

- [54] CONTAINER ASSEMBLY HAVING COMPARTMENTS AND MEANS FOR STACKING CONTAINER BLANK
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- [58] Field of Search..... 229/2.5, 28 R; 206/65 A, 206/65 R; 220/4 E

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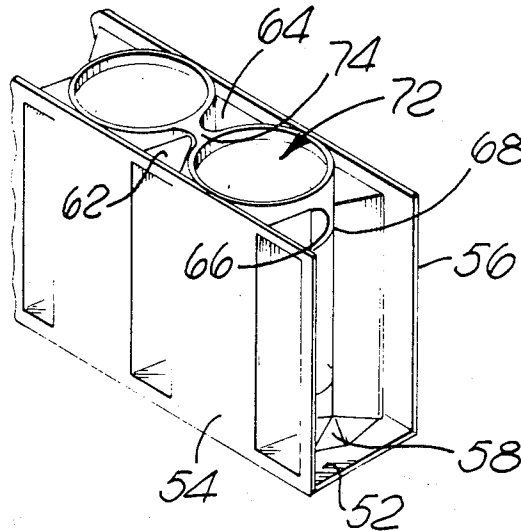
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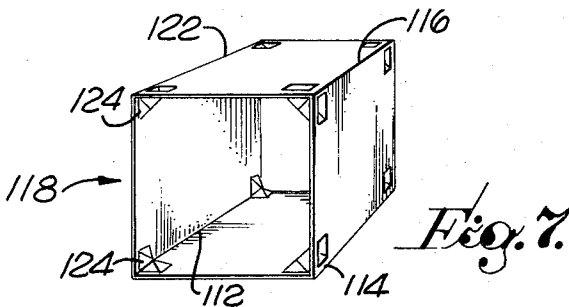
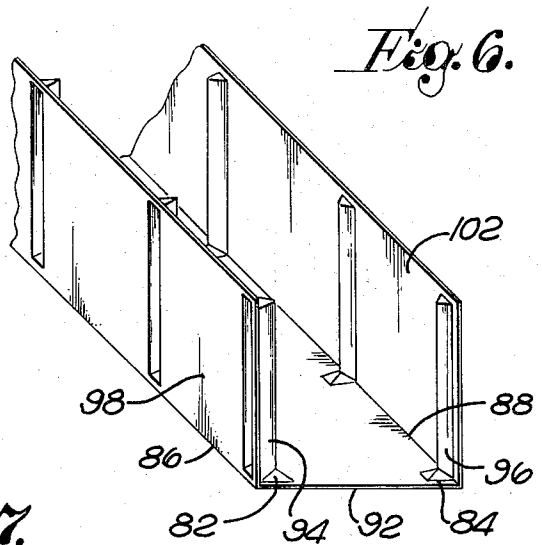
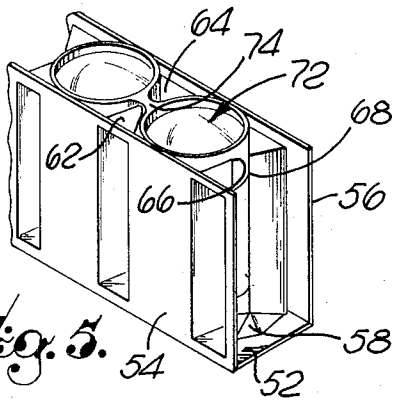
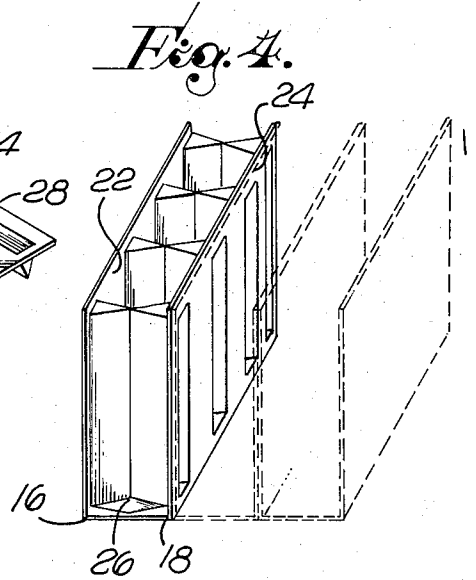
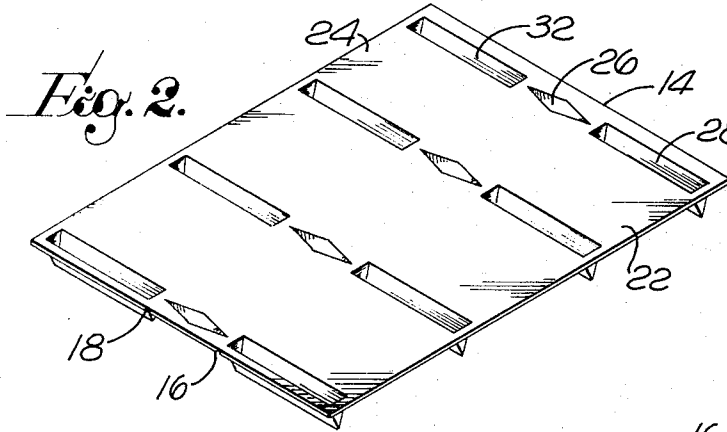
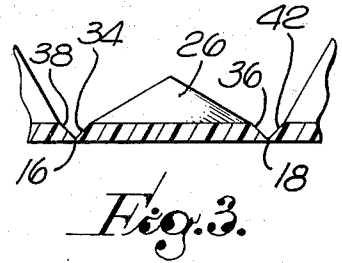
