Oct. 31, 1967 P. J. WOOD 3,349,957

ARTICLE CARRIER

Filed July 25, 1966 2 Sheets-Sheet 1

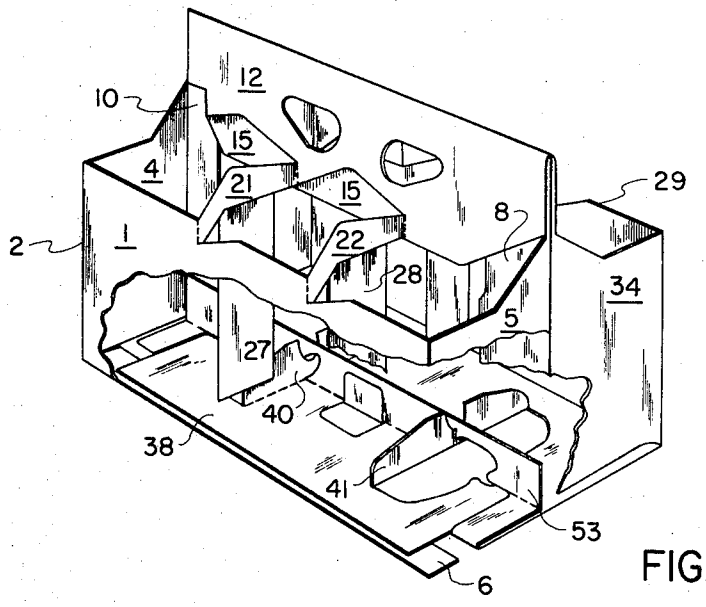


FIG. 1

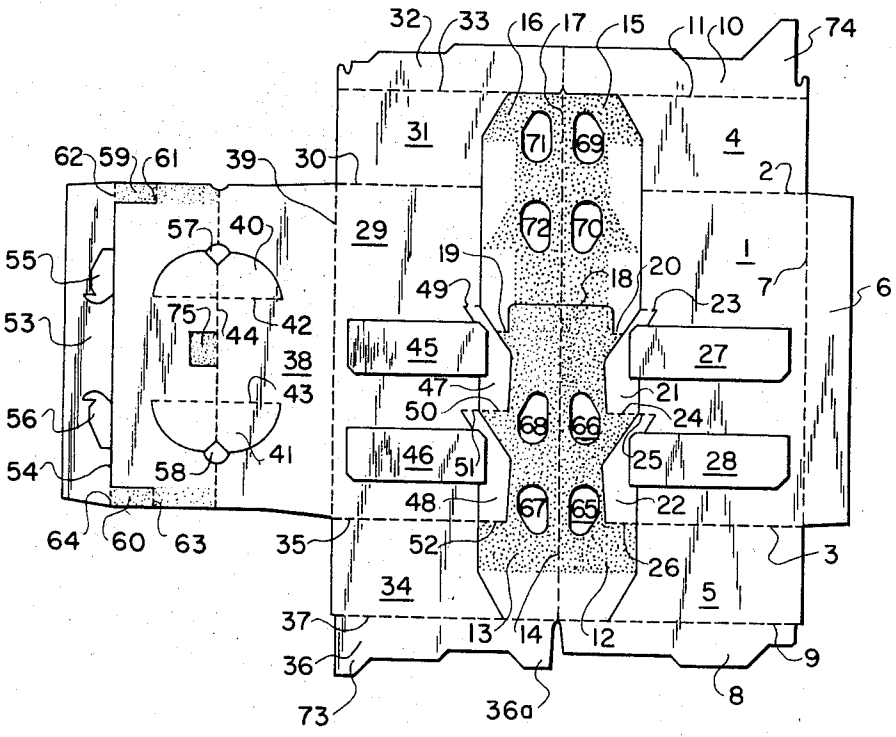


FIG. 2

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ARTICLE CARRIER

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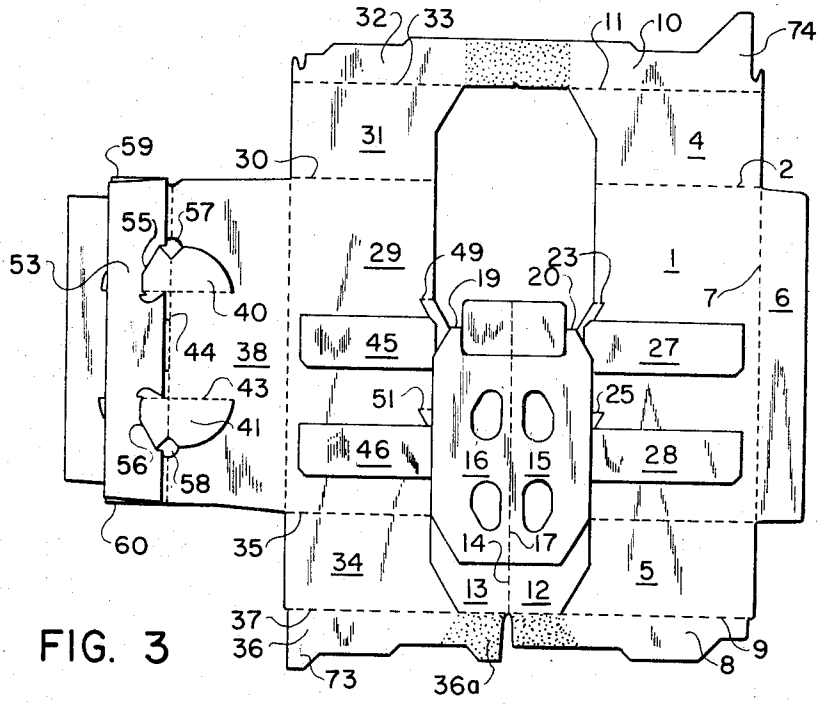


FIG. 3

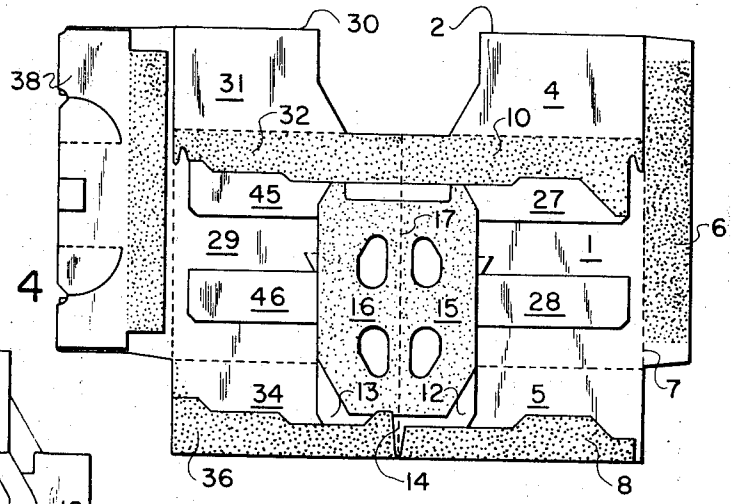


FIG. 4

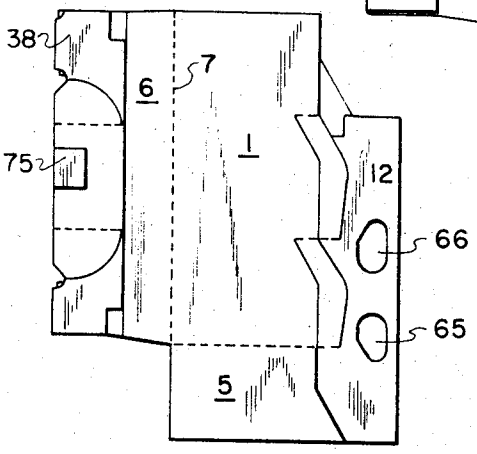


FIG. 5

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ARTICLE CARRIER

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8 Claims. (Cl. 220—113)

This invention relates to article carriers and more particularly to carriers for use in conjunction with "single trip" primary packages such as bottles wherein the bottles and carriers are discarded after a single use. In order to effect substantial economy in the manufacture of such carriers, it is desirable to use light weight material such as relatively thin paperboard. While paperboard which is of the order of two one hundredths of an inch in thickness is sufficiently sturdy for use in one-trip article carriers, material of this thickness does not meet the minimum requirements for article separation.

A principal object of this invention is to provide an improved article carrier which is made from thin sheet material and which also is constructed so that two thicknesses of material are provided to separate all points of possible contact between adjacent articles in the carrier both at the bottom portions of the articles as well as at the shoulder portions thereof.

