Jan. 12, 1943. G. G. PORTER 2,307,856

EXERCISING DEVICE

Filed Dec. 31, 1940

Fig. 1.

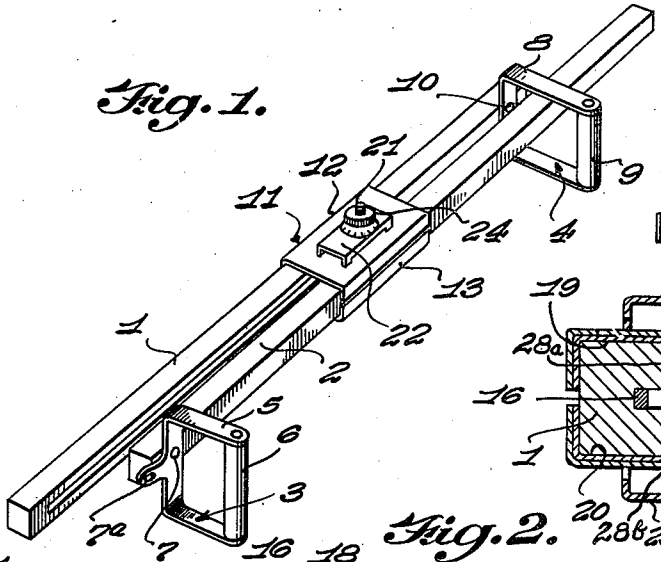


Fig. 4.

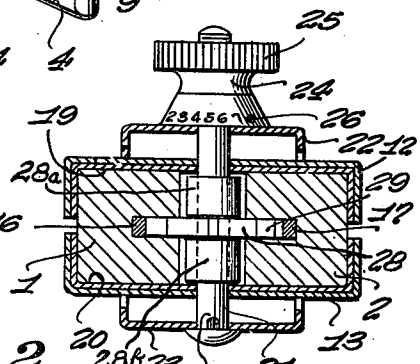


Fig. 2.

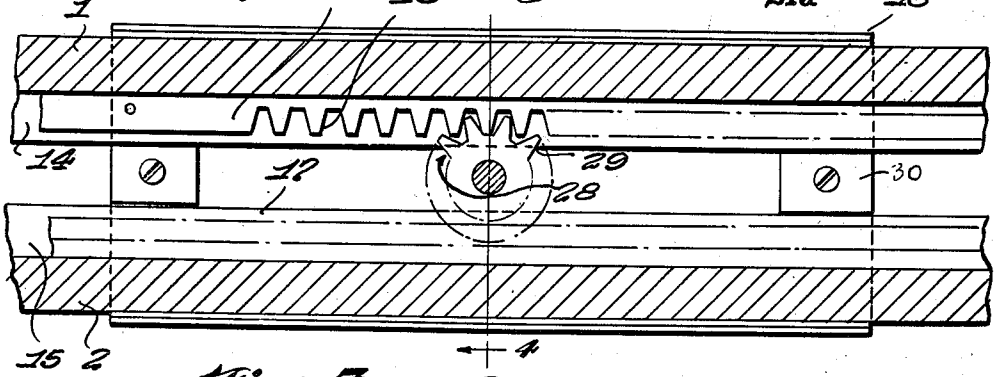
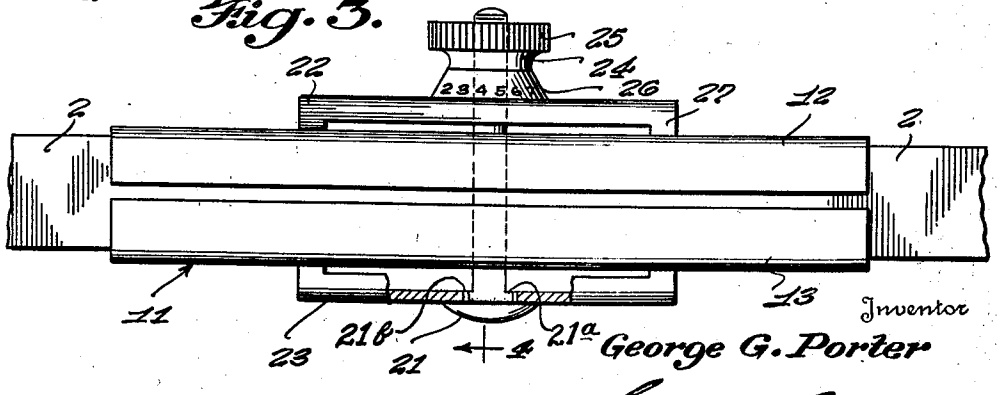


Fig. 3.



