

July 21, 1942.

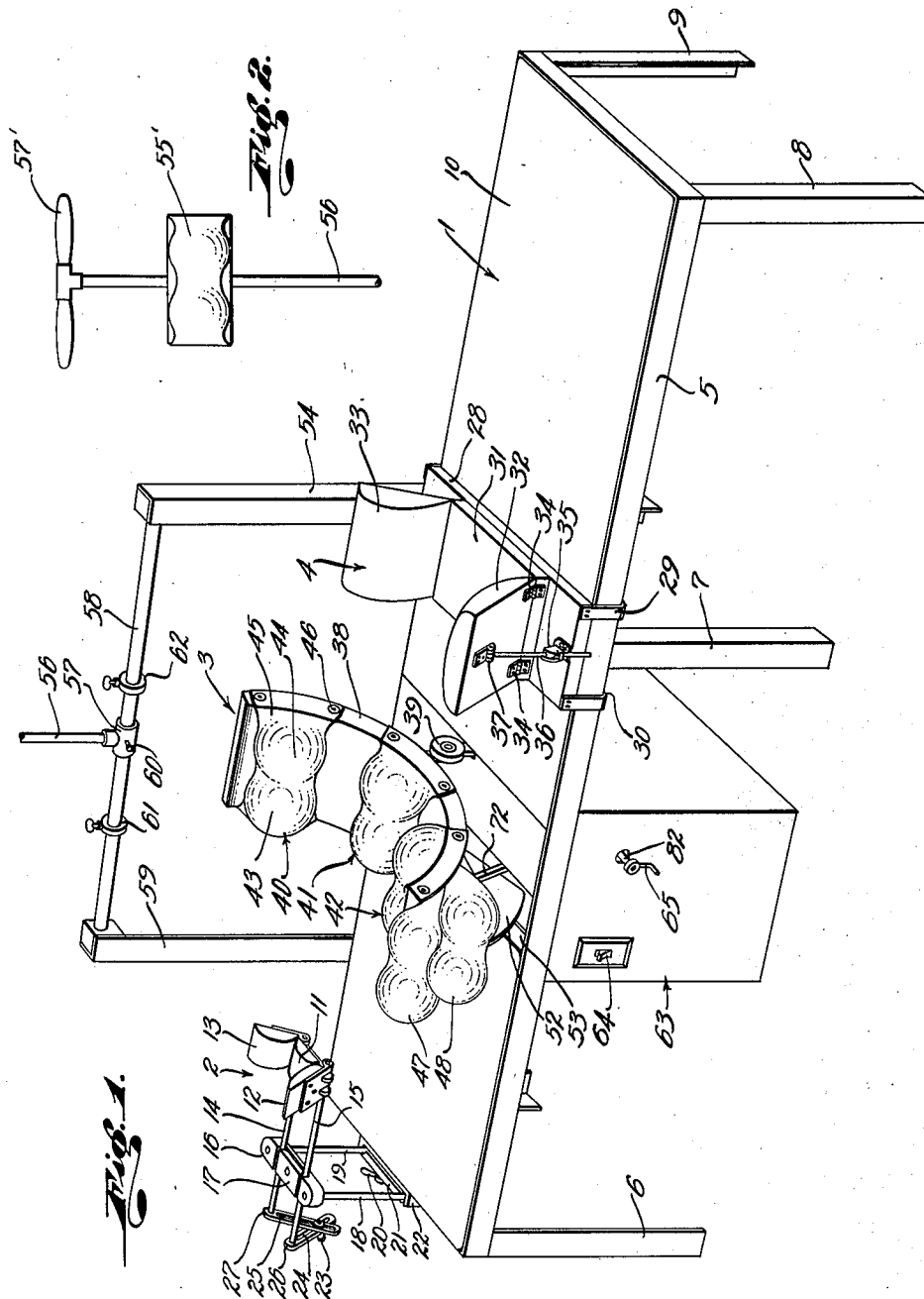
I. W. COLLINS

2,290,407

OSTEOPATHIC DEVICE.

