March 27, 1945. K. T. BUTTERY 2,372,312

BOX OR CONTAINER

Filed Jan. 9, 1942 3 Sheets-Sheet 1

Fig. 1

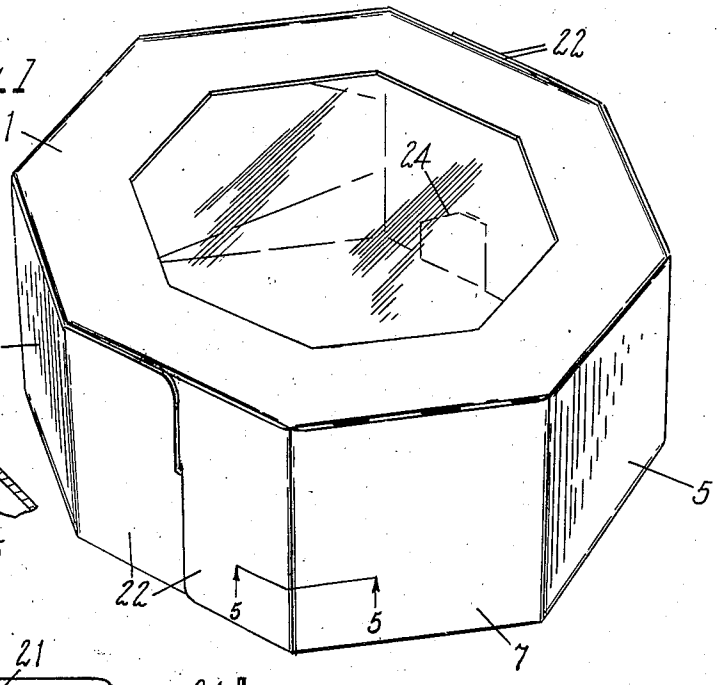


Fig. 5

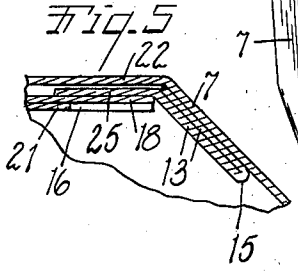


Fig. 2

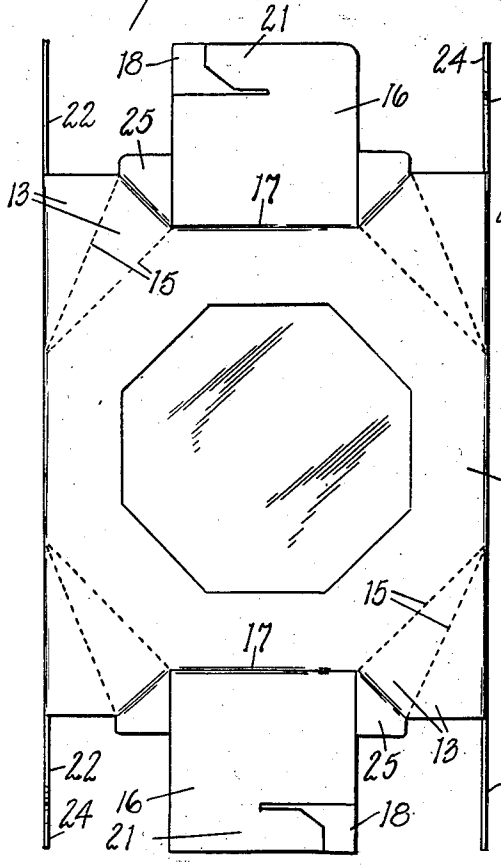


