

May 1, 1951

N. E. GOODRICH
EXERCISING CHAIR

2,550,992

Filed May 9, 1946

2 Sheets-Sheet 1

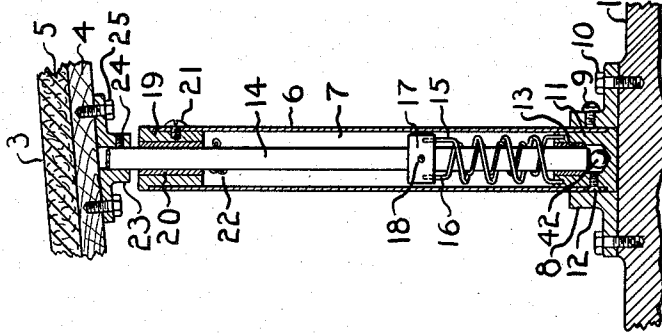


FIG-5

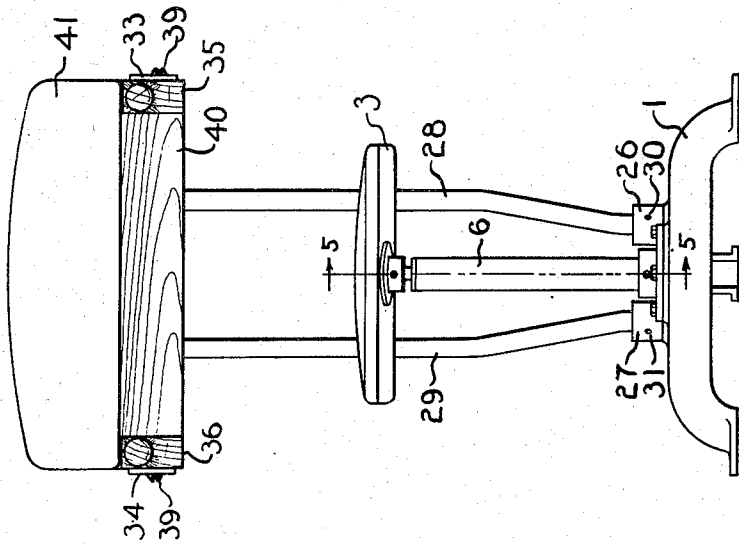


FIG-1

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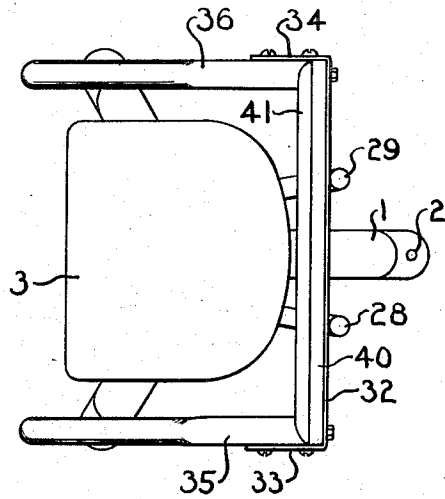


FIG-3

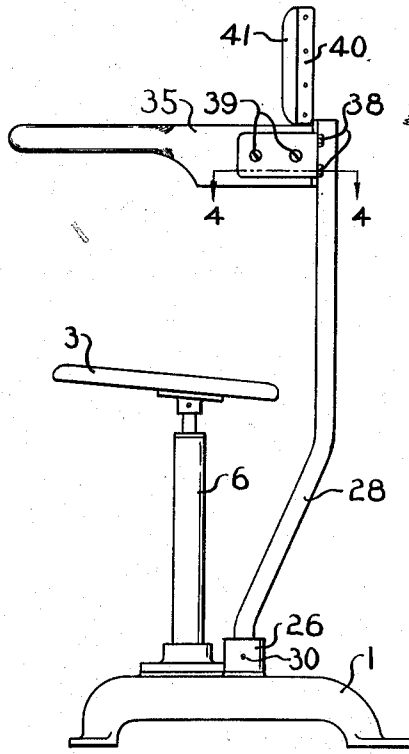


FIG-2

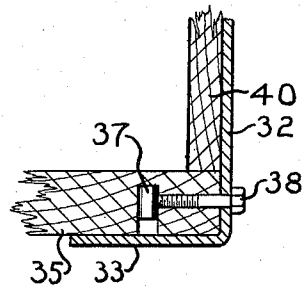


FIG-4

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UNITED STATES PATENT OFFICE

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EXERCISING CHAIR

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3 Claims. (Cl. 272-58)

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The present invention relates broadly to exercising equipment, and in its specific phases to an exercising chair.

