April 4, 1967 R. H. PETTY 3,311,935

BED VIBRATING DEVICE

Filed July 20, 1965 2 Sheets-Sheet 1

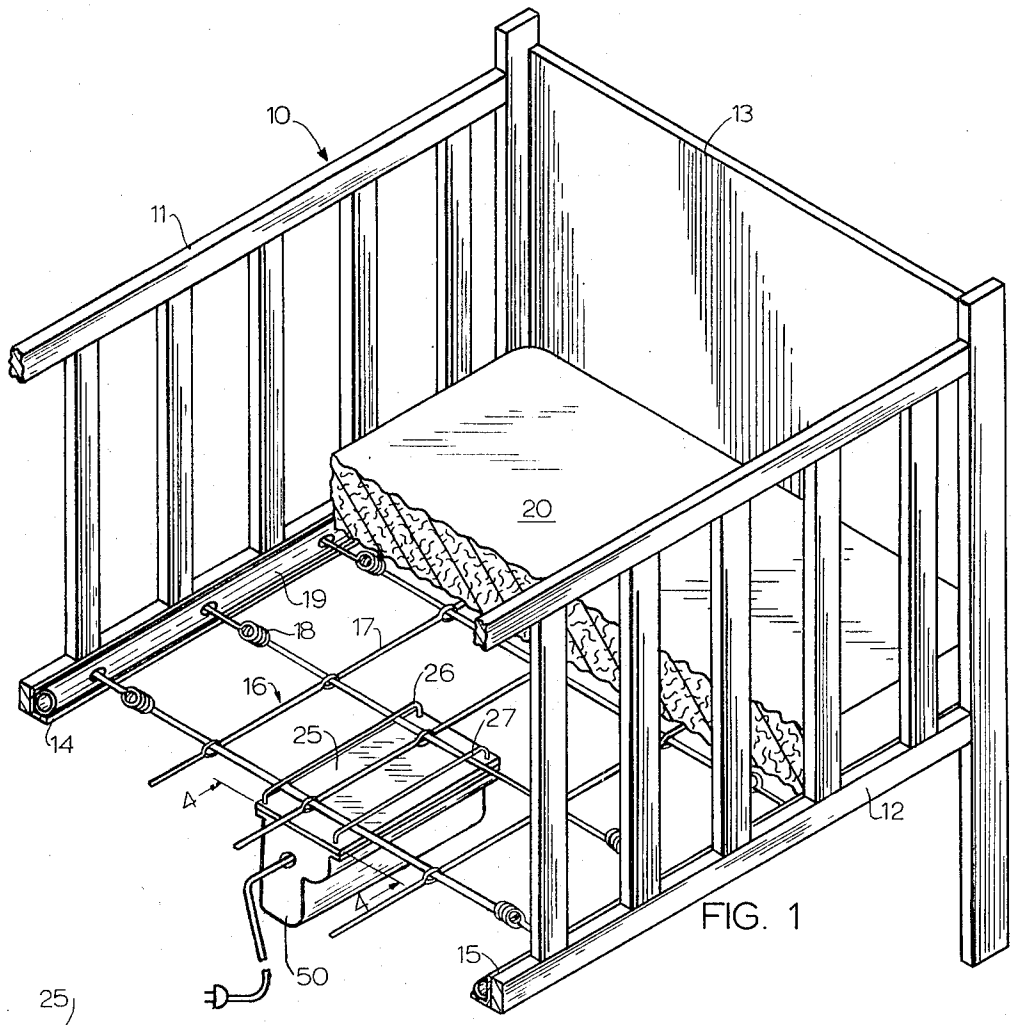


FIG. 1

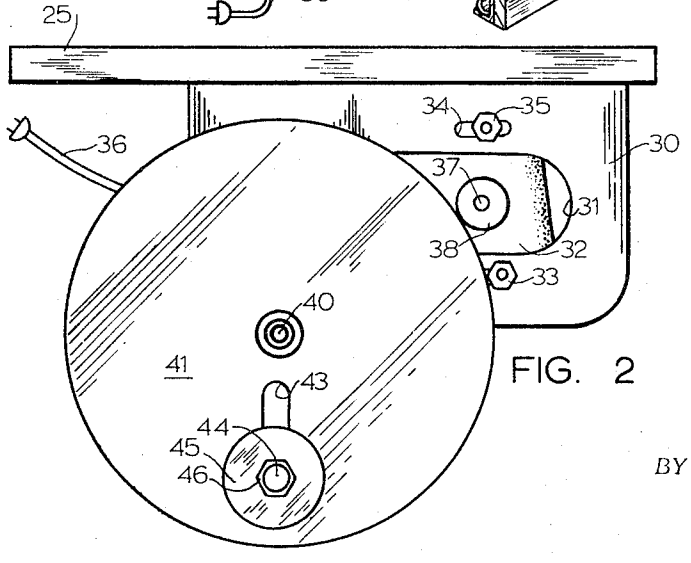


FIG. 2

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BED VIBRATING DEVICE

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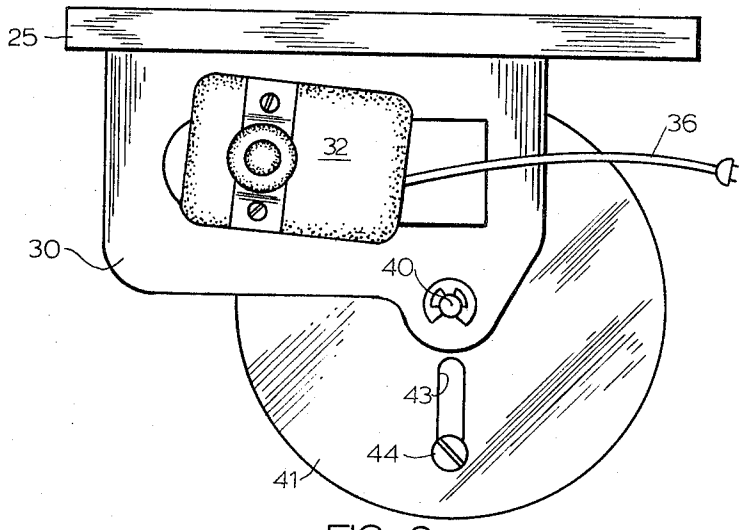


FIG. 3

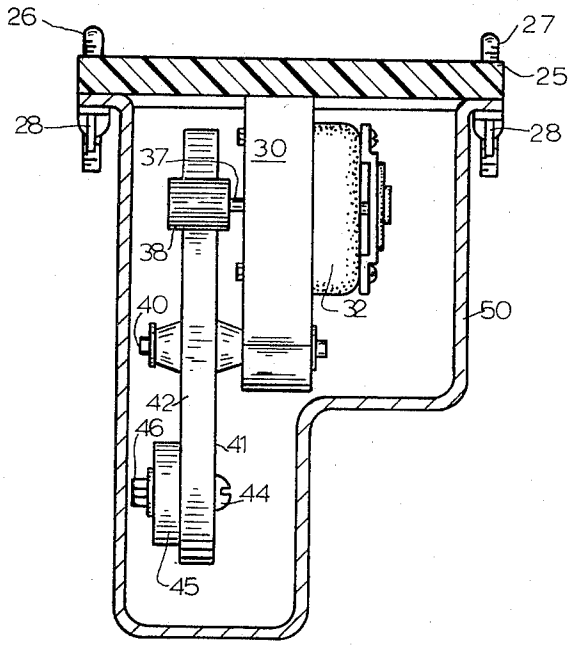


FIG. 4

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BED VIBRATING DEVICE

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1 Claim. (Cl. 5—109)

This invention relates to a bed vibrator and, more specifically, to an apparatus adapted to be releasably attached to the grid springs of a baby bed in a manner to impart a general reciprocating motion to the springs and, thus, to the mattress carried thereby.

Numerous devices have been designed to induce vibrations in a baby crib for the purpose of inducing sleep. The majority of these devices have been complicated in construction and have necessitated a change in structural arrangement of the crib. Also, these devices were generally connected to the frame of the crib which caused the same to rattle and make uncommon noises as well as induce vibrations therein.

Therefore, an object of this invention is to provide a unitary structure which is joined only to the bed springs for inducing a vertical and reciprocatory motion therein.

