

Sept. 10, 1968

E. L. ARNESON
ARTICLE CARRIER

3,400,856

Filed June 1, 1967

2 Sheets-Sheet 1

FIG. 1

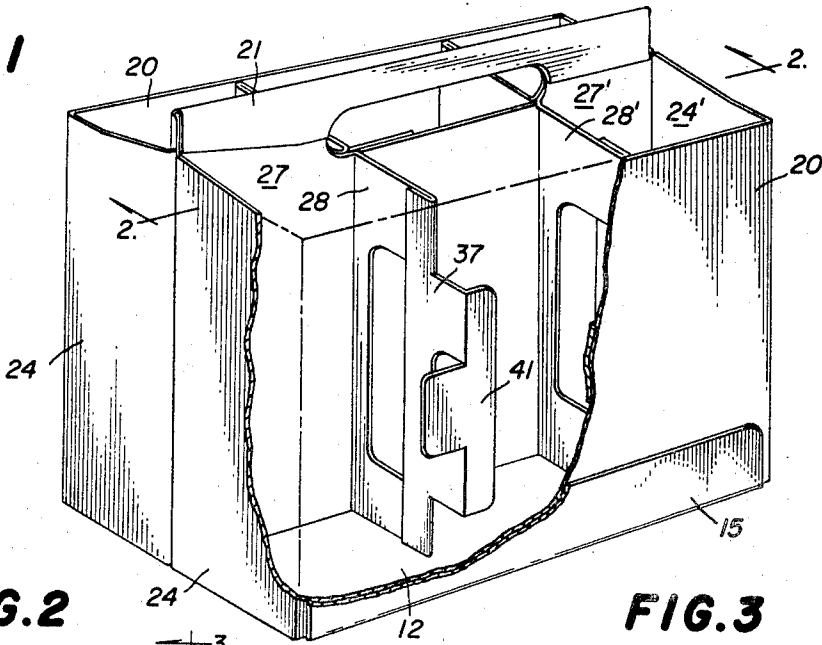


FIG. 2

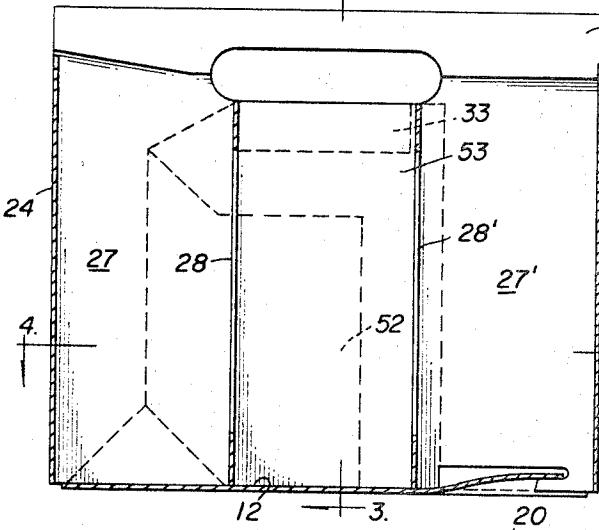


FIG. 3

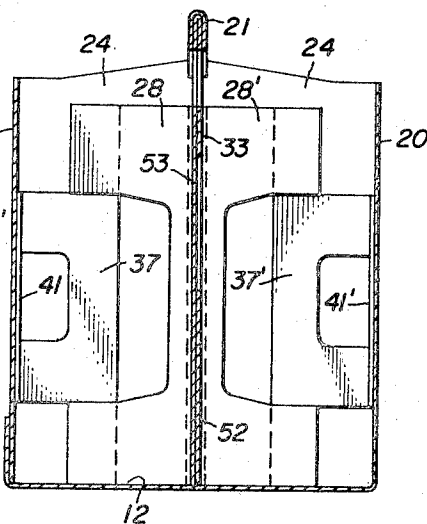
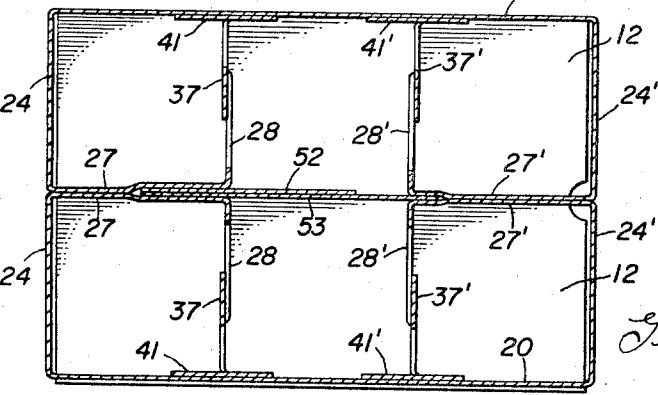


