Nov. 9, 1954 W. S. WARNER 2,693,796

SPINAL TRACTION TABLE

Filed April 24, 1953 2 Sheets-Sheet 1

Fig. 1

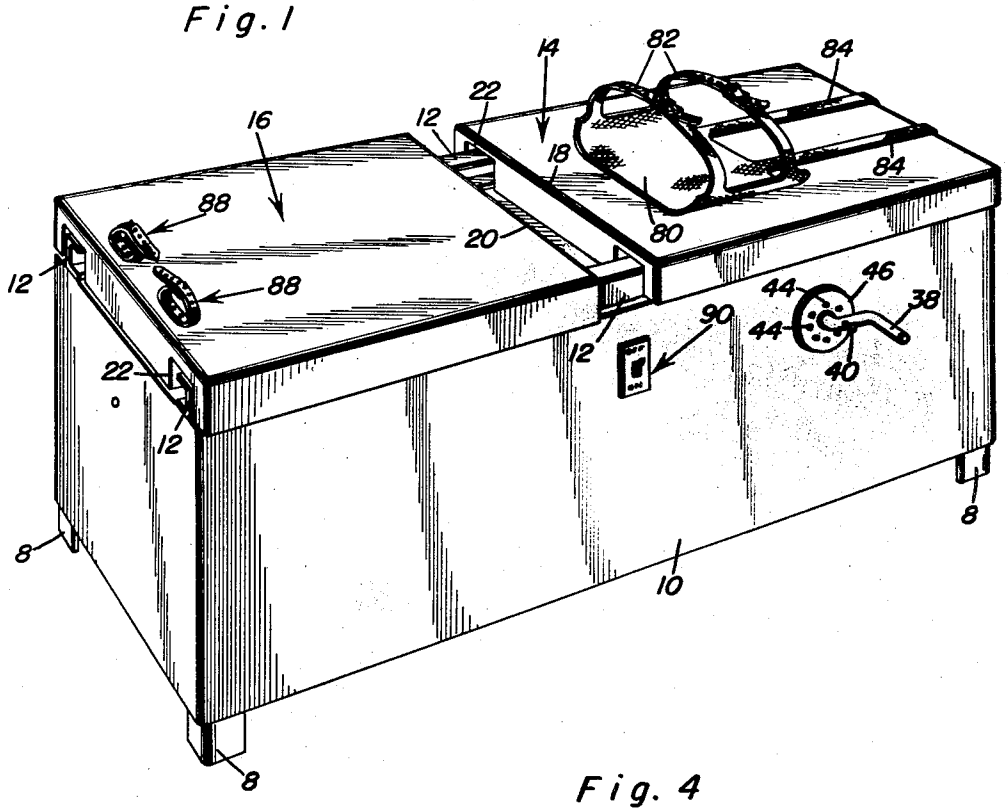
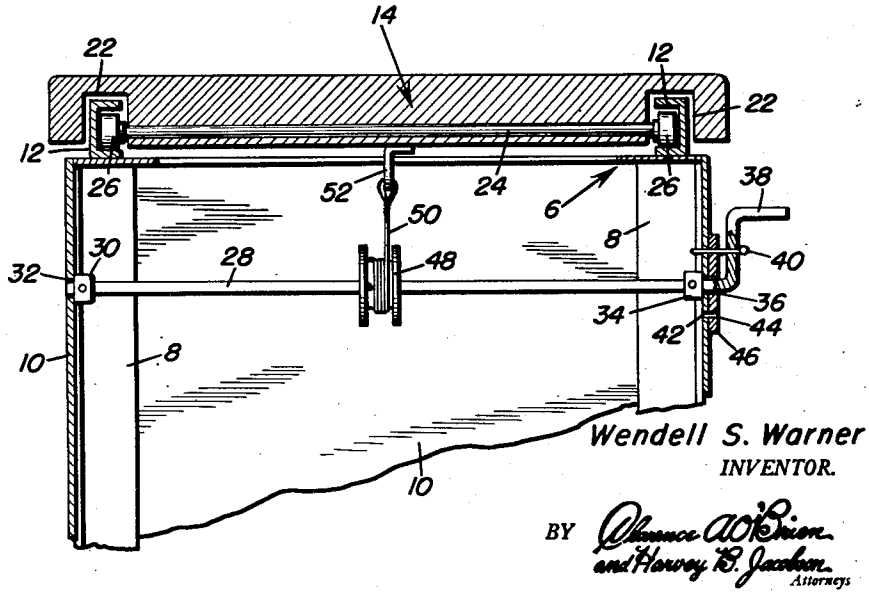


