Dec. 1, 1959 E. E. MATTON 2,915,055

EXERCISING CHAIR

Filed March 13, 1957

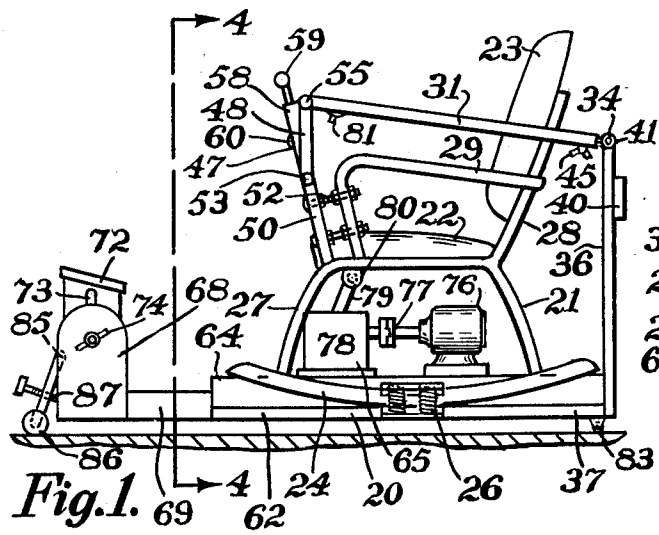


Fig. 1.

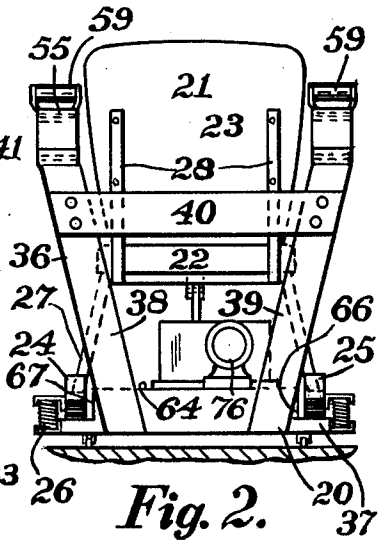


Fig. 2.

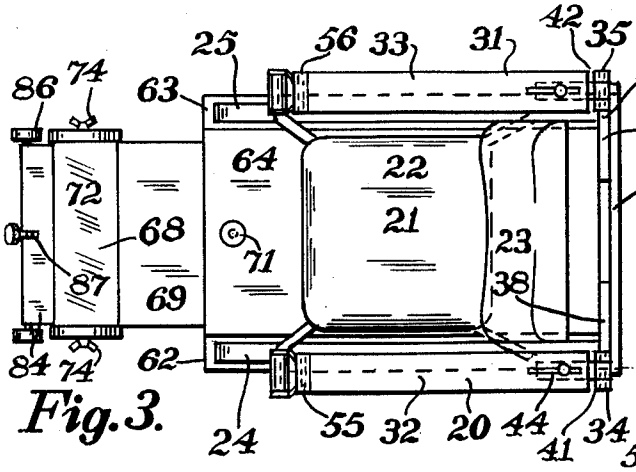


Fig. 3.

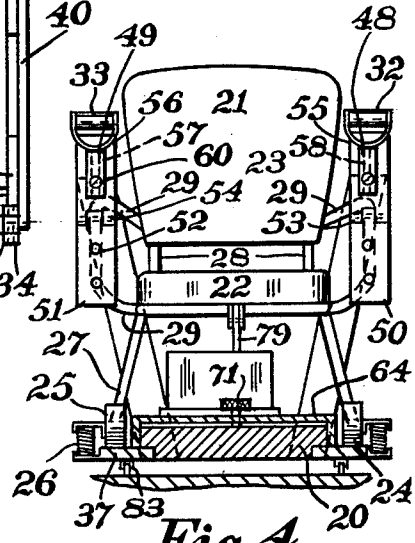


Fig. 4.

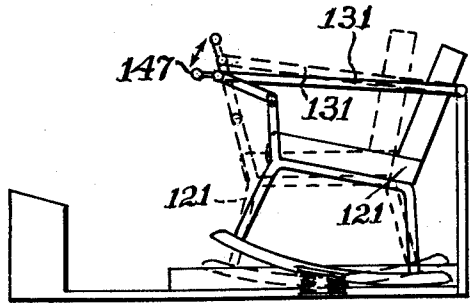


Fig. 5.

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2,915,055

Patented Dec. 1, 1959

2,915,055

EXERCISING CHAIR

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Application March 13, 1957, Serial No. 645,784

8 Claims. (Cl. 128—25)

This invention relates to exercising chairs for passive human beings. It is especially useful for flexing the limbs and exercising the joints of persons suffering from arthritis, Parkinson's disease, and similar maladies.

