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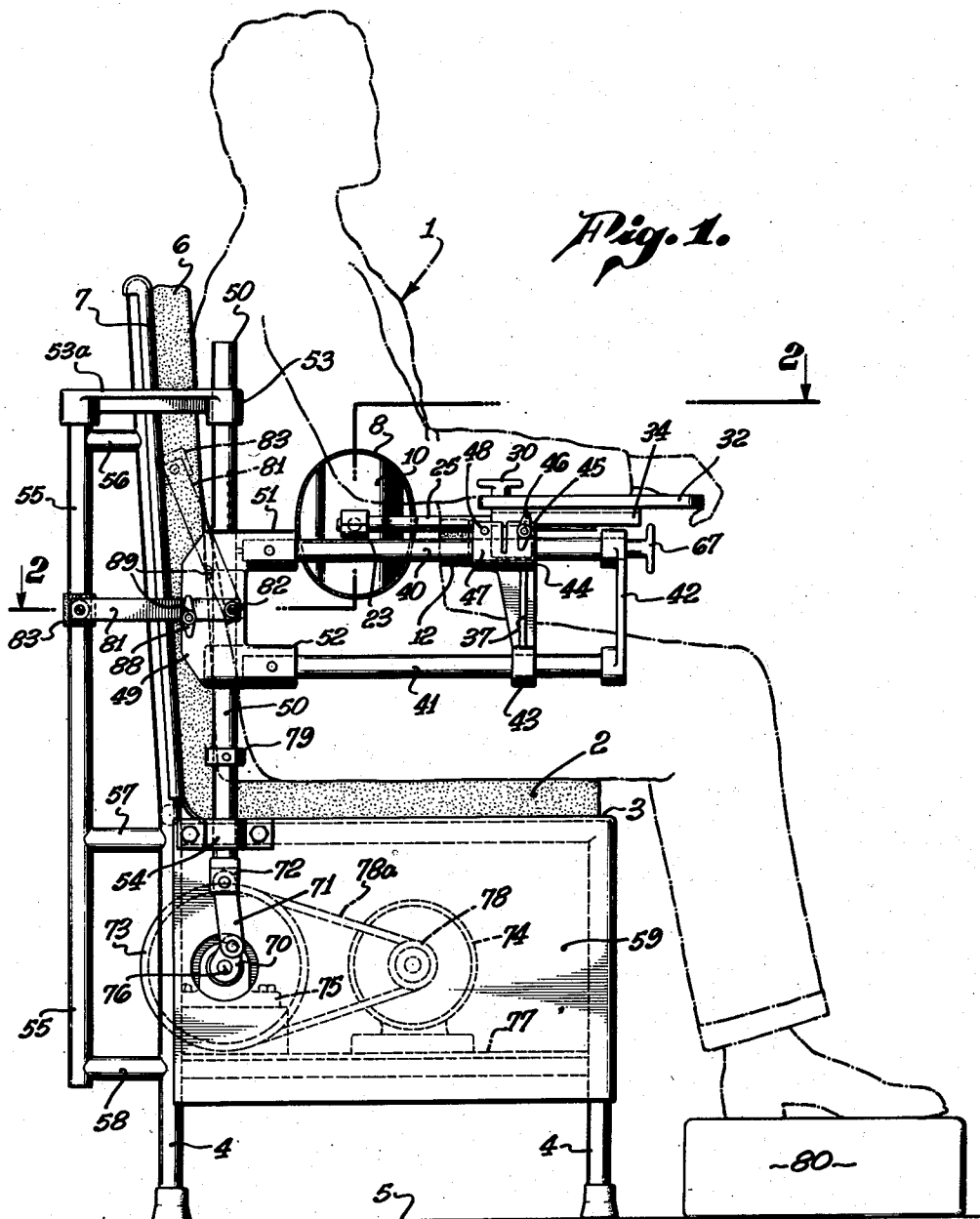
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2,644,447