Filed March 24, 1941

2 Sheets-Sheet 1



Inventor
IRA W. COLLINS
w. Beatty
Attorney

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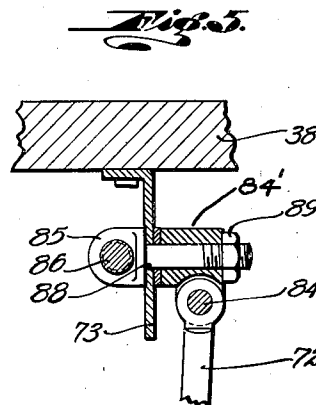
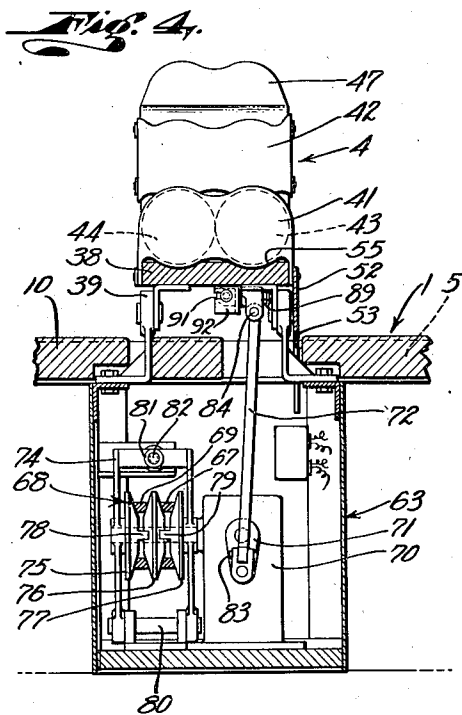
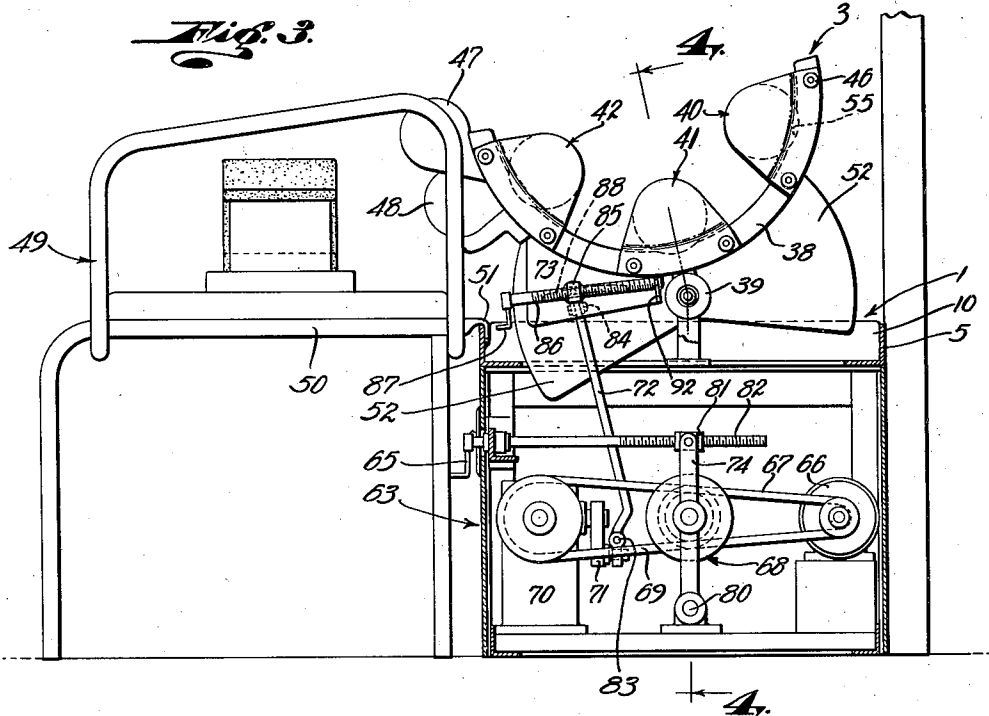
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Inventor
IRA W. COLLINS

W. A. Beatty
Attorney

UNITED STATES PATENT OFFICE

2,290,407

OSTEOPATHIC DEVICE

Ira W. Collins, Los Angeles, Calif.

