United States Patent

Leahey

[15] **3,656,195**

[45] **Apr. 18, 1972**

[54] INFANT'S BED

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[52] **U.S. Cl.** **5/99,** 5/109

[51] **Int. Cl.** **E03d 13/00**

[58] **Field of Search** 5/97–100, 102, 5/108, 109

[56] **References Cited**

UNITED STATES PATENTS

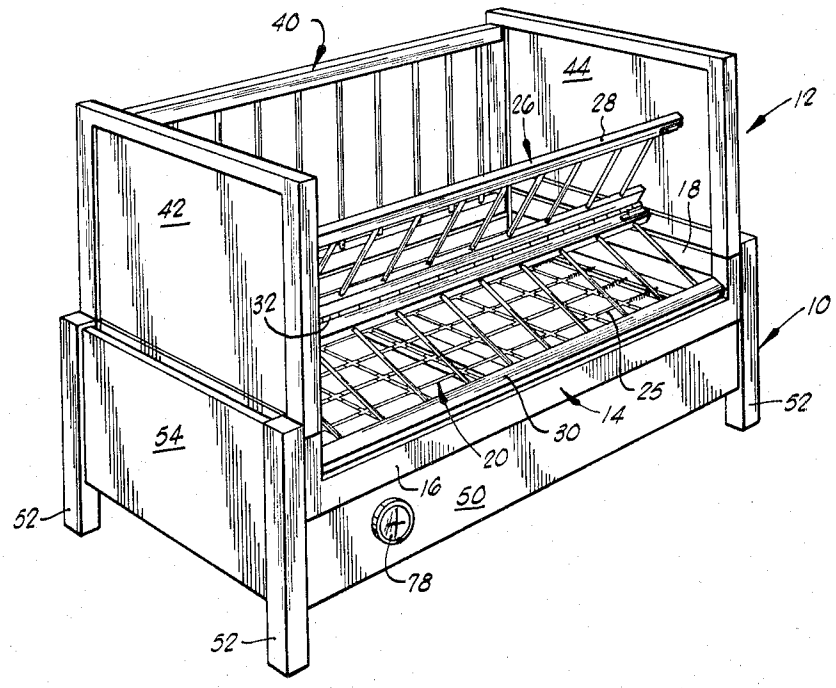
1,742,011	12/1929	Rumsey	5/99
3,056,144	10/1962	McKinley	5/109
3,261,033	7/1966	Martin	5/109

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[57] **ABSTRACT**

An infant's bed which includes a bottom section having a headboard, a footboard, and sideboards extending between and interconnecting the headboard and footboard. Resting on the bottom section and movably supported thereon is a top section which includes a horizontal rectangular frame having a first side fence pivotally secured to the rectangular frame for pivotation about a horizontal axis from an upstanding position to a horizontal position, and a second side fence pivotally secured to the rectangular frame on the opposite side of the frame from the first side fence for pivotation about a horizontal axis from an upstanding position to a horizontal position immediately subjacent the first side fence when the first side fence is pivoted to a horizontal position. The top section further has a footboard pivotally secured to the frame for pivotation about a horizontal axis which extends generally perpendicular to the pivotal axis of the first side fence. A headboard is pivotally secured to the frame of the top section for pivotation about a horizontal axis extending substantially parallel to the pivotal axis of the footboard of the top section, and the footboard and headboard can be pivoted into horizontally extending, coplanar alignment immediately superjacent the first side fence. The top section is rollably supported on the bottom section for horizontal reciprocating movement, and a motor and pitman arm connection are provided for interconnecting the top section and the bottom section for driving the top section in reciprocation on the bottom section.

