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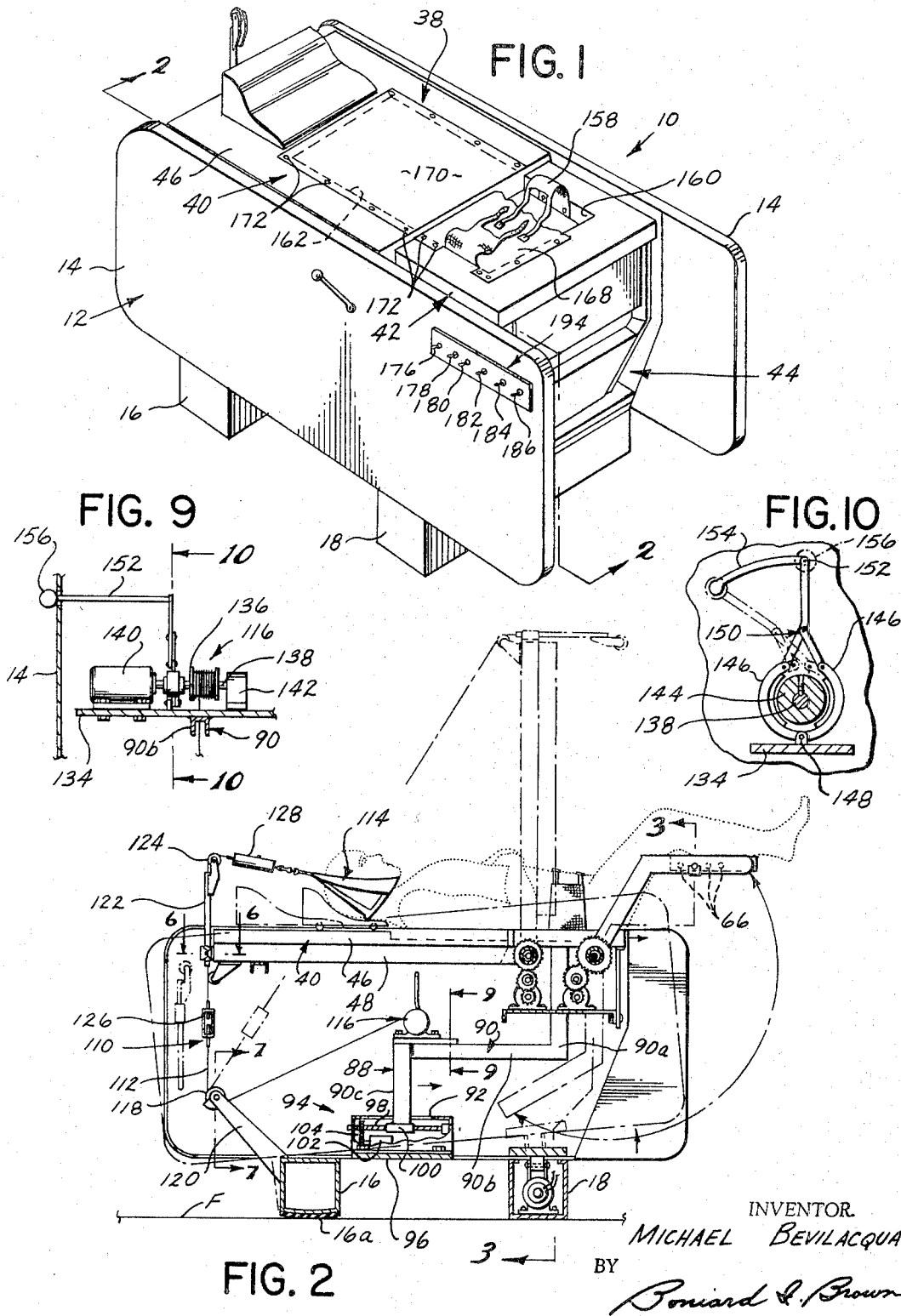
M. BEVILACQUA

3,404,679

MEDICAL THERAPY TABLE

Filed July 6, 1965

3 Sheets-Sheet 1



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MEDICAL THERAPY TABLE

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3 Sheets-Sheet 2

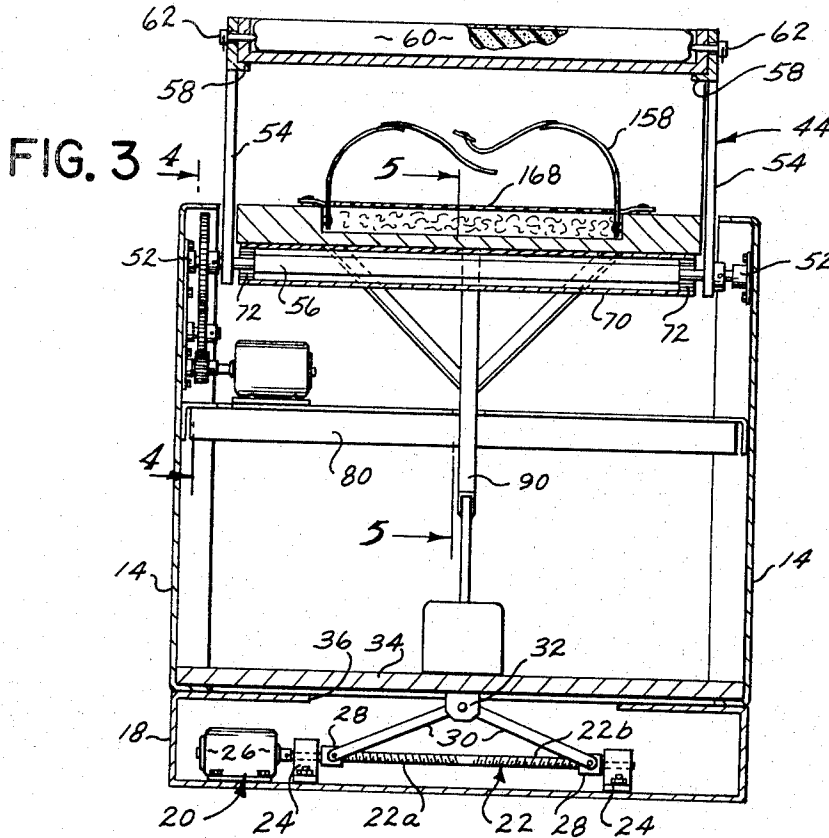
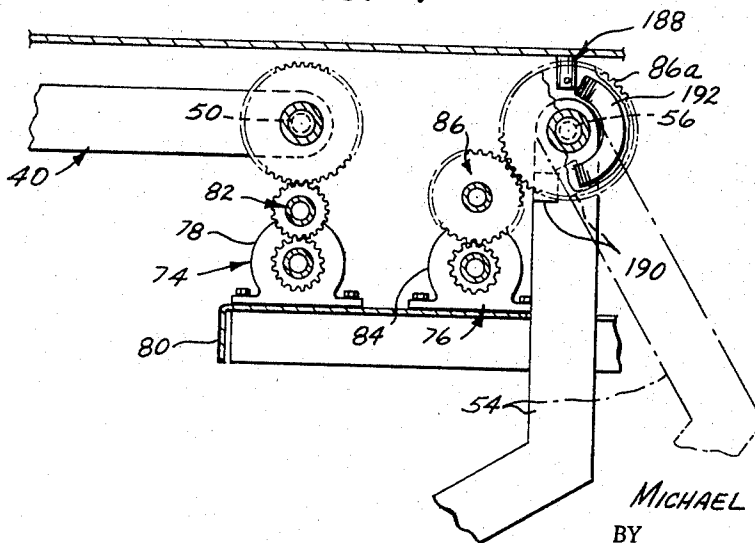


