May 17, 1960 T. M. MILLER ET AL 2,936,464

CRADLE

Filed Aug. 28, 1957

FIG. 1

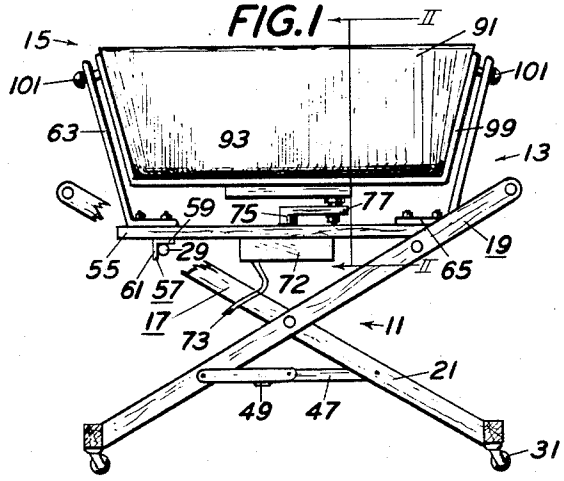


FIG. 2

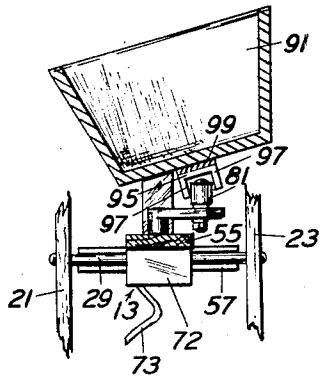


FIG. 3

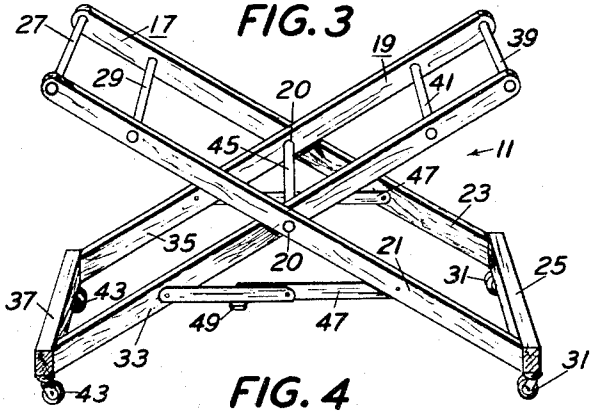


FIG. 4

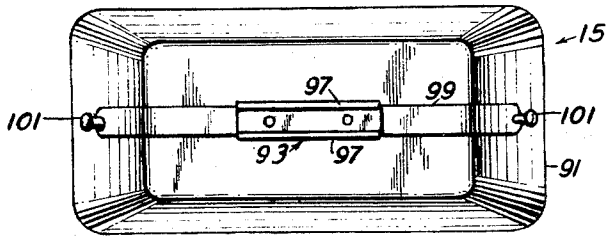


FIG. 5

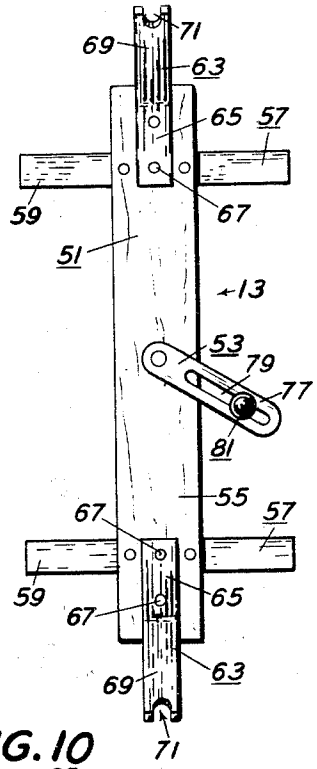


FIG. 6

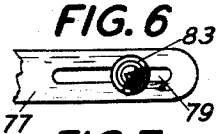


FIG. 8

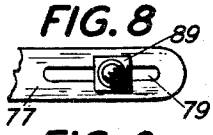


FIG. 10

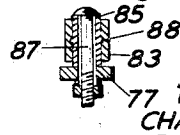


FIG. 7

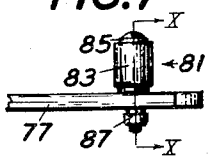
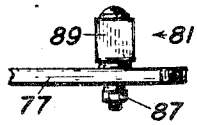