1 Claims, 6 Drawing Figures



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SHEET 1 OF 2

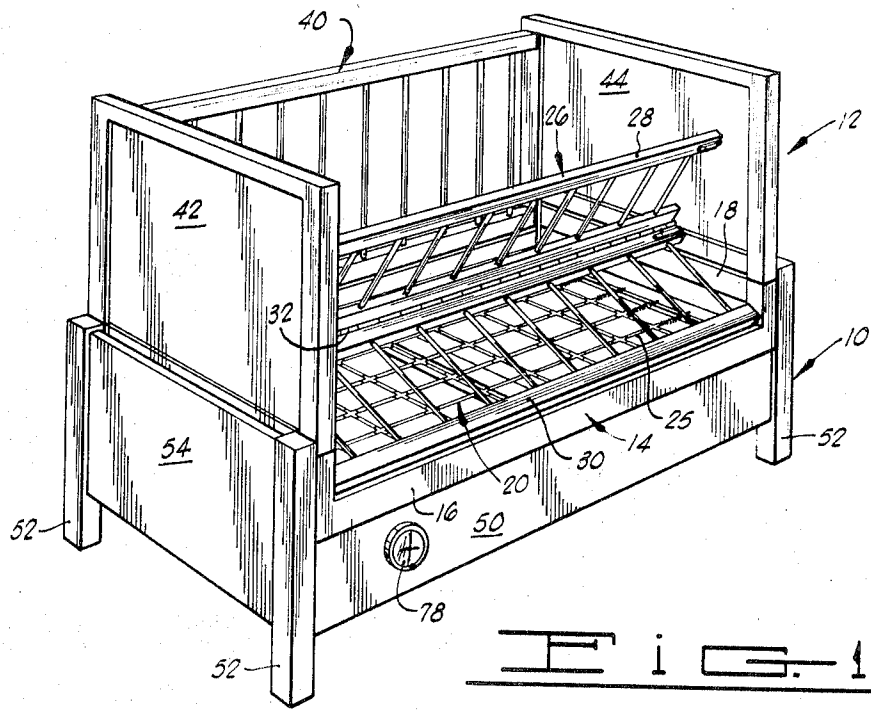


Fig. 1

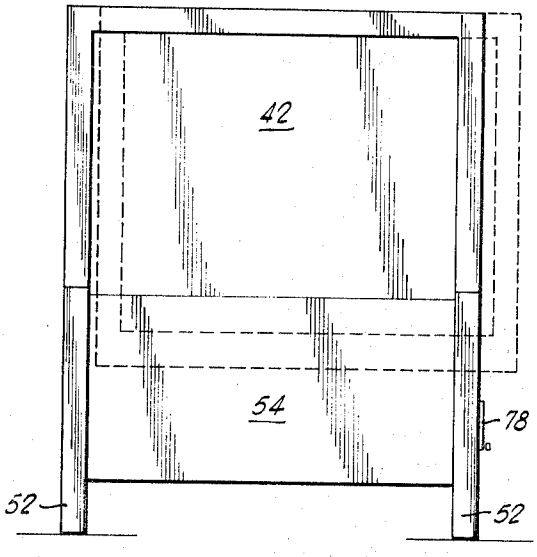


Fig. 2

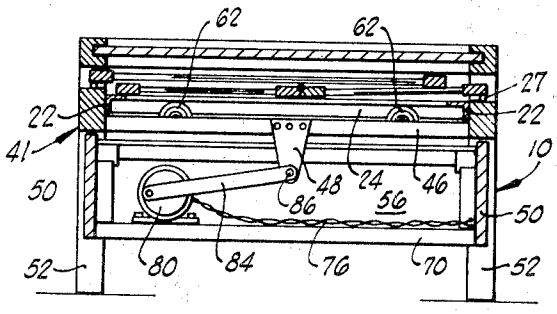


Fig. 6

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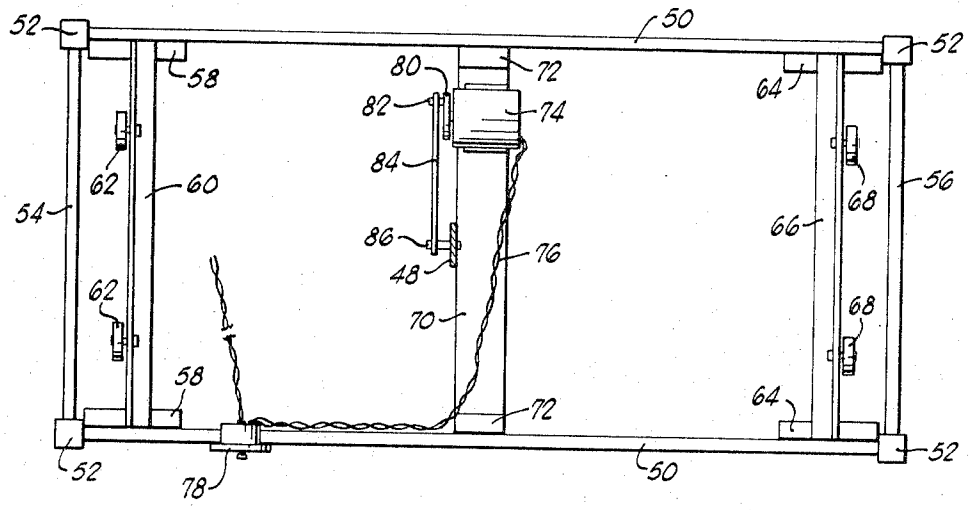


Fig. 3

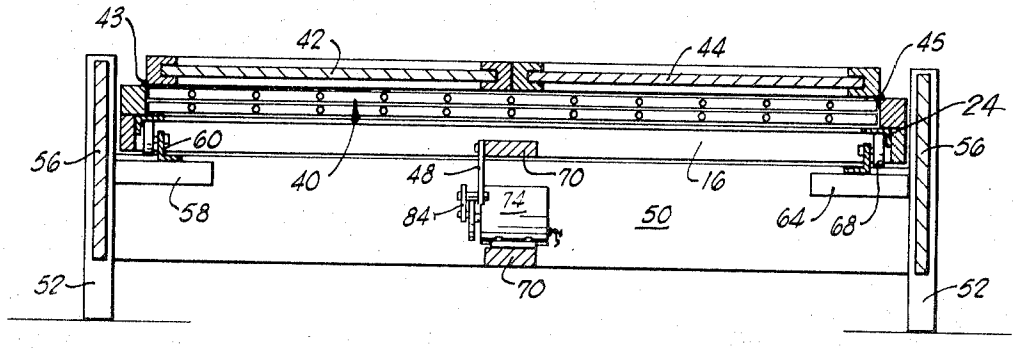


Fig. 4

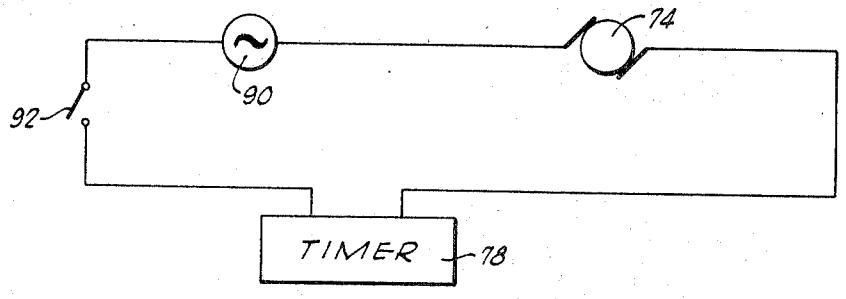


Fig. 6

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INFANT'S BED

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to baby beds, and more particularly, to baby beds of the type in which the mattress supporting portion of the bed is caused to undergo a reciprocating movement for the purpose of lulling the baby to sleep.

2. Brief Description of the Prior Art

In Finger U. S. Pat. No. 2,961,666, there is disclosed a cradle attachment which can be utilized to rock the springs and mattress of a cradle by the use of an electrical motor supported on a base portion of the cradle and connected by an articulated connecting rod to the mattress supporting portion of the cradle. The mattress supporting portion includes a framework which is rollably supported at its opposite ends on the base portion of the cradle so as to be reciprocable by the motor and connecting arm when the motor is energized.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

The present invention comprises an improvement over the Finger cradle attachment and is particularly useful as applied to relatively larger baby beds in that the bed can be collapsed into two compact parts which are separable or detachable from each other, and further in that the electric motor can be automatically energized for a preselected time period from a remote location. The parents of the child can thus cause the reciprocated portion of the baby or infant's bed to be reciprocated for a desired period of time in order to lull the infant back to sleep should the infant awaken in the middle of the night. This has the desirable advantage of obviating the necessity for one of the parents to arise and go to the baby to walk the baby until it has fallen asleep.