Fig. 3

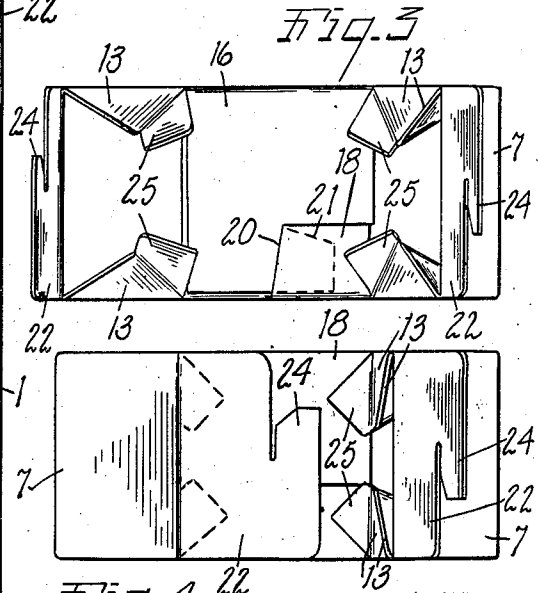


Fig. 4

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BOX OR CONTAINER

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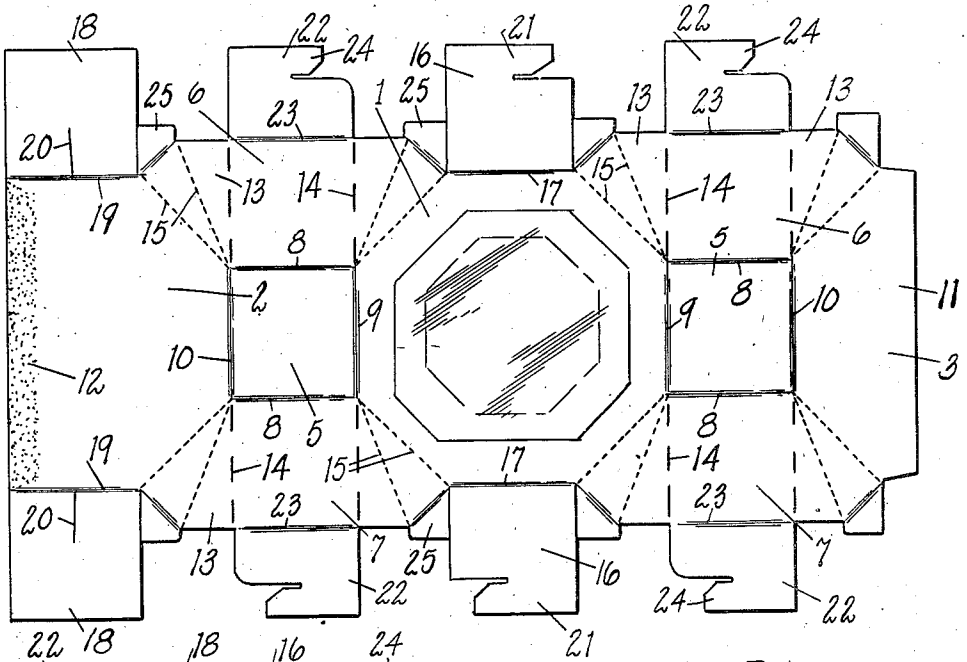


