Oct. 15, 1946. E. S. SWAZEY 2,409,598

PORTABLE PLAY PEN FOR CHILDREN

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Fig. 1

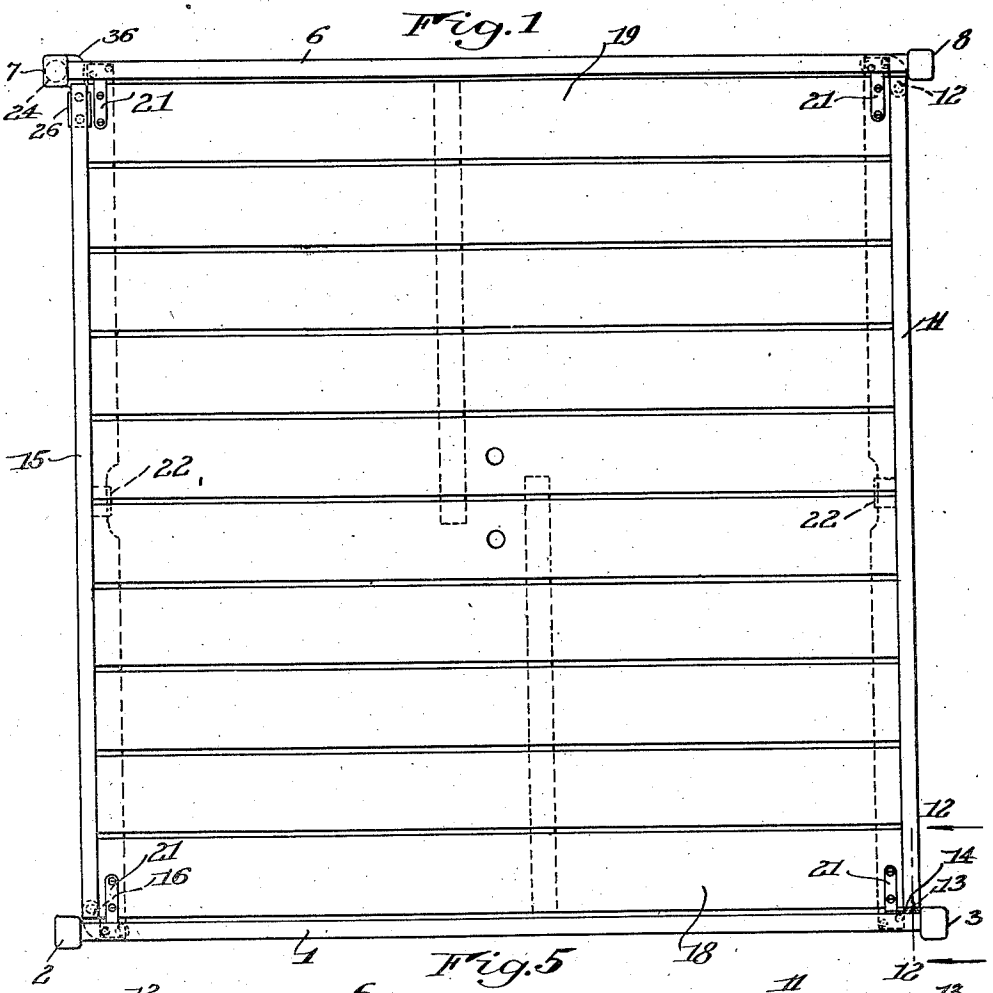


Fig. 5

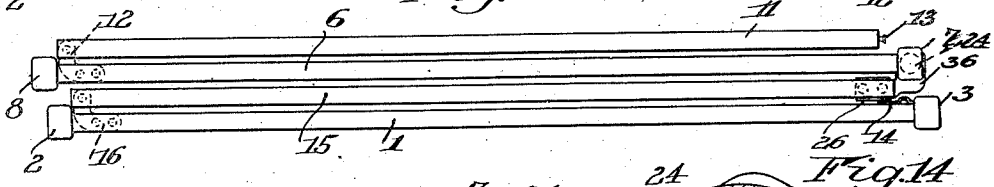


Fig. 13

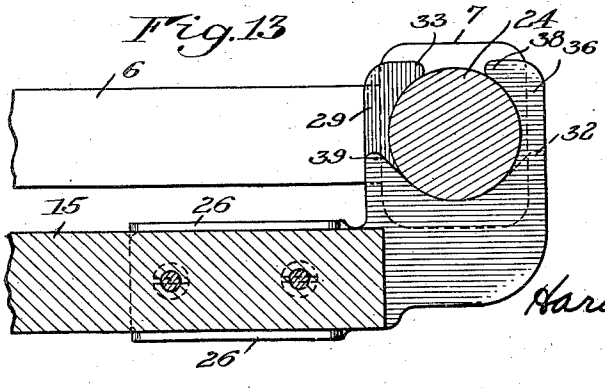
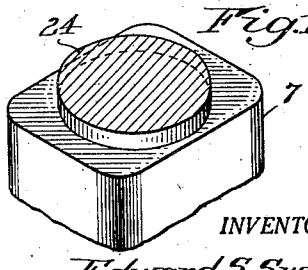


Fig. 14



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PORTABLE PLAY PEN FOR CHILDREN

