

July 5, 1955

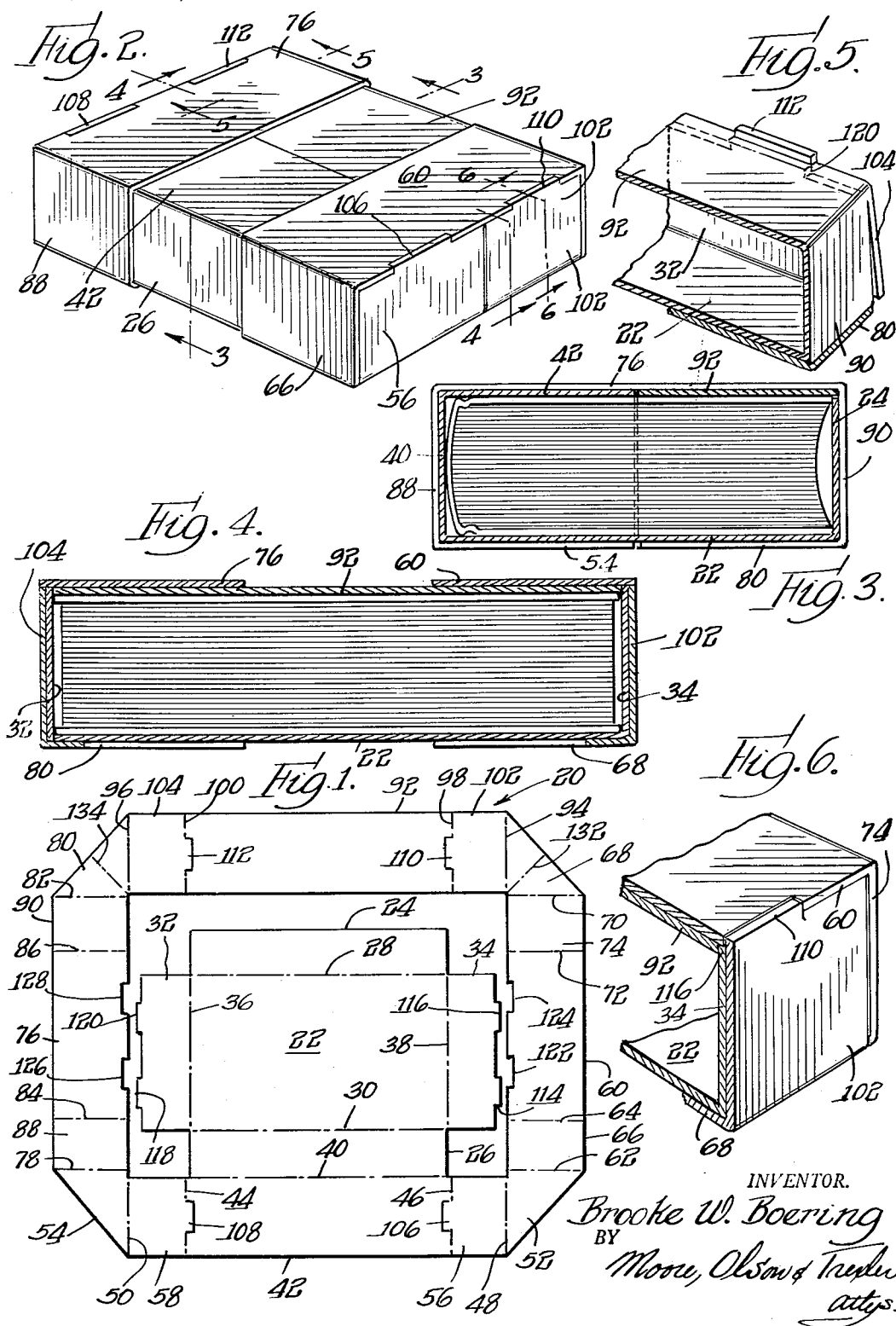
B. W. BOERING

2,712,411

WRAPPER

Filed Oct. 27, 1952

2 Sheets-Sheet 1



July 5, 1955

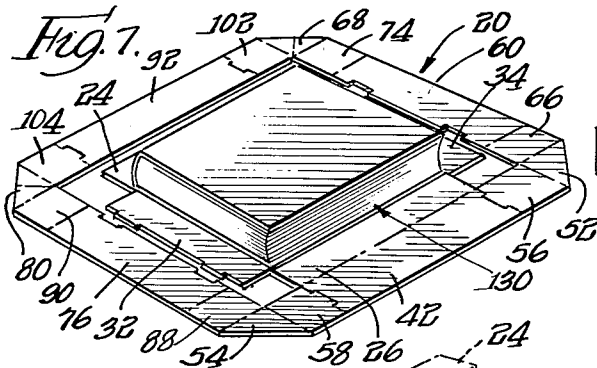
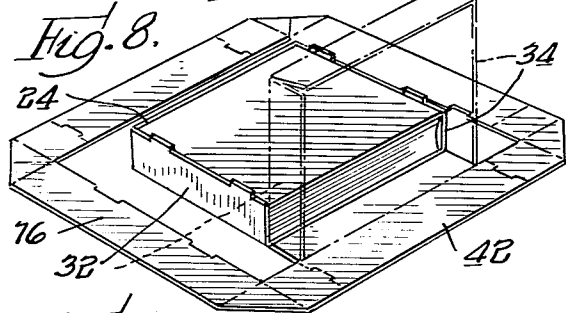
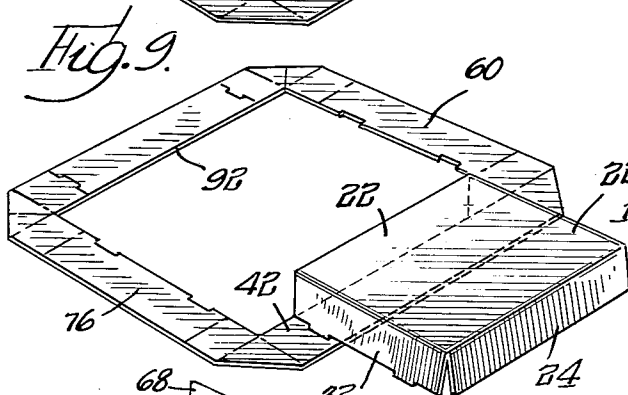
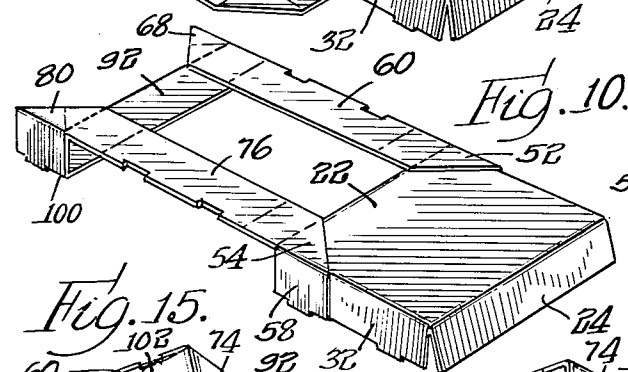
