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COMBINATION BACK STRETCHER AND MASSAGING DEVICE

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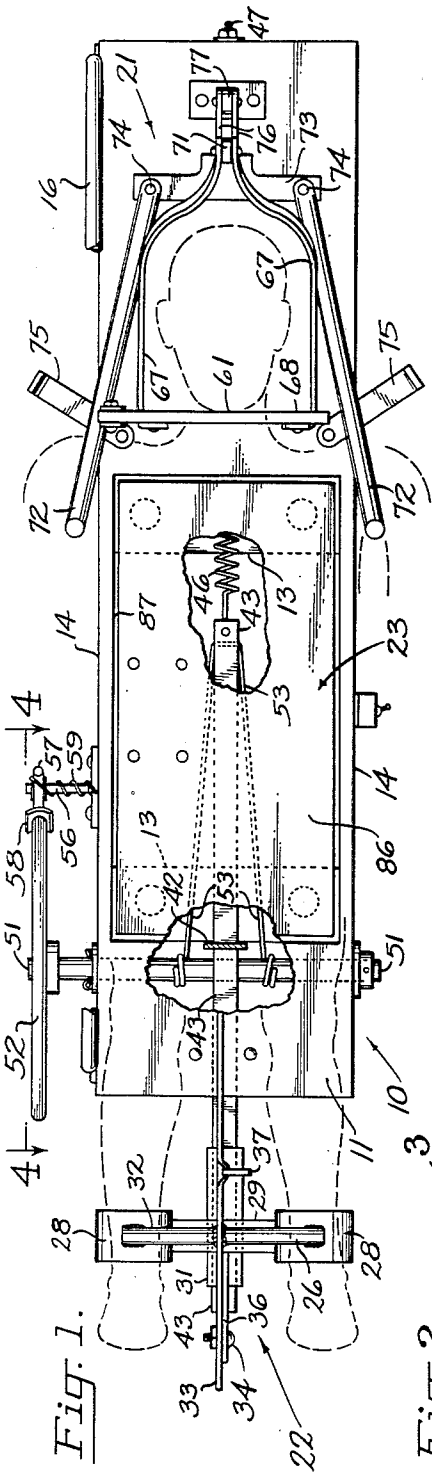


Fig. 1.

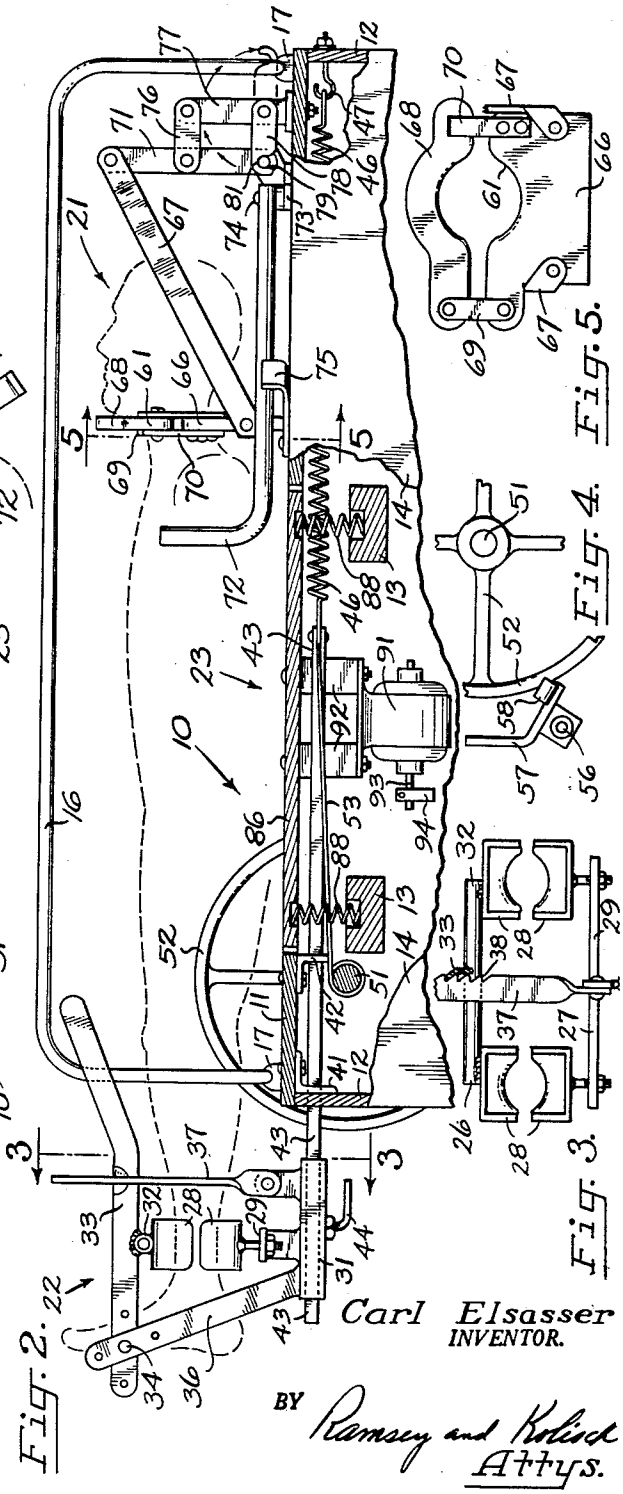


Fig. 2.

