

Jan. 2, 1962

F. O. LINSTROM

3,015,330

MOTOR OPERATED THERAPEUTIC COUCH

Filed Nov. 30, 1959

2 Sheets-Sheet 1

FIG. 1.

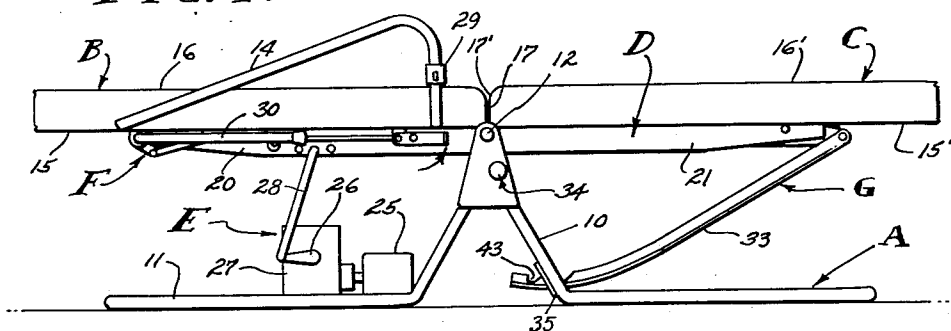


FIG. 2.

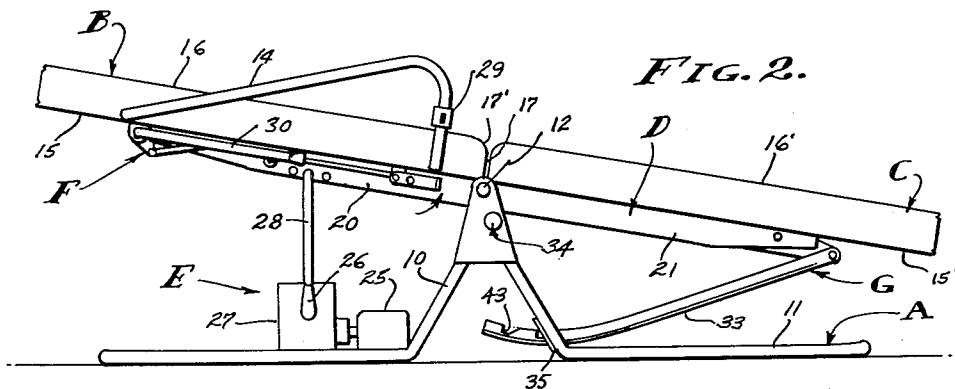
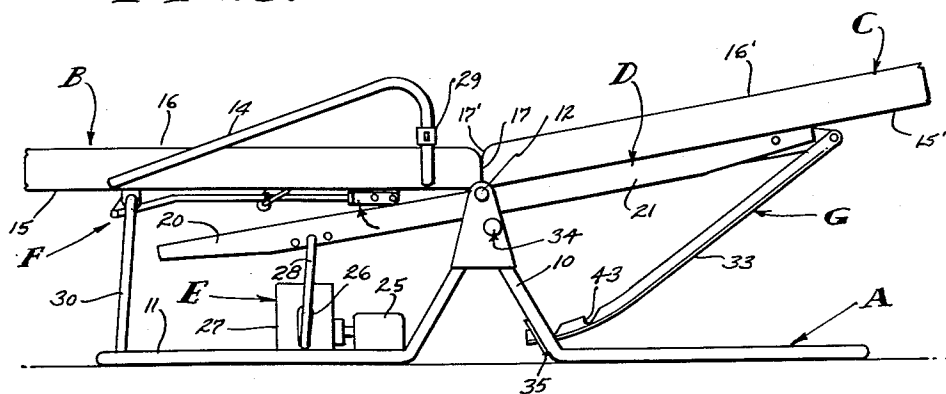


FIG. 3.



INVENTOR.
FRANK O. LINSTROM

BY

W. H. Munnell

AGENT

3,015,330

2 Sheets-Sheet 2

[illegible]

FIG. 5.