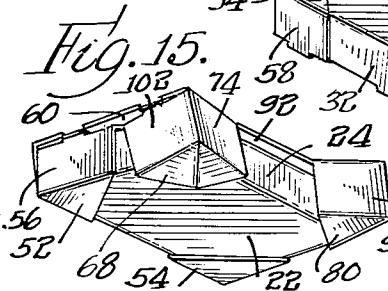
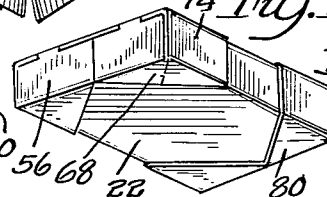
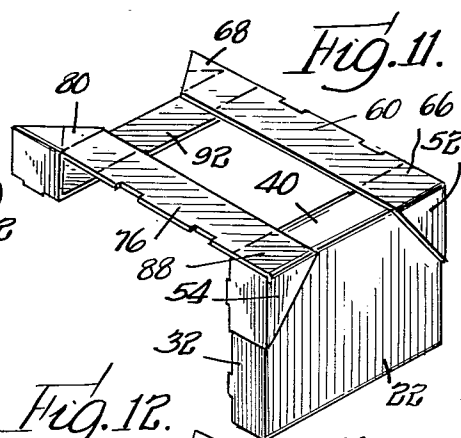
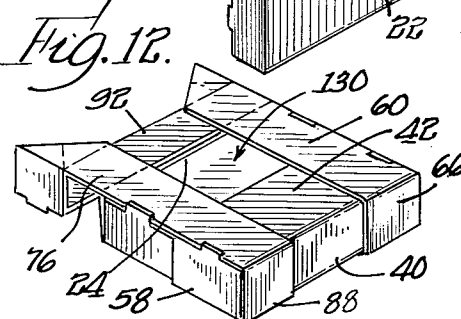
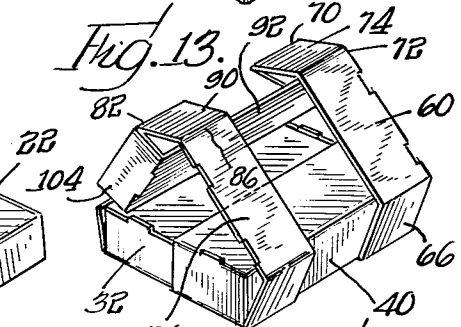
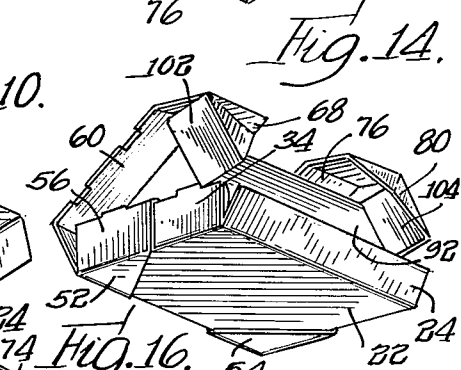
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3 Claims. (Cl. 229—87)

