May 18, 1965 R. V. JACOBS ETAL 3,183,528

FOLDING PLAYPEN

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FIG. 1.

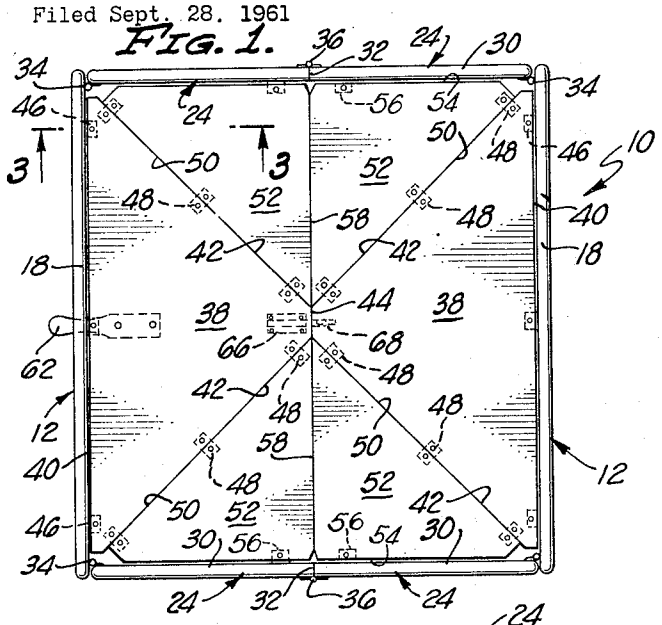


FIG. 2.

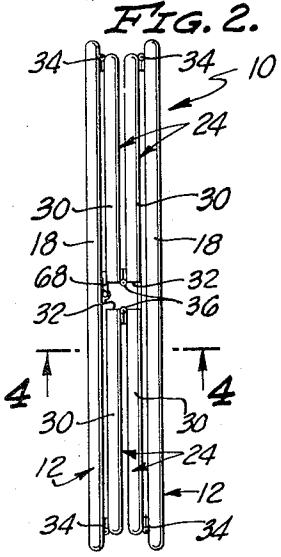


FIG. 3.

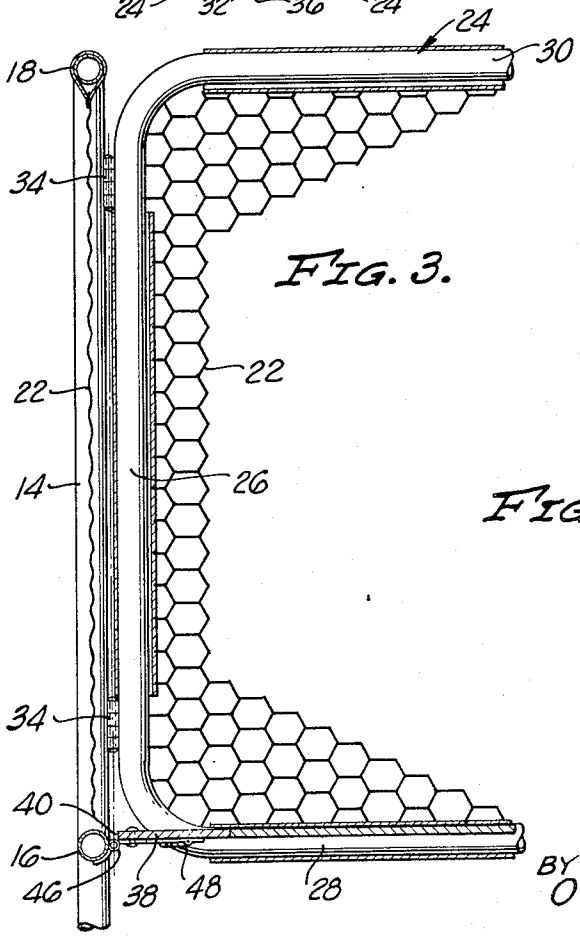
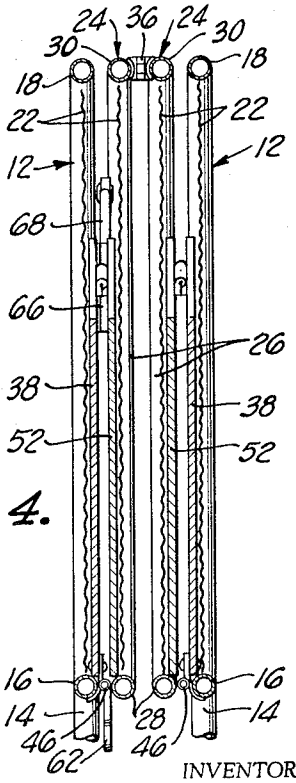