FIG. 4



INVENTOR
EDWIN L. ARNESON

BY
*Frederick Lockwood, Truenaault
& Dewey*
ATTYS.

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FIG. 5

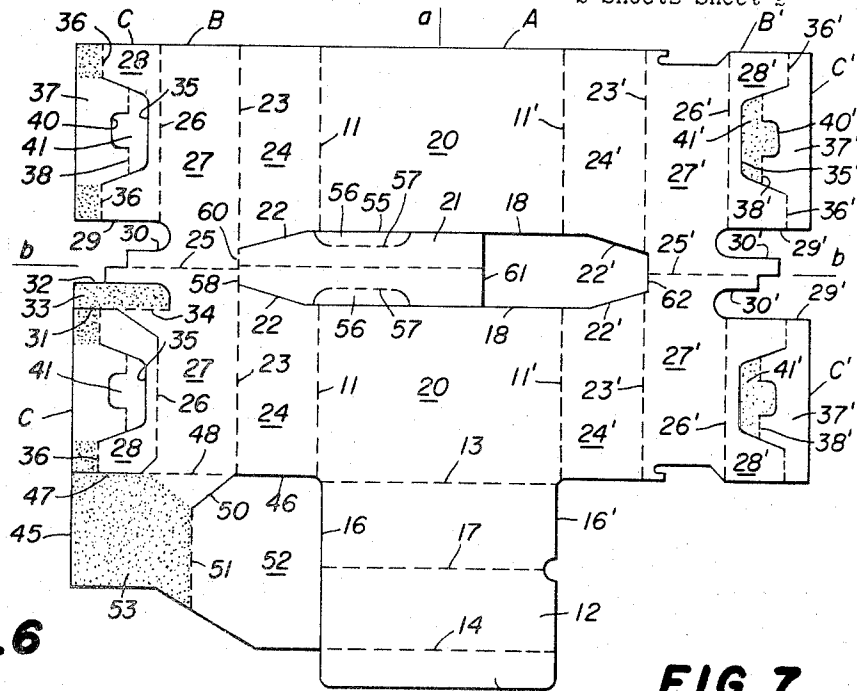
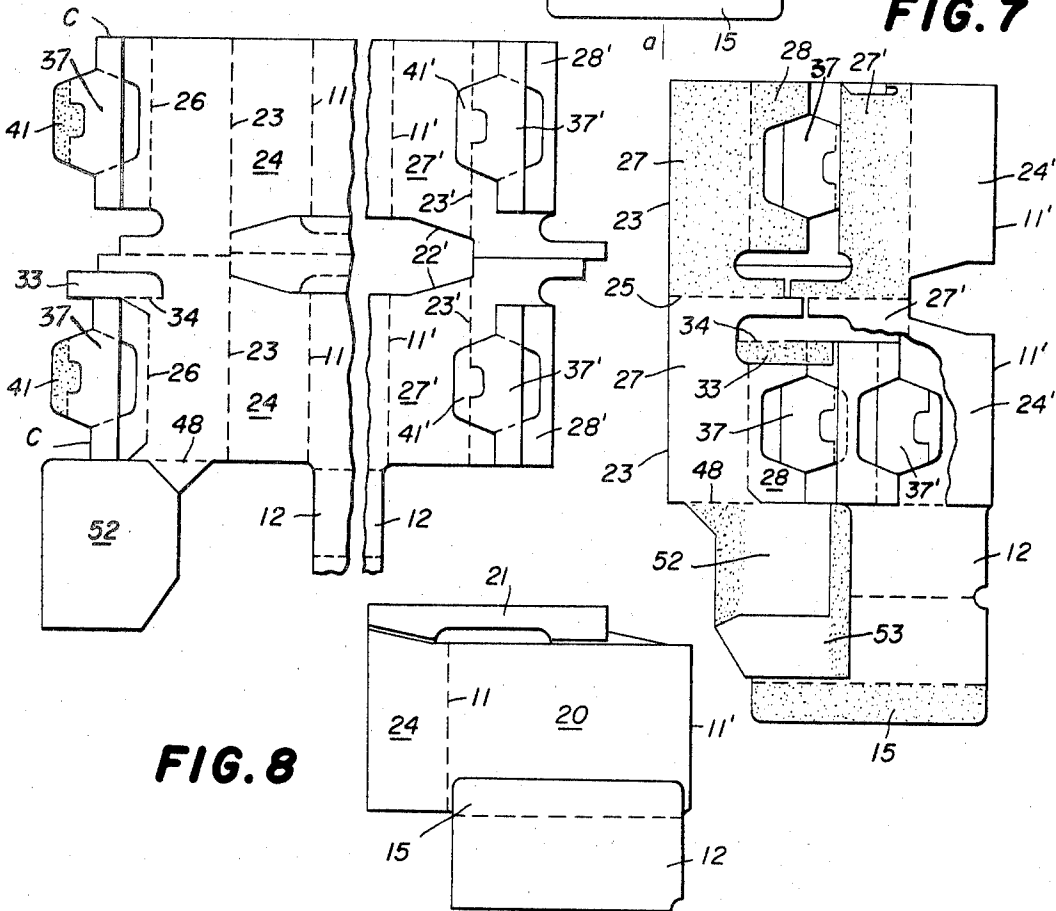