Broadly described, the present invention is an improved infant's bed which comprises a bottom section which has a headboard and a footboard which are interconnected by a pair of opposed, substantially parallel sideboards which, with the head and footboards, form a substantially rectangular structure. The infant's bed further includes a top section which has a horizontally extending rectangular frame carrying a first and a second side fence which are pivotally attached to the frame for pivotation about a horizontal axis. These side fences are extended vertically when the bed is in use, but can be folded down to a horizontally extending, superimposed position when the bed is not in use. Preferably, one of the side fences includes an upper portion and a lower portion which are pivotally interconnected for pivotation about a horizontal pivotal axis extending parallel to the pivotal axes by which the side fences are connected to the rectangular frame. The upper or top section of the bed further includes a headboard and a footboard which are each pivotally connected to the frame at horizontally extending, substantially parallel pivotal axes which extend substantially perpendicular to the pivotal axis of one of the side fences. When the bed is to be shipped or stored, the head and footboards of the top section can be folded into a position of substantially coplanar alignment in which both the headboard and the footboard extend horizontally and are immediately superadjacent the folded down side fences.

In a preferred embodiment of the invention, the infant's bed further includes a timing device connected to the motor and adapted to permit remote control of the motor so that the motor will be energized for a predetermined period of time, and the top section of the bed will be rollably reciprocated on the bottom section of the bed during this time so that an infant may be lulled back to sleep when it awakens during the night.

From the foregoing description of the invention, it will be perceived that it is an object of the present invention to provide a simply and inexpensively constructed infant's bed which is mechanically sturdy and characterized in having a long and trouble-free operating life.

Another object of the invention is to provide an infant's bed which can be electrically actuated so that the top portion of the bed is gently reciprocated to provide a lulling movement to induce the infant using the bed to sleep.

A further object of the invention is to provide an infant's bed which is of basically two-part construction with the parts being foldable into a compact status for shipment or storage.

Another object of the invention is to provide an infant's bed which provides electrical means for reciprocating in a gentle reciprocating movement, the mattress supporting portion of the bed and which includes timing means permitting such reciprocating motion to be carried on for a predetermined period of time and then automatically stopped.

Additional objects and advantages of the invention will become apparent as the following detailed description of the invention is read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the infant's bed of the invention illustrating one of the side fences forming a portion of the bed partially folded downwardly.

FIG. **2** is an end elevation view of the bed showing a top section of the bed as it appears when it has been reciprocated to one side, and is in offset relation to the bottom section of the bed.

FIG. **3** is a plan view of the bed with top section removed.

FIG. **4** is a sectional view taken from the head portion to the foot portion of the bed through the center thereof and along a vertical plane at such time as the foldable parts of the top section have been folded down to a compact position.

FIG. **5** is a vertical sectional view taken transversely and centrally across the bed when it is folded down.

FIG. **6** is a schematic wiring diagram illustrating the electrical circuitry used in the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Referring initially to FIG. **1**, the infant's bed of the invention includes a bottom section **10** and a top section **12** which is rollably supported on the bottom section. The top section can be detached from the bottom section simply by lifting it upwardly unless flexible straps or retainer elements are used for safety purposes to limit the extent to which the top section can be reciprocated on the bottom section.

