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ELEVATING UNIT FOR BABY CRIB

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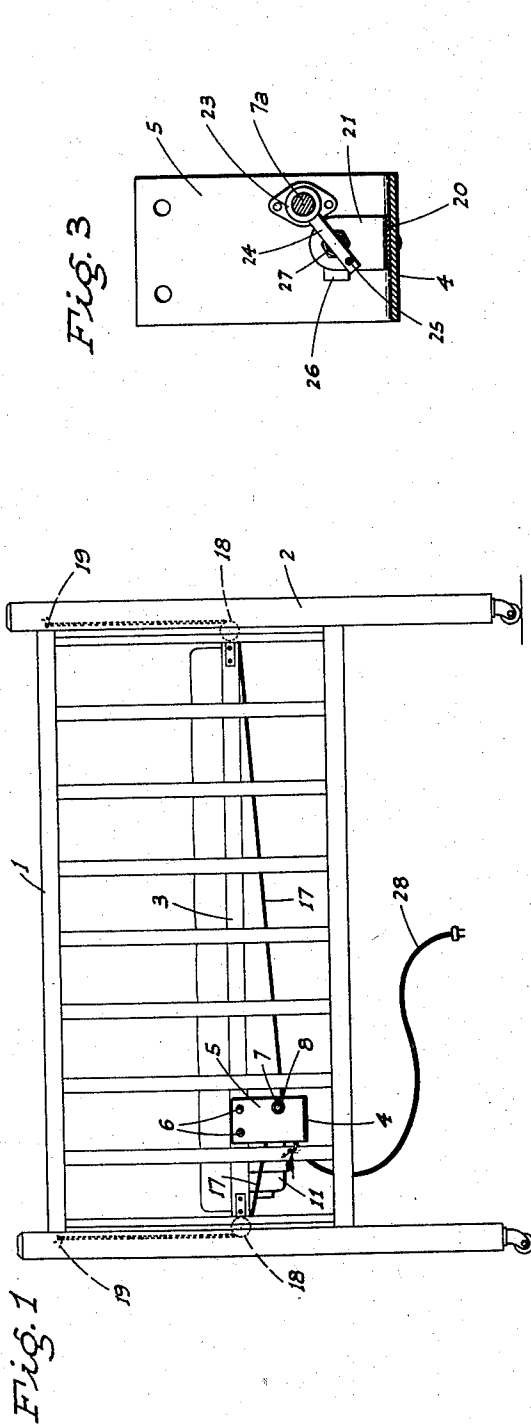


Fig. 3

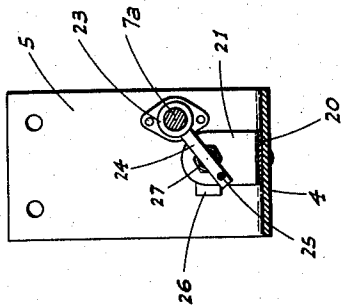
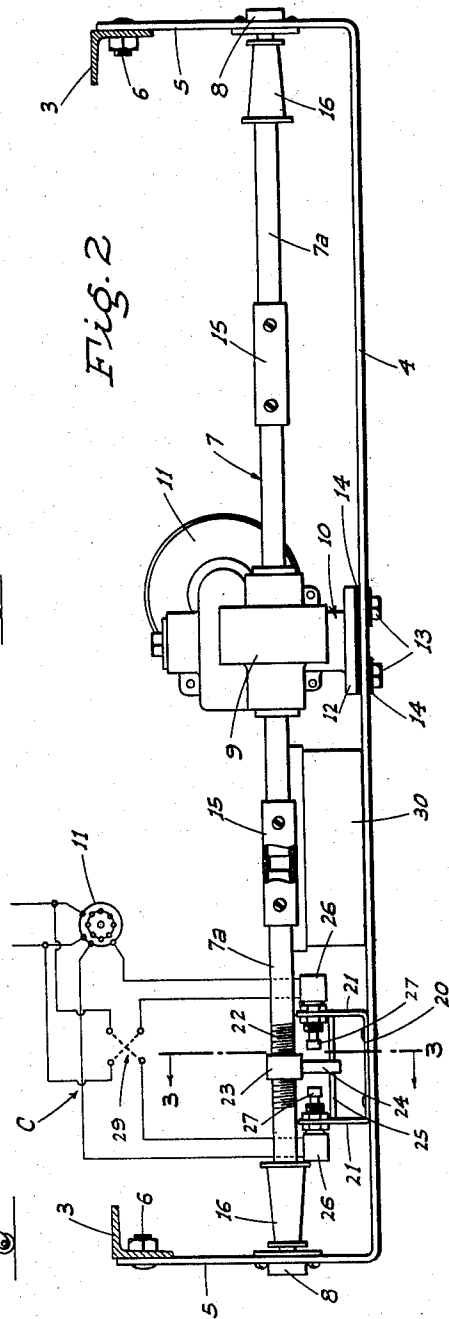