Fig. 4



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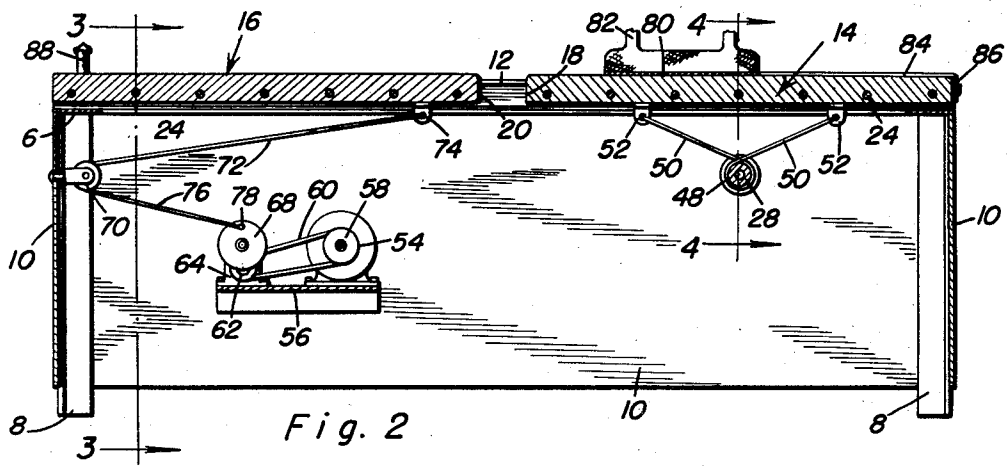


Fig. 2

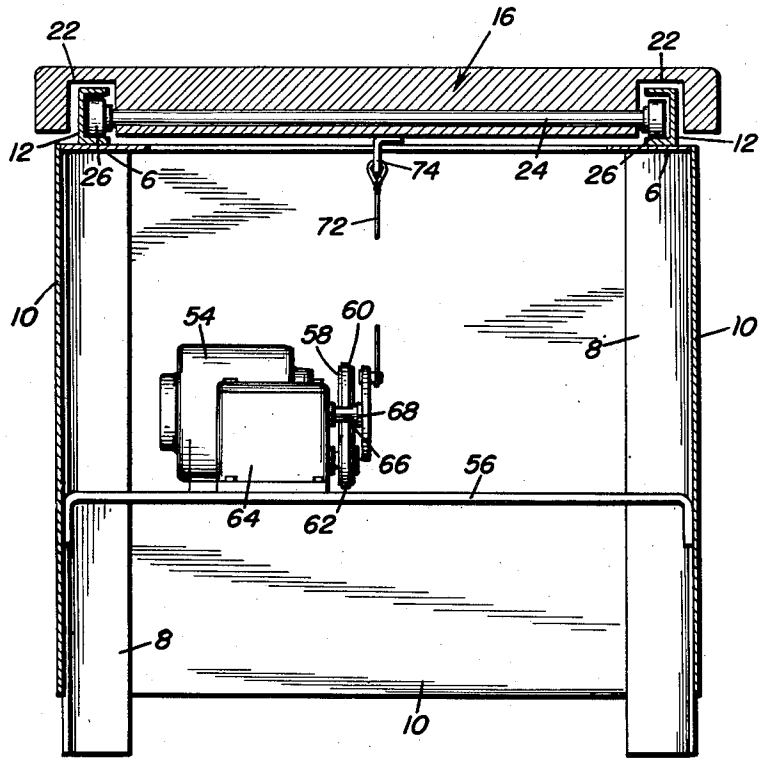


Fig. 3

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SPINAL TRACTION TABLE

Wendell S. Warner, Idaho Falls, Idaho

Application April 24, 1953, Serial No. 350,920

4 Claims. (Cl. 128—33)

The present invention relates to certain new and useful improvements in an apparatus for treating and relieving certain spinal disorders and which is herein referred to, generally speaking, as a spinal traction table.

