Feb. 9, 1954 E. DENGROVE 2,668,302

VIBRATING BED

Filed May 26, 1949

FIG. 1

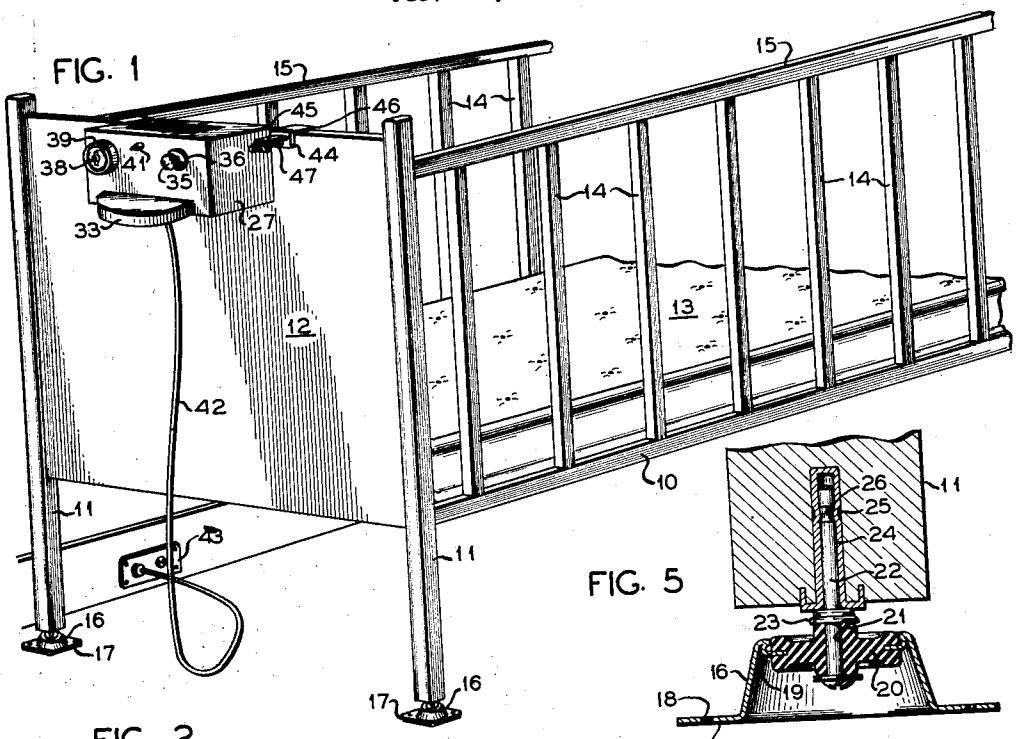


FIG. 5

FIG. 2

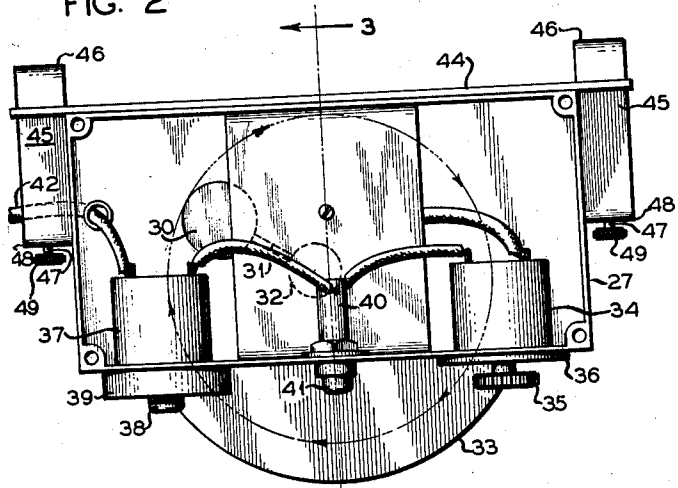


FIG. 4

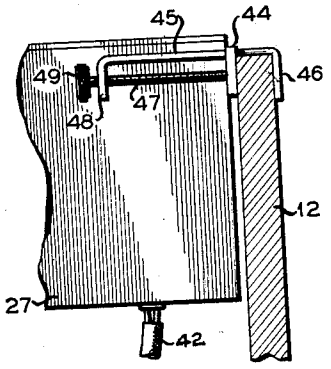
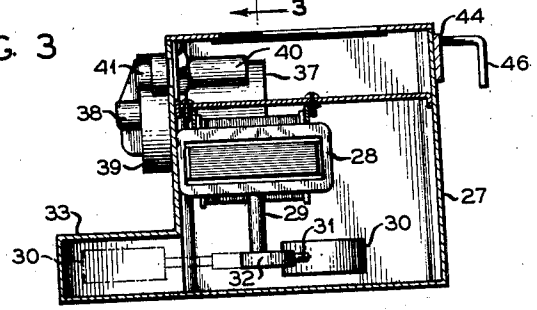


FIG. 3



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VIBRATING BED

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4 Claims. (Cl. 5—104)

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This invention relates to furniture and more particularly to beds and means detachably applied hereto for automatically inducing sleep.

Heretofore numerous beds or cribs have been designed for this purpose but the majority of these involve rather complicated linkages and drive mechanisms and necessitated the construction of the bed or crib in the first instance for the particular purpose intended and did not in any way provide a convenient means for converting a conventional bed or crib for the purpose of automatically inducing sleep.

It is therefore an object of the present invention to provide means whereby a conventional bed or crib may be caused to vibrate at a relatively low frequency and amplitude in order to promote or induce sleep in the occupant thereof.

It is a further object of this invention to provide means which may be conveniently substituted for the castors or other supporting means on a conventional bed or crib and in addition means which may be conveniently attached to the frame thereof for producing vibratory movement in order to induce sleep.

It is a further object of the invention to provide a vibration producing attachment for a bed or crib in which the frequency of vibration may be conveniently varied and in which a timing device is included in order that the interval of vibration may be pre-set, the device automatically ceasing to operate upon completion of this time interval.

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

Fig. 1 is a fragmentary perspective view of a crib showing yieldable supporting means applied to the legs thereof and the vibration producing device of this invention applied to the head or foot board of the crib;

Fig. 2, a longitudinal sectional view of the vibration producing device showing the internal arrangement of parts;