FIG. 4.



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FIG. 5.

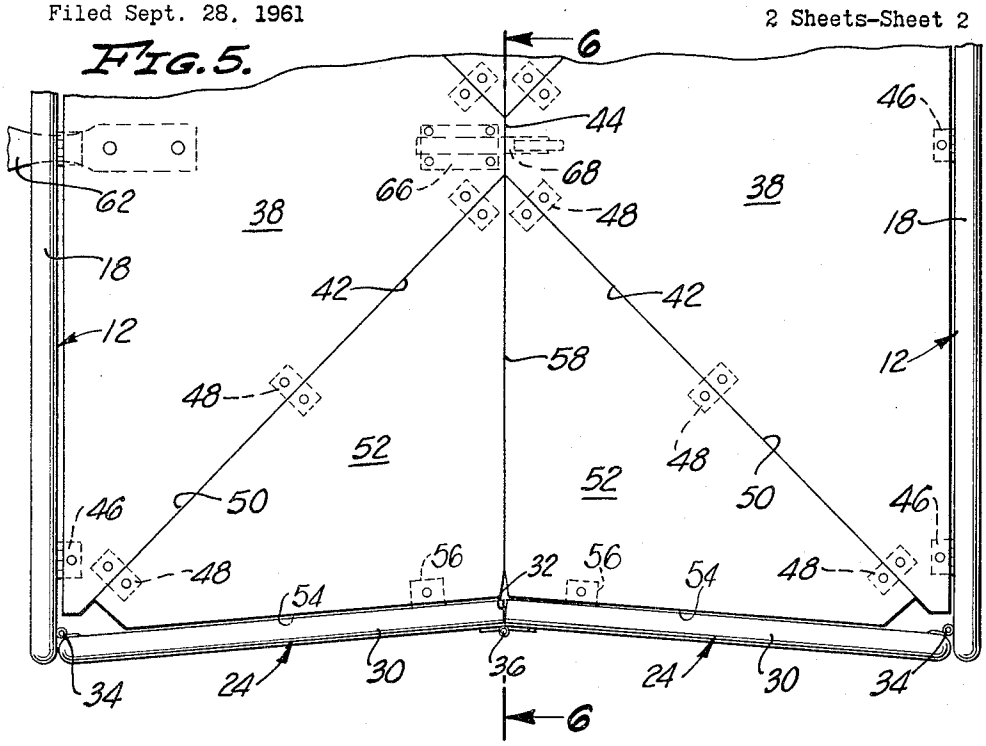
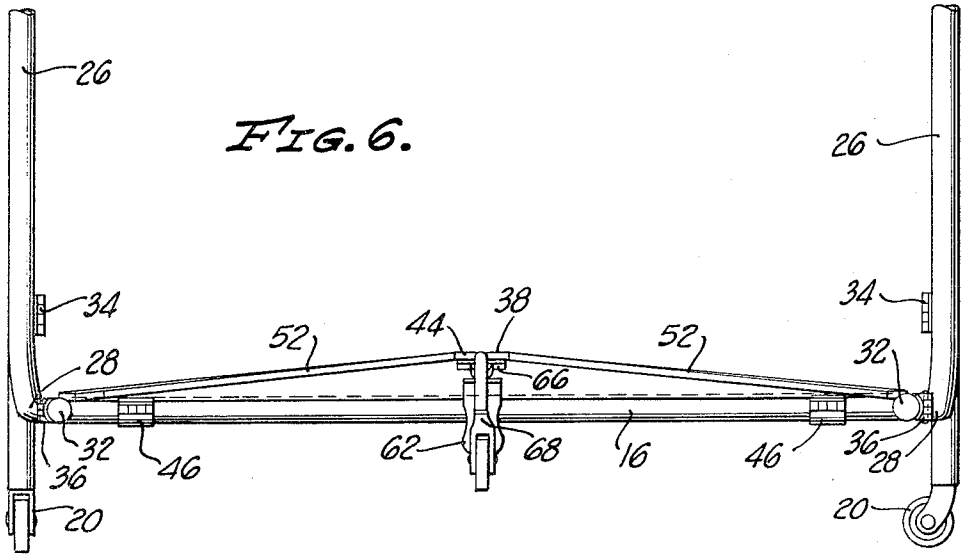