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EXERCISING DEVICE

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8 Claims. (Cl. 272—79)

This invention relates to exercising devices and more particularly to a double-action exerciser which is intended for use for quickly improving the health of the user by means of more efficient means for exercising than can be found in the various forms of exercising devices now available which are single-acting and afford resistance in one direction only, such resistance being provided by springs, rubber bands or weights which forcibly return the handles to their original and inert starting position.

It is well recognized that the human body, particularly that of an adult, ordinarily does not receive a sufficient amount of the proper kind of exercise for the stimulation and promotion of the circulation of the blood, and of deep breathing, which are very necessary and essential for the maintenance of good health. This is largely due to the fact that very few persons, relatively speaking, are employed in occupations which necessitate the right kind of regular exercise in the performance of their duties, and which promote deep breathing, especially out-of-doors. The result is that those persons whose work requires their confinement within an office or factory often become run down and in poor health. This condition has not only the effect of interfering with the personal well-being of the person or persons concerned but also is responsible for a greatly reduced working efficiency for said person or persons. In order to promote the health of such confined persons, various methods of exercising and various types of exercising devices have been devised. Some of the methods of exercising consist of a series of calisthenics. Other methods employ the use of the hereinbefore mentioned exercising devices. Up to the present time, exercising devices have been either too complicated and expensive or, if not expensive, too flimsy in construction and ineffectual in results obtained, many of them requiring too much of a person's time in their use to be effective to any extent. This lack of efficiency is due in a large measure to the fact that nearly all of the manually operated exercising apparatus is single-action. That is to say, the operator moves or pulls a handle in one direction against a resistance of springs or rubber bands which afford more and more resistance as the handles or grips are extended. Some of the well-known types of exercising devices employ the resistance of weights of one kind or another. In exercising devices of the above mentioned types, the same sets of muscles are used and are under tension in both the forward and return strokes of movement which is unscientific and for which reason it is almost impossible to exercise many of the muscles, as it is highly desirable that they should be.

Other objections to exercising devices employing resistance produced by springs or rubber bands is that they start with a weak resistance, with the hands comparatively far apart, and, before the hands have traveled far, the resistance becomes so strong that it is almost impossible to move them farther, or at least very difficult to do so. Also, the springs or rubber bands sometimes break and allow certain parts to snap back with considerable force, to the painful injury of the user. In addition, the various forms of exercising devices do not permit of the beneficial long, sweeping strokes of the arms or parts being exercised.

One object of my invention is, therefore, to provide an exerciser which will be of inexpensive, simple and rugged construction, but which will, when used properly, be exceedingly efficient for speeding up the circulation of the blood and cleansing the tissues of accumulated waste due to poor circulation of blood.

Another object of my invention is to provide an exerciser, the proper use of which will greatly assist and promote deep breathing exercises which are very beneficial and efficacious in helping to burn up waste material in the lungs and thus eliminating it from the system, thereby greatly helping to bring about a better state of health and personal efficiency, both physical and mental.

A further object of the invention is to provide an exerciser which will, when properly used, strengthen and tone up most of the muscles of the human body and will, in view of the novel double-action operation, do it in a minimum amount of time.

Still another object of my invention is to provide an exerciser which will be practically noiseless in use, smooth in operation and which will provide uniform resistance throughout both its forward and return stroke.

A further object of the invention is to provide an exerciser of this character which, in view of the fact that it is double-acting in operation, will be more than doubly effective due to the fact that muscles which can not be exercised by other forms of exercising apparatus, namely, the crushing or squeezing muscles, will be brought into play.

A further object of the invention is to provide a device of this character wherein means is embodied for permitting quick adjustment of the resistance or load, without the addition of additional parts, so that the needs of either a child, a woman, or a strong man will be met, with the

result that it will be useful for members of an entire family.

A further object of the invention is to provide an exerciser which requires no springs, rubber bands or weights so that danger of injuries from resistance will be eliminated.

Still another object of the invention is to provide, in one small, light weight, cheap, easily portable device that can be used in a home or office, an exerciser that will be as effective as a large gymnasium equipped with expensive apparatus, thereby saving time and money for the individual who wishes to improve his health and efficiency by the proven benefits of scientific exercise.

As another object, my invention provides an exerciser which, in view of the double-action feature, may be used for rowing and which may also be used as a double-action wall pull, thereby replacing that form of wall pull apparatus which consists of a system of weights, cords and pulleys and brackets and which is expensive, not portable and only single-acting in its operation.