Fig. 6

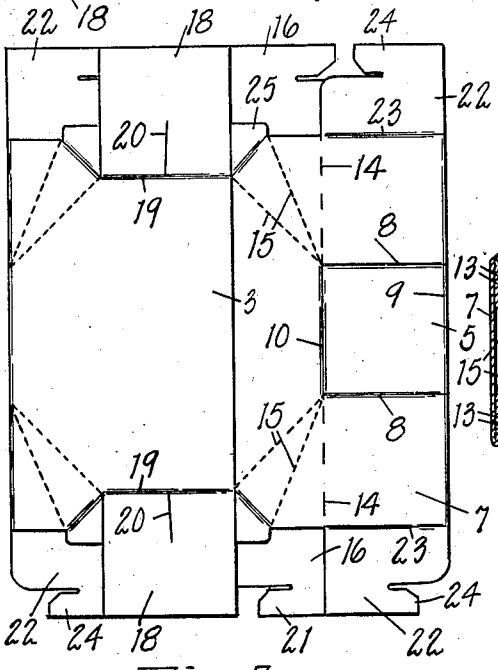


Fig. 7

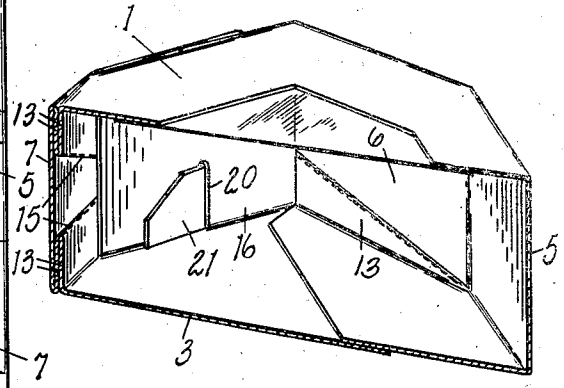


Fig. 8

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BOX OR CONTAINER

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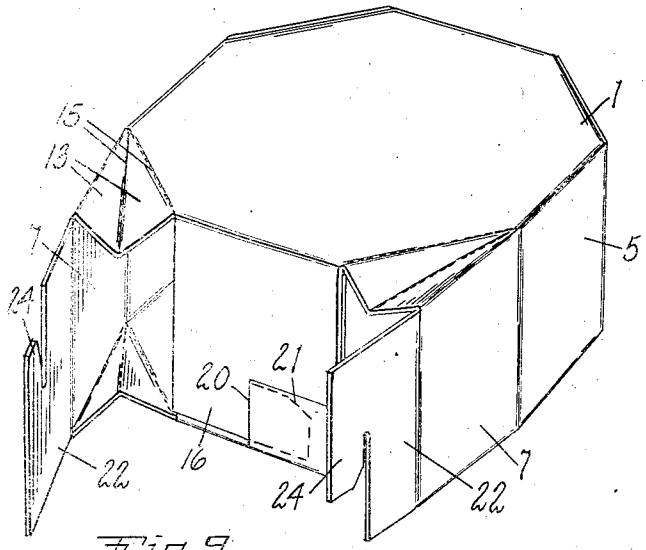


Fig. 9

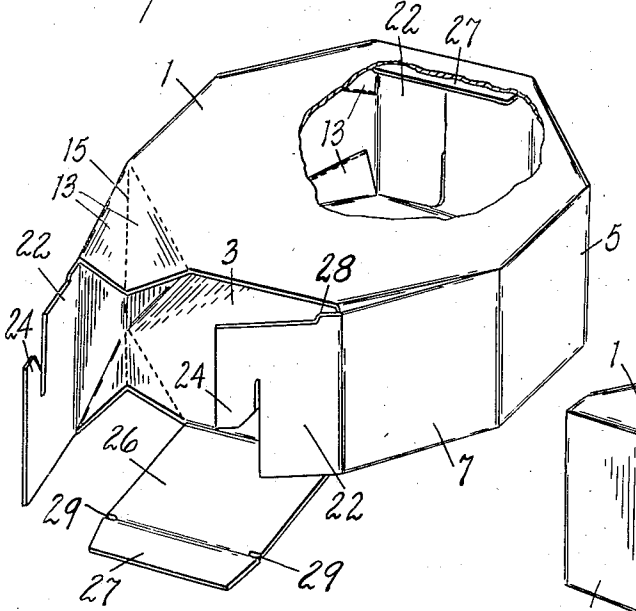


Fig. 10

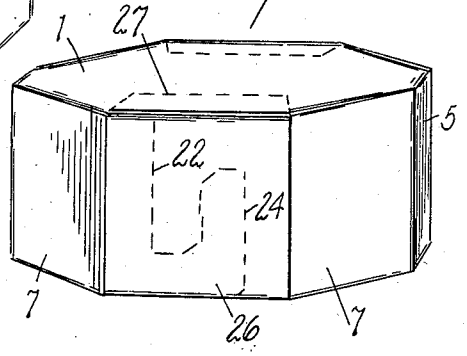


Fig. 11

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UNITED STATES PATENT OFFICE

2,372,312

BOX OR CONTAINER

Kenneth T. Buttery, Kalamazoo, Mich., assignor to Sutherland Paper Company, Kalamazoo, Mich., a corporation of Michigan

Application January 9, 1942, Serial No. 426,169

16 Claims. (Cl. 229—16)

This invention relates to improvements in boxes or containers.

The main objects of this invention are:

First, to provide a polygonal box or container which is well adapted for use as a container or carton for food products such, for example, as cake or for products such as ice cream which is commonly stored at a dispensing station in circular cans. The container or carton, however, has a wide variety of other uses.

Second, to provide a polygonal container or carton which may be formed of a single blank and easily produced and which may be easily and quickly set up for use.

Third, to provide a container or carton having these advantages which may be shipped or stored in the knockdown and quickly set up in position to receive the contents and quickly closed and one which when closed is quite effectively sealed.

