

Aug. 30, 1932.

H. GROSS

1,874,286

THERAPEUTIC DEVICE

Filed Oct. 19, 1927

2 Sheets-Sheet 1

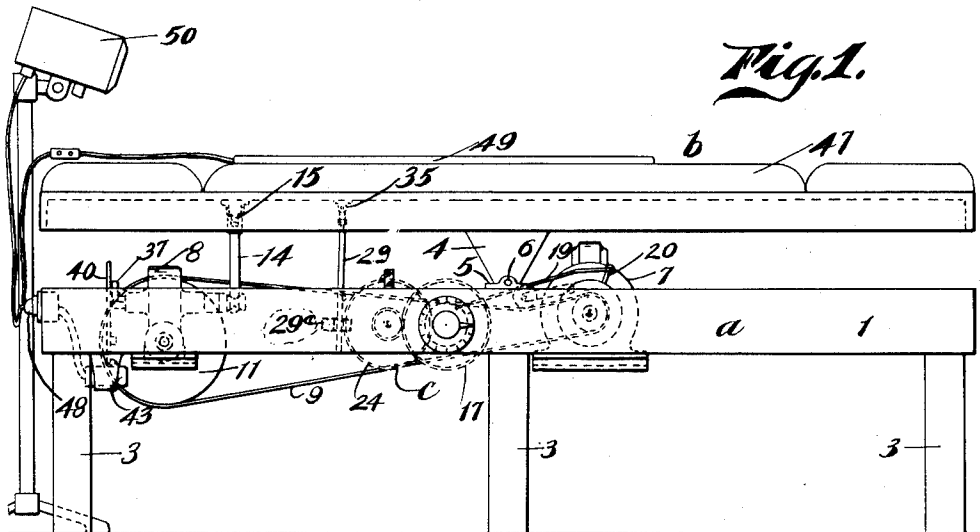


Fig. 2.

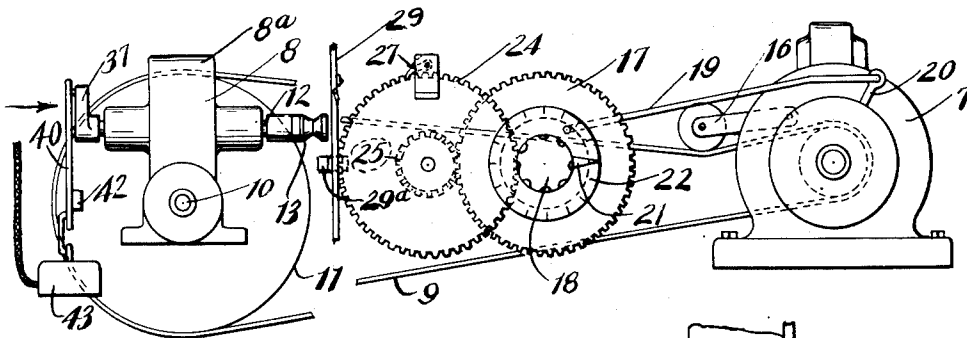


Fig. 3.

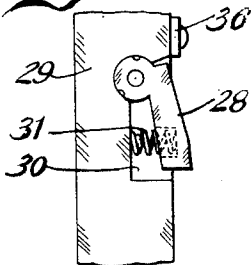


Fig. 4.

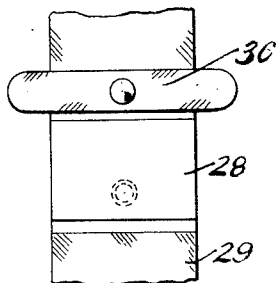
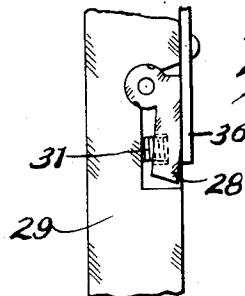


Fig. 5.



