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MATTRESS-ATTACHABLE VIBRATOR

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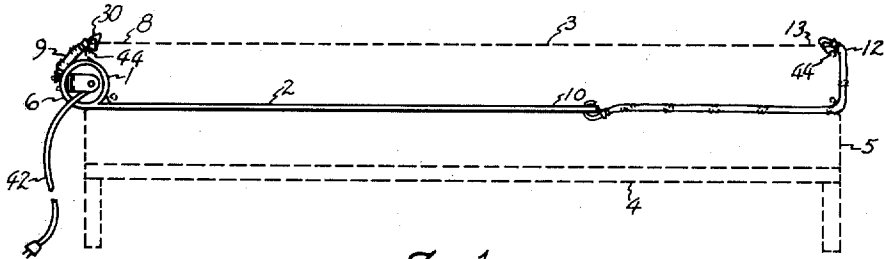


Fig. 1.

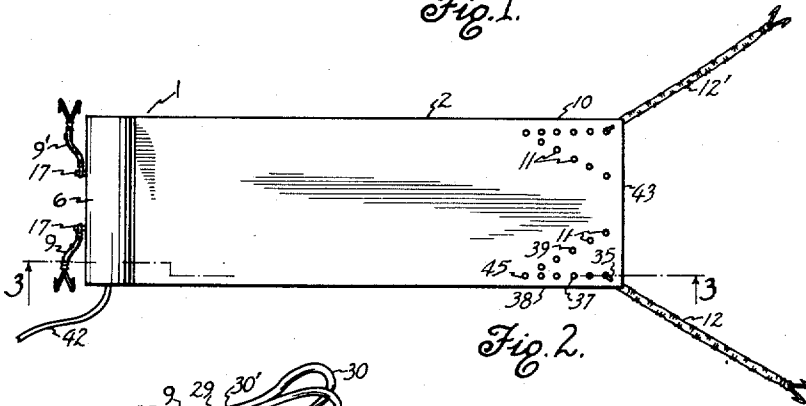


Fig. 2.

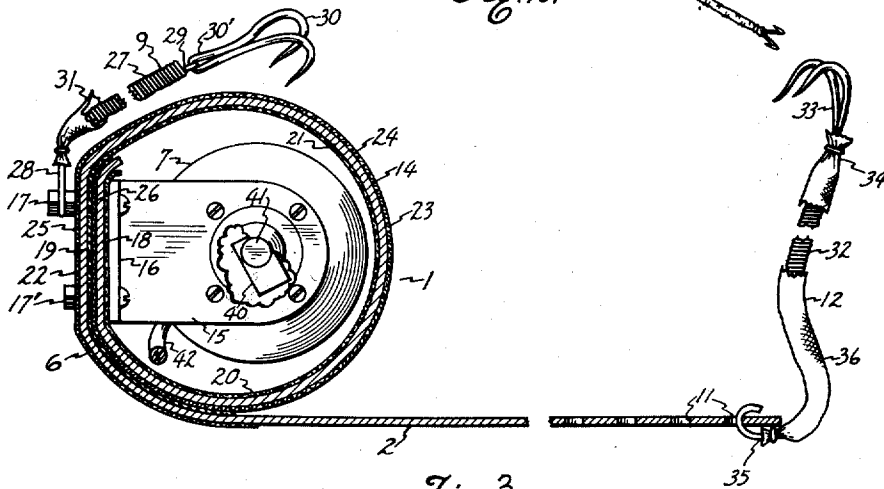


Fig. 3.

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MATTRESS-ATTACHABLE VIBRATOR

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4 Claims. (Cl. 128—33)

This invention relates to mattress-attachable vibrators.

It is a general object of the invention to provide an attachment for bed mattresses which imparts vibrations and pulsating motions to such mattresses.

It is known that vibrations and pulsating movements have a sleep inducing effect on persons suffering from insomnia and that vibratory devices have been suggested and employed for alleviating such suffering. Many of the devices suggested and employed are cumbersome to carry about and are complicated in design and costly to manufacture. For those who travel it is preferable that such devices be small and compact and thereby portable in nature so as to be readily transported in accord with the desires of the user. For the manufacturer it is desirable that such devices be simple in design and inexpensive so as to be readily marketable.

