United States Patent [19]

Saveth

[11] **3,924,798**

[45] **Dec. 9, 1975**

[54] **RELATIVELY FLAT BLANK FOR A CONTAINER AND THE CONTAINER MADE THEREFROM**

[76] Inventor: **Saul Saveth,** 132-29 33rd Ave., Flushing, N.Y. 11354

[22] Filed: **Nov. 22, 1974**

[21] Appl. No.: **526,371**

[52] **U.S. Cl.** ..... **229/23 AB;** 220/62; 220/DIG. 25; 229/33; 229/41 B

[51] **Int. Cl.**[2] **B65D 11/10;** B65D 11/22

[58] **Field of Search** ..... 220/DIG. 25, 62, DIG. 15; 229/23 AB, 30, 41 B, 33

[56] **References Cited**

UNITED STATES PATENTS

1,075,369	10/1913	Millice	220/62
2,120,904	6/1938	Moore	229/37 E
3,330,437	7/1967	Bellamy	220/62
3,675,808	7/1972	Brink	229/30

Primary Examiner—William Price
Assistant Examiner—Stephen P. Garbe
Attorney, Agent, or Firm—Roberts & Cohen

[57] **ABSTRACT**

A container is fabricated from first and second sections, each of which includes a central sector and wing sectors connected on opposite sides thereof. Each of the sections is foldable into a U-shape and the two sections are interengageable with each other to form a parallelepiped structure enclosing a chamber. One or more of the wing sectors have hooks formed therein for interengagement with hooks on the wing sector of the other of the sections for locking the sections together. The first and second sections may be separate parts or, as an alternative, may be integral with one another.

15 Claims, 6 Drawing Figures

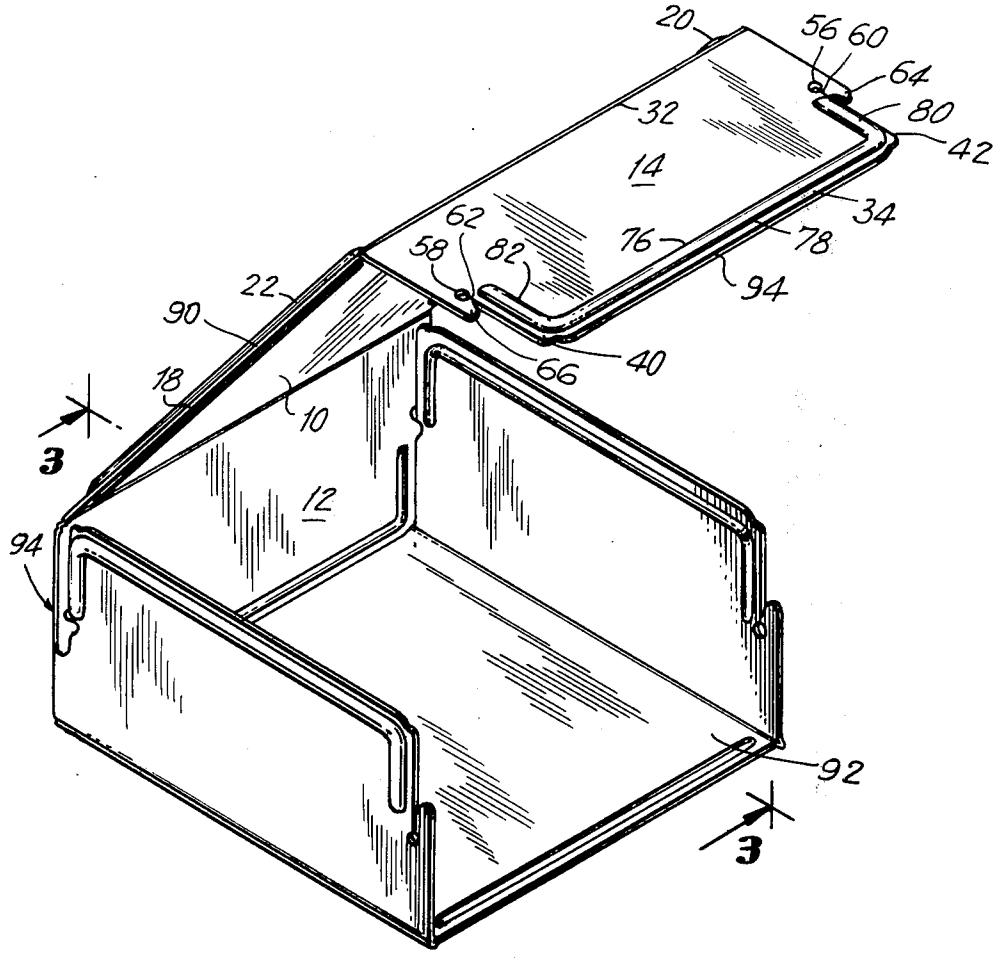
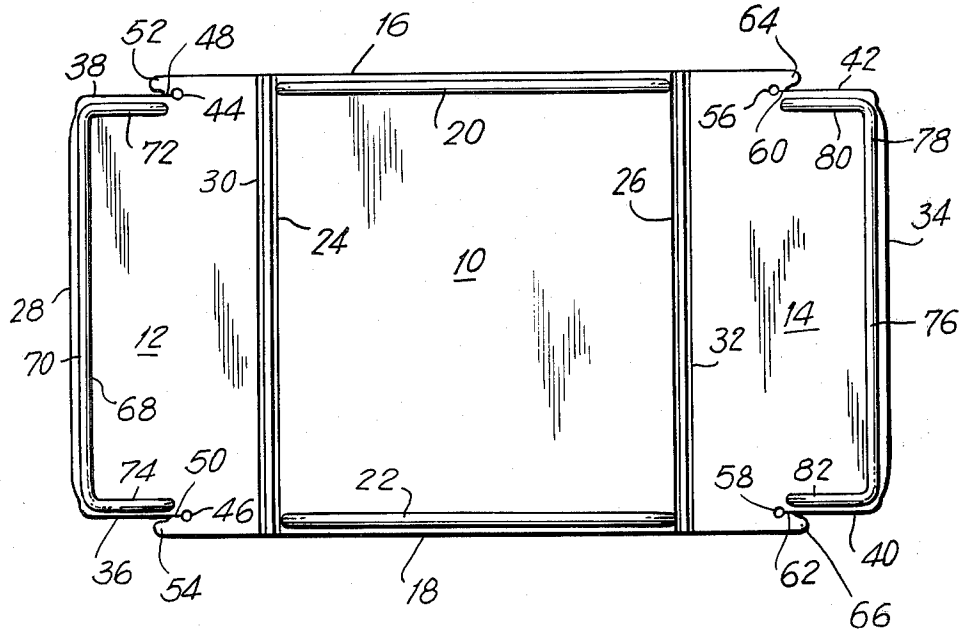


