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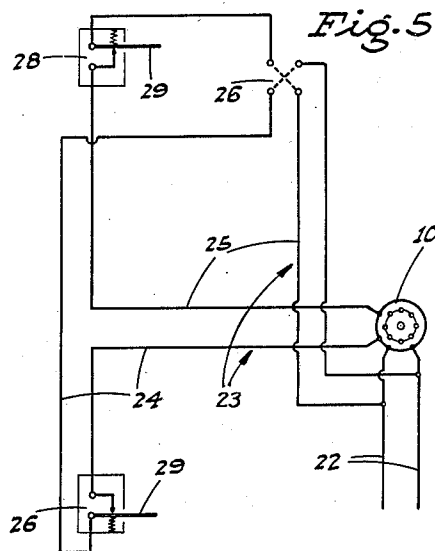
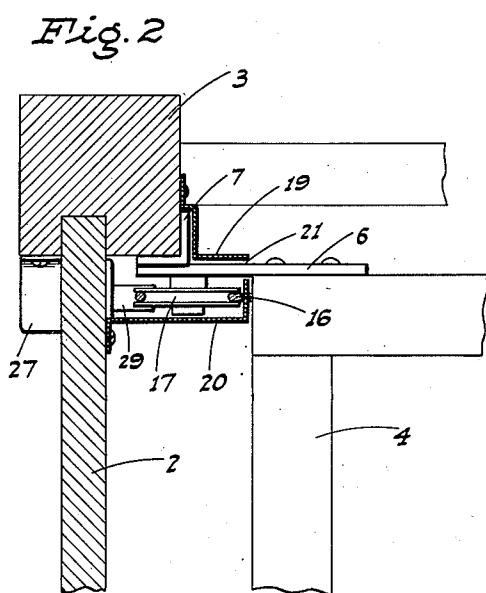
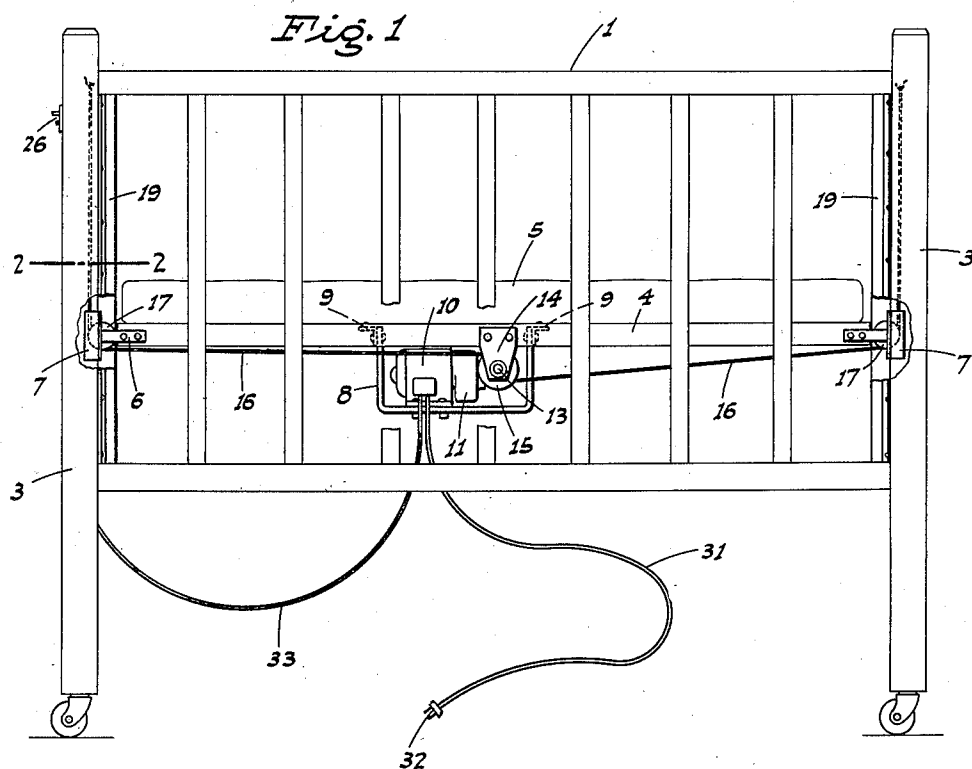
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2,590,337

