Feb. 19, 1957 H. J. LANDRY 2,781,527

CONVERTIBLE CRIB AND PLAY-YARD CONSTRUCTIONS

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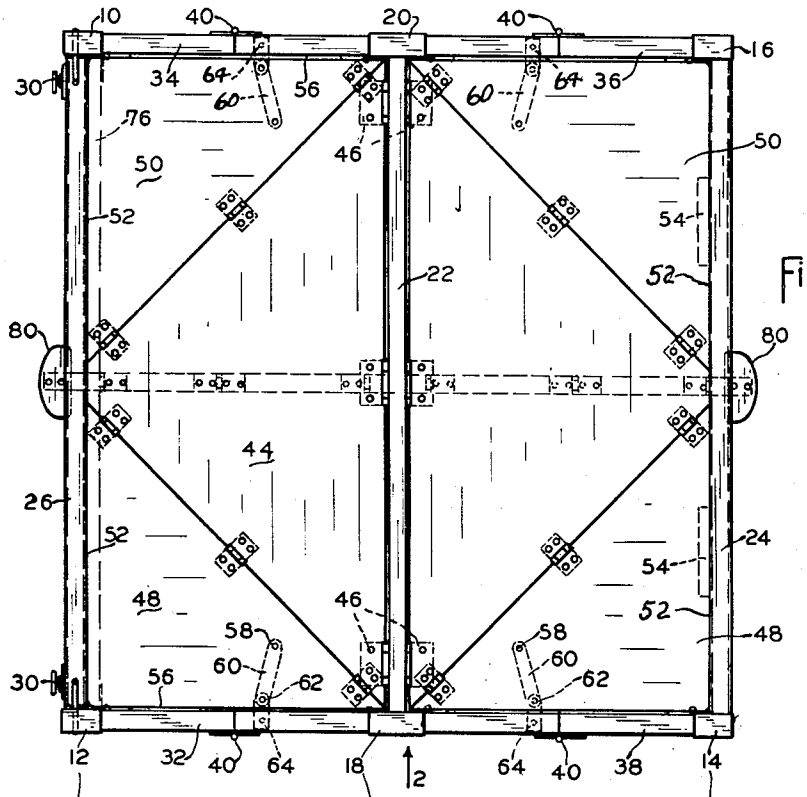