FIG. 4



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3 Sheets-Sheet 3

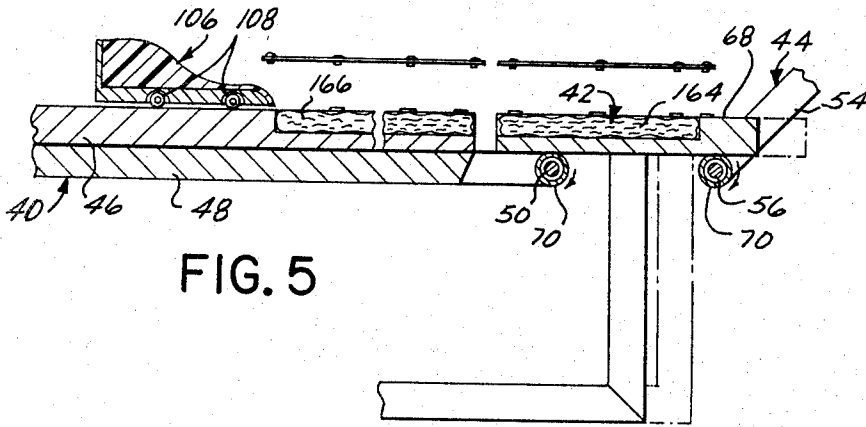


FIG. 5

FIG. 6

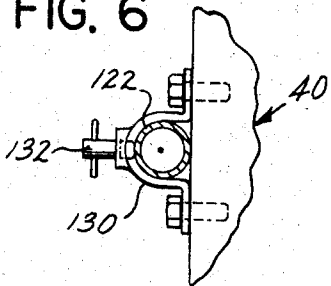
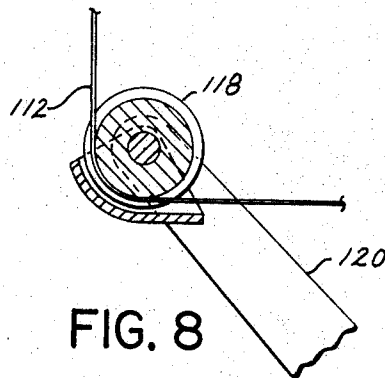


FIG. 8

FIG. 7

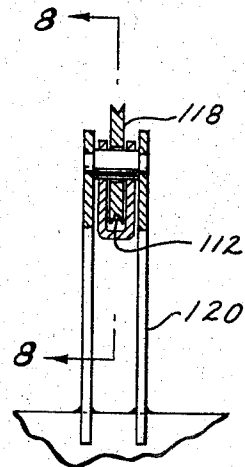
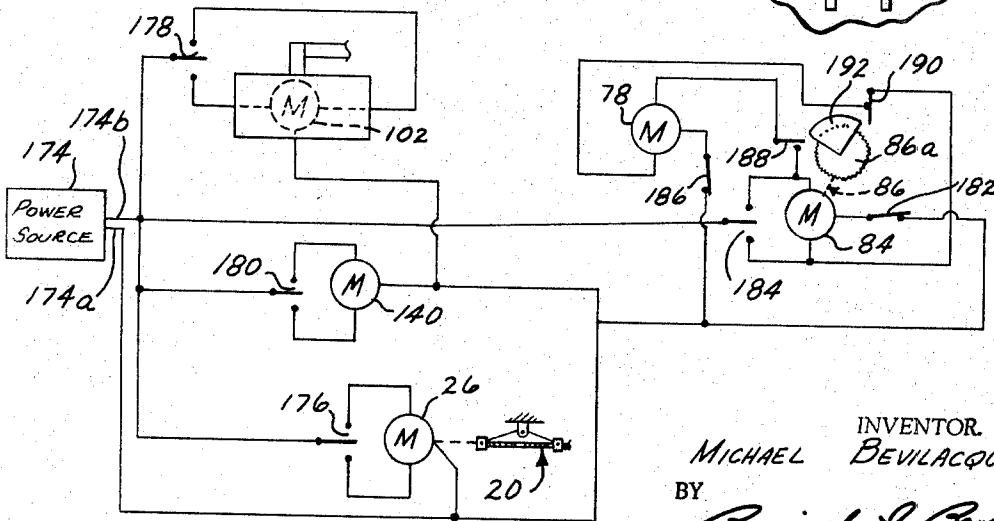


FIG. 11

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1

3,404,679

MEDICAL THERAPY TABLE
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14 Claims. (Cl. 128—71)

ABSTRACT OF THE DISCLOSURE

A therapy table for use in traction and for medical treatment and examination, wherein articulated sections are relatively adjustable between upright, sitting and horizontal positions of a patient, and wherein means are provided for driving a pelvic support section and a back support section in relative movement to apply traction.