INFANT'S CRIB

Filed Jan. 3, 1949

2 SHEETS—SHEET 1



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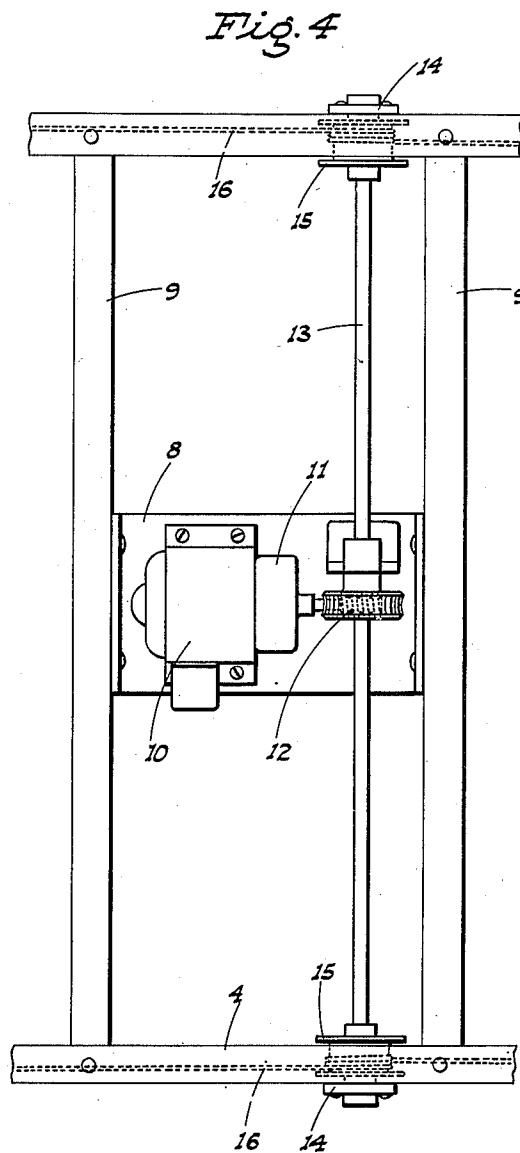
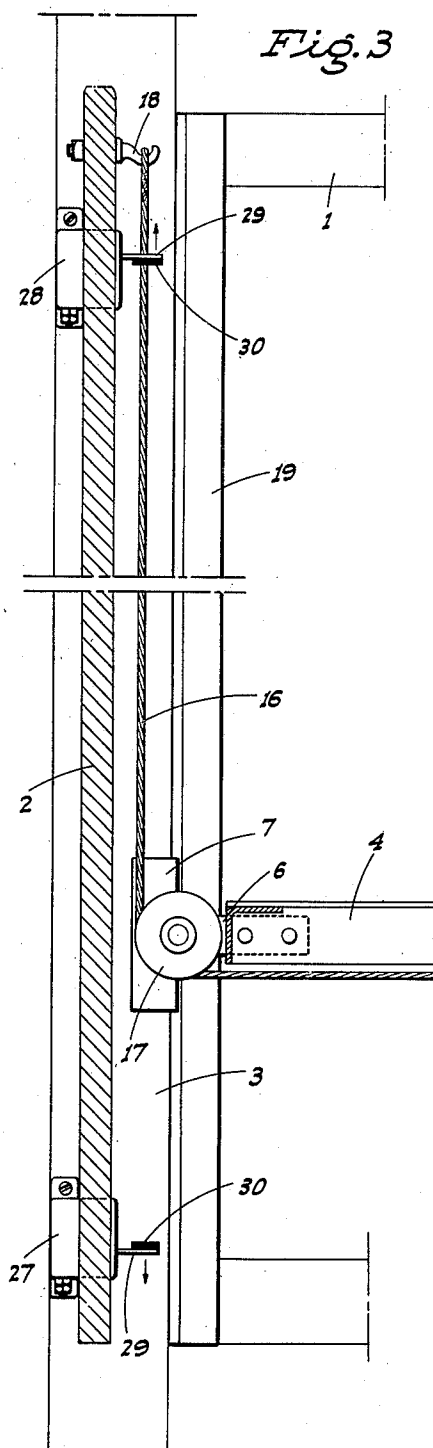
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INFANT'S CRIB

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2 SHEETS--SHEET 2



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UNITED STATES PATENT OFFICE

2,590,337

INFANT'S CRIB

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5 Claims. (Cl. 5-63)

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This invention relates generally to an improved infant's crib.

One object of the invention is to provide an infant's crib, of the type having a power adjusted mattress frame, with a novel power mechanism for controlling raising or lowering of the mattress frame.