FIG. 9



INVENTORS
THOMAS M. MILLER
CHARLES M. PARSONS
ELBERT L. BERNERO

BY John L. Walker III
Attorney

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CRADLE

Thomas M. Miller, Charles M. Parsons, and Elbert L. Bernero, Memphis, Tenn., assignors, by mesne assignments, of one-third to said Miller, one-third to said Parsons, and one-third to said Bernero

Application August 28, 1957, Serial No. 680,695

7 Claims. (Cl. 5—109)

This invention relates to a cradle and particularly to a mechanically rocked cradle.

One of the objects of the present invention is to provide a cradle of improved and efficient construction which is quickly and easily converted from and to a mechanically rocked cradle, and to and from a stationary cradle.

A further object is to provide in such a cradle new and efficient means for rocking said cradle.

A further object is to provide means whereby the amplitude of the swinging movement of the cradle may be varied.

A further object is to provide means whereby a stationary cradle may be converted to a mechanically rocked cradle.

A further object is to provide a mechanically rocked cradle comprising a stand, mounting means removably supported by said stand, a bassinet removably and rockably supported by said mounting means, a downwardly facing channel member fixedly attached to the underside of said bassinet, driving means mounted on said mounting means, said driving means including a projection means extending between the flanges of said channel member and movable in a circular path to urge said bassinet in a rocking movement.

A further object is generally to improve the design and construction of cradles.

The means by which the foregoing and other objects of the present invention are accomplished and the manner of their accomplishment will be readily understood from the following specification upon reference to the accompanying drawings, in which:

Fig. 1 is a side elevational view of the cradle on a reduced scale in assembled disposition with parts broken away for purposes of illustration.

Fig. 2 is a fragmentary sectional view taken as on the line II—II of Fig. 1 and showing the bassinet in a canted disposition.

Fig. 3 is a perspective view of the stand.

Fig. 4 is a bottom view of the cradle means.

Fig. 5 is an enlarged plan view of the mounting and driving means assembly.

Figs. 6 through 10 are on a further enlarged scale.

Fig. 6 is a fragmentary plan view of a portion of the driving means of the present invention.

Fig. 7 is a fragmentary side elevational view of the device of Fig. 6.

Fig. 8 is a view similar to Fig. 6 but showing a modification of the driving means.

Fig. 9 is a fragmentary side elevational view of the device of Fig. 8.

Fig. 10 is a sectional view taken as on the line X—X of Fig. 7.

Referring now to the drawings in which the various parts are indicated by numerals, the present invention in general comprises a stand **11**, a mounting and driving means assembly **13** removably supported by the stand, and cradle means **15** removably and rockably supported by the mounting and driving means assembly.

Referring first specifically to stand **11**, best shown in Fig. 3, the stand comprises a pair of rigid frames **17**, **19** pivotally joined as at pivot points **20**. Frame **17** comprises a pair of spaced side members **21**, **23** interconnected at the lower ends by a cross piece **25** and at the upper ends by a rung **27**. An additional rung **29** is provided intermediate the ends of frame **17** and interconnects side members **21**, **23** above the pivot points **20**. Suitable rollers **31** are mounted from cross piece **25** and depend therefrom.

Frame **19** is of the same construction as frame **17** and similarly includes side members **33**, **35**, cross piece **37**, rung **39**, additional rung **41**, and rollers **43**.