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Fig. 1

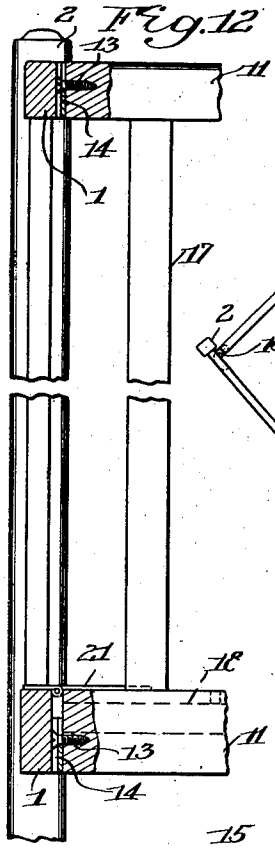


Fig. 2

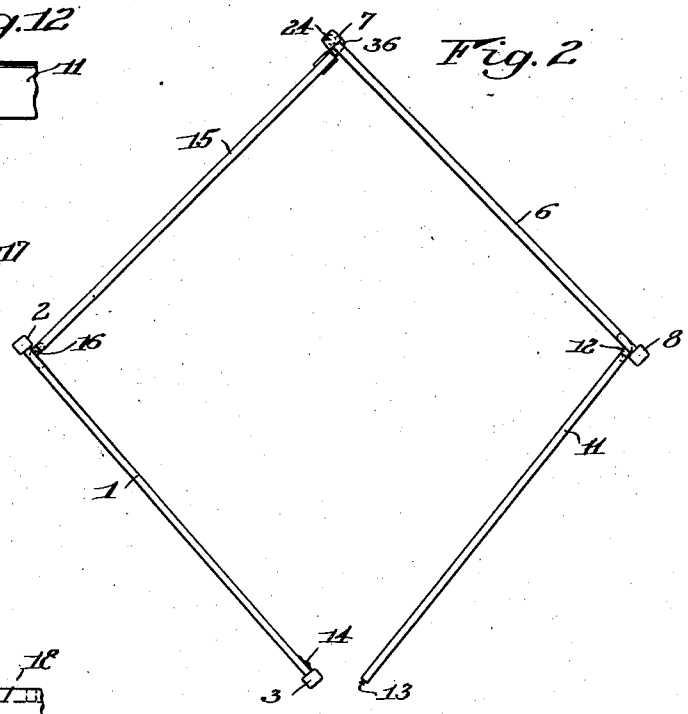


Fig. 3

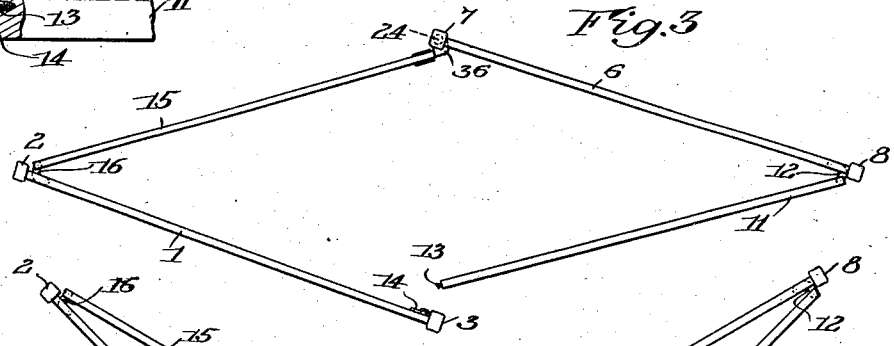
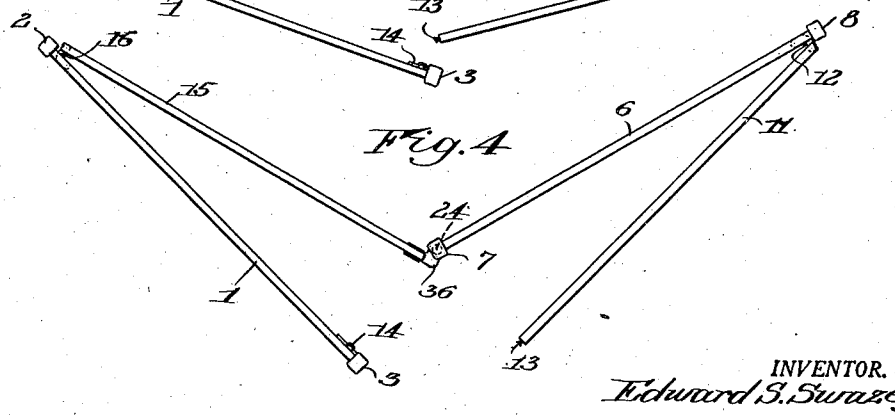


Fig. 4



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PORTABLE PLAY PEN FOR CHILDREN

