Oct. 21, 1958 L. L. MACK 2,856,917

MACHINES FOR CORRECTION OF POSTURE AND NORMALIZATION OF WEIGHT

Filed Sept. 1, 1955 2 Sheets-Sheet 1

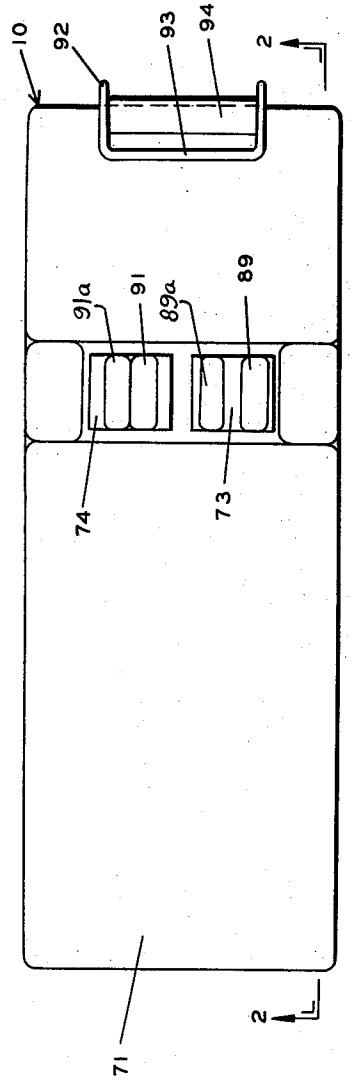


FIG. 1

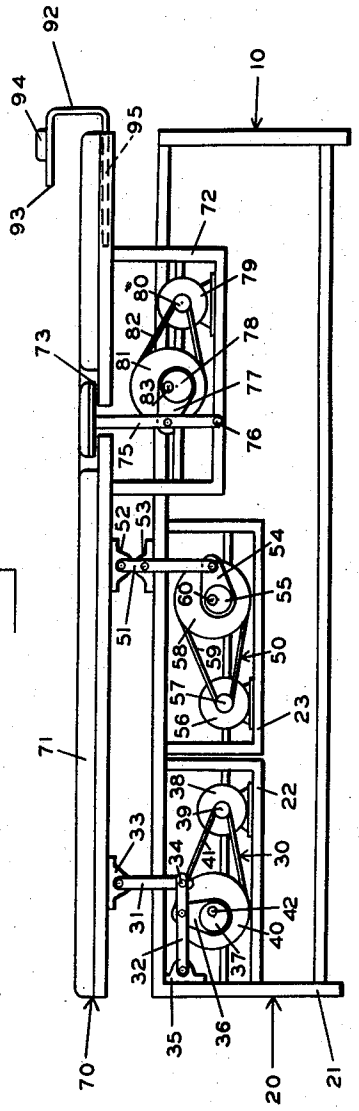


FIG. 2

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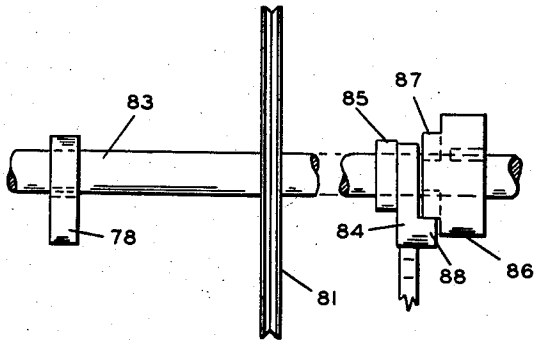


Fig. 3

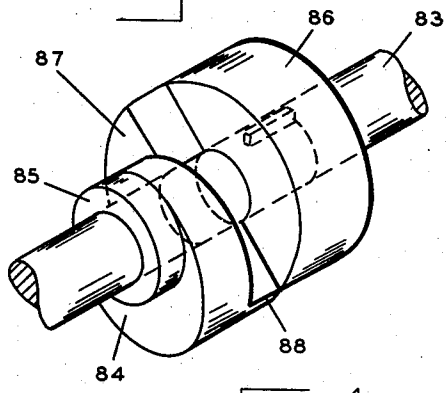


Fig. 4

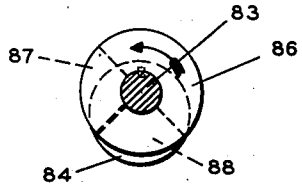


Fig. 5

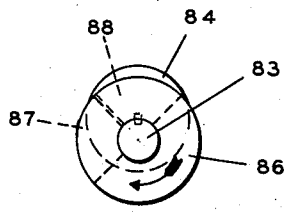


Fig. 6

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MACHINES FOR CORRECTION OF POSTURE AND NORMALIZATION OF WEIGHT

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Application September 1, 1955, Serial No. 531,946
4 Claims. (Cl. 128—33)

