United States Patent [19]

Davanzo

[11] **3,800,341**

[45] **Apr. 2, 1974**

[54] **PORTABLE COLLAPSIBLE COMBINATION CRIB AND PLAYPEN**

[76] Inventor: **Vito Davanzo,** 473 Sunset Dr., Hallandale, Fla. 33009

[22] Filed: **Apr. 18, 1972**

[21] Appl. No.: **245,212**

[52] **U.S. Cl.** ..... **5/99 R**

[51] **Int. Cl.** **A47c 29/00**

[58] **Field of Search** ..... 5/99 R

[56] **References Cited**

UNITED STATES PATENTS

3,296,633	1/1967	Rieger	5/99 R
3,631,548	1/1972	Dahab	5/99 R
2,913,739	11/1959	White	5/99 R
3,654,645	4/1972	Lee	5/99 R

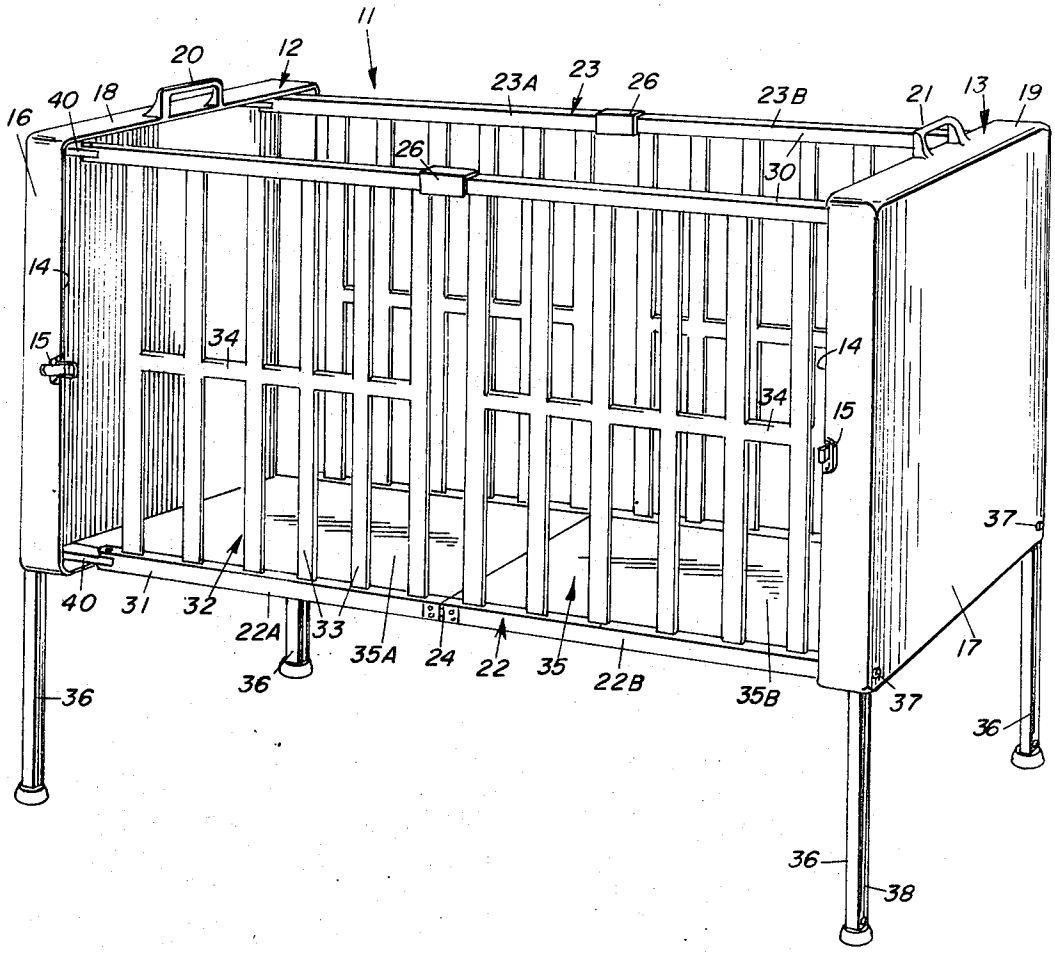
Primary Examiner—James C. Mitchell

Attorney, Agent, or Firm—Eric P. Schellin; Martin P. Hoffman

[57] **ABSTRACT**

A portable and collapsible combination crib and playpen of plastic construction. The sides fold into open box-like structures which act as the head board and foot boards, respectively. The bottom is of two halves and also fold into the box-like structures and is hingedly secured thereto. The legs are extendable from corners in the box-like structures. The sides are each constructed of two hinged halves and have a grid-like configuration.

