

April 7, 1964

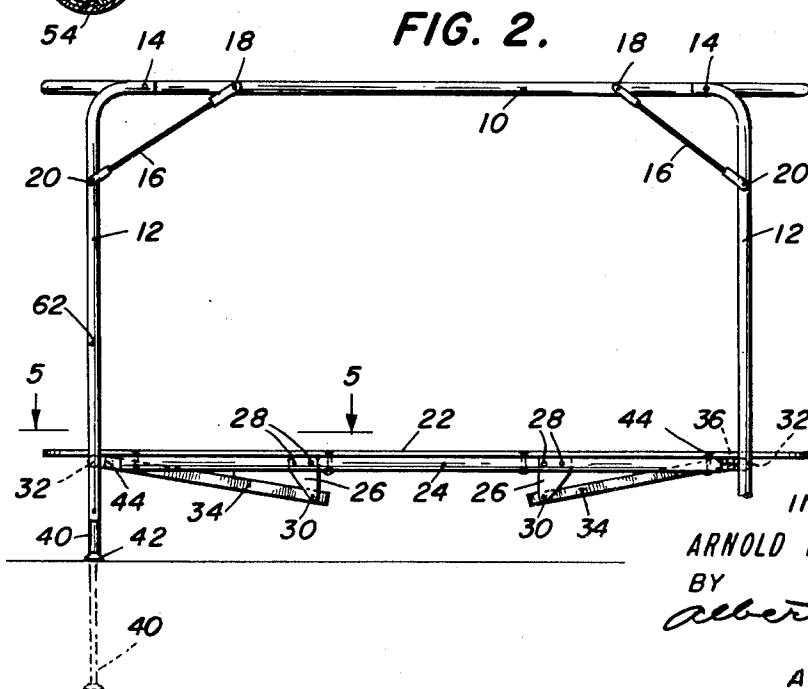
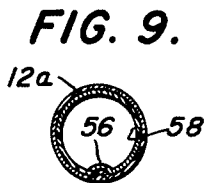
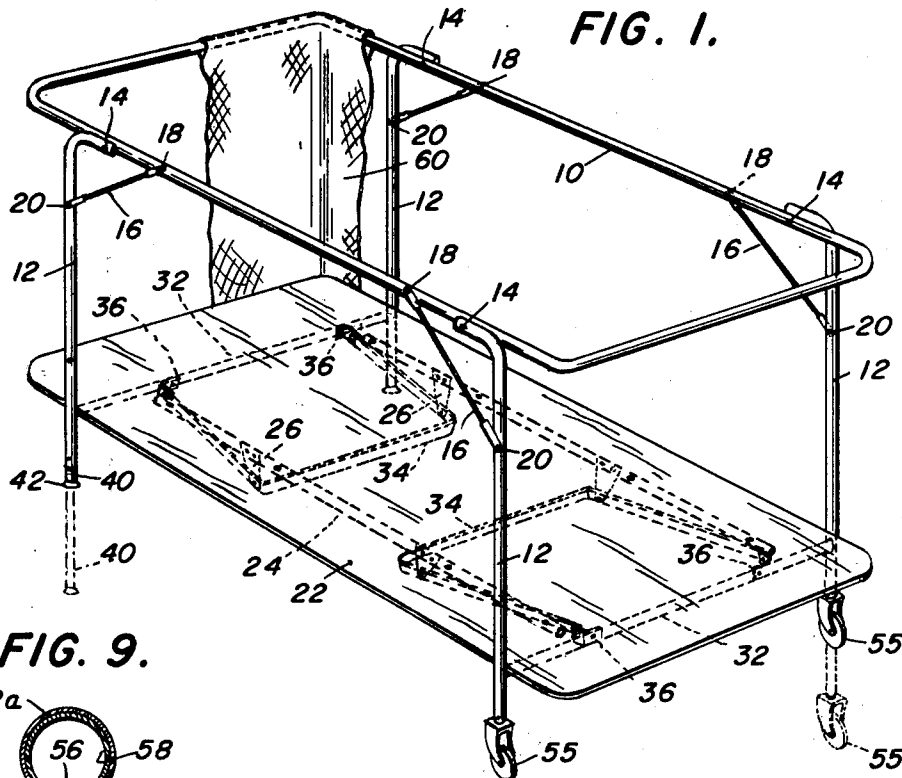
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3,127,620