Fourth, to provide a structure having these advantages which is economical in the amount of material used and is relatively strong and rigid in its resistance to distorting and crushing stresses.

Objects relating to details and economies of the invention will appear from the descripton to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a top perspective view of a carton or container embodying the features of my invention, the top of the box being provided with a window.

Fig. 2 is a plan view of the container or carton partially erected.

Fig. 3 is a view looking from the top or bottom as viewed in Fig. 2, with the parts in partially closed position.

Fig. 4 is a view corresponding to Fig. 3, illustrating additional steps in the closing of the carton.

Fig. 5 is an enlarged perspective view sectioned on line 5—5 of Fig. 1.

Fig. 6 is a distended view of the blank on which the carton or container of the preceding figures is formed.

Fig. 7 is a plan view of the collapsed carton or container.

Fig. 8 is a vertical section.

Fig. 9 is a perspective view slightly modified, further illustrating the structure and steps in closing the box.

Fig. 10 is a perspective view corresponding to that of Fig. 9 of a slightly modified form or embodiment of my invention.

Fig. 11 is a perspective view of the embodiment of my invention shown in Fig. 10 in completely closed position.

The embodiment of my invention illustrated in the accompanying drawings is an octagonal container or carton and is provided with a window at the top in order to better display the contents. However, it will be understood that for many purposes, windows are not required or even desirable. It will also be understood that I use the terms top and bottom in the description and in certain of the claims mainly as a matter of convenience in describing the parts and to avoid confusion and for the sake of clarity.

In general, the opposed flat polygonal walls may be either top or bottom, but it is a matter of convenience to refer to one as the top and the other as the bottom and when my invention is embodied with a window in the box, of course the window is in the wall intended for the top wall.

The embodiments of my invention illustrated are formed of a single blank—that is, disregarding the window. This blank is shown in Fig. 6 in its extended form and comprises an octagonal top member 1 positioned intermediately of the blank and complementary bottom members 2 and 3 positioned at the ends of the blank and coacting to provide an octagonal bottom.

Between the members 1 and 2, and 1 and 3 are side wall members each comprising three side walls 5, 6, and 7 hingedly connected to each other along the score lines 8, the side walls 5 being hingedly connected at 9 to the top member 1 and at 10 to the complementary bottom members 2 and 3. The bottom member 3 is provided with a glue flap 11 which is adhered to the member 2 along the line of adhesive indicated at 12.

The side walls 6 and 7 are connected to corresponding edges of the top and bottom walls by means of triangular bellows fold joint members 13. These joint members 13 extend the full length of the walls 6 and 7 to which they are joined by the hinge or flexing line 14 formed in the embodiment illustrated by a series of substantially spaced slits. They are joined to the corresponding edges of the top and bottom members by the flexing line 15 formed by a series of perforations or suitable scoring. The parts of the bellows fold joint members are joined along the hinge line 15, also formed by a series of perforations or suitable scoring as may be desired.

With the parts thus joined, when the side walls 6, 6 and 7, 7 are swung inwardly from extended position, as shown in Fig. 2, the bellows joint members collapse on the inside thereof and the hinges connecting the bellows fold joint members to each other and to the edges of the said polygonal members and to the side walls and the folds of the joint members are preferably of such relative flexing resistance as to tend to cause the joint members to lie flat against the adjacent side walls—that is, they do not project into the container but lie flat against the side walls so that they do not obstruct the interior or injure the contents placed therein.

The top wall 1 is provided with side wall extensions or flaps 16 extending laterally therefrom and hinged thereto at 17. The bottom member 2 is provided with side wall flaps or extensions 18 hinged thereto at 19. These flaps 18 are provided with slits 20 with which the tongues 21 of the wall members or flaps 16 are engaged when the side wall members are arranged to overlapping erected position—see Figs. 3 and 8.

The intermediate side wall members of the blank are provided with side wall flaps or extensions 22 hinged to the side wall members 6 and 7 at 23 and provided with interlocking tongues 24, these locking or outer side wall members 22 overlying the side wall members 16 and 18 when the box is completely set up and closed.

To further insure that the bellows fold joint members lie flat against the side walls, the inner members thereof are provided with tabs 25 which overlap the side walls. In the structure illustrated I provide both the flexing resistance in the joint members and these tabs which insures that the parts fold in their proper relation and are held closely against the side walls, as shown for example, in Fig. 8. However, it should be understood that either means may be used and a very useful box may be had without either of these features.

