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[54] **BOX CONSTRUCTION**

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[51] **Int. Cl.**[2] **B65D 5/22;** B65D 5/36

[58] **Field of Search** ..... 229/16 R, 16 A, 32, 14 C, 229/30

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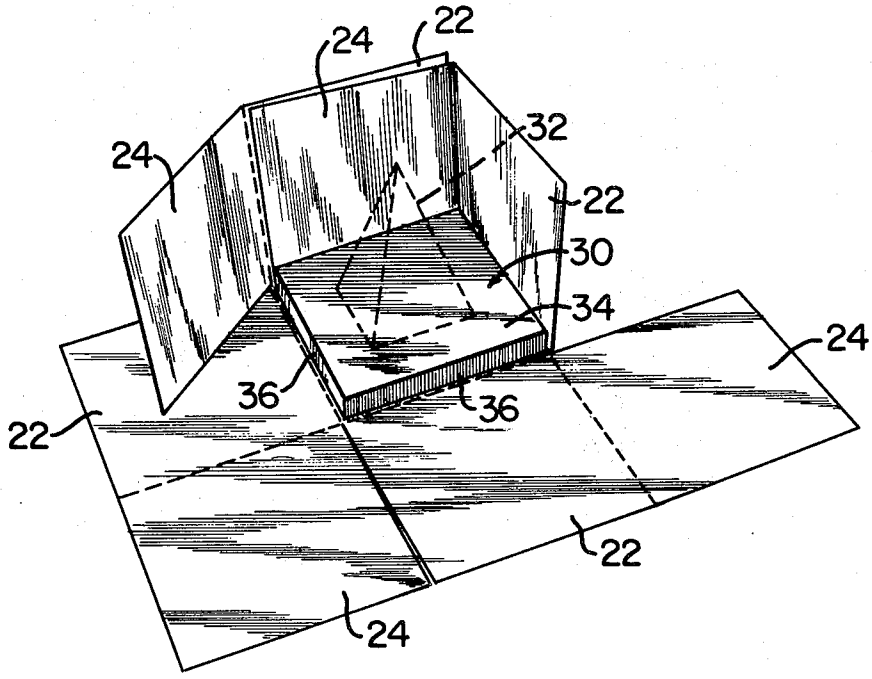
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Primary Examiner—Stanley N. Gilreath

[57] **ABSTRACT**

A gift box or the like is constructed from a single piece of cardboard divided by cut and crease lines into a matrix of nine panels. The center panel forms the bottom panel of the box and has double flaps hinged from each side thereof with each double flap including a side wall panel and a reinforcement panel which are foldable relative to each other so that the reinforcement panel lies in face-to-face relationship with an adjacent side wall panel to establish double-ply side walls of the box.