The present invention relates to an improved container or one piece folder, and more particularly to a folder of the type which may be constructed from a single blank and which may be stored or shipped in a flattened condition and then assembled by the consumer.

An object of the present invention is to provide a novel one piece folder which may be economically manufactured from a single blank, which blank may be assembled into a rugged, neat container and retained in such assembled condition without the use of auxiliary fastening or securing means, such as glue, tape, staples, or other similar devices.

Another object of the present invention is to provide a novel one piece folder of the above described type, wherein portions of the blank may be folded to enclose the corners of the folder to retain the container in assembled condition and to reinforce the corners, thereby to provide a rugged construction.

Another object of this invention is to provide a novel one piece folder of the above described type, wherein the portions of the blank which are folded to enclose the corners also provide raised sections adjacent the corners of the container, whereby a plurality of such containers may be stacked upon one another with the weight of the upper packages being sustained by the relatively rigid and rugged corner portions of the lower containers, thereby preventing crushing of the mid portions of the containers and their contents.

Still another object of the present invention is to provide a novel one piece blank from which foldable containers having the above characteristics may be assembled.

Other objects and advantages of the present invention will be apparent from the following description and the accompanying drawings, wherein:

Fig. 1 is a plan view of a novel one piece blank from which the foldable container of this invention may be assembled;

Fig. 2 is a perspective view, showing the novel folder of this invention in its fully assembled condition;

Fig. 3 is a vertical cross section taken along line 3—3 in Fig. 2;

Fig. 4 is a vertical cross section taken along line 4—4 in Fig. 2;

Fig. 5 is a fragmentary perspective view of a cross section taken along line 5—5 in Fig. 2;

Fig. 6 is a fragmentary perspective view taken along line 6—6 in Fig. 2; and

Figs. 7 through 16 are perspective views illustrating the steps of assembling the novel folder of this invention about an article, such as a book, with Fig. 16 illustrating the container in its fully assembled condition and showing the opposite side of the container from the side shown in Fig. 2.

Referring now more specifically to the drawings, wherein like parts are designated by the same numerals throughout the various figures, a blank 20 involving the principles of this invention is best illustrated in Fig. 1.

The blank 20 is preferably constructed from a single piece of material which may be cardboard, fibre, heavy paper, plastic, or any other like material. Corrugated fiber board is a preferred material from which to form the blank 20, since it is a material to which the invention is particularly adaptable.

The blank 20 includes a central body panel 22 which may conveniently be termed the bottom panel. The bottom panel 22 is illustrated as having a rectangular shape, but it should be understood that the principles of this invention may be applied to containers having other shapes. A pair of side panels 24 and 26 are articulated to the opposite longitudinal edges of the body panel along bend lines 28 and 30, respectively. A pair of panels 32 and 34 are similarly articulated to the opposite ends of the body panel along bend lines 36 and 38. These side and end panels preferably have a width slightly greater than the thickness of the article to be packed within the container. If desired, the above described bend lines may be scored in the usual manner.

