April 2, 1957 W. W. WARNER 2,787,262

BODY TRACTION APPARATUS WITH AN EXTENSIBLE TABLE

Filed Jan. 26, 1953 2 Sheets-Sheet 1

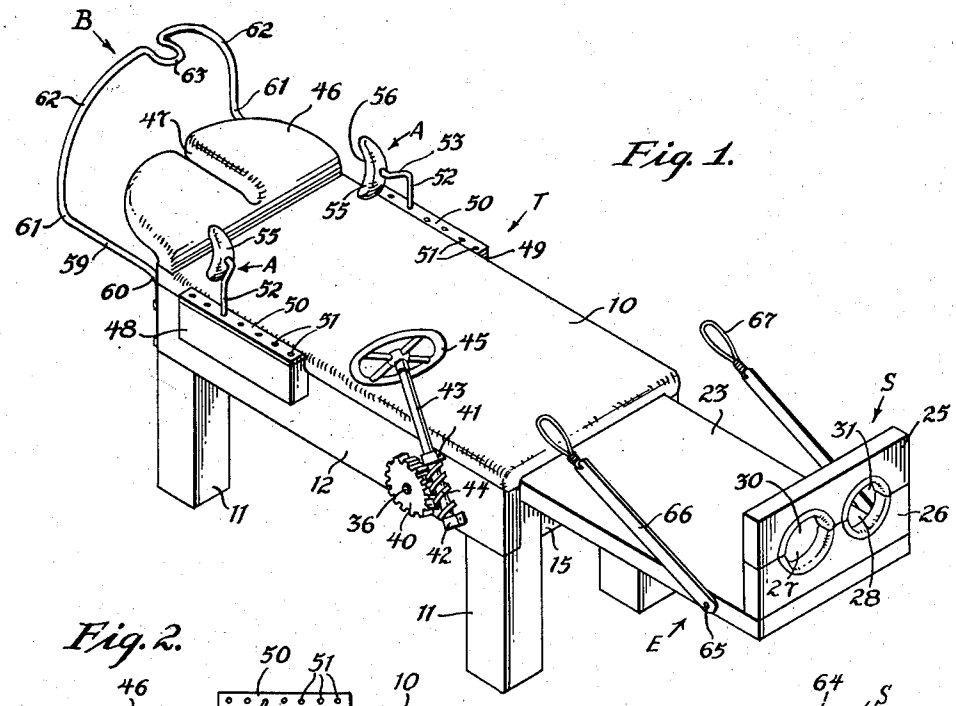
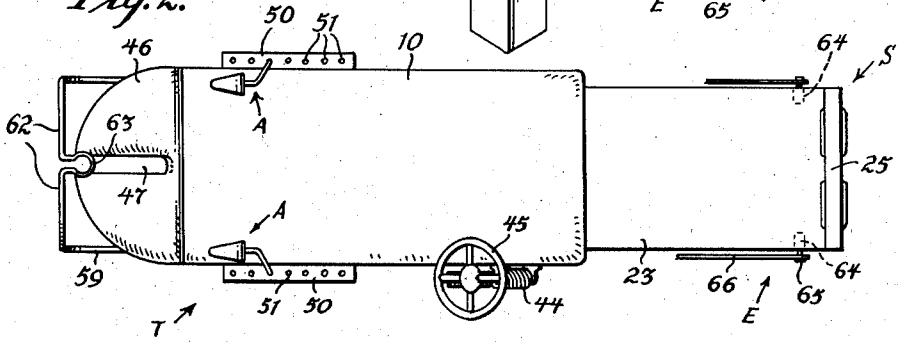


Fig. 1.

Fig. 2.