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2 Sheets-Sheet 2

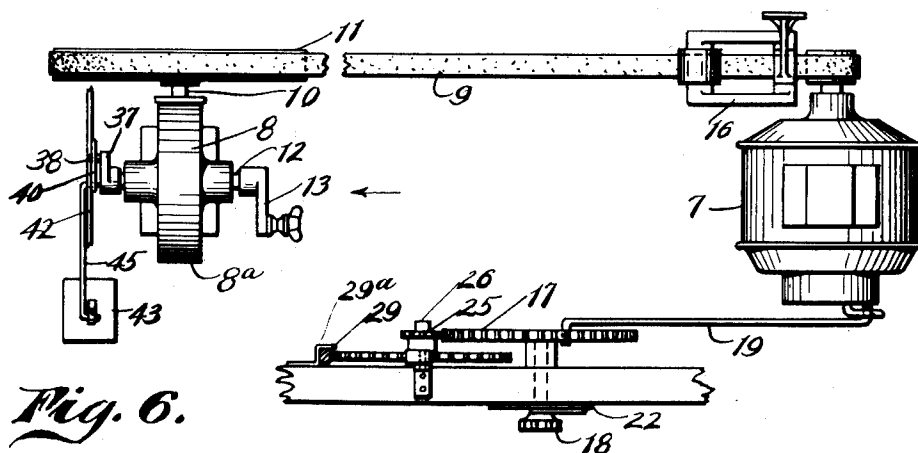


Fig. 6.

Fig. 7.

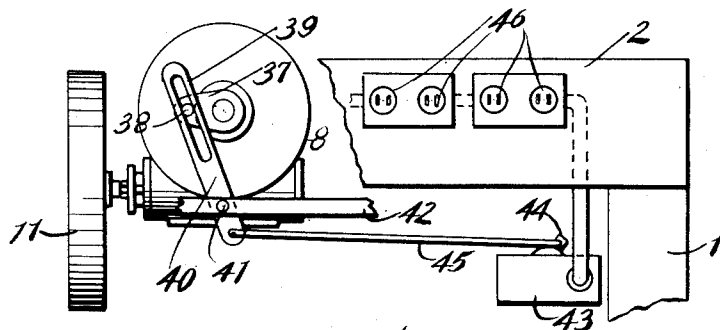
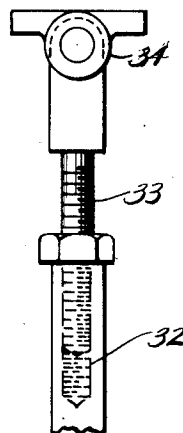


Fig. 9.

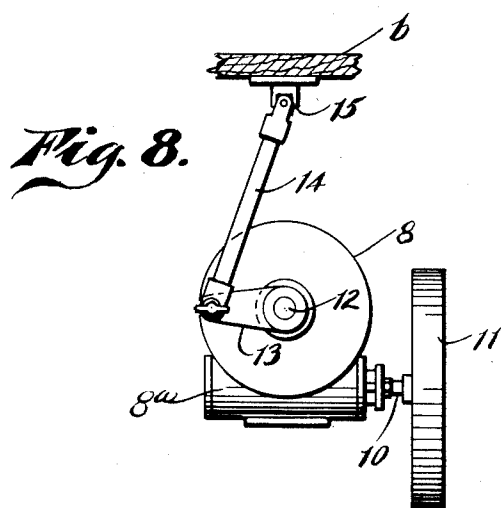


Fig. 8.

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UNITED STATES PATENT OFFICE

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THERAPEUTIC DEVICE

Application filed October 19, 1927. Serial No. 227,082.

This invention relates to therapeutic devices. Particularly the invention contemplates that type of therapeutic device adapted to produce certain psychological effects or reactions upon a patient.

As a preliminary statement, it is commonly known that a reclining position tends to allow the organs of the body to adjust themselves, whereas standing or sitting erect allows certain of the organs to sag downward under what is known as gravity effect. The present invention produces a gravity effect in that the invention contemplates a couch upon which the patient reclines and which couch is oscillated at selected speeds whereby the patient's head is lowered to produce a gravity effect in that direction and then the body is raised, the feet being lowered to produce a gravity effect toward the feet.

An object of the invention is to provide a device of the character stated wherein the period of oscillation thereof may be variable or constant.

Another object includes the provision of a device of the character stated which is simple of construction, and positive in operation.

With the above and other objects in view, the invention consists in the novel and useful provision, formation, construction, association and relative arrangement of parts, members and features, all as shown in certain embodiments in the accompanying drawings described generally and more particularly pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of the improved device.

Fig. 2 is diagrammatic of the controlling means for oscillating the couch.

Fig. 3 is a fragmentary elevation on an enlarged scale of certain means used in varying the period of oscillation.

Fig. 4 is a front elevation of the means shown in Fig. 3.