Extending outwardly from the side panel 26 and articulated thereto along bend line 40 is a cross panel 42. In the assembled container, the mid portion of this cross panel is folded to cover a part of the open top of the container. The cross panel 42 is provided with bend lines 44 and 46 which are located a slight distance beyond the opposite ends of the side panel 26, as illustrated. The cross panel 42 extends outwardly from these bend lines 44 and 46 to bend lines 48 and 50 along which the cross panel is joined at its opposite ends with corner sections 52 and 54, respectively. The panel sections 56 and 58 formed between the bend lines 46 and 48 and 48 and 50, respectively, are slightly longer than the width of the side and end panels so that the bend lines 48 and 50 are disposed a slight distance beyond the outer edges of the end panels 34 and 32, respectively.

A panel member 60 is secured to the corner section 52 along the bend line 62 and extends along the end of the body member in a direction substantially normal to the cross panel 42. It should be noted that the bend lines 48 and 62 are disposed at substantially right angle to each other and that the line 62 is parallel to, but offset slightly from, the inner edge of the cross panel 42. A bend line 64 is provided in the panel member 60 to separate the panel section 66 having a length slightly greater than the width of the above mentioned side and end panels. The opposite end of the panel member 60 is secured to another corner section 68 along the bend line 70. The panel member is provided with another bend line 72, which is spaced from the bend line 70 a distance somewhat greater than the width of the side and end panels to provide a panel section 74.

A panel member 76, which is substantially identical to the above described panel member 60, has one end connected with the corner section 54 along bend line 78 and the other end connected with another corner section 80 along bend line 82. The panel member 76 is provided with bend lines 84 and 86 in order to separate panel sections 88 and 90.

A second cross panel 92 extends between the opposite panel member 60 and 76 and is secured at its opposite ends to the corner members 68 and 80 along bend lines 94 and 96, respectively. The cross panel 92 is provided with bend lines 98 and 100 in order to separate the panel sections 102 and 104, respectively.

It should be noted that the bend lines 44, 46, 98, and 100 in the cross panels 42 and 92 are interrupted at the mid portions of the panels, where the panels are cut along the solid lines shown best in Fig. 1 to provide tabs 106, 108, 110, and 112. These tabs are formed so that they extend from their respective score lines a distance which is substantially equal to one and one-half times the thick-

ness of the material from which the blank is formed. This allows the tabs to extend from the surface of panels 42 and 92 (in a manner to be described) a distance equal to one thickness of the material, the balance of the extent of these tabs being taken up in the scoring allowance. Since the junctions of these tabs with the panel members are not scored, the tabs will assume a position extending substantially normally to the mid portions of the cross panels 42 and 92 when the end panel sections are folded in the manner described hereinbelow. This folding action will provide slots, where the tabs are cut out, which slots have a width slightly greater than one thickness of the material of the blank. The end panels 32 and 34 are provided with tabs 114, 116, 118, and 120 which are adapted to be inserted through the slots during the assembly of the folder. The inner edges of the panel members 60 and 76 are provided with recesses 122, 124, 126, and 128 which are adapted to receive the tabs 106 through 112, respectively, during the assembly of the container. These interlocking tabs and slots prevent sliding movement between the elements of the folder, thereby providing a relatively rigid and rugged container.

The method of assembling the novel folder of this invention is illustrated in Figs. 7 through 16. The first step is shown in Fig. 7, where when the blank 20 is laid out flat on any suitable support surface, the article to be packed in the container is then positioned on the body or bottom panel 22 in the manner illustrated. While the folder is shown as being used to wrap a book 130, it is obvious that the novel folder of this invention could be used for many different articles. Furthermore, it will be apparent that instead of placing the article or articles to be wrapped in the folder at the beginning of the assembly as illustrated in Figure 7, the article or articles may be inserted at some later stage, for example, at any of the stages illustrated, respectively, in Figures 11, 12 and 13. In fact, when packing a plurality of articles in one folder there will be advantage frequently in delaying the placing of the article in the folder until the assembly thereof has progressed to approximately the stages illustrated in Figures 12 and 13.

