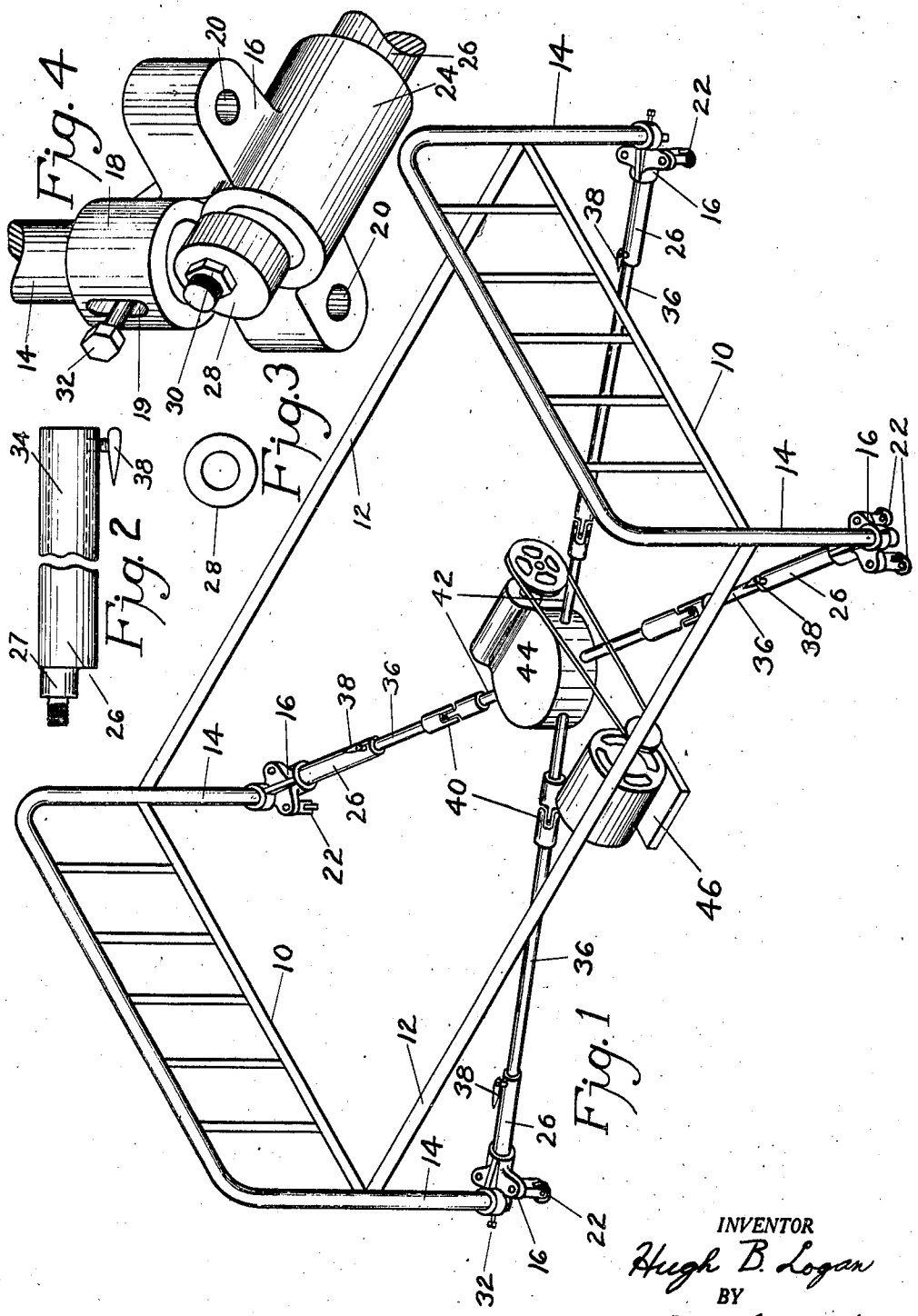
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VIBRATORY DEVICE

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VIBRATORY DEVICE

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This invention relates to improvements in vibratory devices. More particularly, the invention relates to improvements in vibratory devices that are used to impart a controlled vibratory movement to a human body.

It is an object of the present invention to provide an improved vibratory device for imparting a controlled vibratory motion to a human body.

