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[21] Appl. No. **795,205**
[22] Filed **Jan. 30, 1969**
[45] Patented **July 6, 1971**

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[54] **THERAPEUTIC TABLE FOR RELAXATION AND ATTITUDE THERAPY**
8 Claims, 5 Drawing Figs.

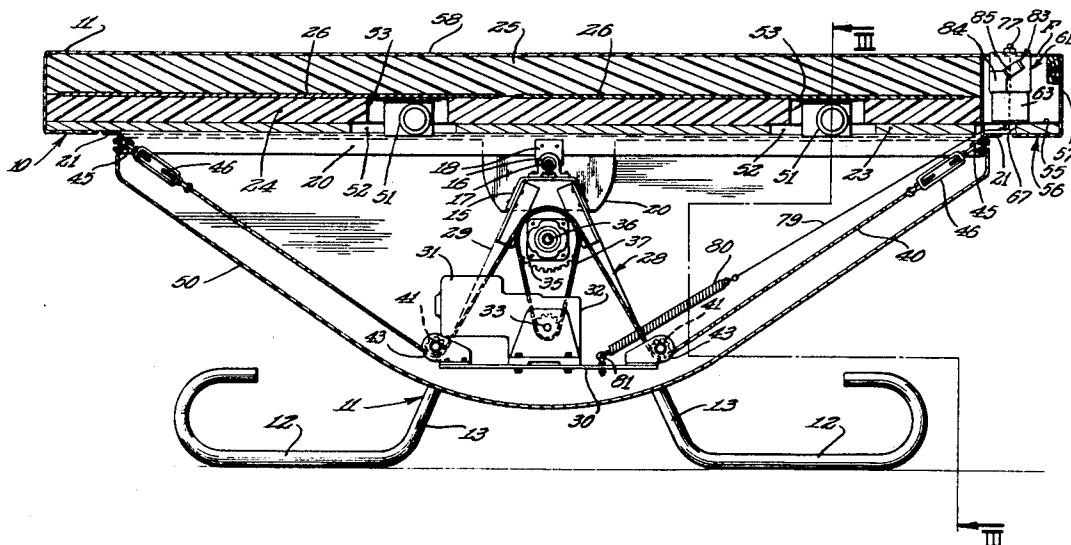
[52] U.S. Cl. **128/33,**
128/24, 128/71
[51] Int. Cl. **A61h 1/00**
[50] Field of Search 128/24,
24.1, 24.2, 33, 68, 70, 71