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Fig. 6

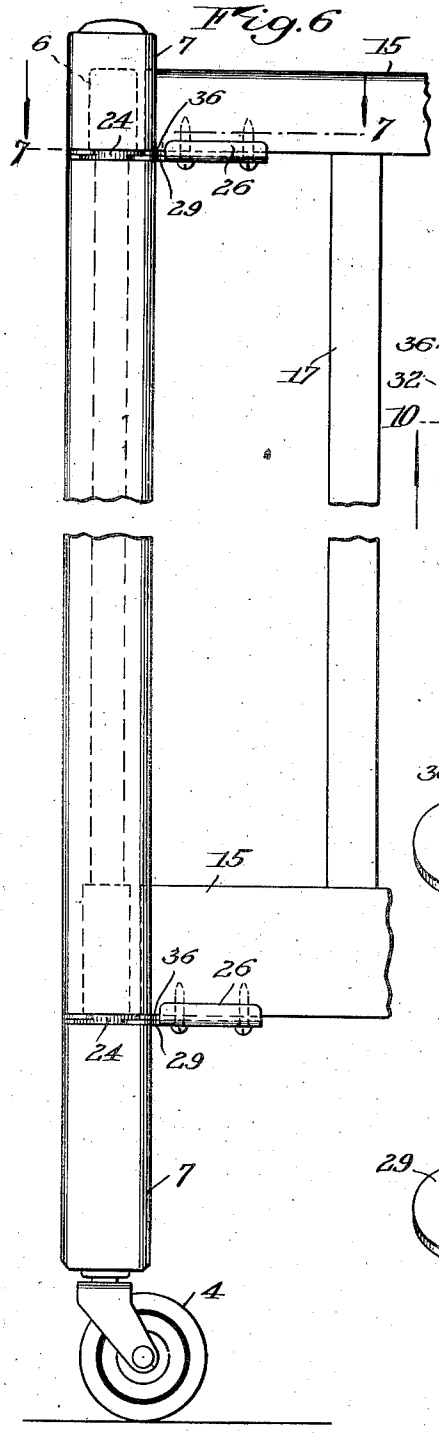


Fig. 7

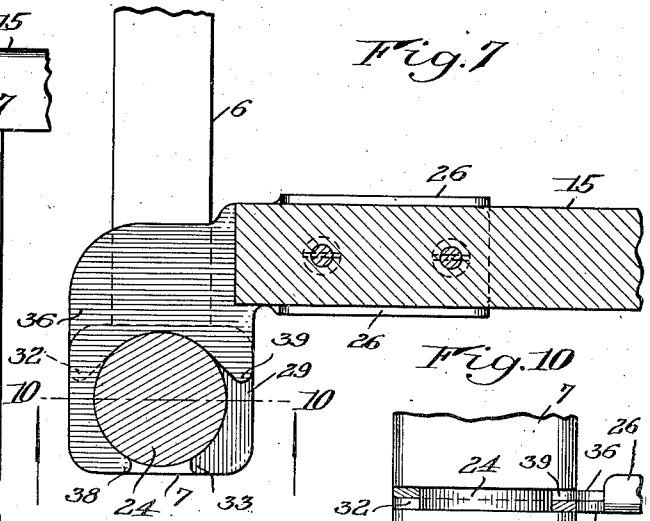


Fig. 10

Fig. 8

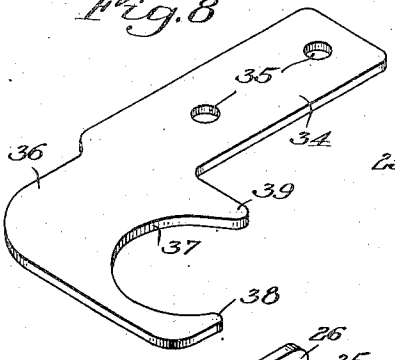


Fig. 11

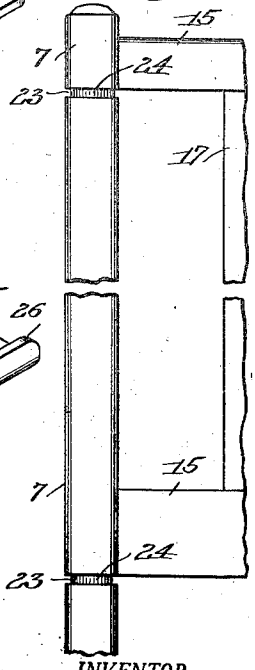
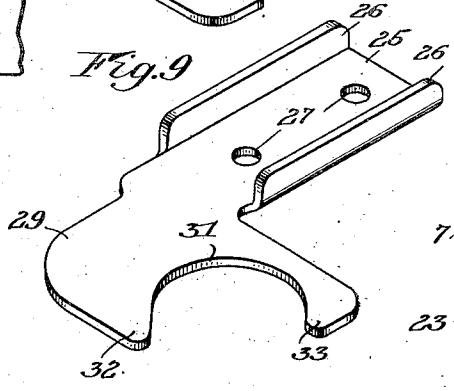


Fig. 9



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Patented Oct. 15, 1946 2,409,598

UNITED STATES PATENT OFFICE

2,409,598

PORTABLE PLAY PEN FOR CHILDREN

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Application November 23, 1944, Serial No. 564,765

3 Claims. (Cl. 256—25)

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This invention relates to a portable play pen for children, and has for its object to provide a structure including four side walls forming an enclosure and each having pivotal connection with an adjacent side wall so as to permit folding all four side walls one upon another for collapsing the device.

More specifically, it is a purpose of the invention to afford a play pen having four side walls, two of which are separably connected at one corner while the other two side walls are pivotally connected at the opposite corner by a construction that permits them to be folded relatively outwardly, each through an arc of 135°, the other two side walls being folded inwardly in relation to the walls to which they are pivoted, so that all four side walls are in close parallel relationship when folded and connected as a single unit.

Children's play pens as heretofore constructed have been of two general types, one type consisting of two separable sections each of which comprises two side walls pivoted together so that when folded the pen is in two parts, and the other type including opposite side walls formed of two parts hinged to each other at the center of the side wall, thus requiring the two parts of each opposite side wall to be folded inwardly at the central portion of the side wall.

The first type is objectionable because of the pen being in two parts when collapsed and therefore more difficult to fold and assemble, while the second type is unsuccessful because of the hinge connections at the center of the opposite two side walls, involving a costlier construction and also presenting a hazard in the possible injury of a child's finger at the hinged joint. Still a third style of construction consists in forming the side walls in two sections, each consisting of two pivotally connected walls, and connecting the sections by means of floor portions which are hinged together, but this construction is objectionable and impractical because of the difficulty in collapsing and assembling the side walls and floor portions, and it is a purpose of the invention to provide a construction in which the pen can be folded by merely disconnecting two side walls at one corner, folding said walls inwardly and at the same time swinging the other side walls relatively outwardly, each through an arc of 135°, until all four walls are parallel with the first mentioned walls outside the other two walls and the floor sections folded vertically against the side walls to which they are connected.