Application March 24, 1941, Serial No. 384,874

8 Claims. (Cl. 128—48)

The invention relates to an osteopathic device for alternately flexing the spine of a patient in opposite directions. The purpose of this will be better understood by first considering the nervous system of the human body.

Generally speaking, the nervous system of the human body comprises the cerebro-spinal system having the spinal cord from which lead, through segments of the spinal column, the anterior roots terminating in motor nerves and the posterior roots terminating in sensory nerves. The posterior roots have ganglia from which originate the interdependent sympathetic nerve system which controls the reflexes including the blood vessels, the plain muscle fibers, and the action of secretory and excretory glands. The splanchnic nerves which control certain organs such as stomach, kidney, etc. and which are connected to nerves emerging from the spinal cord from the 6th to the 11th dorsal segments are of particular importance, not only because many ailments are due to mal-functioning of such organs but also because the splanchnic nerves control a system of blood vessels whose combined capacity is equal to the entire amount of the blood in the body. The spaces between the spinal segments, therefore, comprise passages through which lead nerves controlling the motor, sensory, and reflex actions of the body, and if for any organic or other reason these nerves are diseased or if the segmental passages become constricted, the normal functioning of the motor, sensory and reflex action is impaired.

The invention provides means for laterally flexing the spine of a patient, first in one direction and then in the other. In this way, the segments are caused to spread out fanwise first in one direction and then in the other, thereby effecting a jaw-like movement of adjacent segments and producing a pumping action in the intersegmental space, thereby restoring activity of the nervous system. This invention might be called a spinal feeder and relaxer in that by laterally flexing the spine, I cause the protective eyelets or sinovial membranes over the ganglia to relax and expand to control the inflow and outflow of motor force and sensations through the nerves. Also, in case constriction of the intersegmental space is due to dislocation or contraction of a muscle, the lateral flexing of the spine is beneficial in exercising the muscles of the back to assist the off-normal muscle to reach a normal condition to relieve the strain it imposes, and perhaps also to assist a slight rotated or tilted segment to find its normal posi-

tion. Preferably this flexing is accomplished while supporting the patient in a relaxed position by rolling the torso of the patient from side to side, whereby a slight turning movement as well as bending movement is imparted to the spine.

An object of the present invention is to provide a mechanical device for laterally flexing the spine in opposite directions, preferably while imparting a slight turning movement to the body. Preferably, this flexing is effected (1) at a speed, (2) to an extent, and (3) in a spinal region, all of which may be varied to suit conditions.

Another object of the invention is to use the spinal flexing device in conjunction with other devices for effecting supplementary treatment.

For further details of the invention reference may be made to the drawings wherein Fig. 1 is a perspective view of an osteopathic device according to the present invention.

Fig. 2 is a view in elevation, with certain parts broken away, of a device which may be used in connection with the device of Fig. 1.

Fig. 3 is a vertical section through the device of Fig. 1, and also showing in vertical elevation a supplementary support for a patient.

Fig. 4 is a vertical sectional view on line 4—4 of Fig. 3.

Referring to the drawings, the osteopathic device of this invention comprises a bed 1 having a head rest 2, an oscillating torso support or saddle 3 and a hip rest 4, which are adapted to support the patient in a relaxed prone position either face up or face down. The bed 1 comprises a framework 5 of angle iron supported by suitable legs such as 6, 7, 8 and 9. Framework 5 supports a mattress 10.

