This invention relates to play pens and more specifically concerns a novel and improved play pen that may be readily and easily folded for storage and transportation and which includes improved means for elevating the bottom thereof when the play pen is in the open position. While this invention is described as a play pen, it will become apparent from the course of the description that the structure would also serve as a crib.

While many forms of collapsible play pens have heretofore been suggested, one of the difficulties entailed is that the bottom is fixed in position and requires one to bend over the side of the pen to remove a child lying or crawling therein. Extreme care must be exercised in such instances to avoid back injuries since substantial stresses are placed on the back. This invention overcomes these difficulties and provides a novel and improved structure including bottom elevating means for movement of the entire bottom of the play pen to a raised position and thus facilitate removal of the child therefrom. Furthermore, the bottom when in the raised position serves as a conventent surface for dressing or otherwise attending to the child's needs without necessitating removal of the child from the play pen.

Another object of the invention resides in the provision of a novel and improved play pen having elevating means for raising the bottom wherein the elevating means provides sturdy support for the bottom and at the same time folds into a compact structure requiring little, if any, additional space that is needed for normal bottom supporting means in play pens.

Another object of the invention resides in a novel and improved bottom elevating means for play pens that is characterized by its compactness, simplicity, relatively low cost and dependability.

A further object of the invention resides in the provision of a novel and improved collapsible play pen with bottom elevating means that affords a sturdy structure and wherein improved means are provided for retaining the play pen in the open position and for securing the bottom in both the elevated and lowered positions.

The above and other objects and advantages of the invention will become more apparent from the following description and accompanying drawings forming part of this application.

In the drawings:

FIGURE 1 is a side elevational view of a play pen in accordance with the invention and with portions sectioned along the line 1-1 of FIGURE 2.

FIGURE 2 is a bottom view of the play pen shown in FIGURE 1 and with the bottom in the raised position.

FIGURE 3 is a side elevational view of the play pen shown in FIGURE 1 with the bottom in a lowered position and with the legs being moved inwardly to place the structure in the folded position.

FIGURE 4 is a bottom view similar to FIGURE 2 but with the play pen in the fully collapsed position.

FIGURE 5 is a cross-sectional view of FIGURE 4 taken along the line 5-5 thereof.

FIGURE 6 is an enlarged perspective view of one of the locking means for securing the leg structures to the lower frame member, and

FIGURE 7 is an enlarged perspective view of the locking means for holding the bottom in the elevated position.

The play pen in accordance with the illustrated embodiment of the invention comprises a pair of rectangular frames generally denoted by the numerals 10 and 11 with the frame 10 being the upper frame and the frame 11 being the lower frame. The frames are joined by a flexible webbing 12 of fabric or the like which is provided with a binding 13 at the upper edge which encloses the frame 10 and a binding 14 about the lower edge which encloses the frame 11. The frames 10 and 11 are supported by two pairs of legs 15a-b and 16a-b. The four legs are substantially identical and each has a right angle bend 17 at the top end thereof terminating in a horizontal portion 18 when the play pen is in the open position.

The horizontal portions 18 of the legs are attached to opposite sides of the top frame 10 by pivots 19 so that when the legs are in the open position they adjoin the corners of the play pen and provide firm support therefor. The pair of legs 15a-b are joined by a lower transverse member 20 and have downwardly formed end portions 21 firmly secured to the legs by brackets 22. The transverse portions of the brackets 20 lie substantially in the plane of the bottom frame 11 when the play pen is in the open position as shown in FIGURE 1. The legs 16 are similarly bracked by a corresponding brace 20 with downwardly extending end portions 21 secured to the legs 16a-b by brackets 22. In addition to the transverse braces 20, further stability is provided to the play pen when in the open position by four chains 23 each of which is pivoted to one of the legs at a point 24 spaced from the upper end thereof and to the top frame 10 at 25. When the play pen is in the open position, the chains 23 make an angle of approximately 45° with the legs and thus impart substantial rigidity to the structure. The two pairs of legs which function in unison are locked in the open position by locking means generally denoted by the numeral 26 and since each of these locking means is identical only the locking means on the legs 15a-b will be described.