INVENTOR.
FRANK O. LINSTROM
BY *W. H. Marshall*
AGENT

1

3,015,330

MOTOR OPERATED THERAPEUTIC COUCH

Frank O. Linstrom, 5942 Cadillac Ave.,
Los Angeles 34, Calif.

Filed Nov. 30, 1959, Ser. No. 856,217

3 Claims. (Cl. 128-25)

2

This invention relates to a therapeutic couch and it is particularly concerned with an articulated bed upon which a person can recline for relaxation accompanied by animation, it being a general object of this invention to provide an animated couch for therapeutic purposes and which is powered to articulate certain portions of a person's body relative to each other.

Therapeutic appliances such as exercising tables or machines, or apparatus, have been devised and employed and they operate in order to carry out varying functions. For example, there are machines for bending the body of a person, either forward or backward or sideways, and there are machines for animating the limbs of a person individually or in unison. Such machines are usually complex and are limited in practical application since unvarying rules of operation are inherent therein with the result that very little or no variation can be realized in the movements involved.

An object of this invention is to provide a table or couch that animates the body of a person lying thereon to articulate certain portions of the person's body relative to each other. With the couch that I provide there are two relatively shiftable panel elements, one for support of the torso and head and one for the support of the lower limbs, and these two elements are powered to move in order to articulate the body of the person thereon.

It is an object of this invention to provide a couch of the character referred to that is suitably controlled so as to articulate selected portions of the body of a person lying thereon. With the couch that I provide one body supporting element can be controlled to remain motionless during a part of the cycle of operation while the other body supporting element continues through a complete cycle of operation.

It is another object of this invention to provide a couch of the character referred to that is adjustably controlled so as to augment certain movements thereof. With the couch that I provide one of the body supporting elements can be adjustably controlled to have increased lift or motion, independently of the other body supporting element.

It is still another object of this invention to provide a table or couch having the functions thus far referred to and which is characterized by a simple and practical operating mechanism that is reliable and rugged and which is easily controlled by a person lying thereupon. With the structure that I have provided the operating mechanism can be stopped in any desired position in order to hold and carry the body supporting elements in the desired position, and the variances in movements can also be selectively changed, all without leaving a reclining position on the couch.

The various objects and features of my invention will be fully understood from the following detailed description of the typical preferred form and application thereof, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a side elevation of the couch, showing it in a normal horizontal position. FIGS. 2, 3 and 4 are views similar to FIG. 1 and showing the couch of the present invention in various positions or attitudes, FIG. 2 showing the body supporting panels pitched or tilted in one direction, FIG. 3 showing one of the panels in a stopped position and the other panel pitched in a direction opposite to that shown in FIG. 2, and FIG. 4 is a view similar to

FIG. 3 showing the position of one panel as it is augmented by means later described. FIG. 5 is an enlarged detailed view of a portion of the mechanism involved and showing the movement limiting means that characterizes the present invention, and FIG. 6 is an enlarged sectional view of a portion of the mechanism and taken as indicated by line 6-6 on FIG. 4 and showing the movement augmenting means that I provide.

The present invention is a table or couch adapted to animate the human body by flexing the torso relative to the lower limbs, thereby alternately lifting the person's head or feet. Further, certain stimulating effects are realized by raising and lowering said portion of the body relative to each other, to simply flex and exercise the body joints involved and to promote circulation. The structure, as it is illustrated in the drawings, involves, generally, a base A, a pair of relatively shiftable body supporting panels B and C, a rocker D for shifting the panels B and C, a drive E for operating the rocker D, a means F for selectively limiting the movement of one of the panels, and a means G for selectively augmenting movement of one of the panels. As shown, the means F limits movement of the body supporting panel B, while the means G augments the movement of the body supporting panel C.

The base A is provided to carry the various parts and elements of the structure and is a frame-like element adapted to engage the floor or other supporting surface. The base A that I have illustrated has upstanding legs 10 carried by horizontally disposed foot portions 11 and it is characterized by a transverse horizontal pivot 12. The base A is elongate in form as it extends in both or opposite directions from the pivot 12 and the said pivot 12 is parallel to and spaced above the plane of the foot portions 11 of the base A.

