

Oct. 30, 1956

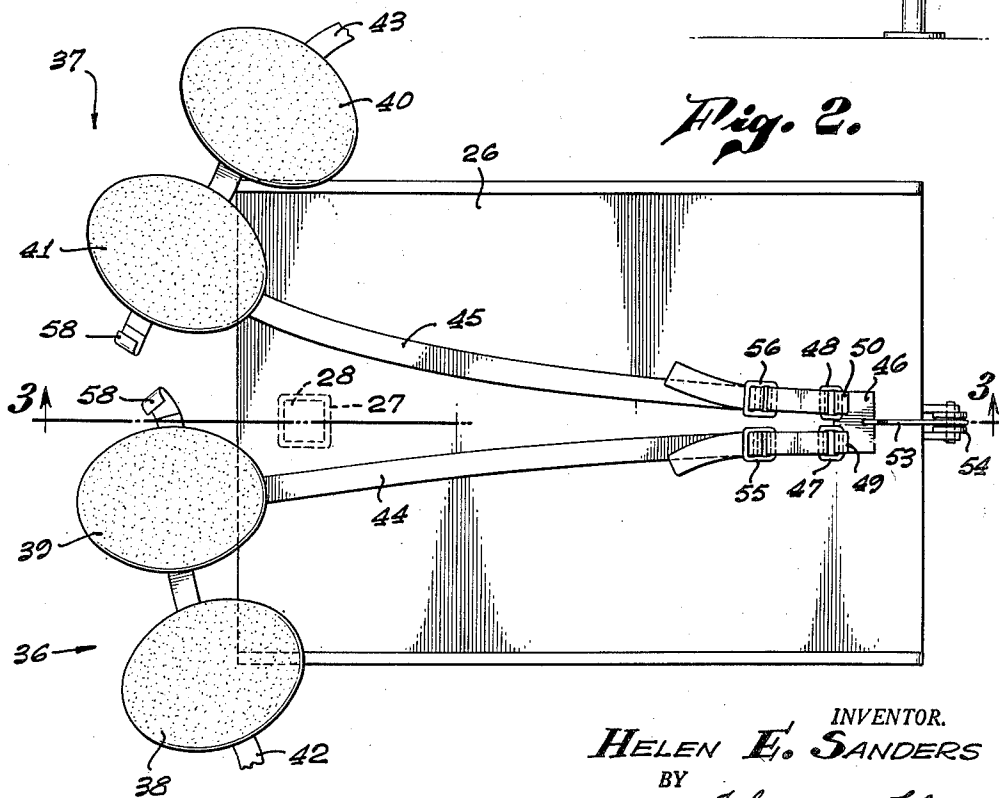
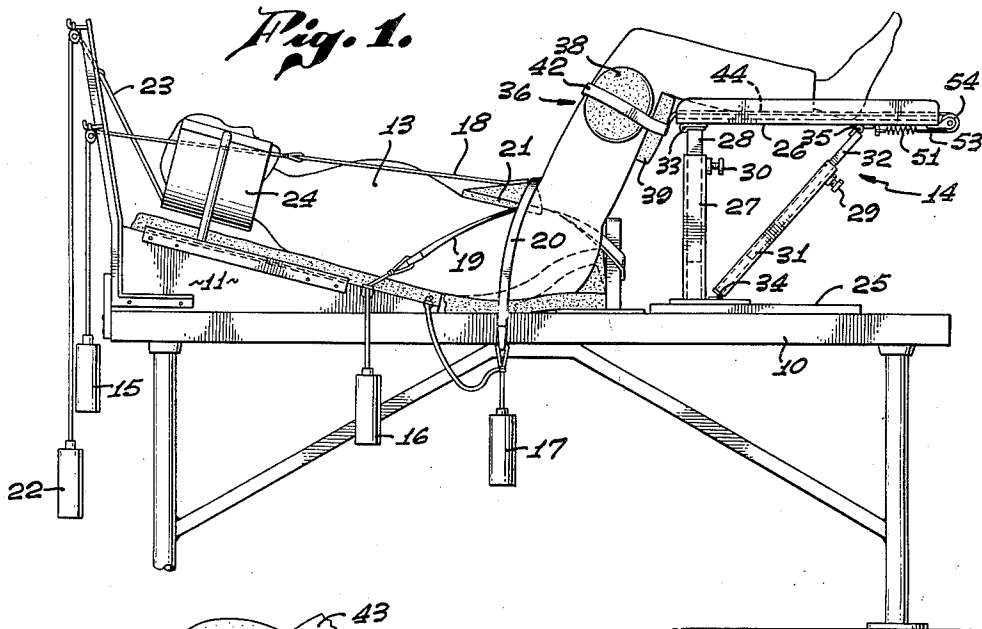
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2,768,622