Accordingly, it is a specific object to provide a small compact vibratory mattress attachment which is portable and capable of imparting vibrations and similar pulsating movements to mattresses and which is simple in design and inexpensive to manufacture.

It is another object of the invention to provide vibrating means, readily attachable to and detachable from an ordinary bed mattress without modification of the mattress, which may be used to impart effective vibratory motion to the mattress, and so to arrange such means that the normal qualities of the mattress are unaffected by the attachment thereto of the vibratory means, except when the means are operated to vibrate the mattress.

The novel features which are believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of a device in accord with the invention, the device being shown operatively connected to a bed mattress supported on a bed spring and frame, the bed frame and mattress being shown in broken lines;

Fig. 2 is a top plan view of the device; and

Fig. 3 is an enlarged sectional side view taken along the lines 3—3 of Fig. 2 with certain parts being broken away, illustrating details of the construction.

As shown in the figures, the mattress-attachable vibrator device 1 is generally elongated in shape and includes, in part, a flat elongated sheet 2 which is preferably rectangular in shape. One end portion 6 of the sheet 2 is rolled up to form a traversely extending hollow tube-like encasement 14 within which a vibratory motor 7 is disposed. Also included in the mattress vibrating device 1 are hooked spring fasteners such as fasteners 9 and 12 which are respectively located at the head and foot end portions, 8 and 10, respectively, of the mattress vibrating attachment. The sheet portion 2 of the device 1, except for the end portion 6 which forms the motor casing 14, underlies the mattress 3 and overlies the typical

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box spring or similar mattress supporting framework 4 of the bed 5 when in operating position, as shown in Fig. 1. The motor casing 14 is held above the general plane of the sheet 2 and in a position such that the casing abuts the head end of the mattress by means of the hooked spring fasteners 9. The hooks at the ends of these fasteners, shown as double pronged hook 30, engage in the top edge portion of the mattress 3 at its head end 8 and preferably hook around the rod-like mattress frame elements designated as 44 in Fig. 1. The hooked spring fasteners 12 at the foot end portion 10 of the device also engage the rod-like elements 44 at the top edge of the mattress 3, in this case engaging the element 44 at the foot end 13 of the mattress 3. These hooked spring fasteners 12 are attached to the mattress under tension so that the motor casing 14 abuts and presses into the head end 8 of the mattress as shown in Fig. 1. A set of holes 11 which are variably spaced from the end of the sheet are provided for each of the hooked spring fasteners 12 at the foot end 10 of the sheet 2 so that the fasteners 12, which are selectively engageable with the respective holes 11, may be attached to the mattress under greater or lesser tension and with greater or less spacing between the fasteners to adjust the particular type of motion which will be imparted by the device to the mattress and to adjust to various widths of the mattress.

The sheet portion 2 of the vibrating attachment 1 is preferably formed from sheet aluminum or some other suitable sheet material which is inextensible in the sense that it is rigidly resistant to extension, compression and twisting in the plane of the sheet and is thereby capable of transmitting vibrations both longitudinally and laterally throughout its entire length and width without absorbing the vibrations. The sheet material is sufficiently thin, however, to be easily bendable out of its plane so as to be capable of being rolled up about the motor casing 14 and thereby form a small easily transportable and storable package.

