carrier. This results in considerable instability in the carrier, and a tendency of the same to swing or wobble and twist loosely when filled with bottles and suspended from the user's hand. This is the cause of considerable unfavorable user reaction and, more serious still, is a source of relatively frequent failure of the carrier and breakage of its contents, due to weakness of the carrier end.

Furthermore, the open ends of the carrier and the tendency of the carrier bottom to sag downwardly render it impossible to transport safely a number of bottles less than the maximum number the carrier is designed to receive, usually six. It is frequently desired to transport a lesser number of filled or empty bottles, and

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the type of carrier referred to is impractical in this respect. Moreover, due to its relatively unbraced nature, the carrier is not particularly well suited for filling by standard automatic loading machines. Finally, the instability of the carrier necessitates that it be fabricated from a blank of relatively heavy caliper or relatively expensive, superior quality in order to insure adequate carrying strength, if real safety is to be assured.

It is therefore an object of the invention to provide an improved bottle carrier of this type, characterized by side walls, a central, upright partition and suspending panel disposed medially of said walls and a plurality of cross partitions which are cut from the material of and hingedly connected to said panel and side walls, in which provision is made to brace and rigidify the container as a whole by means of an improved end wall structure which is securely tied to and braced by the partition and suspending panel, the respective side walls and the carrier bottom, being foldably connected to the latter, thereby reinforcing the carrier against twisting strain, while at the same time affording an article retaining end wall structure of substantial area for the carrier, which structure restrains the carrier bottom from sagging.

Yet another and more specific object of the invention is to provide a bottle carrier or the like of the type referred to above, characterized by end wall elements which extend outwardly in opposite direction from a multiple ply central partition and suspending panel to a pair of side walls, in which said elements, though hingedly connected to said panel and walls and normally subject to flexing movement about the respective panel and wall hinges, are substantially braced and reinforced to prevent twisting and wracking by means of a pair of further, rigidifying and end wall defining flaps integrally hinged to the side walls and said elements and secured to the latter, said flaps transmitting stresses on the end wall elements to the bottom of the carrier through the agency of a bottom gusset connection.

Yet another object is to provide a carrier as set forth in the preceding paragraph in which said gusset connection includes portions fixedly secured to the bottom of the carrier to maintain the same in non-sag relation to the adjacent end wall when the carrier is loaded, there being provisions of this type at both ends of the carrier.

The foregoing statements are indicative in a general way of the nature of the invention,

but other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

A single embodiment of the invention is presented herein for purpose of illustration, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claims.

In the drawings,

Fig. 1 is a plan view of a paperboard blank from which the carrier of the present invention is fabricated, illustrating the manner in which said blank is shaped, slitted, creased and preliminarily glued;

Fig. 2 is a plan view illustrating the blank following certain initial folding operations which are performed thereon, following the application of additional adhesive to the thus folded article, but prior to completion of the folding operations;

Fig. 3 is a plan view of the carrier in its completed, flat or knock-down condition;

Fig. 4 is a perspective view of the carrier from one end thereof, showing the same in erected or set up condition, ready to receive its intended contents, and being broken away to illustrate an improved end wall to bottom gusset connection;

Fig. 5 is a fragmentary perspective view from the opposite end of the carrier, being similarly broken away; and

Fig. 6 is a view in horizontal section along a line corresponding to line 6—6 of Fig. 4.

Referring to Figs. 1, 2 and 3 of the drawings, the reference numeral 10 generally designates a blank died out from a suitable grade of flexible paperboard stock, from which blank the carrier of the present invention is fabricated. Due to the improved provisions for rigidifying the particular type of carrier under consideration, the material may be of a relatively cheap grade or relatively light caliper, as distinguished from the superior grade or relatively heavy board stock from which carriers of this description are usually constructed.

The blank 10 is shaped in the outline illustrated in Fig. 1, being approximately symmetric about a central crease line 11 dividing its bottom section 12 into two identical panels 13, 13'. The crease line 11 also subdivides the blank 10 into two combined side wall and central panel carrying sections 14, 14' which are very similar to one another, in the main. Because of this symmetry, like numerals will be applied to like elements of the side wall and panel sections of the blank, those applying to the section 14' being primed, on the understanding that the structure and functions of the respective elements are the same.