Fig. 5 is a view similar to Fig. 3, certain of

the mechanism being thrown out of operation.

Fig. 6 is a fragmentary plan view of the mechanism shown in Fig. 2.

Fig. 7 is a fragmentary plan view looking in the direction of the arrow of Fig. 2.

Fig. 8 is a view looking in the direction of the arrow of Fig. 6, and

Fig. 9 illustrates certain adjustment means adapted to cooperate with the means shown in Figs. 3 to 5 inclusive.

Corresponding parts in all the figures are designated by the same reference characters.

Referring now to the drawings, the device includes in the present embodiment a framing or bed member *a*, adapted to support a seat or couch *b* in such a manner that the seat may be oscillated relative to the framing or bed, and means *c* for producing oscillatory motion of the said seat, all of which elements may be used in practicing one embodiment of the invention.

The framing or bed *a* is conventional in form, including parallel spaced side and end members 1 and 2 respectively, mounted upon supporting legs 3. The seat *b* is provided with a depending bracket 4 and the sides 1 carry journal members 5 adapted to house an axle 6, which axle is associated with the bracket 4.

The means *c* includes a motor 7 adapted to drive a reducing unit designed generally as 8, through the medium of a belt 9. In this connection the reducing unit 8 includes a casing 8a within which is housed two gears in mesh, not shown in the drawings, and one of said gears is mounted upon a shaft 10, which shaft extends outwardly of the casing and has mounted thereon a pulley wheel 11. The belt 9 is adapted to ride on the periphery of this pulley wheel 11 and pulley 7a of the motor with the usual idler roller 16 resting on the belt. A shaft 12 carries the other gear of the reducing unit and this shaft carries a crank 13. A link 14 is joined with the crank 13 and

hingedly connected with the seat *b* at 15. The motor 7 in the present instance is adapted for alternating current and speed variation is obtained by moving the brushes thereof. If a direct current motor is used, a rheostat would be added to the equipment. The means *c* likewise includes a mechanism for positioning the brushes. This mechanism includes a gear 17 adapted to be rotated by a handle 18 mounted upon a shaft joined with the gear and a link 19 secured to the gear 17 and to a lever 20, the said lever being associated with the brushes of the motor. Thus rotation of the handle 18 to rotate the shaft produces movement in the gear to move the lever 20. The handle 18 is provided with a pointer 21 adapted to play over a scale 22.

As previously stated a positioning of the brushes will vary the speed of rotation of the motor and the present invention likewise contemplates the provision of means whereby the motor will rotate from its lowest speed to its highest speed and then back to low speed. Said mechanism includes gears 24 and 25 mounted upon shaft 26. The gear 25 is of smaller diameter than the gear 24 and the teeth of said gear 25 mesh with the teeth of the gear 17. A gravity actuated pawl or spring actuated pawl 27 is adapted to prevent rotation of the gear 24 in one direction. The gear 24 is adapted to be moved responsive to oscillation of the seat *b*. This is accomplished by providing a pawl 28 hingedly mounted to a rod 29. The rod to this end is formed with a cut-away portion 30 and the pawl is adapted to be received in part within said cut-away portion and to be moved outwardly from said cut away portion through the medium of a spring or the like 31. This rod is provided with a screw threaded bore at 32 to receive a screw threaded bolt 33. This bolt is hinged at one end as shown at 34 and secured to the seat *b* at 35. The rod 29 is passed through and confined by a guide 29a so that the pawl 28 is urged into engagement with a tooth of the gear 24 so as to move the gear responsive to reciprocation of said rod. An arm 36 is secured to the bar 29 and in such a position that the same may be turned to engage the pawl 28, to retain the pawl within the cut out portion 30 and out of engagement with the gear 24. The adjustment permitted the pawl rod will permit the pawl 28 to engage the gear teeth 24 one at a time or to skip a number of teeth to produce greater rotation of the gear responsive to reciprocation of the bar 29. The mechanism just described, namely the means *c*, is suitably secured between the sides 1 of the framing or bed, the graduated scale and the handle 18 with its pointer 21 being exterior to one of the sides 1. If desired the reducing unit shaft 12 may be provided with a crank 37 carrying a stud 38, the stud being received within a slot 39 of a lever 40. This lever is pivotally secured at 41 to a fram-

ing piece 42 extending between the sides 1. A switch 43 has its actuating lever 44 connected to the lever 40 through the medium of a link 45. Various plug sockets are shown at 46. Thus as the shaft 12 rotates, the switch will be moved from one position to a second position, then back again.