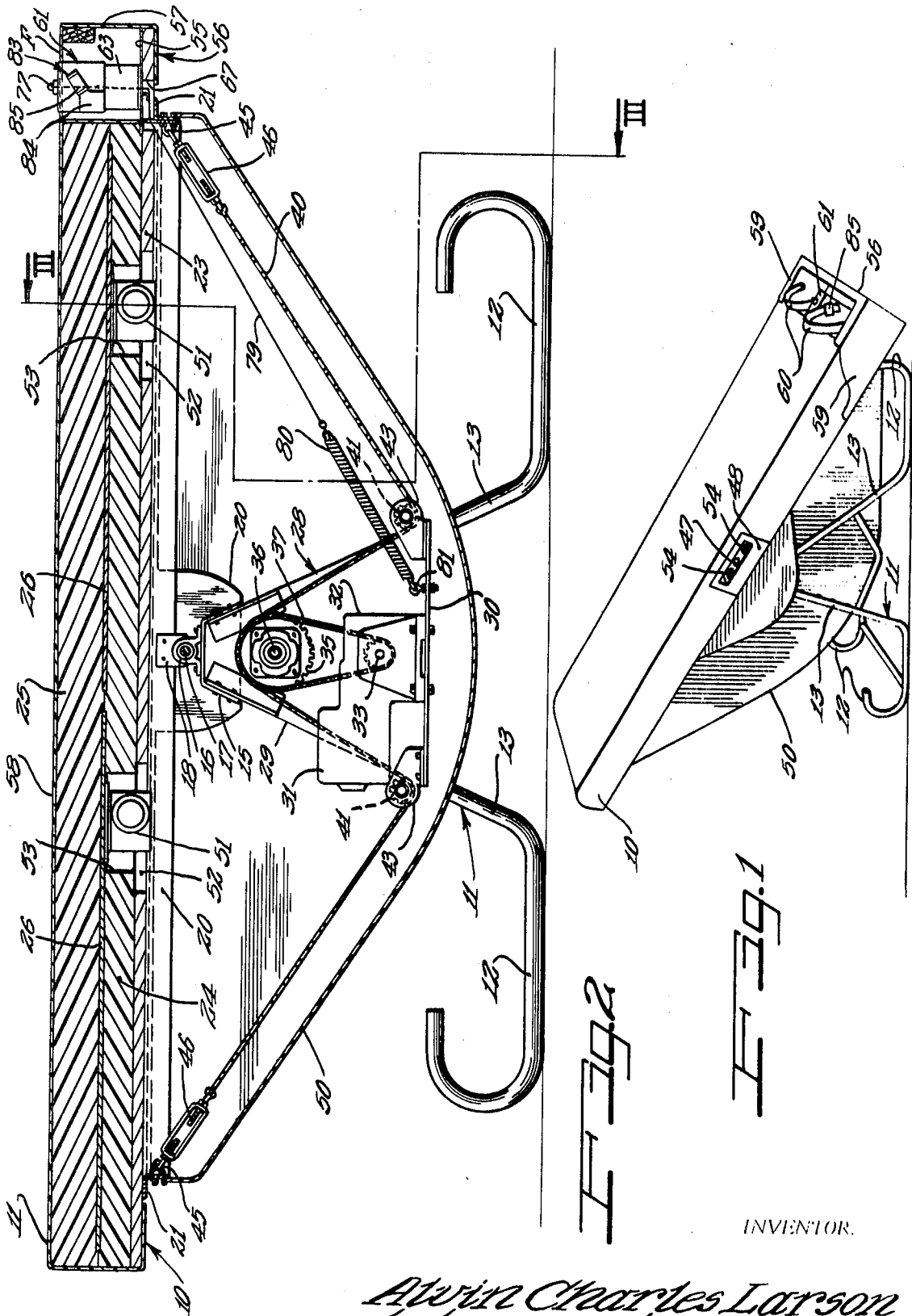
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ABSTRACT: Therapeutic table for relaxation and attitude therapy, capable of being tilted up to 45° in either direction about an axis extending parallel to the transverse center of the table. The table includes a flat pad mounted on longitudinally aligned vibrator plates extending substantially the length of the pad. Leg straps for strapping down the ankles are provided at one end of the pad and include tensioning means for the straps accommodating the straps to be relatively loose when the table is in a horizontal position and placing tension on the straps to increase the holding action of the straps against the ankles as the table is tilted to place the head lower than the ankles.