Fig. 1

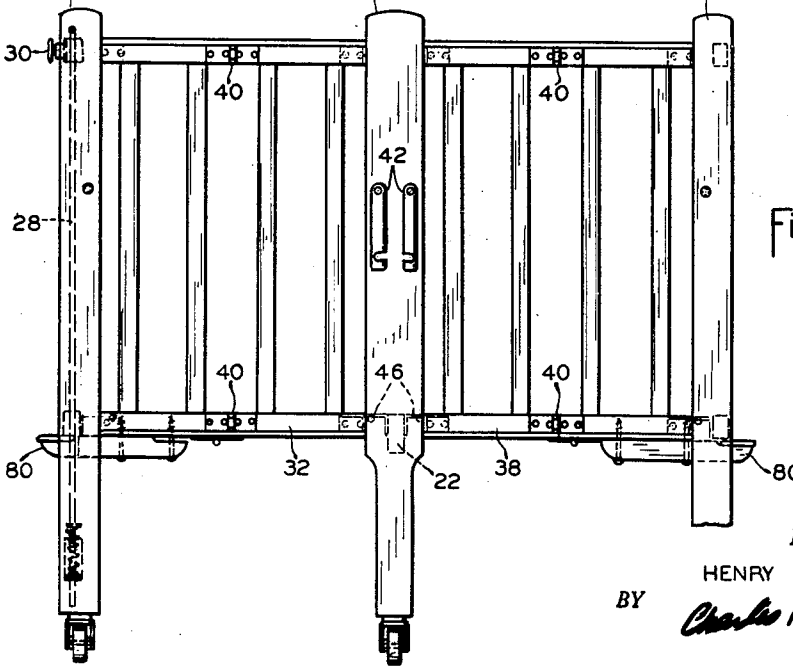


Fig. 2

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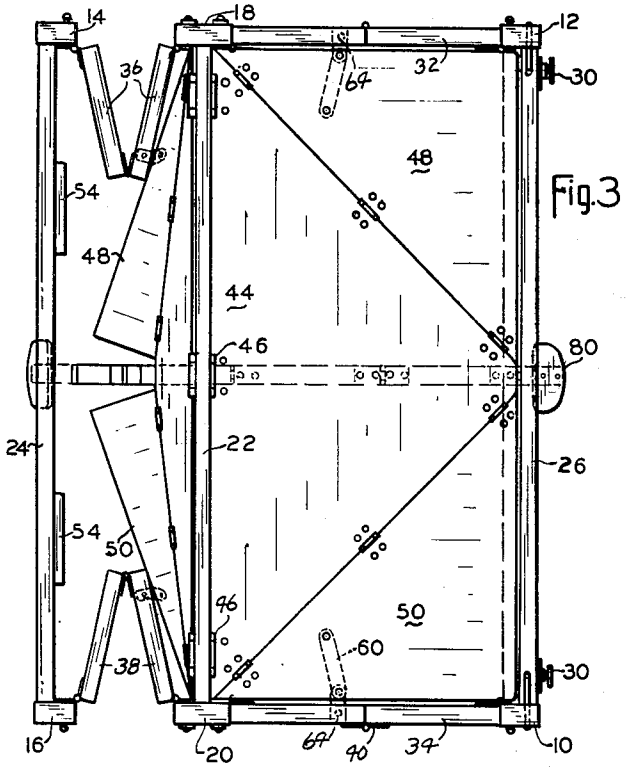


