Dec. 30, 1947. J. ECKS 2,433,548

EXERCISER

Filed Aug. 31, 1945 2 Sheets-Sheet 1

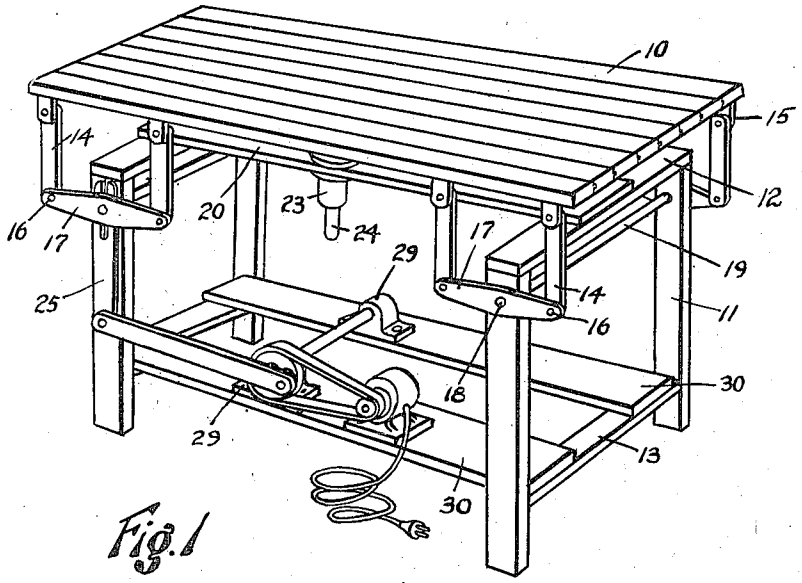


Fig. 1

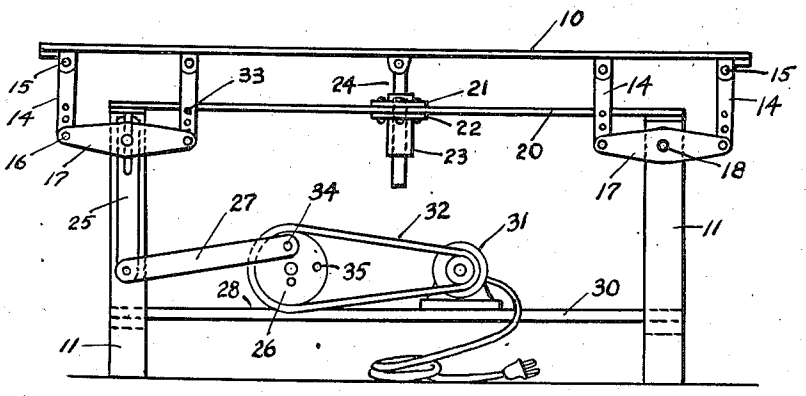


Fig. 2

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EXERCISER

Filed Aug. 31, 1945 2 Sheets-Sheet 2

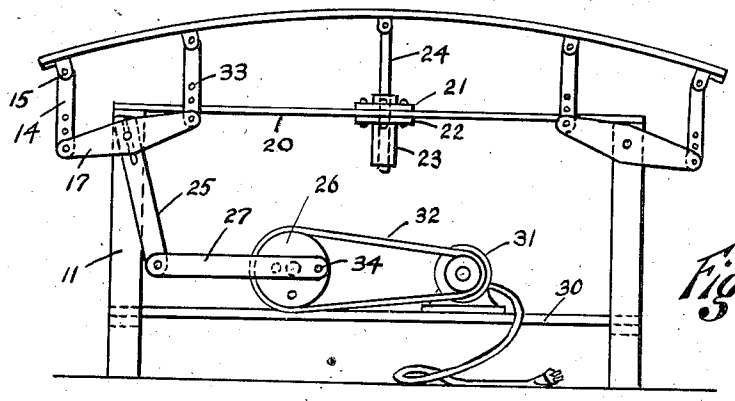


Fig. 3

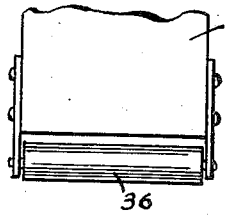


Fig. 4

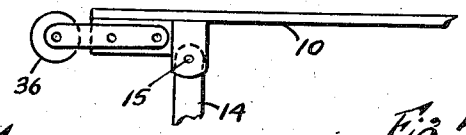


Fig. 5

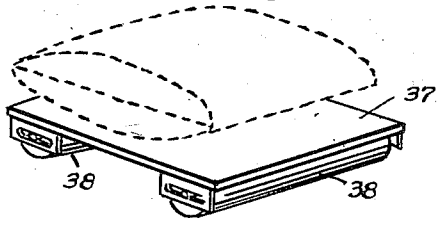


Fig. 6

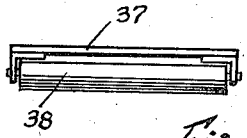


Fig. 7

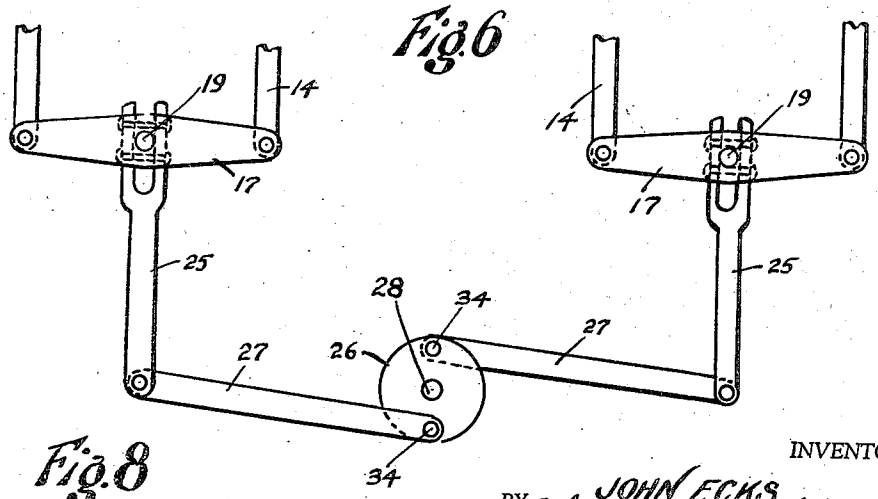


Fig. 8

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UNITED STATES PATENT OFFICE

2,433,548

EXERCISER

John Ecks, Milwaukee, Wis.

Application August 31, 1945, Serial No. 613,914

6 Claims. (Cl. 128—33)

1

My invention relates to exercisers of a type that may be employed as a vertebral and spiral treatment.

The object of my invention is to provide a device that may be varied in its operation and functions depending on the patient and the type of treatment that is prescribed in the treatment of the vertebrae and spine.

Another object of my invention is to so construct a device of the character described that the patient may repose in any relaxed position either on the back or side.

A still further object of my invention is to provide a device that may be constructed in a manner that it can be operated anywhere electric current or motive power is available.

With the device as described, a person's entire body may be exercised while in a relaxed stage without effecting the stomach muscles for no assistance is required from the patient during the performance of the device.

Other and further objects of my invention will become more apparent as the description proceeds when taken in conjunction with the drawings in which

Figure 1 is a perspective view of the device,

Figure 2 is a front view of the device showing the flexible top in a straight or neutral position,

Figure 3 is a similar view as shown in Figure 2 but showing the flexible top bent upward in its central portion,