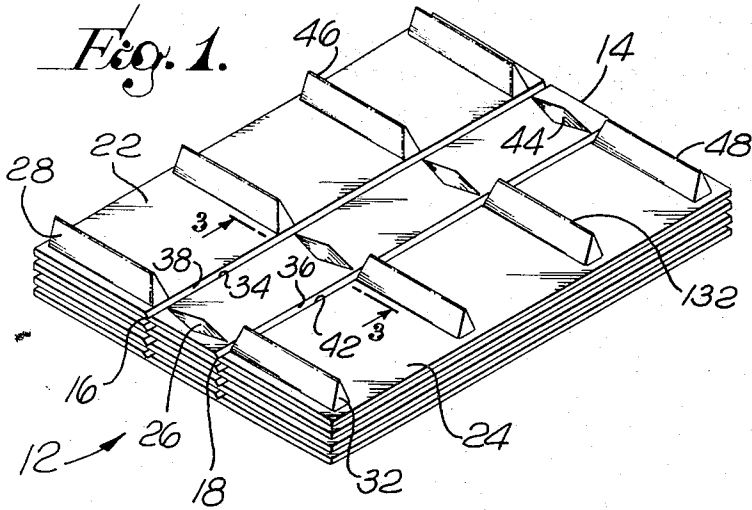
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[57] **ABSTRACT**  
 A container assembly formed of a member which when unassembled is in a generally planar configuration. A plurality of hinge lines formed in the member enables the member to be folded into a predetermined shape for dividing the member into a plurality of predetermined sections. Hollow indentations form structural components which interact when the member is folded along the hinge lines to provide a structure of predetermined shape, and enabling a plurality of the members to be stacked when unassembled.