COMBINATION PLAYPEN AND CRIB

Filed Dec. 27, 1960

2 Sheets-Sheet 1



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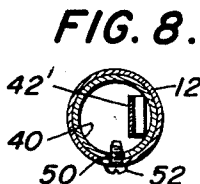
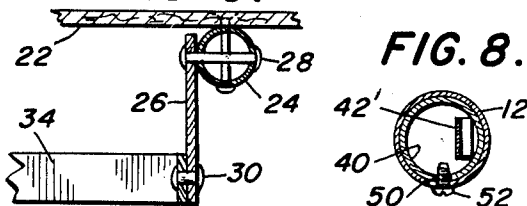
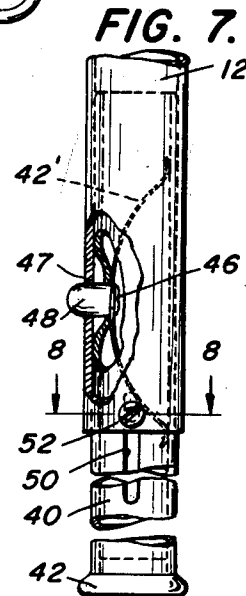
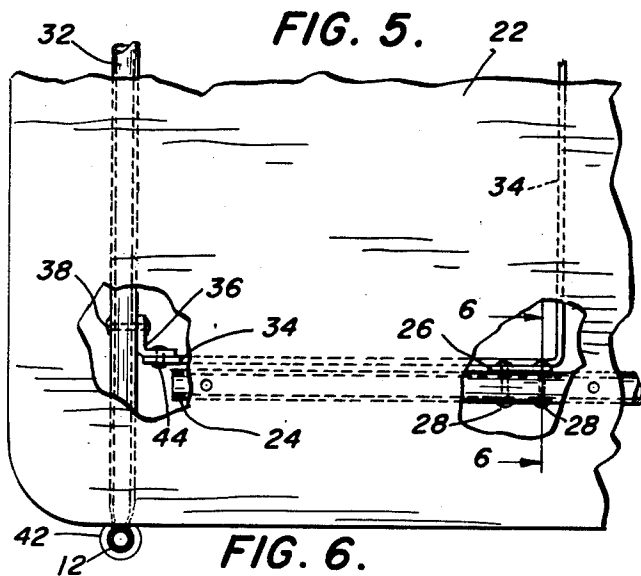
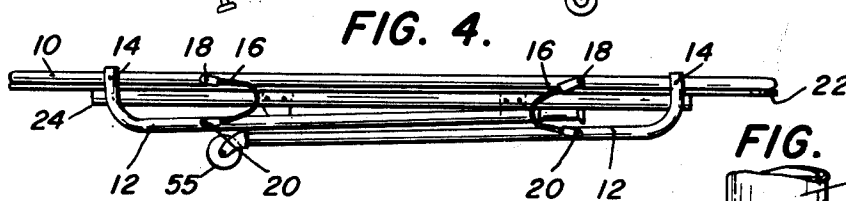
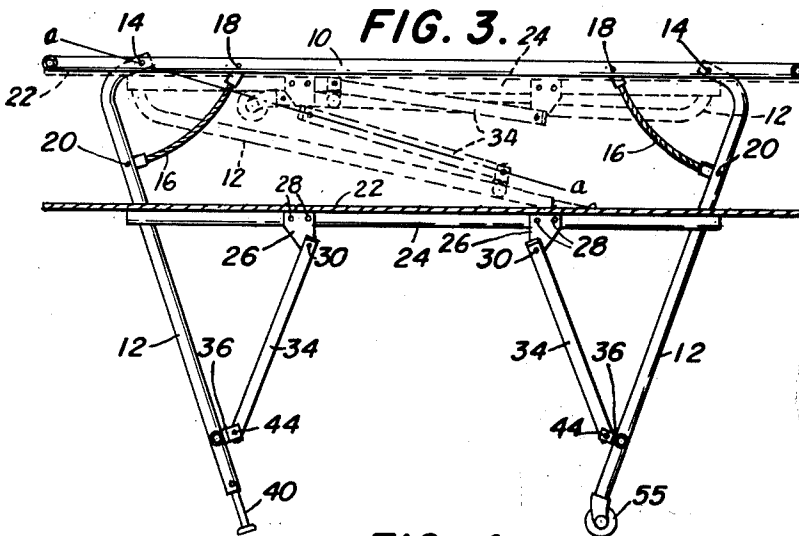
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COMBINATION PLAYPEN AND CRIB

Filed Dec. 27, 1960

2 Sheets-Sheet 2



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3,127,620

COMBINATION PLAYPEN AND CRIB

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Filed Dec. 27, 1960, Ser. No. 78,402

8 Claims. (Cl. 5-99)

This invention relates to a new and improved combination playpen and crib, and has for one of its objects the provision of the device of the class described which will include, in a single unit, a foldable playpen and a crib which, although of normal size and capacity when opened, will be of relatively small size and require very little space when folded and which when folded, tends to hold itself in that position.