FIG. 6.



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FOLDING PLAYPEN

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1 Claim. (Cl. 5—99)

This invention pertains to new and improved structures of a type commonly referred to as folding playpens or play yards. More specifically it pertains to folding playpens or play yards utilizing features embodied within folding play yards as set forth in the Landry U.S. Patent 2,489,188, but which constitute an improvement over the play yards referred to in this patent.

In the above-noted Landry patent folding playpens or play yards are set forth which include opposed end walls having their edges or ends connected by means of side walls, and incorporating a floor structure which is pivotally connected to the end walls and the side walls employed. This general type of structure is considered to be advantageous inasmuch as it is of such a nature that it can be conveniently folded into a relatively flat configuration for storage or other purposes. Similarly the general type play yard set forth in the Landry patent can be easily unfolded to an operative or open configuration with very little difficulty.

Unfortunately in several regards the structure shown in the Landry patent is not considered to be completely satisfactory for all commercial purposes, although structures as shown in this Landry patent have been manufactured and sold in quantity and unquestionably are of a very desirable character. Specifically, in structures as shown in the Landry patent it is necessary to provide connecting latches at the adjacent ends of the side walls employed in order to achieve the rigidity in the entire structure necessary for it to be satisfactorily utilized. Obviously these connecting latch means must be connected and disconnected as a structure shown in the Landry patent is being opened or folded. Also, because of the specific locations of the various parts in the Landry patent sliding hinge or equivalent structures must be employed between the side walls and adjacent floor sections in the Landry structure in order to achieve a satisfactory folding action permitting the various sections of the floor shown in this patent to lie substantially flat during the use of a play yard or playpen as set forth in this patent. Such sliding hinges are relatively expensive; in addition, inherently such sliding hinges or equivalent structures are prone to maloperation.

An object of the present invention is to provide new and improved folding playpens or play yards which utilize constructional features as set forth in the Landry Patent 2,489,188, but which differ from the structures shown in this Landry patent in that they do not require sliding hinges or equivalent structures as briefly referred to in the preceding paragraph, and in that when in an unfolded or "open" position they do not require various latch connections or the like in order to be rigid. Related objects of this invention are to provide playpens or play yards of the type indicated in the preceding which are comparatively simple to manufacture and construct, which can be sold at an economically competitive price and which may be easily folded and unfolded as required during their utilization.

These and various other objects and advantages of this invention will be more fully apparent from a detailed consideration of the remainder of this specification including the appended claim and the accompanying drawings in which:

FIG. 1 is a top plan view of a folding playpen of this invention in an open position;

FIG. 2 is a top plan of this folding playpen in a folded configuration;

FIG. 3 is a partial cross-sectional view taken at line 3—3 of FIG. 1;

FIG. 4 is a cross-sectional view taken at line 4—4 of FIG. 2;

FIG. 5 is a partial, enlarged top plan view of the playpen shown in the preceding figures in the process of being moved between a folded and open position; and

FIG. 6 is a cross-sectional view corresponding to a view taken at line 6—6 of FIG. 5.

