United States Patent

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[54] **EXERCISER AND PHYSICAL REHABILITATION APPARATUS**
7 Claims, 5 Drawing Figs.

[52] U.S. Cl. **128/25,** 272/79
[51] **Int. Cl.** **A61h 1/02**
[50] **Field of Search** 272/79, 57, 80; 128/25, 24.1, 24.2

[56] **References Cited**
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ABSTRACT: Two upright levers extending down to near the floor, are swingably mounted in spaced relation on a stand. Each of two foot pedals has a roller near its rear end to roll on a track which extends rearwardly on the floor from the stand, and said pedals at forward end are swingably mounted to the bottom end of said levers respectively. All axes are horizontal and parallel. The pedals are to stand on, and for most exercises the upper parts of the levers are grasped in hand. The pedals are near alongside each other. The handle portions are further apart.

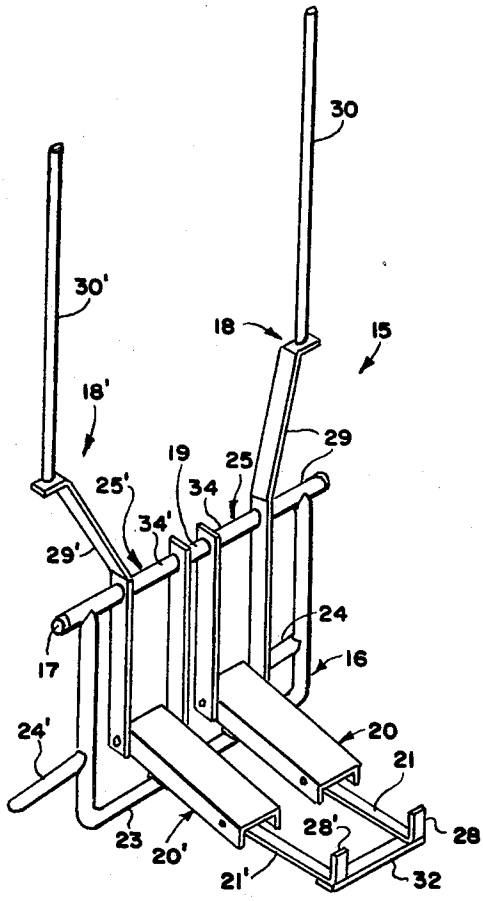
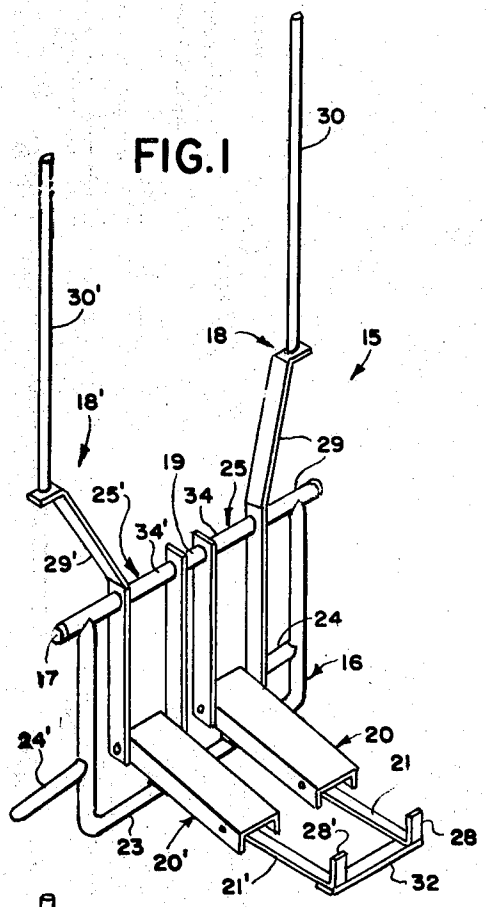