The top section of the bed includes a horizontally extending rectangular frame **14** which has a pair of side frame members **16** and a pair of end frame members **18**. Supported within the frame **14** is a set of springs **20** which set has a pair of angle iron side members **22** interconnected by angle iron end members **24**, and springs **25** connected between these angle iron side members and the angle iron end members. Pivotally secured to the top edge of the side frame members **16** is a side fence designated generally by reference numeral **26**. Any suitable type of hinge **27** may be used to pivotally connect the side fence **26** to the side frame member **16** for pivotation about a horizontal axis. The side fence **26** includes an upper portion **28** and a lower portion **30** which are connected to each other at adjacent edges by a suitable hinge **32** for pivotation about a horizontal axis which extends substantially parallel to the horizontal axis by which the side fence **26** is connected to the side frame member **16**. It will thus be seen that the side fence **26** may be folded in the manner depicted in FIG. **1**, and the pivoting movements about the pivotal axis connecting the side fence **26** to the side frame member **16** and the pivotal axis interconnecting the upper and lower portions **28** and **30** to each other continued until the top portion is flatly superimposed on the lower portion, and both portions extend substantially horizontally. Moreover, it will be noticed that when the side fence **26** is folded down in the manner described, the upper portion and the lower portion thereof lie within the end frame members **18**, and at a lower level than the top edges of the end frame members.

Another side fence **40** is pivotally secured to the second frame member **16** on the opposite side of the top section **12** from the side fence **26**. The side fence **40** is not articulated—that is, it is not pivotally segmented into an upper and lower portion, but the lower edge of the side fence **40** is pivotally connected by a hinge to the side frame member **16** so that the side fence **40** can be pivoted form its upstanding position as shown in FIG. **1** to a horizontally extending position in which it overlies, and is immediately superjacent, the folded down side fence **26** when this latter fence is folded.

Secured to the end frame member **18** at one end of the bed is a headboard **42**. The headboard **42** is secured to the end frame member **18** by a suitable hinge **43** for pivotation about a horizontal axis so that the headboard can be pivoted downwardly to a horizontally extending position in which it is immediately superjacent the folded side fences **26** and **40**. At the opposite end of the bed from the headboard **42**, a footboard **44** is pivotally secured by a hinge **45** along its lower edge to the second end frame member **18** so that the footboard **42** can be pivoted about a horizontal axis and moved to a horizontally extending position. When the headboard **42** and footboard **44** are pivoted downwardly to horizontally extending positions, they are in substantially coplanar alignment and lie on top of the side fence **40**. Thus, when the side fences **26** and **40** and the headboard **42** and footboard **44** of the top section **12** of the bed are folded downwardly in the manner described, a compact structure is provided which can be easily stored in a relatively small place and packaged for shipment in a relatively small container. The folded down relation of the side fences and the head- and the footboard are perhaps best illustrated in FIGS. **4** and **5** showing sections through the bed at such time as the several elements described have been folded to their horizontally extending positions.

As a final element of the top section **12**, a transverse frame member **46** is provided which extends beneath the springs **25** between the side frame members **16** of the top section **12** at about the central portion of the bed. The transverse frame member **46** has secured to one edge thereof, a downwardly extending bracket **48**.

The bottom section **10** of the infant's bed includes a pair of horizontally extending sideboards **50** which extend into leg posts **52** disposed at opposite ends of the bed. The leg posts **52** are preferably detachable from the sideboards **50**. A pair of the leg posts **52** at one end of the bed support a headboard **54**, and the leg posts at the other end of the bed support a footboard **56**. Positioned inwardly from the headboard along the two sideboards **50** are a pair of supporting blocks **58** which support an angle iron member **60** which has rotatably mounted on one flange thereof, a pair of horizontally spaced rollers **62**. At the opposite end of the bed near the footboard **56**, a pair of supporting blocks **64** are secured to the sideboards **50** and support a transversely extending angle iron **66**. Rotatably mounted in one flange of the angle iron **66** are a pair of horizontally spaced rollers **68**. The rollers **62** and **68** disposed at opposite ends of the bottom section **10** of the bed are positioned so that when the top section **12** is rested upon the bottom section as shown in FIGS. **1**, **4** and **5**, the horizontally extending flanges of the angle irons forming the opposite end members **24** of the set of springs **20** contact the upper surfaces of these rollers, and form the rolling surface permitting the top section **12** to be horizontally rolled relative to the bottom section **10**.