Fig. 5.

Fig. 4.

Fig. 3.

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COMBINATION BACK STRETCHER AND MASSAGING DEVICE

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3 Claims. (Cl. 128—71)

This invention relates to therapeutic apparatus, and more particularly to apparatus for exercising and/or tensioning the body of a patient or user by extending, manipulating, and vibrating the body of the patient.

Vibratory and tensioning apparatus as a general class is known. Generally it is an object of this invention to provide improved apparatus of this type which is characterized by a vibratory motion more comfortable to the patient than that of devices heretofore known, and wherein the vibratory motion is imparted more directly to the body portions it is desired to manipulate and exercise.

Another object of the invention is to provide an improved tensioning and exercising machine which at all times is completely under the control and will of the patient, and wherein the patient himself may, as directed by his capabilities, control the vibrating and tensioning of the machine.

A still further object is to provide novel mechanism or structure for holding onto the feet, and the shoulder and head portions of a patient, while these portions are extended away from each other to produce tension. The mechanism is characterized by a novel construction wherein the restraining force exerted on the upper body portions of a patient may be distributed evenly between his head and shoulders, if desired.

In general terms, the invention contemplates an elongated frame having a table surface and a feet retaining means mounted at one end. At the other end of the frame there is provided a head and shoulder restraining structure. The feet retaining means and the restraining structure hold the feet and head of a patient stationary during the time that a vibratory motion is imparted to intermediate body portions of a patient. This vibrating motion is produced by a vibrating table or platform intermediate the ends of the table. The platform is mounted by means which permit it to be freely supported so that it can be oscillated, tilted and moved up and down. By holding the exremities of a patient stationary, and imparting vibratory motion only to the intermediate body portions of the patient, vibration is transmitted to a localized pelvic and back area. The apparatus is comfortable for a patient, as his head and feet are held from vibration. The freely supported or free floating platform will assume a plane during use of the device which is comfortable to the user and transmits pressure evenly to him. The invention further comprises a novel neck and shoulder restraining structure, and feet retaining structure, which is fully controllable at the will of the patient himself.

These and other novel features, objects and advantages are attained by the present invention, which is described hereinbelow in conjunction with the accompanying drawings wherein:

Fig. 1 is a top plan view of apparatus constructed according to this invention, showing the top of a table surface in the machine and, in dotted outline, the location of a patient resting on the table surface;

Fig. 2 is a side view, partly broken away, of the apparatus in Fig. 1, illustrating in more detail the feet retaining means, intermediate platform means, and head and shoulder restraining structure present in the apparatus;

Fig. 3 is a section view along the line 3—3 in Fig. 2;

Fig. 4 is a view along the line 4—4 in Fig. 1, illustrating a hand wheel and brake employed for adjusting tension; and

Fig. 5 is a view along the line 5—5 in Fig. 2 illustrating parts of the head restraining structure.

Referring now to the drawings for a description of an embodiment of this invention, the exercising and tensioning apparatus comprises an elongated frame 10 which has along its top a table surface or means 11. The table surface is supported above the ground by end walls 12, and side walls 14. Cross frame members 13 extending between the side walls rigidize and brace the structure.

Along one side of and projecting above the table surface is a rigidly mounted hand rail 16. The bottom ends of the rail are secured in place to the side of the table by mounts 17. The hand rail facilitates a person's getting on and off the table, and adjusting his position in an appropriate manner once on the table.

At one end of the elongated table and frame is a support means or nonvibrating restraining means indicated at 21 for supporting in a stationary position the head and shoulders of a patient. At the other end of the frame is a second support means or nonvibrating feet retaining means 22 for supporting in a stationary position the feet and ankles of a patient. Intermediate these two support structures is a vibrating platform means 23.

More specifically, support means 22 at the left side of the table in Figs. 1 and 2 comprises a top and a bottom ankle retaining device, indicated at 26 and 27, respectively. These together mount two sets of cooperating cupped ankle clamps 28. The ankle clamps 28 of lower retaining device 27 are secured to a cross bar 29 affixed to a sliding section 31. The ankle clamps of upper retaining device 26 are secured to cross bar 32 affixed to a pivoting locking bar or lever 33. The locking bar is pivotally connected at 34 to an upwardly projecting brace arm 36 integral with sliding section 31.