The invention disclosed in this application relates to machines and particularly to machines for the correction of posture and normalization of weight.

An object of my invention is to provide an improved machine for the correction of posture and normalization of weight.

Features of my invention include: the provision of a main frame together with a floating frame the latter having a platform similar to a table or couch and means for oscillating the floating frame and platform as a unit, either substantially longitudinally or with a rocking motion; a provision in connection with the floating frame of a pair of oscillating body contacting paddles movable relative to the floating frame; the provision of means by which two eccentrics automatically operate in phase when their associated motor is turning in one direction and operate 180° out of phase when their associated motor is driving in the opposite direction; and a provision by which the contacting pad members associated with the body contacting paddles may be spread or pushed together in order to become adjusted for the comfort of the patient.

Other objects and features of my invention will become apparent from a reading of the following specification and claims when taken in connection with the accompanying drawings which illustrate an embodiment of my invention.

In the drawings:

Fig. 1 is a plan view of a machine illustrating my invention;

Fig. 2 is a somewhat schematic view in side elevation of the machine of Fig. 1 having panels, etc. removed for clarity;

Fig. 3 is a fragmentary view in elevation of one of the driving shafts of the machine of Fig. 1 and showing also the associated parts including a driven pulley mounted thereon and cams also mounted thereon;

Fig. 4 is a fragmentary view in perspective of one of the cams of Fig. 3 and of the driver therefor;

Fig. 5 is a more or less diagrammatic view in end elevation of (1) the driving shaft of Fig. 3, (2) one of the cams, and (3) the driver therefor as the parts are arranged when the shaft is turning in a counterclockwise direction; and

Fig. 6 is a view similar to Fig. 5 but showing the driving shaft, the driver and the cam turning in a clockwise direction.

Referring first to Figs. 1 and 2, we see that there is shown an exercise table generally designated 10 comprising a main frame 20 and a floating frame 70. The floating frame 70 is supported by the main frame 20 in such a manner that it is movable relative thereto. The main frame 20 consists of two generally rectangular side frames such as 21 connected by lateral members, not shown, and thus comprises a generally rectangular body. Within the main frame 20, securely attached thereto, and forming a part thereof, are two auxiliary support frames 22 and 23, also comprising generally rectangular bodies which support rocking means 30 and oscillating means 50, respectively. The rocking means 30 and the oscillating means 50 connect the floating frame 70 to the main frame 20. The floating frame 70 comprises a generally horizontal, upholstered, flat platform 71 having a suspended auxiliary support frame or cradle 72 consisting of a generally rectangular body, securely attached thereto and carried thereby.

The oscillating means 50 includes a lever arm 51. The lever 51 is connected to and supports the floating frame 70, at one point. The arm 51 is pivotally connected at its upper end to the platform 71 by means of a bearing 52 and is pivotally connected at an intermediate point to the main frame 20 by means of a bearing 53. The lower end of arm 51 is pivotally connected by means of a generally horizontal link 54 to an eccentric 55 which is rotatably driven by an electric motor 56, by means of a pulley 57, a belt 59 and a pulley 58 (rotatably mounted at 60). When the motor 56 is running, the eccentric 55 rotates about point 60 causing the link 54 to oscillate in a generally horizontal direction, which oscillation is transmitted through arm 51 to the floating frame 70.