Fig.3

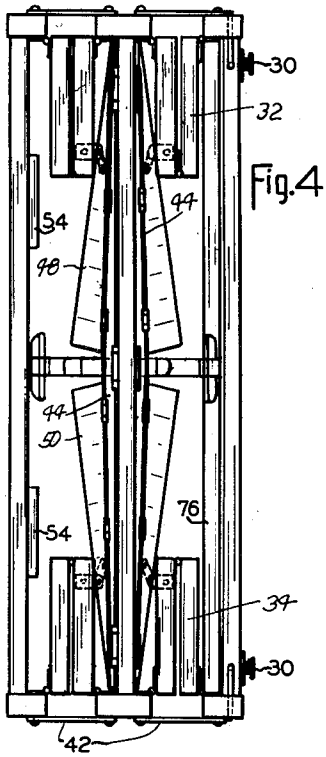


Fig.4

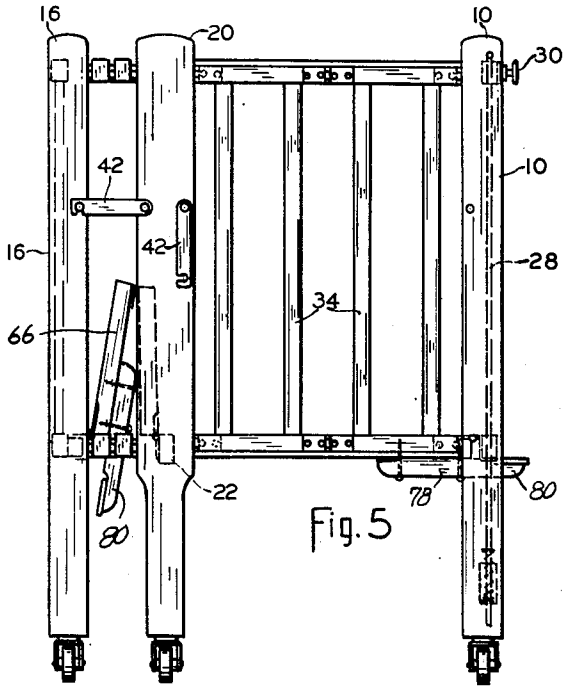


Fig.5

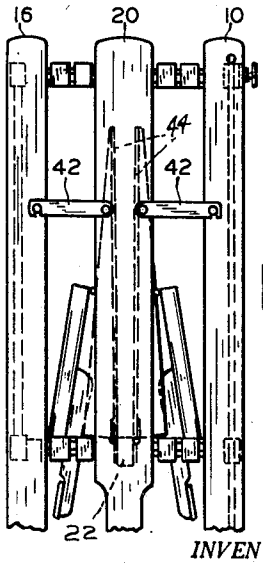


Fig.6

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CONVERTIBLE CRIB AND PLAY-YARD CONSTRUCTIONS

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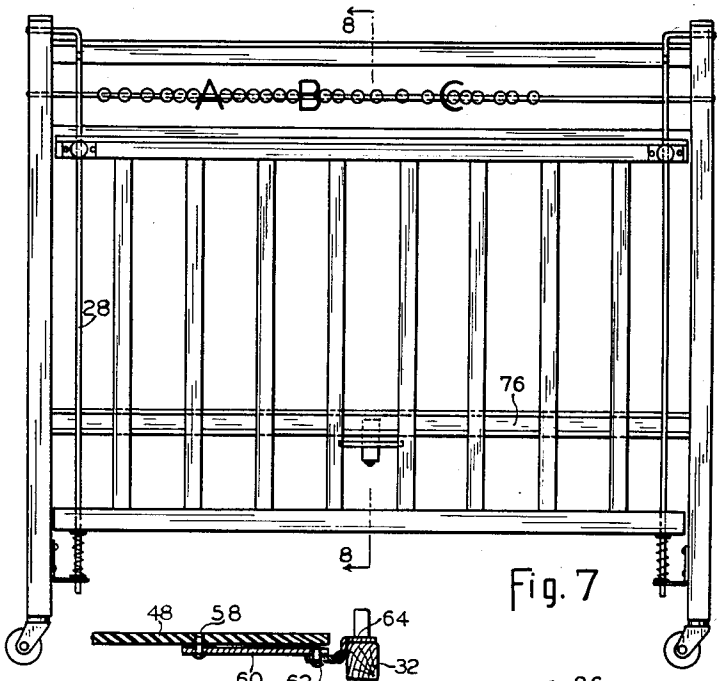


Fig. 7

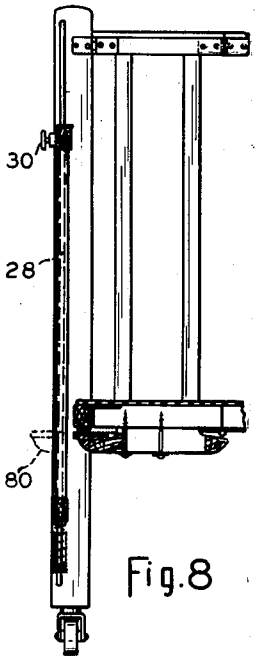


Fig. 8

Fig. 13

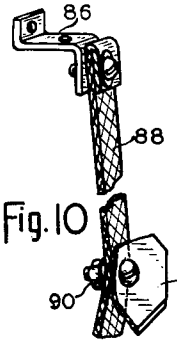


Fig. 10

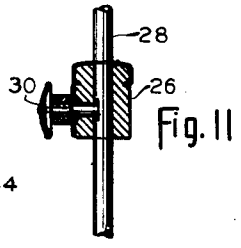


Fig. 11

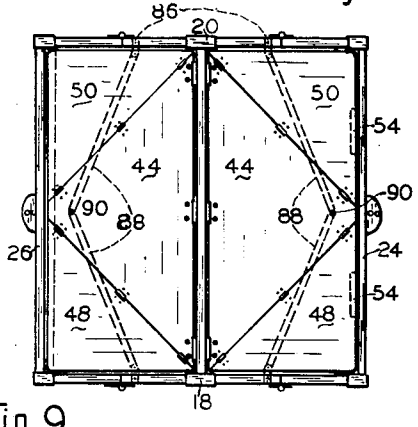


Fig. 9

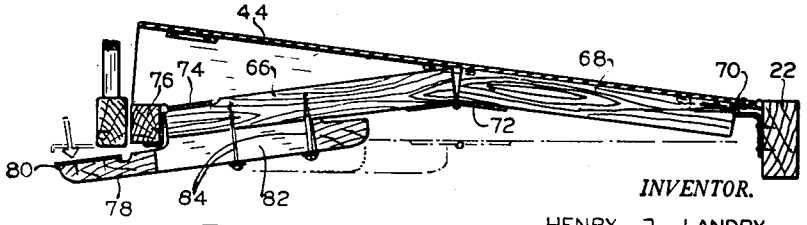


Fig. 12

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CONVERTIBLE CRIB AND PLAY-YARD CONSTRUCTIONS

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Application October 8, 1953, Serial No. 384,911
14 Claims. (Cl. 5—99)