Another object of this invention is to provide a baby bed vibrator which is adapted to vary the amplitude of the reciprocatory motion produced thereby.

A further object of this invention is to provide mounting means for a crib vibrator that may easily be secured to or removed from the grid springs of a baby crib without the use of special equipment or tools.

A still further object of this invention is to provide a baby crib vibrator with a pivotally mounted motor which is adapted to apply a constant driving force to an unbalanced but concentrically mounted disc.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a sectional, pictorial view of a crib showing the apparatus attached to the grid springs which are received by the crib structure;

FIGURE 2 is an elevational view of the right side of the apparatus showing the drive shaft in communication with the weighted, circular disc;

FIGURE 3 is a left hand, elevational view of the apparatus showing the motor in a tilted position;

FIGURE 4 is a partial section and side view of the apparatus taken along lines 4—4 of FIGURE 1 showing the special arrangement of the casing and elements therein.

A preferred embodiment of this invention includes in combination with a baby crib having horizontally aligned, mattress-supporting grid springs, an apparatus comprising a base plate which is mounted on the bottom of the springs by means of rods that extend from the base plate over a section of the grid springs and back to the base plate. A mounting plate is rigidly and centrally mounted on the base plate and extends downwardly. The mounting plate has a cavity located therein. A motor which receives a power supply from a suitable source is partially mounted in the cavity and is pivotally attached to the mounting plate thereby adapting the motor to swing through a small arc. The motor also includes a drive shaft which extends laterally therefrom and which has a friction surface. A substantially circular disc is concentrically and rotatably mounted on a post which is attached to the mounting plate. The disc has its peripheral surface frictionally engaging and supporting the drive shaft of the motor and against which the disc is forced. The motor weight creates a moment about the pivot point of the motor thereby constantly keeping the friction surface of the drive shaft against the outer periphery of the circular disc. The disc is provided with

an elongated and radially extending slot which partially and slidably receives a weight of a desired magnitude. By securing the weight at a predetermined position along the length of the slot, the amplitude of the vertical reciprocation may be selected. Various speed motors may be employed however with a disc of approximately five and one-half inches; a disc speed of 350 r.p.m. has given satisfactory results. If a long, slow amplitude is desired, the weight is moved toward the extremity of the disc and is securely positioned at that location; if a short, fast amplitude is desired, the weight is moved inwardly toward the axis of the disc and fixed at that location. To complete the structure an outer housing covers the motor and disc apparatus.

Referring to the detailed description, crib **10** is comprised of supporting sides **11** and **12** and end **13**. The lower portions of sides **11** and **12** are adapted to receive channels **14** and **15**, respectively, which run approximately the length of supporting sides **11** and **12**. A mattress-supporting grid spring broadly designated as **16** is comprised of individual lengths **17**, spring means **18** and frame **19** with spring means **18** connecting individual lengths **17** to frame **19**. Grid spring **16** coincides with and is adapted to be received by channels **14** and **15** and thereby provide a resilient support for mattress **20**.

The apparatus is firmly secured to the grid springs **16** by means of a base plate **25** and rods **26** and **27**. Rods **26** and **27** have a length sufficient to span a plurality of lengths **17** thereby adapting the same to rest on the upper surface of grid spring **16**. Rods **26** and **27** have curved end portions which extend downwardly through the plane in which grid springs **16** reside and have threaded end portions which extend through base plate **25** and which are adapted to receive nuts **28** which, when tightened, firmly secure base plate **25** to grid spring **16**. It can easily be seen that rods **26** and **27** and base plate **25** combine to form a fastening means which may easily be dismounted thereby adapting the apparatus to be positioned at most any location beneath the grid springs **16**.

A mounting plate **30** is rigidly and centrally secured to base plate **25** by screws (not shown), adhesive or any equivalent means and extends vertically and downwardly from the plane thereof. Plate **30** is provided with a cavity **31** which is adapted to partially receive the structure of an electric motor **32**. Motor **32** is pivotally mounted on plate **30** by nut and bolt arrangement **33**. The length of the arc through which motor **32** may pivot is defined by slot **34** that houses a travel bolt-nut combination **35** which in turn is secured to motor **32**. Travel **35** also horizontally stabilizes the upper portions of motor **32**. The bolt portion of travel **35** has a diameter which is substantially smaller than the width of slot **34** so as not to interfere with the swing of travel **35** through its arc. Motor **32** receives a power supply by means of cord **36**. A drive shaft **37** which is an integral part of motor **32** extends outwardly therefrom and is provided with a friction sleeve surface **38** which may be rubber sleeve or the like.