Referring more specifically to FIGURES 1, 2 and 6, that portion of the lock 26 carried by the lower frame 11 comprises a flat strip 27 having a rounded portion 28 on the outer end which engages the lower frame 11 and is secured thereto by a rivet 29 or other suitable means so that the flat inwardly extending portion is retained in an approximately horizontal position. The bracket 27 carries a second bracket part 30 having a base portion 31 welded or otherwise secured to the bracket 27, a downwardly and inwardly inclined portion 32, and an outwardly and downwardly flared portion 33. The brackets 27 and 30 are arranged to receive the transverse brace 26 therebetween and the flared portion 33 of the bracket 30 facilitates engagement of the transverse brace 26 with the bracket members 27 and 30. The bracket member 30 has a slot 34 therein for receiving a portion of the latching means 35. The latching means 35 is pivoted at 36 to a pair of ears 37 secured to the bottom side of the bracket 30 as illustrated. In the instant embodiment of the invention, the ears 37
constitute the legs of a U-shaped member with the base thereof riveted to the brackets 27 and 30. The inner end 38 of the specifically has a downwardly extending latch 39 which moves into the slot 34 and is normally held in the slot by a spring 40 engaging an upwardly extending tab 41 carried by the outer portion 42 of the latch means 35. The upper end of the spring engages a boss 43 formed in the portion 31 of the bracket 30. With this arrangement, the latch member 39 can be moved out of the slot 34 by movement of the latch means about the pivot 36 and against the action of the spring 40.

The cooperating latching means carried by the transverse brace 20 comprises a guiding element generally denoted by the numeral 44. The guiding element 44 consists of two L-shaped posts 45 and 46 secured to the bottom of the transverse brace 20 and extending inwardly in a substantially horizontal plane when the play pen is in the open position as shown in FIGURE 1. The space between the elements 45 and 46 is slightly greater than the width of the bracket 30 so that the brace will be automatically contacted with the brackets 27 and 30 when the legs are moved to the open position. The inner ends of the elements 45 and 46 are joined by an upwardly formed transverse member 47, which, as will be described, cooperates with the elevating mechanism to provide support for the bottom when in the lowered position.

The transverse brace 20 is also provided with an opening 48 on the bottom side thereof and this opening receives the latch member 39 when the brace is moved into engagement between the brackets 27 and 30 as described.

With the foregoing arrangement, it is evident that when opening the play pen by moving the legs to their extended and outermost positions, the transverse brace upon entering the space between the brackets 27 and 30 will automatically push the latching element outwardly and then when the transverse brace is firmly fitted between the brackets 27 and 30 the opening 48 will automatically be aligned with the latch member 39 so that the latter will snap into the opening and thus lock the play pen in the open position.

The elevating mechanism for the play pen bottom 49 and pad 50 may be observed principally in FIGURES 1 and 2. Briefly, the elevating mechanism utilizes a pair of U-shaped frames with the legs pivoted one to the other to form a scissors-like construction so that the U-shaped frames can move from a position which is substantially coplanar to the elevated position where the frames are disposed at an angle one relative to the other.

Moreover, the bottom 49, as provided with two channels 51 and 52 secured thereto by rivets 53 or other suitable fastening means. The right-hand end of the inner wall 54 of each channel is provided with an elongated slot 55, while the left-hand end of the inner wall 54 of each channel is cut-away as indicated at 56. Similarly, the right-hand end of the outer wall 57 of each channel is cut-away as indicated at 58. One U-shaped member generally denoted by the numeral 59 consists of elongated legs 60 and 61 and a transverse member 62 having inwardly bent end portions riveted at 63 to the right-hand end of the legs 60 and 61 as viewed in FIGURE 2. The legs 60 and 61 are extended beyond the transverse member 62 and are pivoted at 64 to the inner wall 54 of the channels 51 and 52, the pivots 64 slidable engaging the slots 55 so that the pivots will traverse the slots during the raising and lowering movements. The left-hand ends of the legs 60 and 61 are connected by diagonal brackets 65 to the bottom frame 11 by pivoting means 66. With this arrangement, the U-shaped frame 59 can move about the pivots 66 as the bottom 49 is moved to the raised position.