Extending transversely across the bottom section **10** and interconnecting the sideboards **50** intermediate their length is a motor supporting transverse member **70** which supports an electric motor **74**. It may be secured to suitable supporting blocks **72** disposed at opposite ends thereof, which blocks are secured to the sideboards **50**. The electric motor **74** is supplied with electrical power by a suitable electrical lead **76** which extends to a timing device **78** which may be conveniently mounted in the sideboard **50**. The timing device is, of course, interposed in the electrical circuit to the motor **74** as will be hereinafter explained. An output shaft from the motor **74** is secured to the center of a rotating drive plate **80** which has eccentrically connected thereto by a suitable pin **82** located adjacent its periphery, a pitman arm **84**. The end of the pitman arm **84** opposite its end connected to the drive plate **80** is connected to the bracket **48** by means of a suitable connecting pin **86** (see FIGS. **3** and **5**).

The electrical circuitry employed in a preferred embodiment of the invention is illustrated in FIG. **6** where a suitable source of alternating electrical current is schematically illustrated and is designated by reference numeral **90**. The motor **92** is connected to one side of the circuit and the timer device **78** is connected in the other side of the circuit between the motor **74** and the source of power **90**. A suitable ON-OFF switch **92** is provided in the circuit.

USE AND OPERATION

In utilizing the infant's bed of the invention, the bed is set up somewhat in the manner illustrated in FIG. **1**, except that the side fence **26** is extended to its vertically extending, operative position. In this position, the top section **28** and the bottom section **30** of the side fence **26** are aligned in a vertical plane, and are held in this position by a suitable slip lock or other latching means for securing the topmost structural member of this side fence to points adjacent the top edges of the headboard **42** and the footboard **44**. The infant, of course, lies upon a mattress supported upon the spring section **20**.

The motor **74** is then energized and, when as in a preferred embodiment of the invention, the electrical structure includes the timing device **78**, this timing device is set to allow the motor to run for a predetermined period of time, and then to be shut off automatically by opening of the circuit. As the motor **74** is energized, the drive plate **80** is driven in rotation and the pitman arm **84** converts the rotational movement of the motor to translational movement by its connection to the bracket **48**. Thus, as the motor is energized, the top section **12** of the bed is caused to undergo a reciprocating movement. As the top section **12** reciprocates relative to the bottom section **10** of the bed, the top section is rollably supported on the rollers **62** and **68** which contact the horizontally extending flange of the end members **24** of the set of springs **20**. The action of the pitman arm **84** is such that there is a deceleration in the rate of lateral movement of the top section **12** near each end of the stroke of the pitman arm **84** so that there is not a jerking turnabout at the end of the stroke. Thus, the laterally reciprocating motion is gentle and there is a substantial inducement for the infant to sleep.

It should be pointed out that one of the advantageous aspects of the inclusion of the timing device **78** in the electrical circuitry to the motor **74** is that this device may be employed at such time as the infant may awake late in the night for automatically causing the bed to gently rock the baby for a predetermined period of time. The parents may return to their own beds after setting the device with a substantial degree of assurance that, unless the child is bothered by gas or needs feeding, the rocking motion of the bed will soon lull the child to sleep. Thus, it is not necessary for the parents to remain at the baby bed patting the baby, or perhaps picking up the baby and walking him for extended periods of time. It is also possible to locate the timing device **78** at a remote location so that the parent can automatically start the motor **74** and have it continue to operate the bed for a predetermined period of time without the necessity for the parent to get up and go to the side of the infant's bed in order to set the timing device.