The pair of relatively shiftable body supporting panels B and C are preferably like, or identical panels and each is adapted to support or carry a portion of the person's body when reclining upon the structure. As is shown, the panels B and C are each a continuation of the other and normally extend in a common horizontal plane (see FIG. 1). The panels B and C have flat bottoms 15 and 15' with upwardly faced cushioned tops 16 and 16', and the inner ends 17 and 17' are abutted and pivotally carried by the pivot 12, respectively. Thus, the two panels B and C are free to move or swing independently and to revolve about the said pivot 12. In the particular case illustrated, the panel B is intended for support of the torso and is, therefore, provided with arm rests 14, while the panel C is intended for support of the legs. Each of said panels B and C is provided with a suitable frame (not shown) in order to be rigid for the weights and strains involved.

The rocker D that is provided for shifting the panels B and C is in the form or nature of a simple pivoted beam having a lever arm 20 underlying the panel B and having a lever arm 21 underlying the panel C. The beam forming the rocker D is, in its simplest form, a straight elongate member with its arms 20 and 21 projecting oppositely and normally from the pivot 12, said pivot rotatably carrying the rocker D at the center thereof. In accordance with the invention, the arms 20 and 21 of the rocker D engage the bottoms 15 and 15' of the respective panels B and C to lift them and to lower them from the normal horizontal position that is shown in FIG. 1 of the drawings.

The drive E that is provided for operating the rocker D is a powered drive adapted to oscillate the rocker from its normal horizontal position. That is, the drive E shifts the rocker D so that it moves between the positions shown in FIGS. 2 and 3 of the drawings. In its preferred form, the drive E has a reciprocating motion and is coupled to one of the arms of the rocker D and so that said rocker is oscillated. In the particular case illustrated the drive E

involves a motor 25 that operates a crank 26 through a gear box 27. The gear box 27 is of the worm and wheel type so that it is self-locking and so that it drives and positions the crank 26. As shown, a connecting rod 28 extends between the crank 26 and the arm 20 of the rocker D, all to the end that the rocker is oscillated and positioned by the drive E as controlled through a suitable control switch 29.

The means F that is provided for limiting movement of one of said body supporting panels is shown associated with the panel B to limit downward movement of said panel. The means F can vary in form and construction and is preferably a strut-like mechanism and I have shown it in the form of a supporting leg or pair of legs 30 that depend from the bottom 15 of the panel B to have engagement with the supporting surface or floor. The legs 30 are swinging legs with an operator 31 that normally holds them retracted and flush with the bottom 15 (see FIG. 5). However, the legs can be manually moved from the bottom 15 and allowed to swing downwardly by gravity whereupon the lower terminal ends thereof engage the floor, there being cushioned tips at the ends of the legs. As shown, the operator 31 involves a hand lever 31a movable between alternate positions and operatively connected to the leg or legs 30 by an arm 31b. A link 31c extends between the hand lever 31a and arm 31b, there being a means 31e normally yieldingly urging the link and arm into an up position, the bottom 15 acting as a stop for the link, as shown. Thus, when the rocker D drops below a horizontal position beneath the panel B the legs 30 of the means F can be positioned to support the said panel B in a horizontal plane allowing the rocker D to move away from supporting engagement with the panel B (see FIG. 3). However, the panel C is lifted by oscillation of the rocker in the usual manner.