The second U-shaped member is generally denoted by the numeral 67 and has a pair of legs 68 and 69 connected by a transverse member 70 having inwardly bent end portions riveted or otherwise secured at 71 to the legs. The legs extend slightly beyond the transverse member 70 and are pivoted at 72 to the outer walls 57 of the channels 51 and 52.

The U-shaped frames 59 and 67 are pivotally connected by means of brackets 73. The brackets 73 overlie the legs 60 and 61 are secured thereto by rivets 74. The outer portions of the brackets are bent inwardly and are pivotally attached to the legs 68 and 69. With this arrangement and with the bottom in the lowered position, it will be observed that the legs 68 and 69 lie wholly within the channels 51 and 52, while the legs 60 and 61 lie in positions adjoining the inner walls of the two channels while the brackets 73 bridge the walls 54 of the channels and form a compact assembly.

The lower or righthand ends of the legs 68 and 69 of the U-shaped member 67 slide slanting retainers 75 and the locking means generally denoted by the numeral 76 as will be observed in FIGURES 1 and 2. More specifically, these retaining and locking means comprise elongated tubular members 76 each having a slot 77 on the inner side thereof. The lower ends of the legs 60 and 69 are provided with inwardly extending pins 78 which ride in the slots 77 and permit the bottom 49 to be elevated and lowered uniformly. The lefthand ends of the slots 77 as shown in FIGURES 1 and 2 include locking means 79 which function to engage the pins or shafts 78 to hold the bottom 49 in the raised position. These locks are shown nested within an elongated member 80 pivotated to the tubular member 76 at 81. The locking member has a cutout portion 82 to expose a portion of the slot 77 and the outer end 83 of the locking member has an inclined surface so that, as the bottom 49 is moved upwardly and the shafts 76 and 83 are displaced inwardly in the slots 77, they will automatically displace the locking means 80 outwardly until they clear the outer end of the latch whereupon the latches will spring inwardly to lock the bottom in the raised position. The spring action is accomplished by a coil spring 84 reacting between a tab 85 carried by the locking means 80 and a fixed plate 86 carried by the tubular member 76. In order to facilitate raising of the bottom 49, a pair of counterbalancing springs 87 are provided. The lefthand ends of the springs are fastened at 88 to the bottom frame 11 as shown in FIGURES 1 and 2, while the righthand ends of the springs engage the pins 78 within the tubular members 76.

In order to facilitate release of the latching members 80, the latching members are connected by a transverse rod 89, the ends of which extend through tubular portions 90 formed as part of the latching members 80 and have outwardly extending portions 91 which are accessible from the sides of the play pen. With this arrangement and with the bottom 49 in the raised position, if one of the projections 91 is displaced, both of the latches 80 will be released and permit the bottom to move to the lowered position.

Means are also provided for latching the bottom in the lowered position and these means include a pair of bracket members 92 and 93 pivotally carrying levers 94 and 95. When the bottom is in the lowered position as shown in dotted outline in FIGURE 1, the levers 94 and 95 may be swung outwardly to engage the underside of the lower frame member 11. Since the brackets 92 and 93 are secured to the channels 51 and 52, these levers will lock the bottom 49 in the lowered position and it cannot be raised unless the levers are pivoted inwardly to the position shown in FIGURE 2.

While only one embodiment of the invention has been illustrated and described, it is apparent that alterations, modifications and changes may be made without departing from the true scope and spirit thereof as defined by the appended claims.

What is claimed is:

1. A collapsible play pen comprises upper and lower rectangular frame members, two pairs of legs, means pivoting the legs of each pair to corresponding end portions
of a pair of opposing sides of said upper frame, said legs being movable between positions parallel to said upper frame and perpendicular thereto, transverse frame members connecting the lower ends of each pair of legs, means between said legs and said upper frame to limit movement of said legs beyond said perpendicular position, means releasably locking said lower frame member to said transverse frame members, a play pen bottom carried by said lower frame member, a flexible net carried between said upper and lower frame members, means between said lower frame member, means between said bottom and said lower frame member to raise and lower said bottom with said lower frame member locked to said transverse frame members, locking means for releasably holding said bottom in a raised position, and a flexible net connecting said upper and lower frame members.