The accompanying drawings are based upon a presently preferred embodiment or form of a folding playpen or play yard of the present invention, but they do not illustrate this presently preferred playpen or play yard in an exact engineering sense so as to show various parts of this playpen at a scale corresponding to the dimensions of parts of it. This is because the accompanying drawings are primarily intended so as to clearly illustrate or explain the features of the present invention, and because these drawings can best accomplish this function by varying slightly from the precise relative sizes and shapes of various parts of the actual playpen upon which the drawings are based.

As an aid to understanding this invention it can be stated in essentially summary form that it concerns folding playpens or play yards, each of which is constructed so as to include opposed end walls, each of which carries two side walls and a center floor section. In a playpen or yard of this invention the extremities of the side walls remote from the end walls are hinged together, and side floor sections are hinged to these side walls and to the center floor sections employed in such a manner that the entire assembly is simultaneously capable of being folded or unfolded as a unit from or to an open or a folded position, and in such a manner that when this assembly is located in an open position the various parts of the playpen or play yard are held together so as to achieve a type of locking action which serves to eliminate the necessity for latches or the like serving to provide rigidity to the structure.

The actual details of this invention will be more fully apparent from a consideration of the accompanying drawings in which there is shown a folding playpen or play yard **10** of the present invention having opposed, identically formed end walls **12**. Each of these end walls incorporates a framework having vertical parallel end members **14** joined by a bottom member **16** and a top rail **18**. In each of the end walls **12** the bottom member **16** is parallel to the top rail **18**, and further the members **14**, **16** and **18** are located within a single plane. The lower ends of the end members **14** and **16** and the rails **18** are closed by a screen-like, flexible net **22**; other related structures can be employed for the same purpose.

From a consideration of the drawing it will be realized that when the end walls **12** are located in an open position so as to be spaced from one another that these end members **14** are joined by side walls **24**. Each of the side walls **24** includes a U-shaped framework consisting of an end member **26**, a bottom member **28** and a top rail **30**. The extremities **32** of the end members **28** and the top rails **30** serve as end members for the side walls. Other nets **22** of the same type as the nets **22** previously described join the members **26** and **28** and the top rail **30** of two of the side walls **24** which are located next to one another.

In this structure hinges **34** connect the end members **14** and **26** while other hinges **36** connect the extremities **32** of the end members **26** and the top rails **30** so as to hold the side walls **24** in alignment with one another as illustrated in FIG. 1 when the playpen **10** is in an open position. The hinges **36** are preferably of a character

permitting rotation between the side walls 24 only in an inwardly direction toward the center of the playpen 10. When they are in an open position the extremities 32 abut against one another as illustrated in FIG. 1.

In the playpen 10 center floor sections 38 of a trapezoidal shape having base edges 40, diagonal edges 42 and top edges 44 are located so that the base edges 40 are attached to and extend along the lengths of the bottom members 16 of the end walls 12 through the use of hinges 46. These hinges 46 are all disposed in such a manner that their axes of rotation lie within the same plane as the axes of rotation of the hinges 34 connected to the same end walls 12.

Other hinges 48 connect the diagonal edges 42 of the center floor sections 38 to what may be referred to as the hypotenuse edges 50 of the side floor sections 52. Each of these side wall sections 52 has a base edge 54 which extends along the length of and is secured to one of the bottom members 28 by means of a single hinge 56. The hinges 56 are of the same general category as the rest of the hinges 34, 36, 46 and 48 employed in the playpen 10; they are constructed in such a manner as not to permit any sliding movement between the side floor sections 52 and the corresponding bottom members 28 of the side walls 24.

The side floor sections 52 are also constructed so as to include perpendicular edges 58 which extend from the base edges 54 at a right angle to these base edges. When the playpen 10 is in an open configuration as illustrated in FIG. 1 of the drawing the perpendicular edges 58 and the top edges 44 are all aligned with one another and abut against one another. Preferably the diagonal edges 42 and the hypotenuse edges 50 are also located against one another in this open position; these edges 44 and 50 are also preferably located in this open position so as to extend at 45° angles to the end walls 12 and the side walls 24.