Another object of this invention is the provision of an improved article carrier which is both economical to manufacture and which is specially constructed with reinforcing elements in certain portions of the carrier such as the handle portion where load stress is greatest.

Still another object of the invention is to provide an improved article carrier wherein transverse partitions take the form of transverse strips rather than full depth separating panels and wherein special means are provided in accordance with the invention to provide a substantial equivalent for a conventional full depth article carrier at a minimum cost.

An article carrier constructed in accordance with one form of the invention comprises a bottom panel, side walls foldably joined to the side edges of the bottom panel, end walls foldably joined to the end edges of the side walls, riser panels foldably joined to the end walls medially thereof and extending medially inward of the carrier, a pair of outer handle panels secured at their ends to said riser panels and disposed in parallel close proximity to each other, and at least one reinforcing panel foldably joined to at least one of said outer handle panels along at least one fold line which is spaced inwardly somewhat from one end edge of said one handle panel, the reinforcing panel being folded into flat face contacting relation to the inner surface of said one handle panel and being of such length and disposition as to occupy a position centrally of the outer handle panels and so as to bridge the gap between the inner edge of at least one riser panel at each end of the carrier thereby substantially to increase the sturdiness of the handle structure.

If desired, each handle panel may be provided with an inner reinforcing panel and where the lower edges of the outer handle panel are cut away to form transverse partition strips, the inner reinforcing panels serve not only as structural reinforcement but also constitute medial two-ply separators which fill the areas struck out of the handle panels to form the transverse strips and which are disposed between the articles on one side of the handle and those on the other side thereof. According to one facet of the invention, the lower end of at least one riser panel at either end of the carrier may be provided with an inwardly projecting medial tab which is disposed alongside and in flat face contacting relation with a medial keel tab foldably joined to the bottom panel of the carrier. In this way a two-ply medial separator is provided for the end

cells of the carrier by which the articles on opposite sides of the handle are separated from each other at the bottom portions thereof, the upper portions of the articles of course being separated by the two-ply reinforcing panel incorporated as a part of the handle structure in the areas where the transverse partition strips are cut away from the outer handle panels. A bottom tab struck out of the bottom panel and disposed intermediate the ends of the carrier is secured in flat face contacting relation to the medial keel panel and in this manner a two ply medial partition is provided for the articles disposed intermediate the ends of the carrier and on opposite sides of the handle panels. According to still another facet of the invention, auxiliary partition strips are secured in flat face contacting relation to the transverse partition strips and secured thereto to form a two-ply transverse partition between the upper portion of articles on each side of the handle of the carrier, such partition strips being elongated and being arranged to extend downwardly between adjacent articles in the carrier so that the lower ends thereof are disposed alongside one or more transverse struts struck out of the bottom panel and extending substantially thereacross so as to provide separation between the bottom portions of articles in each row on opposite sides of the handle carrier.

For a better understanding of the invention reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which FIG. 1 is a perspective view of a completely set-up carrier constructed according to the invention and wherein portions of certain side and end walls are cut away to expose the inner structure of the carrier; FIG. 2 is a plan view of a main blank from which the carrier of FIG. 1 is formed and on which four separate auxiliary partition strips are affixed; FIG. 3 depicts the positions which the parts occupy upon completion of a first folding operation performed on the blank depicted in FIG. 2; FIG. 4 shows the blank in the condition thereof after the second folding operation is completed and in which FIG. 5 represents a completed carrier shown in collapsed condition.

In the drawings the numeral **1** is used to designate a side wall of the carrier, to the end edges **2** and **3** of which a pair of end panels **4** and **5** are foldably joined. A lap panel **6** is foldably joined to the bottom edge of side wall **1** along a fold line **7**. A riser panel **8** is foldably joined along a fold line **9** to end wall **5**. At the other end of the carrier a riser panel **10** is foldably joined along fold line **11** to an edge of end wall panel **4**.