Bottom panels 13, 13' are connected to said wall panels 15, 15' by the creases 16, 16' which parallel and are equidistant from the medial crease 11. The inclined slits 17 serve to separate from one another the side wall panel 15, the coplanar suspending panel section 18, the inclined cross partition straps 19 and the end wall element or section 20, which element is hinged to the side wall panel 15 by the creased fold line 21. Parallel crease lines 22, which are at a right angle to the creases 11, 16 and are disposed vertically in the erected condition of the carrier, hingedly connect the cross partition straps 19 to the panel section 13 and side wall 15, respectively.

Further creases 23 paralleling creases 21 hingedly connect the flap-like end wall element 24 to the end of panel section 15 opposite the end

wall element 20 and to the adjacent cross partition strap 19. In the erected condition of the carrier, the end elements 24, 24' constitute an end retainer structure of substantial area at one end of the carrier and, in addition, stiffen the adjacent partition straps 19, 19' to which they are secured. They also coact with the opposite elements 20, 20' in supporting the bottom 12 against the sagging which has heretofore characterized carrier structures of the type under consideration.

A panel reinforcing flap 25 is bendably connected by means of the crease 26' to one end of the panel section 13', being separated from the adjacent partition strap 19' by an inclined slit 27. Flap 25 is adapted to be folded inwardly and adhered to panel 13'. The crease 26' and its corresponding crease 26 on the opposed section 14 of the blank also hinge the respective end partition straps 19' and 19 to the panels 13', 13. Panel reinforcing flaps 28, 28' are hingedly conjoined by creases 29, 29' to the opposite end of the section 13, 13' respectively, and to the adjacent end wall elements 20, 20'. Creases 26, 26' and 29, 29' define the outer end margins of the central panel sections 13, 13' when in their infolded and adhered condition.

The bracing connection of the respective opposite end wall elements 20 and 24 to the bottom 12 is accomplished by simple gusset provisions which are integral with said respective parts. The material of the blank adjoining the elements 20, 24 is extended inwardly across the creases 16, 16' which define the side margins of the bottom, in the form of the respective gusset tabs 30, 31. The former is increased but is flexibly connected to the bottom 12 and to end element 20 by extensions of the creases 21 and 16 respectively. A quadrant shaped opening 32 is cut in tab 30 adjoining the intersection of said creases and further 45° creasing 33 extends through said intersection from the outer margin of end element 20, terminating at a point well within the bottom panel or section 13. A slit 34 connects this crease terminal with the end margin of the bottom, thereby defining a triangular gusset 35 by which tab 30 is adapted to be adhesively connected to the bottom. The creasing 33 is such that the gusset section 35 is adapted to collapse inwardly of the carrier end when the carrier is erected.

The opposite tab 31 is hingedly connected to the bottom and to the adjoining end wall elements 24 by extensions of the creases 23 and 16 respectively. This tab is subdivided into triangular gusset sections 36, 37 by a 45° crease line 38 extending outwardly from the juncture of creases 16 and 23. The gusset section 37 is intended to be adhered to bottom section 13, whereby tab 30 provides a flexible gusset connection of the end wall element or flap 24 to the carrier bottom section. This connection flexes outwardly to bring said element into position across the end of the bottom 12 when the carton carrier is erected from a flat, knock-down condition to expanded, article receiving condition. Material is removed at 39 from tab 31 adjacent the junction of creases 16, 23 and 38 for the purpose of facilitating flexure of the gusset connection.

The blank is completed by a reinforcing and glue flap 40 hinged to the panel section 13' of the carrier section 14' by means of a crease 41 paralleling creases 11 and 16. This flap and the coacting panel sections 13, 13' are provided with slits and creases in a known manner not necessary to be described in detail, to afford handholes in the central panel which they ultimately con-

stitute, to facilitate lifting and suspending of the carrier and its contents.

In assembling the carrier, adhesive is applied to certain zones of the elements and flaps 24, 24', 25, 28 and 28', also to the gusset sections 35, 35', 36 and 36' as illustrated by stippling in Fig. 1. Said flaps, elements and gusset tabs 30 are then folded inwardly about the creases 23, 23', into adherent contact with the carrier sections 14, 14' respectively, as shown in Fig. 2. Gusset tabs 30, 30' and the adjoining areas of the bottom 12 and wall elements 20, 20', including triangular gusset sections 35, 35' are folded about creases 33, 33' and said sections are adhered to bottom panels 13, 13'. This leaves the blank in the condition illustrated in Fig. 2.