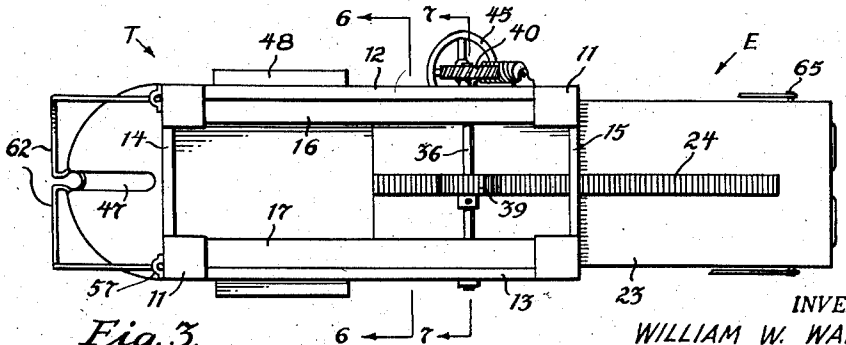


Fig. 3.

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BODY TRACTION APPARATUS WITH AN EXTENSIBLE TABLE

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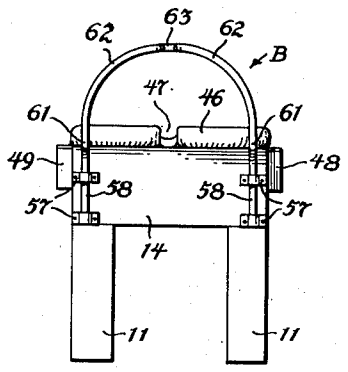


Fig. 4.

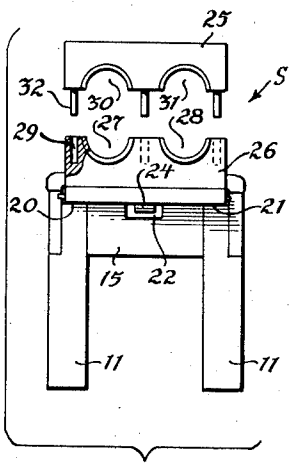


Fig. 5.

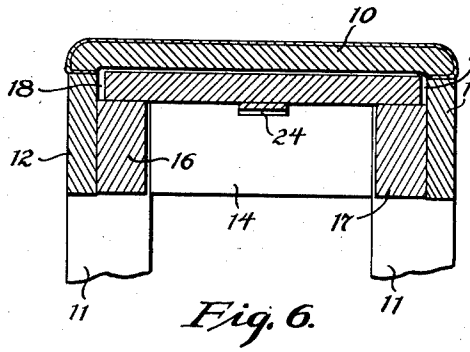


Fig. 6.

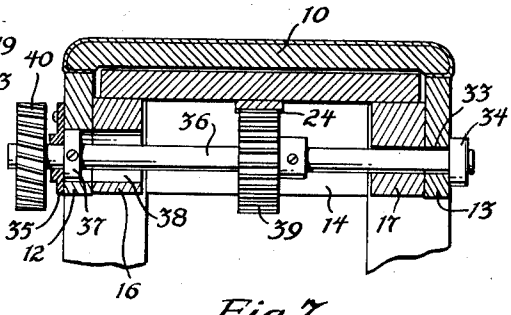


Fig. 7.

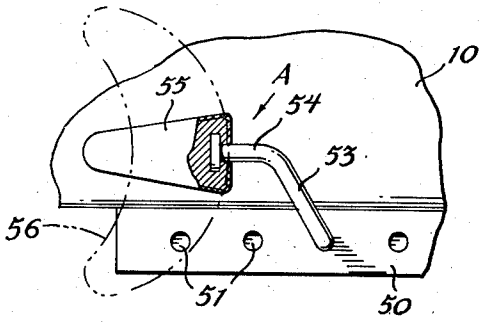


Fig. 8.

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BODY TRACTION APPARATUS WITH AN EXTENSIBLE TABLE

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Application January 26, 1953, Serial No. 333,063

3 Claims. (Cl. 128—71)

The present invention relates to body traction devices of the kind commonly employed to stretch the human body for therapeutic purposes and is concerned primarily with novel apparatus designed to give a thorough stretching of all or a part of the body under comfortable conditions.