The head rest 2 comprises a horizontal pad 11 and side pads 12 and 13. Pad 11 is mounted loosely on the rods 14 and 15, while the pads 12 and 13 are secured to those rods. The rods 14 and 15 are supported by a bracket 16 having a clamp piece 17 which permits lengthwise adjustment of the rods 14 and 15 in the bracket 16 and which also permits clamping those rods in their adjusted lengthwise position. Bracket 16 is supported by standards 18 and 19 which may be adjusted vertically and retained in adjusted position by means of wing nut 20 operating on clamp bar 21 which frictionally holds the standards 18 and 19 to the bracket 22 suitably secured to the head of the frame 5. Side piece 12 is fixed on rod 15 and side piece 13 is fixed on rod 14, these rods being rotatably carried by bracket 16 and being adjustably

clamped in a suitable position by means of the wing nut 23 operating in slots 24 and 25 in the overlapping cranks 26 and 27 which depend from the rods 14 and 15 respectively. By the means just described, the head rest 2 may be adjusted to proper position with respect to the oscillating rest 3 and hip rest 4, to support the patient in a prone position when face up. When face down, the head rest 2 is not used, the patient's arms resting on the saddle 3.

The hip rest 4 comprises a base 28 which extends across and rests on the top of frame 5. Base 28 is slidable lengthwise of bed 1 into proper position and it is prevented from moving laterally off of the bed and from tilting up off the bed by means of four legs such as 29 which slidably engage the outside of frame 5. The front legs 29 have internal hook ends 30 to prevent the base 28 from moving upwardly, while the back legs 29 have no such hook ends to permit raising base 28 to slide it beyond post 54. Suitably fastened to base 28 by means not shown, is a bottom pad or rest 31 to which are hinged side pads 32 and 33. Pad 32 is connected to rest 31 by hinges such as 34 and it may be secured in adjusted angular position by a suitable adjustable clamp 35 carried by the base 28 for clamping rod 36 which is hinged to the back of pad 32 as shown at 37.

The saddle 3 is adapted to support a portion only of the torso of a patient and it may for example be about 12 inches long in a direction lengthwise of bed 1. The saddle 3 comprises an upwardly facing semi-circular base 38 mounted on opposite sides of a pair of trunnion supports, one of which is trunnion 39, for rotation about an axis lengthwise of the bed 1 and substantially in vertical alignment with the center of the head rest 2 and the center of hip rest 4. Inside of each end of base 38 and at the center thereof, I provide suitable cushion supports 40, 41 and 42. If desired, each of these cushion supports such as 40 may comprise a pair of inflated rubber balls in position as shown by the bulges 43 and 44, and covered and held in position by a flexible covering 45 of rubber suitably secured to the ends of base 38 as shown at 46. Base 38, for each ball in the cushion 40-42 has a concave depression as indicated at 55 for centering the ball. Similar to the cushion support 40 inside of the saddle 3, I provide cushion members 47 and 48 laterally extending from the side of base 38 to treat the back of a patient supported by the chair 49 shown at Fig. 3. Chair 49 comprises a frame 50 having a hook 51 adapted to overlie the edge of the bed frame 5 in order to keep the chair 49 from sliding away from the cushion members 47 and 48.

In order to provide a guard to prevent a patient from sticking his hands or arms underneath the saddle 3, I secure to the end thereof which faces the end of the bed, a guard plate 52 which operates in a slot 53 in the bed 1.

With a head rest 2 not in use, and while a patient is resting face down with his arms on saddle 3 whereby the back is uppermost and rocked back and forth, I provide a cushion device 55' like 40 to 42, as shown in Fig. 2 for frictionally engaging the back of the patient as he is rocked back and forth on the saddle 3. Thus the ribs may be flexed and relaxed to flex the ribs, to relax and expand the eyelets surrounding the nerves at their exit from the spine. Cushion 55' is mounted on a rod 56 having a handle 57'. The rod 56 as shown in Fig. 1 is rotatably mount-

ed by a collar 57 on a cross-bar 58 supported by uprights 54 and 59 at the back of the bed 1. The collar 57 may have a set screw 60 to retain the handle 56 upright when not in use, although stops 61 and 62 on the cross bar 58 may be used to restrict the sliding movement of collar 57 on cross bar 58. When the patient is rocked or rolled back and forth on saddle 3 as above described, the operator may move the bar 56 to bring the cushion 55 into contact with the back of the patient with an adjustable amount of pressure depending upon the manual force applied to the handle 57'.