POSTURE CORRECTING MACHINE

Filed Jan. 28, 1949

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

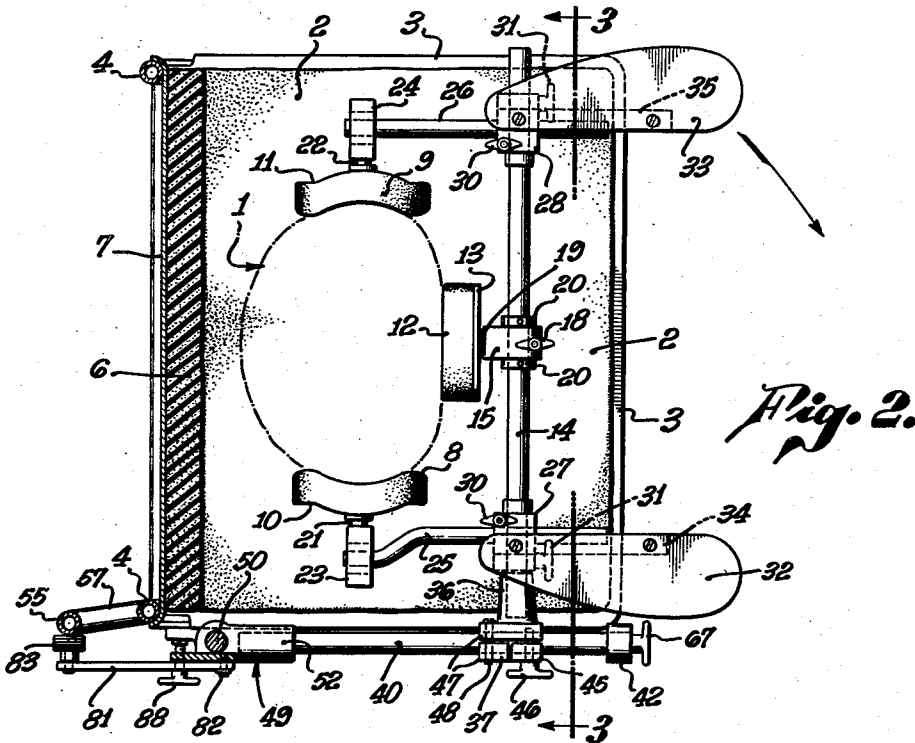


Fig. 2.

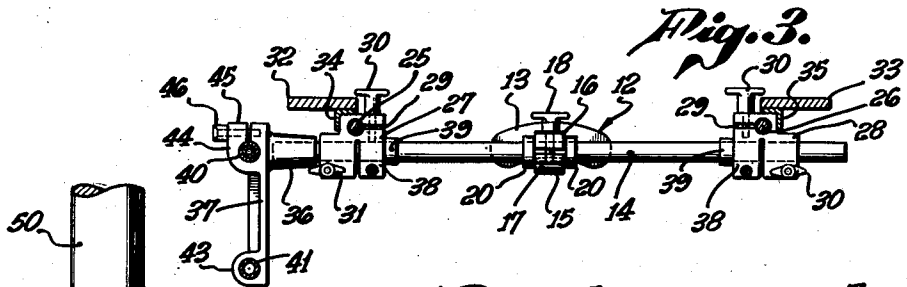


Fig. 3.