FIG. 1


52
48
16
64
38
42
44
20
56
60
80
78
72
30
26
24
34
10
28
12
14
76
70
32
68
74
50
22
58
82
46
40
36
54
18
62
66

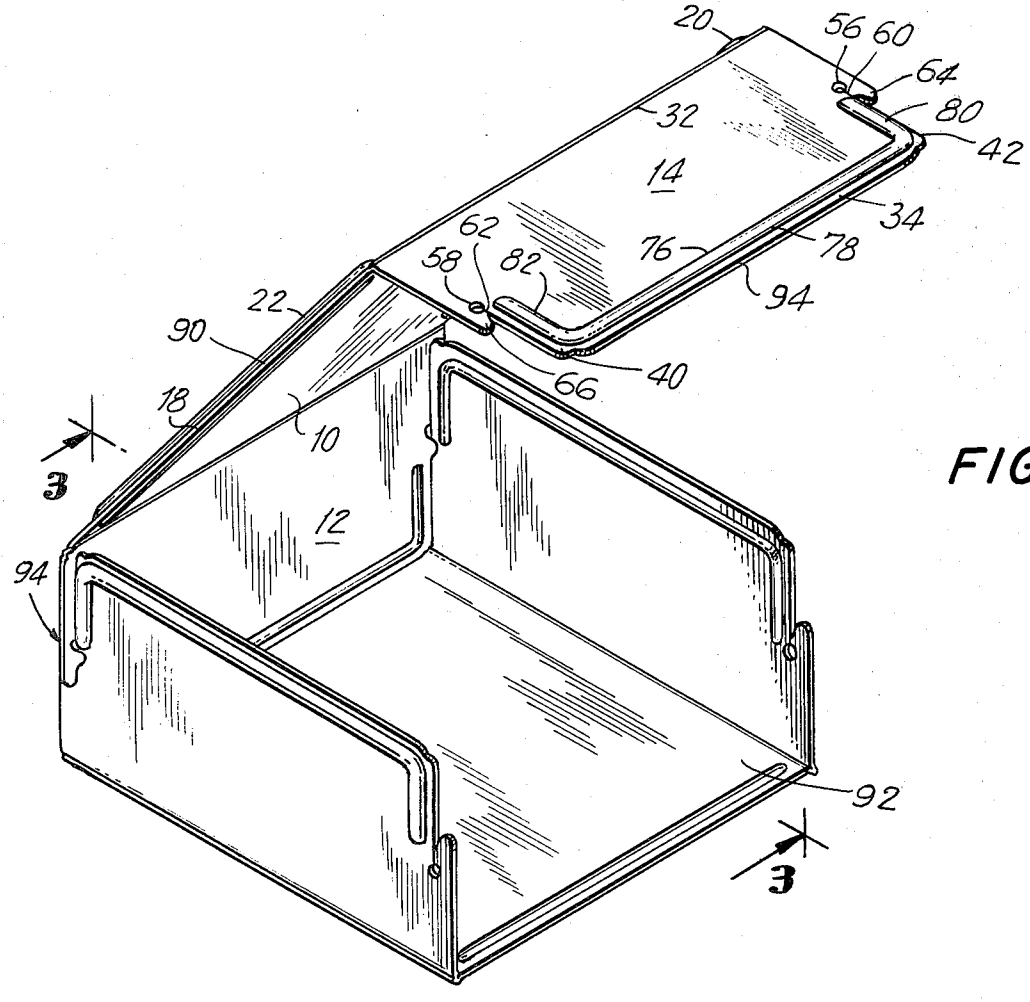

20
56
60
64
80
42
32
14
34
62
76
78
58
82
94
22
90
66
40
18
10
3
12
94
92
3

FIG. 2

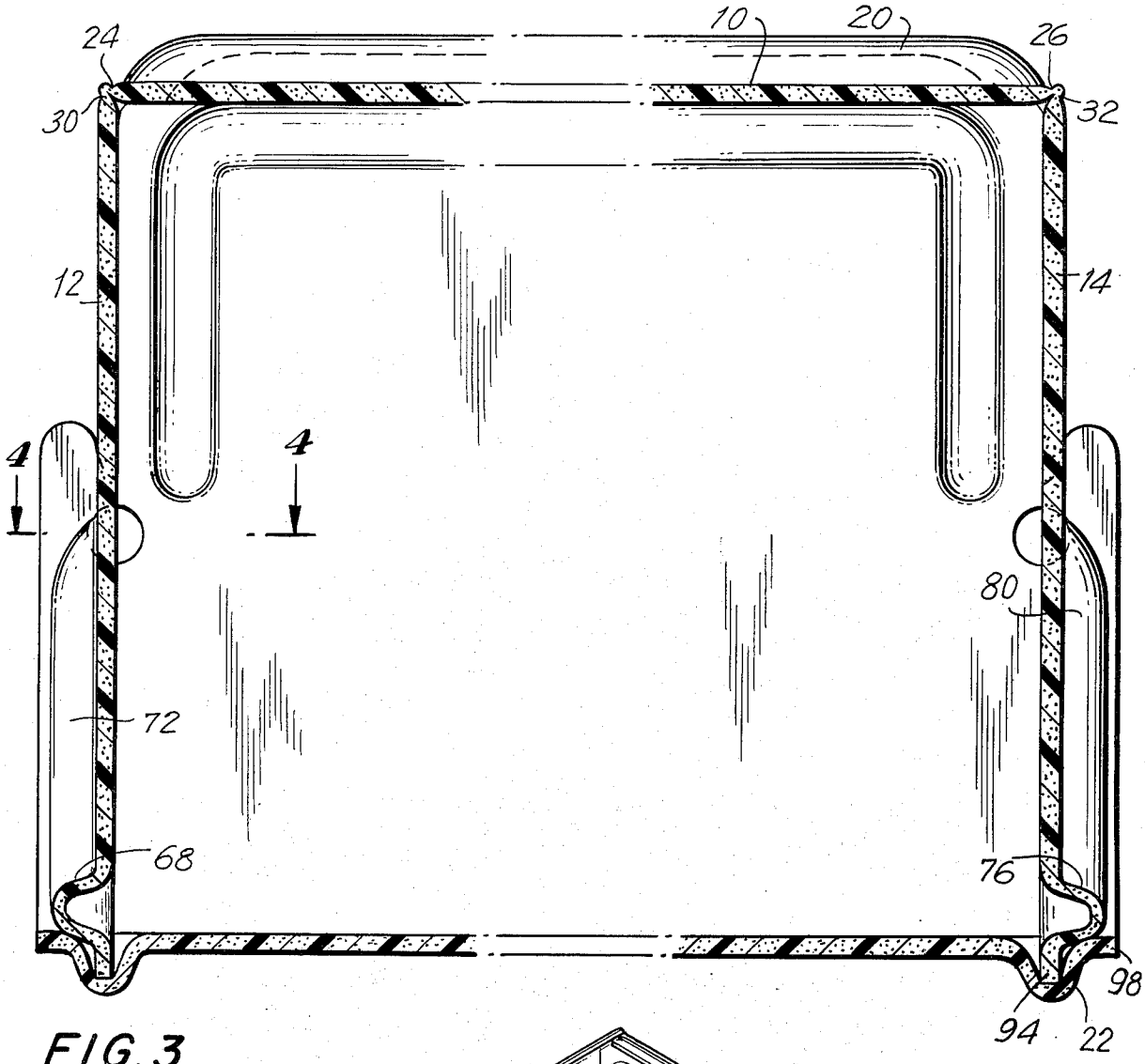

24
10
20
26
30
32
12
14
4
4
80
72
68
76
98
94
22

FIG. 3

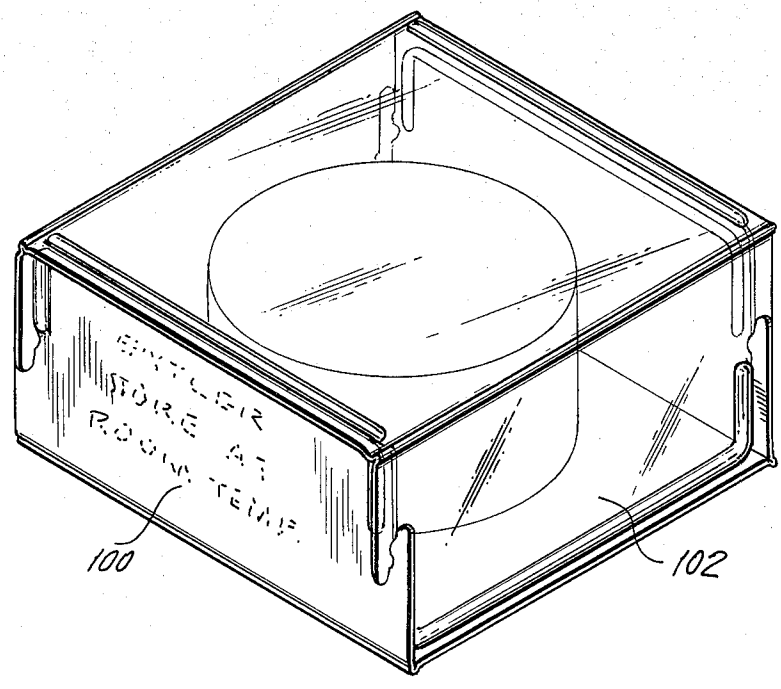

STORE AT
ROOM TEMP.
100
102

FIG. 5

FIG. 4

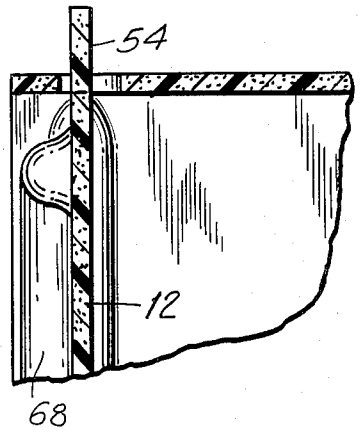
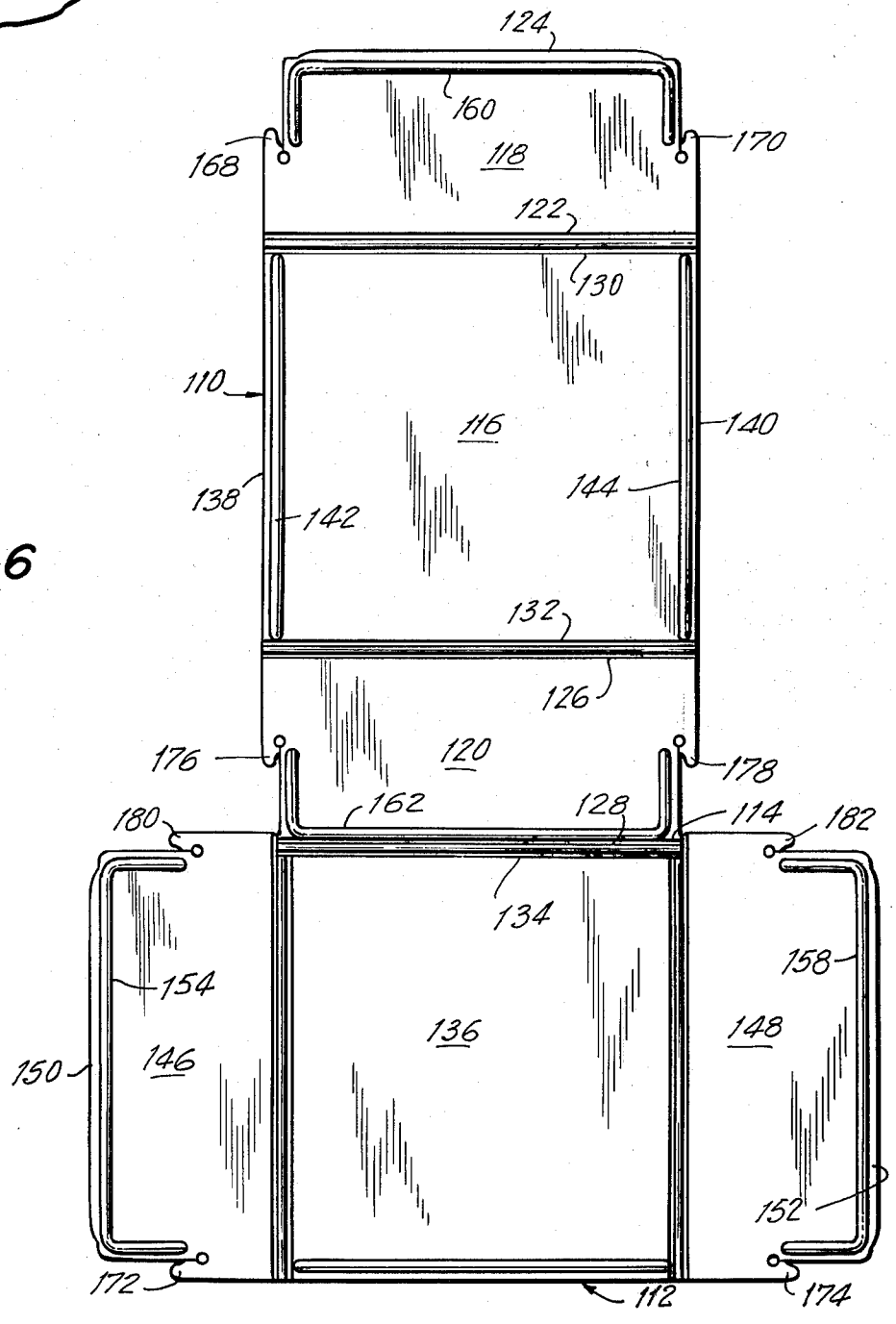

54
12
68

FIG. 6


124
160
118
168
170
122
130
110
116
140
138
142
144
132
126
120
176
178
162
128
114
180
182
134
154
158
136
148
146
150
152
172
112
174

RELATIVELY FLAT BLANK FOR A CONTAINER AND THE CONTAINER MADE THEREFROM

FIELD OF INVENTION

This invention relates to collapsible containers and to foldable flat blanks which are adapted for being formed into a container.

SUMMARY OF INVENTION

It is an object of the invention to provide an improved container structure fabricated in generally flat form and constituted of one or more blanks adapted for being folded to provide the final container structure.

It is another object of the invention to provide an improved container structure adapted for being fabricated from blanks which are readily stacked for storage and, when so stacked, will not shift or move relative to one another.

Yet another object of the invention is to provide an improved container blank adapted for being coated for strength and having the ability to receive color printing and the like on one surface thereof whereas the other surface can remain in its original condition.

Still another object of the invention is to provide an improved container structure which is moisture proof and which is especially suitable for use as cake boxes and the like.

A further object of the invention is to provide an improved container design which is readily adaptable to various sizes and which is readily adapted to have insulation qualities.

Still another object of the invention is to provide an improved construction for containers which is especially suitable for the application of graphics.