Also secured to sliding section 31 at the forward end thereof is a catch member 37 containing a series of notches 38 (see Fig. 3). The locking bar is pivotable about pivot 34 into engagement with one of the notches in catch member 37 when the ankle retaining devices are moved together about the ankles of a patient into a hold position. The locking lever extends directly to the right and longitudinally of the frame in Figs. 1 and 2, with end portions thereof overlying the knees of a patient occupying the device. Thus the ankle retaining devices are readily clamped about the ankles to hold the ankles and feet by a patient himself when he is sitting on the table with his ankles between the ankle retaining devices.

Support means or structure 22, which constitutes a feet and ankle retaining means at one end of the table, is supported on the frame by a mechanism accommodating adjustable positioning of the structure longitudinally of the table.

Specifically, slidably mounted in brackets 41, 42 underneath table surface 11 is an elongated adjusting arm or part 43. Sliding section 31 slides on the outer end of arm 43. One adjustment of support means 22 relative to the end of the table is produced by adjusting section 31 along arm 43. A hand screw 44 enables section 31 to be clamped in adjusted positions on the arm.

The right end of arm 43 connects with a coiled tension spring 46. The spring extends from the end of arm 43 to the head end of the table where it is held in place by a screw hook 47. Spring 46 exerts a pull on the arm pulling it from left to right in Figs. 1 and 2.

Extending transversely underneath table surface 11 with its ends rotatably mounted in the side walls of the frame is a transverse shaft 51. One end has affixed thereto a turn means or wheel 52. Secured to intermediate portions of the shaft are opposite ends of a flexible line 53. The middle of the flexible line is threaded through an accommodating bore formed in the inner end of arm 43. Turning of hand wheel 52 functions to wrap line 53 about shaft 51, and thereby causes arm 43 to move from right to left in Figs. 1 and 2 against the tension of tensioning spring 46.

As best seen in Figs. 1 and 4, projecting from the right side of the frame and affixed thereto is a stud 56. Rotatably mounted at the end of the stud in a breaking lever 57. The breaking lever has a breaking end 58 which is urged against the periphery of hand wheel 52 by a coil spring 59. The breaking lever operates to keep the hand wheel from rotating under the urging of spring 46.

The hand wheel, transverse shaft and flexible line constitute a manually powered motor mechanism for moving adjustable part or arm 43. The means for actuating the motor mechanism, i.e., wheel 52, is located on one side of the table at a point where it is accessible by the hands of a patient lying on the table in a supine position. Thus in operation of the device, the user or patient at all times has control of the tension applied to himself.

Support means 21 at the right-hand end of the frame comprises a neck yoke assembly 61, an arm holder assembly and an equalizing structure fastening the yoke assembly and arm holder assembly to the right-hand end of the table frame.

Specifically, referring to Figs. 1, 2, and 5, neck yoke assembly 61 comprises a lower yoke part 66 containing a cupped out portion, and having affixed thereto a pair of braces 67, one on each side of part 66. Hinged to lower yoke part 66 by links 69 is an upper yoke part 68 also containing a cupped out center portion. The neck of a patient fits between the cupped out portions of the yoke parts, and the yoke parts are restrained together from movement longitudinally of the table by links 69 at one set of ends and brace 70 at their other set of ends. The top of brace 70 slidably engages part 68 and the lower end of brace 70 is secured to lower part 66.

The ends of braces 67 opposite those ends connected to part 66 are pivotally secured to the upper end of an equalizing bar 71. The lower end of equalizing bar 71 is pivotally connected to a cross piece 73 which slides freely on top of table surface 11.

Pivoted to cross piece 73 at pivots 74 are a pair of arm hook members 72. The forward, hooked over end portions of these members are adapted to be placed under the arms of a patient next to his chest. Guide brackets 75 which are mounted on the top of table surface 11 limit outward pivotal movement of hook members 72.

The equalizing structure includes, in addition to equalizer bar 71, links 76 pivoted at one set of ends to intermediate portions of the equalizer bar and at their other set of ends to an upstanding portion of a rigid bracket or standard 77. A locking link 78, pivoted at one end to a lower portion of bracket 77, and having a recess 79 at its other end, is provided for fixing the equalizing bar in an upright position. Recess 79 of the locking lever may be fitted over a pin or catch 81 to fix the equalizer bar in position, the recess 79 constituting means engaging catch 81. When the locking lever is moved out of engagement with pin 81, the equalizing bar 71 is free to pivot about its center pivot connection. With the parts in this condition, equalizer bar 71 acts to distribute pressure uniformly to the neck and arms of a patient during tensioning of the patient.