The parts of the framework of human beings are so arranged and connected, that it is possible to effect a slight change in their relative positions by means of corrective treatment. Different types of corrective treatments have been known and used for some time. One of the most effective treatments consists in the imparting of vibration to the body of a person. Uncontrolled or volitional vibration is not only not helpful, but it may be injurious to those whose body framework or whose body framework's support is abnormal. It is, therefore, necessary to regulate the vibratory motion properly while the subject is in a recumbent position to secure beneficial results. The invention secures the proper vibratory action by imparting a vibratory motion to a bed on which the patient reclines. It is, therefore, an object of the present invention to provide a bed that is adapted to impart a controlled vibratory motion to a patient reclining thereon.

When a person sleeps, he achieves a definite rest and relaxation that is necessary to preserve his general health. This rest and relaxation is partially due to a readjustment of the framework of the body under the influence of the muscles and ligaments of the body. In many cases, the human body is chronically distorted and a lack of mobility of unrelated parts results, that retards the restoration of those parts to a normal relationship. This lack of mobility is due to the inculcation of calcareous ankylosing material in the muscles and ligaments. This prevents the restoration of body parts to a normal relationship through ordinary sleep and rest in the recumbent position. It is possible by imparting a controlled vibration to the sleeper's bed to provide for the elimination of such calcareous ankylosing deposits and thereby increase the beneficial effects secured by sleep. The controlled vibration increases the tendency of the various units of the body framework to move toward their normal position when no ankylosis is present. The gentle and controlled vibration facilitates the movement and adjustment of the units of the framework of the body under the action of the muscles and ligaments of the body. This movement of the units of the framework of the body relative to each other is most easily attained when the sleeper is in the prone position because the distribution of the weight of the body vertically through the spine, pelvis, and pedal extremities is absent when the the body is in the recumbent position. The use of a vibratory device that is used in conjunction with a bed is quite helpful in securing proper rest and proper and maximum adjustment of the units of the framework of the body. It is, therefore, an object of the invention to provide a controlled vibratory movement for a bed to facilitate the provision of proper rest for the user of the bed.

Vibratory treatments of the body are especially helpful in straightening the spinal column and thereby reducing impediments to the normal function of nervous and blood vascular and other systems of the body. To straighten the spinal cord, a controlled vibration is necessary. The invention provides a controlled vibration by properly regulating the vibratory movement of the bed. The diagonal corners of the bed can be made to rise and fall, and can thus be made to give a rocking motion to the bed. This rocking motion gives a gentle, twisting motion to the sleeper's frame, and this twisting motion aids the muscles and ligaments in restoring the parts of the body framework to normal relationship with each other. This twisting motion is far better and far more effective than the effect obtained by sleeping in the usual manner. The use of the bed provided by the invention, has clearly shown that the body framework is more nearly normal after treatment on the bed, than the body framework after a normal night's sleep. The restoration of the parts of the body framework to normal or near normal position, results in a general reduction of the ailments and afflictions of the body. The movement imparted to the body framework would have no value but for the elasticity and contractability of the muscles and the ligaments of the body. These muscles and ligaments tend to restore the parts of the body framework to their normal position each night, but cannot always do this so effectively without exterior aid. This aid is provided by the controlled movement of the bed and enables the muscles and ligaments to move the parts of the body to the proper position. The rocking motion of the bed results in a gentle twisting of the entire body throughout its length, and aids the structural muscles and ligaments in restoring the parts of the body framework to their proper position.

Other objects and advantages of the present in-

vention will appear from the drawing and accompanying description.

In the drawing and accompanying description, a preferred embodiment of the invention is shown and described, but it is to be understood that the drawing and accompanying description do not limit the invention and that the invention will be defined by the appended claims.

In the drawing, Fig. 1 is a perspective view of a bed that is made in accordance with the principles of the invention.

Fig. 2 is a side view of the eccentric portion of a driving shaft used with the bed shown in Fig. 1.

Fig. 3 is an end view of a roller that is positioned on the eccentric portion of the driving shaft, and

Fig. 4 is an enlarged perspective view of a portion of the bed shown in Fig. 1.