One of the important objects of this invention relates to a foldable crib and playpen for small children which can be readily moved from place to place with a minimum expenditure of time and effort, which will easily fit through doorways, and which, when folded, can be readily handled because of its light weight and which, in that condition, requires very little storage space.

Another important object of the invention relates to a combination foldable playpen and crib which is adjustable in height to meet practically all maximum and minimum requirements, and which furthermore is equipped with casters or the like for ready shifting from one place to another, but which, at the same time, will remain in a selected location regardless of the activities or movements of the child or children in the crib and playpen unit.

Other and yet further important objects of the invention will be apparent from the disclosures in the accompanying drawings and following specification.

The invention, in a presently preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

FIGURE 1 is a perspective view of a combination playpen and embodying the present invention as opened for use showing certain parts thereof in dotted lines and with a portion of the fabric sidewall broken away for purposes of clarity.

FIGURE 2 is a side elevation of the frame structure of the illustrated embodiment of the invention open for use with certain parts illustrated in dotted lines to show height adjustment.

FIGURE 3 is a sectional view of the crib and playpen of FIGURES 1 and 2, taken on a longitudinally extending, medial, vertical plane and showing the frame structure in intermediate stages of either opening or closing the mesh walls being omitted for clarity.

FIGURE 4 is an side view of the frame structure of the illustrated embodiment of the invention, showing the same completely folded and ready for easy carrying from one place to another; the flexible, wall-forming material being omitted for clarity.

FIGURE 5 is an enlarged fragmentary section, taken on the plane of the line 5-5 of FIGURE 2, looking in the direction indicated by the arrows.

FIGURE 6 is a slightly enlarged section of a portion of the showing of FIGURE 5 and taken on the line 6-6 of that figure, looking in the direction indicated.

FIGURE 7 illustrates the adjustable features of one of the legs, parts being broken away to show interior construction.

FIGURE 8 is a horizontal section on the line 8-8 of FIGURE 7, illustrating interior details. FIGURE 9 shows a modification of FIGURE 8.

As shown in the drawings:

The reference numeral 10 indicates generally the upper portion of the frame of the improved combination foldable playpen and crib of this invention. This is pref-

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erably of relatively light tubing bent to shape as shown, and composed of one or more pieces suitably joined in a rectangular shape, preferably of greater length than width.

Four supporting legs 12 are provided as shown, these each being bent to a right angle curve at their upper ends and of a suitable radius for a purpose to be presently note and also of a suitable length. The legs 12 are arranged in pairs which are pivotally connected to the sides of upper frame 10 adjacent the ends thereof by means of rivets, bolts or the like as shown at 14 with the concave sides of the curved portions of the legs of each pair facing the corresponding sides of the other pair, and flexible members comprising cables 16 connect the upper frame to each leg as best shown in FIGURES 1, 2 and 3. The connections at one end of the flexible members 16 to the frame 10 are at points 18 which are inside the pivotal connections of the legs, and the other ends of the members are connected to the legs at points 20 below the curved upper portions.

This structure comprises a readily foldable framework as best shown in FIGURE 3, and a rectangular platform 22 of approximately the same dimensions of the upper frame 10 is provided to support the occupant of the extended pen or crib.

This platform is fastened near its longitudinal edges to two lengths of tubing or the like 24, which lengths of tubing are beneath the platform 22 and fastened thereto by suitable screws, bolts or rivets. The platform, itself, can comprise a thin sheet of metal, board, plywood, hardboard or any material which includes the required elements of lightness and strength.

As best shown in FIGURES 2 and 3, four plates 26, somewhat triangular in shape, are fastened by rivets, screws or the like 28 to the platform supporting tubes or rods 24, and there are two of these on each side of the platform, both depending from a single rod or tube.

Each pair of end legs 12 is connected by a transverse cross bar 32 as best shown by the dotted lines in FIGURE 1. These cross bars serve several purposes. They join and brace the pairs of end legs. They support the platform 22 which rests on them when the device is opened and in operative position and these cross bars also support the ends of a U-shaped double link construction indicated by the reference numerals 34 (FIGURE 1, 2, 3 and 6).

These U-shaped link elements are pivotally connected at their outer ends to angular brackets 36 (FIGURES 3 and 5), which brackets are mounted on the cross bars 32 by means of rivets or the like 38. The pivotal connection is at 44 as best shown in FIGURE 5.