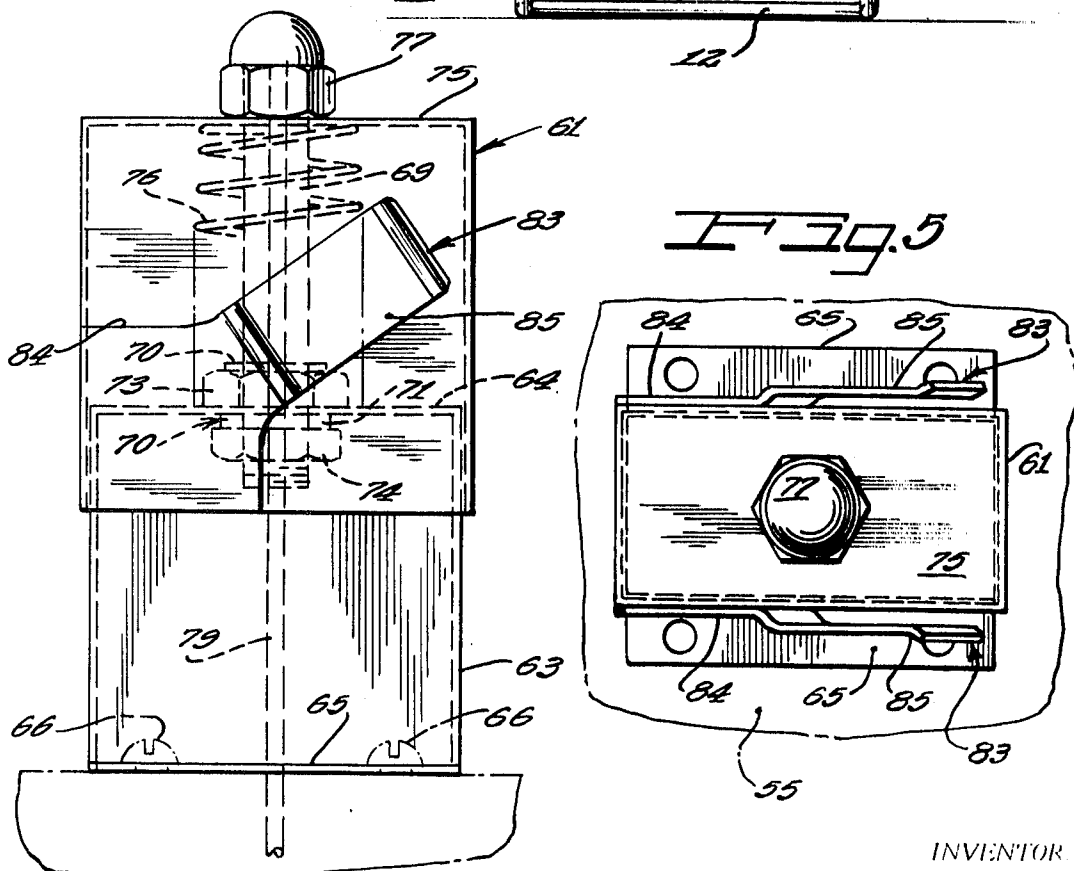
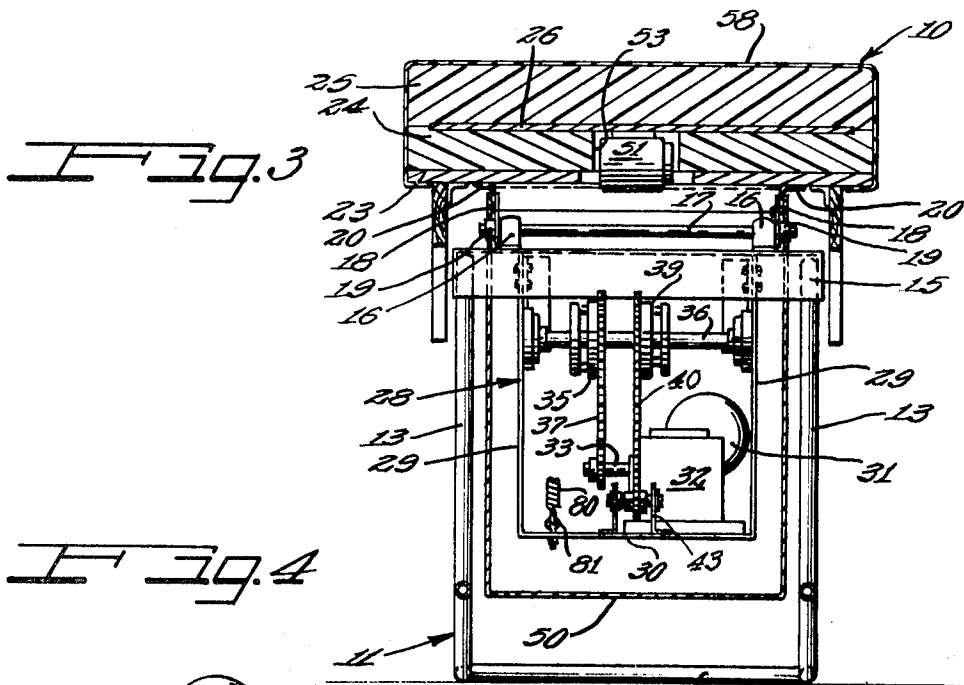