To achieve the above and other objects of the invention, there is provided a collapsible container structure comprising first and second sections. These sections each include hingeably connected generally quadrilateral central and wing sectors with the wing sectors being connected on opposite sides of the central sector so that each central sector has two opposite edge sizes and two further sides connected to the associated wing sectors. The sectors of the first section correspond at least substantially in size and shape to the sectors of the second section. The sections are each foldable into a U-shape and are interengageable with each other to form a parallelepiped structure enclosing a chamber. Each wing sector has a side connected to the associated central sector and an opposite parallel side. Each wing sector further has two lateral sides extending between the first two said sides thereof. Means are provided on the lateral sides of at least one of the wing sectors of each section for locking the said wing sectors together.

According to one embodiment of the invention, the aforesaid first and second sections are separate parts and each said parallel side is a free side and each said edge side is also a free side.

According to another embodiment of the invention, the first and second sections are integral with one another.

According to a feature of the invention, each central sector is provided with grooves extending along and adjacent the free sides thereof for receiving and accommodating the free sides of the wing sectors of the other section.

According to another feature of the invention, each wing sector is provided with a channel extending along

the free and lateral sides thereof and at least in part providing for strengthening the associated wing sector as well as providing for stacking purposes.

According to still a further feature of the invention, the aforesaid means includes hook shaped members on the lateral side of the wing sectors.

In further accordance with the invention, the wing sectors are provided adjacent said lateral sides with holes and slits connected to said holes to separate the hook-shaped members in major part from the lateral sides. Moreover, the hook-shaped members extend in generally cantilever manner along the lateral sides.

In accordance with the invention, the section may be, for example, of expanded polystyrene foam. As an alternative, the sections may be made of transparent plastic material.

According to a further feature of the invention, each wing sector includes a lip at each free side outwardly of the related channel, the lip being adapted for insertion into a groove of the central sector of the other section with the related channel of the related wing sector resting on the latter said central sector.

In the aforesaid construction, the grooves may preferably be rectilinear. Moreover, the channels may include three rectilinear portions.

In the embodiment of the invention wherein the first and second sections are integral with one another, one parallel side of one wing sector is connected to one edge side of the central sector of the other section. In this construction, each central sector is provided with a groove adjacent at least one edge side. Furthermore, in this embodiment, at least one wing sector for each section is provided with a channel extending along and adjacent the parallel and lateral sides thereof.

In further accordance with the invention, a relatively flat blank for a container is provided which comprises a quadrilateral central sector and two wing sectors hingeably connected on opposite sides of the central sector, said central sector having two first sides connected to the wing sectors and two parallel sides extending between the first sides and being provided with a groove extending along at least one of said parallel sides, said wing sectors including spaced parallel sides, one of which is connected to said central sector, and lateral sides connected between the latter said parallel sides, there being furthermore provided hook means on the lateral side of at least one wing sector and a channel being provided in the latter said wing sector.

According to a further feature of the invention, the latter said wing sector is provided with a hole and connecting slot to separate each hook means. Furthermore, a second central sector and two further wing sectors hingeably connected to said central sector may be provided, said central second sector being connected to one of the parallel sides of one of the wing sectors.

Other objects, features and advantages of the invention will be found in the detailed description which follows hereinafter.

BRIEF DESCRIPTION OF DRAWING

In the drawing:

FIG. 1 is a top plan view of a blank provided for a collapsible container in accordance with one embodiment of the invention;

FIG. 2 is a perspective view of a container formed by the use of two blanks such as illustrated in FIG. 1;

FIG. 3 is a cross-sectional view taken along line 3—3 in FIG. 2 with the container closed;

FIG. 4 is a fragmentary enlarged view in cross-section taken along 4—4 in FIG. 3;

FIG. 5 is a perspective view of a closed container utilizing blanks of the shape illustrated in FIG. 1 with the blanks being made of different materials; and

FIG. 6 is a blank provided in accordance with the invention but modified to constitute a second embodiment thereof.

DETAILED DESCRIPTION

As has been noted hereinabove, there is provided in accordance with the invention, a blank adapted for being folded to constitute by itself or in combination with another like blank a container. The blank is of generally flat form although channels and grooves as well as score lines may be provided therein which will give the blank a three-dimensional characteristic although the blank will generally be regarded as flat in form.