The rocking means 30 includes a generally vertical arm 31. The arm 31 is connected to and supports the floating frame 70, said arm 31 being pivoted on a generally horizontal arm 32. Arm 31 is pivotally connected at its upper end to the platform 71 by means of a bearing 33 and is pivotally connected at its lower end to one end of arm 32, as at 34. The end of arm 32 opposite to the end connected to arm 31 is pivotally connected to the main frame 20 by means of a bearing 35. The arm 32 is pivotally connected, by means of a generally vertical link 36, to an eccentric 37, which is rotatably driven by an electric motor 38 by means of a pulley 39, a belt 41 and a pulley 40 (rotatably mounted at 42). When the motor 38 is running the eccentric 37 rotates about the point 42 causink link 36 to oscillate in a generally vertical direction, which oscillation is transmitted through arms 32 and 31 to the floating frame 70.

It is thus seen that the floating frame 70 may be oscillated longitudinally in a horizontal plane by oscillating means 50 and rocked about bearing 52 by rocking means 30 either independently or concurrently.

It is to be understood that the rocking means 30 and oscillating means 50 may be arranged in any desired relationship to each other so that the floating frame 70 may be supported at any desired combination of two points. Thus the center of rotation of the rocking imparted to the platform 71 may be repositioned if desired and is not restricted to the center of the platform 70 as it is actually shown in Fig. 1.

It is also to be understood that other means for rocking or vertically oscillating the floating frame 70 may be used, and that my invention is not restricted to the means illustrated in Fig. 2 for accomplishing this rocking or vertical oscillation. For example, means which would move both the floating frame 70 and main frame 20 as a unit in rocking or vertical oscillation relative to the floor, may be used in place of means 30.

Still referring to Figs. 1 and 2, it is seen that the platform 71 is provided with two laterally disposed paddles 73 and 74, each pivotally supported by cradle 72 so that the paddles may be oscillated longitudinally relative to the platform 71 in two different combinations of movement regardless of whether the floating frame 70 is stationary relative to the main frame 20 or not.

By way of example, the paddle 73 is carried at the top of a lever 75 which is pivotally connected at its lower end to cradle 72 as at 76. The lever 75 is pivotally connected by means of a generally horizontal link 77 to an eccentric 78 which is rotatably driven by an electric motor 79 by means of a pulley 80, a belt 82 and a pulley 81. Referring also to Figs. 3, 4, 5 and 6, as well as to Fig. 2, it may be seen that the pulley 81 is carried on a shaft 83 which not only carires the eccentric 78 previously referred to but also carries a second eccentric 84.

The eccentric 78 is secured to shaft 83 for rotation therewith so that when the motor 79 is running it rotates about the center of rotation of shaft 83 causing link 77 to oscillate in a generally horizontal direction which oscil-

lation is transmitted through the lever **75** to the paddle **73**. The second eccentric **84** is pivotally connected to paddle **74** by means of linkage (not shown) similar to the linkage comprising the link **77** and the lever **75** by which the paddle **73** is connected to eccentric **78**. The eccentric **84** is rotatably mounted on shaft **83**. On each side of the eccentric **84** and secured to the shaft **80** for rotation therewith are a collar **85** and a drive wheel **86**. The eccentric **84** is thus disposed between the collar **85** and drive wheel **86** which thus cooperate to maintain the eccentric **84** in position on the shaft **83**. The drive wheel **86** has an axially extending lug **87** having a cross sectional shape of a 90° segment of a circle having its center at the center of rotation of shaft **83**. This lug **87** cooperates with a lug **88** formed as a part of the eccentric **84** and having a cross sectioned shape of a 90° segment of a circle having its center at the center of rotation of shaft **83**. The eccentric **78** and the drive wheel **86** are both secured to the shaft **83**, and are so mounted relative to each other so that when the motor is running counter-clockwise, the lug **87** of drive wheel **86** engages lug **88** of eccentric **84** to drive the eccentric **84** so that it transmits oscillating motion to paddle **74**, in phase with the oscillating motion transmitted to paddle **73** by eccentric **78**. When the motor turns clockwise, the lug **87** of drive wheel **86** engages lug **88** of eccentric **84** so that the oscillating motion transmitted to paddle **74** is 180° out of phase with the oscillating motion transmitted to paddle **73** by eccentric **78**.

Secured to the top of each of paddles **73** and **74** are two upholstered pads such as **89** and **89*a***, and **91** and **91*a***, respectively, and which complement the upholstery of platform **71** in completing the top surface thereof and which are laterally adjustable relative to their respective paddles and to each other. Thus they may be positioned together as the pads **91** and **91*a*** are shown or may be spaced apart as the pads **89** and **89*a*** are shown.