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THERAPEUTIC TABLE FOR RELAXATION AND ATTITUDE THERAPY

SUMMARY AND OBJECTS OF THE INVENTION

Therapeutic table for attitude therapy and relaxation of the body, tiltable about an axis extending parallel to the transverse center of the table and arranged with a view toward enabling a person on the table to effect tilting of the table to place the head above the feet and vice versa, and to effect vibration of the table when in its various selected positions, together with leg-strapping means increasing the tension on the leg straps as the table is inclined to position the ankles above the head.

A principal object of the invention is to provide an improved form of therapeutic and relaxing table, positionable to support the body of the person on the table in a flat horizontal position or into various selected angular positions with either the head or ankles close to the ground.

Another object of the invention is to provide an improved form of flat therapeutic table in which the table is positionable about an axis parallel to and spaced from the transverse center of the table, in various selected positions, under the control of the person lying on the table, having a simplified and improved form of strapping means in which the holding ability of the straps on the legs or feet is varied in accordance with the position of inclination of the table.

Still another object of the invention is to provide a tiltable therapeutic table particularly adapted for relaxing purposes, including a flat support pad for the body of a person on the table, tilted into a horizontal position or various selected inclined positions by power, under the control of the person on the table, in which the pad supporting the body is mounted on longitudinally spaced aligned vibratory means, each of which may be selectively operable under the control of the person on the table.

Still another object of the invention is to provide a simplified form of therapeutic table structure including a tiltable table, tiltable about an axis extending transversely of the table and an improved support pad structure forming the top of the table in the form of a firm nonvibrating support pad, a pair of flat longitudinally aligned vibrating plates carried by said firm pad, and a support pad forming the top of the table and supported on said vibratory plates for relaxation and attitude therapy.

These and other objects of the invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a therapeutic table constructed in accordance with the principles of the present invention with the table tilted to support the head of a person on the table above the feet.

FIG. 2 is a generally longitudinal sectional view taken through the table shown in FIG. 1.

FIG. 3 is a transverse sectional view taken substantially along line III-III of FIG. 2.

FIG. 4 is an enlarged fragmentary detail view, showing certain details of the clamping means for the straps clamping the legs to the table; and

FIG. 5 is a plan view of the clamping means shown in FIG. 4.

DESCRIPTION OF PREFERRED EMBODIMENT OF INVENTION

In the embodiment of the invention illustrated in the drawings, I have shown in FIGS. 1 and 2, a tiltable therapeutic table 10 including a base 11 formed from tubular members having formed elongated feet 12 extending in opposite directions from each other and engageable with the ground. Said feet 12 terminate into angularly upwardly extending leg portions 13 converging towards each other and suitably braced and connected together. A transverse frame member

15 extends across the legs 13 and is mounted at its opposite ends on said legs. Said transverse frame member connects the upper ends of the legs 13 together and forms a support for the table 10 intermediate the ends of said table. Pillow blocks 16 are mounted on top of the frame member 15, adjacent opposite ends thereof and extend upwardly therefrom. The pillow blocks 16 form bearing supports for a transverse shaft 17. As shown in FIG. 3, the shaft 17 forms a support for vertically extending bracket plates 18 at its opposite ends. Said bracket plates extend upwardly of bosses 19 suitably mounted on said shaft at the outer ends thereof. The bracket plates 18 form supports for the vertical legs of angle irons 20 intermediate the ends of said angle irons. Said angle irons have outwardly extending horizontal legs and are connected together at their opposite ends by transverse angle irons 21. The angle irons 20 and 21 are secured to and form a rockable support for a bed board or baseplate 23. Said bed board 23 forms a base for the table top and a support for a firm pad 24 and a softer pad 25. Said pad 25 extends along the top of a pair of aligned longitudinally spaced vibratory plates 26, mounted on top of said firm pad 24 and covering a substantial portion of the area thereof.

