Dec. 29 1925. 1,567,818

A. H. STEBBINS

VIBRATING EXERCISE TABLE

Filed July 23, 1924 2 Sheets-Sheet 1

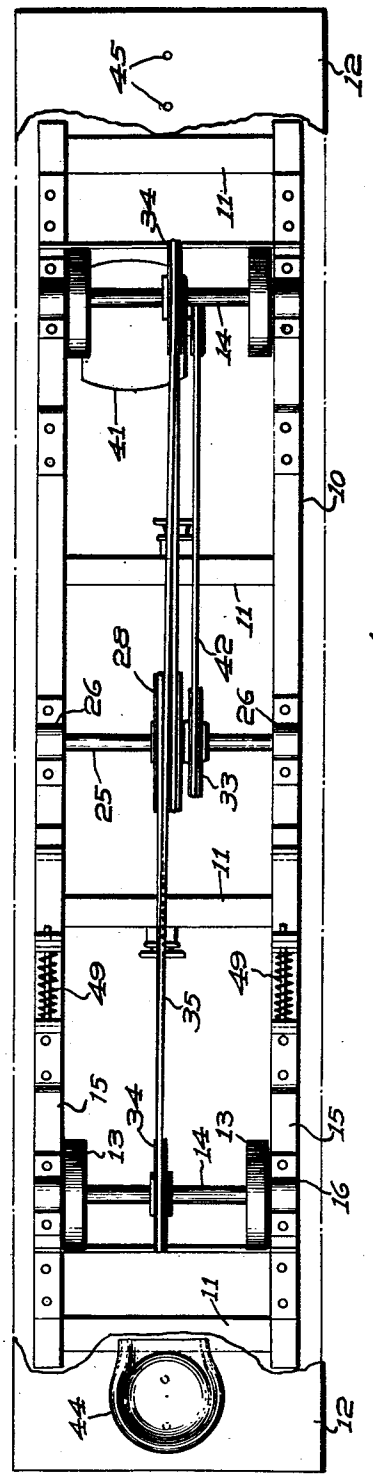

Fig. 2

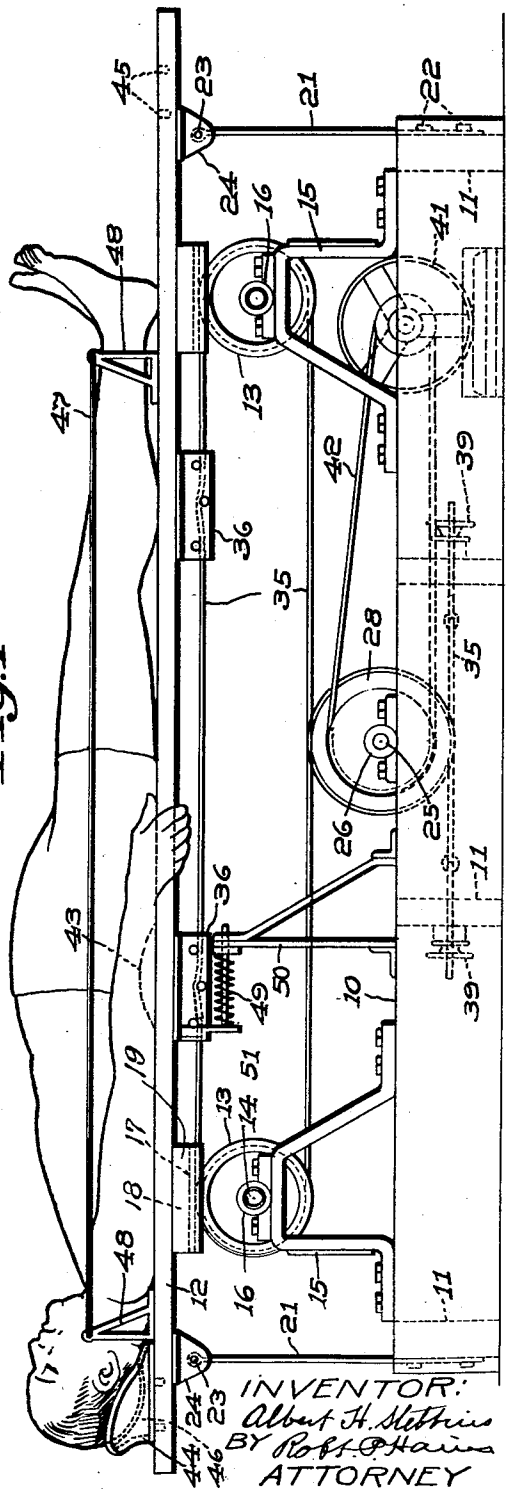

Fig. 1

INVENTOR:
Albert H. Stebbins
BY Robt. O. Hains
ATTORNEY

Dec. 29, 1925. 1,567,818

A. H. STEBBINS

VIBRATING EXERCISE TABLE

Filed July 23, 1924 2 Sheets-Sheet 2

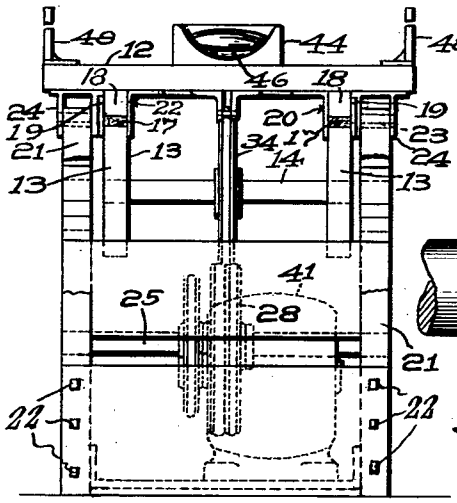

Fig.3

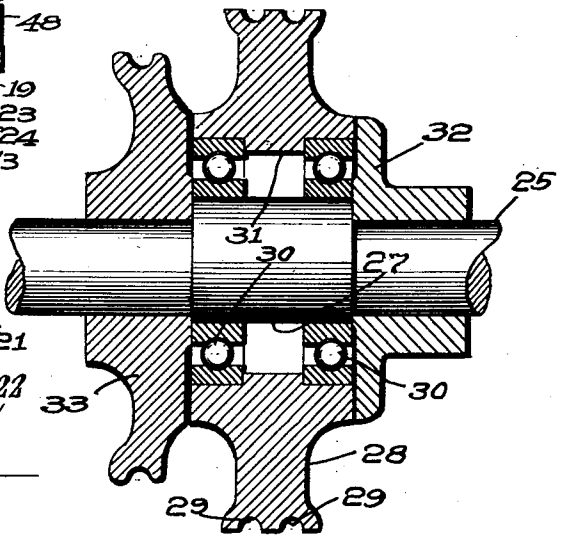

Fig.4

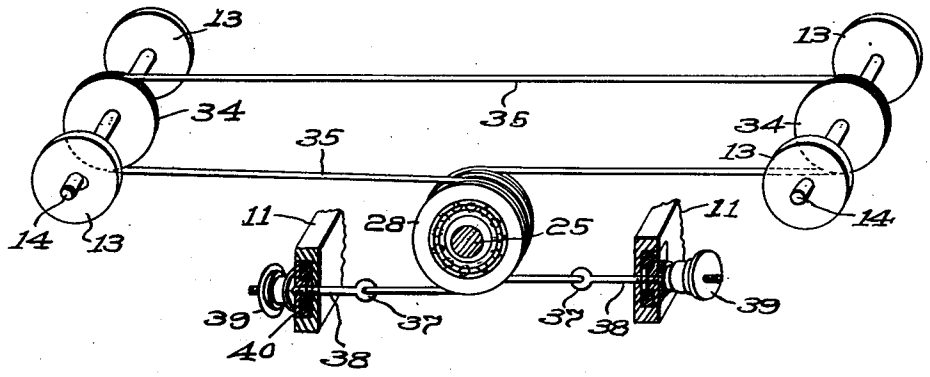

Fig.5

INVENTOR:
Albert H. Stebbins
BY Rolf O. Harris.
ATTORNEY

Patented Dec. 29, 1925. 1,567,818

UNITED STATES PATENT OFFICE.

ALBERT H. STEBBINS, OF LOS ANGELES, CALIFORNIA.

VIBRATING EXERCISE TABLE.

Application filed July 23, 1924. Serial No. 727,712.

To all whom it may concern:

Be it known that I, ALBERT H. STEBBINS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented an Improvement in Vibrating Exercise Tables, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a vibrating table for stimulating and exercising the human body.

It is known that various ailments of the human body may be corrected by applying a vibratory force to the affected part of the body, and small, portable, vibratory devices which may be readily applied to and moved over the affected portion of the body are now in extensive use.