As persons skilled in the art will comprehensively understand, the invention, more specifically stated, has to do with the utilization of a novel table equipped with mechanical means through the medium of which intermittent traction and release of the lower extremities exert traction action on the lumbar and dorsal spinal segments in a manner to separate the vertebra. This application of intermittent traction to the human spine permits treatment of the patient while assuming a prone or supine position on the table, as called for in specific and individualized therapy.

It is an object of the invention to structurally, functionally and otherwise improve upon similarly constructed and performing traction tables and the like and to provide, in a unified structural apparatus, practical and feasible means insuring efficacious results.

Briefly summarized the preferred embodiment of the invention is characterized by a table structure embodying a relatively stationary leg supported frame, a sectional top on which the patient is placed prone or supine for individualized therapy, there being a body support section and a limb support section, the adjacent ends of said sections being spaced apart, said sections being individually movable on said frame, means for fixing said body section in a predetermined adjusted position, and means for causing intermittent rhythmic movement of said limb section relative to said body section and said frame.

A further improvement has to do with the combination with the above of a body harness which is carried by the body section and complemental ankle cuffs carried by the limb section, the harness preferably comprising a strap-equipped chest embracing garment or vest which is not directly attached to the body section but which is provided with at least two additional flexible elongated anchoring straps secured only at their outer ends to the body section, this in order that the harness may shift slightly, as required, during spinal traction accomplishments.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying sheets of drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a perspective view of a spinal traction table constructed in accordance with the principles of the present invention;

Figure 2 is a central longitudinal sectional view of the same with portions appearing in elevation;

Figure 3 is an enlarged sectional and elevational view with the section taken on the vertical line 3—3 of Figure 2, looking in the direction of the arrows (harness omitted); and

Figure 4 is an enlarged fragmentary sectional and elevational view taken on the vertical line 4—4 of Figure 2 looking in the direction of the arrows (harness omitted).

Referring now to the drawings with the assistance of reference numerals and accompanying lead lines it will be seen that the horizontal table support frame is denoted by the numeral 6. It is supported on appropriate floor contacting vertical legs 8 arranged at the respective corner portions of the frame. An enclosing wall or shield for the legs is provided and this is denoted by the numeral 10. Spaced parallel channel shaped tracks 12—12 are fixed to and supported atop the frame 6. The top of the table

is made up of two sections each of which is of suitable construction and preferably flat surfaced. The head or body section is denoted by the numeral 14 and the foot or so-called limb support section is denoted at 16. The respective adjacent ends 18 and 20 are spaced apart in the manner shown. Therefore, the sections are selectively and individually adjustable relative to each other and to the frame. Both sections have channel-like grooves 22 in their undersides which serve to accommodate the respective tracks 12—12. Transversely disposed longitudinally spaced shafts or rods 24 are mounted in the bottom side of each section and these are provided on their ends with freely turnable rollers 26—26 which are confined in the channel of the tracks to roll back and forth and to permit free shifting, moving and adjusting of the sections 14 and 16. The section 14 is adjustable and locked in its adjusted position so that it stays in a given position. To accomplish this I provide a shaft 28 (see Fig. 4) and this is horizontally disposed within the framework and has one end provided with a collar 30 and journaled in a bearing in the vertical side wall as shown at 32. There is a similar collar 34 on the other end and appropriate bearing means 36. This end is provided with a hand crank 38 carrying a pin 40 which is engageable in the keeper holes 42 and 44, respectively, to lock the shaft 28 against rotation in a predetermined manner and position. The keeper holes 42 are formed in the adjacent wall and a reinforcing disk or plate is provided as at 46 to stabilize the construction. The keeper pin 40 is removably attached to the hand crank and operates in a manner evidenced by comparing Figures 1 and 4 with each other. There is a drum 48 fixed to the central portion of the shaft and a cable 50 is wound thereon, one end of the table being fixed to a bracket 52 carried by the underside of the section 14. It will be clear then how this particular section is adjusted and set in a predetermined or given position.