The operation of the device just described is as follows:

We may assume that the patient reclines upon the seat *b*, the seat to this end being cushioned as shown at 47. The operator may either release the pawl 28 from operation or permit it to be in position to engage the teeth of the gear 24. However, the operator may or may not turn the handle 18 so that the lowest motor speed is obtained. Certain of the plugs as shown at 48 may be inserted in the sockets to operate a heating pad 49 and a therapeutic lamp 50. When a source of current supply is directed to the motor 7, the motor will start rotating which will produce rotation of the pulley 11 through the medium of the belt drive 9, and this rotation will produce rotation of the reducing unit and the seat *b* will be oscillated. As the seat is oscillated the switch 43 will be operated to turn on and off the therapeutic lamp 50. It is obvious in this connection that various effects may be produced by other lamps by arranging the wiring connections between the said switch and the plug sockets 46. If it is desired to increase the speed of oscillation of the seat gradually the pawl 28 is released so that it may engage the teeth of the gear 24. Rotation of the gear 24 will produce rotation of the gear 25 to in turn rotate the gear 17. As the link 19 is secured to the gear 17, movement of said link will occur to move the brushes of the motor. Thus the speed of oscillation of the table will be gradually increased from a minimum to a maximum and then gradually decreased again from a maximum to a minimum. By adjusting the length of the pawl rod the maximum oscillation of the seat can be reached within a short period of time, as would be evident. The device is particularly useful in the treatment of nervous diseases, as it produces a certain psychological effect upon the patient. Most people know that lowering the body so that the head is tipped downwardly, and the feet upwardly will cause blood to rush to the head. This device by being under control will allow the blood to rush toward the head and the upper regions of the body and then will allow the blood to normalize and then move toward the lower extremities of the body. In the present instance the patient is of course reclining and the organs of the body are given an opportunity to normalize or assume what may be termed a relaxed condition. It has been found that nervousness, sleeplessness and kindred ailments have been effectively treated by a device of this character, particularly

so when the patient has been instructed to breathe in rhythm with the oscillatory period of the seat.

It is intended that the bracket 4 should be so positioned with relation to the shaft 6 that it would be directly under the center of gravity of any person reclining upon the seat. This is done in order that the seat may be moved with minimum effort. It is within the purview of my invention to provide some means for shifting the position of the bracket as well as the journal members associated with the side members 1 that the center of gravity relation might be maintained as it is realized that individuals differ as to weight and particularly as to the location of the principal weight.

It is obvious that various changes, modifications and variations may be made in practicing the invention in departure from the particular showing in the drawings without departing from the true spirit of the invention.

Having thus disclosed my invention, I claim and desire to obtain by Letters Patent:

1. A therapeutic device comprising a movable body supporting element, a motor connected with said element for moving the same successively through like cycles of operation, a gear wheel, a connection between said gear wheel and said motor whereby rotation of the gear wheel varies the speed of the motor, a rod connected with the supporting element, and a pawl carried by said rod for cooperation with said gear wheel to rotate the same step-by-step during continuous operation of the supporting element.

2. A therapeutic device comprising a movable body supporting element, a motor connected with said element for moving the same successively through like cycles of operation, a gear wheel, a connection between said gear wheel and said motor whereby rotation of the gear wheel varies the speed of the motor, a rod connected with the supporting element, a pawl carried by said rod for cooperation with said gear wheel to rotate the same step-by-step during continuous operation of the supporting element, and means mounting said rod for longitudinal adjustment relative to the supporting element to variably predetermine the amount of rotation of the gear wheel effected by the pawl during each cycle of operation of the supporting element.

3. A therapeutic device comprising a movable body supporting element, a motor connected with said element for moving the same successively through like cycles of operation, a gear wheel, a connection between said gear wheel and said motor whereby rotation of the gear wheel varies the speed of the motor, a rod connected with the supporting element, and a pawl carried by said rod for cooperation with said gear wheel to rotate the same step-by-step during continuous operation of

the supporting element, said pawl being pivoted to said rod for swinging movement to an inoperative position relative to said gear wheel, and a member mounted on the rod for cooperation with the pawl to hold the same in its inoperative position to permit the motor to operate the supporting element at a fixed rate of speed.

In testimony whereof, I have signed my name to this specification.

DR. HENRY GROSS.

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