This invention relates to new and improved convertible folding play-yard and crib constructions, and the principal object of the present invention resides in the provision of extremely easily operable automatic folding mechanisms arranged in said construction in such a way as to provide two separate but permanently connected folding structures, one of which may be folded independently from a position wherein both structures are extended to their most complete form wherein the combined structures are used as a play-yard, to a position wherein said one structure is folded up so that the play-yard is divided into a lesser portion which is usable as a crib and the structure of which may embody a drop side as is usually found on most cribs of present manufacture, this drop side forming one of the sides of the original play-yard above described.

Further objects of the invention reside in the provision of a convertible and foldable combined play-yard and crib wherein the entire structure is divided into two permanently connected parts, either one of which or both are foldable so as to take up but a fraction of the space used when the structure is extended for use, and wherein either or both sides comprises a multi-part floor made up of a series of articulated panels which are automatically pivotable by means of a manually actuated lever initiating folding action not only of the floor panels, but also of in-folding side walls and the front or rear walls respectively, whereby the device may be completely folded up at either side of a central support.

A further object of the invention includes the provision of special new and improved hinge means connecting the articulated floor to the side walls and including flexible strapping or webbing as a modification of the new and improved pivot hinge structure.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which:

Fig. 1 is a top plan view of the entire structure fully extended for use as a play-yard;

Fig. 2 is a view in side elevation thereof but being broken away and looking in the direction of arrow 2 in Fig. 1;

Fig. 3 is a top plan view illustrating the device partly folded as to one portion thereof;

Fig. 4 is a top plan view showing the device fully folded;

Fig. 5 is a view in side elevation showing the device for use as a crib, with part thereof folded and latched;

Fig. 6 is a view in side elevation showing the entire device closed and latched, parts being broken away;

Fig. 7 is a view in front elevation of the crib side of the device illustrating the drop side;

Fig. 8 is a sectional view on line 8—8 of Fig. 7;

Fig. 9 is a top plan view illustrating a modified hinge construction;

Fig. 10 is a perspective view showing the details of the tape;

Fig. 11 is a sectional view illustrating the latch for the drop side;

Fig. 12 is a sectional view through a portion of the floor illustrating the folding mechanism on a large scale; and

Fig. 13 is a view of a novel hinge construction.

Referring now to Figs. 1 and 2, there is shown in general a rectangular or square enclosure which comprises four corner posts 10, 12, 14 and 16 and two central posts 18 and 20. Connecting the central posts 18 and 20, there is a central beam or the like which is indicated at 22 and this forms the posts 18 and 20 into a rigid structure which may be said to form an axis or center for the entire device.

Connecting posts 14 and 16, there is a substantially rigid side wall indicated at 24 and this may assume any well-known form particularly including spindles. Connecting the corner posts 10 and 12, there is provided a substantially conventional crib drop side indicated at 26 and this is provided with the slide rods 28, latches 30, etc. whereby the drop side as seen in Fig. 7 may be held up or down as is well known in the art.

The center posts 18 and 20 are connected to their adjacent corner posts by means of four separate in-folding side wall constructions which are generally indicated at 32, 34, 36 and 38 and these are provided with hinges 40 so that they may fold inwardly as desired and as is illustrated in Figs. 3 and 4.

As thus far described, it will be seen that the convertible play-yard or crib may assume the fully-extended play-yard position as shown in Figs. 1 and 2, or the device may be fully folded by swinging in the respective side walls 32, 36, 34, 38 as shown in Figs. 4 and 6.

One of the most important parts of this invention, however, resides in the fact that either side may be separately folded, i. e. the construction at either side of the central beam 22 may be folded up as desired, and this is illustrated more particularly in Figs. 3 and 5, although Fig. 3 shows one side of the central member 22 only partly folded, whereas in Fig. 5, one-half part thereof is fully folded and latched as by the simple conventional latching lever 42. In this position, the device is to be used as a crib and the drop side is capable of being used in the usual manner of a crib, the other half of the device having been folded up in order to confine the infant to the crib space. A small mattress may be used if desired, although the usual play-yard mat and cover may be used for this purpose and one-half thereof will have been folded upwardly to conform to the folded one-half part of the device, forming a wind screen and protective device in general for the infant.