3 Claims, 7 Drawing Figures





# CONTAINER ASSEMBLY HAVING COMPARTMENTS AND MEANS FOR STACKING CONTAINER BLANK

## THE FIELD OF THE INVENTION

The field of art to which the invention pertains includes container assemblies.

## BACKGROUND AND SUMMARY OF THE INVENTION

In conventional-type shipping containers which are used to transport goods and materials, it is desirable to ship and store the unassembled containers using as small a space as possible. When the container is finally assembled and ready for use, it is desirable that the container structure be self-contained and not require additional materials for partitioning the container or for assembling into the final shape. In addition, where the container must form a series of partitions between adjacent compartments, it has been found necessary either to ship the containers in a plurality of separate parts which are then assembled at the destination point, or to ship the containers partially assembled. When the containers are shipped partially assembled, storage results in large amounts of space being used until the containers are finally assembled. In addition, where the containers are shipped in multiple separate units it has been found to be time consuming to finally assemble the container.

In order to overcome the attendant disadvantages of prior art container assemblies, the present invention provides a container assembly which can be stacked flat when unassembled allowing a maximum number of containers to be shipped and stored with a minimum amount of space. In addition, when the container assembly is assembled for use, the resultant receptacle is self-supporting and the desired structural form is provided by means of the container assembly itself.

Known prior art includes U.S. Pat. Nos. 3,447,261, 3,557,489, 3,515,036, 3,375,607, and 3,284,949.

Specifically, the container assembly is formed of a member which when unassembled has a generally planar configuration. A plurality of hinge lines are formed in the member for enabling the member to be folded into a predetermined shape and for dividing the member into a plurality of predetermined sections. Hollow indentations are formed in the sections, the indentations interacting when a member is folded along the hinge lines for providing a structure of a predetermined shape. The indentations are hollow on one side of the member enabling the member to be stacked when unassembled. When the sections are folded, the indentations in adjacent sections are positioned so as to divide the container into a plurality of discrete compartments. The surfaces of the indentations may contain adhesive type material enabling a rigid structure to be formed when the member is folded.

The advantages of the invention, both as to its construction and mode of operation, will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, in which like reference numerals designate like parts throughout the figures.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of a plurality of stacked container assemblies;

FIG. 2 is a bottom view of one of the container assemblies of FIG. 1;

FIG. 3 is a cross-section, partial view of one of the containers of FIG. 1, taken along the line 3—3 of FIG. 1;

FIG. 4 is a perspective view of the container assembly of FIG. 2 shown assembled;

FIG. 5 is a perspective view of an alternative form of container assembly;

FIG. 6 is a perspective view of another form of container assembly; and

FIG. 7 is a perspective view of still another form of container assembly.

## DETAILED DESCRIPTION

Referring now to FIGS. 1 and 2, the container assemblies 12 are formed with a plurality of indentations which are hollow on one side allowing stacking of the assemblies in unassembled form as shown. The container assemblies each comprise a central section 14 which is interconnected at hinge lines 16 and 18 to a first section 22 and a second section 24, respectively. The indentations 26 in the central section 14 are diamond-shaped, tapering inwardly and upwardly. The indentations 28 and 32, respectively, in the first section 22 and the second section 24 are generally trapezoidal in cross section and also taper upwardly to generally a cross-sectional point. It should be noted that the indentations 26, 28 and 32 are all formed in a plane transverse to the longitudinal axis of the assembly along the hinge lines 16 and 18. As shown more clearly in the sectional view of FIG. 3, the central section 14 has bevelled edges 34 and 36 adjacent the hinge lines 16 and 18, respectively, which cooperate with bevelled edges 38 and 42, respectively, of the first and second sections to permit easy flexure of the sections.

Referring additionally to FIG. 4 there is shown a typical assembled version of the container of FIGS. 1 and 2. The first section 22 and second section 24 are folded along the hinge lines 16 and 18 so that the bevelled surfaces 34 and 38 and bevelled surfaces 36 and 42 abut each other. Normally, these surfaces are cut at a 45° angle so as to enable the sections 22 and 24 to be positioned in a plane perpendicular to the central section 14. In addition the diamond-shaped indentation 26 is tapered to a line 44 formed in a plane perpendicular to the hinge lines 16 and 18. The indentations 28 and 32 also taper to lines 46 and 48, respectively. Thus, when the sections 22 and 24 are folded inwardly towards each other as shown in FIG. 4, the lines 46 and 48 will abut each other and one end of the lines 46 and 48 will abut the line 44 on a diamond-shaped section 26 so as to form a generally U-shaped cross-sectional member. Thus, the structure of FIGS. 1-4 forms compartments, with the indentations 26, 28 and 32 together forming partitions between adjacent compartments.

Referring to FIG. 4, as shown by dotted lines, a number of U-shaped cross-sectional members can be joined together, with the sections 22 and 24 having similar shaped sections folded adjacent thereto and forming hinge lines at the joins.