1 Claim, 26 Drawing Figures



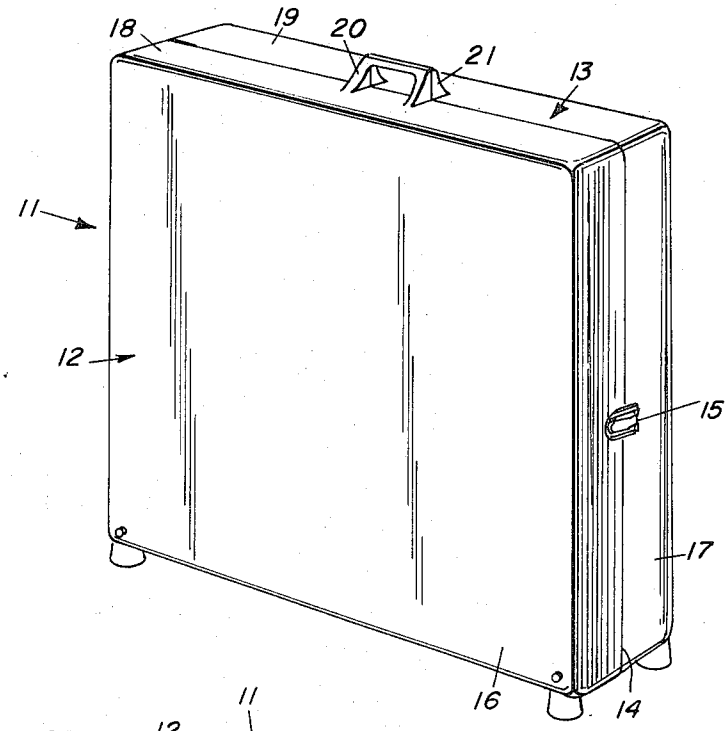

18
19
20
21
13
11
12
15
17
16
14

FIG. 1

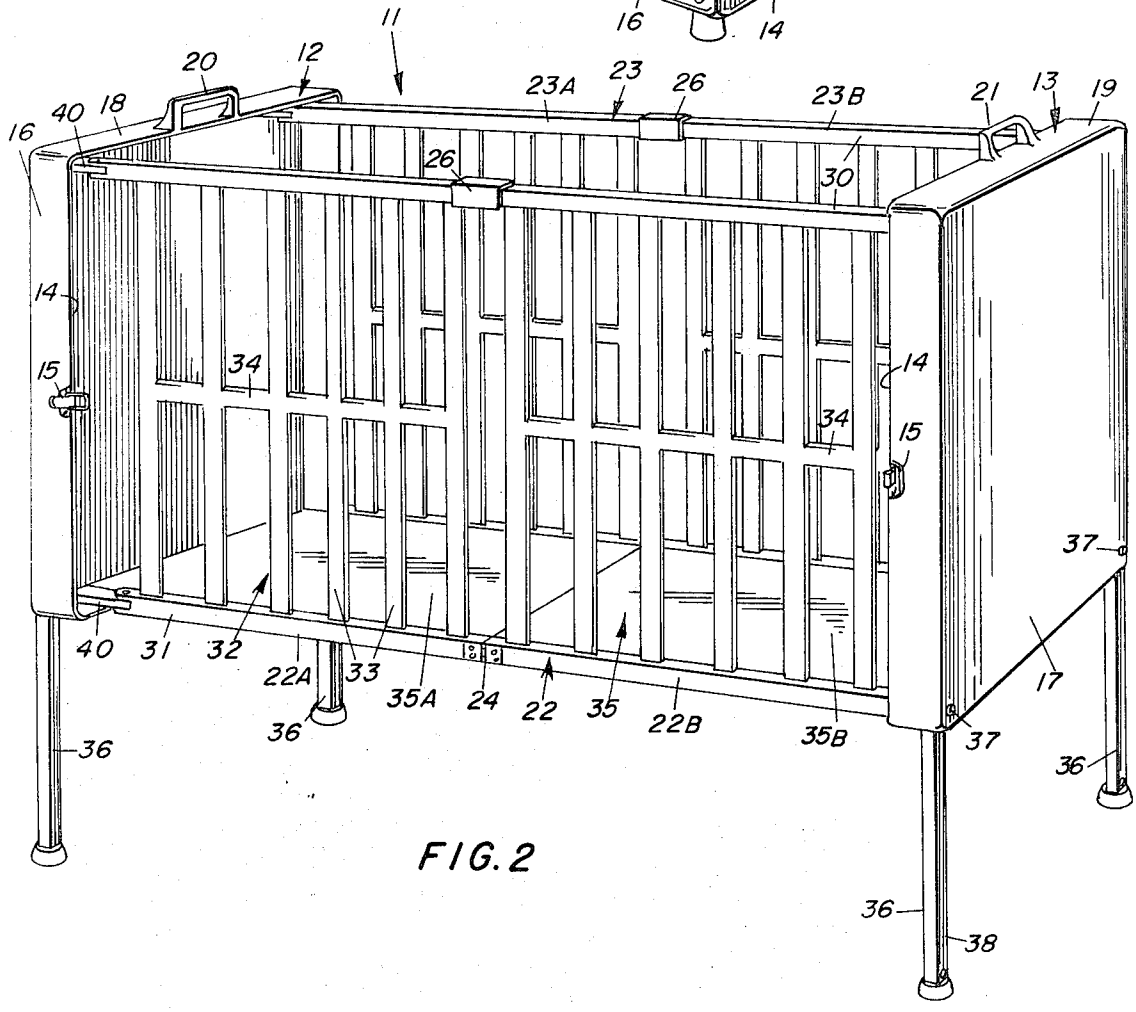

11
20
12
18
40
16
23A
23
26
23B
21
13
19
26
30
14
15
34
14
34
15
37
40
31
32
22A
33
35A
24
22
35
22B
35B
37
17
36
36
36
38