Another object of the invention is to afford a hinge construction adapted to connect a corner

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post of one wall with an adjacent wall in such a way as to permit one wall to turn in relation to the other through an arc of 270°, enabling two side walls of a play pen to be folded relatively outwardly, each through an arc of 135°, from a right-angular relation to a parallel relation with their outer surfaces adjacent.

A further purpose of the invention is to afford a simple and practical hinge of economical construction that can be easily assembled in operative relation on a corner post and which will permit turning of a connected part in relation thereto through any desired arc of movement.

To these and other ends, the invention consists in the construction and arrangement of parts which will appear clearly from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the specification.

In the drawings:

Fig. 1 is a plan view of a children's play pen made in accordance with a preferred embodiment of the invention and showing the parts in operative position;

Fig. 2 is a diagrammatic plan view showing the relative positions which the side walls first assume after disconnecting the separable walls;

Fig. 3 is a view similar to Fig. 2, showing the position after the two separable walls have been folded partially inwardly and the other two walls partially outwardly;

Fig. 4 is a view similar to Fig. 3 after further folding of the walls;

Fig. 5 is a plan view showing the position of the walls when completely folded;

Fig. 6 in an enlarged side elevation, with parts broken away, showing a corner post of one side wall, the top and bottom rails of the adjacent intermediate side wall, and the hinge connections;

Fig. 7 is a horizontal sectional view on line 7—7 of Fig. 6;

Fig. 8 is a perspective view of one part of the hinge member;

Fig. 9 is a similar view of the other part of the hinge member;

Fig. 10 is a sectional view on line 10—10 of Fig. 7, with the post in elevation;

Fig. 11 is a view in side elevation of a corner post and part of the supporting wall, with the hinge member removed;

Fig. 12 is a sectional view on line 12—12 of Fig. 1;

Fig. 13 is a sectional view similar to Fig. 7 with the walls folded, and

Fig. 14 is a perspective sectional view of the post in the same plane as Fig. 13.

Referring more particularly to the drawings in which like reference numerals refer to the same parts throughout the several views, the invention is illustrated in connection with a children's play pen including oppositely arranged supporting walls, one of which includes top and bottom rails 1 connecting the corner posts 2 and 3 mounted on casters 4, while the other supporting wall includes top and bottom rails 6 connecting the corner posts 7 and 8 also mounted on casters to permit the device to be easily manipulated over a floor for relative movement of the side walls when collapsing or assembling the device. The top and bottom rails 1 and 6 support vertical spindles as usual in this type of construction.

The supporting walls with rails 1 and 6 are connected by oppositely arranged intermediate walls including top and bottom rails connected by vertical spindles, each of said intermediate walls being pivoted at one end to a supporting wall, while one of the intermediate walls is separately connected at its other end to a supporting wall and the other of said intermediate walls is pivotally associated at its other end with the adjacent supporting wall by a hinge member that permits folding the two walls relatively outwardly each through an arc of 135° when collapsing.

11 designates the top and bottom rails of one of the intermediate walls that is pivotally connected to the rails 6 of a supporting wall by means of hinges 12 secured to the rails of the respective walls. The rails 11 of the intermediate wall are provided at their opposite ends with locking projections 13 adapted to engage the metal sockets 14 attached to the rails 1 of the adjacent supporting wall so that by lifting rail 11, the intermediate wall is elevated slightly at one end to lift locking projections 13 out of the sockets 14, and the intermediate wall can then be disconnected at this point from the supporting wall when the device is to be folded or collapsed.

The opposite intermediate wall includes top and bottom rails designated at 15 which are pivoted at one end by means of hinges 16 to the rails 1 of a supporting wall, such pivotal connection between the rails 1 and 15 being at the opposite corner from the hinge connection 12 between the other supporting and intermediate walls. 17 designates the vertical spindles connecting top and bottom rails 11 and 15.