In FIG. 1 is shown a blank constituting one section of a container for which two such blanks will generally be employed. This blank includes a central sector **10** and two wing sectors **12** and **14.**

The central sector is provided with two free or edge sides **16** and **18** adjacent which runs a parallel rectilinear groove **20** or **22.** In addition, the central sector is provided with two further sides **24** and **26** at which hinged connection is made with the wing sectors **12** and **14.**

The wing sector **12** is provided with parallel sides **28** and **30,** one of which is hingedly connected to the side **24** of the central sector **10** whereas side **28** constitutes a free side. Wing sector **14** includes parallel sides **32** and **34** of which side **32** is hingedly connected to side **26** of central sector **10** whereas side **34** is a free side.

In addition to the above, wing sector **12** is provided with lateral sides **36** and **38** whereas wing sector **16** is provided with lateral sides **40** and **42.**

Wing sector **12** is further provided with holes **44** and **46** to which are connected slits or slots **48** and **50.** The presence of these holes and slots forms hook members **52** and **54** which are substantially separated from the associated wing sector but which are nevertheless connected in cantilever manner to the same.

Wing sector **14** is similarly constituted being provided with holes **56** and **58** to which are connected slits or slots **60** and **62** forming hook sections **64** and **66.** The purpose of the hooks or hook-like members will be explained hereinafter.

It will be noted that the central and wing sectors are generally quadrilateral in shape, the central sector being generally in the form of a square with the wing sectors **12** and **14** being generally in the form of modified rectangles.

In addition to the above, it will be noted that the wing sector **12** is provided with a channel **68** which is of U-shape and thereby includes rectilinear sections **70, 72** and **74** whereof sections **72** and **74** run parallel to the lateral sides **36** and **38** whereas central section **70** runs parallel to free side **28.** Wing sector **14** is similarly constituted being provided with a U-shaped channel **76** including rectilinear section **78** and lateral sectors **80** and **82.**

It can be seen from an examination of FIG. **2** that two sections **90** and **92** are employed to make a container, both of these sections being bent into generally U-shape and being interengaged in cross-wise relation to form a parallelepiped construction enclosing a chamber. It will further be seen that the hook members are interengaged such as indicated at **94** to lock the sections together, as a consequence whereof, no additional force or retaining arrangement is necessary for purposes of forming a container of relatively strong construction.

In addition to the above, it will be noted that, for example, the groove **22** of section **92** is adapted to receive the lip **94** which is formed in the sector **14** outwardly of the associated channel **76.**

Referring next to FIG. **3,** it will be seen that the channel **76** and the associated lip **94** are so formed in relation to the depth of the groove **22** that the lip **94** will abut in the bottom of channel **22** whereas the channel **74** will abut as indicated at **96** on the lip **98** which is formed outwardly of the groove **22.**

The engagement between, for example, the hook members **54** of two separate sections appears on enlarged scale in FIG. **4,** this being a representative cross-section along lines **4—4** in FIG. **3.**

FIG. **5** illustrates the version of the invention illustrated and described above with respect to FIGS. **1–4** but in which the section **100** is made of a generally opaque material such as expanded polystyrene foam. The section **102** in this case is, however, manufactured of any clear and transparent plastic having suitable strength and adapted to cooperate with the section **100** in the manner generally indicated hereinabove.

FIG. **6** illustrates a further embodiment of the invention wherein the first and second sections **110** and **112** are connected together as indicated generally at **114.**

In this embodiment of the invention, section **110** includes a central sector **116** and wing sectors **118** and **120** connected thereto. For this purpose, wing sector **118** includes parallel sides **122** and **124** whereas wing sector **120** includes parallel sides **126** and **128.** Sides **122** and **126** are hingeably connected to first sides **130** and **132** of central sector **116** whereas side **124** of sector **118** is a free side and side **128** is connected to side **134** of central sector **136** of the section **112.**

As in the aforegoing embodiment of the invention, central sector **116** is provided with parallel sides **138** and **140** adjacent which are arranged rectilinear parallel grooves **142** and **144.**

The section **116** is moreover provided with wing sectors **146** and **148** having free sides **150** and **152** adjacent which are arranged parallel U-shaped channels **154** and **158.**

Wing sector **118** of section **110** may be provided with a U-shaped channel such as indicated at **160** and wing sector **120** is provided with a U-shaped channel which may be optional and is indicated at **162.**

In the illustrated embodiment of the invention appearing in FIG. **6,** section **110** is provided with hook members **168** and **170** adapted for engagement with hook members **172** and **174.** The blank may optionally also be provided with hook members **176** and **178** as well as with hook members **180** and **182** which may also be employed for interim engagement.