FIG. 2

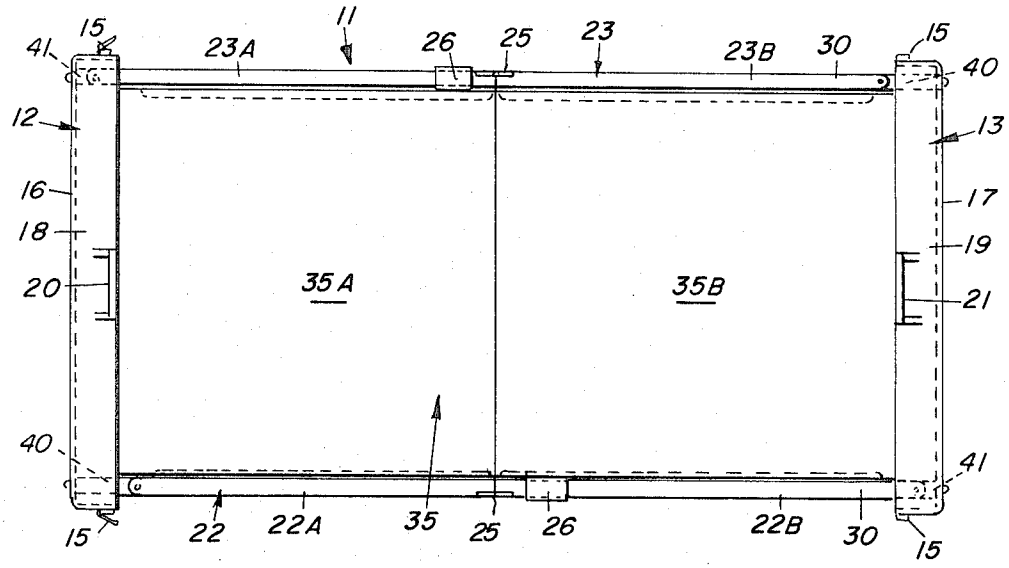


FIG. 3

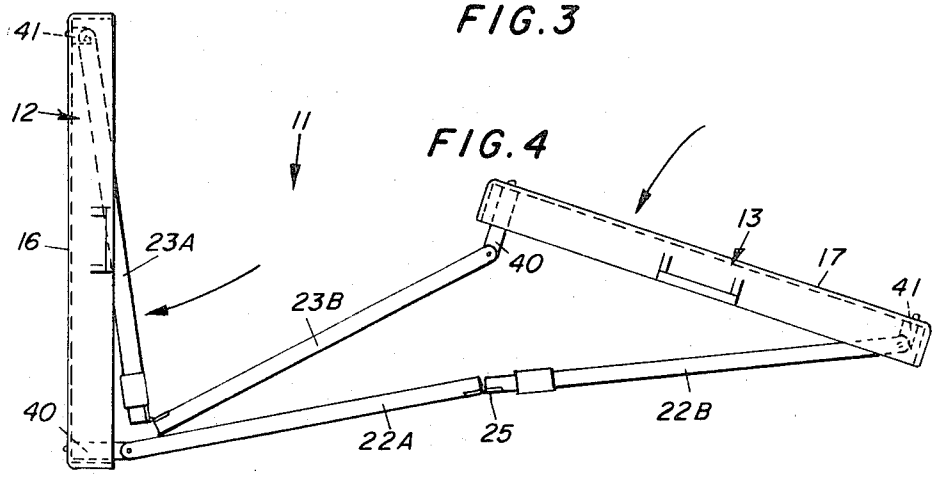


FIG. 4

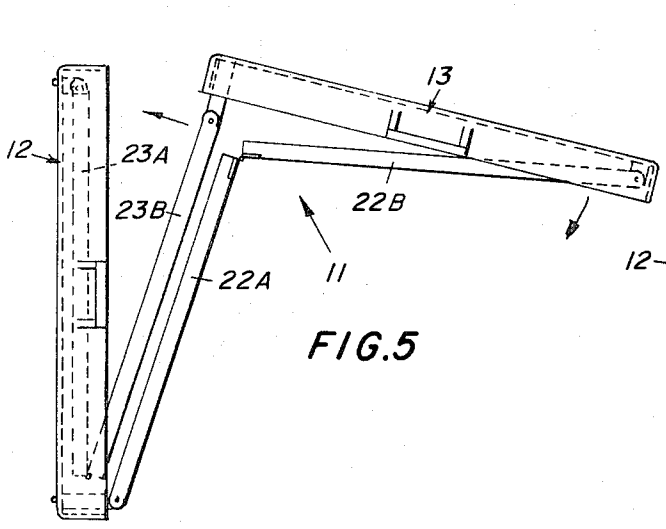


FIG. 5

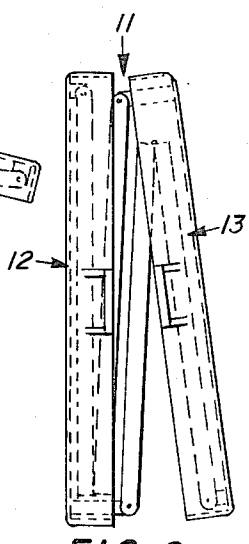


FIG. 6

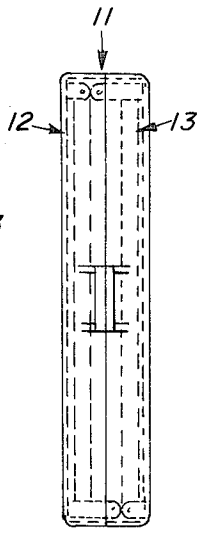


FIG. 7

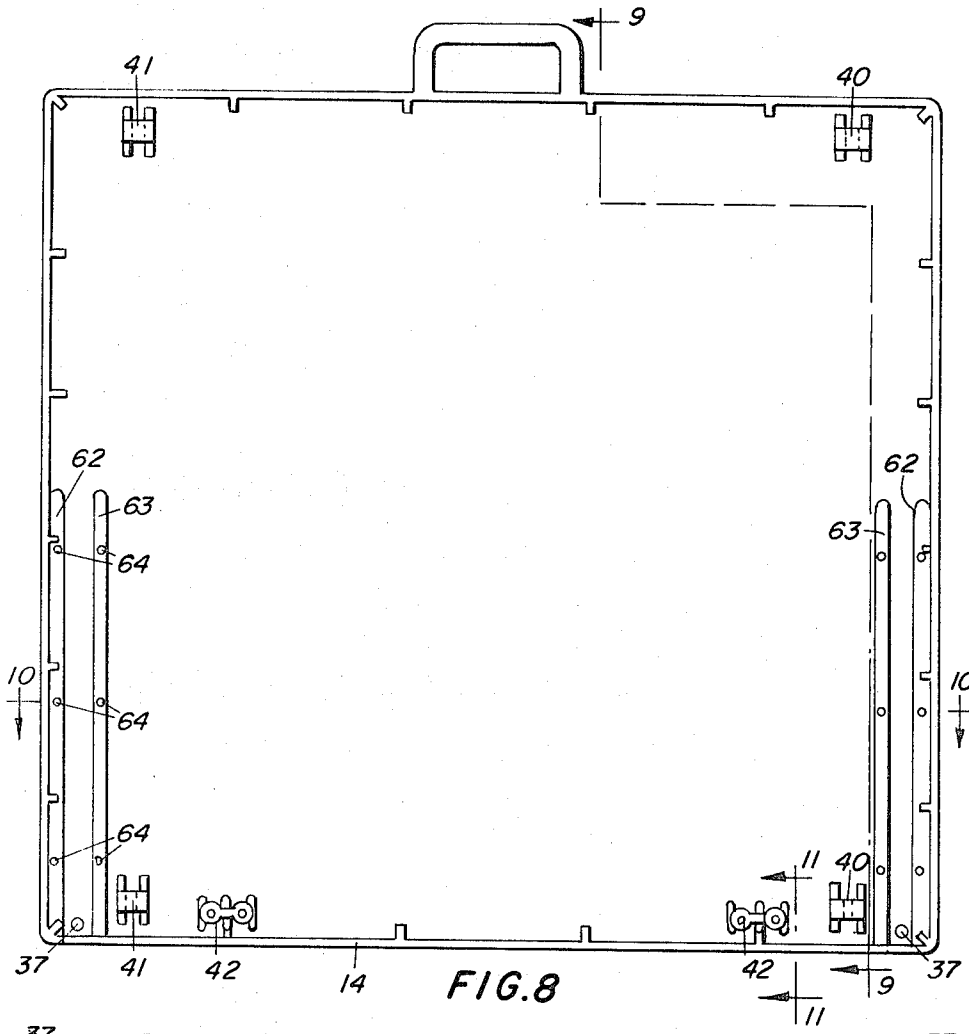


FIG. 8

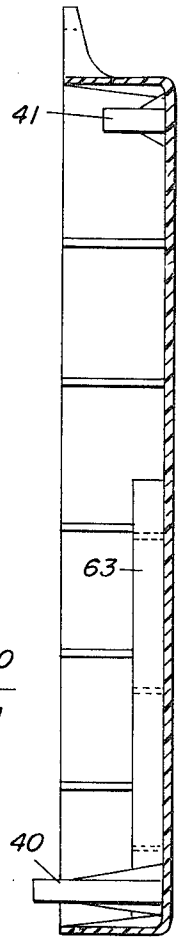


FIG. 9

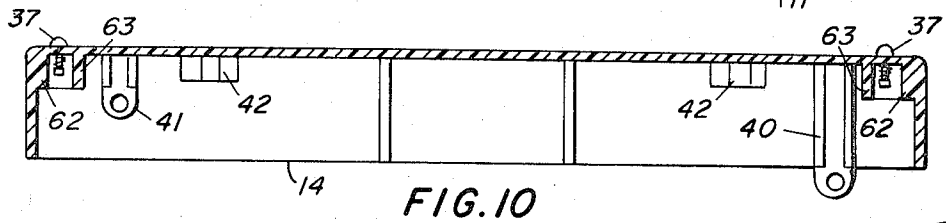


FIG. 10

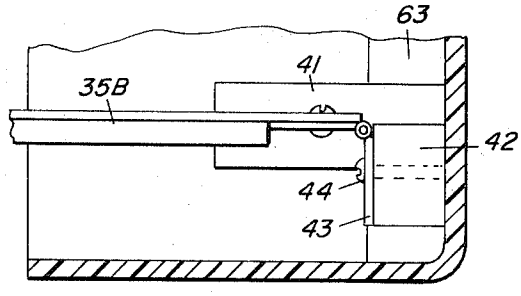


FIG. 11

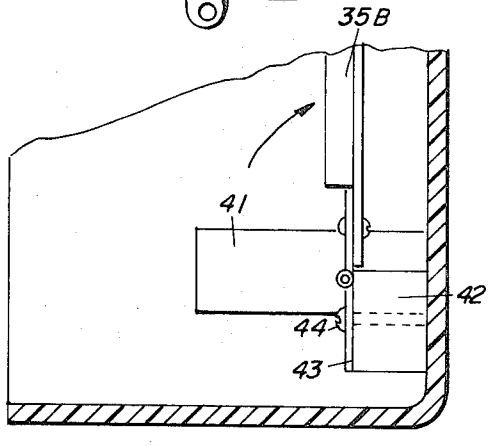


FIG. 12

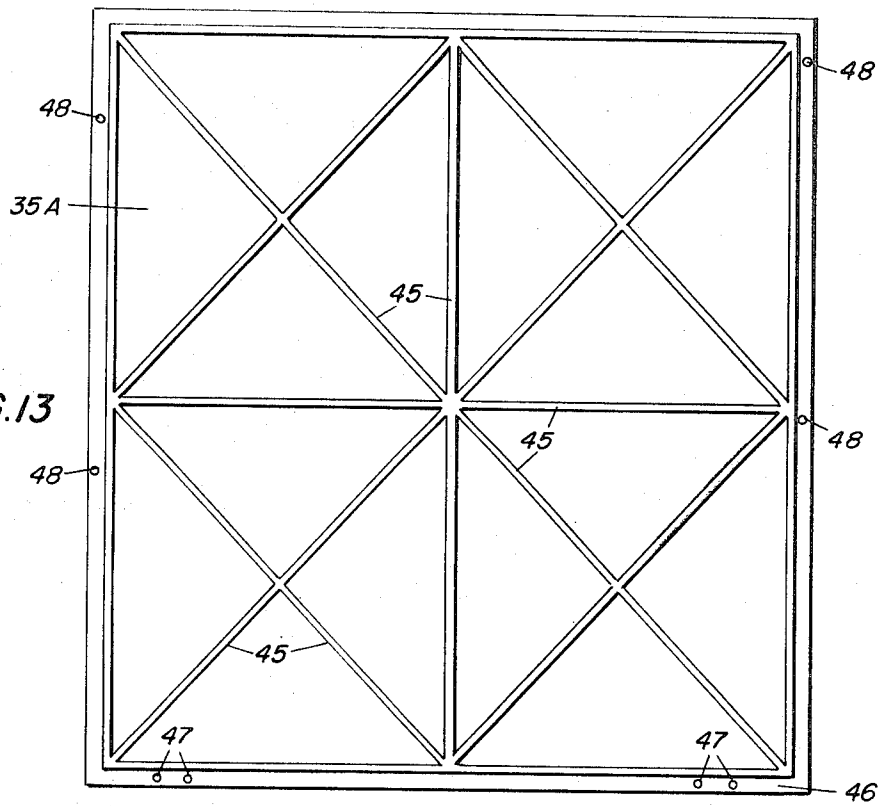


FIG. 13

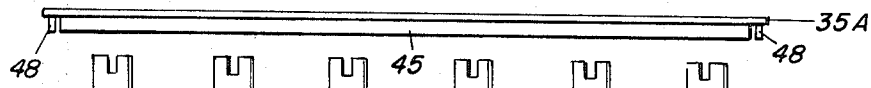


FIG. 14

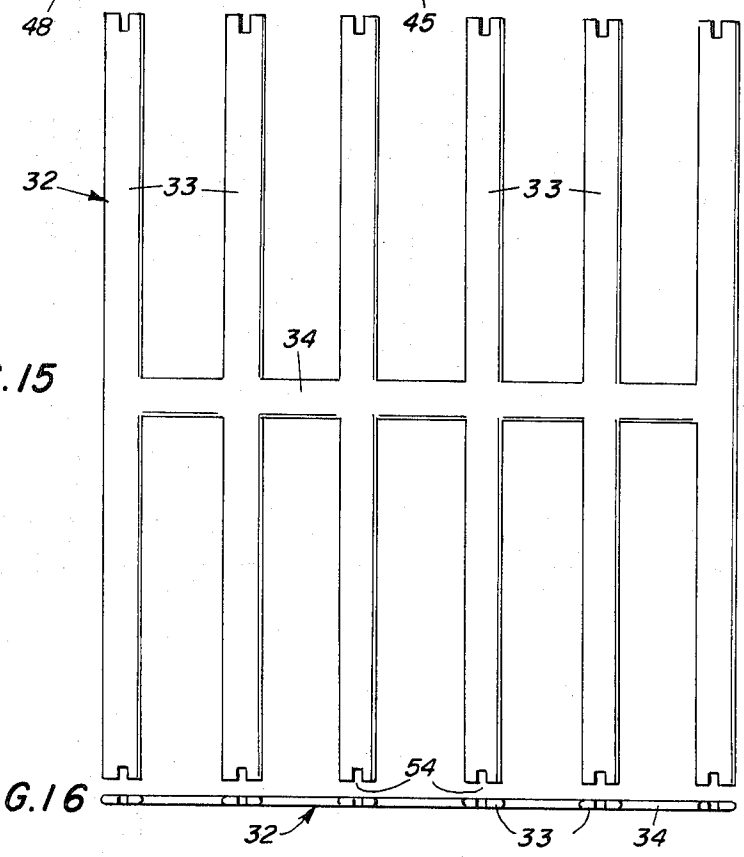


FIG. 15

FIG. 16

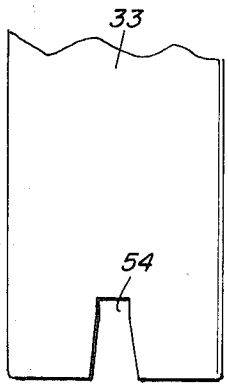


FIG. 17

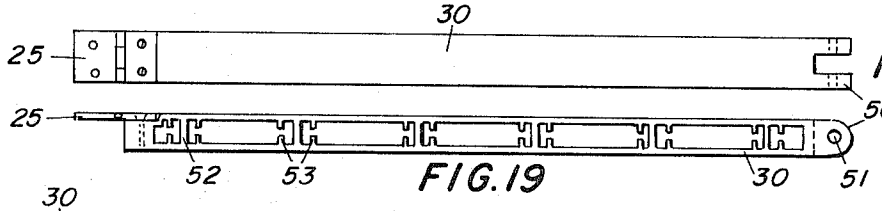


FIG. 18

FIG. 19

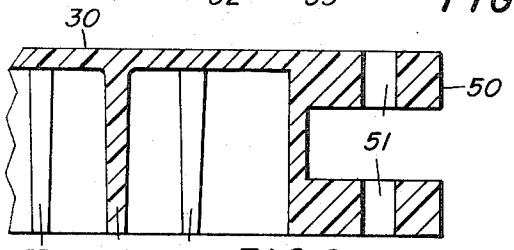


FIG. 21

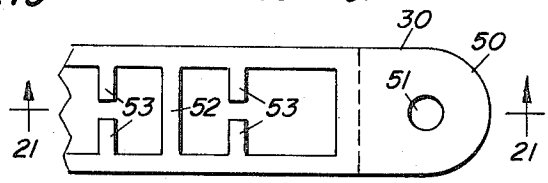