The vibratory movement serves to stimulate and exercise the portion of the body to which it is applied, and to be beneficial the vibratory element should have a short rapid stroke.

It is found that the entire human body may be benefited by subjecting it to a rapid vibratory force, and the present invention therefore relates to an exercise table constructed to support the human body, and provided with mechanism for moving the table back and forth rapidly in the direction of its length with vibratory effect.

A person undergoing treatment upon the exercise table of the present invention may lie flat upon the table, or may assume a sitting or inclined position, depending upon whether the entire body is to be subjected to the vibratory treatment, or only a part of the person's body, and the vibratory movement imparted to any particular portions of the body may be modified as desired by interposing either soft or hard cushions between the person and table at different points. For example, if it is desired to reduce the vibratory movement imparted to the person's head, an air cushion or a soft pad may be placed under the person's head, and if it is desired to increase the force of the vibrations imparted to part of the back, a hard cushion may be used to support that portion of the back and to transmit the vibrations of the table directly to that portion of the body. The effect of the treatment may be still further varied, upon the person undergoing treatment assuming a position transversely of the table instead of longitudinally thereof.

To secure the most effective or beneficial treatment, the table should move back and forth in the direction of its length along a straight line and should be given a short but rapid movement.

One important feature of the present invention therefore resides in novel means for supporting the exercise table for movement back and forth along a straight line with a minimum amount of friction.

Another important feature of the invention resides in operating means for moving the table rapidly and positively in opposite directions.

In some cases it may be desirable to promote a flow of blood lengthwise of the person being treated to increase the flow of blood either to the person's head or to his feet, and this may be accomplished by the vibrating table of the present invention by imparting a progressive vibratory movement to the table. Another feature of the present invention therefore resides in means for operating the table more energetically in one direction than the other to produce the desired progressive vibratory movement. The person being treated may lie upon the table with his head at one end when the progressive movement is employed, to promote flow of blood to his head, or with his head at the opposite end when it is desired to cause the blood to flow away from his head.

Other features of the invention and novel combination of parts in addition to the above will be hereinafter described in connection with the accompanying drawings which illustrate one good practical form thereof.

In the drawings:—

Fig. 1 is a side elevation of a vibrating exercise table constructed in accordance with the present invention.

Fig. 2 is a top plan view of Fig. 1, with the greater portion of the table broken away to show the table supporting and operating mechanism.

Fig. 3 is an end view of Fig. 1.

Fig. 4 is an enlarged sectional view thru an operating sheave mounted upon an eccentric shaft; and

Fig. 5 is a perspective view of the table operating mechanism.

In the embodiment of the invention shown

the operating parts are supported by a base or frame, consisting of side beams 10 connected by transversely extending bars 11, and the table 12 is movably supported by and rests upon wheels 13 secured to the transversely extending shafts 14. The wheels are rigidly secured to their shafts in spaced relation, and the shafts 14 are shown as supported near the ends of the table by brackets 15 that are secured to and extend upwardly from the beams 10. Each bracket 15 is provided with a journal box 16 in which an end of one of the shafts 14 is rotatably mounted.

The table 12 rests upon the wheels 13 and is thus supported for free movement in the direction of its length. The wheels are shown as having flat peripheral faces, and bearing shoes 17 (Fig. 3) which may be formed of hard fibre are secured to the blocks 18 to engage the wheels. Guide plates 19 and 20 secured to the under face of the table at each side of the block 18 are provided to engage the sides of the wheels 13 to guide the table and keep it in place upon the wheels. In order to prevent the table from being lifted off the wheels 13, straps or springs 21 are provided (four being shown, two at each end of the table) and these straps are secured to the machine base by bolts 22 and extend upwardly to the table 12. The upper ends of the straps are bent to form bolt-receiving eyes, and the eyes are secured by bolts 23 to the U-shaped brackets 24 fastened to the under face of the table.

From the construction so far described it will be seen that the table is supported by the wheels 13 for movement back and forth in the direction of its length with a minimum amount of friction and that it is maintained in its proper position upon the wheels.

Means will now be described for moving the table back and forth with vibratory effect. Various means might be provided to this end, but the construction shown serves to move the table rapidly and positively back and forth in a satisfactory manner.