FIG.1



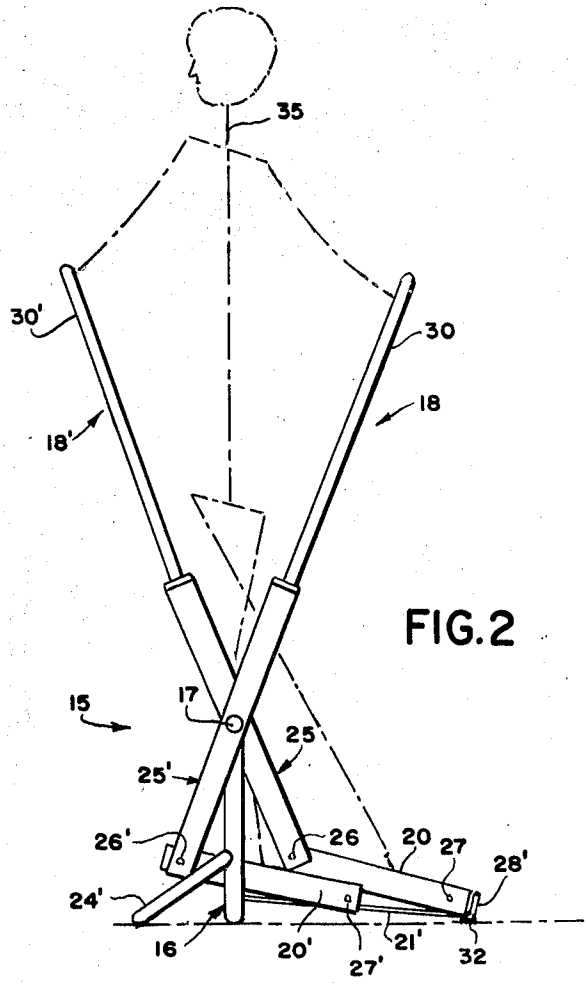


FIG.2

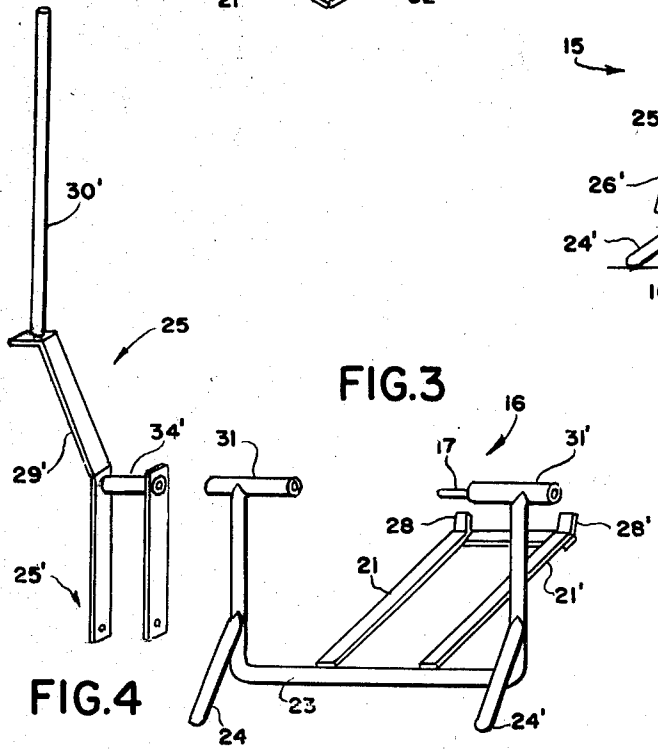


FIG.3

FIG.4

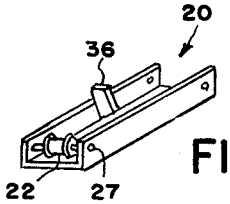


FIG.5

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EXERCISER AND PHYSICAL REHABILITATION APPARATUS

The present invention relates to exercisers which are also useful in physical therapy, and more particularly to the type involving movements of the users arms and legs.

The principal object of this invention is to provide novel and improved physical exercising devices of the character mentioned, which brings into common action and coordinates arm and leg movement, and causes incidental movements in the neck and torso to avoid muscle stagnation.

A further object thereof is to provide a novel and improved exerciser device specially useful in physical therapy, which allows a patient with comparatively stronger legs to impose movement on weakened arms, or with comparatively stronger arms, to impose movement on weakened legs.

Still a further object thereof is to provide novel and improved exercising apparatus of the character described, having the mentioned attributes, and which is simple in construction, reasonable in cost to manufacture, easy to use, and efficient in carrying out the purposes for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

For one practice of this invention, two identical generally upright levers are independently mounted for swinging movement about a common axis on a stand; the lower part of each lever being a downwardly directed clevis, the distal ends of who arms are near the floor. Fitted within each clevis, is the forward end of an elongated pedal which is swingably mounted thereon; each pedal having near its rearward end, a rotatably mounted roller as a support therefor on a track rod extending along the floor, rearwardly from said stand. All axes are horizontal, parallel. The pedals are for the user to stand on, and are close by each other's side. The upper position of the levers are to be grasped in hand. The intermediate portions of said levers starting from immediately above the lever's axis of swing, are upwardly divergent, so the handle portions are further apart to suit man's build.

Various manners of manipulation and a more detailed description of a preferred embodiment of this invention will now be given, for which, recourse will be had to the accompanying drawing wherein similar characters of reference indicate corresponding parts in all the views.

FIG. 1 is a perspective view of an exerciser and rehabilitation apparatus embodying the teachings of this invention.

FIG. 2 is a side view of FIG. 1, indicating one manner of manipulation; the user being shown diagrammatically.

FIG. 3 is a perspective view of the frame member, a stand.

FIG. 4 is a perspective view of one of the levers which is swingably mounted on the stand as shown in FIG. 1.

FIG. 5 is a perspective view of one of the pedals, shown inverted to expose its supporting roller.