1 Claim, 3 Drawing Figures



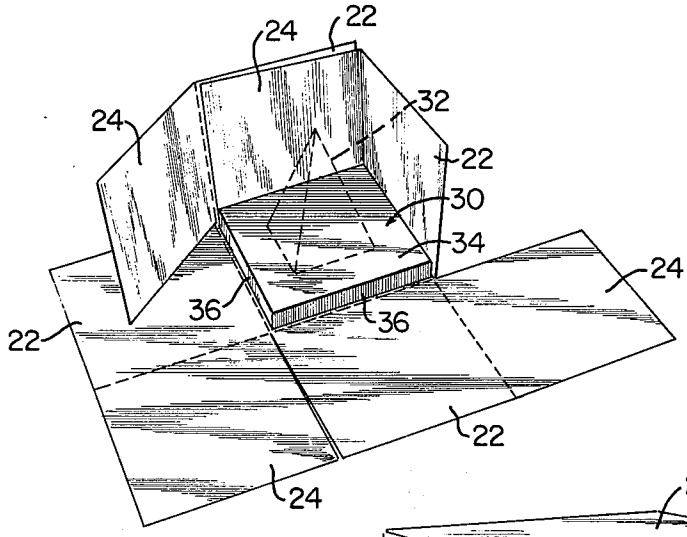


FIG 2

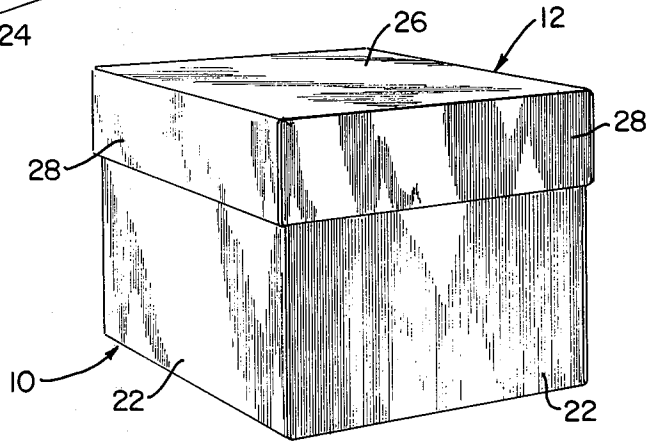


FIG 1

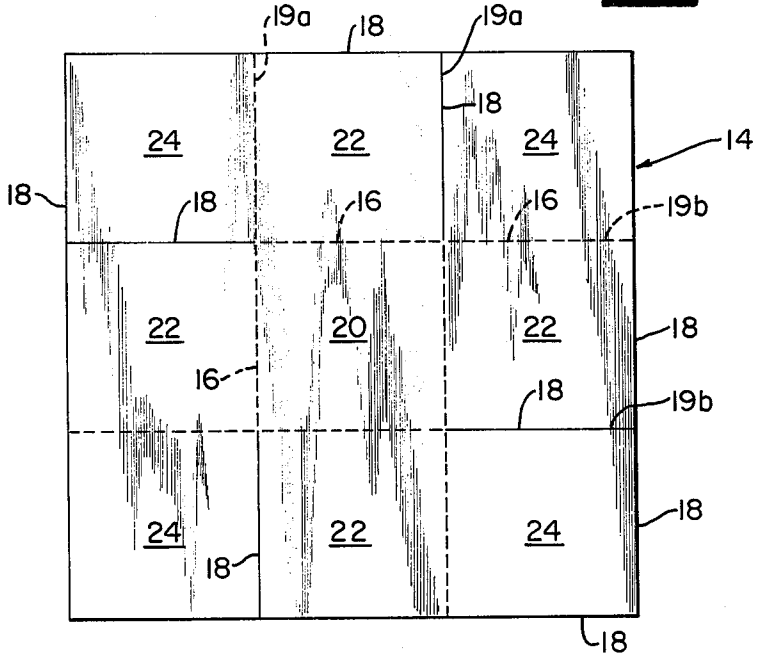


FIG 3

BOX CONSTRUCTION

The present invention relates generally to box constructions and more particularly to a gift box construction foldable from a one-piece blank of material and the method of forming the same.

Foldable boxes and particularly gift boxes are designed to be shipped and stored flat, then set up or folded into the box formation when needed. Preferably, the box is formed from one sheet of material with all of the walls of the box integrally connected together. It is desirable that these boxes be strong and durable so that they will not be easily crushed from compressive loads causing damage to the contents of the box. It is also desirable that the boxes be quickly and easily formed from pre-cut and creased sheets of material so that gift wrappers, store clerks and the like can quickly and easily assemble the box from the sheet of material when packaging a gift for a purchaser.

Accordingly, it is an object of the present invention to provide a box construction that consists of a single sheet of material having pre-formed cut and crease lines so that the sheet can be quickly and easily folded into a strong and durable box.

It is another object of the present invention to provide a box construction and method of making same from a single piece of material having pre-formed cut and crease lines in a pattern such that the box can be easily formed by folding the panels on the sheet to form double-ply side walls of the box.