The means for reciprocating and applying the desired intermittent action to the section 16 comprises a prime mover 54 which is preferably in the form of an electric motor supported on a fixedly mounted shelf 56. The motor shaft is provided with a pulley 58 to drive an endless motion transmitting belt 60. The belt is also operatively connected with a smaller pulley 62 which is operatively mounted in a gearing speed reduction box 64 (not detailed). The gearing in this box operates a turnable shaft 66 carrying a disk 68. There is a pulley 70 (see Figure 2) mounted on one end wall and this serves to accommodate a flexible cable 72. The cable has its intermediate portion trained over the pulley and one end secured to a bracket 74 carried by the underside of the reciprocable section 16. The other end portion 76 of the cable is eccentrically attached as at 78 to the motion transmitting disk or plate 68.

The patient hold-down means is characterized by a body encircling belt or the like which may be referred to as a sort of a harness or vest, the same being denoted at 80. This is best shown in Figure 1 where it will be seen that it is provided with flexible buckle-equipped retaining straps 82. It is to be noted that the harness is not fastened down on the table. It is loose to move in whatever manner necessary and it is provided with a pair of elongate flexible straps 84—84 which are fastened as at 86 at their outer ends only. This provides the desired freedom of movement for the otherwise harnessed patient. At the other end, the section 16, I provide ankle cuffs 88—88.

During the course of use or operation the patient's ankles are fastened by way of the ankle cuffs 88—88 to the left hand end of the intermittently slidable or reciprocating limb section 16 and the patient's chest is held firmly to the body section 14 by way of the shiftable vest or harness 80. The switch 90 is turned "on" and the motor is brought into play and by means of the belt and pulley and plate assembly, the cable 72 is operated, resulting in intermittent traction and release of the lower extremities and the exertion of the desired traction action on the lumbar and dorsal spinal segments with separation of the vertebra. The machine is geared so that there are approximately 20 tractions per minute. As before stated the patient may be treated while prone or supine

which is important for specific and individualized therapy, as may well be appreciated.

It is believed that the description taken in conjunction with the drawings will be sufficient to enable the reader to obtain a clear and comprehensive understanding of the construction and mode of operation. A more lengthy description is, therefore, thought to be unnecessary.

What is claimed as new is as follows:

1. A spinal traction apparatus comprising a relatively stationary leg supported frame, a sectional top on which the patient is placed prone or supine for individualized therapy, there being a body support section and a limb support section, the adjacent ends of said sections being spaced apart, said sections being individually movable on said frame, tracks fixed on said frame, rollers carried by said sections and confined and freely rollable along said tracks, manually regulable adjusting and fastening means supported from said frame for adjusting and locking said body section in a predetermined manner, a prime mover, and an operating connection between said prime mover and limb section.

2. The structure defined in claim 1 wherein said prime mover is in the form of an electric motor, said operating connection comprising a fixed pulley, a cable trained over the pulley and connected at one end to said limb section, and a plate driven by said motor, the other end of said cable being eccentrically connected to said plate.

3. The structure defined in claim 2 wherein said manually regulable adjusting and fastening means comprises a shaft rotatably mounted on said leg supported frame, said shaft being provided at one end with a hand crank, keeper holes adjacent to said hand crank, an insertable and removable keeper pin carried by said hand crank and cooperable with said keeper holes for locking the shaft against rotation, a drum fixed on said shaft, a bracket fixed to the underside of said body section, and a flexible cable attached at one end to said bracket and having its opposite end operatively wound on said drum.

4. A spinal traction apparatus comprising a relatively stationary leg supported frame, a sectional top on which the patient is placed prone or supine for treatment, there being a body support section and a limb support section alined and coplanar with said body support section, the adjacent ends of said sections being spaced apart, spaced parallel tracks fixedly mounted atop said frame, said sections being grooved and said tracks projecting and fitting into their respective grooves, rollers carried by the grooved portions of said sections and rollably mounted in the respective tracks, means for fixing said body section in a predetermined adjusted position on said frame, an electric motor fixedly mounted on said frame, an operating connection between said motor and limb section, a body harness carried by said body section, and complemental anchor cuffs carried by said limb section, said harness comprising a strap-equipped chest embracing vest not directly attached to said body section, said vest having additional flexible anchoring straps secured only at their outer ends to said body section, whereby said vest is free to shift relative to the body section when in use.

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