FIG. 6

FIG. 7



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ARTICLE CARRIER

Edwin L. Arneson, Hackensack, N.J., assignor to Federal Paper Board Company, Inc., Bogota, N.J., a corporation of New York

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11 Claims. (Cl. 220-113)

ABSTRACT OF THE DISCLOSURE

A collapsible carrier for bottled beverages which is formed from a blank of paperboard or similar material, cut and creased so that it may be folded and glued to provide, when set up, a bottom, upstanding side and end walls, and a handle and partition structure which includes a longitudinal center partition and a pair of cross partitions on opposite sides thereof so as to divide the carrier into bottle receiving cells with the cross partitions providing two plies of the blank material between points of bottle contact and with the center partition providing two full plies of material between the end pairs of bottles and a reinforcing panel folded upwardly from a hinge connection with a longitudinal partition panel and also folded upon itself so as to provide two plies of the material between the center pair of bottles.

This invention relates to article carriers of a type which are fabricated from a single blank of flexible sheet material, the blank being cut and creased to divide the same into a plurality of panels which are thereafter folded and secured in predetermined relation so as to provide, when in an article receiving position, twin compartments separated by a longitudinally extending center partition and handle structure with each compartment subdivided into a multiplicity of article accommodating cells by cross partitions extending in longitudinally spaced relation between the center partition structure and the oppositely disposed side walls of the carrier.

Cellular bottle carriers have heretofore been designed for use in connection with the marketing of bottled beverages such as soft drinks, beer and the like, which have been fabricated from lightweight paperboard stock so as to keep the cost sufficiently low to make it practical to employ them for single trip use, for example, with the disposable glass bottles now being used. Carriers of this general type are disclosed in Patents Nos. 3,093,265, 3,104,027 and 3,125,243. These carriers are adapted to be fabricated from a paperboard material of relatively lightweight, and are so constructed that the bottles in the individual cells are separated by the thickness of material required in order to meet railroad shipping regulations and permit the use of the carriers in the marketing of beer which may be shipped by rail.

It is a general object of the present invention to provide an improved bottle carrier which is fabricated from a single sheet or blank of relatively light weight, flexible paperboard material wherein the blank is cut and folded in a novel manner so as to provide in the bottle separating partitions of the erected carrier a double thickness of material between the bottles in adjoining cells at the points where they engage the partitions.

It is a more specific object of the invention to provide an improved paperboard article carrier fabricated from a paperboard blank of minimum size which is slit, creased and folded to provide oppositely disposed side walls, a longitudinal partition and handle structure paralleling the side walls and cross partition members which are derived from end portions of the longitudinal partition panels and which extend between the latter and the side walls when the carrier is in erected condition with the cross partitions having portions folded upon each

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other so as to provide a double thickness of material between the articles in adjoining cells and the longitudinal partition structure having panel portions in the areas between the cells on opposite sides thereof which afford a double thickness of material for separating the articles.