The side panel 24 and the end panels 32 and 34 are folded up along the sides of the book or article, as shown in Fig. 8. The book along with the bottom panel and the folded side panels is then folded through the position shown in dot-and-dash lines in Fig. 8 and finally to the position shown in Fig. 9. In this position, the bottom panel 22 is now on top of the container while the cross panel 42 covers the lower portion of the container. The end panel sections 56 and 58 of the cross panel 42 are then folded upwardly along the outer surfaces of the end panels 32 and 34, and the corner sections 52 and 54 are folded over the bottom panel 22, as shown in Fig. 10. During this folding action, the tabs 106 and 108 are moved with the panel sections so that they expose the slots in the cross panel 42. The tabs 114 and 118 are automatically inserted through the slots as the cross panel 42 is brought flush with the edges of the end panels. At the same time, the other cross panel is folded along the fold lines 98 and 100, and the corner sections 68 and 80 are folded along the bend lines 94 and 96 to bring the blank into the partially assembled condition shown in Fig. 10.

The container may then be turned so that it stands on the side panel 24, as shown in Fig. 11, whereupon the panel sections 66 and 88 may be folded over the side panel 26. The container is again turned so that it now rests on the bottom panel 22, as shown in Fig. 12, and the panel members 60 and 76 are folded so that they extend generally over the top of the container. In Fig. 12, for purposes of illustration, the panels 60 and 76 are shown as lying flush against the top of the package so that the tabs 106, 108, 110, and 112 extend into the slots formed in these panel members.

In actual practice, the panel members 60 and 76 are first folded to the position shown in Fig. 13, at which position the panel members are folded downwardly along the bend lines 72 and 86, and the corner sections 68 and 80 are folded downwardly along the bend lines 70 and 82. This folding action is shown partially completed in Fig. 13, and continued folding will bring the cross panel 92 with its broad surface disposed substantially flush against the under surfaces of the panel members 60 and 76. In this position, the corner section 80 and the panel sections 90 and 104 form a pocket-like assembly which is adapted to be passed over the corner of the container. The corner section 68 and the panel sections 74 and 102 form a similar pocket-like assembly. These pocket-like assemblies are more clearly shown in Fig. 14, which illustrates a different view of the package with the elements in substantially the same position as shown in Fig. 13. The corner sections 68 and 80 are then passed over the corners of the container as shown in Fig. 15. This action generally requires some outward flaring or bending of the corner sections 68 and 80, and, preferably, diagonal scored bend lines 132 and 134 are provided in these end sections to facilitate the flaring and cause it to occur in a predetermined manner, and also to prevent cracking or tearing of the material. It is apparent that for ease in assembly the bending of the end sections should occur along the lines 132 and 134 and while the package can be bent generally along these lines even though they are not scored, the scoring is nevertheless a highly desirable feature. The completed package with the cup-like assemblies snugly fitting the corners of the container is illustrated in Fig. 16.

Fig. 2 is a perspective view, looking generally downward on the completed container. It should be noted that the panel members 42 and 92 in the embodiment shown have such a width that they complement each other to close the top of the container. This is desirable when a completely closed container is required. It is seen that the mid portions of the panel members 60 and 76 extend across the ends of the top panels 42 and 92 and add reinforcement thereto. In this connection it should be understood that the width of the four panel members 42, 60, 76 and 92 may be varied as desired. Thus in some instances these panels may be of such width that the folder is only partially closed to permit ventilation as in fruit packing for example or to permit inspection as for other purposes.

The corner sections lie against the bottom panel, as shown best in Figs. 4 and 16, to reinforce the corner portions of this panel. In order that these corner sections may be more readily passed over the corners of the container, they are preferably cut so that they have a triangular shape although other shapes may be used if desired. In addition, these triangular corner sections provide support surfaces which are spaced outwardly from the surface of the bottom panel 22 and which are concentrated at the corners of the container so that any weight placed on the container, such as when a plurality of the packed containers are in a stack, it is sustained by the relatively strong and rigid corners. The container receives further reinforcing action from the panel sections of the panel members 60 and 76 and the cross panel members 42 and 90 which extend along the sides of the container adjacent the corners thereof in the manner of the panel sections 88 and 90, shown in Fig. 3, and 102 and 104, shown in Fig. 4.