This invention relates generally to medical apparatus; more particularly, the invention relates to a novel medical therapy table which is useful for both general purpose medical treatment and examination as well as for physiotherapy treatments involving traction, particularly pelvic and/or cervical traction.

Traction devices are commonly employed in the medical profession for the treatment and correction of a variety of physical disorders. Among these traction devices are traction tables which are designed to support a patient in a generally supine position and to exert traction forces on selected regions on the patient's body. These traction forces may be applied in continuous fashion, in which event the treatment is commonly referred to as continuous traction. Alternatively, the traction forces may be periodically relieved and then reapplied. In this latter case, the treatment is commonly referred to as intermittent traction. Such intermittent traction is generally more effective than continuous traction. Accordingly, physiotherapy treatments involving intermittent traction are more common than those involving continuous traction.

The existing traction tables are deficient in many respects. For example, the existing tables do not permit optimum application of the traction forces to the patient's body, particularly the traction forces required for cervical and pelvic traction. Further, in many cases, the existing traction tables are effective to provide only one type of traction, i.e., either cervical traction or pelvic traction, and are often limited as to the different positions in which the traction patient may be supported during treatment. The existing traction tables are also quite difficult to mount and dismount, even for a person who is not afflicted with any physical disorders of the type which traction tables are designed to treat. This latter deficiency of the existing traction tables, of course, is particularly serious for the reason that the patients who use such tables are generally incapacitated, to some degree, by the physical disorder for which they are to be treated, and the physical effort necessary to mount and dismount the existing tables often causes great discomfort or pain to the patient. The existing traction tables also tend to be relatively complex in construction, costly to manufacture, uncomfortable for the patient, and generally unpleasing in appearance. Finally, these tables are generally useful only as traction tables and thus consume needed floor space when not in use.

At this point, therefore, it is evident that a definite need exists for improved traction table, and more particularly for an improved therapy table, which may be used both as an effective traction table and for other purposes, such as general medical treatment and examination.

It is the general object of this invention to provide such an improved therapy table.

A more specific object of the invention is to provide

2

a therapy table which may be used both as a medical table for general treatment and examination and as a traction table.

Another object of the invention is to provide an improved therapy table of the character described which is particularly designed for cervical and pelvic traction and which is uniquely constructed and arranged to permit optimum application of the traction forces as well as to enable cervical and pelvic traction to be applied separately or simultaneously.

It is an object of the invention to provide an improved therapy table of the character described which may be employed for both continuous and intermittent traction, and wherein one end of the traction table may be vertically adjusted relative to the other end of the table to locate the table in a sloping position for the application of counter-traction to the patient during pelvic traction.

An object of the invention is to provide an improved therapy table of the character described which is equipped with articulated body support sections that may be relatively adjusted to support a traction patient in any position between a sitting position and a reclining or supine position, as well as to assist the patient in mounting and dismounting the table with minimum effort, discomfort, and pain.

A related object of the invention is to provide an improved therapy table of the character described wherein the articulated body support sections may be vertically driven in unison between upright positions, wherein the table is conditioned to support a patient in sitting position, and horizontal positions, wherein the table is conditioned to support the patient in a reclining or supine position, and wherein further the articulated body support sections may be vertically driven independently of one another to support the patient in various attitudes between the sitting and supine positions.

A further object of the invention is to provide an improved therapy table of the character described wherein means are provided for applying heat, either moist or dry, to the patient along his entire spinal column, from the cervical region to the pelvic region, independently of or simultaneously with traction.

A still further object of the invention is to provide an improved therapy table of the character described which is relatively simple in construction, economical to manufacture, pleasing in appearance, and otherwise ideally suited for its intended purposes.

Other objects, features and advantages of the present invention will become apparent to those versed in the art from a consideration of the following description, the appended claims and the accompanying drawings, wherein:

FIGURE 1 is a perspective view of an improved medical therapy table according to the invention;

FIGURE 2 is a section taken on line 2—2 in FIGURE 1;

FIGURE 3 is an enlarged section taken on line 3—3 in FIGURE 2;

FIGURE 4 is a section taken on line 4—4 in FIGURE 3;

FIGURE 5 is a section taken on line 5—5 in FIGURE 3;

FIGURE 6 is an enlarged section taken on line 6—6 in FIGURE 2;

FIGURE 7 is an enlarged section taken on line 7—7 in FIGURE 2;

FIGURE 8 is a section taken on line 8—8 in FIGURE 7;

FIGURE 9 is an enlarged section taken on line 9—9 in FIGURE 2;

FIGURE 10 is an enlarged section taken on line 10—10 in FIGURE 9; and

FIGURE 11 diagrammatically illustrates an electrical system embodied in the present therapy table.

The therapy table 10 of the invention which has been selected for illustration in these drawings comprises a frame 12 including side walls 14 and lower supporting legs 16 and 18. These legs are shown to be hollow, rectangular, horizontal channel sections which extend transversely across the underside of the table with one side wall thereof in contact with the floor F. The frame side walls 14 are rigidly joined to opposite ends of the leg 16. The under, floor engaging surface 16a of this leg is generally cylindrically curved about an axis extending normal to the side walls 14 and comprises a resilient pad which is adhesively bonded or otherwise permanently secured to the lower wall of the respective leg channel section. The remaining leg 18 of the table is operatively connected to the frame side walls 14 by an elevating mechanism 20 which may be operated to selectively raise and lower the front end of the table, that is the right hand end of the table as the latter is viewed in FIGURE 2, relative to the rear or left hand end of the table.