It is a further object of the invention to provide a twin compartment multicellular collapsible bottle carrier formed from a rectangular sheet of paperboard of relatively light weight, which is cut and scored to provide a bottom wall forming panel, side wall forming panels hinged to opposite side edges thereof, pairs of end wall and longitudinal partition and handle forming panels hinged to the opposite ends of the respective side walls, and longitudinal partition reinforcing panels which are cut from the material at the side of the blank and folded upwardly from an integral hinge connection with a longitudinal partition and handle panel and which provide a double thickness of material between the bottles in the center cells.

It is another object of the invention to provide in an article carrier of the character described a longitudinal partition and handle structure which parallels the side walls and which is reinforced by panel portions taken from the side margins of the blank and foldable about a hinge connection at the bottom of one of the longitudinal partition panels so as to afford a multiple thickness of material between articles in the center cells.

These and other objects and advantages of the invention will be apparent from a consideration of the article carrier which is 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 and with portions of the side wall and adjoining end wall thereof broken away;

FIGURE 2 is a longitudinal vertical section taken on the line 2-2 of FIGURE 1;

FIGURE 3 is a transverse section taken on the line 3-3 of FIGURE 2;

FIGURE 4 is a horizontal cross section taken on the line 4-4 of FIGURE 2;

FIGURE 5 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 6 is a plan view, with portions broken away, showing the blank following the first folding and subsequent adhesive applying operations;

FIGURE 7 is a plan view, with portions broken away, showing the blank at a further stage in the adhesive applying and folding thereof; and

FIGURE 8 is a plan view of the completed carrier in the flat knocked down condition.

Referring to the drawings, there is illustrated one embodiment of the carrier which incorporates the principles of the invention. The carrier is fabricated from a blank 10 (FIGURE 5) of suitable sheet material, for example, flexible paperboard which is of generally rectangular outline and which is relatively thin, for example, having a thickness of 0.020 inch, commonly referred to in the paperboard industry as 20 point stock. The blank may be cut from a printed web with suitable nesting to avoid excessive waste. The blank 10 is cut and scored to divide the same into wall and partition panels which are thereafter folded and secured together by a suitable adhesive to form the carrier of FIGURE 1. Since the cut and scored blank 10 is, to a large extent, symmetrical about the longitudinal and transverse lines *a-a* and *b-b* respectively, corresponding elements which are found on opposite sides of the longitudinal line *a-a* will be designated by the same reference numerals and where an element found on one

side of the transverse line $b-b$ has a counterpart on the other side thereof it will be designated by the same reference numeral primed.

The blank 10 is divided in the longitudinal direction into three sections with the center section A and the two end sections B and B' having approximately the same dimension in the longitudinal direction of the blank. The center section A is subdivided to provide the carrier bottom wall, the side walls and a portion of a handle cover panel while the end sections B and B' are subdivided to provide end walls and a combination partition and handle structure. The center section A is separated from the end sections B and B' by transversely extending score lines 11 and 11' and the main body of the center section A is separated from a bottom wall forming panel 12 by a longitudinally extending score line 13 with the panel 12 constituting a side extension.

The bottom wall forming panel 12 is subdivided by the longitudinally extending score line 14 to provide a glue flap 15 extending along the outside margin. The parallel score line 17 divides the main bottom wall forming portion of the panel 12 into two halves which are adapted to fold upon each other on the line 17 in collapsing the carrier. The bottom forming panel 12 is separated from an adjoining extension of the blank section B by a transverse cutting line 16 which projects outwardly from the end of score line 11 and is slightly offset in the direction of the transverse line $a-a$, the opposite cutting line 16' being offset inwardly of the panel in the same manner.