And still another object of the invention is to provide an exerciser which may be used as a double-action floor pull, thereby replacing apparatus of this character which is only single-acting in operation.

And a still further object of the invention is to provide an exerciser employing means for permitting effective locking of the parts in an adjusted position.

Further objects of the invention, not particularly mentioned hereinbefore, will become apparent during the course of the following description.

In the drawing:

Figure 1 is a perspective view of my improved exerciser,

Figure 2 is an enlarged detail horizontal sectional view showing the balancing mechanism which keeps the frame or housing equidistant from the operating handles,

Figure 3 is an enlarged detail side elevation of said resistance adjusting mechanism, and

Figure 4 is an enlarged vertical sectional view on the line 4—4 of Figure 3, looking in the direction indicated by the arrows, and showing the resistance producing and adjusting mechanism.

Reference is now had more particularly to the accompanying drawing, wherein as will be seen, like numerals of reference designate like parts throughout the views. By referring particularly to Figure 1, it will be seen that my exerciser includes a pair of friction rods 1 and 2. These friction rods 1 and 2 are formed of any suitable smooth and highly polished hardwood. In this connection it is desired to state that hard maple has been found to be an entirely satisfactory material for forming these friction rods. The friction rods 1 and 2 are, as will be seen, square in cross section and normally lie in vertical planes which are in comparatively close parallel spaced relation. As will be explained in more detail hereinafter, the friction rods are movable longitudinally with respect to each other and in opposite directions.

In order to permit easy manipulation of my improved exerciser, I provide handle yokes 3 and 4, the handle yoke 3 being attached to one end of the friction rod 2 and the handle yoke 4 being attached to the corresponding opposite end of the friction rod 1. The handle yoke 3 has a substantially U-shaped body 5 and a handle 6. The handle yoke 3 is secured to the friction rod 2 by means of a screw 7 which is extended through the bight portion of said body 5. The handle yoke 4 includes a body 8 which is of greater length than the body 5 and includes arms which straddle the friction rod 2. The handle yoke 4 also includes a handle 9, and said handle yoke is secured to the friction rod 1 by means of a screw 10. It will be understood that the manually engageable portions 6 and 9 are presented at the same side of the device for convenient manual engagement. This is made possible by the provision of the relatively short body 5 and relatively long body 8 of the handle yokes 3 and 4.

The mechanism for operatively connecting the friction rods to each other and for adjusting the amount of resistance to relative movement of said friction rods will now be described. This mechanism includes a frame 11, said frame having upper and lower U-shaped plates 12 and 13, said plates extending in straddling relation about both of the fritcion rods 1 and 2 and having their free edges disposed in opposing spaced relation.

The friction rods 1 and 2 are formed with horizontally aligned longitudinally extending slots 14 and 15, said slots having their open ends disposed in opposing relation. Mounted in the slots 14 and 15, respectively, are racks 16 and 17, said racks each having teeth 18. The purpose of the racks 16 and 17 will be set forth in more detail hereinafter.

By referring particularly to Figure 4 of the drawing, it will be seen that I have provided friction linings 19 and 20 between the plates 12 and 13 and the surfaces of the rods 1 and 2. These linings 19 and 20 may be formed of any suitable fibrous material and assure smooth frictional connection between the rods 1 and 2 and the frame 11. The upper and lower plates 12 and 13 of the frame 11 are held in the operative position shown in Figure 1 by means of a bolt 21, said bolt extending through the plates 12 and 13 between the rods 1 and 2. The bolt 21 has an oblong head and is locked against rotation by a key 21^a which is engageable in a key slot 21^b in the clamping plate 23. As will be seen, the bolt 21 extends through U-shaped clamping plates 22 and 23 and is held in place by means of an adjusting nut 24, said adjusting nut having a knurled head 25 and a graduated dial 26. The clamping plates 22 and 23, as best seen in Figures 1 and 4, are of a width substantially less than that of the upper and lower plates 12 and 13 and are, in addition, spaced from the plates 12 and 13 by means of corner posts 27 which are secured in said plates 12 and 13. This construction of the bolt 21 and clamping plates 22 and 23, and the adjusting nut 24, assures even distribution of pressure on said clamping plates 22 and 23, due to the tightening of the adjusting nut 24, to the side plates 12 and 13, the friction linings 19 and 20 and the friction rods 1 and 2. It will thus be seen that pressure will be transmitted to points where it will be the most effective in producing friction resistance or load on the friction rods 1 and 2, which resistance is, of course, transmitted to the operating handles 6 and 9.