A rod **45** extends between side members **21**, **23** intermediate the ends of frame **17** and extends through apertures in side members **33**, **35** whereby providing the means to pivotally connect the frames **17** and **19**. Additionally, articulated braces **47**, each having a stop **49**, respectively are pivotally connected between side members **21** and **33**, and between side members **23** and **35** whereby the stand is adapted to be collapsed in a conventional manner in order to be moved or to be stored.

Referring next to the mounting and driving means assembly **13** best shown in Fig. 5, the mounting and driving means assembly comprises a mounting means **51** and a driving means **53**. Mounting means **51** comprises an elongated board **55** and a pair of spaced angle members **57** mounted, as by bolts or the like, on the under side of board **55** and disposed perpendicular thereto. Each of angle members **57** includes a horizontal flange **59** and a vertical flange **61** depending from one of the side edges of horizontal flange **59**. Angle members **57** are preferably mounted so that they are inwardly facing towards one another—that is, disposed so that horizontal flanges **59** extend from vertical flanges **61** towards one another. Angle members **57** preferably project in opposite directions beyond the side edges of board **55**. Additionally, the angle members **57** are spaced apart substantially the distance between rungs **29** and **41** whereby mounting means **51** is adapted to removably rest on stand **11** with angle members **57** disposed over rungs **29** and **41** in the manner best shown in Figs. 1 and 2. The width of angle members **57** is such that in the assembled disposition the greater portion of rungs **29** and **41** will be covered by angle members **57** to prevent the mounting means **51** from tilting.

Mounting means **51** additionally comprises a pair of spaced substantially L-shaped support arms **63** mounted adjacent the outer ends of board **55** on the upper side thereof. Each of support arms **63** comprises a horizontal portion **65** in which are provided apertures through which extend securing means **67** to secure the support arms to the board. Additionally, each of the support arms **63** comprises a diverging portion **69** extending angularly upwardly from the outer end of horizontal portion **65**. Portions **69** preferably diverge upwardly as best shown in Fig. 1. The upper end of each of support arms **63** is formed to provide a cut-out portion **71**.

Driving means **53** comprises a slow-speed motor **72** which is preferably an electric motor supplied with current through a cord **73**. Additionally, driving means **53** comprises a vertical shaft **75** rotatably driven by motor **72**, and a horizontal arm **77** which is fixedly mounted adjacent one end to the upper end of vertical shaft **75**. Motor **72** is preferably mounted on the underside of board **55** and shaft **75** extends upwardly through an aperture in the board, projecting above the top side thereof. Arm **77** is formed to provide an elongated slot **79** therethrough extending along a substantial portion thereof, in which slot is mounted a projection means **81** that extends upwardly from the arm. Figs. 6, 7, and 10 illustrate the preferred embodiment of projection means **81**

wherein it will be observed that a roller 83 is rotatably mounted on a sleeve 85 having a bolt and nut means 87 extending therethrough and clampingly holding the sleeve in a fixed position on arm 77. Suitable means is provided for holding roller 83 on sleeve 85. Thus, a circular ridge 88 is provided on sleeve 85 which rides in an annular groove in roller 83.

Figs. 8 and 9 illustrate a modified embodiment of projection means 81 wherein it will be observed that the projection means is similar in construction to that of Figs. 6, 7, and 10 except that a square block 89 is rotatably mounted on sleeve 85 instead of a roller 83.

Cradle means 15 comprises a cradle per se or bassinet 91 and an elongated channel member 93 secured thereto on the underside thereof. Channel member 93 extends longitudinally of bassinet 91 and includes a web 95 and spaced flanges 97 projecting from the opposite side edges of the web. Channel member 93 is downwardly facing—that is, spaced flanges 97 project downwardly away from the bottom side of bassinet 91. The means by which channel member 93 is secured to bassinet 91 preferably comprises an elongated strap 99 which extends longitudinally of the bassinet along the underside thereof with the opposite ends of the strap extending upwardly along the opposite ends of the bassinet, as best shown in Figs. 1 and 4. Strap 99 is secured to bassinet 91 by suitable means as, for example, rivets or the like, and channel member 93 is secured to the underside of strap 99 by similar means. Cradle means 15 additionally includes a pair of outwardly projecting stud-like members or hangers 101 respectively mounted from opposite ends of bassinet 91 adjacent the opposite ends of strap 99.