The handle structure of the carrier comprises an outer handle panel **12** which is foldably joined to riser panel **8** along the fold line **9** and a second outer handle panel **13** which is foldably joined along the top edge of outer handle panel **12** along fold line **14**. Reinforcement for the handle takes the form of a pair of reinforcing panels **15** and **16** which are foldably joined together along the fold line **17**. Reinforcing panels **15** and **16** are separated from the handle panels **12** and **13** along a cut line **18**. Reinforcing panel **16** is foldably joined to handle panel **13** along short fold line **19** while a similar fold line **20** interconnects the reinforcing panel **15** and the outer handle panel **12**. These short fold lines **19** and **20** may be offset inwardly from the end edge **18** of the outer handle panels **12** and **13** so as to render the reinforcing panels **15** and **16** sufficiently long when folded over and forwardly into flat face contacting relation with the inner surfaces of panels **12** and **13** so that an overlap between the reinforcing panels **15** and **16** and the inner edge of at least one riser panel at each end of the carrier is effected. In this connection tab **36***a* is formed on riser panel **36** and overlaps the end of panel **16** and also serves to align the fold lines **14** and **17**. While the panels **15** and **16** are shown in overlapping relation to the riser panels, it will be understood that it is

within the scope of the invention to arrange the fold lines **19** and **20** so that the ends of panels **15** and **16** are disposed adjacent to but not overlapping the inner edges of the riser panels provided panels **15** and **16** are disposed centrally of the outer handle panels.

For the purpose of providing transverse partitions on one side of the handle of the carrier, a plurality of partition strips **21** and **22** are provided. Partition strip **21** is foldably joined to side wall **1** along the short fold line **23** and to the handle panel **12** along the fold line **24**. Partition strip **22** is foldably joined to side wall **1** along short fold line **25** and to handle panel **12** along fold line **26**. In accordance with one facet of the invention, an auxiliary partion strip **27** is glued or otherwise secured to the partition strip **21** and a similar auxiliary partition strip **28** is glued or otherwise secured to the partition strip **22**. It is obvious from FIG. 2, for example, that the auxiliary partition strips **27** and **28** extend downwardly toward the bottom edge **7** of side wall **1** from their respective partition strips **21** and **22**.

The other side of the carrier is similar to that just described and comprises a side wall **29** to one end edge **30** of which an end panel **31** is foldably joined. A riser panel **32** is foldably joined along fold line **33** to end panel **31**. Similarly an end panel **34** is foldably joined along an end edge **35** to the opposite end of side wall **29** and a riser panel **36** is foldably joined along a fold line **37** to an edge of end wall **34**.

The bottom panel of the carrier is designated by the numeral **38** and is foldably joined along fold line **39** to a bottom edge of side wall **29**. A pair of transversely disposed struts **40** and **41** are struck out of the bottom panel **38** and are foldably joined thereto along fold lines **42** and **43** respectively. These transverse struts **40** and **41** are disposed astride the medial fold line **44** formed in the bottom panel **38**.

When the carrier is assembled, the transverse struts **40** and **41** are disposed immediately underneath the partition strips **21** and **22** and lie alongside the auxiliary partition strips **27** and **28** on one side of the carrier.

Cooperating with the transverse struts **40** and **41** on the other side of the carrier are a pair of auxiliary partition strips **45** and **46** which are secured by glue or otherwise to transverse partition strips **47** and **48**. Transverse partition strip **47** is foldably joined to side wall **29** along fold line **49** and to handle panel **13** along fold line **50**. Similarly partition strip **48** is foldably joined to side wall **29** along fold line **51** and to handle panel **13** along fold line **52**. Since the lower ends of partition strips **45** and **46** lie immediately adjacent to and in flat face contacting relation with the adjacent ends of the transverse struts **40** and **41** respectively, a two-ply separator means is formed between the articles in each row on each side of the handle panel both at the bottom portions thereof adjacent the strips **40** and **41** and at the top portions thereof adjacent the transverse partition strips **47** and **48**.

For the purpose of providing a medial strut along the bottom panel, a medial keel panel **53** is foldably joined at its ends only to an edge of the bottom panel **38** which is opposite from the fold line **39**. The middle portion of keel panel **53** is separated from bottom panel **38** along a cut line **54**. Medial keel panel **53** is provided with a pair of cut-out areas **55** and **56** which receive the notches **57** and **58** formed in the transverse panels **40** and **41** when the carrier is in set-up condition. The keel straps **59** and **60** interconnect the keel panel **53** with the bottom panel **38**. Keel strap **59** is foldably joined to bottom panel **38** along fold line **61** and to the medial keel panel **53** along the fold line **62**. Similarly keel strap **60** is foldably joined at one end thereof to the bottom panel **38** along fold line **63** and at the other end thereof to the medial keel panel **53** along the fold line **64**.