Vibrating platform means 23 comprises a platform 86 fitted into an aperture 87 formed in table surface 11. The four corners of platform 86 are supported by four compression springs 88. The lower ends of these compression springs seat in recesses made in cross frame members 13.

Affixed to the under side of platform 86, through depending brackets 92, is an electric motor 91. Motor 91 has a motor shaft 93 carrying an eccentric 94 at the outer end thereof. Rotation of the motor shaft causes the eccentric to rotate, which produces a relatively rapid vibration and oscillatory movement of the platform.

In operation, a patient mounts the table and inserts his ankles between the ankle retaining devices described above. Locking bar 33 is then locked in position, to clamp the ankles of the patient in retaining devices 26, 27. The patient then places the arm hooks under his arms and fastens the neck yoke about his neck and under his chin. Manipulation of turn wheel 52 will then cause the retaining means holding the feet to move to the left, and a tensioning of his body. When suitable tension is reached, motor 91 may be started, and the platform vibrated to exercise and massage intermediate body portions of the patient.

The apparatus is completely controllable by the patient himself. Should the tensioning seem too great under the effect of vibration, the patient himself may turn the hand wheel to relieve the tension. On the other hand, should his body loosen and he desire more tension, he may also take care of this adjustment.

The apparatus is comfortable to use. Contributing to the comfort of the patient are the type of mounting for the platform 86, and the nonvibrating support provided the extremities of the patient. Holding the head stationary, for instance, prevents headaches and dizziness.

While there has been described an embodiment of this invention, it is appreciated that variations in the arrangements and parts may be made without departing from the spirit of the invention. It is intended not to be limited to the specific construction shown, but to cover all variations and arrangements which would be apparent to one skilled in the art and that come within the scope of the appended claims.

It is claimed and desired to secure by Letters Patent:

1. A tensioning table mechanism for tensioning a user in a supine position comprising an elongated frame structure including table means for supporting a user, means at one end of said table means engageable under the arms of a user and restraining the user from longitudinal movement along said table means, an elongated arm extending longitudinally of said table means at the other end thereof and adjustable lengthwise relative to said table means, a pair of opposed ankle retaining devices mounted on said arm, said ankle retaining devices being adjustable with respect to each other between a hold position wherein the feet of a user are secured in place and a release position wherein the feet may be loosened from the devices, a locking lever connected to at least one of said ankle retaining devices for locking the devices in a hold position, said locking lever having a portion extending toward said one end of said table means and overlying the knees of a user seated on said table means with his ankles secured in said ankle retaining devices, and manually powered motor mechanism for adjustably positioning said elongated arm, said motor mechanism being actuated by a turn means disposed at one side of said table means and accessible by the hands of a user when lying thereon in a supine position.

2. A tensioning table mechanism for tensioning a user in a supine position comprising elongated frame structure including table means for supporting a user, means at one end of said table means for restraining the upper extremities of a user from longitudinal movement along said table means, a part mounted at the other end of the table means adjustable lengthwise relative thereto, a pair of opposed ankle retaining devices mounted on said part, said ankle retaining devices being adjustable with respect to each other between a hold position wherein the feet of the user are secured in place and a release posi-

tion wherein the feet may be loosened from the devices, a locking lever connected to at least one of said ankle retaining devices for locking the devices in a hold position, said locking lever having a portion extending toward said one end of said table means and within reach of a user seated on said table means with his ankles secured in said ankle retaining devices, and manually powered motor mechanism for adjusting the position of said part, said motor mechanism having turn means for actuating the same disposed at one side of said table means and within reach of a user when such user is lying on said table means in a supine position.

3. In a tensioning machine, an elongated frame having a table surface, a head and shoulder restraining structure mounted at one end of said table surface and feet retaining means mounted at the other end of said table surface, said restraining structure having a standard portion projecting upwardly from the table surface and an upright equalizer bar portion pivotally mounted intermediate its ends to said standard portion and pivotable about a horizontal axis extending transversely of the table surface, a pair of opposed arm anchor members having portions at one end adapted to fit under the arms

of a user adjacent his shoulders and each secured at their other ends to one end of said equalizer bar portion, neck yoke means and means connecting said neck yoke means to the other end of said equalizer bar portion, means for fixing said equalizer bar portion relative to said standard portion in an upright position, said means comprising a rigid locking link pivoted adjacent one end to one of said portions and catch means mounted on the other of said portions, said locking link having means adjacent its other end engageable with said catch means to secure the link and said other portion, and means for moving said feet retaining means longitudinally of said table surface relative to said shoulder restraining structure.

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