Elevating mechanism 20 comprises a horizontal lead screw 22 within and extending lengthwise of the table leg 18. The ends of the lead screw are rotatably supported in bearings 24 fixed to the lower wall of leg 18. One end portion 22a of the lead screw is formed with a right hand thread. The opposite end portion 22b of the lead screw is formed with the left hand thread. Lead screw 22 is driven in rotation by a reversible motor 26 mounted on the lower wall of leg 18. Threaded on the ends 22a, 22b of the lead screw are nuts 28. Pivottally attached at one end to these nuts are links 30. The opposite ends of links 30 are pivottally attached to a depending bracket 32 rigid on the underside of a generally horizontal frame member 34 which directly overlies and extends lengthwise of leg 18. The ends of this frame member are rigidly joined to the side walls 14 of the table frame 12. In the upper wall of the leg 18 is an opening 36 through which the bracket 32 projects when the front end of the table occupies its lowered position of FIGURE 3 and through which the elevating links 30 extend when the front end of the table is elevated, as shown in phantom lines of FIGURE 2.

At this point, therefore, it is evident that rotation of the lead screw 22 in one direction by its motor 26 is effective to elevate the front end of the table 10 relative to the rear end of the table. Rotation of the lead screw in the opposite direction is effective to lower the front end of the table relative to its rear end. During this vertical adjustment of the front end of the table, the latter rocks on the curved under surface 16a of the table leg 16. The purpose of this vertical adjustment of the front end of the table 10 will be explained shortly. Suffice it to say at this point that when the front end of the table is lowered to its limiting position of FIGURE 3, the table is generally horizontal. When the front end of the table is elevated from this lower limiting position, the table slopes downwardly in the direction of its rear end, as shown in phantom lines in FIGURE 2.

Located between the upper edges of the frame side walls 14 is a body support 38 including a back support section 40, a pelvic support section 42, and a leg support section 44. The back support section 40 comprises an upper, rectangular back support plate 46. Rigidly secured to the under surfaces of this plate, adjacent its longitudinal side edges, are a pair of arms 48, that is the right hand ends of these arms, as the latter are viewed in FIGURE 5, extend a short distance beyond the front edge of the back support plate 46 and are keyed on a horizontal shaft 50. Shaft 50 extends between the frame sidewalls 14, normal to and adjacent the upper edges of these walls, and is rotatably supported at its ends in bearings 52 mounted on the inner surfaces of the walls. It is evident, therefore, that the back support section 40 is adapted to be rotatably

elevated and lowered, relative to the table frame 12, about the axis of the shaft 50.

The leg support section 44 of the body support 38 comprises a pair of generally V-shaped arms 54. One end of the arms 54 are keyed on a horizontal shaft 56 which extends between the frame side walls 14, normal to and adjacent the upper edges of these side walls, and is rotatably supported at its ends in additional bearings 52 mounted on the inner surfaces of the walls. The opposite end portions of the leg support arms 54 have inwardly directed flanges 58 for seating opposite edges of a padded leg rest 60. Leg rest 60 is secured to the arms 54 by pins or screws 62. These screws may be removable and the adjacent edges of the leg rests 60 may be provided with a series of openings 66 (FIGURE 2) for receiving the screws, thereby to permit adjustment of the leg rest relative to the leg rest arms 44, in the lengthwise direction of the flanged ends of these arms. At this point, therefore, it is evident that the leg support section 44, like the back support section 40, may be rotatably elevated and lowered, relative to the frame 12, about the axis of the shaft 56.

As shown best in FIGURE 5, the shafts 50 and 56 are spaced a distance lengthwise of the table frame 12 to accommodate, between the back support section 40 and the leg support section 44, the pelvic support section 42. This pelvic support section comprises a rectangular plate 68 which is movably supported on bearing sleeves 70 rotatable on the shafts 50 and 56, respectively. FIGURE 3 illustrates the bearings 72 which rotatably support the bearing sleeve 70 on the shaft 56. The other bearing sleeve 70 is rotatably supported on the shaft 50 by similar bearings (not shown). The width of the pelvic support plate 68, measured normal to the frame side walls 14, is slightly less than the spacing between the adjacent ends of the back support arms 48 and leg support arms 54. Accordingly, the pelvic support plate 68 does not interfere with the vertical swinging movement of the back support section 40 and the leg support section 46.

Back support section 40 and leg support section 44 are rotatable between their generally horizontal positions, shown in solid lines in FIGURE 2, and in FIGURES 3 and 5 and their generally upright positions shown in phantom lines in FIGURE 2. Means 74 and 76 are provided for driving these sections between their horizontal and upright positions. Within the scope of the invention, means 74 and 76 may comprise any suitable drive means, such as manually rotatable cranks, for rotatably elevating and lowering the back and leg support sections. According to the preferred practice of the invention, however, drive means 74 and 76 are motorized. Thus, referring to FIGURE 4, it will be observed that the drive means 74 for the back support section 40 comprises a reversible motor 78 which is mounted on a horizontal platform 80 extending between and rigidly joined to the side walls 14 of the table frame 12. The shaft of motor 78 is drivably coupled to the shaft 50 for the back support section 40 through a gear train 82. Rotation of the motor 78 in one direction, therefore, is effective to elevate the back support section 40, and rotation of the motor in the opposite direction is effective to lower the back support section. Similarly, drive means 76 for the leg support sections 44 comprises a reversible motor 84 which is mounted on the platform 80 and is drivably coupled, through a gear train 86, to the shaft 56 for the leg support section. Rotation of the motor 84 in one direction is thus effective to elevate the leg support section and rotation of the latter motor in the opposite direction is effective to lower the leg support section.