It is now well recognized by chiropractors, osteopaths and medical men that certain human ailments, such as arthritis and lumbago may be greatly improved and, in some instances, substantially cured if the body, and particularly the spinal column, is subjected to the effects of a stretching. With this condition in mind, the present invention has in view as its foremost objective the provision of a traction device which may be employed to stretch the human body.

Under certain conditions it will be desirable to stretch that portion of the body which lies between the shoulders or armpits and the feet. Moreover, it is desirable that the feet and armpits be comfortably engaged in a positive and secure manner in order to effect the necessary stretching. Thus another highly important object of the invention is to provide, in a body traction device, armpits engaging elements and feet engaging elements which are relatively extensible, under the application of power, to achieve the desired stretching.

In carrying out this idea, a table is provided for supporting the torso of a patient and this table has an extension that is movable relative thereto. Mechanism is provided for extending this extension relative to the table under the principles of mechanical advantage. The extension has a stock for engaging the feet of a patient while the table proper is provided with means for adjustably supporting armpits engaging elements. This adjustment is important because it enables the apparatus to accommodate patients of various sizes and yet insure that the armpits are always securely engaged in a comfortable manner.

Under certain conditions, it will also be desirable to apply traction to that part of the vertebrae above the shoulders or armpits. Thus another important object of the invention is to provide, in a traction device of the character indicated, a table having an attachment which may be employed, as occasion demands, to provide an anchor for a head engaging loop. With a loop applied about the neck of a patient in engagement with his head and secured to the anchor and with the feet secured by the stock on the extension, it is evident that the latter may be extended relative to the table proper to apply traction over the entire backbone. Various detailed objects and advantages of the invention are associated with the provision of this attachment which provides the head anchor.

There are other conditions in which it will be desired to stretch the arms of a patient. Thus still another object of the invention is to provide, in a traction device of the character noted, a table extension that is adapted to have wrist anchors secured thereto. With the wrists of a patient anchored to the extension and the armpits engaged by the armpit engaging elements, it is evident

that the extending means may be operated to extend the extension and thus stretch the patient's arms.

Various other more detailed objects and advantages of the invention, such as arise in connection with carrying out the above noted ideas in a practical embodiment, will in part become apparent and in part be hereinafter stated, as the description of the invention proceeds.

The invention therefore comprises a body traction device that consists essentially of a body supporting table and an extension that is movable relative thereto under the influence of mechanism that operates on the principles of mechanical advantage. The table proper is provided with armpit engaging elements and also with an attachment that is adapted to function as a head anchor. The extension carries a stock for engaging the feet of a patient and is also adapted to have wrist anchors secured thereto. This body traction device is susceptible of operation to stretch all or certain parts of the human body as occasion demands.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings, wherein:

Figure 1 is a perspective view of a body traction device designed in accordance with the precepts of this invention.

Figure 2 is a top plan view of the apparatus illustrated in Figure 1.

Figure 3 is a bottom plan view of the apparatus.

Figure 4 is a view in end elevation, looking at the head end of the table.

Figure 5 is a view in end elevation, looking at the opposite end and showing the elements of the stock as broken away and in exploded relation.

Figure 6 is a transverse vertical section through the table taken about on the plane represented by the line 6—6 of Figure 3.

Figure 7 is another similar sectional view taken about on the plane represented by the line 7—7 of Figure 3, and

Figure 8 is a detailed top plan view taken on an enlarged scale of one of the armpit engaging elements and the table structure immediately associated therewith.

Referring now to the drawings wherein like reference characters denote corresponding parts and first, more particularly to Figures 1, 2, and 3, the body traction device of this invention is shown as comprising a table that is referred to in its entirety by the reference character T, and an extension which is identified at E. The table T is intended to support the main torso of the body of a patient while the extension E accommodates the legs.