Referring to the drawing in detail, a bed of the usual type is shown to which the invention is applied. The bed has end members 10 that are secured to each other by side pieces 12. Each of the end members 10 has two legs 14 which fit into supports 16. The supports 16 have a sleeve portion 18 that slidably engages one of the legs 14 of end members 10, holes 20 that receive casters 22, and a sleeve portion 24 that rotatably supports the eccentric portion 26 of the drive shaft. The eccentric portion 26 is substantially cylindrical in form and it has a concentric recess 34 in one end and an eccentric projection 27 at the other end. The primary function of the member 26 is to change the concentric motion of shafts 36 into an eccentric motion that can be impressed on the legs of the bed, so they are referred to herein as eccentric portions of the shaft. The supports 16 also have a slot 19 in the sleeve portion 18 through which a bolt 32 extends. The bolt 32 is rigidly secured to the leg 14 of the end member 10. A roller 28 is mounted on the eccentric end 27 of the eccentric portion 26 and is secured thereto by a nut 30. In Fig. 4, the nut 30 is seen to be larger than the diameter of the projection 27, and to hide the end of projection 27 from view. The other end of the eccentric portion of the shaft has the concentric recess 34 therein that receives one end of the shaft 36. The drive shaft 36 is positioned in the recess 34 and may be rigidly secured to the eccentric portion 26 by frictional engagement between the shaft 36 and the eccentric portion 26 and bolt 38. The bolt 38 may be of any suitable form or shape, but the attractive streamlined form shown in the drawing is preferred. The drive shafts 36 are preferably connected to drive shafts 42 by universal joints 40. The shafts 42 extend into gear box 44 where the power from motor 46 is imparted to them by suitable gearing.

The operation of the bed consists in the setting of the eccentric portions 26 of the drive shaft. The engagement between the eccentric portions 26 and the drive shafts 36 is frictional and depends on the tightening of bolt 38. The eccentric portions 26 may, therefore, be set in any desired circumferential position and will thereby determine the type of vibratory motion imparted to the bed. By proper setting of the eccentric portions 26 of the shaft, it is possible to attain almost any desired movement. The motor is then started, and the drive shafts actuated. The motion is preferably transmitted through universal joints because the use of universal joints obviates the necessity of aligning accurately the legs of the bed. The drive shafts rotate the eccentric portions 26 which cause the legs 14 of the bed to move upwardly. A roller is positioned on the end 27 of the eccentric portion 26 of the shaft to minimize wear on the eccentric portions 26. The upward movement of the leg of the bed is succeeded by a downward movement in response to the pull of gravity. This up and down movement causes the bed to vibrate. The slot 19 in the sleeve portion 18 cooperates with bolt 32 to keep the legs 14 and the supports 16 in assembled relation.

Although any setting of the eccentric portions may be used, one of the most beneficial in treating bent spinal columns, is a setting that causes diagonally opposite legs to act together. When this is done, one of the diagonally opposed legs will move up while the other moves down. This particular vibratory action has been found to be quite beneficial in straightening bent spines.

Whereas a preferred embodiment of the invention has been shown and described in the drawing and accompanying description, it is obvious to those skilled in the art that various changes and alterations in form may be made without affecting the scope of the invention.

What I claim is:

1. A device, for imparting a controlled vibratory motion to a bed, comprising a plurality of supports, a plurality of rotatable shafts, and means connected to and serving to rotate said shafts, each of the said supports having at least one opening therein to receive a caster, each of the said supports having a sleeve-like portion that is arranged to receive and slidably engage one of the legs of the bed, said leg-receiving portion having a slot therein that receives a bolt which is attached to and movable with the leg of the bed, said slot and said bolt being arranged to maintain the support and the leg of the bed in asssembled relation, each of the said supports having a second sleeve-like portion that is arranged to receive and slidably engage one of the rotatable shafts, said shaft-receiving portion of the support being positioned adjacent the leg-receiving portion of the support whereby the end of the leg of the bed may rest on and be supported by the eccentric portion of the shaft, each of the said shafts being circumferentially adjustable relative to said shaft rotating means said device being arranged so the supports will remain substantially stationary during the operation of the device and being arranged to cause a vertical, reciprocating movement of the legs of the bed without causing an appreciable horizontal movement of the bed, said supports being connected together by said bed and said shafts to form a workable unit.