It is still another object of the present invention to provide a box construction and method of making same from a single piece of paperboard material divided by cut and crease lines into a matrix of nine panels with the center panel defining the bottom panel of the box and double flaps hingedly connected to each side of the bottom panel and foldable to form double-ply wall panels of the box.

These and other objects of the present invention are attained in a box construction by pre-forming a planar sheet of material, such as for example cardboard or the like, with an arrangement of cut and crease lines which divide the sheet into foldable panels which are quickly and easily folded relative to each other to define a box container which has double-ply side wall panels.

More particularly, in one preferred form of the invention, the pre-formed sheet of material is provided with cut and crease lines defining a matrix of nine interconnected panels with the center panel defining the bottom panel of the box and the remaining eight panels forming double flaps hingedly connected to each side edge of the bottom panel. Each double flap consists of a side wall panel which is hingedly connected along its lower edge to the associated edge of the bottom panel so as to be foldable into perpendicular relationship with the bottom panel and a reinforcement panel hingedly connected along one side edge of the side wall panel and adapted to be folded into face-to-face overlapping, mutually reinforcing relationship with an adjacent side wall panel to establish double-ply side walls of the box.

A conventional lid for the box has a top panel conforming in size and configuration to the bottom panel of the box and depending flanges along each side edge of the top panel to hold the side walls of the box in their folded positions. Additionally, an object support platform may be positioned on the bottom panel of the box to elevate an article carried in the box from the bottom panel and also to help reinforce the box.

Other objects, advantages and capabilities of the present invention will become more apparent as the description proceeds taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of the folded box of the present invention,

FIG. 2 is a perspective view of the blank sheet of material from which the box of FIG. 1 is formed with some of the panels folded into their folded position, and

FIG. 3 is a top plan view of the blank sheet from which the box of FIG. 1 is folded.

Referring first to FIG. 1, the box construction **10** of the present invention is shown in assembled form with a lid **12** for the box retaining the box in the assembled form. The box, which in the disclosed form is cubical, is preferably formed from a blank square sheet **14** of planar paperboard material, such as cardboard or the like, which has been creased along the dotted lines of FIG. 3 to form hinged fold lines **16** and cut along the solid lines of FIG. 3 to form cut lines **18.** The fold lines **16** and the cut lines **18** together define two vertical separation lines **19***a* and two horizontal separation lines **19***b* with the fold lines extending ⅔ the length of each separation line and the cut lines extending the remaining ⅓ of each separation line. As clearly shown in FIG. **3,** the separation lines define a matrix of nine contiguous square panels. The center panel **20** of the matrix is the bottom panel of the box and the remaining eight panels form four double flaps hingedly connected to each side edge of the bottom panel **20.** Each double flap includes a square side wall panel **22** having its lowermost or inner edge hingedly connected along a fold line **16** to the bottom panel along one side edge of the bottom panel and a square reinforcement panel **24** hingedly connected along a side edge to one side edge of the side wall panel **22.** It will be appreciated that each reinforcement panel **24** while being hingedly connected to an associated side wall panel **22** is separated by a cut line **18** from the next adjacent side wall panel so that when each side wall panel is folded upwardly until it is perpendicular with the bottom panel **20,** the reinforcement panel **24** can be folded inwardly to be mutually perpendicular with both the associated side wall panel **22** to which it is connected and the bottom wall panel. When each reinforcement panel is so folded, it will be seen in FIG. **2** that it will overlap the adjacent unconnected side wall panel to be in face-to-face mutually reinforcing relationship therewith. Accordingly, when each of the double flaps have been folded so that the side wall panel portion **22** and the reinforcement panel portion **24** are perpendicular to each other and to the bottom panel **20,** an open topped box is formed with each side wall of the box being double-ply and consisting of a side wall panel and an overlapping reinforcement panel.

The side wall panels **22** and abutting reinforcement panels **24** could be secured together in any suitable manner, such as by stapling, to retain the box in the folded condition or, a conventional lid **12** conforming in size and configuration to the body of the box could be placed down over the open top of the box to retain the side walls of the box in the upright folded positions. Such a conventional lid is illustrated in FIG. **1** to have a square top panel **26** with four depending side flanges **28** which fit downwardly over the upper ends of the side walls of the box and thereby hold the side walls in their folded positions.