The saddle 3 is rocked back and forth by mechanism contained in a compartment 63 mounted below the bed 1 and resting on the floor. The front of compartment 63 has a starting switch 64 and a control handle 65 for varying the speed of the saddle 53 from about 40 to 75 oscillations per minute, although other speeds may be used. As shown in Figs. 3 and 4, compartment 63 houses a motor 66 which is controlled by the starting switch 64. Motor 66 is connected by a belt 67 to a variable speed changer 68 which is connected by belt 69 to speed reducing device 70 having a crank 71 which operates a connecting rod 72 which is adjustably connected at its upper end to a plate 73 carried on the underside of saddle 3.

The speed changer 68 comprises a frame 74 which rotatably carries three pulleys 75, 76, and 77, the middle pulley 76 being slidable on its axis and being interlocked to rotate with the two outside pulleys by means of projections such as 78 and 79 as is well known. The frame 74 is pivoted at its lower end at 80 and its upper end carries a nut 81 in threaded engagement with a screw 82 which terminates in the control handle 65. By rotating the handle 65 in one direction or the other, the frame 74 is pivotally moved about axis 80 to lengthen one of the belts and shorten the other one, to change the speed ratio between the belts 67 and 69. For example when frame 74 is moved to the left, as seen in Fig. 3, the tension is increased in belt 67, and this tension relieves itself through belt 67 sliding inwards to a position of smaller diameter on the pulleys 77 and 76, urging the latter to the left as seen in Fig. 4 so that pulleys 76 and 75 are now closer together to frictionally engage belt 69 on which tension has been relieved by movement of frame 74 to the left, belt 69 hence seeking a position of greater diameter on the pulleys 75 and 76. The reverse action takes place when frame 74 is moved in the other direction, the belt which is tightened seeking a position of smaller diameter and urging the pulley 76 sideways, while the other pulley seeks a position of larger diameter.

The crank 71 is connected to the connecting rod 72 through a swivel or universal joint indicated at 83. The upper end of connecting rod 72 is connected through a swivel or universal joint indicated at 84 to a sleeve 84' rotatable on bolt 85 in threaded engagement with a screw 86 having a handle 87 which may be rotated to vary the radius arm of the upper end of connecting rod 72 and thereby vary the throw of the saddle 3. Bolt 85 is mounted to slide in a slot 88 in the plate 73 and may be secured in its adjusted position in that slot by means of a clamping nut 89 having a lock pin or nut if desired. The end of screw 86 is rotatably carried in a slot 91 in a plate 92 which extends at right angles to the plate 73.

Various modifications may be made in the in-

vention without departing from the spirit of the claims.

One purpose of the air balls in the cushions 40, 41, 42, 43, 48 is to restore posterior lesions. The moving saddle 3 is elevated above the hip rest 4 to not only rotate the body but to flex a particular vertebra of the spine in both cases back to its normal position with respect to the vertebra above and below it. This result is most important in treating lesions. The air balls in the cushions 40—42, 47, 48 produce a positive flexing of the body by supporting and rocking the body so that the force employed to flex the muscles is due to the weight of the human body itself, thereby obtaining the desired force in a more positive manner than could be obtained by the usual normal manipulation.

I claim:

1. An osteopathic device comprising the combination of a bed, a torso support on said bed, means supporting said torso support for oscillating movement about an axis lengthwise of said bed beneath said support, means for imparting rocking movement to said torso support, a cooperating hip support slidable on said bed, and adjustable side pieces on said hip support, said torso support being adapted to tilt the upper portion of the body of the patient to opposite sides of said axis while the lower portion of the body of the patient is restrained by said hip support.