Adhesive is then applied to the upwardly exposed area of the panel section 18, element 28 and reinforcing flap 40, as indicated by stippling in Fig. 2. The sections 14, 14' of the prepared blank are next folded upon one another about the medial crease 11 and as a final step the flap 40 is folded about the crease 40 and adhered to the subjacent panel section 18, thus producing a relatively rigid, reinforced, three ply handle structure for the carrier. Fig. 3 shows the carrier in its final flat, knock-down condition following the last named folding and adhering operation.

The carrier is illustrated in its erected condition in Figs. 4 and 5. It will be noted that the end partition straps 19, 19' which are integrally hinged to and diverge outwardly from the medial panel generally designated 42, are braced and stiffened by the relatively large end elements or flaps 24, 24', which are in turn connected to and braced by the bottom 12 through the agency of gusset connections 31, 31'.

Similar gusset tab connections 30, 30' tie the opposite end wall elements 20, 20' to the bottom. The rectangular gusset tabs rest in face to face contact with bottom panels 13, 13' when the carrier is loaded and suspended. The end wall structures at both ends of the carrier support the latter in proper, right angular relation to the side walls 15, 15'. Hence it is possible to transport less than the full intended number of bottles for which the carrier is designed, without danger of their slipping out between the bottom and the carrier ends. The articles are uniformly supported throughout the bottom area. The carrier structure as a whole is stabilized and rigidified, yet the structure employs a minimum of paperboard stock which may be of an inexpensive grade and low caliper, advantages heretofore incapable of realization in the particular carrier construction which is dealt with.

Due to the improved collapsible interconnection of the stiff central suspending panel 42, the end wall structure and the bottom, which in effect ties the bottom and end structure to the comparatively great rigidity of said multiply panel 42, the carrier end walls are insured against a tendency to give or twist when the carrier is filled with its intended contents and suspended. This is the zone in which the existing commercial carriers of the type under consideration exhibit a pronounced tendency of this sort. Moreover, end wall structures of substantial area are afforded to contain the bottles against endwise escape.

Those skilled in the art will recognize the possibility of various changes in the above structure without departing from the principles of the invention. I therefore desire that the invention be construed no more limitedly than is consistent with the appended claims.

I claim:

1. In a flexible, foldably collapsible paperboard carrier for bottles or like articles which is characterized by a pair of generally similar, integrally connected sections, each including a central upright panel, which panels are disposed in generally parallel relation in the operative condition of the carrier, a side wall spaced laterally from the panel section and connected thereto by integral cross partition straps hinged to said wall and section, and an end wall element flexibly connected to an end margin of the side wall, and a bottom hingedly connected to the lower margins of said side walls, the improvement comprising a gusset connection having foldably connected parts integrally hinging one of said end wall elements to said bottom in a zone located within an end margin of the latter, said gusset connection including a portion cut from the material of said bottom and folded relative thereto, said portion being fixedly secured in face contacting engagement with said bottom, a further portion of said gusset connection being hinged to an end wall element and overlying said first named portion in the erected condition of the carrier.

2. In a flexible, foldably collapsible paperboard carrier for bottles or like articles which is characterized by a pair of generally similar, integrally connected sections, each including a central upright panel, which panels are disposed in generally parallel relation in the operative condition of the carrier, a side wall spaced laterally from the panel section and connected thereto by integral cross partition straps hinged to said wall and section, and an end wall element flexibly connected to an end margin of the side wall, and a bottom hingedly connected to the lower margins of said side walls, the improvement comprising a gusset connection having foldably connected parts integrally hinging one of said end wall elements to said bottom in a zone located within an end margin of the latter, said gusset connection including a portion cut from the material of said bottom and folded relative thereto and secured in fixed face engagement with said bottom, and a further portion hinged to said end wall element and first portion at intersecting margins thereof.

3. In a flexible paperboard carrier for bottles or like articles which is characterized by a pair of generally similar, integrally connected sections, each including a central upright panel, which panels are disposed in generally parallel relation in the operative condition of the carrier, a side wall spaced laterally from the panel section and connected thereto by integral cross partition straps hinged to said wall and section, and an end wall element flexibly connected to an end margin of the side wall, and a bottom hingedly connected to the lower margins of said side walls, the improvement comprising a gusset connection having foldably connected parts integrally hinging said end wall elements to said bottom in a zone located within an end margin of the latter, said gusset connection including a portion cut from the material of said bottom and folded relative thereto and secured in fixed face engagement with said bottom, and flap means of substantial area connected to at least one of said end wall elements and disposed between said central panels in the operative condition of the carrier.