To reinforce the bottom panel **20** of the box, brace the side walls **22** of the box, and provide an asthetically pleasing addition to the box when used particularly as a gift box, an elevated support platform **30**, FIG. **2**, may be placed on the bottom panel to support an article **32** retained in the box. In the disclosed form, the support platform **30** consists of a square support panel **34** having a depending flange **36** along each of its four sides with the lower edges of the flanges being supported on the bottom panel **20** of the box so that the support panel is held in an elevated relationship relative to the bottom panel. With the support platform **30** dimensioned to fit tightly within the body of the box, the support platform serves as a brace for the side walls **22** of the box and a reinforcement for the bottom panel of the box, making the bottom of the box double-ply.

The method of forming the planar sheet **14** so that it can be readily folded into the aforedescribed box construction includes the steps of laying out a square blank sheet of material into nine contiguous square panels of the same size defining a center panel and eight outside panels, forming fold lines along the four edges of the center panel to define the common edges between the center panel and alternate outside panels, forming a fold line along every other common edge between the outside panels, and forming a cut line along each of the remaining common edges between outside panels.

Since the box construction **10** of the present invention is formed from a blank planar sheet of material **14**, it will be readily appreciated that each panel or selected panels could be imprinted with a decorative design or picture to alter the aesthetic appearance of the box. The designs or pictures could of course be printed on the blank sheets before they are folded so that it would be a rapid and relatively inexpensive operation. Formation of the box from a blank sheet of material, such as, paper is further advantageous in that the sheets of material can be stored and shipped flat for assembly at the point of use or sale, requires no gluing or other fastening means, and further permits complete utilization of the material.

It will also be appreciated that the aforedescribed box construction is quickly and easily assembled from the one-piece sheet of material and in its final form defines a strong and durable box with double-ply walls to resist compressive loads. While the box has been described as being formed from a sheet of material having square panels to form a cubical box, other shapes of boxes could be formed utilizing the same principle wherein double flaps are hingedly connected to each side of the bottom panel so that when the panels of each double flap are folded into perpendicular relationship with the bottom panel, a box is formed with double-ply walls.

Although the present invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made by way of example and that changes in details of structure may be made without departing from the spirit thereof.

What is claimed is:

1. A box consisting of a blank sheet of cardboard material having a matrix of nine contiguous square panels of the same size defined by separation lines alternately in the form of fold lines and cut lines, a center panel of the matrix defining a bottom panel of the box and four double-ply side wall panels defined by four double flaps, each double flap consisting of two adjacent panels including a solid continuous side wall panel hingedly connected along a fold line to the bottom panel and a solid continuous reinforcement panel hingedly connected along a fold line to the side edge of an associated side wall panel to define a common side edge therebetween, each said reinforcement panel extending along the inner surface of the side wall panel of an adjacent double flap such that when the double flaps are disposed in coplanar relationship with the bottom panel each reinforcement panel is in edge-to-edge relationship with the side wall panel of the adjacent double flap and separated therefrom by a cut line, and when said side wall panels and reinforcement panels are disposed perpendicularly to the bottom panel each of said reinforcement panels extending fully along in face-to-face relation inwardly of a side wall panel of an adjacent double flap to define a double-ply side wall construction a free side edge opposite and parallel to the common side edge of each reinforcing panel extending along the entire extent of and contiguous to the common side edge formed at the fold line between the side wall panel and reinforcement panel of the next adjacent double flap; elevated article support platform means removably seated on said bottom panel in mutually reinforcing relation to said reinforcement panels between said support platform means and said side wall panels; and a square cardboard lid having a downturned flange along each side thereof so that the lid can be supported by the side wall panels and reinforcement panels and retain the side wall panels and reinforcement panels in perpendicular relation to the bottom panel.

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