When the device is fully folded as in Figs. 4 and 6, the latching levers 42 at both sides of the central part thereof will of course be in use.

The floor members of each half part of the construction may be substantially similar and each is separately and independently folded and each is comprised of a series of articulated parts, reference being here made to my Patent No. 2,489,188, issued November 22, 1949. The construction in the present invention is considerably different although the theory of operation in many respects is similar to the patented device.

In the present case, I provide a relatively large triangular main floor member which is indicated at 44 and this may be hinged by concealed hinges 46 to the central beam 22. The apex of this triangular member extends toward the side of the device as shown in Fig. 1 and it is clear that it may be moved between horizontal and vertical positions.

Appropriately hinged by any desired means to the equal sides of the triangular member there are further triangular wing or side members 48 and 50 and since these are articulated with respect to member 44, they will move therewith. As the apex of the triangular member 44 rises, the apices of the wing pieces in the corners of the structure will not rise since the longest sides of triangular members 48 and 50 are articulated with respect to the shorter sides of triangular member 44, so that when the

entire device is fully folded, the members 48 and 50 will be substantially vertical (see Figs. 5 and 6), but they in effect depend from the sides of triangular member 44.

The other side of the main beam 22 has precisely the same construction, and in both cases, the sides of triangular members 48 and 50 which are indicated at 52 and which are adjacent the continuous side wall either 24 or 26, are free of said side walls with the exception of supporting blocks, cleats or the like 54, such as may be used to support these free edges. The opposite side edges of the small triangular wing or side members, indicated at 56, are hingedly connected to the infolding side walls 32, 34, 36 and 38 by means of a special novel pivoted hinge. This hinge comprises a pintle 58 mounted in each of the side floor members well inwardly of the adjacent edges thereof. Each pintle 58 is provided with a lever 60 underlying the respective triangular member. The end of each such lever 60 is provided with another pintle 62 which is not connected to the floor member and which is mounted on a swinging hinge bracket 64 connected to one of the members of the infolding side walls.

When the floor members 44 move upwardly and the floor members 48 and 50 thereby move inwardly, this action obviously necessitates breaking inwardly of the hinges 40 because the floor members are connected to the in-folding side walls. However, the requirement obviously is that there shall be a motion between the edges 56 of triangular members 48 and 50 and the respective in-folding side walls, and this motion is achieved by means of the swinging hinge just above described. This hinge also of course at least in part supports the respective floor members in their horizontal position of Fig. 1.

Each main floor member 44 has applied thereto a new and improved actuating mechanism which is perhaps best shown in Fig. 12. This mechanism comprises two hinged end-abutting members 66 and 68. Member 68 may be pivoted to the central beam 22 by a convenient hinge 70 and this member 68 is otherwise free of the floor member 44. A hinge 72 connects the members 66 and 68 intermediate the edges of the respective floor members, and this hinge is located in spaced relation to the floor members as shown in Fig. 12 at the under sides of the members 66 and 68. Member 66 is hinged by a convenient hinge 74 to the lower rail 76 of the respective side walls 24 and 26. In the case of the drop side, this member is fastened to the two respective corner posts so as to rigidify the structure and to provide a support for the floor as well as for the operating means therefor.

Secured to the lower edges of member 66, there is a treadle 78 which has a portion thereof extending outwardly beyond the sides 24, 26 of the structure as clearly shown at 80 in Fig. 1, and therefore it is clear that when this treadle is stepped upon or by any means pushed downwardly, the member 66 has to pivot in a counter-clockwise direction in Fig. 12, and obviously this initiates an upward swinging action in a clockwise direction of the main floor member 44 with the consequent automatic folding of the parts associated therewith as fully described above. Although it is possible to fully fold the members automatically, in use the treadle member clearly initiates the folding action whereby a mere lateral push by the operator will complete the folding to the fully folded condition described. The abutting members 66 and 68 tend to be held in horizontal non-sagging position by their mutual abutment.