Fig. 2



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ELEVATING UNIT FOR BABY CRIB

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Continuation of application Serial No. 692,660, October 28, 1957. This application March 23, 1959, Serial No. 801,407

2 Claims. (Cl. 5—63)

This invention relates to baby cribs in which the mattress-supporting frame of the crib may be raised from its normally lowered position; the present invention dealing with a unit to thus raise the mattress frame, and which unit represents an improvement over what is shown in Patent No. 2,590,337, granted March 25, 1952, to W. J. McNabb and W. J. McNabb, Jr.; this application being a continuation of application Serial No. 692,660, filed October 28, 1957, and now abandoned.

The unit in question includes an electric motor to elevate and lower the mattress frame, with limit switches in the motor circuit functioning automatically to open the circuit and stop the motor when the frame reaches either end of its travel.

In the device of the patent, the limit switches were mounted on the main frame of the crib, while the operating unit itself was mounted on the mattress frame. This required accurate and relatively expensive installation operations.

Also, the operating mechanism was arranged so that great care had to be taken to insure proper alinement of the parts when installing the same on the mattress frame; further increasing the cost of installation.

The principal object of the present invention is to arrange the operating mechanism, including the limit switches, as a single compact unit, adapted to be readily and quickly mounted on the mattress frame, and all proper positioning of the various parts of the mechanism relative to each other is done at the factory. By this means, improved simplicity is obtained, and lower installation costs of the mechanism are possible over what was previously the case.

Another object of the invention is to provide a practical, reliable, and durable elevating unit for a baby crib, 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 outline of a baby crib equipped with my improved elevating unit.

Fig. 2 is an enlarged longitudinal elevation of the unit as mounted on the mattress frame, the actual electric wiring and pull cables being omitted.

Fig. 3 is a cross section on line 3—3 of Fig. 2.

Referring now more particularly to the drawings and to the characters of reference marked thereon, the crib to which the improved elevating unit is applied comprises a main frame having sides 1 and end corner posts 2; the vertically adjustable mattress frame 3 being disposed between the sides 1 and slidably guided in connection with the posts in the manner shown in said Patent No. 2,590,337.

The improved elevating unit comprises a flat supporting platform 4 separate from the mattress frame 3 and adapted to extend the full width of the latter. The plat-

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form 4 has upstanding end flanges 5 adapted to be secured to or removed from the side rails of said frame 3 by the use of bolts 6.

A sectional shaft unit 7 extends between the end flanges 5 a certain distance above and parallel to platform 4, and is journaled at its ends in bearings 8 mounted in said flanges.

Intermediate its ends the shaft unit extends through, and is operatively connected to, the gearing in the gear box 9 of a reduction gear and motor unit 10 of conventional form; the motor 11 being of reversible type and extending horizontally at right angles to the shaft. The base 12 of unit 10 is secured to the platform 4 by bolts or cap screws 13, the base and bolts being electrically insulated from the platform, as indicated at 14.