The table T comprises an upholstered top 10 of generally rectangular formation. This top is supported at an appropriate distance from a floor or other suitable supporting surface by a structure comprising four legs 11, side pieces 12 and 13 and end pieces 14 and 15.

Extending between the legs 11 at each side and carried by the side pieces 12 and 13 in spaced relation with respect to the undersurface of the table top 10 are a pair of strips 16 and 17 which are illustrated in Figures 3, 6, and 7. These strips 16 and 17 cooperate with the side pieces 12 and 13 and the table top 10 in defining channels 18 and 19 which telescopically receive the table extension as will be later pointed out.

Referring now more particularly to Figure 5, the end piece 15 has an upper edge that is spaced from the under surface of the table top 10 a distance corresponding to the thickness of the channels 18 and 19. Moreover, the legs 11 are cut away on the inner sides to provide notches that correspond and are in alignment with the channels 18 and 19, these notches being indicated at 20 and 21. The end piece 15 is also formed with a central recess 22 that opens onto its upper edge for a purpose to be later pointed out.

The extension E comprises a main body portion 23 of

generally rectangular formation that is somewhat narrower than the table top 10 and which is slidably received in the channels 18 and 19 and the notches 20 and 21, this arrangement being accommodated by the spaced relation of the upper edge of the end member 15 with respect to the table top 10. Thus it is evident that the extension E may be moved either inwardly or outwardly as occasion demands. Upon referring to Figures 3 and 5, it will be seen that the under face of the extension carries a rack 24 which is accommodated by the recess 22 in the end piece 15.

At its free end, the extension E carries a stock S that is adapted to be engaged about the ankles of a patient. The stock S comprises two complemental, separable parts 25 and 26. The part 26 is permanently secured to the lower end of the main body part 23 in any preferred manner, and its upper edge is formed with a pair of spaced semi-circular recesses 27 and 28 the edges of which are preferably lined with upholstery. Opening into this upper edge of the part 26 at each side and between the recesses 27 and 28 are three wells 29.

The stock part 25 is separable from the part 26 and has a lower edge that is adapted to abuttingly engage the top edge of the part 26. Opening into this lower edge of the part 25 are semi-circular recesses 30 and 31 which are complemental to the recesses 27 and 28. The edges of the recesses 30 and 31 are also upholstered. The top part 25 carries three pins 32 in positions corresponding to those of the wells 29 in the part 26. These wells 29 receive the pins 32 when the stock is assembled, the relation being clearly illustrated in Figures 1 and 5. It is evident that with the top part 25 removed, the ankles of a patient may be placed in the recesses 27 and 28 after which the top part 25 is assembled by inserting the pins 32 in the wells 29 whereupon the recesses 30 and 31 complete the encompassment of the ankles to provide an effective foot engagement for traction purposes.

Referring now more particularly to Figures 3 and 7, the mechanism for moving the extension E relative to the table T by power applied under the principles of mechanical advantage will be described. The side piece 13 and strip 17 are formed with a bore 33 that is in alignment with the bore of a bearing member 34 that is secured to the outer face of the side piece 13. Another bearing member 35 is secured to the outer face of the side piece 12 and has a bore in alignment with the bore 33. A shaft 36 is journaled in the bearings 34 and 35 and held against axial movement by a collar 37 that engages the inner face of the bearing 35. This collar 37 is accommodated by aligned recess 38 formed in the side piece 12 and strip 16. Drivably carried by this shaft 36 is a pinion 39 that meshes with the rack 24. Outside the bearing 35 the shaft 36 also drivably carries a worm gear 40.

Referring now more particularly to Figure 1, a pair of brackets 41 and 42 are shown as mounted in spaced relation above and below the worm gear 40 and at one side thereof on the outer face of the side piece 12. Journaled in these brackets 41 and 42 is a shaft 43. This shaft 43 drivably carries a worm 44 that meshes with the worm gear 36. The upper end of the shaft 43 is provided with an operating member in the form of a hand wheel 45. It will be noted that the shaft 43 is inclined toward the head end of the table so that it is conveniently accessible for operation by a person resting on the table.