Since the cup-like assemblies, which include the corner sections 68 and 80, must be forced over the corners of the container, as illustrated in Fig. 15, it is clear that these assemblies not only serve to reinforce the corners of the container, but also serve to hold securely the folder in its assembled condition. In addition, the cooperating slots and tabs also serve to retain the folder in its assembled condition and to provide a rigid container. In Fig. 5, the manner in which the slots and tabs

cooperate together is illustrated in greater detail for clearness. In this view, it is readily seen that upon folding of the panel section 104, the tab 112 assumes a position substantially perpendicular to the panel section 92 and provides a slot which receives the tab 120 extending from the end panel 32. In Fig. 6, the complete structure involving the interlocking tabs and slots is illustrated in greater detail. In this view, the tab 116 of the end panel 34 is shown extending into the slot in the cross panel 92 provided by the tab 110. The tab 110 extends into the slot 124 provided in the panel member 60. It should be noted that in the assembled condition, the tabs 110 and 116 are aligned with each other so that the tab 116 may extend through the slot provided by the tab 110. The slot 124 in the panel member 60 is, of course, also aligned with the tab 110 and also with tab 116. As shown in Fig. 1, when the blank is in the flattened condition, the slot 124 is offset from the tab 116, which location is made necessary to allow for the material in the panel 60, which does not extend along any of the sides of the container, but which bends around the edges thereof.

From the above description, it is seen that the present invention provides a novel folder and container which may be formed from a one piece or integral blank so that it may be shipped in a flattened condition and then assembled by the consumer to provide a rigid container capable of sustaining considerable weight without bending or crushing mid portions thereof. Furthermore, because of the novel construction of the container of this invention, it is seen that a rugged structure is provided which is retained in its assembled condition without the use of auxiliary fastening means, such as glue, staples, or the like.

While the preferred embodiments of this present invention have been shown and described herein, it is obvious that the principles of this invention may be applied to various folders and containers which differ in shape and structural details without departing from the spirit and scope of the appended claims.

I claim:

1. A folding container comprising a generally rectangular body panel, a pair of end panels articulated along opposite edges of said body panel and disposed in a plane perpendicular to the plane of said body panel, a pair of side panels articulated to the other edges of said body panel and disposed in a plane perpendicular to the plane of said body panel, a first cross panel articulated to one of said side panels and disposed in a plane overlying and spaced from said body panel, a first pair of panel sections articulated to opposite edges of said cross panel and lying along said end panels at one edge thereof, a first pair of corner sections articulated to said first pair of panel sections and overlying adjacent corners of said body panel, a second pair of panel sections articulated to said corner sections and lying along the ends of said one side panel, a pair of panel members articulated to said second pair of panel sections and overlying said first cross panel, a

third pair of panel sections articulated to the other end of said panel members and overlying the ends of the other side panel, a second pair of corner sections articulated to said third pair of panel sections and overlying the other corners of said body panel, a fourth set of panel sections articulated to said second pair of corner sections and overlying the other ends of said end panels, and a second cross panel articulated to and interconnecting said fourth pair of panel sections and overlying said body panel but spaced therefrom and contacting said pair of panel members.

2. A folding container as set forth in claim 1, wherein the cross panels are provided with cut outs and the end panels carry tabs engaging said cut outs in said cross panels and said panel members are provided with cut outs and tabs formed on said first and fourth set of panel sections engage said cut outs in said panel members.

3. A blank for forming a foldable container made from a flexible foldable material comprising a rectangular body panel, a pair of end panels articulated to opposite sides of said body panel, a pair of side panels articulated to the other sides of said body panel, a first cross panel articulated to and extending along one of said side panels, a first pair of panel sections articulated to opposite ends of said first cross panel and extending outwardly with respect to said end panels, a pair of panel members arranged substantially parallel to and outwardly with respect to said end panels, a second pair of panel sections articulated to said panel members at the ends thereof disposed toward said first cross panel, corner sections articulated to said first and second panel sections and provided with bend lines disposed at right angles to each other along adjacent edges of each pair of first and second panel sections, a third pair of panel sections articulated to the other end of said panel members, a second cross panel disposed substantially parallel to and outwardly with respect to and along the other side panel, a fourth pair of panel sections articulated to opposite ends of said second cross panel, and a second pair of corner sections interconnecting and articulated to said third and fourth pair of panel sections, each second corner section being joined to the adjacent third and fourth panel section by bend lines disposed at an angle to each other.

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