Figure 4 is a top or plan view of one end of the flexible table showing a roller arranged in a manner to accommodate the feet or legs of the patient,

Figure 5 is a side view of the roller arrangement as shown in Figure 4,

Figure 6 is a perspective view of a head rest arrangement for the patient while reposing on the flexible table top,

Figure 7 is an end view of the head rest as shown in Figure 6, and

Figure 8 is a fragmentary front view of the lever arrangement operated by a double cam.

Similar characters of reference indicate corresponding parts throughout the several views, and referring now to the same, the character 10 shows a table top constructed of a plurality of flexible slats which may be padded or covered in any convenient manner if desired.

There are vertical standards 11 supported at their upper ends by cross braces 12 and near their lower ends by the braces 13. The table top 10 is suspended by links 14 hingedly attached to the table 10 at 15 and hingedly resting on

2

the outwardly extending ends 16 of yokes 17 which are in turn pivotally mounted to the vertical standards 11 at 18. This pivot point is shown consisting of a shaft 19 journaled in and through the vertical standards 11.

Across the cross braces 12 and extending from one set of vertical standards 11 to the other is a horizontal brace 20 supporting a pair of flanges consisting of an upper flange 21 and a lower flange 22. The lower flange 22 is provided with a cylindrical sleeve 23 through which a rod 24 supported by and fastened to the lower face of the table top 10 slides in a vertical plane. The shafts 19 on one or both sides supporting the yokes 17 are provided on one end with a downwardly extending member 25 clamped securely thereto, and the lower end of the members 25 are attached to crank members 26 by means of a link member 27. The cranks 26 are mounted to the ends of a shaft 28 which is journaled in bearings 29 supported by cross members 30 fastened to the members 13 near the lower end of the vertical standards 11.

A motor 31 is shown mounted on the members 30 and a belt 32 leading over a pulley on the motor shaft and one of the cranks 26 furnishes the actuating means for the entire device.