There are various types of exercising equipment on the market such as walking machines, rowing machines, mechanical horses, and the like, but none of them are constructed in manner permitting exercising the back and abdominal muscles of a patient by an alternating twisting motion while supporting the body at the same time. It was a recognition that such equipment was entirely lacking on the market, and that there was a definite need of same, which led to the conception and development of the present invention.

Accordingly among the objects of the present invention is the provision of an exercising chair having a seat which oscillates on a substantially vertical axis.

Another object of the invention is to provide an exercising chair which has a relatively rigidly held high back with arms which extend forward from the back.

Another object of the invention is to provide an exercising chair which has an oscillatable seat with means for returning it to normal starting position.

A further object of the invention is to provide an oscillatable seat exercising chair wherein the seat is tilted back slightly on its vertical axis of oscillation.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of the various ways in which the principle of the invention may be used.

In said annexed drawings:

Figure 1 shows a front view of the chair of the present invention.

Figure 2 shows a side view of the chair illustrated in Figure 1.

Figure 3 shows a top view of the chair illustrated in Figure 2.

Figure 4 shows an enlarged fragmentary sectional view of an arm mounting as taken along line 4-4 of Figure 2.

Figure 5 shows an enlarged fragmentary sectional view of the seat pedestal assembly as taken along line 5-5 of Figure 1.

Referring more particularly to the drawings, 55

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the chair assembly has a base 1 which may be provided with openings 2 in its outer edge for anchoring to the floor if desired. Mounted on the base, preferably forward of the center thereof, as is shown in Figure 2, is a seat 3 which may, for instance, have a base panel 4 (Figure 5) with a cushion 5 mounted thereon in conventional manner. This seat is supported by a pedestal assembly 6 which has a tubular housing 7 fitting into a bottom flange 8, and anchored thereto by means of screw 9. Flange 8 may be an integral part of base 1 or it may be fastened thereto by means of cap screws 10, and the showing is intended to be diagrammatic of either of these constructions. Fastened in the lower end of tubular housing 7 is a plug 11 which is anchored in place by means of screw 12. Plug 11 is bored so as to have a conical bearing seat at the lower end of the bore, while the upper end of the bore may be provided with a bushing 13 in which shaft 14 rotatably fits. Wound around shaft 14, which is supported by a ball bearing 15 resting on the conical seat, is a pair of springs 16 and 17 which are coiled in opposite directions with the lower end of the springs entering suitable anchoring openings in plug 11 while the upper end of each of the springs is fastened in a sleeve 18 which is anchored to shaft 14 by means of set screw 19. In the upper end of tubular housing 7 is a plug 19 which is bored and preferably fitted with a bushing 20 of a size closely fitting shaft 14 while permitting same to freely rotate therein. Plug 19, which may be provided with an outturned shoulder on its upper end adapted to rest on the upper end of the tubular housing 7, may be anchored in place in conventional manner, for instance, by means of set screw 21.

In order to prevent shaft 14 from being accidentally withdrawn from the pedestal assembly, the shaft is cross drilled at a point normally just below plug 19 and a cotter pin 22 placed therein and clinched. Any upward movement of shaft 14 in the pedestal assembly will, under these conditions, be stopped when the cotter pin reaches the under face of plug 19. A flange 23 is anchored on the upper end of shaft 14 by means of a set screw 24. This construction permits the seat to be assembled in proper position after the pedestal assembly has been fastened to base 1. The upper face of this flange is preferably set at an angle for a purpose to be hereinafter described, and screws 25 serve to fasten the seat assembly 3 to it.

Joined to base 1 in conventional manner, such as by means of integral bosses or flanges 26 and

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27, are a pair of rod type back braces 28 and 29 which are bent to the desired shape to provide clearance during use of the chair. These back braces may be conventionally anchored at their lower ends to the bosses such as by welding or by means of set screws 30 and 31. At the upper end of back braces 28 and 29 is welded a cross member 32 (Figure 3) which has forwardly extending side members 33 and 34. Fastened to these side members are a pair of extending hand grip arm members 35 and 36. This fastening is preferably accomplished by a dual anchoring procedure which involves the use of a threaded plug 37 (Figure 4) fitting a sidewise drilled opening in the arm member, said plug being in a position to act as the nut for a bolt 38 extending from the back of cross member 32 lengthwise of the arm member. To make the arm fastening more rigid and stable two of these bolt arrangements may be used for each arm, as is shown in Figure 2. In addition a pair of screws 39 are used to sidewise anchor each of the arm members to the side extensions of cross member 32 and thus make the arms still more rigid and stable. Fastened to cross member 32 in conventional manner is a back member 40 which carries a pad 41 on its upper portion. Constructing the assembly in this manner produces a back and arms which are exceedingly rigid and able to withstand severe strains under conditions of use of the chair.