The means G that is provided for selectively augmenting movement of one of the panels is shown associated with the panel C to increase upward movement of said panel. The means G involves a lever system that multiplies the normal movement of the rocker D to add motion or lift to the panel C. The means G involves a lever 81, a link 32, a pull rod 33, and a releasable lock 34. The lever 81 is shiftably carried by the rocker D at the end portion of the arm 21 thereof and it has an upper end that normally projects inwardly toward the pivot 12, and it has a lower end that extends oppositely and projects away from the pivot 12. The link 32 is pivotally coupled at its ends to the upper end of the lever 31 and to the bottom 15' of the panel C, and the pull rod 33 is pivotally coupled at its terminal end to the lower end of the lever 31. The said rod 33 extends downwardly and inwardly to have operating engagement through a fitting 35 at the center of the mechanism, the said fitting 35 being carried by a cross-member extending between a pair of the legs 10. The lock 34 involves a pull 40 that is manually accessible at the side of the structure, and an element 41 in the form of a rod that extends to the fitting 35 to actuate a rocker-type bolt 42 into and out of engagement with one of several notches 43 at the end portion of the pull rod 33. The rod 33 is notched at 43 for selective engagement with the bolt 42 so that the said rod 33 can be employed to pull the lever 31 when the rocker arm 21 is lifted.

From the foregoing it will be apparent that the operation of the drive E will oscillate the rocker D for shifting of the panels B and C that are supported thereby. Under ordinary conditions the said panels B and C are alternately oscillated or rocked on the pivot 12, and if so desired the means F can be employed to limit downward movement of the panel B as clearly shown in FIG. 3 of the drawings. Further, if so desired the means G can be employed for augmenting the lift or movement of the panel C by manu-

ally operating the lock 34 and thereby engaging the bolt 42 with the end portion of the pull rod 33. When the said pull rod is engaged by the bolt 42 the lever 81 is rotated when the rocker arm 21 is lifted and with the result that the inner end of said lever 81 is shifted upwardly to increase the height of the panel C, as clearly illustrated in FIG. 4 of the drawings. It will be apparent that each of the operations above described can be easily controlled and carried out by the person reclining upon the said body supporting panels.

Having described only the typical preferred form and application of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any variations or modifications that may appear to those skilled in the art and fall within the scope of the following claims.

Having described my invention, I claim:

1. A couch of the character described and including, a base supporting a horizontal pivot, a pair of relatively shiftable body supporting panels with abutting inner ends carried on said horizontal pivot, a rocker carried on said pivot and having oppositely projecting arms and each arm engaged with a panel, said panels being free to swing independently of said rocker, a drive for oscillating the rocker whereby the relatively shiftable panels are alternately lifted and lowered, and a means comprising a lifting lever pivotally carried between the ends thereof by the rocker and with one end having lifting engagement with one of said panels and a pull rod anchored to the base and pivotally connected to the other end of the lifting lever to shift said lifting lever when the rocker is moved relative to the base.

2. A couch of the character described and including, a base supporting a horizontal pivot, a pair of relatively shiftable body supporting panels with abutting inner ends carried on said horizontal pivot, a rocker carried on said pivot and having oppositely projecting arms and each arm engaged with a panel, said panels being free to swing independently of said rocker, a drive for oscillating the rocker whereby the relatively shiftable panels are alternately lifted and lowered, and a means comprising a lifting lever pivotally carried between the ends thereof by the rocker and with one end having lifting engagement with one of said panels, a pull rod pivotally connected to the other end of the lever, and a lock on the base to releasably engage and anchor the pull rod for shifting of the lever when the rocker is moved relative to the base.

3. A couch of the character described and including, a base supporting a horizontal pivot, a pair of relatively shiftable body supporting panels with abutting inner ends carried on said horizontal pivot, a rocker carried on said pivot and having oppositely projecting arms and each arm engaged with a panel, said panels being free to swing independently of said rocker, a drive for oscillating the rocker whereby the relatively shiftable panels are alternately lifted and lowered, a normally retracted leg carried by one of said panels and releasable to swing downwardly to support said panel and thereby limit movement thereof, and a means comprising a lifting lever pivotally carried between the ends thereof by the rocker and with one end having lifting engagement with one of said panels and a pull rod anchored to the base with a hook and pivotally connected to the other end of the lifting lever to shift the said lifting lever when the rocker is moved relative to the base.

References Cited in the file of this patent

UNITED STATES PATENTS

2,104,745	Howell et al.	Jan. 11, 1938
2,211,542	Howell et al.	Aug. 13, 1940
2,880,720	Houghtaling	Apr. 7, 1959