LEG SUPPORT AND TRACTION MEANS

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

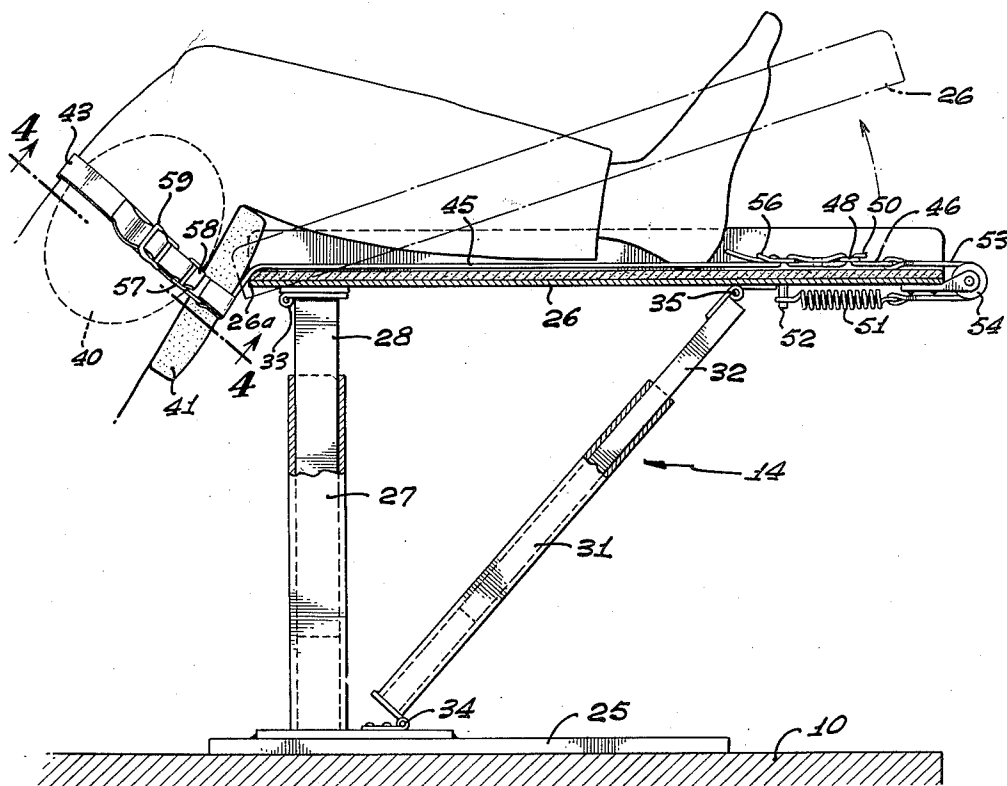


Fig. 3.

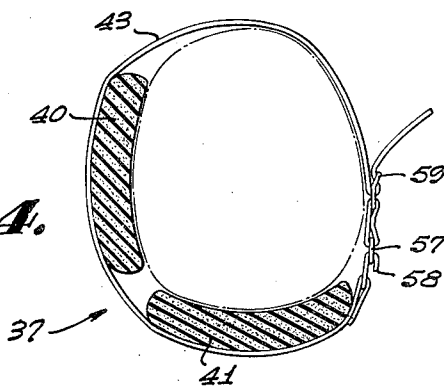


Fig. 4.

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LEG SUPPORT AND TRACTION MEANS

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2 Claims. (Cl. 128—71)

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This invention relates to posture correcting apparatus of a type shown in my copending application Serial No. 208,268, filed January 29, 1951, entitled Table With Posture Correction Apparatus, now Patent No. 2,703,080, issued March 1, 1955.