FIG. 20

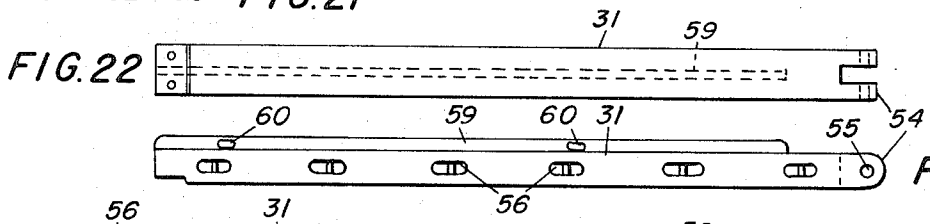


FIG. 22

FIG. 23

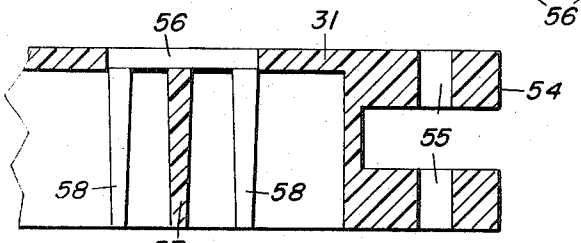


FIG. 25

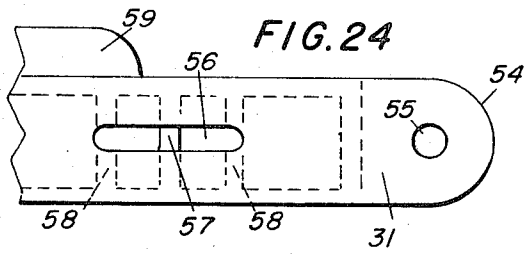


FIG. 24

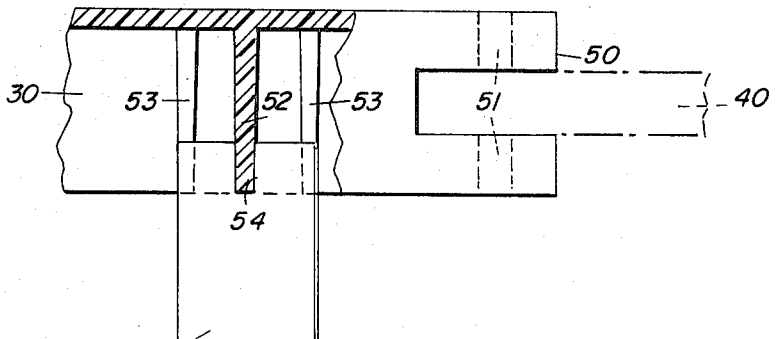
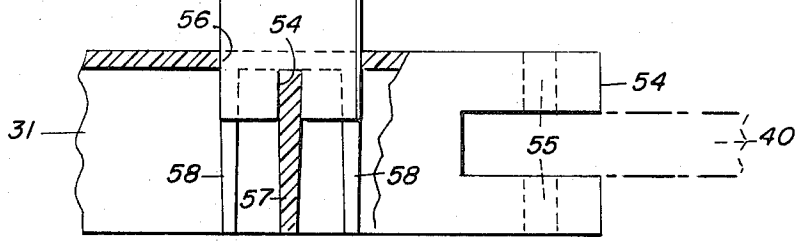


FIG. 26



PORTABLE COLLAPSIBLE COMBINATION CRIB AND PLAYPEN

BACKGROUND OF THE INVENTION

There are many portable cribs on the market. Most of these are of wood and do not assume a thin folded configuration when folded. As a result they are usually too heavy to achieve easy portability and/or to cumbersome as they do not fold to a minimum space. A prior art device can be seen from the U.S. Pat. No. 3,296,633 to Rieger.

SUMMARY OF THE PRESENT INVENTION

By achieving molded plastic fabrication many of the prior art problems are obviated. Plastic may be molded in a manner to provide thickness where