The member 78 may be made slidable by means of a vertical slot 82 and pins 84 which extend through the slot and into the member 66 at the under side thereof (see Fig. 12), and this is for the purpose of pushing the complete treadle member completely within the confines of the floor member when it is not desired to be in use (see particularly Fig. 8 in solid lines, the dotted lines showing therein the outermost position of the lever). Both of the treadles may have this construction, so that the treadle is out of the way when it is not needed to

be used, although it is contemplated that the drop crib side may be the only one which provides this construction since the folding mechanism obviously will not be in use at any time while the device is being used as a crib and in most instances the crib side of the device will not be folded at all unless it is desired to move the entire structure from one room to another or to carry the same as by an automobile. The treadle may act as a stop for the drop side in raised position.

Figs. 9 and 10 illustrate a modified form of hinge connection for the folding articulated floor and this comprises in general a bracket or the like 86 which may be secured to the under side of the lower portions of the in-folding side walls in the positions of securement of the swinging hinges at 60. To this bracket there is secured a tape or the like 88 which extends generally angularly (see Fig. 9) to a point near the apices of floor members 44 where the same is secured centrally thereof by any desired means such as the fastener 90 to the floor members. In this case, both short sides of the triangular members 48 and 50 are completely free of the adjacent side walls of the construction except for the supporting cleats 54.

It will be seen that this invention provides an extremely convenient single unit which may be used to hold the infant twenty-four hours of the day because it is useful as a crib by a very simple folding procedure and by unfolding the same it is usable as a play-yard for daytime use of the child. The construction obviates the necessity of purchasing a separate crib and play-yard and at the same time provides an extremely convenient unitary member which is strong, sturdy, fully-folding by automatic means for transportation and storage and foldable as to each one-half part for the uses described above. Any kind of crib drop side may be utilized whether sliding or folding, etc., and ornamental details such as the beads and letters shown in Fig. 7 may be used if desired. Casters may be applied to the floor corner posts and other details of construction may be varied within the scope of the invention.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A folding convertible play-yard and crib construction comprising front and rear members and a parallel central supporting member, said members being separately connected by a plurality of in-folding semi-side walls, and a separate articulated multi-part floor at each side of said central member, each of said floor parts having a connection with its adjacent in-folding semi-side wall, so that either part of the device at either side of the central member may be separately automatically folded, means pivoting each floor part to a member, and means to raise each floor, said latter means being located on a different member.

2. A folding convertible play-yard and crib construction comprising front and rear walls and a parallel central supporting beam, said walls and said beam being separately connected by a plurality of in-folding semi-side walls, and a separate articulated multi-part floor at each side of said central beam, each of said floors including a main part and side parts, each of the side parts having a connection with its adjacent in-folding semi-side wall, so that either floor may be separately selectively automatically folded, and means to fold said side walls, said means comprising a manually operated treadle means associated with each of the articulated floors, and a linkage, a first portion of which is pivoted to the central beam and another portion is pivoted to the first portion and to the front wall whereby actuation of the treadle causes upward pivoting of the said main floor part, the latter extending from its respective wall to the central beam.

3. A folding convertible play-yard and crib construc-

tion comprising front and rear walls and a parallel central supporting beam, said walls and said beam being separately connected by a plurality of infolding semi-side walls, a separate articulated multi-part floor at each side of said central beam, certain of said floor parts having a connection with their adjacent in-folding semi-side walls, so that either part of the device at either side of the main beam may be separately automatically folded, said floor parts being pivotally associated with the central beam, and means on the front and rear walls to support the floors, in extended condition thereof only.

4. A convertible crib and play-yard comprising front and rear walls, a central beam, connecting inwardly folding articulated side walls, a main floor member pivotally connected to said beam, side floor members connected to the said main floor member at each edge thereof, said side floor members being hingedly associated with the in-folding side walls, means to pivotally raise the main floor member and thereby the side floor members to cause the in-folding side walls to fold, said means comprising a treadle member under the floor and pivoted to the front wall at one end of the treadle, a link pivoted to the central beam and contacting the main floor part, said treadle being pivoted to the link, the main floor member extending from the respective wall to the central beam.