The pelvic support plate 68 is driven horizontally by a drive means 88. This drive means comprises a drive arm 90 having an upper vertical section 90a, an intermediate horizontal section 90b, and a lower vertical section 90c. The upper vertical drive arm section 90a is

5

rigidly secured to the underside of the pelvic support plate 68, intermediate the longitudinal side edges of this plate. The lower vertical drive arm section 90c extends through a longitudinal slot 92 in the upper wall of a housing 94 mounted on a horizontal supporting plate 96 extending between and rigidly joined at its ends to the frame side walls 14. Rotatably supported at its ends within the housing 94 is a lead screw 98 which extends in the fore and aft direction of the table frame 12. This lead screw mounts a nut 100 which is rigidly secured to the lower drive arm section 90c. Lead screw 98 is driven in rotation by a reversible motor 102 through a gear train 104. It is evident at this point, therefore, that rotation of the motor 102 in one direction is effective to horizontally drive the pelvic support plate toward the front end of the table frame 12. Rotation of the motor 102 in the opposite direction is effective to drive the latter plate toward the rear end of the table frame. Attention is directed to the fact that the supporting platform 80 for the back support and leg support drive motors 78, 84 is slotted to accommodate the drive arm 90 as well as the leg support arms 54 when the leg support section 44 occupies its vertical position.

The upper plate 46 of the back support section 40 carries a contoured, padded head rest 106. This head rest is located adjacent the rear end of the back support section and mounts rollers or wheels 108 which movably support the head rest on the back support section for movement in the fore and aft direction of the latter section. Means (not shown) may be provided for retaining the head rest in supporting contact with the back support section and releasably securing the head rest in fixed position relative to the latter section.

Associated with the back support section 40 and the head rest 106 is a cervical traction means 110. This cervical traction means comprises a traction cable 112, one end of which is attached to a cervical traction harness 114. The opposite end of the cable is attached to a winch 116, to be described shortly. Between the harness 114 and the winch 116, the cervical traction cable 112 extends first about a pulley 118 rotatably mounted on an arm 120 rigid on the table leg 16, then extends upwardly through a cervical traction extension tube 122 mounted on the rear end of back support section 40, and finally extends around a pulley 124 rotatably mounted on the upper end of the latter tube. Connected in the cable 112 between the pulley 118 and the extension tube 122, is a cable tension adjusting means 126. Attraction scale 128 is connected in the cable 112 between the pulley 124 and the traction harness 114. Referring to FIGURE 6, it will be observed that the cervical traction extension tube 122 extends slidably through a bracket 130 fastened to the rear end of the back support section 40. A set screw 132 is threaded in the bracket 130 for securing the extension tube in vertically adjusted position relative to the back support section.

Reference is now made to FIGURES 9 and 10 illustrating the cervical traction winch 116. This winch is supported on a plate 134 which is rigidly secured to the upper surface of the intermediate horizontal section 90b of the pelvic support drive arm 90. The winch comprises a cable drum 136 keyed to the shaft 138 of a reversible motor 140. The outboard end of the shaft 138 is rotatably supported in a bearing 142 mounted on the winch support plate 134. The adjacent end of the cervical traction cable 112 is wound on and secured to the cable drum 136. Keyed on the motor shaft 138, between the drum 136 and the motor 140, is a brake drum 144. A pair of cylindrically curved brake shoes 146 surround this drum and are pivotally attached, at their lower ends, to an upstanding bracket 148 on the winch support plate 134. The upper ends of the brake shoes 146 are pivotally connected, by linkage 150, to a horizontal brake operating rod 152. This rod extends through a curved slot 154 in the adjacent table frame side wall 14

6

and mounts, at its outer extremity, a knob 156 by which the rod may be moved between its phantom line and solid line positions of FIGURE 10. Movement of the brake rod 152 to its solid line position disengages the brake shoes 146 from the brake drum 144, thereby releasing the motor shaft 138, and hence the cable drum 136, for free rotation. Movement of the brake rod 152 to its phantom line position frictionally engages the brake shoes 146 with the brake drum 144, thereby frictionally braking the motor shaft 138, and hence the cable drum 136, against rotation.

Pelvic support plate 68 mounts a strap 158 by which the pelvic region of a patient may be strapped to the plate. Extending into the upper surface and opening through the rear edge of the latter plate is a recess 160. A similar recess 162 extends into the upper surface and opens through the front edge of the back support plate 46. These recesses are adapted to receive hot packs 164 and 166, respectively, as illustrated in FIGURE 5. Normally, the plate recesses 160, 162 are covered by sheets 168 and 170, respectively, constructed of canvas or other suitable material. These sheets are secured to the pelvic support plate 68 and the back support plate 46, respectively, in any convenient way, as by snap fasteners 172.

Reference is now made to FIGURE 11 which illustrates the electrical circuitry embodiment in the present therapy table 10 for operating the several motors therein. In this figure, reference numeral 174 denotes an electrical power source for energizing the table motors. One terminal of the table elevating motor 26, the pelvic support drive motor 102, and the cervical traction winch motor 140 are directly connected to one terminal 174a of the power source 174. The other terminals of these motors are connected to the other terminal 174b of the power source through manual, combined off-on and reversing switches 176, 178, and 180, respectively. Each of these latter switches may be operated to selectively de-energize and energize in either direction of rotation the corresponding motor. One terminal of the leg support drive motor 84 is connected to the terminal 174a of the power source 174 through a manual off-on switch 182. The remaining terminals of the motor 84 are connected to the other terminal 174b of the power source through a combined off-on and reversing switch 184. One terminal of the back support drive motor 78 is connected to the terminal 174a through a manual off-on switch 186. The remaining terminals of the motor 78 are connected to the other terminal 174b of the power source through switches 188, 190, and the reversing switch 184 in the manner illustrated. Switches 188 and 190 are operated by a cam 192 fixed to one gear 86a of the gear train 86 which drivably couples the leg support drive motor 84 to the leg support shaft 56. The manner in which the switches 188 and 190 are operated by the cam 192 will be explained presently. Referring to FIGURE 1, it will be observed that the several switches 176, 178, 180, 182, 184 and 186 are mounted on a control panel 194 at the front end of the therapy table.