Below the table is mounted a transversely extending operating shaft 25 journaled in bearings 26 mounted upon the beams 10. The shaft 25 is provided with an eccentric 27 which may be integral with the shaft. Upon the eccentric 27 is mounted a sheave 28 having the cable receiving grooves 29. Anti-friction bearings 30 of well known construction are preferably mounted between the sheave and its eccentric so that the eccentric may rotate freely within the sheave to move the latter bodily but not rotatively. The anti-friction bearings are held in spaced relation by the annular rib 31 of the sheave 28, and the sheave and bearings are held from moving longitudinally of the shaft by a flange plate 32 at one side of the eccentric 27 and by a driving sheave 33 at the opposite side of the eccentric.

Means is provided for rotating the shafts 14 so that the engagement between the wheels 13 and the shoes 17 will assist in imparting the back and forth movement to the table and to this end each shaft 14 is provided with an operating sheave 34.

The movement of the sheave 28 is imparted to the table 12 by a cable or cables 35. In the construction shown a cable is provided having an intermediate portion rigidly secured to the under side of the table at one or more points 36, and the clamping means may consist of transversely extending bolts which clamp the cable between cooperating blocks. One portion of the cable 35 extends from the table 12 about the left-hand sheave 34 and then about the sheave 28 in one groove 29 and the end of this portion of the cable is anchored to a cross bar 11. Another portion of the cable 35 extends from the table about the right-hand sheave 34 and then about the sheave 28 in the other groove and is anchored to a cross bar 11.

The ends of the cable are fastened at 37 to the bolts 38 extending thru holes in the cross bars 11, and the tension of the cable may be varied by rotating the hand wheels 39 having threaded engagement with the bolts 38. It is desirable that the cable anchoring means shall yield slightly as the sheave 28 moves in its orbital path and to this end, in the present case, rubber pads 40 are confined between the cross bars and the adjacent hand wheels.

The eccentric shaft 25 may be driven by an electric motor 41 secured to the machine frame and having a belt 42 operatively engaging the sheave 33, and as the eccentric 27 rotates it moves the sheave 28 in an orbital path. This serves to tension alternatively the portions of the cable engaging the opposite sides of the sheave 28 and pull the table 12 in first one direction and then the other, and the pull upon the cable rotates the sheaves 34 and wheels 13 to help reciprocate the table.

A person receiving a treatment upon the present table may lie flat upon the table, as shown in Fig. 1, or may assume such other position as may be necessary to obtain the desired treatment. The portions of the person that exert the greatest pressure upon the table will receive the greatest vibratory effect, but, as above stated, this increased effect may be produced upon different portions of the body by placing a hard cushion 43 under that portion of the body which is to be subjected to the increased vibratory effect. The table is preferably provided with a head rest 44 retained in place by pins that extend into sockets 45 in the table, and the sockets 45 are provided at each end of

the table, so that the head rest may be secured at one end of the table or the other. An air cushion 46 may be provided upon the head rest to support the person's head and reduce the vibratory movement imparted to the head. Cables 47 stretched between upstanding brackets 48 may be provided at each side of the table 12 to assist in holding the person in place upon the table.

As stated, it may be desirable to impart a progressive vibratory movement to the table to promote the flow of blood either toward or from a person's head. This is accomplished in the present case by confining a coiled spring 49 at each side of the table between a bracket 50 extending upwardly from the supporting frame, and an abutment 51 extending downwardly from the table. The effect of these two springs is to move the table more rapidly in one direction than the other, and to cause the operating cable to arrest the movement of the table more quickly in one direction than the other. The progressive movement, in addition to promoting the flow of blood in the desired direction, may be used to stretch or extend one portion of the body and compress another portion. This is due to the fact that normally the greatest weight of the person upon the table occurs at the hips and the portions of the body which rest more lightly upon the table will tend to travel under the progressive movement of the table relative to the hips.

The construction described, by which rocking movement is imparted from the operating cable, through the shafts 14 to the wheels 13, while desirable as assisting to impart a back and forth movement to the table 12, is not necessary in all constructions since if the wheels 13 are rotatably mounted on the shafts 14 the cable 35 will impart the desired reciprocatory movement to the table.

What is claimed is:

1. A vibratory exercise machine, comprising in combination, a table mounted for movement back and forth in the direction of its length and constructed to support a person in a lying position, transversely extending shafts rotatably supported below the table, wheels mounted upon and rigidly secured to the shafts and adapted to support the table, wheel-engaging plates rigidly secured to the table to rest upon the wheels, and means for rocking the shafts and wheels through a slight angle to cause the engagement of the wheels with said plates to move the table back and forth with vibratory effect.

2. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted for movement back and forth in the direction of its length and constructed to support a person in a lying position, wheels rotatably supported by the frame and having the table resting thereupon, wheel-engaging shoes rigidly secured to the table to rest upon the wheels, and means for rocking the wheels to cause the engagement of the wheels with said shoes to move the table back and forth with vibratory effect.

3. A vibratory exercise machine, comprising in combination, a table supporting frame, a table mounted upon said frame for movement back and forth in the direction of its length and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric, a cable secured to the table and table supporting frame and having an intermediate portion passed around one side of the sheave and another intermediate portion passed around another side of the sheave to pull the table back and forth when the eccentric shaft is rotated.

4. A vibratory exercise machine, comprising in combination, a table mounted for movement back and forth in the direction of its length and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric, and a cable having portions extending from the sheave in opposite directions to the table to pull the table back and forth as the eccentric shaft is rotated.

5. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric, and a cable secured to the table and having portions extending from the table about the sheave in opposite directions and anchored to said frame to impart back and forth movement to the table upon rotation of the eccentric shaft.

6. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric, a cable secured to the table and having portions passing in opposite directions about the sheave to move the table positively back and forth, and means for yieldingly anchoring the ends of the cable to said frame.

7. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and

forth movement and constructed to support a person in a lying position, a transversely extending shaft rotatably supported by said frame, wheels rigidly secured to the shaft and having the table resting thereupon, a sheave secured to the shaft, a cable secured to the table and extending around the sheave, means for periodically pulling the cable to rotate the sheave and move the table in one direction, and means for moving the table in the opposite direction.

8. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person, wheels rotatably mounted upon the frame and having the table resting upon their periphery, straps extending downwardly from the table to hold the table in place upon the wheels, an eccentric shaft, and a cable actuated by the eccentric to pull the table back and forth with vibratory effect.

9. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person, wheels rotatably mounted upon the frame and having the table resting upon their periphery, straps extending downwardly from the table to hold the table in place upon the wheels, means for moving the table back and forth with vibratory effect, and means for modifying the movement of the table so that it will travel more rapidly in one direction than the other to impart to the person upon the table a progressive vibratory movement.

10. A vibratory exercise machine, comprising in combination, a table constructed to support a person in a lying position, means for supporting the table for movement back and forth in the direction of its length, means for moving the table back and forth with vibratory effect to stimulate the body of the person lying upon the table, and means for modifying the movement of the table so that it will travel more rapidly in one direction than the other to impart a progressive vibratory movement to the table so that it will promote the flow of blood lengthwise of the person upon the table.

11. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person for vibratory treatment, transversely extending shafts rotatably supported by the frame, wheels mounted upon the shafts and adapted to support the table, wheel engaging shoes fastened to the table to rest upon the wheels, guide plates extending downwardly from the table and engaging the sides of the wheels to guide the table, and means for rotating the wheels in contact with said shoes to move the table back and forth with vibratory effect.

12. A vibratory exercise machine, comprising in combination, a table mounted for movement back and forth in the direction of its length and constructed to support a person for vibratory treatment, a transversely extending shaft supported below the table, a wheel mounted upon said shaft and adapted to support the table, a sheave secured to said wheel, a cable secured to the table and passed around the sheave to rotate it and the table supporting wheel, means for periodically pulling the cable to move the table in one direction, and means for moving the table in the opposite direction.

13. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric, an antifriction bearing between the sheave and eccentric to permit the latter to rotate freely within the former, a cable secured to the table and having a portion extending around said sheave so that the movement of the sheave alternately pulls and slacks off the cable to actuate the table, and means for moving the table in a direction to tighten the cable.

14. A vibratory exercise machine, comprising in combination, a supporting frame, a table mounted upon the frame for back and forth movement and constructed to support a person in a lying position, means for moving the table back and forth with vibratory effect, including an eccentric shaft, a sheave mounted upon the eccentric so that the latter may rotate within the sheave to move it in an orbital path, a cable secured to the table and having a portion extending around the sheave so that the movement of the sheave alternately pulls and slacks off the cable to actuate the table, and means for moving the table in a direction to tighten the cable.

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

ALBERT H. STEBBINS.