The U-shaped link elements 34 are bent at right angles to provide a unitary construction and adjacent these right angle bends, the links are pivotally connected at 30 to their respective depending triangular plates 26 mounted on the platform supporting tubes or bars 24. It will be noted that the platform supporting tubes 24 are of a length less than the distance between the cross bars 32 when the device is set up so that all the weight of the platform will be directly upon the cross bars 32 in such set up condition of the crib or playpen. The fact that the link elements 34 are U-shaped provides a stronger construction and a better bracing of the connected parts with little or no possibility of distortion or displacement even under the most adverse conditions of rough usage.

Referring to FIG. 3, the leg assemblies are shown in full lines as they are started toward the folded position with resultant movement of the platform toward the frame 10 are shown in dotted lines as they approach the completely folded position, one of the pair of legs being completely folded and the other pair about to be folded against the first pair with the leg of the brace 34 thereof disposed in a line *a-a* passing through both

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pivotal connections of the brace leg 34 and through the pivotal mounting of the leg on the frame 10. The length of the brace leg is such that the arc described by its end which is attached to the lower end of the leg is spaced from the arc described by the point of attachment of the leg to the brace with reference to the pivotal movement of the leg about its connection to the frame 10 and that these arcs substantially coincide when the folding is completed. This difference is accommodated in part by the resilience of the tubes 24 and of the platform 10 as well as of the longitudinal members of the frame 10 and since the arcs coincide as the leg assemblies reach their folded position, the said resilience of the frame structure tends to retain the crib in the folded position until it is opened. Additionally, the length of the plates 26 is such that the cross bar 32 of the last of the leg assemblies to be folded will rest on the brace 34 of the first leg assembly to be folded thus contributing to the compactness of the folded crib.

When the crib is open for use, the length of the leg portions of the braces 34 and the spacing of the plates 26 on each tube 24 is such that the legs are spread apart to an extent placing the cable members 16 under tension; it being noted in FIG. 2 that at such time, the braces 34 are in an overcenter position. Again, this proportioning of the parts is such that the overcenter position is achieved through a slight momentary springing of the parts and such springing has chiefly caused a slight upwardly bowing of the platform as well as a slight momentary yielding action of the legs between the cable attachment points 20 and the cross bars 32 as the braces pass overcenter.

Referring now to FIGURE 4, it will be noted that when the folding operation is completed the platform 22 will be contacting the upper frame element 10, the cables 16 will be completely relaxed and by reason of the curved upper ends thereof, both sets of end legs 12 will be folded into substantial parallelism with themselves and with the tubes or bars 24 which are attached to the underface of the platform 22. This parallelism of the legs, when folded, together with the very close relationship at that time, of the upper frame 10 with respect to the folded legs, provides an easily grasped assemblage of the tubular parts which then serves as a carrying handle for the folded crib or pen.

In FIGURES 7 and 8, one type of adjustable leg is illustrated. As described above, the legs 12 are preferably tubular and may be composed of a metal such as steel or aluminum, and in some cases, plastic may be employed. This also applies to the top rail or frame 10.

In two of the legs 12 there is slidably positioned a smaller tube 40 into the end of which is fitted a glide button or the like 42 to prevent damage to floors, rugs or carpets when the foldable crib or pen of this invention is moved from place to place. This tube 40 extends up in the leg 12 for a desired or suitable distance, and a leaf spring 42', preferably of the shape shown in FIGURE 7, is mounted inside the tube 40 and this is provided with a brace element 45 of desired size and dimensions. The spring 42' and the brace 45 are connected by means of a rivet or the like 46 which also supports push button or similar element 43 which, in turn, extends through an opening in the leg tube 12. When this is depressed, the extension 40 can be moved in and out of the leg 12 as best shown by the dotted lines in FIGURES 1 and 2. Additional openings and corresponding buttons can be in the leg 12 so that the crib or pen can be adjusted to various other heights above the floor or ground.

In order to maintain the buttons 43 in proper alignment with their corresponding openings, a slot 50 is formed in the lower end of the tube 40 and a set screw or the like 52 can be inserted in a drilled or tapped opening near the end of the leg 12 with the end of the screw fitting into the slot, whereby a desired alignment is maintained at all times. Other means for maintaining the de-

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sired alignment can be provided as desired, or convenient.

In FIGURE 9, leg 12a has an indentation or dimple 54 formed therein near its lower end in place of the set screw 52, and this dimple is adapted to ride in an elongated depression 56 formed in the extension 58 instead of the slot 50. This provides a less expensive method of manufacture with a result which is just as satisfactory.