From the above description of the circuit illustrated in FIGURE 11, it is apparent that the table elevating motor 126 may be selectively energized to raise and lower the front end of the therapy table 10 by operation of the motor switch 176. Similarly, the pelvic support drive motor 102 may be energized in either direction of rotation, to drive the pelvic support plate 68 forwardly and rearwardly relative to the table frame 12, by operation of the motor switch 178. The cervical traction winch motor 140 may be energized in either direction of rotation, by operation of the motor switch 180, thereby to wind the cervical traction cable 112 on and unwind the cable from the cable drum 136. As will appear presently, the pelvic support drive motor 102, the cervical traction winch motor 140, and the winch brake 144, 146, 152 are adapted to be operated in such a way as to provide

pelvic traction alone, cervical traction alone, or simultaneous pelvic and cervical traction.

The back support drive motor 78 and the leg support drive motor 84 may be energized individually or simultaneously. To this end, the motor switches 188, 190 comprise normally open and normally closed switches, respectively. These switches are mounted on the table frame 12 in the positions shown in FIGURE 4, wherein the switches are disposed for actuation by the gear cam 192 during rotation of the leg support section 44. The cam 192 is so oriented that it closes the switch 188 upon rotation of the leg support section 44 to its phantom line position of FIGURE 4 during elevation of the leg support section and opens switch 190 upon rotation of the latter section to its phantom line position during lowering of the leg support section. In this position, the leg rest 60 engages the back sides of the legs of a patient sitting on the pelvic support plate 68. The leg support drive motor 84 is energized to elevate the leg support section 44 by closing the off-on motor switch 182 and simultaneously closing the motor reversing switch 184 to its upper position of FIGURE 11. Motor 84 is energized to lower the leg support section by closing the motor reversing switch 184 to its lower position in FIGURE 11. Simultaneous closing of the motor reversing switch 184 to its upper position of FIGURE 11, closing of the switch 188, and closing of the off-on switch 186 for the back support drive motor 78 energizes the latter motor in a direction to lower the back support section 40 toward its solid line horizontal position of FIGURE 2. Simultaneous closing of the motor reversing switch 184 to its lower position of FIGURE 11, closing of the switch 190, and closing of the off-on motor switch 186 energizes the motor 78 in the reverse direction to raise the back support section 40 toward its phantom line vertical position of FIGURE 2.

Assume now that the back support section 40 and the leg support section 44 occupy their phantom line vertical position of FIGURE 2. In these positions of the latter sections, the present therapy table 10 is conditioned to support a patient in a sitting position. If the off-on motor switches 182, 186, are now closed and the motor reversing switch 184 is closed to its upper position of FIGURE 11, the leg support section 44 is initially driven upwardly to a position wherein the leg rest 60 on the latter section engages the back sides of the patient's legs. Up to this point, the back support section remains stationary in its vertical position. Immediately thereafter, the rotating gear cam 192 closes the switch 188. This energizes the motor 78 in a direction to drive the back support section 40 downwardly toward its horizontal position, whereby the leg support section and the back support section raise and lower, respectively, in unison. The motors 78, 84 are stopped when the back and leg support sections reach their solid line, horizontal positions of FIGURE 2.

Assume now that the motor reversing switch 184 is reversed. Both motors 78 and 84 are now energized in the opposite direction of rotation to simultaneously drive the back support section 40 upwardly toward its vertical position and the leg support section 44 downwardly toward its vertical retracted position. Eventually, upon return of the back support section to its vertical position, the gear cam 192 opens the switch 190 to de-energize the back support motor 78. The back support section then remains stationary in its vertical position. Leg support section, however, continues to descend toward its vertical retracted position. The leg support drive motor 84 is stopped upon return of the leg support section to this retracted position.

The discussion thus far has related to unified movement of the back support section 40 and the leg support section 44 between their vertical and horizontal positions. As noted above, these sections may also be independently driven. Independent driving of the leg support section 44 is accomplished by opening the off-on

switch 186 for the back support drive motor 78 and closing the off-on switch 182 for the leg support drive motor 84. This latter motor, then, may be selectively energized to raise and lower the leg support section 44 by operation of the motor reversing switch 84. Independent driving of the back support section 40 is accomplished by elevating the leg support section 44, in the manner explained above, to a position wherein the gear cam 192 just closes the switch 188. The off-on switch 182 for the leg support drive motor 84 is then reopened and the off-on switch 186 for the back support drive motor 78 is closed. The latter motor may then be selectively energized to raise and lower the back support section 40 by operation of the motor reversing switch 184.

The overall operation of the therapy table 10 of the invention will now be described. When a patient is to mount a table, the back support section 40 and the leg support section 44 are driven to their phantom line vertical positions of FIGURE 2, wherein the body support 38 of the table provides a chair-like configuration which permits a patient to mount the table with minimum effort and pain. The back support section and the leg support section are then driven in unison to their solid line horizontal positions of FIGURE 2, during which the patient is rotated, in effect, to the reclining or supine position illustrated. In this reclining position, the patient's head is supported on the head rest 106, the patient's back and lumbar regions are supported on the back support plate 45, the patient's lumbo-sacral and pelvic regions are supported on the pelvic support plate 68, and the patient's legs are supported on the leg rest 60. In the event that the patient is to be subjected only to pelvic traction, the elevating means 20 are operated to elevate the front end of the therapy table 10 relative to the rear end of the table, thereby to place the back support plate 45 in an inclined position wherein this plate slopes downwardly toward the rear end of the table. This provides counter traction for the patient. The pelvic support drive motor 102 is then operated to drive the pelvic support plate 68 toward the front end of the table. It has been found that the friction between the patient's body and the back and pelvic support plates 46, 68 is sufficient to create an effective pelvic traction force on the patient. It is significant to note that during such pelvic traction, the patient's legs are supported in an elevated position, which is well known to provide optimum pelvic traction. If desired, the pelvic region of a patient, during such pelvic traction, may be secured to the pelvic support plate 68 by means of the strap 158. It is obvious, of course, that either continuous or intermittent pelvic traction may be provided by appropriate control of the pelvic support drive motor 102.