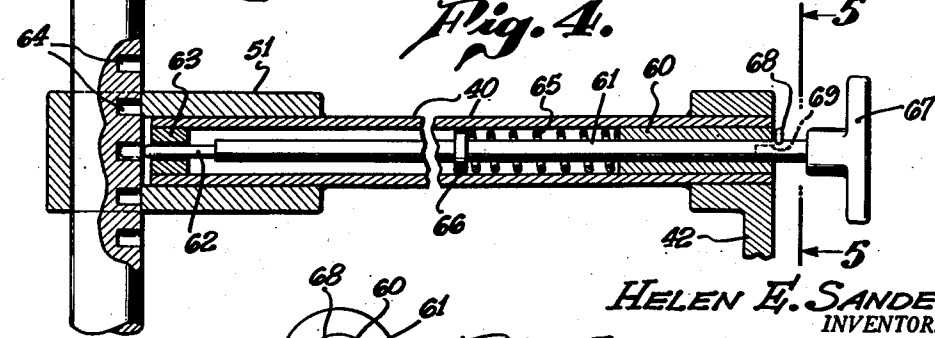


Fig. 4.

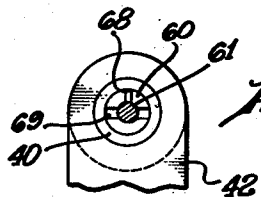


Fig. 5.

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UNITED STATES PATENT OFFICE

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POSTURE CORRECTING MACHINE

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6 Claims. (Cl. 128—52)

1

This invention relates to the correction of posture.

When a person stands erect, the weight imposed upon the spinal column usually causes the lumbar vertebrae to assume an arch, the convex part of the arch extending forwardly and producing a hollow in the posterior portion immediately above the pelvic region. Furthermore, the lower ribs sag forward; and the buttocks project to the rear.

Although such a posture (unless too pronounced) has been commonly characterized as natural or normal, yet severe muscular strain at and above the abdominal regions is produced; and the center of gravity of the body is well forward of the spinal column. Furthermore, although a pad of cartilage is located between adjacent vertebrae, such a posture disturbs the alignment of the lumbar vertebrae, and they tip away from each other. While all these are in themselves undesirable, a still more serious effect may be encountered, due to the displacement of the abdominal organs from a normally intended arrangement. And all these effects are aggravated the greater the inward curvature of the lumbar vertebrae, a condition that is often encountered.

In the erect position, it has been found that the lumbar vertebrae should be in substantial vertical alignment. In this way, the weight of the body is centered substantially along the spine, the floating ribs project horizontally, and the abdominal organs are in their intended natural positions. Muscular strain is also reduced, and the buttocks no longer project rearwardly to form an awkward and displeasing appearance.

It is one of the objects of this invention to cause proper vertical alignment of the lumbar vertebrae, and thereby to effect an improvement in posture with its attendant benefits.

Applicant has discovered that when the body is in the normal seated position, the lumbar vertebrae become substantially rectilinearly aligned, and the curve above the pelvic is greatly flattened. With the aid of this invention, the posture correction is simplified by treating the subject while in seated position. In other respects also, the treatment of the subject is rendered more effective, since muscular strains are relaxed.

It is accordingly another object of this invention to make it possible to treat the subject to correct posture while the subject is seated.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of a

2

form in which it may be embodied. This form is shown in the drawings accompanying and forming part of the present specification. It will now be described in detail, for the purpose of illustrating the general principles of the invention; but it is to be understood that such detailed description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a side elevation of the apparatus incorporating the invention;

Fig. 2 is a horizontal sectional view, taken along a plane corresponding to line 2—2 of Fig. 1;

Fig. 3 is a vertical cross section, taken along a plane corresponding to line 3—3 of Fig. 2;

Fig. 4 is a detailed, fragmentary section on a larger scale, illustrating a portion of the mechanism; and

Fig. 5 is a fragmentary vertical sectional view, taken along a plane corresponding to line 5—5 of Fig. 4.

The subject 1 to be treated is shown in phantom lines in Fig. 1. During the process of treatment, the subject 1 is seated upon a seat or cushion 2 which may be formed as a cushion resting upon a chair seat 3, of the usual form, appropriately supported, as by the legs 4, upon the floor 5.

The cushion 2 has a back portion 6 which is supported upon the back 7 of the chair structure. The cushion 2 can be made of any appropriate material, such as sponge rubber, which provides a comfortable seat for the subject 1.