It is evident that the hand wheel 45 may be rotated to in turn rotate the shaft 43 and worm 44; the latter drives the worm gear 40 which action is transmitted through the shaft 36 to the pinion 39 and, as the latter is in engagement with the rack 24, rotation of the hand wheel 45 will cause movement of the extension E relative to the table T.

Above the end piece 14 the table T is provided with an upholstered headrest 46. This headrest 46 is formed with a central longitudinal slot 47 which accommodates the nose of a patient while lying face downwardly.

Spaced from the head end of the table top 10 and carried by the side pieces 12 and 13 on the outer faces thereof are two side blocks 48 and 49. These side blocks are substantial duplicates. Each of them is provided with a top bar 50 of metal and each bar 50 is formed with a series of spaced apertures 51. The blocks 48 and 49 are formed with recesses that are, in effect, continuations of the apertures 51. Each of the blocks 48 and 49 carries an armpit engaging member that is referred to in its entirety by the reference character A.

These members A are complemental to one another with the only difference in construction being that one is designed to extend inwardly over the table top from one side, while the other extends inwardly over the table top from the opposite side. Each of these members A comprises a vertical shank 52 that is designed to be detachably received in one of the apertures 51 and the recess in the block therebeneath.

Referring now more particularly to Figure 8, it will be seen that an arm 53 is integrally joined to the upper end of the shank 52 and extends inwardly over the table top 10. Integrally joined to the inner end of this arm 53 is a stub shaft 54, the free end of which is swivelly received in a crescent-shaped member 55. This crescent-shaped member 55 is upholstered to provide for a comfortable engagement with the armpit of a patient and its forward end has an arcuate recess 56, the curvature of which conforms to the curvature of the armpit.

It is evident that the shanks 52 of the elements A may be inserted in the appropriate apertures 51, depending on the size of the particular patient who is using the apparatus. Moreover this connection is a pivotal one which permits the arms 53 to be swung inwardly at a required angle. Then again, the members 55 are swivelly mounted on the stub shafts 54. Thus these members 55 may be adjusted to provide a secure and comfortable engagement with the armpits of a patient.

Referring now more particularly to Figure 4, the outer face of the end piece 14 is shown as provided with a pair of brackets 57 at each side thereof. These brackets are adapted to detachably receive the legs 58 of a bracket that is referred to in its entirety by the reference character B. The bracket B is fashioned from a metal rod having required properties of rigidity and outstanding from the upper ends of the legs 58 are a pair of arms 59 which are integally joined to the upper ends of the legs 58 as by bends at 60. These arms 59 extend outwardly in the direction of the longitudinal extent of the table T. Integrally joined to the outer ends of these arms 59, as by bends 61, are inwardly and upwardly curved members 62 which are joined by a central loop 63. It is evident that a head loop (not illustrated) may be anchored to this bracket B at the loop 63 in any preferred manner such as by a hook which will engage the loop. It is also apparent that when that portion of the patient's vertebrae above the shoulders is not to be stretched, the bracket B may be removed.

The main body portion 23 of the extension E is formed with a pair of sockets 64 which open onto the side edges thereof. Each of these sockets 64 is adapted detachably to receive a pin 65 which is carried by a strap 66. The straps 66 are intended to extend generally forwardly of the extension E and at their inner free ends carry wrist engaging loops 67. It is evident that these loops 67 may be applied about the wrists of a patient to effect an anchorage to the extension E.