If the patient is to be subjected only to cervical traction, the traction harness 114 is engaged about the patient's head in the manner illustrated in FIGURE 2. The cervical traction winch 116 is then operated to wind the traction cable 112 on the cable drum 136. The applied cervical traction force may be read from the traction scale 128. Both continuous and intermittent cervical traction may be applied by appropriate control of the cervical traction motor 140. In connection with such cervical traction, it is significant to note that the head rest 106 is contoured to support the patient's head at an angle of approximately 30° relative to the shoulders. This head position is optimal for cervical traction. The angle at which the cervical traction force is applied to the patient may be adjusted by raising or lowering the cervical traction extension tube 122.

The roller supports for the pelvic support plate 68 and the head rest 106 constitute a highly important feature of the invention. These roller supports provide optimally smooth traction in both the pelvic traction mode and the cervical traction mode of the present therapy table.

When simultaneously applying both pelvic traction and cervical traction, the traction harness 114 is engaged about the patient's head and the patient's pelvic region is pref-

erably strapped to the pelvic support plate 68. Simultaneous pelvic and cervical traction may then be applied in various ways. For example, the pelvic support plate 68 may be driven toward the forward end of the therapy table and the cervical traction winch 116 may be simultaneously operated to wind the traction cable 112 on the traction cable drum 136. In this case, pelvic traction and/or cervical traction may be continuous or intermittent by proper control of the pelvic traction motor 102 and the cervical traction motor 140. Alternatively, pelvic and cervical traction may be simultaneously applied by engaging the brake 144, 146 for the traction cable drum 136 and operating the pelvic traction motor 102 to drive the pelvic support plate 68 toward the front end of the therapy table. Under these conditions, the resultant forward movement of the pelvic support drive bar 90 creates a cervical traction force in the traction cable 112.

It is significant to note at this point that the back support section 40 and the leg support section 44 may be rotated to various positions for supporting the patient in various attitudes during pelvic and/or cervical traction. Accordingly, the patient may be supported in the position which is most favorable for the treatment of his particular physical disorder. In this regard, it is to be observed that the cervical traction extension tube 122 raises and lowers with the back support section 40 and is, thereby, properly located for optimum cervical traction in every angular position of the latter section. While the foregoing discussion has related to the use of the present therapy table for pelvic and cervical traction, it is apparent that the table may also be used for other types of traction, such as leg and other traction. As noted, hot packs 164, 166 may be placed within the recesses 160, 162 in the pelvic and back support plate 68, 46 in order to apply heat, either moist or dry, to the spinal column of the patient during traction.

An important feature of the invention resides in the fact that the back support section 40 may be lowered to its horizontal position of FIGURE 1 and the leg support section 44 may be lowered to its vertical position of the latter figure to condition the therapy table 10 for general medical treatment and examination. In this way, the floor space occupied by the table is optimally utilized. The therapy table, when thus conditioned, will be observed to be pleasing in appearance, compact in size, and devoid of any undesirable projecting parts, or the like.

Those versed in the art will appreciate that the present invention achieves the objects and realizes the advantages hereinbefore mentioned.

Although a specific embodiment of the present invention has been illustrated and described herein, it will be understood that the same is merely exemplary of presently preferred embodiments capable of attaining the objects and advantages hereinbefore mentioned, and that the invention is not limited thereto; variations will be readily apparent to those versed in the art, and the invention is entitled to the broadest interpretation within the terms of the appended claims.

The invention claims:

1. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support opposite one end of said back support section, and a single pelvic support section between and laterally centered relative to said back and said leg support sections, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, a head rest on the other end of said back support section, selectively operable and reversible means for driving said back and pelvic support sections in relative movement at a relatively slow constant speed and continuously in either direction along a direction line extending lengthwise of said back and pelvic support sections, and said driving means comprising a

motor on said frame, means operatively connecting said motor to one of said back and pelvic support sections, and means for selectively starting, stopping, and reversing said driving means.

2. A therapy table according to claim 1 including: means for vertically adjusting one end of said frame to locate said back and pelvic support sections in an angular position, wherein said latter sections slope downwardly in the direction of said other end of said back support section.

3. A therapy table according to claim 1 wherein: said back support section is stationary and said motor is connected to said pelvic support section for driving the latter endwise relative to said back support section.

4. A therapy table according to claim 3 including: cervical traction means at said other end of said back support section comprising a cervical traction harness for engagement with a patient's head and means for driving said harness at a relatively slow controlled speed toward said other end of said back support section, and said latter driving means comprising a second motor on said frame and means operatively connecting said second motor to said harness.

5. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support section opposite one end of said back support section, and a single pelvic support section between and laterally centered relative to said back and leg support sections, a head rest on the other end of said back support section, means movably supporting said pelvic support section on said frame for endwise movement relative to said back and leg support sections, means movably supporting said head rest on said back support section for movement endwise of the latter section, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, cervical traction means at said other end of said back support section including a cervical traction harness adapted for engagement with the patient's head, means including a first motor on said frame for selectively driving said pelvic support section at a relatively slow constant speed and continuously in either endwise direction of said back and leg support sections, means including a second motor on said frame for selectively driving said traction harness at a relatively slow constant speed endwise of said back support section toward said other end of the latter section, and means for selectively starting, stopping, and reversing each said driving means, thereby to permit selective independent and simultaneous application of pelvic and cervical traction to the patient.

6. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support section opposite one end of said back support section, and a pelvic support section disposed between and movable endwise relative to said back and leg support sections, a head rest movably supported on the other end of said back support section for movement endwise of the latter section, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, means for driving said pelvic support section endwise relative to said back and leg support sections, and cervical traction means including a cable guide mounted on said other end of said back support section, a traction cable trained about said guide and having one end located over said back support section and its other end located below said back support section, a cervical traction harness secured to said one end of said traction cable and adapted for engagement with the patient's head, a cable drum rotatably mounted below said back support section and having said

11

other cable end secured thereto, and means for selectively driving said drum in rotation, locking said drum against rotation, and releasing said drum for free rotation, thereby to permit selective independent and simultaneous application of cervical and pelvic traction to the patient.