strength is especially needed and thinness where continuity or covering is the only requirement. Also, not being of wood no protective paints need be employed. The plastic materials lend themselves to coloration which will not be removed even if a child should teeth on the crib.

The unique manner in which the hinges for the side walls are set forth brings the considerable advantage of having a folded device which, as will be explained below, results in the formation of a compact relatively thin appearance.

The device has a head board and an end board of a box-like structure. Hinges extend from the internal back of the structures to which a foldable side wall is secured. Legs are provided which are extendible and retractable from the lower corners of the box-like structure. A bottom consisting of two halves are hingedly secured to the internal back wall of the box-like structures.

DESCRIPTION OF THE DRAWINGS

In the following, like reference numerals refer to like parts throughout.

FIG. 1 is a perspective of the folded encased crib of the present invention.

FIG. 2 is a perspective view of the crib in a set-up position.

FIG. 3 is a plan view.

FIG. 4 is a top plan view during a folding cycle.

FIG. 5 is a top plan view during another phase of the folding cycle.

FIG. 6 is a top plan view during the final phase of the folding cycle.

FIG. 7 is the crib completely folded.

FIG. 8 is an end view of an end of the crib.

FIG. 9 is a cross-sectional view taken along line 9—9 of FIG. 8.

FIG. 10 is a cross-sectional view taken along line 10—10 of FIG. 8.

FIG. 11 is a fragmentary view taken along line 11—11 of FIG. 8.

FIG. 12 is a fragmentary view taken along the same line 11—11 of FIG. 8 with the crib bottom in a raised position.