2. A device for imparting a controlled vibratory motion to a bed, comprising a plurality of supports, a plurality of rotatable shafts, and means connected to and serving to rotate said shafts, each of the said supports having a sleeve-like portion that is arranged to receive and slidably engage one of the legs of the bed, said leg-receiving portion having a slot therein that receives a projection on the leg of the bed and thereby maintains the support and the leg of the bed in assembled relation, each of the said supports having a second sleeve-like portion that is arranged to receive and slidably engage one of the rotatable shafts, said shaft-receiving portion of the support being positioned adjacent the leg-receiving portion of the support whereby the end of the leg of the bed may rest on and be supported by the eccentric portion of the shaft, said device being arranged so the supports and the

shafts form a workable unit and the supports will remain substantially stationary during the operation of the device, and being arranged to cause a vertical reciprocating movement of the legs of the bed.

3. A vibratory device adapted to impart a controlled vibratory motion to a bed comprising a plurality of supports, a plurality of rotatable shafts, and means connected to and serving to rotate said shafts, each of the said supports having a sleeve-like portion that is arranged to receive and slidably engage one of the legs of the bed, each of the said supports having a second sleeve-like portion that is arranged to receive and slidably engage one of the rotatable shafts, said shaft-receiving portion of the support being positioned adjacent the leg-receiving portion of the support whereby the end of the leg of the bed may rest on and be supported by the eccentric portion of the shaft, each of the said shafts being circumferentially adjustable relative to said shaft rotating means, said eccentric portions of the shafts being arranged so that when a leg of the bed is raised, the diagonally opposite leg of the bed is lowered, said device being arranged so the supports and the shafts form a workable unit and the supports will remain substantially stationary during the operation of the device.

4. A vibratory device adapted to impart a vibratory motion to a bed comprising a plurality of supports, a plurality of rotatable shafts, and means connected to and serving to rotate the shafts, each of the said supports having a sleeve-like portion that slidably engages one of the rotatable shafts, said shaft-receiving portion of the support being positioned adjacent the leg of said bed, each of the shafts being circumferentially adjustable relative to said shaft rotating means, said device being arranged so the supports and the shafts form a workable unit and the supports will remain substantially stationary during the operation of the device and being arranged to cause a vertical reciprocating movement of the legs of the bed.

5. A vibratory device adapted to impart a vibratory motion to a bed, comprising a plurality of supports, a plurality of rotatable shafts, and means connected to and serving to rotate said shafts, each of the said supports having a sleeve-like portion that is arranged to receive and slidably engage one of the legs of the bed, each of the said supports having a second sleeve-like portion that is arranged to receive and slidably engage one of the rotatable shafts, each of said shafts being circumferentially adjustable relative to said shaft rotating means, said device being arranged so the supports and the shafts form a workable unit and the supports will remain substantially stationary during the operation of the device, and being arranged to cause a vertical, reciprocating movement of the legs of the bed.

6. A vibratory device adapted to impart a controlled vibratory motion to a bed, comprising four supports, and four shafts, each of the said supports engaging one of the four legs of the bed, each of the said supports having at least one opening therein to receive a caster, each of the said supports having a portion that slidably engages the leg of the bed, said portion having a slot that receives a retaining member attached to and movable with the said leg of the bed, said slot and said retaining member being arranged to maintain the support and the leg of the bed in assembled relation, each of the said supports having a portion that slidably engages one of said shafts, said one shaft having an eccentric portion that engages the leg of the bed and can cause movement thereof, and means connected to and serving to rotate the said shafts, said shafts being circumferentially adjustable relative to said shaft rotating means and thereby adapted to determine the vibration imparted to the bed, said device being arranged so the supports and the shafts form a workable unit and the supports will remain substantially stationary during the operation of the device.

7. A vibratory device adapted to impart a controlled vibratory motion to a structure which has a plurality of legs and on which a person may recline, comprising a plurality of supports, a plurality of rotatable shafts, and means that is connected to and serves to rotate the shafts, each of the said supports having a portion that is arranged to receive and engage one of the legs of said structure, each of the supports having a second portion that is arranged to receive and engage one of the rotatable shafts, an eccentric carried by each of the rotatable shafts said device being arranged so the supports and the shafts form a workable unit and the supports will remain substantially stationary during operation of the device and being arranged to cause vertical movement of the legs of said structure.

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