In assembled disposition with mounting and driving means assembly 13, cradle means 15 is rockably and removably supported therefrom as shown in Fig. 1 with hangers 101 respectively removably resting in cut-out portions 71 to provide the pivots for the cradle means and with projection means 81 extending upwardly between flanges 97.

In the operation of the device, it will be understood that when motor 72 is turned on, shaft 75 will rotate carrying with it arm 77 which carries projection means 81 in a circular path. It will further be understood that movement of projection means 81 in a circular path will cause rocking movement of bassinet 91 since the projection means contacts flanges 97 and causes channel member 93 to follow the path of movement of the projection means. Thus, when arm 77 is in a position perpendicular to the major length of board 55, bassinet 91 will be in a position of greatest amplitude in its rocking movement. Such a position is shown in Fig. 2 wherein it will be seen the arm 77 is to the right as viewed in this figure. Also, when arm 77 is to the left, as viewed in Fig. 2, bassinet 91 will be in a position of greatest amplitude but canted in the opposite direction. Also, it will be understood that when arm 77 is in a position along the longitudinal center line of board 55—that is to say, a position towards the bottom of the figure, as viewed in Fig. 5, or towards the top of the figure, as viewed in this figure—bassinet 91 will be in a position of zero amplitude. Thus, from the foregoing description it will be apparent that as projection means 81 slowly follows its circular path the bassinet 91 will be slowly rocked from one side to the other. The outside diameter of roller 83 is preferably slightly smaller than the width between the inner faces of flanges 97 whereby the canting of channel member 93 and bassinet 91 relative to roller 83 is permitted. Or, if desired, roller 83 may be formed of a resilient material as rubber or the like to permit such a canting movement. When the form of projection means 81 shown in Figs. 8 and 9 is used, the width of block 89 is preferably slightly less than the width between the inner faces of flanges 97 whereby to permit the above mentioned canting of the bassinet. It will be understood that when this particular form of the projection means is used, block 89 will rotate on sleeve 85 but will not rotate relative to channel member 93.

Projection means 81 is adjustable along the length of arm 77 by loosening bolt and nut means 87 and sliding the projection means to the desired position on the arm and again tightening the bolt and nut means. Thus, the diameter of the circular path of projection means 81 may be varied to vary the amplitude of the rocking movement of bassinet 91. It will be understood that the greater the diameter of the circular path of projection means 81 the greater the amplitude of the rocking movement.

To convert the device of the present invention from the above described mechanically rocked cradle assembly to a stationary cradle, it is only necessary to lift cradle means 15 from mounting and driving means assembly 13, remove the mounting and driving means assembly, and replace the cradle means on to stand 11 so that bassinet 91 rests directly on rungs 29 and 41. Thus, the device of the present invention may be quickly and easily assembled in a moment's time as a mechanically rocked cradle or as a stationary cradle without having to undo any parts, bolts, or the like.

Additionally, the present invention provides means whereby a conventional bassinet and stand may be easily converted into a mechanically rocked cradle. For example, a stand similar to that in Fig. 3 may be purchased along with a conventional bassinet, similar to bassinet 91, then the user may secure the channel member 93 and hangers 101 to the bassinet in accordance with the present invention. Having done this, the user need simply employ the mounting and driving means assembly 13 of the present invention with the modified parts that he has purchased and he has an efficient mechanically rocked cradle.