In said application there is shown apparatus for applying correction while the subject or patient is in a quiescent state, there being means for applying forces to the subject to achieve the desired correction.

It is an object of this invention to improve apparatus of this character, particularly by providing a novel support for the legs of the subject so that they may comfortably be held in proper position during correction.

It is another object of this invention to provide a leg support of this character that is easily and quickly adjustable in order to provide a support adaptable to the needs of various subjects.

It is still another object of this invention to provide, in a simple manner, for angularly moving the legs of the subject outwardly.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of one embodiment of the invention. For this purpose, there is shown a form in the drawings accompanying and forming part of the present specification. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a side elevation of an apparatus incorporating the invention, the apparatus being shown in use;

Fig. 2 is an enlarged plan view of a portion of the apparatus shown in Fig. 1;

Fig. 3 is a sectional view, taken along a plane indicated by line 3—3 of Fig. 2; and

Fig. 4 is a sectional view, taken along a plane corresponding to line 4—4 of Fig. 3.

The table 10 serves as a support for the entire apparatus. The subject 13 is placed in a reclining position upon the table 10, an inclined rest 11 on the table 10 supporting the upper part of the subject's body.

A series of weights 15, 16, and 17, acting upon a resilient pad 21 through straps 18, 19, and 20, apply desired inward and upward forces to the lower abdominal region of the subject. A weight 22, acting through a strap 23, tilts a cradle-like support 24 for the head of the subject to apply a desired force to the neck region of the subject.

A mechanism (not shown) may be provided for cyclically elevating and releasing the lumbar ribs, as described in my copending application, to achieve desired corrective effects.

In order that these corrections may be effectively applied, the body of the subject must be restrained against movement. A support 14 assists in this function, and firmly supports the legs of the subject in an elevated position.

The support 14 includes a base 25 placed upon the table top. A flat platform 26, upon which the lower leg portion of the subject may rest, is adjustably supported above the base 25.

A vertical hollow post 27, having its lower end welded or otherwise secured to the base 25, telescopically receives a bar 28 that supports the left-hand portion of the platform 26. A thumb screw 30 (Fig. 1) secures the supporting bar 28 in an adjusted position, the position of the bar 28 determining the height of the platform edge 26a above the table.

A brace of adjustable length, comprising telescoping parts 31 and 32 respectively secured to the base 25 and the right-hand portion of the platform 26, completes the support for the platform 26. A thumb screw 29 secures the parts 31 and 32 in adjusted position.

The platform 26 may move angularly about a horizontal axis in order to provide a comfortable reclining rest for the legs of the subject. To permit such movement, the supporting bar 28 is secured to the platform 26 by a hinge 33.

In order to permit the brace 31, 32 to move angularly to conform to an adjusted position of the platform 26, the ends of the brace parts 31, 32 are pivotally connected to the base 25 and the support 26. Hinges 34 and 35 are provided for this purpose.

In use, the platform edge 26a of the support falls at the region of the inside of the knee joint, the upper leg portion of the subject clearing the support, and the lower leg portion extending along the platform, with the feet of the subject resting thereon.

To restrain the legs of the subject against substantial movement, pad structures 36 and 37 are provided for each leg. Each pad structure comprises two pad elements 38, 39 and 40, 41, which may be made of sponge rubber or the like, placed respectively upon the outer and under portions of the leg just above the knee joint. Straps 42 and 43 having suitable buckle structures confine the pad elements upon the legs of the subject.

Tension straps 44, 45 are provided for each pad structure. One end of each strap connects to that element 39 and 41 of the respective pad structures placed along the under portion of the subject's legs. The other ends of the straps are detachably secured to a bracket plate 46. Metal loops 47 and 48, carried at the ends of the straps 44 and 45, may hook over returned ears 49 and 50 formed on the bracket plate 46 for this purpose.

The bracket plate 46 is urged toward the right by a tension spring 51 beneath the right-hand end of the platform 26. One end of the spring 51 is secured to a depending post 52. The other end is secured to a cord 53 that passes about a pulley 54 and that is secured to the bracket plate 46.

The bracket plate 46, which is urged toward the right, tensions the straps 44 and 45. The tension in the straps 44 and 45, acting through the pad structures 36 and 37, not only restrains the legs of the subject, but urges them angularly so that they turn outwardly. This outward rotation is due to the specific location of the pads 36 and 37, with respect to the legs of the subject.