Another object of the invention is to provide an infant's crib, as above, wherein such power mechanism is mounted, in the main, on the mattress frame beneath the same; the invention thus being adaptable to a generally conventional crib, with a vertically adjustable mattress frame, with a minimum of re-designing of said crib.

A further object of the invention is to provide an infant's crib, as in the preceding paragraph, which embodies a novel guide and lift cable assembly for the vertically adjustable mattress frame of the crib.

An additional object of the invention is to control the power mechanism by a switch actuated, reversing circuit for the electric motor included in said mechanism; there being limit switches operative to break the circuit at predetermined high and low limits of movement of the mattress frame.

It is also an object of the invention to provide a power actuating mechanism, for the vertically adjustable mattress frame of infant's cribs, which is designed for ease and economy of manufacture.

A further object of the invention is to provide a practical and reliable power actuating mechanism for the purpose described, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a side elevation of an infant's crib embodying the present invention.

Fig. 2 is an enlarged cross section on line 2-2 of Fig. 1.

Fig. 3 is an enlarged fragmentary sectional elevation, adjacent one corner post of the crib, and showing the corresponding portion of the guide and lift cable assembly.

Fig. 4 is an enlarged fragmentary bottom plan view of the mattress frame showing the electric motor and adjacent related parts of the power mechanism.

Fig. 5 is a diagram of the reversing circuit employed in connection with the invention.

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Referring now more particularly to the characters of reference on the drawings, the invention is here shown as embodied in connection with an infant's crib which includes sides 1, ends 2, corner posts 3, and a vertically adjustable mattress frame 4 on which a mattress 5 is disposed.

A longitudinal finger 6 is fixed in connection with each corner of the mattress frame 4 and projects outwardly toward the adjacent and corresponding corner post 3. At its outer end each of the fingers 6 carries a vertically disposed V-channel guide 7 which matchingly engages the adjacent right angle edge of said corresponding corner post 3, whereby the mattress frame 4 is guided in its motion between a normally lowered position, and a raised position.

The mattress frame 4 is mounted for vertical adjustment so that the mattress 5 with the infant thereon may be elevated to a raised position for the purpose of convenience in attending to such infant when necessary. The power mechanism which is employed to control the vertical adjustment of the mattress frame 4 comprises the following:

A generally U-shaped suspension platform 8 is fixed in connection with, and depends below, a pair of cross bars 9 included in the mattress frame 4. An electric motor 10, of reversible type, is mounted on the platform 8, and includes a reduction gear box 11, which in turn drives a worm and gear assembly 12; the latter being connected in driving relation to a cross shaft 13 journaled between depending brackets 14 on opposite sides of the mattress frame 4.

Directly inwardly of the brackets 14 the cross shaft 13 is fitted with cable drums 15, and a pair of reversely wound cables 16 lead in opposite directions from each drum 15 lengthwise of the mattress frame 4.

Adjacent each corner of the mattress frame 4 the corresponding cable 16 turns beneath a pulley 17 journaled in connection with the finger 6. From each pulley 17 the corresponding cable leads upwardly, and is anchored to a hook 18 on the corresponding end of the crib; such hook 18 being at an elevation greater than the maximum intended raising point of said mattress frame 4.

Corresponding cables 16 on opposite sides of the mattress frame run off the drums 15 in like manner, so that upon rotation of the cross shaft 13 in one direction the mattress frame will be simultaneously raised at both ends. Similarly, opposite rotation of the cross shaft 13 lowers the mattress frame at both ends.

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Vertical guard plates 19 and 20 are secured to each corner post 3 and the adjacent crib end 2 in protective relation to the vertical run of each cable 16. The vertical guard plates 19 and 20 form in effect an upstanding housing into which the corresponding finger 6 projects through a vertical slot 21 between said plates. In this manner the pulleys 17, together with the vertical runs of the cable, and the guides 7, are protected against manual access by the infant.

The circuit which is employed in connection with the reversible electric motor 10 is shown diagrammatically in Fig. 5, wherein the numeral 22 indicates the current input circuit; each circuit leading to connection, as shown, with the reversible motor 10 and a reversing circuit, indicated generally at 23, which latter circuit includes one sub-circuit 24 and another sub-circuit 25 connected together by a reversing switch 26. In one position of the reversing switch 26 the motor 10 is caused to run in a direction to raise the mattress frame, while in another position of said switch 26 the motor 10 is caused to run in a direction to lower the mattress frame.