7. A therapy table according to claim 6 wherein: said driving means for said pelvic support section comprises a drive member below said body supporting means, and said cable drum and drive means therefor are mounted on said drive member.

8. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support section opposite one end of said back support section, and a single pelvic support section located between and laterally centered relative to said back and leg support sections, said leg support section having one end adjacent said pelvic support section, means pivotally mounting said one end of said back support section on said frame to permit said back support section to be rotatably elevated and lowered, means pivotally mounting said one end of said leg support section on said frame to permit said leg support section to be rotatably elevated and lowered, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, means for selectively rotatably elevating and lowering said back support section, means for selectively rotatably elevating and lowering said leg support section, means for selectively driving said pelvic support section at a relatively slow constant speed and continuously in either endwise direction relative to said back and leg support sections, and said driving means including a motor on said frame, means operatively connecting said motor to said pelvic support section, and means for selectively starting, stopping, and reversing said driving means.

9. A therapy table according to claim 8 including: means for selectively vertically adjusting one end of said frame to locate said back and pelvic support sections in an angular position wherein said latter sections slope downwardly in the direction of said other end of said back support section.

10. A therapy table according to claim 8 wherein: said back support section and said leg support section are angularly adjustable between generally horizontal positions, wherein said table is conditioned to support the patient in a reclining position, and generally vertical positions, wherein said table has a chair-like configuration for supporting the patient in a sitting position.

11. A therapy table according to claim 9 including: a head rest movably supported on said other end of said back support section for movement endwise of the latter section, and cervical traction means at said other end of said back support section including a cervical traction harness adapted for engagement with the patient's head, second means including a second motor on said frame for selectively driving said harness endwise of said back support section at a relatively slow constant speed toward said other end of the latter section, and means for selectively starting, stopping, and reversing said second driving means, thereby to permit selected independent and simultaneous application of cervical and pelvic traction to the patient in any position between a reclining position and a sitting position.

12. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support section opposite one end of said back support section, and a pelvic support section located between said back and leg support sections, said leg support section having one end adjacent said pelvic support section, means pivotally mounting said one end of said back support section on said frame to permit said back support section to be rotatably elevated and lowered, means pivotally mounting said one end of said leg support section on said

12

frame to permit said leg support section to be rotatably elevated and lowered, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, means for selectively rotatably elevating and lowering said back support section, means for selectively rotatably elevating and lowering said leg support section, means for driving said pelvic support section endwise relative to said back and leg support sections, and said means for selectively elevating and lowering said back support section comprising a first reversible motor and said means for selectively elevating and lowering said leg support section comprises a second reversible motor, and means for selectively operating said reversible motors independently and in unison.

13. A therapy table comprising: a frame, body supporting means on said frame including a back support section, a leg support section opposite one end of said back support section, and a pelvic support section located between said back and leg support sections, said leg support section having one end adjacent said pelvic support section, means pivotally mounting said one end of said back support section on said frame to permit said back support section to be rotatably elevated and lowered, means pivotally mounting said one end of said leg support section on said frame to permit said leg support section to be rotatably elevated and lowered, said body supporting means being adapted to support a patient with his back and lumbar region, his lumbo-sacral and pelvic regions, and his legs resting on said back support section, pelvic support section, and leg support section, respectively, means for selectively rotatably elevating and lowering said back support section, means for selectively rotatably elevating and lowering said leg support section, means for driving said pelvic support section endwise relative to said back and leg support sections, and said back and leg support sections being rotatable between generally horizontal positions wherein said body supporting means are adapted to support the patient in the reclining position, and generally vertical position, wherein said table has a generally chair-like configuration for supporting the patient in a sitting position, said means for selectively elevating and lowering said back support section comprising a first reversible motor and said means for selectively elevating and lowering said leg support section comprising a second reversible motor, and means for selectively operating said reversible motors independently, to independently move said back and leg support sections between said horizontal and vertical positions, and operating said reversible motors in unison, to move said back and leg support sections in unison between said horizontal and vertical positions.

14. A therapy table comprising: a frame having vertical side walls disposed in spaced parallel relation, first and second supporting leg means disposed below said frame adjacent the ends thereof, means rigidly securing said first leg means to said frame, elevating means operatively connected between said second leg means and said frame for selectively elevating and lowering the adjacent end of said frame, said first leg means having a lower, floor engaging surface which is curved about an axis extending normal to said side walls for supporting said frame for rocking movement, body supporting means disposed between said frame side walls adjacent the upper edges of said walls including a back support section, a leg support section opposite one end of said back support section, and a pelvic support section disposed between said back and leg support sections, said leg support section having one end adjacent said pelvic support section, means pivotally mounting said one end of said back support section on said frame to permit vertical swinging movement of said back support section, means pivotally supporting said one end of said leg support section on said frame to permit vertical swinging movement of said

13

leg support section, roller means movably supporting said pelvic support section on said frame for endwise movement relative to said back and leg support section, a head rest at the other end of said back support section, roller means supporting said head rest on said back support section for endwise movement relative to the latter section, a first reversible motor mounted on said frame below said body supporting means and drivably coupled to said back support section for rotating the latter section between generally horizontal and vertical positions, a second reversible motor mounted on said frame below said body supporting means and drivably coupled to said leg support section for rotating the latter section between generally horizontal and vertical positions, a third reversible motor mounted on said frame below said body supporting means, means including a drive arm drivably coupling said third motor to said pelvic support section for endwise movement of said latter section by said third motor, cervical traction means including a traction cable extending about said other end of said bag support section having one end located above the latter section and its other end located below the latter section, a first cable guide mounted on said frame below said back support

14

section, a second cable guide mounted on said other end of said back support section, said cable being trained about said guides, a cervical traction harness secured to said one end of said cable, a cervical traction winch mounted on said drive arm including a cable drum secured to said other end of said cable, a fourth reversible motor for selectively driving said drum in either direction of rotation, brake means for selectively locking said cable drum against rotation, and means for selectively operating said motors independently and in unison.

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