With respect to the motor encasing end portion 6 of the sheet 2 of the mattress vibrating attachment 1 and as best shown in Fig. 3, the motor 7 includes suitable motor supporting end members, such as end member 15, which attach to and are integrally formed with a base plate 16. This motor 7 is rigidly mounted within the rolled tube-like end portion 6 of the sheet 2 by means of suitable fasteners such as bolts 17 and 17' which pass through the motor base, plate 16 and the overlapped portions, 18 and 19, of the sheet 2. Bolts 17 and 17', accordingly, serve to hold together the encasement and rigidly to affix the motor therein and to the sheet 2. An eccentric weight 40 is mounted on the shaft 41 of the motor 7 so as to cause the motor to vibrate when the motor is attached to a suitable source of electrical power as by means of cord 42. The rigid fastening of the motor 7 to the encasing end portion 6 of the sheet 2 causes the overlapped portions, 18 and 19, thereof to assume the flat contours of the bottom of the rest plate as shown in Fig. 3. A sheet of asbestos 20 or other suitable insulating and fireproof material lines the inside of the motor casing 14 and is coextensive in width with the sheet 2 at the end portion 6 thereof. This asbestos sheet 20 is suitably secured to the inner surface 21 of the motor casing 14, and as shown in Fig. 3 it extends through the joint 22 between the overlapped portions, 18 and 19, at the end portion 6 of the sheet 2 and between the rest plate 16 and the inner lapped portion 18. A covering 23 of cloth, leather or other suitable material is also provided around the casing 14 and is suitably secured to the outside 24 of the casing 14. The covering 23 is coextensive in width with the end portion 6 of the sheet 2 and has overlapped portions 25 and 26, the

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latter portion 26 of which passes through the joint 22 between the overlapped portion 18 and 19 of the sheet 2, whereas the former portion 25 covers the outside of the outer lapped portion 19 of the sheet 2. It will be noted that the respective ends of the motor casing 14 are open in the illustrated embodiment so as to provide ventilation for the motor and storage space for the cord 42 when being transported.

The pair of hooked spring attachments 9 and 9' secured to the casing 14 are illustrated by the construction shown in Fig. 3 of attachment 9, which is seen to comprise a tension spring 27 suitably secured at one end 28 to the casing 14 by means of the bolt fastener 17. The other end 29 of the tension spring 27 engages with the loop portion 30' of a double pronged hook 30. A covering 31 of suitable material such as cloth is suitably attached to and surrounds the spring 27 so as to shield the mattress from direct contact with the tension spring 27 when the attachment is in use protecting the mattress from abrasion. As shown in Fig. 2 a pair of these hooked spring fasteners 9 and 9' are provided for securing the head end portion 6 of the mattress vibrating device 1 to the mattress, the fasteners 9 and 9' being adapted to hold the motor casing 14 of the device 1 above the general plane of the sheet 2 so that it will abut the head end of the mattress in response to the urgings from the hooked spring fasteners 12 and 12' at the foot end of the device.

The pair of hooked spring fasteners 12 and 12' which are provided at the other or foot end portion 10 of the sheet portion 2 of the mattress vibrating attachment device 1 provide a means for attaching the device to the foot end 13 of the mattress and for urging the casing 14 against the head end 8 of the mattress. These hooked spring fasteners 12 and 12' are similar in construction to the hooked fastener 9 employed at the head end of the device 1 except that they are longer and are detachable from the end portion 10 of the sheet 2 rather than being rigidly secured thereto. As shown in Fig. 3, the hooked spring fasteners 12, to which fastener 12' is preferably identical, includes a tension spring 32 which is connected at one end 34 to a double pronged hook 33, whereas the other end 35 of the spring 32 is bent to form a prong which is selectively engaged in one of the holes 11 provided in the foot end portion 10 of the sheet 2. A suitable covering 36 for the tension spring 32 is provided to shield the mattress from the tension springs 32 when the vibrating attachment 1 is secured thereto in the manner shown in Fig. 1.

The holes 11 within which the fastening prong ends 35 of the fasteners 12 and 12' are disposed are variably spaced from the end extremity 43 of the sheet 2 and from the side edges, such as edge 38, of the sheet so that the device may be adapted for use with mattresses of varying length and width dimensions and may be adjusted to vary the tension in the respective springs of the fasteners and the vibratory motion imparted to the mattress 3. Thus the device may be attached to the mattress 3 by engaging the respective prong ends, such as end 35, of the fasteners 12 and 12' in respective symmetrically disposed holes of the respective sets of holes provided therefor, or one of the fasteners 12 and 12' may be attached in a manner such that it is under more or less tension than the other fastener.