In the embodiment of my invention shown in Figs. 10 and 11, the interlocking side wall members 22 constitute the inner walls of the closure, an outer closure wall 26 extending from either of the polygonal wall members and adapted to fold or close over the members 22 after they have been engaged or interlocked. This member 26 is provided with a tucking flap 27 which may be engaged over the edges of the members 22 which members are provided with shoulders 28 adjacent the hinges thereof, there being notches 29 at the base of the tucking flap 27 adapted to interlock or engage these shoulders, thus preventing the easy withdrawal of these outer side wall members 26.

With this arrangement of parts, I provide a polygonal carton or container which is adapted for many purposes, being particularly well adapted as a package for cakes, pies or other comestibles which are normally of circular outline.

The structure may be shipped in the knockdown, as shown in Fig. 7, and is quickly set up to receive the contents and when completely set up provides a very rigid package even when formed of relatively light stock. It will be understood, however, that the structure has a wide variety of uses, particularly where substantially sealed containers or cartons are desired or if it is desired to pack a series of containers in cylindrical receptacles.

I have illustrated and described my improvements in an embodiment which I have found very highly satisfactory. I have not attempted to illustrate or describe certain other embodiments or adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A box or container formed of a blank comprising an octagonal top member positioned intermediately of the blank and complementary bottom members positioned at the ends of the blank and coacting to provide an octagonal bottom, and side wall members disposed between said top and bottom members and each comprising three side walls hingedly connected to each other, the central side wall being hingedly connected to corresponding edges of the said top and bottom, the other side walls of said side wall members being connected to corresponding edges of said top and bottom by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said top member and one of said bottom members having overlapping side wall members on their corresponding edges, the inner of said overlapping side wall members being slotted to receive coacting locking tongues on the outer members, said intermediate side wall members having coacting interlocking side wall flaps at the ends thereof overlapping the said coacting overlapping side wall members.

2. A box or container formed of a blank comprising an octagonal top member positioned intermediately of the blank and complementary bottom members positioned at the ends of the blank and coacting to provide an octagonal bottom, and side wall members disposed between said top and bottom members and each comprising three side walls hingedly connected to each other, the central side wall being hingedly connected to corresponding edges of the said top and bottom, the other side walls of said side wall members being connected to corresponding edges of said top and bottom by triangular bellows fold joints members which extend the entire length of the side walls to which they are joined, said top member and one of said bottom members having overlapping side wall members on their corresponding edges, the inner of said overlapping side wall members being slotted to receive coacting locking tongues on the outer members.

3. A box or container formed of a blank comprising an octagonal top member positioned intermediately of the blank and complementary bottom members positioned at the ends of the blank and coacting to provide an octagonal bottom, and side wall members disposed between said top and bottom members and each comprising three side walls hingedly connected to each other, the central side wall being hingedly connected to corresponding edges of the said top and bottom, the other side walls of said side wall members being connected to corresponding edges of said top and bottom by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said top member and one of said bottom members having coacting overlapping side wall members on their corresponding edges said intermediate side wall members having coacting interlocking side wall flaps at the ends thereof overlapping the said coacting overlapping side wall members.

4. A box or container formed of a blank comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, and side wall members disposed between said opposed polygonal members and each comprising aligned hingedly connected side walls, the central of which is hingedly connected to corresponding edges of the said opposed polygonal members, the other side walls of said side wall members being connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges, said side wall members having coacting side wall flaps at the ends thereof, the inner members of the bellows fold joint members having tab extensions at the outer ends thereof engaging said overlapping side wall members to cause the said bellows fold joint members to lie flat against the inner sides of adjacent side walls to which they are joined.

5. A box or container formed of a blank comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, and side wall members disposed between said opposed polygonal members and each comprising aligned hingedly connected side walls, the central of which is hingedly connected to corresponding edges of the said opposed polygonal members, the other side walls of said side wall members being connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges, said side wall members having coacting side wall flaps at the ends thereof.