We claim:

1. A mechanically rocked cradle comprising a stand including a pair of spaced and horizontally disposed rungs; mounting means including an elongated board, a pair of spaced angle members mounted on the underside of said board and disposed perpendicular thereto, and a pair of spaced support arms mounted adjacent the outer ends of said board, said support arms extending upwardly from said board and in diverging relationship relative to each other, the upper ends of said support arms being formed to provide cut-out portions therein, said board being formed to provide an aperture therethrough intermediate the ends thereof; a motor means mounted on the underside of said board adjacent said aperture, said motor means including a vertically disposed driven shaft extending upwardly through said aperture, a horizontally disposed arm attached adjacent one end to the upper end of said shaft, said arm being formed to provide an elongated slot therethrough, upstanding projection means mounted on said arm through said slot, rotation of said shaft being effective to carry said projection means in a circular path, said projection means being adjustable along the length of said slot to vary the distance of said projection means from said shaft whereby the diameter of said circular path is variable; a bassinet, a pair of outwardly projecting hangers respectively mounted from opposite ends of said bassinet, a channel member including a web and spaced flanges depending from the opposite side edges of the web, said channel member being mounted on the underside of said bassinet with the web of said channel member being adjacent to the underside of said bassinet and said flanges extending away from said bassinet, the spacing between said flanges being sufficient to receive said projection means and to allow canting of the said channel member relative to said projection means; said hangers respectively removably resting in said cut-out portions to removably and rockably support said bassinet from said mounting means, said projection means removably extending upwardly between said flanges whereby rotation of said shaft is effective to rock said bassinet and adjustment of said projection

means in said slot is effective to vary the amplitude of the rocking movement, said mounting means being unattached to said bassinet and said stand, and said angle members being respectively engaged on said rungs to removably support said mountng means with said bassinet from said stand whereby a demountable mechanically rocked cradle is provided.

2. A mechanically rocked cradle comprising mounting means including a pair of spaced and upwardly extending support arms, the upper ends of said support arms being formed to provide cut-out portions therein, a motor means mounted on the underside of said mounting means, said motor means including a vertically disposed driven shaft, a horizontally disposed arm attached adjacent one end to the upper end of said shaft, said arm being formed to provide an elongated slot therethrough, upstanding projection means mounted on said arm through said slot, rotation of said shaft being effective to carry said projection means in a circular path, said projection means being adjustable along the length of said slot to vary the distance of said projection means from said shaft whereby the diameter of said circular path is variable; a bassinet, a pair of outwardly projecting hangers respectively mounted from opposite ends of said bassinet, a channel member including a web and spaced flanges depending from the opposite side edges of the web, said channel member being mounted on the underside of said bassinet with the web of said channel member being adjacent to the underside of said bassinet and said flanges extending away from said bassinet, the spacing between said flanges being sufficient to receive said projection means and to allow canting of said channel member relative to said projection means; said hangers respectively removably resting in said cut-out portions to removably and rockably support said bassinet from said mounting means, said projection means removably extending upwardly between said flanges whereby rotation of said shaft is effective to rock said bassinet and adjustment of said projection means in said slot is effective to vary the amplitude of the rocking movement; a stand, said mounting means being unattached to said bassinet and said stand, and said mounting means resting on said stand to removably support said mounting means with said bassinet from said stand whereby a demountable mechanically rocked cradle is provided.

3. A mechanically rocked cradle comprising mounting means including a pair of spaced and upwardly extending support arms, the upper ends of said support arms being formed to provide cut-out portions therein, a motor means mounted on the underside of said mounting means, said motor means including a vertically disposed driven shaft, a horizontally disposed arm attached adjacent one end to the upper end of said shaft, upstanding projection means mounted on said arm, rotation of said shaft being effective to carry said projection means in a circular path; a bassinet, a pair of outwardly projecting hangers respectively mounted from opposite ends of said bassinet, a channel member including a web and spaced flanges depending from the opposite side edges of the web, said channel member being mounted on the underside of said bassinet with the web of said channel member being adjacent to the underside of said bassinet and said flanges extending away from said bassinet, the spacing between said flanges being sufficient to receive said projection means and to allow canting of said channel member relative to said projection means; said hangers respectively removably resting in said cut-out portions to removably and rockably support said bassinet from said mounting means, said projection means removably extending upwardly between said flanges whereby rotation of said shaft is effective to rock said bassinet; a stand, said mounting means being unattached to said bassinet and said stand, and said mounting means resting on said stand to removably support said mounting assembly with said bassinet fom said stand whereby a demountable mechanically rocked cradle is provided.