Plate **30** is provided with a shaft **40** which is perpendicular thereto and extends outwardly from one side thereof so as to rotatably receive a circular disc **41** which has a diameter sufficient to place its outer periphery **42** in a rollable communication with the friction sleeve **33** on output shaft **37** of motor **32**. Disc **41** is provided with an elongated and radially extending slot **43** which is adapted to receive a bolt **44** which receives weight **45** as an integral part. Bolt **44** and nut **46** are adapted to be tightened along any portion of the length of elongated slot **43** so as to position weight **45** at a predetermined distance from the axis of rotation of disc **41**. Weight **45** is effective of course to dynamically unbalance the disc **41**.

To insulate this device and to reduce the level of

noise produced thereby, a housing **50** is provided to contourly enclose motor **32**, mounting plate **30** and disc **41** and is adapted to be secured to base plate **25** by means of rods **26** and **27** and threaded nuts **28**.

In operation, base plate **25** is secured to grid springs **16** by means of rods **26** and **27**. Weight **45** is adjustably positioned in elongated slot **43** to give the desired amplitude of reciprocation of the device upon the rotation of disc **41**. The friction sleeve **38** of drive shaft **37** is positioned against periphery **42** of disc **41** by pivoting motor **32** about shaft **33**. Upon the energization of motor **32**, drive shaft **37** is rotated thereby rotating disc **41** in a geared down relationship which results in a vertical reciprocation of springs **16** and mattress **20**. While not shown an electric timer may be employed or conventional switch means for cutting the power on and off.

In summary, the vibrating device of the invention has the advantage that it can be quickly installed and removed. It also has the advantage of being adapted to vibrate the mattress supporting spring directly which eliminates both noise and lost motion encountered when the ends or sides of the baby bed are rocked. By having the device of the invention suspended below the springs, the mattress can reside in its normal fashion and except for the presence of the necessary power cord is otherwise hidden from view. The device according to the invention has the further advantage of being simple to adjust in order to increase or decrease the amplitude of vibration. As previously noted, all that is necessary is to loosen the outer housing clamp nuts which frees the housing and makes the disc weight available for adjustment. Since children of different weight and age seem to respond to different amounts of "rocking" such ease of adjustment is of considerable practical importance to the parents.

This invention is of course not to be limited to the specific embodiment and features shown and described herein but is to be given the scope of the following claim.

What is claimed is:

In combination with a baby crib having horizontally aligned, spaced mattress-supporting grid springs, an apparatus comprising:

(a) a plurality of U-shaped rods each having spaced parallel leg portions terminating in threaded ends and a straight portion connecting said spaced leg portions, said straight portions residing on and above said springs and said spaced leg portions extending downwardly through selected spaces between said springs;

(b) a base plate located adjacent and immediately beneath said springs and slidably mounted on said leg portions of said U-shaped rods;

(c) a mounting plate secured to and extending downwardly from said base plate and having a cavity located therein;

(d) an electric motor residing in said cavity and adjustably secured to said mounting plate, said motor including a drive shaft extending outwardly therefrom and driven thereby;

(e) a vibration inducing means including a post extending outwardly from said mounting plate and parallel to said shaft, a circular disc concentrically and rotatably mounted on said post and weight means mounted on said disc, said disc having its peripheral surface frictionally engaging a portion of said shaft and partially supporting said electric motor by means of said shaft whereby upon the energization of said motor, said disc is rotated to induce vertical oscillations in said apparatus;

(f) a housing being effective to enclose said mounting plate, said motor and said vibration inducing means, said housing engaging said base plate and being slidably mounted on said leg portions of said U-shaped rods; and

(g) clamp means threadably mounted on said ends effective to securely clamp said housing against said base plate and thereby clamp said base plate against said springs.

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