The transverse frame member 15 connecting the tops of the legs 13 together and forming a support for the pillow blocks 16 and rock shaft 17, has a frame 28 depending therefrom. The frame 28 includes parallel spaced side frame members 29 extending from opposite sides of the transverse frame member 15 and depending therefrom. A stationary baseplate 30 connects said frame members 29 together at the ends thereof.

The baseplate 30 forms a support for a motor 31 operable to lift the table 10 in a selected direction. Said motor may be a conventional electric motor having a speed-reducer housing 32 formed integrally therewith, and including speed-reducer gearing (not shown) driving a transverse drive shaft 33 driven from said motor 31. The speed-reducer gearing contained within the speed-reducer housing 32 may include worm gearing of the self-locking type to provide a right-angled drive from the shaft of the motor 31 to the shaft 33, which will hold the shaft 33 from rotation, when the motor 31 is deenergized. Such self-locking speed-reducer gearing may be of any well-known form and is no part of the present invention, so need not herein be shown or described further.

The drive from the shaft 33 to effect tilting of the table 10 about the axis of the shaft 17, and to hold said table in various selected positions relative to the base 11, includes a sprocket 35 keyed or otherwise secured to a transverse shaft 36 rotatably mounted at its ends in the side frame members 29, adjacent the upper end portions thereof. A chain-and-sprocket drive 37 is provided to drive the sprocket 35 from the shaft 33. A tilting sprocket 39 is keyed or otherwise secured to the shaft 36, with its sprocket teeth in general alignment with the longitudinal center of the table 10. A flexible draft device such as a link-type chain 40 of the roller type extends over the top of the sprocket 39 and is meshed therewith. Said flexible draft device extends angularly downwardly from opposite sides of the sprocket 39 under idler sprockets 41, 41, rotatably supported at opposite ends of the baseplate 30 on bearing brackets 43. From thence the flexible draft device or drive chain 40 extends angularly upwardly and outwardly towards opposite ends of the angle irons 20 and is connected at its opposite ends to the angle irons 21, as by connectors 45 secured to the insides of the vertical legs of said angle irons 21, and turnbuckles 46 connected to the ends of the drive chain 40 at their inner ends and to the connectors 45 at their upper or outer ends.

Upon rotation of the sprocket 39 in a direction which in FIG. 2 would be a counterclockwise direction, the table 10 will tilt about the axis of the shaft 17 in a clockwise direction to position a head end H of the table above a foot end F of the table. Upon reversal of direction of rotation of the motor 31, the shaft 36 and sprocket 39 will be rotated in a clockwise direction to lift the foot end F of the table above the head end H thereof. Energization of the motor 31 may be controlled under the control of a suitable electric switch (not shown)

having a central off position, a forward position to one side of the off position and a reverse position to the opposite side of the off position and operated by a switch arm 47 carried by a plate 48 for the switch casing on one side of the table 10, adjacent transverse center thereof. Limit switches (not shown) may be connected in the circuit to the motor 31 to limit tilting of the table 10 to either of its extreme positions.

A guard frame or housing 50 for the mechanism for tilting the table 10 extends between the legs 13 of the base frame 11 and along the bottom of the baseplate 30 and drive chain 40, and is suitably secured to the angle irons 20 and 21, and depends therefrom.

Referring now in particular to the details of construction of the table 10, said table includes the bedplate or board 23 suitably mounted on the horizontal legs of the angle irons 20 and 21 and extending beyond the forward and rear ends of the angle irons 20. The bed board 23 may be made from metal or wood and has spaced central openings 52 therein to receive vibrators 51. Said vibrators are mounted on the bottoms of the individual vibrator plates 26 and extend through openings 53 in the firm pad 24 in registry with the openings 52 in the bed board 23.