When the subject 1 is properly seated on the seat 2, his back is disposed quite close to the back 6. The lumbar vertebrae, therefore, are in substantial alignment; and, furthermore, the subject 1 is in a relaxed position. In this position, the treatment for correction of posture is facilitated.

The posture correction treatment involves the use of pads 8 and 9 (Fig. 2) that may be made of soft sponge rubber attached to metal backings 10 and 11. These pads, as shown most clearly in Fig. 2, face oppositely and contact the sides of the subject 1 above the pelvic region and below the rib region. An abdominal pad 12, mounted on a metal backing 13, is adapted to contact the front of the subject 1 at the intercostal arch. This pad 12 may also be made of sponge rubber.

By the aid of the mechanism to be hereinafter described, all of these pads 8, 9 and 12 are given a lifting and lowering movement at about the rate of from sixty to seventy times a minute. This mode of treatment serves properly to align the

3

lumbar vertebrae, as well as the lower ribs. Upon repeated applications, the lumbar vertebrae remain in substantial vertical alignment, and the lower ribs extend more nearly horizontally. The posture is corrected; the center of gravity of the body then falls more nearly toward the spinal column; and the organs in the abdominal region are properly placed.

Reciprocation of the pads 8, 9 and 12 is effected in a manner now to be described.

Thus, extending across the seat 2, and near the front thereof, is a bar 14, which may be a hollow tube. The front pad 12 is mounted on bar 14 by the aid of a bracket 15 having the jaws 16 and 17 (Fig. 3) that may be clamped together by a hand screw 18 around the bar 14. This bracket has a short post 19 upon which the pad structure is supported. Collars 20 maintain the bracket 15 centrally of the bar 14.

The side pads 8 and 9 are similarly supported by the aid of posts 21 and 22 joined to brackets 23 and 24. These brackets are rigidly attached to the bars 25 and 26, extending transversely of the bar 14 and generally horizontally thereof. They are adjustably mounted rearwardly and forwardly by passing through bracket structures 27 and 28. These bracket structures are supported upon the bar 14. Each of these brackets 27 and 28 has a slot 29 communicating with the recesses through which the bars 25 and 26 pass. Accordingly, clamping hand screws 30 serve to hold the bars 25 and 26 firmly to the brackets 27 and 28. By loosening the hand screws 30, the bars 25 and 26 may be moved axially to adjust the position of the pads 8 and 9.

In order to adjust the space between the pads 8 and 9, that portion of each of the brackets 28 and 27 which projects over the bar 14 is similarly split for the clamping screws 31. Loosening the clamping screws 31 makes it possible to move the brackets 27 and 28 along the bar 14.

Arm rests 32 and 33 may also be provided above the brackets 27 and 28. For this purpose, angle irons 34 or 35 are attached to the bottom of the arm rests 32 and 33, and are also attached to the brackets 27 and 28.

The brackets 27 and 28 are each provided with a supplemental hub portion 38 having a projecting collar 39 which serves as a supplemental guide for the brackets.

The bar 14 is rigidly supported at the left-hand end, as viewed in Fig. 3, in a boss 36 that extends from a bracket 37. This bracket 37 is adjustably mounted on a pair of parallel bars 40 and 41 (which may be hollow tubes) disposed one above the other and supported in a manner to be hereinafter described. The right-hand end of these bars, as viewed in Fig. 1, is joined by another bracket 42 in order to strengthen the framework.

The bracket 37, in order that it may be guided on the bars 40—41, is provided with a lower boss 43 through which the bar 41 passes. At its upper end the bracket is provided with a wide boss 44 through which the bar 40 passes. This wide boss has a split portion 45 so as to provide clamping of the boss to the bar 40, as by the aid of the hand screw 46. By releasing the hand screw 46, the bracket 37 may be moved rearwardly or forwardly of the seat 2 to adjust the position of the pad 12. The bracket 37 is also provided with another split portion 47 through which passes a screw 48 that holds the bracket 37 in place. However, this screw 48 holds the bracket 37 in a relatively loose manner, the clamping

4

being accomplished primarily by the hand screw 46.