Fig. 3, a vertical section on the line 3—3 of Fig. 2, particularly showing the arrangement of the variable speed motor and eccentrically mounted weight;

Fig. 4, a fragmentary detailed view with parts in section for greater clarity and showing the particular clamping means utilized to secure the vibration producing device to the bed or crib; and,

Fig. 5, a fragmentary sectional view showing the yieldable supporting means and manner of attachment thereof to the leg of a bed or crib.

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With continued reference to the drawing, there is shown in Fig. 1 a bed having side rails 10, legs 11 and a head or foot board 12. The bed may be supplied with a conventional mattress 13 and if desired may have upstanding side bars 14 and top rails 15 in order to confine a child therein.

Since this invention is concerned primarily with the provision of means for converting a conventional bed or crib to one in which vibration thereof may be automatically produced, there is provided as shown in detail in Fig. 5 yieldable supporting means having a cup-shaped base 16 provided with a flange 17 which may rest upon the floor or other supporting surface or be secured thereto by suitable fastening means extending through apertures 18. Cup-shaped base 16 is provided with an inwardly extending annular flange 19 to which may be secured by vulcanizing or the like a substantially disc shaped rubber or other yieldable member 20, this member being provided with a centrally disposed aperture 21.

Attaching means in the form of an elongated rod 22 may be secured in the aperture 21 by any desired means, such as a nut 23, the rod 22 being rotatably recived in a socket 24 disposed in a bore in the leg 11 of the crib or bed. Socket 24 is of the type commonly employed to receive and secure a castor to the bed and for this purpose the socket is provided with inwardly extending projections 25 which are adapted to engage an annular groove 26 in the rod 22 thus rotatably retaining rod 22 in socket 24. Therefore, all that is necessary in order to properly support the bed or crib for vibratory movement is to remove the conventional castors and substitute the yieldable support shown in Fig. 5 by inserting the rod 22 within the socket 24 until groove 26 engages projections 25.