The vibrators 51 may be conventional forms of electrically energized vibrators of a construction well known to those skilled in the art so need not herein be shown or described further. Each vibrator 51 may be energized under the control of an individual switch (not shown) operable by an individual switch button 54 to enable either or both of said vibrators to be placed in operation at the selection of the person on the table or the operator thereof, where the table may be operated by an operator treating a person on the table. The switch buttons 54 are diagrammatically shown in FIG. 1 as being placed on opposite sides of the switch arm 47 and mounted in the plate 48 for the switch casing (not shown).

The firm pad 24 may be made from a firm polyfoam or from various other suitable plastic materials. The vibrator plates 26 may be made from metal or wood and rest directly on the top surface of the firm pad 24, in spaced end-to-end relation with respect to each other and may extend for substantially the length and width of said firm pad 24. The pad 25 may be made from a softer polyfoam material than the firm pad 24 and may extend for the length and width of said firm pad.

A suitable cover 58, which may be made from a suitable fabric such as the fabric known by the trade name of Naugahyde, extends along the top of the soft pad 25 and downwardly along the sides and ends thereof and underneath the bed board or plate 23, and may be suitably secured to said board to form a bed board and pad unit with the vibrator plates 26 between the pads 24 and 25 and imparting vibratory movement of the soft pad 25 relative to the bed board 23.

The foot end F of the table 10 extends beyond the ends of the pads 24 and 25 (FIG. 2) and includes a plate 55 extending along the top of the forward end portion of the board 23 and an end frame structure 56 extending along the bottom of the projecting forward end portion of the bed board 23 and across the front and along opposite sides thereof. The end frame structure 56 has a front wall 57 extending upwardly of the bed board 23 along the front end thereof to a position in substantial alignment with the top of the pad 25. Said end frame structure also has sidewalls 59 extending forwardly of the front frame member 57 along opposite sides of the board 23 and pads 24 and 25 for a short portion of the length thereof, as shown in FIG. 1. The side frame members 59 form mounting means for foot or leg straps 60, which may be adjustably clamped or otherwise secured to said side frame members.

The straps 60 extend from the side frame members 59 inwardly to a vertically extending clamping and tensioning member 61, adapted to form a connecting and tensioning means for the inner ends of said straps 60. The tensioning member 61 includes a generally boxlike open bottom rectangular guide member 63 having a closed top 64 and having laterally extending foot portions 65 secured to the plate 55 and board 23 as by screws 66. The boxlike guide 63 opens to

an opening 67 in a plate 55 and the projecting end portion of the bed board 23.

A guide tube 69 is slidably mounted in the closed top 64 of the boxlike guide member 63 in a bearing member 70 having a lower flange 71 abutting the underside of the top 64 and extending through said top and secured thereto, as by a jam nut 73. A nut 74 is threaded on the lower end of the guide sleeve 69 to limit upward movement thereof. The strap-tensioning member 61 is also of a boxlike form, telescopically mounted on the guide member 63 and having a closed top 75. A compression spring 76 is seated on the top of the top 64 of the guide member 63 and the undersurface of the closed top 75 of the tensioning member 61 and biases said tensioning member upwardly into engagement with a stop nut 77 threaded on the top of guide sleeve 69. A flexible cable 79 is suitably secured to the stop nut 77 at its upper end and extends downwardly therefrom along the center of the guide sleeve 69 through the opening 67 in a plate 55 and bed board 23 along the top of the angle 21 and angularly downwardly therefrom. Said flexible cable 79 is connected at its inner lower end to one end of a tension spring 80. The tension spring 80 is connected at its opposite end to the baseplate 30 as by a connector eye 81, suitably secured to and extending upwardly of said baseplate.