Hand gripping apertures **65** and **66** are formed in handle panel **12** and similar apertures **67** and **68** are formed in outer handle panel **13**. As will be apparent from the drawings, hand gripping apertures **69** and **70** formed in reinforcing panel **15** coincide with apertures **65** and **66** in outer handle panel **12** when the carton is formed. Similarly hand gripping apertures **71** and **72** formed in handle panel **16** coincide respectively with apertures **67** and **68** in outer handle panel **13**.

In order to form the carrier into completed form as depicted in FIG. 5 from the blank depicted in FIG. 2 having auxiliary strip partitions **27, 28, 45** and **46** affixed thereto, it is simply necessary to make an application of glue to the inner surfaces of outer handle panels **12** and **13** and to the exposed surfaces in reinforcing panels **15** and **16** as shown by stippling in FIG. 2. Thereafter the auxiliary panels **15** and **16** are folded upwardly and forwardly along their respective fold lines **20** and **19** to occupy the positions depicted in FIG. 3.

An application of glue is then made to the exposed inner end portions of riser panels **8, 36, 10** and **32** as indicated by stippling in FIG. 3. Thereafter end panels **4** and **31** together with their associated riser panels **10** and **32** are swung upwardly and forwardly along the respective fold lines **2** and **30** to occupy the positions depicted in FIG. 4 wherein the riser panel **10** is affixed to the exposed surface of reinforcing panel **15** by an application of glue and riser panel **32** is similarly affixed to the exposed surface of reinforcing panel **16**. Simultaneously the riser panels **8** and **36** are folded upwardly and rearwardly into flat face contacting relation with the adjacent inner end portions of outer handle panels **12** and **13** to occupy the positions depicted in FIG. 4. While the above described folding operations are being made, the bottom panel **38** is appropriately manipulated by simply swinging the medial keel panel **53** upwardly and toward the right along with similar folding movement of straps **59** and **60** about fold lines **61** and **63** respectively. When so folded, straps **59** and **60** become affixed by glue to the adjacent inner surface of bottom panel **38** and the medial keel panel **53** is disposed immediately above the transverse struts **40** and **41** and in flat face contacting relation with the bottom panel **38**.

In order to complete the carrier, an application of glue is made to the blank as depicted in FIG. 4 and as indicated by the stippled areas in that figure.

The blank then is manipulated by folding the side wall **1** and associated parts upwardly and toward the left along the fold lines **14** and **17** so that the various stippled areas come into face contacting relationship with each other. The parts then occupy the positions depicted in FIG. 5 and the carrier is then finished and in collapsed condition.

In accordance with one feature of the invention, a medial tab is formed at the bottom end of at least one riser panel at each end of the carrier. Such tabs in the drawings are designated by the numerals **73** with respect to the tab on riser panel **36** and by the numeral **74** with respect to the tab formed on the riser panel **10**. When the carton is assembled, tab **74** lies immediately adjacent to and in flat face contacting relation to the end of medial keel panel **53** which is adjacent to strap **59**. In this manner a double ply separator is provided at the end of the carrier whereby the end bottle on one side of the handle is separated from the corresponding end bottle on the other side of the handle at the bottom portion thereof. Medial tab **73** is disposed at the other end of the keel panel and in like fashion forms with panel **53** a two-ply separator at that end of the carrier. The reinforcing panels **15** and **16** are arranged to fill the spaces provided when the transverse strips **47, 48, 21** and **22** were struck out of handle panels **13** and **12** respectively and provide a two-ply separator between the upper portions of the end bottles adjacent the end panels **4** and **31** and between the upper portions of the middle bottles on opposite sides of the handle of the carrier.

The lower portion of the middle bottle on each side of the carrier is separated from the other bottle by a two-ply partition which takes the form of medial keel panel

53 together with the reinforcing tab 75 which is struck out of the bottom panel 38 and foldably joined thereto along the medial fold line 44 and which is secured in flat face contacting relation with the midportion of the keel panel 53.