2. A collapsible play pen according to claim 1 wherein said means to raise and lower said bottom comprises two pair of elongated frame elements with the elements of each of said pair pivoted one to the other at points substantially midway between their ends, means fixedly pivoting one end of one element of each pair to said bottom and the adjoining end of the other element of each pair to said lower frame, means slidable pivoting the other end of said one element of each pair to said lower frame, means slidable pivoting the other end of the other element of each pair to said bottom, and spring means coupled to said elements for urging said last lengthening means comprising a pair of spring latches carried by said lower frame interconnected by a transverse rod operable from either side of said play pen to simultaneously release said latches, said latches engaging the first said slidable pivoting means when the bottom is in the raised position.

3. In a plan view having upper and lower frame members joined by a netting and held in spaced relationship one to the other, a bottom carried by said lower frame member and elevating means for said bottom, said means comprising coupled means extending from each member to the midpoints of spaced parallel rods each spacedly pivoted at one end to said frame and slidably pivoted at its other end to said lower frame member, said rods lying within said channels when the bottom is in the lowered position, a second pair of spaced parallel rods each spacedly pivoted at one end to an inner wall of one of said channels and adjoining the other end thereof, bracket means pivotally connecting the adjoining ends of each pair at points midway of their lengths and locking means interconnected with at least one of said pairs of rods for holding said bottom in a raised position.

4. In a play pen according to claim 6 wherein the last said locking means is carried by said lower frame member and engages the slidable pivot attachment of one of said second pair of rods to said lower frame member to secure said bottom in a raised position.

5. In a plan view according to claim 6 including spring means coupled to said lower frame member and the slidable pivots coupling the other ends of the second set of rods to said lower frame member, said spring means at least partially counterbalancing the weight of said bottom and lying substantially in the plane of said pair of rods when the bottom is in the lowered position.

6. A collapsible play pen comprising upper and lower rectangular frame members, two pairs of legs, means pivoting the legs of each pair to corresponding end portions of a pair of opposing sides of said upper frame, said legs being movable between positions parallel to said upper frame and perpendicular thereto, transverse frame members connecting the lower ends of each pair of legs, means between said legs and said upper frame to limit movement of said legs beyond said perpendicular position, means releasably locking said lower frame member to said transverse frame members, a play pen bottom carried by said lower frame member, a flexible net carried between said upper and lower frame members, means between said lower frame member, means between said bottom and said lower frame member to raise and lower said bottom, the last said means comprising a pair of spaced U-shaped channels extending along a pair of opposing edges of said bottom with the transverse portion of said channels being secured to the underside of said bottom and the leg portions of said channels extending downwardly therefrom, a first pair of spaced parallel rods each pivoted at one end to one end of the outer leg of one of said channels and slidably pivoted at its other end to said lower frame member, said rods lying within said channels when the bottom is in the lowered position, a second pair of spaced parallel rods each spacedly pivoted at one end to an inner wall of one of said channels and adjoining the other end thereof, bracket means pivotally connecting the adjoining ends of each pair at points midway of their lengths and locking means interconnected with at least one of said pairs of rods for holding said bottom in a raised position.
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points midway of their lengths and locking means interconnected with at least one of said pairs of rods for holding said bottom in a raised position, the first said locking means each including a pivoted latching element and said transverse rods each including an opening for engagement of said latching means and cooperating centering and aligning means carried by said lower and transverse frame members for guiding said opening into engagement with said latching element.

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<th>Patent Number</th>
<th>Date</th>
<th>Inventor(s)</th>
<th>Classification</th>
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<td>5—63</td>
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<td>Peterson</td>
<td>5—99</td>
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</tbody>
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FRANK B. SHERRY, Primary Examiner.