The embodiment of FIG. **6** may be generally regarded to be similar to that described hereinabove in that two sections are provided, each of which are adapted to be bent into a U-shaped form and interengaged to form a parallelepiped construction for enclosing a chamber in which may be accommodated, for example, a cake or a pie or some other such commodity which is intended to be transported as well as shielded against the ambient atmosphere.

From what has been indicated hereinabove, it will now be appreciated that the invention relates to a container adapted for being formed from one or more collapsible blanks constituted by first and second sections, each including hingeably connected generally quadrilateral central and wing sectors with the wing sectors being connected on opposite sides of the central sector so that each central sector has two opposite edge sides and two further sides connected to the associated wing sectors, the sectors of the first section corresponding at least substantially in size and shape to the sectors of the second section, the sections each being foldable into a U-shape and being interengageable with each other to form a parallelepiped structure enclosing a chamber, each wing sector having a side connected to the associated central sector and an opposite parallel side, each wing sector further having two lateral sides extending between the first two said sides thereof, there being furthermore provided means on the lateral sides of at least one of the wing sectors of each section for locking the said one wing sectors together.

There will now be obvious to those skilled in the art many modifications and variations of the structures set forth hereinabove. These modifications and variations will not depart from the scope of the invention if defined by the following claims.

What is claimed is:

1. A collapsible container comprising first and second separate sections each including hingeably connected, generally quadrilateral central and wing sectors with the wing sectors being connected on opposite sides of the central sector so that each central sector has two opposite free edge sides and two further sides connected to the associated wing sectors, the sectors of the first section corresponding at least substantially in size and shape to the sectors of the second section, the sections each being foldable into a U-shape and being interengageable with each other to form a parallelepiped structure enclosing a chamber, each wing sector having a side connected to the associated central sector and an opposite parallel free side, each wing sector further having two lateral sides extending between the first two said sides thereof, and hook-shaped members on the lateral sides of said wing sectors of each section for locking the wing sectors together, each central sector being provided with grooves extending along and adjacent the free sides thereof for receiving and accommodating the free sides of the wing sectors of the other section, each wing sector being provided with a channel extending along the free and lateral sides thereof and at least in part providing for strengthening the associated wing sector.

2. A container as claimed in claim **1** wherein the first and second sections are integral.

3. A container as claimed in claim **1** wherein said wing sectors are provided, adjacent said lateral sides, with holes and slits connected to said holes to separate the hook-shaped members in major part from the lateral sides, the hook-shaped members extending in generally cantilever manner along said lateral sides.

4. A container as claimed in claim **3** wherein at least one of said sections is of expanded polystyrene foam.

5. A container as claimed in claim **3** wherein at least one of said sections is of a transparent plastic material.

6. A container as claimed in claim **3** wherein each wing sector includes a lip at each free side outwardly of the related channel, said lip being adapted for insertion into a groove of the central sector of the other section with the related channel of the related wing sector resting on the latter said central sector.

7. A container as claimed in claim **3** wherein said grooves are rectilinear.

8. A container as claimed in claim **3** wherein said channels include three rectilinear portions.

9. A container as claimed in claim **1** wherein one parallel side of one wing sector is connected to one edge side of the central sector of the other section.

10. A container as claimed in claim **9** wherein each central section is provided with a groove adjacent at least one edge side.

11. A container as claimed in claim **10** wherein at least one wing sector for each section is provided with a channel extending along and adjacent the parallel and lateral sides thereof.

12. A container as claimed in claim **1** wherein said U-shape sections are interengaged in cross-wise relation with one another to form the parallelpiped structure.

13. A relatively flat blank for a container comprising a quadrilateral central sector and two wing sectors hingeably connected on opposite sides of the central sector, said central sector having two first sides connected to the wing sectors and two parallel sides extending between the first sides and being provided with a groove extending along at least one of said parallel sides, said wing sectors including spaced parallel sides one of which is connected to said central sector and lateral sides connected between the latter said parallel sides, and hook means on the lateral sides of at least one wing sector, a channel being provided in the latter said wing sector.

14. A blank as claimed in claim **13** wherein the latter said wing sector is provided with a hole and connecting slot to separate each said hook means.

15. A blank as claimed in claim **13** comprising a second central sector and two further wing sectors hingeably connected to said central sector, said second central sector being connected to one of the parallel sides of one of the wing sectors.

* * * * *