The device of this invention differs from those of the prior art in that it accommodates a person in sitting position in a rockable arm or easy chair support with the feet firmly and immovably supported to give confidence and the limbs oscillated only in vertical planes while the person is comfortable and completely passive.

It is the principal object of the invention to provide an exercising device having a fixed foot support, a comfortable chair supported on rockers and pivotally linked arm and hand supports arranged to oscillate uniformly in vertical planes when the chair is automatically rocked. The hands, arms and legs of a passive invalid person are thus swung in vertical arcs on their respective joints to limber the same without frightening, straining or nervously upsetting the person.

Another object of the invention is to provide an exercising arm chair and a method of exercising a passive person in which all of the body, limb and hand supports move while the foot support remains stationary, thereby retaining the orientation and confidence of the patient.

A further object of the invention is to provide an exercising device of simple, rugged, low cost construction adapted to be within the financial means of most invalids and suitable for home use as well as hospital or physicians' use.

Still another object of the invention is the provision of an exercising chair in which the hand supports and arm supports are oscillated on different arcs whereby the wrist joint is exercised as well as all of the joints of the limbs.

A still further object of the invention is to provide an exercising chair in which the supports are adjustable to accommodate persons of various sizes and the chair, while normally stationary, is movable on wheels when desired.

Other objects and advantages of the invention will be apparent from the claims, the description of the drawing and from the drawing in which—

Fig. 1 is a side view of the invention,

Fig. 2 a rear view of the invention,

Fig. 3 a plan view of the invention,

Fig. 4 is a front view of the invention in section on line 4—4 of Fig. 1, and

Fig. 5 is a diagrammatic view similar to Fig. 1, showing the path of the moving supports of the invention.

As shown in Figs. 1 to 4 the exercising device 20 of this invention includes torso support means 21 having a seat 22 and a back support 23 oscillatable on a horizontal axis below the seat. Preferably the torso support means 21 is mounted on rockers 24 and 25 to form a rockable chair and the rockers are prevented from creeping by coil springs such as 26 well known in the rocking chair art. A conventional tubular aluminum chair is illustrated for convenience having legs such as 27 for supporting

the seat 22 at a substantial distance above the rockers, back braces such as 28 and side arms such as 29, the latter serving only as braces in this invention.

The arm support means 31 of the invention comprises a pair of rigid members 32 and 33, each oscillatable on a fixed horizontal axis 34 or 35 located in rear of torso support means 21. It is preferred that the horizontal axes 34 and 35 be at the top of a rearward upstanding portion 36 of a base 37 upon which the rockers 24 and 25 are rockable. As shown, the upstanding portion 36 comprises a pair of posts 38 and 39 diverging upwardly and connected by a cross bar 40, the cross bar serving as a safety stop at the rear of the path of the back support 23. The axes 34 and 35 are formed by hinge pivots 41 and 42 and the members 32 and 33 include slots such as 44 for threaded tightening elements such as 45 for adjusting the length thereof relative to the said hinge pivots.

The hand support means 47 of the invention comprise a pair of rigid members 48 and 49 each oscillatable on horizontal axes at the front of the seat 22 of torso support means 21. For convenience, a pair of elements 50 and 51 are each fixed to one of the side arms 29 of the means 21 by bolts such as 52 to rock integrally with the same. The elements 50 and 51 could, however, be formed by an extension of the legs 27 or back 28, the essential point being that they hingedly support the elements 50 and 51 at the front of the seat 22 and at a level about midway between the seat 22 and the arm support members 32 and 33. A hinge pivot such as 53 and 54, similar to hinge pivots 41 and 42, connects the members 48 and 49 to the elements 50 and 51 and similar hinge pivots 55 and 56 connect the members 32 and 33 to the members 48 and 49. Each hand support member such as 48 includes a slot 57 for the rod 58 of a hand grip 59 there being a threaded tightening element 60 for affixing the grip 59 at the desired height. The hand grip 59 is arranged to extend above the level of the arm support means 31 whereby the hand of a person using the device will be inclined upwardly from the wrist and forearm supported on the members 32 or 33. The height of grip 59 may be adjusted by the threaded element 60 to accommodate persons of various sizes and to create various arcs of oscillation.

Preferably the base 37 includes a pair of opposite low level platforms 62 and 63 upon which the rockers 24 and 25 and the springs such as 26 are mounted and a central, higher level, platform 64 upon which the actuating means 65 is mounted. The opposite sides 66 and 67 of platform 64 tend to guide the rockers and prevent twisting of the same. A foot support 68 is provided having a section 69 slideable within the platform 64 and latchable thereto by means of latch 71 at various desired horizontal distances therefrom. Foot support 68 includes a stool or pad 72 slideable vertically therein to various positions by means of the slots such as 73 and wing bolts 74. The foot support 68 is thus fixed well in front of the torso support means 21 and extends above the level of the rockers 24 and 25 to hold the feet in immovable raised position with the knees correspondingly raised while the torso is rocked backward and forward. The leg and ankle joints are thus exercised while the feet remain stationary to give the patient a feeling of confidence.