Removably secured to one end of the platform **71** are a grip bar and foot rest **92**, which may be readily understood by reference to Figs. 1 and 2. It may be pointed out, however, that the bar **92** is provided with a portion **93** which the patient may grip during the stretching exercise, later to be described, and is provided with an upholstered pad **94** on which the patient may at times rest his head, his feet or the lower part of his legs. The lower portion of the bar **92** (designated as **95**) is releasably and slidably secured within the platform **71** so that it may be adjusted to any desired position dependent upon the length of the patient. Thus the patient may properly be positioned on the table so that the exercise given by the paddles and the stretching operation may be most effective.

The table is useful in a variety of ways to give passive exercise, to correct the posture of patients, and to normalize the weight of such patients. It performs the functions of four or more tables similar to those which have been previously considered as desirable. For instance, it is capable of (1) oscillating rapidly longitudinally, and (2) rocking about bearing **52** to move the patient lying on the platform either back and forth or up and down and thereby to induce a healthy circulation. It is capable also (3) of giving a stretching exercise to a patient lying on the platform with the shoulders touching the upholstered paddles **73** and **74**. A similar stretching exercise (4) may be obtained with the patient lying on the platform with the thighs touching the upholstered paddles **73** and **74**. A twisting and kneading of either (5) the shoulders or (6) thighs may be similarly accomplished with the paddles **73** and **74** oscillating 180° out of phase. Other exercises may be accomplished by various other combinations of the movement.

If it is desired to give such a stretching exercise to the patient upward from the shoulders, or to massage the shoulder portion of the body, the patient may lie upon the table with the shoulders upon the upholstered paddles **73** and **74**, and grip the bar **93**. Then the motor **79** is turned on in a counter-clockwise direction with the result that the paddles **73** and **74** are oscillated in phase with each other and a beneficial stretching exercise is given to the patient. If it is desired to give a twisting exercise to the shoulders with the subject lying in the same position, the motor **79** is turned on in a clockwise direction with the result that the paddles **73** and **74** oscillate 180° out of phase with each other resulting in a massaging and twisting exercise being given which is highly beneficial. Similar exercises for the pelvic region (designed to relax tension in the entire spinal area and to free the muscles of the sacroilliac region making it easy for the patient to assume good posture) is accomplished with the patient turned in the opposite direction so that his or her feet or ankles rest upon the pad **94** and the buttocks upon paddles **73** and **74**. A healthful rocking motion may be provided by operation of the motor **38** and a healthful horizontal oscillation may be given by operation of the motor **56**.

It is to be understood that the above described embodiments of my invention is given for the purpose of illustration only and various changes from the details of the embodiment illustrated may be made without departing from the spirit and scope of the invention which is defined in the following claims.

I claim:

1. A machine for passive exercise comprising a couch-like main frame; a platform pivotally secured intermediate its opposite ends to said frame; electric motor means for oscillating said platform in a substantially horizontal plane; electric motor means for rocking said platform to and from a horizontal to a non-horizontal plane and back to a horizontal plane; a pair of pivoted levers mounted on said platform; an upholstered pad carried by each said lever; and electric motor means for oscillating said levers to oscillate said pads substantially in the plane of said platform.

2. The structure of claim 1 wherein the means for oscillating said platform in a substantially horizontal plane and the means for rocking said platform may be operated either independently or concurrently.

3. The structure of claim 1 wherein the means for oscillating the platform in a substantialy horizontal plane, the means for rocking the platform, and the means for oscillating the pads may be operated independently, concurrently or in any combination thereof.

4. A machine for passive exercise comprising a main frame having a couch-like configuration; a platform pivotally secured intermediate its opposite ends to said main frame and rotatable about a first transverse axis of said platform; means comprising a first eccentric rotatably secured to said main frame and connected to said platform adjacent one end thereof for rocking said platform about said first axis of said platform; means comprising a second eccentric rotatably secured to said main frame and connected to said platform for rotatably oscillating said platform about a transverse axis of said main frame; a pair of levers pivotally secured to said platform and rotatable about a second transverse axis of said platform; means comprising a third eccentric rotatably secured to said platform and connected to said levers for rotatably oscillating said levers about said second axis; and an upholstered pad carried by each of said levers; and separate means for driving each of said eccentrics.

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