4. A mechanically rocked cradle comprising a stand, a mounting means and a driving means attached to said mounting means to provide a mounting and driving means assembly, said mounting and driving means assembly being removably supported by said stand; said mounting and driving means assembly including a horizontally disposed arm, said arm being formed to provide an elongated slot therethrough extending along a portion of the length thereof, an upstanding projection means mounted in said slot and extending upwardly from said arm, said projection means including a sleeve and a resilient roller rotatably mounted on said sleeve, and a vertically disposed rotatably driven shaft, said arm being fixedly attached adjacent one end thereof to said shaft whereby rotation of said shaft is effective to carry said roller in a circular path; a bassinet removably and rockably supported by said mounting and driving means assembly with a major part of said mounting means extending beneath said bassinet, a channel member including a web and spaced flanges depending from the opposite side edges of the web, said channel member being mounted on the underside of said bassinet with the web of said channel member being adjacent to the underside of said bassinet and with said flanges extending away from said bassinet, said roller extending upwardly between said flanges whereby rotation of said shaft is effective to rock said bassinet, said projection means being adjustably movable in said slot along the length of said arm to vary the distance of said roller from said shaft whereby the diameter of said circular path is variable which is effective to vary the amplitude of the rocking movement of said cradle.

5. A mechanically rocked cradle comprising a stand, a mounting means and a driving means attached to said mounting means to provide a mounting and driving means assembly, said mounting and driving means assembly being removably supported by said stand; said mounting and driving means assembly including a horizontally disposed arm, said arm being formed to provide an elongated slot therethrough extending along a portion of the length thereof, an upstanding projection means mounted in said slot and extending upwardly from said arm, said projection means including a sleeve and a resilient block rotatably mounted from said sleeve, and a vertically disposed rotatably driven shaft, said arm being fixedly attached adjacent one end thereof to said shaft whereby rotation of said shaft is effective to carry said projection means in a circular path; a bassinet removably and rockably supported by said mounting and driving means assembly with a major part of said mounting means extending beneath said bassinet, a channel member including a web and spaced flanges depending from the opposite side edges of the web, said channel member being mounted on the underside of said bassinet with the web of said channel member being adjacent to the underside of said bassinet and with said flanges extending away from said bassinet, said block extending upwardly between said flanges whereby rotation of said shaft is effective to rock said bassinet.

6. A cradle comprising a stand including a pair of spaced and horizontally disposed rungs, a bassinet having hanger means mounted thereon and having a downwardly facing channel member mounted on the underside thereof, said channel member including a pair of spaced flanges, said bassinet being of a length to rest on said rungs; a mounting and driving means assembly including a rotatably driven arm and a projection means mounted thereon adapted for engagement between the flanges of said channel member for rocking drive of the cradle, said assembly additionally including a pair of

support arms having upwardly opening cut-out portions therein adapted to removably receive said hangers and including a pair of spaced angle members adapted to rest on said rungs, said mounting and driving means assembly being unattached to said bassinet and said stand, and being disposed substantially between said bassinet and said stand with said angle members resting on said rungs and said hangers resting in said cut-out portions whereby said mounting and driving means being quickly and easily separable from said bassinet and said stand for permitting said bassinet to rest directly on said rungs to provide a stationary cradle.

7. The structure in accordance with claim 6 in which said projection means comprises a sleeve and a resilient roller rotatably mounted on said sleeve.

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