When the table 10 is in its horizontal position shown in FIG. 2, the compression spring 76 will bias the tensioning member 61 in its upwardly extended position shown in FIGS. 2 and 4. As the table rotates in a counterclockwise direction to position the head end H of the table beneath the foot end F thereof, the tension spring 80 and cable 79 will exert a downward pulling action on the nut 77, guide sleeve 76 and clamping member 61, to take up tension on the straps 60, connected to opposite sides of said clamping member and thus tighten the straps along the ankles to retain a person on the table from sliding downwardly along the table as the table is slanted to position the head beneath the feet. As the table is then rotated in a clockwise direction about the axis of the shaft 17, tension of the spring 80 will be released and the compression spring 76 will move the tensioning member 61 upwardly to release the tension of the straps 60 on the ankles.

The means for detachably attaching the inner ends of the straps 60 to the clamping and tensioning member 61 is shown in FIGS. 4 and 5 as being in the form of hooklike members 83 having bracket plate portions 84 secured to opposite sides of the clamping member 61, adjacent the lower end portions thereof. Said hooklike members have hook portions 85 inclined upwardly from the bracket plate portions 84 along the opposite sides of the clamping member 61 and spaced therefrom and parallel thereto. The hook portions 85 are shown in FIG. 5 as extending generally parallel to the sides of the clamping and tensioning member 61 spaced outwardly therefrom, to accommodate looped end portions (not shown) of the leg straps to be hooked thereon. The straps 60 may be connected to the clamping and tensioning member 60 in various manners and the connections may be so arranged as to adjust the length thereof for ankles of different sizes.

An improved form of therapeutic table has thus been provided, constructed with a view of utmost simplicity and maneuverability by a person on the table, in which a novel and improved form of support for the support pad of the table is provided, accommodating vibratory movement of the support pad under the control of the person on the table, and in which the straps holding the person to the table relatively loosely engage the ankles or feet when the table is in a horizontal position and are brought into firm engagement with the ankles as the table is tilted to position the head beneath the feet.

While I have herein shown and described one form in which the invention may be embodied, it may readily be understood that various variations and modifications in the invention may be attained without departing from the spirit and scope of the novel concepts thereof.

I claim as my invention:

1. In a therapeutic table, a base,

a rockable frame pivotally mounted on said base for movement about an axis extending transversely thereof into a plurality of selected positions,

a table extending along the top of said frame including a pad for supporting a person lying flat on the pad in a horizontal position or in an inclined position with the head or the feet lower than the other, when the table is in selected opposite angular positions,

foot straps at one end of said pad to receive the feet of a person on said pad and to hold the feet upon inclination of the table including an individual strap for each foot,

tensioning means for holding said straps in relatively loose engagement with the feet, and

flexible takeup means connected between said tensioning means and said base and cooperating therewith to move said tensioning means to tighten said straps against the feet as said table is tilted in a direction to position the head of a person lying flat on the table at an angle of inclination lower than the feet.

2. A therapeutic table in accordance with claim 1, wherein individual foot straps for each foot are mounted at opposite sides of said table at one end thereof, wherein a common tensioning member is provided for each of said straps and is disposed adjacent the longitudinal center of said table,

wherein a guide is provided for said tensioning member, guiding said tensioning member for vertical movement,

wherein spring means are interposed between said guide and said tensioning member and bias said tensioning member in a direction to relax said straps to relatively loosely engage the feet, and

wherein the flexible means connected between said base and tensioning member have connection with said tensioning member to move said tensioning member in a direction to take up on said straps as said table is pivoted to angularly move the table to support the head of a person, lying flat on the table, beneath the feet.

3. A therapeutic table in accordance with claim 1, wherein the foot straps are secured to said frame adjacent opposite sides thereof and extend inwardly of said frame over the feet towards the center thereof,

wherein a releasable tensioning member is provided for the inner ends of said straps,

wherein the tensioning member is guided for vertical movement in directions to tighten and release said straps,

wherein spring means are provided for biasing said tensioning member in a direction to release the pressure of said straps against the feet,

wherein a cable has connection with said tensioning member and extends downwardly therefrom, and

wherein a spring connected between said base and cable tightens said straps as said table is pivoted in a direction to lower the head and releases said straps as said table is moved to a flat position and in a direction to lower the feet.