Referring to FIG. 5, there is shown an alternative embodiment of the container assembly wherein the cen-

tral section 52 of the container assembly joins a pair of side sections 54 and 56 which can be stacked in the manner shown in FIG. 1. The central section 52 contains a diamond-shaped indentation 58 similar to the diamond-shaped indentation 26 of FIG. 1. The indentations 62 and 64, formed in the side sections 54 and 56, respectively, abut the diamond-shaped indentation 58. However, their edges 66 and 68, respectively, are spaced apart when the container assembly of FIG. 5 is formed. Therefore, adjacent compartments are not separated by complete partitions as in the embodiment of FIGS. 1 through 4. Such a structure allows a unitary object to be positioned in two or more adjacent partitions with the members 62 and 64 being positioned adjacent such a structure so as to form a support therefor. As illustrated in the embodiment of FIG. 5, such an assembly could be used to secure a pair of binoculars 72 positioned with an eyepiece in adjacent compartments, and the bridge 74 joining the eyepieces extending therebetween.

Referring now to FIG. 6 there is shown an alternative embodiment wherein the floor of the central section may be made flat throughout its length. In FIG. 6 the diamond-shaped section 26 of the central section of FIG. 1 is replaced by a pair of triangular-shaped edge indentations 82 and 84 formed along the hinge lines 86 and 88, respectively, of the central section 92. The triangular-shaped indentations abut the end of the trapezoidal sections 94 and 96, respectively, of the first and second sections 98 and 102. Thus, the floor 104 of the central section 92 is generally flat for a long distance enabling an elongated member to be positioned thereon.

Referring now to FIG. 7 there is shown a box-shaped container enclosed on four sides made in accordance with the principles of the invention. In FIG. 7 three hinge lines 112, 114, and 116 form three edges of a box-shaped member 118. The fourth edge 122 is formed by joining the ends of the two adjacent sections by adhesive or tape or other type of securing arrangement. The device of FIG. 7 may be manufactured in long, flat sheets and then cut off in four identical sections. The identical sections each have triangular-shaped hollow indentations 124 spaced along the edge or hinge lines which join with adjacent triangular sections spaced along the adjacent section. It will be understood that boxes having a larger number of sections than four sections can be formed. Of course, it should also be understood that a triangular-shaped member can also be formed.

Typically, the container assemblies which are U-shaped such as shown in FIGS. 4 and 6 could be covered at the open ends by means of clear plastic or other transparent-type material so that the object inside the container assembly could be clearly visible, thereby enhancing the product and encouraging the use or sale of

the product. Typically, the U-shaped assemblies such as shown in FIG. 4 can be used to carry plants or other seedlings. The rigid structure of the container provides protection for the seedlings while allowing easy removal thereof. Thus, with the container of FIG. 4, one need merely pull apart the sections 22 and 24 to enable the seedlings to be removed.

The containers shown in FIGS. 1 through 7 can be made of pressed paper, but polyurethane or similar type of plastic material is preferred. Importantly, and referring back to FIG. 1, a coating 132 can be formed along protruding edges of the indentations. Such adhesive coating enables rapid assembly of the containers. Alternatively, or additionally, adhesive can be placed on the diamond section edges 44. Such coating can be of non-self sticking variety which allows the assemblies to be stacked as in FIG. 1, yet allows ease of assembly of the final product. The adhesive could be used in all embodiments on adjacent surfaces which abut each other in the final assembly of the container.

It should be understood, of course, that while various shaped devices are shown, other shaped devices not shown could be utilized incorporating the broad principles of assembling a carton as depicted in the present patent application.

I claim:

1. A container assembly formed of a member which when unassembled is in a generally planar configuration and when assembled folds into a packaging device, said container assembly including a plurality of hinge lines formed in said member for enabling said member to be folded into a predetermined shape and for dividing said member into a first section, a second section and a central section interconnecting said first and second sections, each of said sections being formed with a plurality of indentations spaced one from another along the axis of said container, said indentations being formed in planes generally perpendicular to the axis of said container, all of said plural indentations in said first and second sections having top edge surfaces in a single plane, when assembled, and beveled inner end surfaces, opposing ones of said top edge surfaces abutting each other along their entire lengths, and said inner end surfaces abutting said central section indentations so as to form a generally U-shaped structure and to divide said container into a plurality of discreet completely enclosed compartments when said member is folded along said hinge lines.

2. A container assembly in accordance with claim 1 wherein said central section indentation is generally of a diamond shaped configuration.

3. A container assembly in accordance with claim 1 wherein the abutting edge surfaces of said indentations contains adhesive material which enables a rigid structure to be formed when said member is folded.

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