FIG. 13 is the underside of the bottom of the crib.

FIG. 14 is one end view.

FIG. 15 is a side view of a part of the side wall structure.

FIG. 16 is a top view of the part shown in FIG. 15.

FIG. 17 is an enlarged fragmentary view of one strut of the side wall structure of FIG. 15.

FIG. 18 is a side view of the top rail for the side wall structure.

FIG. 19 is a bottom view of the top rail of FIG. 18.

FIG. 20 is an enlarged fragmentary view of one end of the rail of FIG. 19, being the bottom view.

FIG. 21 is a fragmentary cross-sectional view taken along line 21—21 of FIG. 20.

FIG. 22 is a side view of the bottom rail of the side wall structure.

FIG. 23 is a top plan view of the rail of FIG. 22.

FIG. 24 is an enlarged fragmentary view of one end of the rail of FIG. 23.

FIG. 25 is a fragmentary cross-sectional view taken along line 25—25 of FIG. 24.

FIG. 26 is a side view partially in cross-section to show one of the struts of the side wall structure in position in the top and bottom rails.

DETAILED DESCRIPTION OF THE INVENTION

The crib and playpen of the instant invention can be seen in FIG. 1 in a folded condition. In FIG. 2 the crib is seen in an unfolded condition. With the placement of a crib mattress on the bottom the invention can perform as a crib. Without the mattress it can function as a playpen. The legs may be retracted when the device is to be a playpen. From FIG. 1, it will be seen that the legs have been retracted.

In essence the crib shown, generally, by reference numeral 11 includes two open ended box-like structures 12 and 13. Each of the box structures are shown in confronting relationship with the open ends facing each other and with their rims 14 touching. A latch 15 is located at the sides 16 and 17 to permit a positive securing action. Another latch is positioned at the opposite side. The upper sides 18 and 19 of the box structures have molded thereinto part of a handle 20 and 21 respectively, which together produces a convenient carrying means.

The box structures are molded of plastic, for strength, for lightness and for beauty. Many of the additional functional accoutrements will be seen to be integrally molded thereinto. By using molding techniques it is also possible to obtain rounded corners.

Attention is now directed to the crib in its unfolded set-up condition. Therefore, attention should be given to FIG. 2. When open the box structures are horizontally displaced, the open ends are facing one another. The box structures are connected by two side wall structures 22 and 23. Each side wall consists of two sections 22A and 22B on one side and 23A and 23B on the other side. The two sections are hinged at the bottom 24 and at the top 25 (not shown). A sleeve 26 helps to prevent undue flexing. The sleeve 26 has a U-shaped configuration and slides into position.

The side walls have a grid-like configuration each with a top rail 30 and each with a bottom rail 31. The rails are connected by a vertical section 32 consisting of a plurality of struts 33 connecting by horizontal elements 34, to increase strength characteristics.

The crib has a bottom 35 consisting of two sections 35A and 35B. The bottom sections are each hingedly connected at one of their ends to suitably disposed hinges inside the box structures. In the position shown in FIG. 2 the bottoms are supported by suitably dis-

posed flanges along the bottom rails and at the hinges.

Legs 36 depend from each corner of the box structures. They consist of rectangularly shaped tubes which have a corresponding slideway internally with respect to the corners of the box structures into which they may be retracted. A spring loaded button 37, with a suitable hole in each leg, acts as a detent to prevent the legs from being retracted when not desired. Another hole near the front 38 of each leg will retain the leg 36 in a retracted position. Each of the ends of the side wall structures are hingedly connected to extending members having journalling means.

For a better understanding and to point up the feature of the invention attention is particularly directed to FIGS. 8–10. The extending members for the side wall structures are of two lengths; two being located near each side of the box structures. For instance, the right side of FIG. 8 will show long extending members 40 vertically displaced one above the other. Likewise on the left side are two shorter extending members 41 also one above the other. From FIG. 10, it will be seen that extending member 40 protrudes beyond rim 14 of the box structure, while extending member 41 is recessed considerably in the box structure. The disposition of the extending member 40 or 41 is exactly opposite in the confronting box structure. When they are in the position shown in FIG. 1, a portion of member 40 will extend into the opposing box structure. The longer extending member 40 may be on either side just as long as the shorter member 41 is then on the opposite side. As a matter of fact, in FIG. 2 the longer member 40 is on the left side and the shorter member 41 is on the right side in box structure 18.

The top plan view as presented by FIG. 3 shows the crib with the two halves of the bottom 35A and 35B in position. As was stated the bottom is internally hingedly connected to the back of the lower portion of each box structure. Attention is now directed to FIGS. 11 and 12 for a review of this arrangement. Note that a hinge base 42 is provided. From FIG. 8 it will be seen that two hinge bases 42 are provided which are horizontally displaced along a plane. These bases may be integrally molded with the box structures. A hinge 43 has a leaf secured to the base by means of a screw 44 for instance. The other leaf of hinge 43 is attached to the bottom 35B, for instance. FIG. 11 is illustrative of the crib with the bottom in a utilizable position. In FIG. 12 the bottom has been raised to be parallel to the back of the box structure.

The foregoing will have provided an understanding of the general construction of the crib and thereby the collapsible features may now be considered. Therefore, attention is now directed to FIGS. 3 – 7 which are all top plan views. In collapsing the crib, as found in FIG. 3, the bottom halves 35A and 35B are first swung up into the position shown as in FIG. 12, thereby one box structure will contain bottom 35A and the other will contain bottom 35B. With the bottoms out of the way, restraining sleeves 26 are moved aside to permit the side wall structures to be folded in the manner shown by FIG. 4. Sides 23A and 23B may be folded first as shown. As side 23A is hingedly connected to the shorter member 41, it can be moved into and within the confines of box structure 16. Then side wall 22B is moved into box structure 17 as seen in FIG. 5. Thereafter side wall 23B is moved into the confines of box structure 16 while side wall 22A is also folded into box structure 17 as seen partially from FIG. 6 and finally in the fully enclosed position of FIG. 7, also seen in FIG. 1.