The following arrangement of limit switches is employed in connection with the control mechanism:

Normally closed limit switches 27 and 28 are mounted in vertically spaced relation on one end 2 of the crib in position to be engaged by one of the rollers 17 at predetermined maximum low and high points of the mattress frame 4; each of said switches including a projecting switch arm 29 having a dielectric pad 30 thereon for engagement by the roller.

When the motor 10 is being run in a direction to lower the mattress frame 4, the switch actuating roller engages the pad 30 and swings the switch arm 29 of the lower switch 27 to open the same when the mattress frame reaches its predetermined maximum low point. This breaks the sub-circuit 24 and stops the motor 10.

A similar action results with respect to the switch 28 when the mattress frame is being raised; said last named switch being opened and the sub-circuit 25 broken when the mattress frame 4 reaches its predetermined maximum high point.

The current input circuit 22 is included in a flexible cord 31 of substantial length which leads to the motor; such cord having a plug 32 on its outer end for engagement in an electric supply receptacle. The wires of the reversing circuit 23 are included in a flexible cord 33 which leads from the motor 10 to the reversing switch 26; the latter preferably being of push button type and mounted on one end 2 of the crib, as shown in Fig. 1. The flexible cord 33 is of sufficient length to permit the mattress frame to travel, without restriction, between its high and low points.

An infant's crib provided with the above described power mechanism is very practical and effective when in use, making possible the raising of the mattress frame from its normally lowered position to a raised position for ease of attendance to the infant. Also, by reason of the limit switch arrangement, it is not necessary that the mechanism be further manually controlled after the switch 26 is closed one way or the other; movement of the mattress frame by the power mechanism being automatically shut off either at its high or low limit.

By reason of the design of the power mechanism and its manner of mounting in connection with the crib, the latter can be of generally con-

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ventional construction, requiring very little change for the adaption of said power mechanism; except that it is possible for the crib to be constructed of much greater depth than otherwise, and which depth adds greatly to the infant's safety.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations therefrom may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. In an infant's crib structure which includes a vertically movable mattress frame; an electric motor-driven power unit mounted in connection with the mattress frame beneath the same and for movement therewith, power unit actuated connections between the mattress frame and fixed parts of the crib structure operative to raise or lower said mattress frame; and a circuit for the unit including a control switch mounted on a fixed part of the crib in an exteriorly accessible position but so as to be relatively inaccessible to the occupant of the crib.

2. A structure as in claim 1, in which the circuit includes a flexible circuit cord connected between the switch and power unit, said cord being of a length to permit of the full range of movement of the mattress frame.

3. In an infant's crib structure which includes a vertically movable mattress frame; an electric-motor driven power unit mounted in connection with the mattress frame beneath the same and for movement therewith, said power unit including a reversibly driven cross shaft, drums on the cross shaft adjacent opposite sides of the mattress frame, a pair of flexible cables wound in the same direction on each drum but extending thence in opposite directions lengthwise of the mattress frame to adjacent corresponding corners thereof, cable direction changing pulleys on the mattress frame adjacent its corners, the cables extending about the pulleys from below and thence running upward, and cable anchors on the crib structure at a predetermined point above the maximum high point of movement of the mattress frame; the crib structure including corner posts, a rigid finger projecting longitudinally outward from each corner of the mattress frame, and a vertical guide on each finger running on the adjacent part of the corresponding post.

4. In an infant's crib structure which includes a vertically movable mattress frame; an electric-motor driven power unit mounted in connection with the mattress frame beneath the same and for movement therewith, said power unit including a reversibly driven cross shaft, drums on the cross shaft adjacent opposite sides of the mattress frame, a pair of flexible cables wound in the same direction on each drum but extending thence in opposite directions lengthwise of the mattress frame to adjacent corresponding corners thereof, cable direction-changing pulleys on the mattress frame adjacent its corners, the cables extending about the pulleys from below and thence running upward, and cable anchors on the crib structure at a predetermined point above the maximum high point of movement of the

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mattress frame; the crib structure including corner posts, a rigid finger projecting longitudinally outward from each corner of the mattress frame, and a vertical guide on each finger running on the adjacent part of the corresponding post, the pulleys being journaled on said fingers.

5. A structure as in claim 4, with vertical housings secured on the crib and in which the pulleys, fingers, guides and the adjacent portions of the cables are enclosed throughout the extent of travel of the mattress frame.

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