In the drawing, the numeral **15** designates generally an exerciser apparatus comprising a stand indicated generally as **16**, which on an axis rod **17** spanning the distal ends of its U-shaped stand component, there are swingably mounted the two identical upright levers denoted generally by the numerals **18**, **18'** respectively, which are positioned one right, and the other left, separated by a short tubular central spacer **19** on said rod **17**. Said levers at their lower ends, are respectively associated with rearwardly extending, elongated pedals **20** and **20'**, having rollers as **22** which ride respectively on track rods **21**, **21'**, respectively extending rearwardly from the base rail **23** of the stand's U-member, which also has forward legs **24**, **24'** to make the stand sturdy on the floor. The construction of each lever and its associated pedal and their connections and appurtenances being identical, and all parts being symmetrical in relation to the central vertical plane through the central spacer **19**, detailed description as to what is to one side of said plane, shall apply to what is to the other side of said plane, except that one part will be designated by a numeral unprimed, and its corresponding part will be designated by the same numeral primed, but a description for one, will suffice for the other.

The lever **18** comprises a lower part which is a downwardly directed clevis **25**, between the lower distal ends of whose arms, the forward end of the pedal **20** is swingably mounted on an axis pin **26**. Said clevis arms clear the bottom rail **23** of the stand **16**. The pedal may be an inverted channel as shown. Near the rearward end of the pedal, on an axis pin **27**, there is a rotatably mounted roller, the said **22**, which as mentioned, rides on the track rod **21**, provided with the end stop **28**. The upward part of the lever is a rod **30**, to serve as a handle. The middle part of the lever is bent upwardly away from the spacer **19**, so such intermediate parts **29**, **29'** of the levers are divergent upwardly, so though the pedals **20**, **20'** are close by alongside each other, the handles **30**, **30'** are further apart, so the apparatus suits man's body build.

The frame **16** is shown made of tubular stock, and tubular pieces **31**, **30'** are welded at the top ends of the U-member's arms, in alignment, so they serve as bearings for the axis rod **17**. Each clevis is offset towards the central spacer **19**, from the general line of the lever it is part of. The bight **34** of the clevis is tubular and of course straight and open-ended, so it shall serve as a bearing for the lever, on the axis rod **17**. The rear ends of the track rods **21**, **21'** are welded to a tie bar **32** which rests on the floor. The pedals may be made of sheet metal, and the remainder of tubing, piping and metal bar stock. Suggested approximate dimensions which are given only as a matter of example, and shall not be deemed restrictive, are for a device **15** for adults, that the stand height is 14 inches by 22 inches from side to side. The length of the track **21** is 15 inches and pedal area is 12 × 4½inches. The handles **30**, **30'** are 20 inches apart and the length of each is 26 inches. The overall height of the device is 42 inches. All bar stock is ½ × 1½ inches, and tubular stock has a 1-inch diameter. All other dimensions may be judged in the proportion shown in the drawing. Of course, smaller sizes will be chosen for devices **15**, to suit children and teenagers. Forward pedal stops may be added, as at **36**.

In all instances in exercising with this apparatus **15**, it has been my experience that the user **35** stands on the pedals **20**, **20'**, one foot on each. He may or may not grasp the handles **30**, **30'**, while he works his feet in opposite directions as in skating to shift the pedals that way, or he may grasp the handles and work his hands to move both handles in one direction while the feet are worked to move both pedals in the opposite direction. In physical therapy, a patient **35** who has stronger legs than arms, will hold onto the handles **30**, **30'**, while he "powers" the pedals with his legs. But if he has stronger arms than legs, he will just stand on the pedals and use his hands to "power" the handles. It is evident that the weaker limbs will have motion imparted to them and therapists will encourage that they try their own propulsion. It is evident, that in all uses and manipulations, while there occur any limb movements, that the neck and torso will be subjected to voluntary and involuntary bends and turns.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended that the embodiment shown shall be deemed merely illustrative.

I claim:

1. In an exerciser of the character described, a stand, two upright levers swingably mounted about a substantially horizontal axis on the stand; the lower ends of said levers extending close to the ground, two pedals swingably mounted at the bottom ends of said levers respectively, to be stood on by the user; the upper parts of said levers serving as handles adapted to be respectively grasped by the hands of the user, and two rollers rotatably mounted on said pedals respectively, supporting said pedals so they can ride on a substantially horizontal surface; all axes of swing and rotation being parallel.

2. An exerciser as defined in claim **1**, wherein each pedal has a forward end and a rearward end; said rollers being near said rearward ends respectively, and the connections of said pedals with the respective levers, being at the forward ends of said pedals.

3. An exerciser as defined in claim 2, wherein the lower part of each lever is a clevis; each of the pedals being positioned between the arms of a clevis.

4. An exerciser as defined in claim 3, wherein each clevis is offset from the general line of the lever it is on; one lever being right and the other left.

5. An exerciser as defined in claim 4, wherein the bight of each clevis is an open-ended tube; a rod being positioned through said bights and mounted on the stand, and constituting the axis of swing of each of said levers.

6. An exerciser as defined in claim 1, wherein the pedals are comparatively close alongside each other; said handles being comparatively further apart.

7. An exerciser as defined in claim 1, including two track bars extending from the stand along the ground; said rollers being engaged on said track bars respectively and in rolling contact therewith.