In order to conveniently produce vibration of the bed or crib there may be provided a generally rectangular container 27 in which is mounted a variable speed electric motor 28 having a power shaft 29 extending therefrom and to which is secured for rotation therewith an eccentrically disposed weight 30. Weight 30 is secured to the shaft 29 by a rod 31 fixed to a hub 32 secured to the shaft 29. If desired, the weight 30 may be adjustably mounted on the rod 31 in order to pre-set the amplitude of the vibrations to the desired value. Ordinarily motor shaft 29 will be vertically arranged in order that the vibrations will be in a horizontal plane but obviously if desired this shaft could be so disposed as to result in vibration in any desired plane. The container 27 may also be provided with an arcuate extension 33 in order to permit rotary

movement of the weight 30 while maintaining the dimensions of the major portion of the container 27 as small as possible.

Also mounted on the container 27 is speed control means in the form of a rheostat or potentiometer 34 having a finger engaging knob 35 exteriorly of the container and a dial 36 which may be calibrated in R. P. M. cycles per second or any other desired units. Also mounted within the container 27 and connected in the motor circuit is a time switch 37 having a knob 38 exteriorly of the case and a dial 39 calibrated in minutes, the time switch 37 serving to turn on the motor 28 and to automatically stop the same after a predetermined interval of time depending upon the setting of the knob 38. As a safety feature, a fuse 40 disposed within the container 27 may be connected in the motor circuit and an exteriorly disposed cap 41 permits convenient renewal of the fuse in the event of failure thereof. The vibration producing unit may be conveniently supplied with power through a cable 42 connected to a conventional wall outlet 43, or to a direct current source which may or may not be of a portable nature. The container 27 might be of a size to receive a battery thus providing a self contained portable unit or the battery could be carried in a separate housing. The device would thus be adapted for use on baby carriages and the like at any point remote from a permanent source of power.

In order to adapt the vibration producing unit for application to a conventional bed or crib or any other desired object, clamping means may be provided in the form of a bar 44 secured to the rear surface of the container 27, the ends of the bar extending beyond the ends of the container. The ends of bar 44 are provided with slots in which are slidably disposed clamping members 45 having angularly disposed outer ends 46 which may engage one surface of the head or foot board 12 to clamp the same against the surface of the bar 44. Clamping bars 45 may be conveniently actuated by a screw threaded member 47 threadedly received in angularly disposed ends 48 of the clamping bars 45, the inner end of the member 47 engaging the bar 44 and the opposite end of the member 47 being provided with a finger engaging knob 49 for convenient operation thereof. It will therefore be seen that in order to attach the vibration producing unit to a crib or the like it is only necessary to place the portions 46 of the clamp bars 45 over the top of the head board or other part of the frame and to actuate the screw threaded members 47 to tightly clamp the unit in place.

It will be seen that by this invention there has been provided a simple, convenient and easily adjusted means for vibrating a crib or bed at any desired frequency within the limits of the device and for a predetermined period of time in order to induce or promote sleep in the occupant thereof. This device may be economically constructed from commercially available components and in addition may be conveniently applied to a crib or other desired object, means being also provided for convenient attachment to the object for yieldably supporting the same in order to permit the desired vibration thereof.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. A bed, resilient cushioning means wholly supporting said bed and permitting vibration thereof, a vibrator mechanism secured to said bed for inducing vibrations therein.

2. A bed, resilient cushioning means wholly supporting said bed and permitting vibration thereof in a horizontal plane, a vibrator mechanism secured to said bed for inducing vibrations therein, in horizontal directions.

3. A bed, as set forth in claim 2, wherein said vibrator mechanism comprises an eccentrically mounted weight rotative in a horizontal plane and means for rotating said weight.

4. A bed as set forth in claim 3, including means for varying the radius of rotation of said weight.

EDWARD DENGROVE.

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