The hinge connections 12 and 16 permit the intermediate wall or rails 11, when disconnected from sockets 14, to fold inwardly against the supporting wall or rails 6, and supporting wall or rails 1 to fold inwardly against the intermediate wall or rails 15 when folding the parts, while at the same time the supporting wall rails 6 and intermediate wall rails 15 swing relatively outwardly, by means of the structure that will presently be described, to enable collapsing the walls into the position illustrated in Fig. 5, with the supporting wall or rails 6 and intermediate wall or rails 15 located between the supporting wall or rails 1 and intermediate wall or rails 11.

The supporting walls are provided with the floor sections 18 and 19 which are pivotally connected to bottom rails 1 and 6 respectively by means of suitable hinges 21, and supported when in horizontal operative position by stop plates 22 carried by the intermediate walls, the floor sections 18 and 19 being foldable upwardly to vertical position against the supporting walls where they are held when collapsing the walls by means of straps or other suitable fastening devices. The floor sections 18 and 19 are folded upwardly to vertical position before the side walls are folded, and when the structure is collapsed, the floor section 18 is disposed between the supporting wall rails 1 and intermediate wall rails 15 while floor section 19 is disposed between supporting wall rails 6 and the intermediate wall rails 11.

In order to connect the supporting wall including rails 6 with the intermediate wall including rails 15 in such a manner as to permit relative outward folding of these walls, there are employed hinge members fastened to the rails of the intermediate side wall and having relative rotative movement on the corner post of the supporting wall. To accomplish this, the corner post 7 is provided with horizontal annular kerfs 23 extending peripherally around the post in spaced relation to the top and bottom thereof, said kerfs being adapted to receive arcuate bearing or supporting portions of hinge plates attached to the intermediate side wall, said bearing portions of the hinge plates being rotatable in said kerfs about the central portion 24 of the post.

Each hinge member preferably includes a pair of separable, relatively slidable plates, one including an attaching portion 25 provided with flanges 26, attaching openings 27, and an offset supporting or bearing portion 29 including an arcuate portion 31 terminating in extensions 32 and 33 which lie in the kerf 23 and embrace the central portion 24 of the post, while the other plate of the hinge member includes attaching portion 34 slidable between the flanges 26, attaching openings 35 adapted to be aligned with the openings 27, and an offset supporting or bearing portion 36 including an arcuate portion 37 terminating in extensions 38 and 39 which lie in the kerf 23 above the other plate and embrace the central part of the post.

In assembling the hinge member, the top plate is positioned against the bottom plate with its attaching portion 34 between the flanges 26 and the extension 39 approximately over the extension 32 of the bottom plate. When in this position, the bearing portions 29 and 36 can be inserted into the kerf 23 of the post with the arcuate portions 31 and 37 facing the center of the post, and the plates are then moved relatively endwise and at the same time toward the post until the central portion 24 is closely embraced by both the arcuate portions 31 and 37, which engage the central part 24 of the post at different points and hold the hinge member securely therein.

When the post is thus secured by the arcuate portions 31 and 37, the openings 35 are in alinement with openings 27, and the hinge member is then fixedly attached to the rail 15 of the intermediate wall by screws secured through the alined openings 27 and 35, with the parts in the position illustrated in Fig. 6. The intermediate wall is thus supported on the corner post by hinge members secured to the corner post near its top and bottom, and to the top and bottom rails of the intermediate wall, and can turn on the corner post by the rotation thereon of the bearing portions 29 and 36 about the circular central portion 24 of the post.

With this construction, the intermediate wall or rails 15 can swing outwardly with relation to the supporting wall or rails 6 from the rightangular position illustrated in Fig. 1, each wall moving through an arc of 135°, until they are in parallel relation with their outer surfaces adja-

cent, as illustrated in Fig. 5, and this operation can be quickly and easily effected to collapse the structure, or the reverse operation performed with equal facility to move the walls into operative position.

Assuming the parts of the play pen to be in operative position, as illustrated in Fig. 1, when it is desired to fold the device, the floor sections 18 and 19 are first folded upwardly and secured against the supporting walls or rails 1 and 6 by a strap or other convenient fastening device. The rails 11 of the intermediate wall are then disconnected from the rails 1 of the supporting wall by lifting rails 11 to remove the locking projections 13 from the sockets 14, and the parts are then approximately in the position illustrated diagrammatically in Fig. 2.