The main portion of the center section A of the blank is divided by a pair of transverse cutting lines 18 which are spaced on opposite sides of the line $b-b$ to provide two side wall forming panels 20 and a portion of a handle cover panel 21 which will be hereinafter referred to. The cutting lines 18 extend at 22 and 22' into the blank sections B and B' equal distances from the transverse line $a-a$, and terminate at transverse score lines 23 and 23' in the blank sections B and B'. The score lines 23 and 23' are spaced from the parallel score lines 11 and 11' a distance equal to half the width of the carrier when set up and these lines define the edges of end wall panels 24 and 24'. The blank end sections B and B' are divided by longitudinally extending score lines 25 and 25' which coincide with the longitudinal line $b-b$ and which are preferably weakened by perforating or slitting so as to facilitate subsequent folding operations. The score lines 25 and 25' together with the score lines 23 and 23' define four corner sections C, C and C', C' which are further subdivided in an identical manner to provide longitudinal partition and handle forming panels and cross partition forming panels.

Each of the corner sections C, C and C', C' is subdivided in an identical manner by parallel, longitudinally spaced score lines 26 and 26' to provide similar longitudinal partition and handle forming panels 27 and 27' which adjoin the end wall forming panels 24 and 24', respectively, and cross partition forming panels 28 and 28' at the end margins thereof. The one cross partition panel 28 at one end of the blank and the two corresponding cross partition panels 28' at the other end of the blank are cut on longitudinally extending, parallel lines 29 and 29' which define the top edges of these panels. The cutting lines extend slightly into the adjoining panels 27 and 27' and curve back on the lines 30 and 30' which are parallel with and spaced from the lines 29 and 29' to form portions of hand holes in the handle forming sections at the top of the longitudinal partition structure. The other cross partition panel 28 is cut on the longitudinally extending, transversely spaced, parallel lines 31 and 32 to provide a reinforcing panel or flap 33 which remains hingedly connected to the adjoining longitudinal partition panel 27 on the score line 34 at the top thereof, the score line 34 extending from cutting line 31 into the panel 27. The panels 28 and 28' are cut on the generally U-shaped lines 35 and 35' and scored on the lines 36 and 36' which are parallel with the score lines 26 and 26' and which extend from the

ends of the U-shaped cutting lines 35 and 35' to the top and bottom forming edges of the panels 28 and 28'. The score lines 36 and 36' form hinge lines for swinging panels 37 and 37' which result from the cutting lines 35, 35' and the score lines 36 and 36' so that these panels may be folded through 180° to bring the strip forming the outer marginal portions thereof into face-to-face contact with the main portion of the panels 28 and 28' as hereinafter described. The portions of the panels 37 and 37' which are outlined by the cutting lines 35 and 35' are subdivided by score lines 38 and 38' and small U-shaped cutting lines 40 and 40' to provide T-shaped glue tabs 41 and 41' for connecting the panels 37, 37' to the side wall panels 20 when the blank is folded and glued to form the carrier.

A longitudinal partition panel 45 extends at one side of the one corner section C and is cut free of the bottom forming panel 12 on the cutting line 16. The panel 45 is separated from the end wall panel 24 and the cross partition panel 28 by longitudinally extending cutting lines 46 and 47 with a score line 48 connecting the same and forming an integral hinge connection between the panel 45 and the bottom forming edge of the longitudinal partition panel 27. The longitudinal partition panel 45 is subdivided by cutting line 50 and score line 51 into two portions 52 and 53 which are adapted to be folded upon each other about the hinge forming score line 51 as hereinafter described. The transverse score line 51 is located approximately coincident with the transverse center line of the longitudinal partition panel 27 so that the dimensions of the panel portions 52 and 53 in the longitudinal direction of the blank are very nearly the same. The panel portion 53 has a dimension transversely of the blank which is approximately two thirds of the corresponding dimension of the panel 52.

The handle cover panel 21, which is formed between the cutting lines 18, 18 and 22, 22, is divided into two approximately half sections by a longitudinally extending score line 55 which is offset a short distance from the line $b-b$ in the direction of the side edge of the blank and small hand hole reinforcing flaps 56 are formed by cutting at the ends and scoring on parallel, longitudinal lines 57. The handle panel 21 remains attached to the one longitudinal partition panel 27 at the end forming score line 58 and is cut free of the other longitudinal panel 27 on the line 60. A transversely extending cutting line 61 defines the other end of the handle panel 21 so that its length corresponds to the length of the side wall panels 20. The blank material between the cutting line 61, the cutting lines 18, 22 and 62 is punched out as waste in forming the blank for the carrier. Likewise, small waste portions result from the cutting lines 29, 29' and 30, 30' so as to provide a hand hole in the center partition structure.