4. A therapeutic table in accordance with claim 1, wherein the table includes a flat elongated support member extending for substantially the length thereof, a firm pad mounted on said support member,

a pair of longitudinally aligned spaced vibrator plates mounted on said firm pad,

vibrators secured to the bottoms of said plates and depending therefrom and free from said firm pad and elongated support, and

wherein said vibrator plates form a support for said first mentioned pad for substantially the length and width thereof.

5. In a clamping and tensioning means for holding the feet to a flat table and in combination with a therapeutic table tiltable about an axis extending transversely of the table and having a pad extending the length thereof, supporting an individual in a flat inclined position with the head lower than the feet, foot straps secured to opposite sides of said table adjacent one end thereof,

a common tensioning member for said foot straps adjacent the longitudinal center of said table, including a vertically extending guide,

a tensioning member guided for movement along said guide, foot strap connectors at opposite sides of said tensioning member,

compression spring means biasing said tensioning member in a direction to hold said foot strap clamps and the straps clamped thereto in relaxed engagement with the feet,

tension spring means connected with said tensioning member and effective upon movement of said table to elevate said tensioning member and support the head beneath the feet, to move said tensioning member against the bias of said compression spring means and take up on the tension of said foot straps, to take up tension on said foot straps in accordance with position of tilt of the table.

6. A foot clamp in accordance with claim 5, wherein the guide includes a generally boxlike guide member secured to said table and having a guide tube extending upwardly from the top thereof,

wherein said tensioning member is telescopically mounted relative to said boxlike guide and is slidably guided by said guide tube,

wherein the compression spring means extends along said guide tube and is seated between said boxlike guide and the undersurface of said tensioning member,

wherein a flexible cable is clamped to said tensioning member and extends through the hollow interior portion of said guide tube, and

wherein the tension spring means is connected with the free end of said cable to move said tensioning member against said first-mentioned spring means, upon tilting of said table to elevate the feet relative to the head.

7. In a therapeutic table,

a base,

a rockable frame pivotally mounted on said base for movement about an axis extending transversely thereof into a plurality of selected positions,

a table extending along the top of said frame including a pad for supporting a person lying flat on the pad in a horizontal or in an inclined position with the head or the feet lower than the other, when the table is in selected opposite angular positions,

foot straps at one end of said pad to receive the feet of a person on said pad and to hold the feet upon inclination of the table,

and power means mounted on said base and having operative connection with said frame for moving said table about said transverse axis into selected angular positions and holding said table in said selected positions, and including a motor mounted on said base,

a sprocket carried by said base and disposed above said motor and having an axis of rotation radially spaced from the axis of pivotal movement of said table and parallel thereto,

a speed-reducer drive connection between said motor and said sprocket holding said sprocket from rotation upon deenergization of said motor,

a flexible drive member extending about said sprocket intermediate its ends,

idlers for said flexible drive member adjacent opposite ends of said base, beneath said sprocket,

means connecting one end of said flexible drive member to one end of said frame adjacent the bottom of said table,

means connecting the opposite end of said flexible drive member to the opposite end of said frame adjacent the opposite end of said table, and

means for selectively rotating said motor in a forward or reverse direction to incline said table from a horizontal into angular position to support either the head or the feet close to the ground at the selection of the person lying along the top of said table.

8. A therapeutic table in accordance with claim 7,

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wherein the table includes a flat elongated support member extending for substantially the length thereof, a firm pad mounted on said support member, a pair of longitudinally aligned spaced vibrator plates mounted on said firm pad, individual vibrators secured to the bottoms of said plates and depending therefrom and free from said firm pad and

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elongated support, and wherein said vibrator plates form a support for said first-mentioned pad for substantially the length and width thereof and means are provided for individually energizing said vibrators.

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