4. In a flexible, foldably collapsible paperboard carrier for bottles or like articles which is characterized by a pair of generally similar, inte-

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grally connected sections, each including a central upright panel, which panels are disposed in generally parallel relation in the operative condition of the carrier, a side wall spaced laterally from the panel section and connected thereto by integral cross partition straps hinged to said wall and section, and an end wall element flexibly connected to an end margin of the side wall, and a bottom hingedly connected to the lower margins of said side walls, the improvement comprising a gusset connection integrally hinging said end wall elements to said bottom in a zone located within an end margin of the latter, said gusset connection including a portion cut from the material of said bottom and folded relative thereto and secured in fixed face engagement with said bottom, and a further portion hinged to said end wall element and first portion at intersecting margins thereof, and flap means of substantial area connected to at least one of said end wall elements and disposed between said central panels in the operative condition of the carrier.

5. A flexible, foldably collapsible paperboard carrier for bottles or like articles comprising a central multi-ply, upstanding panel, a pair of side walls spaced laterally from either side of said panel and connected to the latter by cross partition straps hinged to said respective side walls and panel, a bottom hingedly connected to the lower margins of said side walls, end wall elements bendably connected to opposite end margins of said side walls, and integral gusset connections between said respective end wall elements and said bottom serving to hinge the elements to the bottom internally of the respective end margins of the latter, certain of said gusset connections including portions cut from the material of and hinged to said bottom, said portions being fixedly secured to said bottom in face contact therewith.

6. A flexible, foldably collapsible paperboard carrier for bottles or like articles comprising a central multi-ply, upstanding panel, a pair of side walls spaced laterally from either side of said panel and connected to the latter by cross partition straps hinged to said respective side walls and panel, a bottom hingedly connected to the lower margins of said side walls, end wall elements bendably connected to opposite end margins of said side walls, and integral gusset connections between said respective end wall elements and said bottom serving to hinge the elements to the bottom internally of the respective end margins of the latter, certain of said gusset connections including portions cut from the material of and hinged to said bottom, said portions being fixedly secured to said bottom in face contact therewith, and further portions overlying said hinged portions in the erected condition of the carrier and supporting articles disposed in the latter adjacent an end thereof.

7. A flexible, foldably collapsible paperboard carrier for bottles or like articles comprising a central multi-ply, upstanding panel, a pair of side walls spaced laterally from either side of said panel and connected to the latter by cross partition straps hinged on vertical lines to said respective side walls and panel, a medially foldable bottom hingedly connected to the lower margins of said side walls, end wall elements bendably connected to opposite end margins of

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said side walls, and integral gusset connections between said respective end wall elements and said bottom serving to hinge the elements to the bottom internally of the respective end margins of the latter, certain of said gusset connections including portions cut from the material of and hinged to said bottom, said portions being fixedly secured to said bottom in face contact therewith.

8. A flexible, foldably collapsible paperboard carrier for bottles or like articles comprising a central multi-ply, upstanding panel, a pair of side walls spaced laterally from either side of said panel and connected to the latter by cross partition straps hinged on vertical lines to said respective side walls and panel, a medially foldable bottom hingedly connected to the lower margins of said side walls, end wall elements bendably connected to opposite end margins of said side walls, and integral gusset connections between said respective end wall elements and said bottom serving to hinge the elements to the bottom internally of the respective end margins of the latter, certain of said gusset connections including portions cut from the material of and hinged to said bottom, said portions being fixedly secured to said bottom in face contact therewith, and further portions overlying said hinged portions in the erected condition of the carrier and supporting articles disposed in the latter adjacent an end thereof.

9. A flexible, foldably collapsible paperboard carrier for bottles or like articles comprising a central multi-ply, upstanding panel, a pair of side walls spaced laterally from either side of said panel and connected to the latter by cross partition straps hinged to said respective side walls and panel, a bottom hingedly connected to the lower margins of said side walls, end wall elements bendably connected to opposite end margins of said side walls, and integral gusset connections between said respective end wall elements and said bottom serving to hinge the elements to the bottom internally of the respective end margins of the latter, said gusset connections each including a triangular portion cut from the material of the bottom and hinged thereto, said portion being fixedly secured in face contacting engagement with said bottom, a rectangular portion integrally hinged to said triangular portion and disposed in overlying relation thereto in the erected condition of the carrier, and a further triangular portion integrally hinged to said rectangular portion and to the end wall element, said further triangular portion being disposed in the plane of said end wall element in the erected condition of the carrier.

EDWIN L. ARNESON.

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