In practice the legs 36, if they had previously been extended would have been retracted into the box structure.

To set up the crib of the present invention, the steps would be reversed. An extremely interesting feature of the invention, as was stated before is the fact that the positioning of the hinge connections enables the rendition of an extremely compact box structure as the side wall portions are parallel to one another when folded and collapsed as in FIG. 7.

In the following, attention will be given to some ingeneous details of construction. For instance, with regard thereto FIG. 13 is a bottom view of one of the halves comprising the bottom 35A, for instance. It may be constructed of plastic, in the interests of preserving lightness, which is relatively thin so that a series of ribs 45 are employed to impart rigidity. A flange is provided around its entirety. One end 46 has bolt holes 47 for the hinges 43 mentioned heretofore. The sides have depending buttons 48 which are adapted to fit into cooperating means on the side wall structures. The end view shown by FIG. 14 provides better exemplification of the depending buttons 48.

FIGS. 18 to 20 illustrate with greater clarity the structure of one section of the top rail 30. It is hinged at 25 and has a bifurcated portion 50 at the other end thereof. A vertical bore 51 is designed to receive a pintle. The extending member 40 or 41 fits within the portion 50 and is thereby journalled. The enlarged bottom view of the rail 30 as seen from FIG. 20 indicates that the top rail is hollow along the underside thereof. A plurality of cross webs 52 are positioned at intervals. On either side of web 52 are spaced split webs 53.

From FIG. 15 it will be seen that vertical sections 32 having struts 33, a slot 54 provided at each end of each strut. FIG. 17 clearly shows the form of the slot which has converging sides. Web 52 of the top rail thickens towards its base. The outwardly facing web 52 is designed to be mated with the slots 54 of the struts 33 as can be seen from FIG. 26 at the top thereof. Split webs 53 prevent rotation of the struts. The struts are held therein either by strong friction fit or by gluing or heat sealing or a combination thereof.

The bottom rail is constructed in somewhat a similar manner. FIGS. 22 to 24 are presented to give the details of such construction. Again, it will be seen that a position is provided at one end for hinge 26. The other end has a similar bifurcated portion 54 with a bore 55. Instead of inserting the struts 33 from the bottom as with the top rail the struts are inserted into the top of the bottom rail through a slot 56 adapted to accommodate the struts 33. A web 57 is supplied along with split webs 58 which are spaced from webs 57 as with the webs of the top rail. The struts fit into the bottom rail in a manner as shown in FIG. 26 and are retained in position in the same manner as before.

Bottom rail 31 has a longitudinal flange 59 running along one side as can be seen from FIG. 23. The flange 59 is designed to provide support for the bottom portions 35A and 35B. Openings 60 are adapted to receive the downwardly depending buttons 48 of the bottoms.

When the legs **36** are in a retracted position guideways **62** and **63** are provided in each corner of the box structure, as can readily be seen from FIGS. **8** and **9**. Guideway **62** is merely a thickened portion of the corner of the box structure. Guideway **63** is an elongated short wall extending perpendicularly from the back of the box structure and parallel with respect to guideway **62**. Both guideways may be integrally molded with the box structure. An elongated cover plate of suitable material is bolted to the guideways by bolt holes **64**, thereby completing the fourth side of the guideways.

Throughout, the structure of the present invention is designed in contemplation of its being manufactured of plastic materials, as by suitable molding techniques. However, other materials are suitable for the construction of the crib.

What is claimed is:

1. A collapsible crib comprising first and second open box structures positioned in horizontally spaced relation, with their mouth rims opposite each other; the first box structure serving as the head end and the second box structure serving as the foot end of the crib, first and second opposite, spaced, vertical side wall structures, one end of said first wall structure extending into said first box structure, the other end of said first wall terminating at a point horizontally spaced from said second box structure, one end of said second wall structure extending into said second box structure, the other end of said second wall terminating at a point spaced horizontally from said first box structure, each of said side wall structures having a top rail and a bottom rail, the bottom rails having a longitudinal flange on the internal side thereof and the side edge portions of the bottom halves rest on said longitudinal flanges, each top rail and each bottom rail being joined by a grid-like structure, each of said top rails being hollow and being open along the bottom thereof, a plurality of transverse flat members being positioned internally and extending downwardly in spaced relationship in said top rails, each of said bottom rails being hollow and having a top wall, a plurality of openings being positioned along the top wall, said openings having a transverse flat member positioned internally of said bottom rail and extending upwardly, said grid-like structure having a plurality of upwardly extending struts and a plurality of downwardly extending struts, said struts terminating in a transverse slot, said slot of said upwardly extending strut adapted and constructed to mate with said flat member in said top rail, said slot of said downwardly extending strut adapted and constructed to extend into said opening in said top wall of said bottom rail and to mate with said flat member therein; each of said first and second wall structures being hingedly connected at its ends to said box structures; said hinge connections for the ends of said wall structures terminating within the box structures having vertical journalling means within the box structure while the hinge connections for the ends of said wall structure terminating at a point spaced from the box having vertical journalling means spaced from the box structure; each side wall structure comprising two hingedly connected sections in horizontal extension of each other; each side wall structure being foldable inwardly of the crib; said crib having a bottom consisting of two halves, an end of each half being hingedly connected in the lower portion of the internal part of the box structure.

* * * * *