Holes 37 and 38 are at different distances from edge 38 and hole 45 is further displaced from end edge 43. To adapt the device for attachment to a mattress of lesser width dimension than that assumed by the position shown in Fig. 2, the prong end 35 may be positioned in hole 39. On the other hand, to adapt the device for attachment to a mattress of lesser length dimension, the prong end 35 may be disposed in hole 37 or in hole 45, while hole 45 or hole 37 may be selected for a medium length mattress to give greater vibratory action than if the hole selected is closer to end edge 43. Similar considerations apply to fastener 12'.

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When the mattress vibrating attachment 1 is disposed in the position shown in Fig. 1 and when the motor is operated, pulsating vibratory motions from the motor 7 are transmitted to the casing 14 and to the portion of the sheet 2 underlying the mattress 3. Such motion is transmitted both along the sheet and across the sheet. The tension in the springs of the hooked spring fasteners 9, 9', 12 and 12' constantly retain and urge the motor casing 14 against the head end 8 of the mattress and accordingly pulsations are imparted to the mattress at its head and foot ends. The pulsations are also imparted to the mattress 3 through the underlying sheet 2 and accordingly the mattress is subjected to pulsating vibratory movements over all or substantially all of its surface area.

It will be understood that, while the device 1 is herein described as having a head end at casing 6 and the mattress as having a head end 8, a person may lie upon the bed in the opposite direction, and that ends 6 and 8 may then be considered the foot and ends 10 and 13 the head ends of the device and mattress.

While only a certain preferred embodiment of this invention has been shown and described by way of illustration, many modifications will occur to those skilled in the art and it is, therefore, desired that it be understood that it is intended in the appended claims to cover all such modifications as fall within the true spirit and scope of this invention.

What is claimed as new and what it is desired to secure by Letters Patent of the United States is:

1. A mattress vibrator comprising an elongated inextensible bendable sheet having opposite end portions, a vibratory motor rigidly attached to and encased by one of said end portions, tension springs respectively connected to said encasing end portion and to the opposite end portion of said sheet, and respective hook means on each of said tension springs for removably attaching said vibrator in underlying relationship to a mattress.

2. In combination with a mattress having head and foot ends, a vibratory mattress attachment comprising an elongated inextensible bendable sheet underlying said mattress and having opposite end portions, a vibratory motor rigidly joined to and encased by one of said end portions of said sheet, said encasing end portion being abuttingly disposed against a first end of said mattress, elongated tension springs each attached at a first end of each to said encasing portion of said sheet, a respective hook secured to the respective opposite end of each said spring engaging said first end of said mattress above said encasing end portion, other elongated tension springs each attached at a first end of each to the opposite end portion of said sheet, and a respective hook secured to the respective opposite end of each of said other tension springs engaging a second end of said mattress opposite said first end thereof.

3. A mattress vibrator comprising a flat generally rectangular inextensible bendable sheet having a rolled end portion defining a first transversely extending hollow tube end portion and a second end portion opposite thereto, a vibratory motor rigidly mounted within said hollow tube portion, a pair of elongated tension springs each attached at one end to said hollow tube portion, a respective hook secured to the respective opposite end of each of said springs adapted to engage the top edge at the head end of said mattress, another pair of elongated tension springs each attached at one end to said second end portion of said sheet, and a respective hook secured to the respective opposite end of each of said springs of said other pair adapted to engage the top edge at the foot end of said mattress.

4. A mattress vibrator comprising an elongated flat rectangular inextensible bendable sheet having a rolled end portion defining a hollow transversely extending tube portion and an opposite end portion, an eccentrically weighted vibratory motor rigidly fastened to and disposed within said hollow tube portion, a pair of hooks, a pair

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of covered elongated tension springs each joined at one of its ends to said rolled end portion and at its other end to a respective one of said hooks, said other end portion of said sheet having a plurality of holes therethrough, the holes being spaced at varying distances from the end extremity and from the side edges of said end portion, a second pair of hooks, a second pair of covered elongated tension springs each joined at one of its ends to one of said

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second pair of hooks and at their other ends engaged in selected respective ones of said holes.

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