The blank 10 is cut and scored and then glued and folded to provide the carrier which is illustrated in FIGURE 1. A suitable adhesive is applied to the inside face of end portions of the panels 37 and to the outside face of corresponding portions of panel 37' as shown in FIGURE 5. Glue is also applied to the longitudinal partition panel 53. The panels 37 are then folded inwardly 180° about the hinge lines 36 to the position shown in FIGURE 6. The panels 37 are folded outwardly 180° about the hinge lines 26' to the position shown in FIGURE 6. The panel 52 is folded about the hinge line 51 onto the panel 53. Glue is then applied to the exposed faces of the glue tabs 41 and 41' and to both sections of the handle panel 21. The corner sections C, C are folded in about the hinge lines 23, 23 and the small panel 33 is simultaneously folded about the hinge line 34 to the position shown in FIGURE 7. At the other end of the blank the corner sections C', C' are folded about the score lines 11', 11'. Glue is then applied to glue tab 15, the one pair of panels 27, 28, the one panel 27', the panel 33

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and a portion of the panel 53 as indicated in FIGURE 7. The panel 52 is then folded about the score line 48 so as to bring the associated panel 53 into overlying relation with the cross partition panel 28, a portion of the longitudinal partition panel 27, a marginal portion of the longitudinal partition panel 27' and the downwardly folded reinforcing panel 33. The partially folded blank is then folded about the score lines 25 and 25' after which the bottom panel 12 is folded upon itself about the score line 17 to bring the glue flap 15 into overlying relation with the bottom marginal portion of the side wall panel 20. This completes the folding operation and provides the collapsed carrier as shown in FIGURE 8.

When opened up as shown in FIGURE 1, the carrier provides a multi-cellular basket-type container with two rows of three cells on opposite sides of the center of a longitudinal partition structure which has upstanding portions providing a handle for suspending means. The cross partition forming members 28 and 28' are hinged on vertical hinge lines 26 and 26' to the longitudinal partition members 27 and 27' and are connected to the opposite vertical edges of the side walls 20 by glue tabs 41 and 41' with the partition portions 37 and 37' being folded and in face-to-face engagement with the balance of the panels 28 and 28' so as to provide a double thickness of the blank material at the top and bottom in the center part of the cross partition where there is contact by the bottles when they are placed in the cells, with a single thickness of material extending between the double thickness top and bottom portions so that the bottles in adjoining cells are completely separated and held against contact by the double thickness portions of the partitions. In the area of the longitudinal partition which extends between the two center cells the upwardly folded reinforcing panel 52 and its associated panel 53 provide a double thickness of material between the lower portions of the bottles in the cells. The downfolded supplemental reinforcing panel 23 provides with the upper portion of the panel 52 a double thickness of material at the top of the center cells. The bottles in the end cells are separated by a double thickness of material provided by the longitudinal panels 27 and 27' which are adhered in face-to-face relation.

The height of the cross partition panels may be varied depending upon the size of the bottles or other articles for which the carrier is designed. Also, the carrier may be formed from a blank with the panels arranged so that the bottom wall panels are taken from material between the side wall forming panels and the handle cover panel is cut from a side margin of the blank.

While specific materials and particular details of construction are referred to in describing the form of the carrier illustrated in the drawings, it will be understood that other suitable material and equivalent structural details may be employed.

I claim:

1. A cellular article carrier comprising, when completed and erected, a bottom wall panel, a pair of upstanding side wall panels hinged to the side edges of said bottom wall panel, an end wall and partition structure integrally hinged to each end edge of each of said side wall panels and co-operating with said side walls to form a row of article receiving cells on each side of a longitudinal center partition, said end wall and partition structure comprising an end wall panel, a longitudinal partition panel hinged to the end wall panel and a double panel cross partition which is hinged to the longitudinal partition panel and to a side wall panel and which is disposed at a right angle to the side wall panel, the two panels constituting said double panel cross partition being integrally hinged on a common vertical hinge line which is disposed on the outer side of the vertical center line of the cross partition with portions of said two panels which adjoin the vertical hinge line being folded upon each other into face-to-face relation, said two panels each

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having a dimension in the direction normal to said common hinge line which is at least half the dimension in the corresponding direction of the cross partition formed thereby, the outer one of said two panels being taken from the inner one of said two panels and a pair of longitudinal partition reinforcing panels integrally hinged to the bottom edge of a longitudinal partition panel and folded upwardly between the longitudinal partition panels so as to form a double thickness of material in portions of the area between the articles in the center cells.