The actuating means 65 of the invention includes an electric motor 76 connected by a suitable power train 77 to a gear reducer 78, the reducer operating a crank shaft 79 attached at 80 to the torso support means 21. Preferably a cover, not shown, is provided over actuating means 65 and a control switch 81 is provided on one of the arm support members such as 31 for opening and closing the circuit to motor 76 all in a well known manner. The crank shaft 79 rocks the seat support 22 and the

back support 23 on a horizontal axis substantially below the seat support 22, the rocking movement oscillating the hand support means 47 on movable horizontal axes 53, 54 and 55, 56 and oscillating arm support means 31 on the fixed axes 34, 35.

As diagrammatically illustrated in Fig. 5 the torso support means 121, at the rear of its rocking path, will cause the legs and arms of the patient to tend to straighten to thereby exercise the wrist and ankle joints as well as the limb joints. At the front of the rocking path of torso support means 21 the legs and arms of the patient will tend to bend to thereby draw the knees upwardly, bend the hand upwardly at the wrist and bend the arm at the elbow. The leverage and linkage of the arm support means 131 and the hand support means 147 is arranged to flex the wrists, ankles, arms and legs in vertical planes with no lateral motion and without straining the muscles or joints.

Preferably base 37 is provided with fixed wheels such as 83 at its rearward end, which may be swivel type casters and foot support 68 includes a plate 84 pivoted at 85 and carrying a pair of wheels such as 86. A thrust screw 87 is provided whereby the wheels 86 may normally be swung upwardly out of contact with the floor or ground but may be lowered into supporting engagement with the base for rolling the device horizontally in cooperation with wheels 83.

I claim:

1. A device for exercising a passive person, said device comprising a unitary seat and back support rockable at a spaced distance above a horizontal axis on a base and adapted to support a passive person in sitting position; a stationary base including a low flat platform proximate the level of said axis and an upstanding portion terminating above the rocking path of said seat and proximate the rear thereof; a pair of oscillatable arm supports, each pivotable on a horizontal axis at its rearward end to the terminal end of said upstanding base portion and each extending along an opposite side of said seat to a forward end in front of said seat; a pair of oscillatable hand supports, each pivotable on a horizontal axis at the lower end to the front of said seat, each pivoted intermediate thereof to a forward end of one of said arm supports and each terminating in a hand grip above said arm supports; motor operated means on said base for rocking said unitary seat and back support and oscillating said arm and hand supports and foot support means associated with said base and adapted to support the feet of a person in said device at a spaced distance in front of, and above the level of, the axis of said unitary seat and back support.

2. An exercising device comprising rockable chair means; a stationary base supporting said rockable chair means, said base having a foot stool at the front thereof and a pair of upstanding posts at the rear thereof, a pair of hand supports, each pivoted to the front of the seat of said rockable chair means and extending upwardly therefrom; a pair of arm supports, each pivoted intermediate of a hand support at the forward end thereof and each pivoted to one of said upstanding posts at the rearward end thereof and motor power means on said base, connected to said rockable chair means for rocking the same relative to said base.

3. In an exercising device, a base; torso support means, including a seat and back, pivotally mounted on said base for oscillation on a horizontal axis; arm support means extending along each opposite side of said torso support means and pivotally mounted on an upstanding portion of said base for oscillation on a horizontal axis located rearwardly of the back of said torso support means; hand support means, on each opposite side of said torso support means, pivotally mounted on the seat of said torso support means for oscillation on a horizontal axis; said arm support means being pivotally interconnected to said hand support means; a foot support secured to said base forwardly of said torso support means and motor drive means on said base connected to said torso support means for oscillating all of said support means and thereby exercising the hands and limbs of a human body supported in said device.

4. A combination as specified in claim 3 wherein said foot support extends upwardly from said base to a plane substantially higher than the plane of the pivot mounting of said torso support means.

5. A combination as specified in claim 3 plus threaded mechanism on said arm support means and on said hand support means for varying the effective length thereof from their respective pivot mountings.

6. A combination as specified in claim 3 wherein the pivotal interconnection of said arm support means to said hand support means is intermediate of the height of the latter and said hand support means includes hand grips at the free terminal ends thereof.

7. A combination as specified in claim 3 wherein said foot support includes means for slideably adjusting the height thereof relative to said base.

8. A combination as specified in claim 3 wherein said foot support includes means for slideably advancing and retracting the same in a horizontal plane relative to said base.

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