6. A box or container formed of a blank comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, and side wall members disposed between said opposed polygonal members and each comprising aligned hingedly connected side walls, the central of which is hingedly connected to corresponding edges of the said opposed polygonal members, the other side walls of said side wall members being connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges, said side wall members having coacting side wall flaps at the ends thereof, the inner members of the bellows fold joint members having tab extensions at the outer ends thereof engaging said overlapping side wall members to cause the said bellows fold joint members to lie flat against the inner sides of adjacent side walls to which they are joined, hinges connecting the bellows fold joint members to the edges of the said opposed polygonal members and the side walls, the folds of the joint members being of such relative flexing resistance as to tend to cause the joint members to lie flat against the adjacent side walls.

7. A box or container formed of a blank comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, and side wall members disposed between said opposed polygonal members and each comprising aligned hingedly connected side walls, the central of which is hingedly connected to corresponding edges of the said opposed polygonal members, the other side walls of said side wall members being connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges said side wall members having coacting side wall flaps at the ends thereof, the inner members of the bellows fold joint members having tab extensions at the outer ends thereof engaging said overlapping side wall members to cause the said bellows fold joint members to lie flat against the inner sides of adjacent side walls to which they are joined.

8. A box or container formed of a blank comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, and side wall members disposed between said opposed polygonal members and each comprising aligned hingedly connected side walls, the central of which is hingedly connected to corresponding edges of the said opposed polygonal members, the other side walls of said side wall members being connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges, the inner members of the bellows fold joint members having tab extensions at the outer ends thereof engaging said overlapping side wall members to cause the said bellows fold joint members to lie flat against the inner sides of adjacent side walls to which they are joined, the hinges connecting the bellows fold joint members to the edges of the said opposed polygonal members and the side walls and the folds of the joint member being of such relative flexing resistance as to tend to cause the joint members to lie flat against the adjacent side walls.

9. A collapsible box or container comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, side walls hingedly connected to corresponding edges of said opposed polygonal wall members, and other side walls connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges, said side walls having the bellows fold joint connection to said opposed polygonal wall members having interlocking side wall flaps at the outer ends thereof.

10. A collapsible box or container comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, side walls hingedly connected to corresponding edges of said opposed polygonal wall members, and other side walls connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said opposed polygonal members having overlapping side wall members on certain of their corresponding edges.

11. A collapsible box or container comprising a polygonal wall member and complementary members coacting to provide an opposed polygonal wall member, side walls hingedly connected to corresponding edges of said opposed polygonal wall members, and other side walls connected to corresponding edges of said opposed polygonal members by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said side walls having the bellows fold joint connection to said opposed polygonal wall members having interlocking side wall flaps at the outer ends thereof.

12. A collapsible box or container comprising polygonal top and bottom walls, side walls hingedly connected to corresponding edges of said top and bottom walls, and other side walls connected to corresponding edges of said top and bottom walls by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, certain of said walls having overlapping side wall members on certain of their corresponding edges, the inner members of the bellows fold joint members having taps at the outer ends thereof engaging said overlapping side wall members to cause the said bellows fold joint members to lie flat against the inner sides of the adjacent side walls to which they are joined.

13. A collapsible box or container comprising polygonal top and bottom walls, side walls hingedly connected to corresponding edges of said top and bottom walls, and other side walls connected to corresponding edges of said top and bottom walls by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, certain of said walls having overlapping side wall members on certain of their corresponding edges.

14. A collapsible box or container comprising polygonal top and bottom walls, side walls hingedly connected to corresponding edges of said top and bottom walls, and other side walls connected to corresponding edges of said top and bottom walls by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, certain of said walls having overlapping side wall members on certain of their corresponding edges, the hinges connecting the bellows fold joint members to the edges of the said top and bottom and to the side walls and the joint connecting folds of the joint members being of such relative flexing resistance as to tend to cause the joint members to lie flat against the adjacent side walls.

15. A collapsible box or container comprising polygonal top and bottom walls, side walls hingedly connected to corresponding edges of said top and bottom walls, and other side walls connected to corresponding edges of said top and bottom walls by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined, said side walls having the bellows fold joint connection to said top and bottom walls having interlocking side wall flaps at the outer ends thereof.

16. A collapsible box or container comprising polygonal top and bottom walls, side walls hingedly connected to corresponding edges of said top and bottom walls, and other side walls connected to corresponding edges of said top and bottom walls by triangular bellows fold joint members which extend the entire length of the side walls to which they are joined.

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