The tension in the straps 44 and 45 normally maintains the loops seated on the ears 49 and 50. However, a simple manipulation serves to free the loops therefrom, whereby the restraint upon the legs of the subject may be quickly released.

The straps 44 and 45 are made in two parts connected together by buckles 55 and 56 so that the length of the straps may be adjusted to conform to the requirements of the subject to ensure appropriate restraint.

The straps 42 and 43 holding the pad structures upon the subject's legs may include quickly detachable ends so that the pads may be quickly released. For this pur-

pose, one end of each strap carries a loop 57 engageable with a hook 58 carried by the other end of the strap. Each of the pad straps 42 and 43 is of two-part construction, connected together by a buckle 59, whereby the effective length of the strap may be adjusted in order properly to cause the pad structures to hold the legs of the subject.

In practice, the height and inclination of the support 14 is adjusted. The pad structures are placed upon the legs of the subject, adjustment of the length of the pad straps 42 and 43 being made to ensure proper grasp of the legs. The loops 47 and 48 of the straps 44 and 45 are operatively positioned, and then the length of the straps 44 and 45 is taken up to impose appropriate tension.

After use, the straps 44 and 45 may be quickly detached to release the tension, and then the pad structures quickly detached in order completely to free the legs of the subject.

The inventor claims:

1. In posture correcting apparatus: a platform having one end over which the lower leg portions of a subject may extend, the other end of the platform forming a rest for the feet of the subject; a pair of separate pad structures respectively for each of the legs of the subject, each pad structure comprising two pads, one of which is adapted to be placed to the rear of the subject's legs above the knee joint, and the other of which is adapted to be placed at the outer side of the subject's legs, the pads of each structure being of such size and shape as to provide frictional engagement with the subject's legs; a securing strap for each pad structure and attached to the pads of each pad structure at positions spaced along the securing strap, each strap being adapted to encompass the subject's leg for holding the respective pad structures in place above the knee joints of the legs of the subject; a pair of tensioning straps adapted to extend lengthwise of the support, and secured respectively at corresponding ends to the securing straps adjacent those pads of the respective pad structure located to the rear of the subject's legs; a plate located on the platform adjacent said other end and securing the other corresponding ends of the tensioning straps adjacent each other at the plate so that, when the pad structures are in place upon the subject with the places of attachment of the tensioning straps to the securing straps to the rear of the legs, the straps converge toward each other in a direction toward said plate to impose an outward turning torque on the legs of the subject; and resilient means urging

ing the plate toward said other end of said platform to tension said tensioning straps.

2. In posture correcting apparatus: a platform having one end over which the lower leg portions of a subject may extend, the other end of the platform forming a rest for the feet of the subject; a pair of separate pad structures respectively for each of the legs of the subject, each pad structure comprising two pads, one of which is adapted to be placed to the rear of the subject's legs above the knee joint, and the other of which is adapted to be placed at the outer side of the subject's legs, the pads of each structure being of such size and shape as to provide frictional engagement with the subject's legs; a securing strap for each pad structure and attached to the pads of each pad structure at positions spaced along the securing strap for each pad structure and attached to the subject's leg for holding the respective pad structures in place above the knee joints of the legs of the subject, each securing strap being made of two parts; an adjustable buckle structure and a detachable hook fastener joining the ends of the parts of each securing strap; a pair of tensioning straps adapted to extend lengthwise of the support, and secured respectively at corresponding ends to the securing straps adjacent those pads of the respective pad structures located to the rear of the subject's legs; each tensioning strap being made of two parts joined together by a first securing means; a plate located on the platform adjacent said other end; second securing means fastening the other corresponding ends of the tensioning straps adjacent each other at the plate so that, when the pad structures are in place upon the subject with the places of attachment of the tensioning straps to the securing straps to the rear of the legs of the subject, the straps converge toward each other in a direction toward said plate to impose an outward turning torque on the legs of the subject; one of said securing means for each tensioning strap being an adjustable buckle structure, and the other of said securing means being a detachable hook structure maintained in position by tension in said tensioning strap; and resilient means urging the plate toward said other end of said platform to tension said tensioning straps.

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