Obviously a single crank as shown in Figure 1 may be employed or a double crank arrangement as illustrated in Figure 8 may be used. The advantage of the double crank arrangement is that two yokes 17 cause the table top 10 to flex instead of only one, however the flexibility of the slats constituting the table top would determine whether one or two cranks should be used. The links 14 may be provided with apertures 33 to enable adjustment of the table top 10.

In operation the device functions as follows. As the motor 31 is operated, the belt 32 over a crank 26 causes the crank to revolve thereby actuating the members 25 forward and backward depending on the extent of the crank action. The member 25 causes the shaft 19 to move the yokes 17 which in turn will cause the links 14 to raise the center of the table 10 when the yokes are in one position and bringing down or lowering the center of the table top when in another position. The links 14 will always travel in a vertical plane due to the support given the extra structure by the rod 24 sliding within the sleeves provided by the flanges 21 and 22. The pin 34 on the crank 26 may be placed in any one of a series of holes 35 placed within the crank 26 and this will determine the amount of flexing of the table top.

In Figures 4 and 5, I show a roller **36** extending outward from and fastened to the extreme end of the table top **10**. This is to enable the patient to extend his legs beyond the end of the table top, and in Figures 6 and 7, I show a head rest **37** mounted on solid roller **38** arranged to rest on top of the table top and in this manner the patient's head and feet will have a tendency to move in a synchronized manner with the flexing of the table top.

While I have herein described a specific construction of my device, there are many alterations and changes that can be made and I reserve the right to make such changes as may arise without departing from the invention and the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent in the United States is:

1. A device of the character described comprising in combination a table top, a base, yoke members pivotably attached to said base, said yoke members supporting said table top by means of link members attached to the outer ends of said yoke members, a rocker arm, said rocker arm extending downward from one of said yoke members, a rotatably mounted cam supported by said base, a connecting link attaching said rocker arm to said cam, a vertical rod attached to said table top slidably engaging sleeve members supported by said base, an actuating means in the form of a motor for rotating said cam causing said table top to flex upward and downward due to the revolution of the cam.

2. A device of the character described comprising in combination a flexible table top, a base, yoke members pivotably supported by said base, link members pivotally attached at four points to said table top and acting as a supporting means for said table top, said link members hingedly attached to the depending ends of said yoke members, rocker arms extending at right angle from said yoke members, a cam rotatably mounted to said base, said cam provided with a plurality of apertures at various distances from its center, a connecting link attached to said rocker arm engaging one of the apertures in said cam, a guide rod attached to said table top, said guide rod slidably engaging sleeve members attached to said base, a motor, said motor attached to said cam causing said cam to rotate thereby oscillating the flexible table top upward and downward when said motor is put into operation.

3. A device as described in claim 2 in which the link members are provided with a plurality of apertures to enable variable attachment to the depending end of the yoke members thereby varying the oscillating movement of the flexible table top, due to their attachment at four points to said table top.

4. An exercising device of the character described comprising in combination a table top consisting of a plurality of flexible slats, a base comprising vertical standards, yoke members pivotably mounted to said vertical standards, link members hingedly attached to the four outwardly depending ends of said yoke members for the pivoted support at four points of said flexible table top, rocker arms extending at right angle from said yoke members, a cam, said cam rotatably mounted to the base supported by said vertical standards, a connecting link attached to said rocker arm and said cam causing said rocker arm to be actuated by said cam when the cam revolves, a vertical guide rod attached to said flexible table, a sleeve member attached to said base supported by said vertical standards, said sleeve members slidably supporting said vertical rod, a motor mounted to said base employed to actuate and rotate said cam and a roller means extending outward from the end of said flexible table top to accommodate the legs of the patient reclining on said table top while the device is in operation.

5. A device as described in claim 4 having a slidable head rest engaging the upper surface of said table top by means of horizontal rollers to further facilitate a relaxed position of the patient while the device is in operation.

6. An exercising device of the character described comprising in combination, a table top consisting of a plurality of flexible slats, vertical standards constituting a base, shafts supported by said vertical standards, yoke members mounted to said shafts, link members hingedly attached to the four outwardly extending ends of said yoke members for the support of said flexible table top at four points, rocker arms adjustably attached to said shafts and extending at right angle to said yoke members, a cam, said cam rotatably mounted to the base supported by said vertical standards, connecting links attached to said rocker arms and said cam causing said rocker arm to be actuated by said cam when the cam revolves, a vertical guide rod attached at the center to said flexible table, a sleeve member attached to said base, said sleeve members slidably guiding said vertical rod, a motor mounted to said base, said motor employed to actuate said cam thereby causing said flexible table to be bent upward and downward due to the action of the yoke and rocker arms.

JOHN ECKS.

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