Operation

While the manner of using the body traction device of this invention is believed to be obvious from the illustrations of the drawings and description of the parts given, it may be briefly outlined as follows:

Assume first that it is desired to apply traction to the body of a patient only between the feet and the shoulders. Under this mode of usage the bracket B will be omitted as well as the straps 66. The top part 25 of the

stock S is removed and the patient is placed on the table T. The ankles are then placed in the recesses **27** and **28** of the lower stock parts **26**, after which the top stock part **25** is assembled to complete the foot anchorage. The members **55** of the armpit engaging elements A are now placed in engagement with the armpits of the patient. If a chiropractor, doctor or other attendant is aiding the patient, this positioning and adjustment of the elements A may be accomplished after the patient assumes his position on the table. If the patient is using the device unaided, he will ordinarily position the elements A in the proper apertures **51** before getting onto the table.

With the feet engaged in the stock S and the armpits by the elements A, the hand wheel **45** is rotated to move the extension E under power with the mechanical advantage afforded by the worm gear mechanism. This operation is continued until the desired degree of stretching is achieved. The patient may remain in this stretched condition for an appropriate period after which the hand wheel **45** is rotated in a reverse direction to relieve the traction and pemit the patient to leave the table.

The arms may be put in traction or stretched by employing the armpit engaging elements as above mentioned in conjunction with the straps **66** and wrist loops **67**. This stretching or traction of the arms may be carried out either with or without use of the stock S.

When it is desired that portion of the vertebrae above the shoulders also be placed in traction, the bracket B is assembled in the manner illustrated and a head engaging loop anchored thereto. The hand wheel **45** is now operated in the manner above described to extend the extension E and apply the desired traction to the vertebrae.

The traction device of this invention can be used to facilitate, with greater ease to the operator, the manipulation of the vertebrae of the spinal column, because the traction has a relaxing effect on the muscles, tendons, etc., making it highly attractive to chiropractors who often have patients who hold themselves tense and rigid.

While a certain preferred embodiment of the invention is hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact constructions, mechanisms and designs illustrated and described because various modifications of the details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. In body traction apparatus, a table, an extension carried by said table and movable relative thereto, a head rest on said table remote from said extension and having a central longitudinal slot therein to accommodate the nose of a patient, a foot stock at one end of said extension, a pair of armpit engaging elements adjustably mounted at the opposite sides of said table, and mechanism for moving said extension relative to said table by power applied under the principles of mechanical advantage, said mechanism comprising a shaft journaled in said table, a worm gear drivably carried by said shaft, a worm engaging said worm gear, a hand wheel operatively connected to said worm, a pinion drivably mounted on said shaft and a rack on said extension in engagement with said pinion.

2. In body traction apparatus, a table, an extension slidably carried by said table at one end thereof, a head rest at the other end of said table, the said head rest having a central longitudinal slot to accommodate the nose of a patient, a foot stock at the free end of said extension, a pair of armpit engaging elements carried by the table at opposite sides thereof, each of said elements comprising a shank removably and pivotally mounted on said table, an arm extending inwardly from the upper end of said shank, a stub shaft at the inner end of said element and a crescent-shaped member swivelly mounted on said stub shaft and mechanism for moving said extension relative to said table by power applied under the principles of mechanical advantage, said mechanism comprising a shaft journaled in said table, a worm gear drivably carried by said shaft, a worm engaging said worm gear, a hand wheel operatively connected to said worm, a pinion drivably mounted on said shaft and a rack on said extension in engagement with said pinion.

3. In body traction apparatus, a table, an extension slidably carried by said table, mechanism for moving said extension relative to said table by power applied under the principles of mechanical advantage, a foot stock at the free end of said extension, a head anchor detachably carried by said table at the end remote from said extension, said head anchor comprising a bracket having a pair of legs detachably secured to said table at the end thereof, a pair of outwardly extending arms integrally joined to said legs, upwardly and inwardly curved members integrally joined to said arms and a central loop integrally joined to said curved members, and a head rest on said table adjacent to said head anchor, the said head rest having a central longitudinal slot to accommodate the nose of a patient.

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