The operator then grasps the intermediate wall rail 11 in his right hand and the supporting wall rail 1 in his left hand at points near the separable connections, and upon swinging said rails 1 and 11 outwardly in relation to each other from the Fig. 2 position, they assume the position illustrated in Fig. 3, and move the rails 6 and 15 of the other walls likewise relatively outwardly. This movement of rails 6 and 15 continues until they have each moved through an arc of more than 90°, after which they start to swing toward each other and to carry the rails 1 and 11 with them, as indicated in Fig. 4. By then pushing the walls together, they assume the folded relation shown in Fig. 5, with the rails all parallel and rails 6 and 15 located between rails 1 and 11. During this operation, wall 11 while folding on wall 6 moves inwardly through an arc of 90°, wall 1 while folding on wall 15 moves inwardly through an arc of 90°, and walls 6 and 15 while folding on each other move outwardly, each through an arc of 135°, until their outer surfaces are adjacent when in folded parallel relation.

For unfolding and positioning the parts in operative relation, the walls are grasped and manipulated reversely to the manner just described, and the intermediate wall rail projections 13 are secured in the sockets 14 of the rails 1 of the supporting wall, after which the floor sections 18 and 19 can be lowered. With this construction, it is possible to support the play pen on corner posts with the floor sections and walls considerably above the supporting floor, and by mounting the corner posts on casters, the device can quite easily be manipulated over the floor for collapsing in the manner described. When collapsed, it can easily be handled as the parts are in compact relation with the four walls adjacently disposed one to another, and the entire assembly can readily be lifted and transported.

While the invention has been disclosed in relation to a specific embodiment, it is not confined to the details herein shown, and this application is intended to cover such modifications or departures as may come within the purposes of the improvements and the scope of the following claims.

I claim:

1. A portable play pen for children including oppositely arranged supporting walls having posts at each end, one of said posts having annular horizontal kerfs extending peripherally around and in spaced relation to the top and bottom of the post, oppositely arranged intermediate walls each of which is pivotally connected at one end to a supporting wall and foldable inwardly into parallel relation therewith, one of said intermediate walls being separably connected at its other end to the adjacent supporting wall, and hinge members each consisting of two cooperating superposed metal plates fixedly attached to the other of said intermediate walls and each of said plates including an arcuate portion located in one of said kerfs and rotatable around the central part of the post permitting relative swinging movement outwardly between the wall carrying the post and said intermediate wall, each through an arc of 135°, until they are in folded parallel relation between the other two walls.

2. A portable play pen for children including four walls, two of which are separably connected at their adjacent ends and pivotally connected at their other ends to the other two walls and foldable inwardly into parallel relation therewith, one of said other two walls having a post provided with annular horizontal kerfs extending peripherally around the post in spaced relation to the top and bottom of the post, and hinge members each including a pair of superposed metal plates having attaching portions fixed to the adjacent wall and offset superposed oppositely arranged arcuate portions located in one of said kerfs and engaging different portions of the central part of the post, said arcuate portions being rotatable around the post and permitting relative swinging movement outwardly between the post-carrying wall and the hinge-carrying wall, each through an arc of 135°, until they are in folded parallel relation between the other two walls.

3. A portable play pen for children including oppositely arranged supporting walls having posts at each end, one of said posts on each supporting wall having annular horizontal kerfs extending peripherally around and in spaced relation to the top and bottom of the post, oppositely arranged intermediate walls each of which is pivotally connected at one end to a supporting wall and foldable inwardly into parallel relationship therewith, one of said intermediate walls being separably connected at its other end to the adjacent supporting wall, and hinge members fixedly attached to the other of said intermediate walls, each of said hinge members including a pair of metal plates having superposed attaching portions fastened to the intermediate wall and superposed arcuate portions extending in directions generally perpendicular to each other and engaging different portions of the central part of the post, said arcuate portions being rotatable around the post and permitting relative swinging movement of said walls, and flanges extending endwise of the attaching portion of one of said plates and embracing the edges of the attaching portion of the other of said plates.

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