On one side of the carrier, transverse separators take the form of partition strip 47, auxiliary partition strip 45, and transverse strut 40 together with partition strip 48, auxiliary partition strip 46, and transverse strut 41. Since strip 46 is secured to transverse strip 48 a two-ply partition is formed at the upper end of auxiliary strip 46. At the lower end of strip 46 the transverse separator is of two-ply construction due to the fact that the lower end of auxiliary strip 46 is disposed in flat face contacting relation with one end of transverse strut 41. By this means the articles on one side of the handle are separated from each other by two-ply separators both at the lower portion and at the upper portion thereof.

A similar structure is formed on the other side of the carrier. Auxiliary strip 27 is secured to transverse strip 21 so that a two-ply partition is formed at the upper portion of strip 27. In similar fashion a two-ply separator structure is formed at the upper portion of strip 28. Since the lower end of strip 27 lies immediately adjacent to and alongside the adjacent end of transverse strut 40 a two-ply partition is afforded by this means. Similarly the lower end of auxiliary partition strip 28 is disposed immediately adjacent to and alongside the adjacent end of transverse strut 41 so that a two-ply partition is formed at both the upper and lower ends of strip 28.

According to the invention, relatively thin gauge sheet material such as paperboard may be employed because by the invention, the load carrying elements of the carrier such as the handle are adequately reinforced as by the reinforcing panels 15 and 16 and adequate thickness of partitioning structure is provided at all points of contact between adjacent articles on each side of the carrier and between the articles on one side of the carrier and those on the opposite side of the carrier. Of course the end and side walls need not be of two ply construction because a pair of carriers stacked immediately adjacent to each other either end to end or alongside each other inherently provide a double thickness separating layer between the articles in one carrier and those in the other.

While a particular embodiment of the invention has been shown and described, the invention is not limited thereto and it is intended in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An article carrier comprising a bottom panels, side walls foldably joined to the side edges of said bottom panel, end walls foldably joined to the end edges of said side walls, riser panels foldably joined to said end walls medially thereof and extending medially inward of the carrier, a pair of outer handle panels secured at their ends to said riser panels and disposed in parallel close proximity to each other, and at least one reinforcing panel foldably joined to at least one of said outer handle panels

along at least one fold line which is spaced inwardly somewhat from one end edge of said one handle panel, said reinforcing panel being folded into flat face contacting relation to the inner surface of said one handle panel and said fold line being so disposed that said reinforcing panel is centrally disposed with respect to the ends of said outer handle panel and the length of said reinforcing panel being such that said reinforcing panel bridges the gap between said riser panels.

2. A carrier according to claim 1 wherein a reinforcing panel is foldably joined to each of said outer handle panels.

3. A carrier according to claim 2 wherein the lower edge of each of said outer handle panels is cut away to form at least one transverse partition strip foldably joined to the associated outer handle panel and the adjacent side wall and wherein said reinforcing panels form a two-ply partition structure in the cutaway areas of said outer handle panels.

4. A carrier according to claim 3 wherein coincidental hand gripping apertures are formed in each of said outer handle panels and in each of said reinforcing panels and wherein a four-ply thickness of material is disposed above said apertures.

5. A carrier according to claim 3 wherein a single ply medial keel panel is foldably joined to said bottom panel and wherein a medial tab is formed on at least one riser panel at each end of the carrier at approximately the same level as said medial keel panel, said medial tabs being disposed in flat face contacting relation to said medial keel panel whereby a two-ply partition is formed underneath the ends of the handle structure.

6. A carrier according to claim 5 wherein a bottom tab is struck out of said bottom panel and foldably joined thereto along a medial fold line, said bottom tab being disposed intermediate the ends of the carrier and being secured in flat face contacting relation to said medial keel panel whereby a two-ply partition is formed underneath the middle portion of the handle structure.

7. A carrier according to claim 3 wherein an auxiliary partition strip is disposed in flat face contacting relation to each of said transverse partition strips and secured thereto to form two-ply transverse partitions between the handle and side walls.

8. A carrier according to claim 7 wherein a transverse strut is struck out of said bottom wall and foldably joined thereto along a fold line disposed underneath and in coincidental relation with each transverse strip, each transverse strut being disposed in flat face contacting relation with a pair of said auxiliary partition strips to form a two-ply transverse partition adjacent said bottom panel.

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