5. A convertible crib and play-yard comprising front and rear walls, a central beam, connecting inwardly folding articulated side walls, a main floor member pivotally connected to said beam, side floor members connected to the said main floor member at each edge thereof, said side floor members being hingedly associated with the in-folding side walls, means to pivotally raise the main floor member and thereby the side floor members to cause the in-folding side walls to fold, said means comprising a treadle member pivoted to the front wall at one end of the treadle, a link pivoted to the central beam, said treadle being pivoted to the link, said main floor member being of a generally triangular form having its apex located adjacent the treadle member.

6. A convertible crib and play-yard comprising front and rear walls, a central beam, connecting inwardly folding articulated side walls, a main floor member pivotally connected to said beam, side floor members connected to the said main floor member at each edge thereof, said side floor members being hingedly associated with the in-folding side walls, means to pivotally raise the main floor member and thereby the side floor members to cause the in-folding side walls to fold, said means comprising a treadle member pivoted to the front wall at one end of the treadle, a link pivoted to the treadle and to the beam, the hinge connection between the side floor members and the in-folding side walls comprising a rigid swinging member, and a hinge on the latter connected to the in-folding side wall, said swinging member being pivoted to said floor member.

7. A convertible crib and play-yard comprising front and rear walls, a central beam, connecting inwardly folding articulated side walls, a main floor member pivotally connected to said beam, side floor members connected to the said main floor member at each edge thereof, said side floor members being hingedly associated with the in-folding side walls, means to pivotally raise the main floor member and thereby the side floor members to cause the in-folding side walls to fold, said means comprising a treadle member pivoted to the front wall at one end of the treadle, a link, the latter being pivoted to the treadle at the opposite end of the treadle member, said main floor member being of a generally triangular form having its apex located adjacent the treadle member, said hinge connection comprising a strap secured to the in-folding side walls and to the main floor member at the apex thereof and underlying all the floor members.

8. A folding convertible play-yard and crib construction comprising front and rear walls and a parallel central supporting beam, said walls and said beam being separately connected by a plurality of in-folding semi-side walls, and a separate articulated multi-part floor at each side of said central beam, each of said floor parts having a connection with its adjacent in-folding semi-side wall, so that either part of the device at either side of the main beam may be separately folded, and means to fold said side walls, said means comprising a manually operated treadle means associated with each of the articulated floor parts, said treadle comprising two parts relatively slidable, one part being pivoted to the beam and the other part selectively extending out from under the floor into operable position or being moved wholly under the floor to concealed position.

9. A folding structure comprising a rigid wall, in-folding side walls at each end of the rigid wall, and a member connecting the in-folding side walls, said member being in parallel spaced relation to the rigid wall, a floor part pivoted to the said member and extending to the rigid wall, a treadle device pivotally associated with the rigid wall and extending under the floor, said treadle when depressed raising the floor and causing the side walls to in-fold and the rigid wall to approach the member.

10. A folding structure comprising a rigid wall, in-folding side walls at each end of the rigid wall, a member connecting the in-folding side walls in parallel spaced relation to the rigid wall, a multi-part floor pivoted to the said member and including a triangular main part and a pair of side or wing parts, the latter being hingedly associated with the in-folding side walls, the main floor part extending to the rigid wall, a treadle device pivotally associated with the rigid wall and pivotally connected to said member under the main part of the floor, said treadle being hinged intermediate its ends and being free of but bearing on the main part of the floor when depressed, raising the floor and causing the side walls to in-fold and the rigid wall to approach the member.

11. A folding play-yard comprising a rigid front wall, a member parallel thereto, a floor part pivoted at one end to the member for selective disposition substantially horizontal or vertical, said floor part having a free end, folding side walls connecting the front wall and the member, an element pivoted with relation to the front wall and underlying the floor part to raise the latter upon pivotal action of said element, and means on the front wall to support the free end of the floor part in horizontal disposition of the latter.

12. The play-yard of claim 11 including further floor parts articulated with respect to the first said floor part and raised therewith.

13. The play-yard of claim 11 wherein said element includes an articulated part pivoted relative to the member, and in extension thereof, said element and articulated part extending from the front wall to the member and underlying the floor part from end to end thereof.

14. The play-yard of claim 11 wherein the folding side walls each comprise a pair of in-swinging articulated wall parts, one of which is pivoted to the front wall, and including a connection between the floor part and the other part of the folding wall, to swing in the wall parts as the floor part is raised.

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