The chair thus becomes an exercising machine which is used for limited twisting of the user's body from his hips to his shoulders in manner exercising and strengthening his back and abdominal muscles. The adult size of the chair, for instance, is so proportioned that when an adult sits on the seat, the longitudinal axis of the pedestal assembly 6 is approximately in line with his spinal column as he sits upright in the chair with his shoulders against the back cushion 41 while gripping arm members 35 and 36 and pushing back to hold his shoulders firmly in place. The user then extends his feet outward, and, to carry on the exercise, swings his feet and legs alternately from side to side while sitting on the seat and holding his arms and shoulders firmly in place as described. This leaves his body free to be twisted back and forth from his shoulders to his hips in manner strengthening his muscles in this area.

In order for the user to avoid sliding forward on the seat 3 during the taking of these exercises, it was found desirable to incline the front of the seat upward about five degrees from horizontal, as shown in Figure 2. The seat normally comes to rest in the adjusted position shown in Figure 3, when the treatment is over, due to the effect of the two oppositely wound springs in pedestal assembly 6. These springs are of moderate tension so as to offer little resistance to rotating the seat from side to side under conditions of use.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. An exercising chair which consists of a base, a pedestal assembly individually mounted on said base, said pedestal assembly having a tubular housing, bearings at the upper and lower ends of said housing, a shaft fitting said bearings, a

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thrust bearing at the lower end of said shaft for supporting same, a flange anchored on the upper end of said shaft, a pair of oppositely wound springs mounted substantially concentric with said shaft, one end of each of said springs being anchored in fixed position relative to said tubular member, the other end of each of said springs being anchored to said shaft for rotation therewith, said springs normally returning and resiliently holding said shaft in a single position, and means for holding said shaft against removal therefrom, a seat mounted on said flange, said seat being tilted backwards a small amount, a back member with forwardly extending side portions, said back member being at normal shoulder height of an adult human being when sitting on said seat, a pair of substantially rigid rods extending upward behind said seat, said rods being anchored to said base at their lower end and to said back member at their upper end, a pair of arms, and means for rigidly fastening said arms substantially horizontally to said forwardly extending side portions of said back member in manner such that said arms project forward freely on opposite sides of said seat at an elevation thereabove such that an adult human being may sit on the seat and with his arms extended and hands gripping the rigidly mounted chair arms so as to hold his shoulders firmly against the back member, he may raise his feet and legs and swing them from side to side under said arms with an oscillatory motion to exercise his back and abdominal muscles, and when he gets up from the chair the springs will return the seat to its original position.

2. An exercising machine for human beings, which comprises a base member, a pedestal assembly rigidly mounted at its lower end on said base, said pedestal assembly having a tubular housing, bearings at the upper and lower ends of said housing, a shaft fitting said bearings, a thrust bearing supporting the lower end of said shaft, a flange anchored on the upper end of said shaft, and a pair of oppositely wound springs mounted substantially concentric with said shaft, one end of each of said springs being anchored in fixed position relative to said tubular member, the other end of each of said springs being anchored to said shaft for rotation therewith, said springs normally returning and resiliently holding said shaft in a single position, a seat mounted on said flange, a back member with arms mounted thereon and solely supported thereby, the upper portion of said back member being at normal shoulder height of an adult human being and solely supporting said adult in the shoulder area while said arms connected to said back member freely extend forward from the lower portion of said back member, and means for suitably mounting said back with arms rigidly on said base with said arms at an elevation above said seat such that the legs of a human being sitting thereon, and turning sidewise, will freely pass under said arms.

3. In a sitting down type of exercising machine having a substantially vertical and relatively narrow front face shoulder height back rest with hand grip arm rests freely extending forward from same, said substantially vertical front face back rest being mounted substantially horizontally and extending forward from an upright relatively rigid support means adapted to clear the hips of one using said machine, the combination of a tubular pedestal, a rotary shaft including assembly mounted substantially verti-

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cally in said pedestal, bearings for the upper and lower ends of said substantially vertically mounted shaft, a thrust bearing under the lower end of said shaft for supporting same, a seat mounted on the upper end of said shaft, said seat being tilted backwards a small amount, and means including a pair of concentric springs substantially coaxial with said shaft and connecting the shaft to the pedestal for normally holding the seat in one position while permitting same to oscillate in a substantially horizontal plane a limited amount in either direction from said position in response to turning force applied to said seat.

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