The entire framework, including the bars 40—41, bracket 42, and bar 14, is supported by the aid of another bracket 49. This bracket 49 is adjustably mounted, as hereinafter described, upon an upright post or rod 50. The left-hand ends of the bars 40 and 41 are fastened to the bosses 51—52 projecting from the bracket 49. The bracket 49 is appropriately apertured for the reception of the bar 50.

This bar 50 is reciprocated in a vertical direction, and is guided for its reciprocation by an upper standard 53 and a lower standard 54 (Fig. 1). The upper standard 53 is formed as a part of a stationary bracket 53a that is supported on a stationary vertical post 55. This vertical post 55 is joined, as by the aid of the horizontal struts 56, 57 and 58, to the uprights extending from the rear legs 4. The lower standard 54 is attached to a plate 59 mounted below the seat portion 3.

The manner in which the bracket 49 is adjustably mounted upon the reciprocating rod 50 may be best explained in connection with Figs. 1 and 4.

Thus, as shown most clearly in Fig. 4, the rod 40 is hollow, and is permanently joined into the boss 51 and the bracket 42. At the right-hand end of the bar 40 is a sleeve 60 permanently joined to the bar 40. This sleeve 60 serves to guide a locking rod 61 which extends through the sleeve 60, and which has a reduced portion 62 serving as a lock. This reduced portion or lock 62 is further guided by the short sleeve 63 in the left-hand end of the bar 40.

The lock 62 is adapted to be urged into any one of a number of recesses 64 that are arranged in vertical fashion along the bar 50. The lock 62 is urged to locking position by a compression spring 65 within the bar 40. The right-hand end of the spring 65 abuts the left-hand side of the sleeve 60. Its left-hand end contacts a collar 66 mounted on the locking rod 61.

The right-hand end of the rod 61 is provided with a handle 67 which may be pulled outwardly in order to disengage the lock 62 from any one of the recesses 64. It may be held in the disengaging position, as illustrated in Fig. 4, by turning the handle 67 so as to position the radial pin 68 (see also Fig. 5) against the right-hand face of the sleeve 60. When the handle 67 is turned to position radial pin 68 horizontally, it may be received in the slot 69 provided in the face of sleeve 60. In this way, the spring 65 is effective to urge the locking member 62 into engagement position.

By this means the position of the frame carrying the transverse bar 14 can be vertically adjusted with respect to the reciprocating bar 50.

This bar is reciprocated by the aid of a crank 70 and a connecting rod 71 which connects the crank 70 to a clevis 72 mounted at the lower end of the bar 50. Crank 70 is rotated by the aid of a pulley 73 operated by a small electric motor 74. The motor 74, as well as the standard 75 for the pulley shaft 76, are appropriately mounted upon a base 77 supported by the chair structure below the seat member 3. A belt 78a connects the pulley 73 of the motor with the pulley 73.

In order to permit the subject 1 to be seated without interference from the bar 14, this bar 14 and its associated framework, including the bracket 49, may be swung about the axis of rod

5

50 when the handle 67 is in the inactive position of Fig. 4. For this purpose the rod 50 is made circular. Furthermore, when the handle 67 is in the releasing position, the entire frame structure rests upon a collar 79 mounted below the bracket 49.