One of the important aspects of the present invention is its simplicity of construction and the manner in which it can be folded into a compact configuration for storage, packaging or shipment. At such time as it may be desired to store the bed or to ship it, the side fence **26** is folded downwardly about the hinge which connects the bottom portion to the side frame member **16** of the frame **14**, so that the top portion **28** and lower portion **30** extend in horizontal coplanar alignment. The side fence **40** is next folded downwardly to a horizontal position by pivoting it about its horizontal pivotal axis which ex-

tends along the hinge line between this side fence and the side frame member **16** to which it is connected. When the side fence **40** is folded to a horizontally extending position, it lies atop the coplanar upper and lower portions, **28** and **30**, respectively, of the side fence **26**. Finally, the headboard **42** and the footboard **44** are folded downwardly about their hinged connections to the end frame members **18** until they are in horizontally extending, coplanar alignment and lie on top of the side fence **40**. There is thus provided a very compact structure, insofar as the top section of the bed is concerned. This structure can be placed in a relatively small box and shipped, or the folded top section can be stored in a small space. It is a simple matter to remove the top section **12** from the bottom section **10** by simply lifting the top section upwardly, since it merely rests upon the rollers **62** and **68** unless certain straps are provided to limit the reciprocating movement of the top section as a safety feature.

As shown in FIG. **5**, the bottom section **10** of the bed is of relatively low profile, and by making the headboard **54** and footboard **56** detachable from the sideboards **50**, which can be easily accomplished, and which is a preferred construction of the present invention, the headboard and footboard can then be lain inside the two sideboards **50** and between the ends of these sideboards to provide a compact structure commensurate with the compactness of the folded top section **12**.

From the foregoing description of the invention, it will be perceived that the present invention provides a relatively simply constructed, mechanically sturdy and versatile infant's bed which is highly useful in automatically lulling an infant to sleep by a rocking or gentle reciprocating motion. The bed may be folded into a compact configuration for storage or shipment. Although a preferred embodiment of the invention has been herein described in order to simply exemplify one construction which may utilize the inventive principles, it is to be understood that various changes and modifications in the illustrated structure can be effected without departure from these basic principles. All such innovations and modifications as may be made in the infant's bed of the invention without departure from these basic principles are therefore deemed to be circumscribed by the spirit and scope of the invention except as the same may be necessarily limited by the appended claims or reasonable equivalents thereof.

What is claimed is:

1. An infant's bed comprising:

a bottom section including:

a headboard;

a footboard;

a first pair of rollers mounted on said headboard;

a second pair of rollers mounted on said footboard; and

side boards extending between and interconnecting the headboard and footboard;

a collapsible top section detachably and reciprocably mounted on said bottom section for reciprocating transverse movement in a horizontal direction parallel to the planes of said headboard and footboard, said top section including:

a horizontal, rectangular frame;

a set of mattress supporting springs retained in said frame;

a pair of roller receiving tracks mounted on said horizontal frame at opposite ends thereof and receiving said first and second pair of rollers;

a first side fence pivotally secured to said rectangular frame for pivotation about a horizontal axis from an upstanding position to a horizontal position;

a second side fence pivotally secured to said rectangular frame on the opposite side thereof from said first side fence for pivotation about a horizontal axis from an upstanding position to a horizontal position immediately subjacent said first side fence when the first side fence is pivoted to a horizontal position, said second side fence having a lower portion which is pivotally connected to said rectangular frame, and an upper portion pivotally connected to said lower portion for pivotation about an axis extending substantially parallel to the pivotal axis of the lower portion on said rectangular frame;

a footboard pivotally secured to said frame for pivotation about a horizontal axis extending in a plane generally perpendicular to the pivotal axes of said fences, and disposed at a higher horizontal level than the pivotal axes of said first and second side fences; and

a headboard pivotally secured to said frame for pivotation about a horizontal axis extending substantially parallel to the pivotal axis of the footboard of said top section, and being located at a higher horizontal level than the pivotal axes of said first and second side fences, said footboard and headboard of said top section being pivotable into co-planar horizontal alignment in a plane which overlies, and is above, the planes occupied by said first and second side fences when said first and second side fences are pivoted to a substantially horizontally extending position;

a motor mounted on said bottom section midway between the headboard and footboard of said bottom section;

a disc drivingly connected to said motor;

a pitman arm having one end connected eccentrically on said disc, and having a second end connected to said top section midway between said headboard and footboard of said top section;

safety strap means retaining said top section on said bottom section; and

timing means connected to said motor for automatically starting said motor at a preselected time.

* * * * *