It will be noted that two of the legs 12 are fitted with casters as shown at 55 in FIGURES 1 and 3, which casters are preferably swiveled enabling a simple guiding movement of the pen or crib from place to place by merely lifting the other end and either pushing or pulling as desired. The supports for these casters may also be adjustable in the same manner as shown in FIGURES 7 and 8, and as indicated in FIGURE 1.

Side walls of cloth or netting 60 are fitted onto the upper rail or frame 10 as shown in FIGURE 1, and with the lower edges fastened to the platform 22 in any suitable or convenient manner. These side walls simply collapse when the pen or crib is folded and will not interfere with the folding movement in any way. If the side wall material is netting and somewhat resilient, it can be fastened to the top frame 10 and the platform 22 in such a manner that when the crib is set up, the platform will be held suspended by the netting a short distance above the cross bars 32. In this manner, a cushioning action results, also, a limited swinging motion providing an additional feature. Obviously, if a sufficient amount of weight is placed on the platform 22, it will stretch the netting sufficiently to allow the platform to come to rest on the cross bars 32, providing an additional safety factor.

The combination of the platform, the links and the pivoted legs with the cables is such that when the platform is moved downwardly, the cables are automatically and simultaneously effecting a bracing, placed under tension, which in combination with the link construction provides a maximum of strength and resultant rigidity, while at the same time, the entire operation is simplicity itself. Initiation of the final folding movement can be applied to either set of legs thereby providing a further simplicity of operation and with a completely satisfactory result.

Care is taken to have all rivets or other attaching means in the legs flush with the surfaces so that the platform 20 or any part of the mechanism will not be hindered in the folding movement, and stops 62 are in the legs 12 which are contacted by the upper end of the leg extensions 40.

It will be evident that herein is provided a combination portable playpen and crib which can be moved from room to room even when in fully extended position, and which folds into a compact package which can be carried or stored when not in use. The casters will not mar or damage the floors or the floor coverings and the adjustable leg elements will readily slide over any supporting surface without scratching the same. The device, when folded, can readily be stored in an automobile trunk or inside the car so as to accompany the child when visiting or the like. The unit is strong and sturdy, composed of a minimum number of parts and is not likely to get out of order.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I, therefore, do not propose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. A foldable crib and playpen comprising an upper frame having parallel sides, a first pair of legs having the corresponding ends thereof pivotally attached to the sides of said upper frame adjacent one end of the frame, a second pair of legs having the corresponding ends thereof pivotally connected to the sides of said upper frame ad-

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jacent the other end of said frame; the pivotally connected ends of said pairs of legs being formed with opposing bent portions effective, upon folding of said legs, to position the pairs of legs spaced from and substantially parallel to the plane of said upper frame, a rigid platform disposed beneath said upper frame, supporting means for said platform including a first brace means pivotally connected to said platform adjacent to one side of the midlength thereof and pivotally connected to said first pair of legs, a second brace means similarly pivotally connected both to said platform adjacent the other side of its said midlength and to said second pair of legs, whereby swinging of said pairs of legs toward each other will move said platform bodily into coplanar juxtaposition with said upper frame, and fabric mesh wall material fixed to the perimeters of said upper frame and said platform forming an enclosing wall for said crib and playpen.

2. A combined crib and playpen as claimed in claim 1 in which said braces are so disposed as to pass through an overcenter position as said platform is brought into juxtaposition with said upper frame incident to folding of said crib and playpen.

3. A combined crib and playpen as claimed in claim 1 in which means is provided for restraining said pairs of legs against movement beyond an open position in which said legs are disposed substantially at right angles to the plane of said upper frame.

4. A combined crib and playpen as claimed in claim 1 in which said braces are so disposed as to pass through a second overcenter position incident to completion of movement of said crib and playpen to its open position.

5. A combined crib and playpen as claimed in claim 1 in which said wall material is resilient and of a length sufficient to suspend said platform in the absence of any weight on said platform when the crib and playpen is in open position.

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6. A combined crib and playpen as claimed in claim 1 in which each of said pairs of legs includes a horizontal cross bar disposed at an elevation thereon to be immediately beneath said platform when the crib is moved to open position.

7. A combined crib and playpen as claimed in claim 3 in which said restraining means comprises a plurality of cables associated one each with each of said legs and each having one end thereof attached to the leg with which it is associated and having its other end attached to said upper frame at a point between the midlength of said frame and the point of pivotal attachment to said frame of the said associated leg.

8. A combined crib and playpen as claimed in claim 6 in which said wall material is resilient and of length sufficient to suspend said platform above and out of contact with said cross bars when the crib and playpen is in open position and said platform is not subjected to any weight thereon, said cross bars in the event of sufficient weight being placed on said platform serving as stop means to absorb the load placed thereon.

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