The endmost sections 7a of the shaft unit are spaced somewhat from the section of the shaft unit which projects through the box 9, and are coupled thereto in driving and insulated relation by dielectric coupling sleeves 15. In this manner there is no danger of any current possibly leaking to the platform and being transmitted to the crib itself should such crib be of metal construction.

Secured on the shaft sections 7a adjacent the bearings 8 are drums 16, about each of which a cable 17 is reeved to extend thence in opposite directions, as shown in the aforementioned patent. The cable runs from each drum pass under direction-changing pulleys 18 mounted on the mattress frame at its ends and thence upwardly to anchors 19 on the posts 2, in the same manner as was previously done.

The drums are formed with a longitudinal taper, as shown in Fig. 2; this feature having been found to give a better wrapping action of the cable thereon as the mattress frame is lifted by rotation of the shaft unit and drum, than is the case when constant-diameter drums are used.

A bracket 20 having upstanding end flanges 21 is mounted on platform 4 in a plane lengthwise of the shaft unit 7 between one drum 16 and the adjacent coupling 15, and in laterally offset relation to said shaft unit.

The adjacent shaft section 7a is threaded, as at 22, and mounted on said threads is a nut 23. To prevent rotation of the nut on the shaft section, a finger 24 projects from the nut radially thereof, and adjacent its outer end slides on a rod 25 extending between and secured in the end flanges 21 and disposed parallel to said shaft section.

Supported by the bracket flanges in opposed relation are limit switches 26, each including a push button 27. These buttons are disposed on opposite sides of the finger 24, in position to be alternately engaged thereby intermediate the ends thereof, as indicated in Fig. 3, upon movement of the finger lengthwise of the shaft section in one direction or the other.

The limit switches are interposed in a circuit arrangement C which is the same as that shown in the previous patent, and which includes a plug-in cord 28 and a motor-reversing hand switch 29. The various wires which together form the complete circuit are connected in operative relation in a junction box 30 mounted on the platform 4.

The pitch of the threading 22 is so related to the distance between the buttons 27, and to the diameter of the drums, that the finger 24 will travel the full distance between the buttons and will engage and push on one or the other of the same, to open the corresponding limit switch, upon the full desired vertical movement being imparted to the mattress frame.

It may be here noted that for cheaper installations the motor and accessories may be omitted and the shaft in-

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stead connected at one end to a hand crank unit of any suitable type, such as is used in various winches.

From the foregoing description it will be readily seen that there has been produced such a device as will substantially fulfill 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 a baby's crib which includes a rectangular fixed frame, a vertically movable rectangular mattress frame mounted within the fixed frame, lift cables depending from and secured to the corners of the fixed frame, and pulleys on the corners of the mattress frame about which the cables pass intermediate their ends; an operating unit arranged for connection with said cables to effect the raising and lowering of the mattress frame, such unit including a supporting platform separate from the mattress frame and adapted to be positioned below the mattress frame transversely thereof, upstanding end flanges on said platform, means to detachably secure said end flanges to the side rails of the mattress frame, a shaft positioned above and parallel with the platform, the ends of the shaft being permanently journaled in the end flanges, cable drums secured on the shaft adjacent its ends and

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adapted for winding connection with said cables, and means supported by the platform and operable to rotate the shaft.

2. In a baby's crib which includes a rectangular fixed frame, a vertically movable mattress frame mounted therein, lift cables depending from and secured to the corners of the fixed frame, and pulleys on the corners of the mattress frame about which the cables pass intermediate their ends; a horizontal platform extending transversely of and below the mattress frame, upstanding end flanges on the platform engaging and secured to the sides of the mattress frame, a transverse shaft above the platform parallel thereto extending between and journaled at its ends in the end flanges, cable drums secured on the shaft adjacent its ends about which the cables are wound after passing about the pulleys, the shaft being sectional and comprising a central section and end sections, the drums being secured on the end sections, insulation drive couplings connecting the end and central sections in insulated relation to each other, a motor unit operatively connected to the central shaft section and including a base secured to the platform, and insulation means between the base and platform.

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