2. A cellular article carrier as set forth in claim 1, and said double panel cross partition being connected to the associated side wall by a glue tab hinged to the outermost edge thereof which is derived from the innermost one of said two panels.

3. A cellular article carrier as set forth in claim 1, and said double cross partition providing a double thickness of material between the articles in the adjacent cells at points adjacent the uppermost and lowermost edges of said cross partition.

4. A cellular article carrier as set forth in claim 1, and said longitudinal partition reinforcing panels each having a dimension longitudinally of the carrier which is greater than the corresponding dimension of the center cells.

5. A cellular article carrier as set forth in claim 1, and said longitudinal partition reinforcing panels being folded upon each other about a vertical hinge line which is disposed intermediate the vertical edges of the longitudinal partition panel to which said longitudinal partition reinforcing panels are hinged.

6. A cellular article carrier as set forth in claim 1, and said end wall and partition structure having a supplemental longitudinal partition reinforcing panel which is cut from the material at the upper margin of a cross partition panel and downwardly folded from an integral hinged connection with the adjoining longitudinal partition panel so as to overlap the top margin of the upfolded longitudinal partition reinforcing panel and provide two thicknesses of material separating the articles in the center cells adjacent the top portion of said cells.

7. An article carrier formed of foldable sheet material comprising in assembled and erected condition, a bottom wall panel, a pair of upstanding side wall panels hinged to opposite side margins of the bottom wall panel, an end wall and partition forming structure integrally hinged by an upright crease to each end margin of each of said side wall panels, said end wall and partition forming structure comprising three panels integrally hinged to one another on crease lines paralleling the crease hinging the same to the side wall panel, a longitudinal partition forming panel and cross partition forming panels, the latter being disposed at a right angle to the side wall panel, said cross partition forming panels each being subdivided into two portions with one portion cut solely from the other portion and hinged about a common hinge line so as to bring top and bottom margins adjoining said hinge line into overlapping relation, one of said panel portions having a glue tab which is cut from the other of said panel portions and secured to a side wall panel to hingedly connect the cross partition forming panel to said side wall panel, a pair of longitudinal partition reinforcing panels which are foldable upon each other on an upright crease line and which are integrally hinged to the lower edge of one longitudinal partition forming panel at one end of the carrier, said partition reinforcing panels being secured between a pair of said longitudinal partition forming panels and extending between the center cells so as to provide a double thickness of material between articles in said center cells, one panel of said pair of longitudinal partition reinforcing panels having a dimension in the lengthwise direction of the carrier which is greater than one half the length of the carrier and having its opposite margins disposed between a pair of said longitudinal partition forming panels at each end of the carrier.

8. An article carrier blank of paperboard or like material which is cut and scored for fabricating a cellular article carrier, said blank being generally rectangular and being divided by longitudinal and transversely extending scoring and cutting lines so as to provide a pair of side wall forming panels each having three panels of equal width at opposite ends thereof which are divided therefrom by spaced parallel score lines and which are adapted to form an end wall panel, a longitudinal partition panel and a cross partition panel, said cross partition panel being subdivided by cutting and scoring lines into two integrally hinged panel portions which are adapted to fold upon each other about a score line parallel with the score line which connects said cross partition panel with the associated longitudinal partition panel and which is offset relative to the center line of the panel in the direction of the free edge of the blank so that when folded top and bottom forming margins of the outermost panel portion will overlap corresponding portions of the innermost panel portion and provide two thicknesses of material in the center of the folded partition.

9. An article carrier blank as set forth in claim 8,

and a pair of longitudinal partition reinforcing panels extending from the bottom forming edge of the three panels at one end of one of the side wall forming panels which are cut and scored so as to fold upon each other and also fold about the bottom forming edge of the associated longitudinal partition panel.

10. An article carrier blank as set forth in claim 8, and said outermost cross partition panel portion having a glue tab cut from said innermost cross partition panel portion.

11. An article carrier blank as set forth in claim 8, and a handle cover panel cut from the blank material at the top forming margin of a side wall panel and an adjoining end wall panel.

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DAVID M. BOCKENEK, *Primary Examiner*.