With the bar 14 thus moved out of the way, the subject 1 may be seated, and his feet may rest upon the hassock 80. When the patient is thus seated, the frame structure, including the bracket 49, may be moved back to active position, and the height of the frame structure may be adjusted and locked in position by turning the handle 67. In this active position, the frame structure may be maintained in locked position by the aid of an arm 81 (Figs. 1 and 2). This arm 81 is pivotally mounted upon a bolt 82 on the bracket 49; and its left-hand end carries a pad 83 contacting with the upright post 55. When the arm 81 is in the horizontal position, obviously it prevents pivotal movement of the frame. However, it may be lifted to the dot-and-dash line position of Fig. 1 to permit pivotal movement of the frame. A hand screw 88 is threaded into the bracket 49 to engage the arm 81 when it is in locking position. For this purpose, the arm 81 is provided with a notch 89 that embraces the screw 88.

Operation of the mechanism is apparent from the foregoing description. With the frame, including the bracket 49 and rod 14, swung out of the way, the subject 1 is seated in the proper position against the back rest or cushion 6. Then the frame can be swung into active position and raised or lowered to conform with the requirements of the subject 1. It may be locked in vertical position by releasing the handle 67. It may also be locked against pivotal movement about bar 50 by the aid of the lever 81. The bar 14 is then adjusted along the bars 40 and 41 by releasing the hand screw 46, so as to bring the abdominal pad 12 into proper position. The pads 8 and 9 are similarly adjusted with respect to the brackets 27 and 28 by first loosening end screws 30 and then adjusting the bars 25 or 26 within the brackets 27 or 28.

By energizing the motor 74 the bar 50 is reciprocated at the rate of between sixty and seventy times a minute. Any desired period of treatment may be used, after which the motor 74 may be deenergized and the frame structure swung out of the way.

The inventor claims:

1. In a device of the character described: a seat for an upright subject; means forming a guide transverse to the seat; a frame above the seat and guided by said means; means for cyclically reciprocating said frame; and a pair of pads facing each other and mounted on the frame for contacting the sides of the subject below the ribs.

2. In a device of the character described: a seat for a subject; means forming a guide transverse to the seat; a frame guided by said means; means for cyclically reciprocating said frame; a pair of pads mounted on the frame for contacting the sides of the subject below the ribs; and a third pad mounted on the frame for contacting the subject at the intercostal arch.

3. In a device of the character described: a

6

seat; a substantially vertically movable support; a guide for the support; means for cyclically reciprocating said support; a first bracket adjustably mounted on said support; a pair of arms extending transversely of the support and carried by the bracket; said arms extending along one side of the seat; an adjustably mounted second bracket supported on the arms; a bar supported by the second bracket and extending along the front of the seat; and a pair of pads adjustably mounted on the bar for contacting opposite sides of a subject.

4. In a device of the character described: a seat; a substantially vertically movable support; a guide for the support; means for cyclically reciprocating said support; a first bracket adjustably mounted on said support; a pair of arms extending transversely of the support and carried by the bracket; said arms extending along one side of the seat; an adjustably mounted second bracket supported on the arms; a bar supported by the second bracket and extending along the front of the seat; a pair of pads adjustably mounted on the bar for contacting opposite sides of a subject; and a supplemental pad also adjustably mounted on the bar, for contacting the intercostal arch of the subject.

5. In a device of the character described: a seat; a substantially vertically movable support; a guide for the support; means for cyclically reciprocating said support; a first bracket adjustably mounted on said support; a pair of arms extending transversely of the support and carried by the bracket; said arms extending along one side of the seat; an adjustably mounted second bracket supported on the arms; a bar supported by the second bracket and extending along the front of the seat; a plurality of rods supported adjustably by the bar and extending toward the rear of the seat; and pads mounted on the rods.

6. In a device of the character described: a seat; a substantially vertically movable support; a guide for the support; means for cyclically reciprocating said support; a first bracket adjustably mounted on said support; a pair of arms extending transversely of the support and carried by the bracket; said arms extending along one side of the seat; an adjustably mounted second bracket supported on the arms; a bar supported by the second bracket and extending along the front of the seat; a pair of rods adjustably supported by the bar and extending toward the rear of the seat; and opposed pads mounted on the rods.

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