2. An osteopathic device comprising the combination of a bed, an upwardly facing concave torso support on said bed, said torso support being short enough to embrace only a portion of the torso of a patient, a bearing on said bed beneath the center of said support for supporting said torso support for tilting movement about an axis lengthwise of said bed, a motor beneath said bed, a crank for said motor, a connecting rod extending through said bed and connecting said crank and said torso support, and means for varying the effective length of said connecting rod to vary the throw of said torso support.

3. An osteopathic device comprising the combination of a bed, a saddle, means supporting said saddle for pivotal movement about an axis lengthwise of said bed, a rotatable screw connected to said saddle at one side of said axis, a handle for said screw, a traveling nut on said screw, a connecting rod having one end thereof connected to said nut, a slot in said bed through which said connecting rod projects, a motor, a speed changing device and a speed reducing device arranged below said bed, a belt connecting said motor and said speed changing device, a belt connecting said speed changing device and said speed reducing device, means comprising a handle at the side of said bed for operating said speed changing device, a crank on said speed reducing device, and a connection between said crank and the other end of said connecting rod, said saddle comprising means adapted to support one portion of the body of the patient for tilting movement to flex the spine, and cooperating means on said bed for supporting and restraining movement of another portion of the body of the patient.

4. An osteopathic device comprising a bed, said bed comprising stationary means for supporting and restraining movement of the lower portion of the body of a patient, and rocking means for rocking the upper portion of the body

of the patient, said rocking means comprising the combination of a saddle, means supporting said saddle for pivotal movement about one axis only, namely an axis lengthwise of said bed, a connecting rod connected to said saddle at one side of said axis, means for varying the point of connection of said connecting rod to said saddle to vary the throw of said saddle, a crank connected to the other end of said connecting rod, means for driving said crank, and means for varying the speed of said crank to vary the speed of said saddle.

5. An osteopathic bed comprising power driven means for laterally flexing the spine of a patient in opposite directions from normal, and a cooperating manually operable cushion device mounted adjacent said bed and movable to a position to flex the ribs of the patient while the spine of the patient is being flexed by said power driven means.

6. An osteopathic device comprising the combination of a bed, a head rest, means supporting said head rest for adjustment lengthwise of said bed, a torso support on said bed, means supporting said torso support for oscillating movement about an axis lengthwise of said bed beneath said support, means for imparting rocking movement to said torso support, a cooperating hip support slidable lengthwise of said bed, and upwardly extending side pieces on said hip support, said torso support being adapted to tilt the upper portion of the body of the patient to opposite sides of said axis while the head and lower portion of the body of the patient are supported by said head rest and hip support, respectively.

7. An osteopathic device comprising the combination of a bed, a torso support on said bed, said torso support comprising an upwardly facing semi-circular member having air balls mounted on its inner face adjacent the ends of said member, means supporting said torso support for oscillating movement about an axis lengthwise of said bed beneath said support, means for imparting rocking movement to said torso support, a cooperating hip support slidable lengthwise of said bed, and upwardly extending side pieces on said hip support, said torso support being adapted to tilt the upper portion of the body of the patient to opposite sides of said axis while the lower portion of the body of the patient is supported by said hip support.

8. An osteopathic device comprising the combination of a bed, to torso support on said bed, said torso support comprising an upwardly facing concave member having a cushion on its inner face, means supporting said torso support for oscillating movement about an axis lengthwise of said bed beneath said support, means for imparting rocking movement to said torso support, a cooperating hip support slidable lengthwise of said bed, upwardly extending side pieces on said hip support, said torso support being adapted to tilt the upper portion of the body of the patient to opposite sides of said axis while the lower portion of the body of the patient is restrained by said hip support, a cross bar mounted at one side of said bed above the same and extending lengthwise of the bed, a manually operable rod, a cushion on said rod, means slidably and pivotally supporting said rod on said cross bar whereby said cushion device is movable to positions above and adjacent said torso support.

IRA W. COLLINS.