The playpen 10 also preferably includes a foot pedal 62 which is rigidly secured to one of the center floor sections 38 at about its midpoint so as to extend from it beneath the bottom member 16 of one of the end walls 12. It may also include a bracket 66 attached to the same center floor section 38 adjacent to the top edge 44 of this section. When the bracket 66 is used it is employed to rotatably hold a small arm 68 which is capable of being rotated from a position in which it lies in a plane generally parallel to the center floor section 38 upon which it is supported to a position in which it extends from this center floor section 38 at a right angle so as to be capable of engaging a floor (not shown) when the playpen 10 is in an open position for the purpose of supporting the center portion of this floor.

As the playpen 10 is normally shipped or supplied to a consumer it is in a folded configuration in which the various parts of it are disposed as indicated in FIG. 2 of the drawings. When this playpen 10 is to be used the end walls 12 are moved away from one another in such a manner as to remain generally parallel. When the walls 18 have been moved a sufficient distance so as to provide for a space (not shown) generally between the edges 44 of the center floor sections 38 the arm 68 may be rotated so as to extend at a right angle from the section 38 holding it, and may be latched in place. Then the walls 12 are moved further apart until they are approximately in the position shown in FIG. 1 of the drawings.

The playpen 10 is dimensioned so that in this position the distance between the extremities 32 of the bottom member 28 is slightly less than the total distance or length of the edges 58 and 44 of the side floor sections 52 and the center floor sections 38 extending across the entire playpen 10 roughly parallel to the end walls 12. At this point a very small amount of pressure can be applied to any one of the sections 38 or 52, or to the side walls 24

so as to "spring" the sections 38 and 52 to a position corresponding to an over center toggle type position in which the edges 58 and 44 extend a comparatively short distance below a line drawn between the extremities 32 of the bottom members 28. When this occurs the base edges 54 of the side floor sections 52 are supported by the bottom members 28. Further, the action achieved in this manner "locks" the entire playpen 10 so that there is no necessity for securing the side walls 24 to one another by latches or the like. Further, at this point the playpen 10 can be folded to a folded configuration as indicated in FIG. 2 of the drawings by stepping upon the pedal 62 and reversing the series of operations described in the preceding.

Those skilled in the art to which this invention pertains will realize that the playpen 10 is a very efficient, effective device which constitutes a definite improvement over prior closely related structures such as are shown in the aforenoted Landry U.S. Patent No. 2,489,188. They will also realize that playpens such as the playpen 10 may be easily and conveniently used, and that because of the construction features embodied within these playpens there is no necessity for using with them sliding hinges or the like which, as pointed out in the initial portions of this specification, are relatively undesirable in a structure as described. Because of the nature of this invention it is to be considered as being limited only by the appended claim forming a part of this disclosure.

We claim:

In a folding play yard having in an unfolded position a pair of opposite end wall members, a pair of connecting folding side wall members hingedly pivoted between said end wall members, a center floor member adjacent each end wall member and hingedly pivoted to its adjacent end wall member, and a side floor member adjacent each side of each of said center floor members and hingedly pivoted thereto at adjacent edges, each of said side floor members being hingedly pivoted to the adjacent part of its adjacent folding side wall member so that said folding side wall members and said center and side floor members are simultaneously foldable, one by the movement of the other, the improvement which comprises:

hinge means at each of said hingedly pivoted adjacent members, said hinge means being rigid axially of said hinge means and being rigidly secured to said adjacent members, said hinge means connecting each of said end wall members and adjacent side wall members to said center floor member and to said side floor members and said hinge means connecting said center floor members to said side floor members being in such position that all of said hinge means have axes which are located in the same plane when said floor members are in the same plane;

said hinge means connecting one of said side wall members to said adjacent side floor member, said hinge means connecting said adjacent side floor member to said adjacent center floor member, said hinge means connecting said adjacent center floor member to said adjacent end wall member and said hinge means connecting said adjacent end wall member to said adjacent side wall member being in such positions that the axes thereof intersect at a common point.

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