In order to assure that the friction rods 1 and 2 and the handles 6 and 9 will be maintained in their proper cooperative relation relative to the housing 11, and to keep said housing always midway between the operating handles 6 and 9 and handle yoke 3 and 4, I provide a pinion 28 which is mounted on and freely rotatable about the bolt 21 and has teeth 29 which mesh with the teeth 18 of the racks 16 and 17. As clearly seen in Figure 4, the pinion is provided with upper and lower guide sleeves 28^a and 28^b.

Spacing blocks 30 are carried at the ends of the housing, between the rods 1 and 2, and prevent inward displacement of said rods.

While it is believed that the manner of operating the invention will be apparent after a reading of the foregoing description, a statement of the operation follows hereinafter. My improved exerciser is very light in weight so that it may be manipulated by both men, women and children with the greatest facility. When it is desired to use the device for stimulating the muscles of the body, it is only necessary to grasp the handles 6 and 9 of the handle yokes 3 and 4 and then to move the handle yokes toward and away from each other, which operation will cause relative shifting movement of the friction rods 1 and 2.

In order to gain full benefit from the use of my improved exerciser, the exercising operations should be carried out in the open air. If this is not practicable, the exercises should be done before an open window or in a very well ventilated room.

When beginning the regular daily use of my invention, the resistance load on the friction rods 1 and 2 should be adjusted according to the strength of the individual using the invention. This is done by means of rotating the adjusting nut 24 for tightening the clamping plates 22 and 23 and the upper and lower plates 12 and 13 for engaging the linings 19 and 20 about the friction rods 1 and 2. In other words, the tighter the engagement of the linings 19 and 20 with the friction rods, the greater resistance load will be provided against pulling stress upon said friction rods. The graduated dial 26 provides means whereby various adjusted positions may be noted. It is desirable that the adjusting nut 24 be set to such a position that a mild resistance will be allowed when the handles 3 and 4 are moved toward and away from each other. Under these conditions it will be possible to carry out exercises without becoming too fatigued. It is obvious that, if a particular person should desire more resistance, it is only necessary that he tighten the adjusting nut. If less resistance to pulling stress is wanted, loosening of the nut may be effected. Summarizing, it may be stated that, by experimenting at intervals, the proper setting of the adjusting nut 24 and dial 26 for providing the proper amount of resistance to pulling stress on the rods 1 and 2 may be ascertained. In other words, when a user gets the nut 25 set at the right tension for him at the beginning of a daily exercise, he can set it back at the same place in the event that some other user has changed the adjustment. Moreover, as the user uses the device from day to day, he can tighten the nut one or two graduations as he increases his strength. It is obvious that the user will be greatly gratified at noting his increase in strength. To illustrate, the user might start with the graduated adjusting nut set at 10 and in a week might find that he had set the nut up to 15 or 20, thus showing that he had built his strength up considerably.

As best seen at 7a in Figure 1, the handle yoke 3 is provided with an eye which extends between the rod 2 and said handle yoke and slightly past the end of said rod 2. This eye 7a constitutes a particularly important feature of this invention because it permits attachment of one end of my exerciser either to a wall or to a floor. When attached to a wall, the device may be used as a double action wall pull and, of course, when attached to the floor, it may be used as a double action floor pull type of exerciser. By employing a low seat it may be used as a double action rowing machine. It should be understood, of course, that appropriate hooks will be screwed in the floor or wall to permit such attachment. By hooking the device to a suitable stirrup attached to the foot and holding one end stationary in the hands, it can be used to exercise the muscles of the legs to very good advantage. Inasmuch as my improved exerciser may be used in an endless number of different ways for stimulating various parts of the body, it is deemed unnecessary to outline herein the various exercises which may be carried out.

Having thus described the invention, what is claimed as new is:

1. An exerciser including a pair of spaced friction rods, means between the rods and operatively connecting said rods, said rods being shiftable with respect to each other by the arms for stimulating the body, and means between the rods and engageable therewith for maintaining the ends of said rods an equal distance from said first-mentioned means irrespective of the positions of said rods.

2. An exerciser including spaced friction rods, means operatively connecting the rods for relative sliding movement, and means carried by said first-mentioned means and between the rods for varying the frictional connection between said rods.

3. An exerciser including spaced friction rods, means operatively connecting the rods for relative sliding movement, and means carried by said first-mentioned means and between the rods for varying the frictional connection between said rods, said last-mentioned means including a bolt extending through said first-mentioned means, and an adjusting nut screwed on the bolt.

4. An exerciser including a pair of friction rods, handles carried by the friction rods and being presented to one side of the device, and means slidably and frictionally connecting the rods with each other, said last-mentioned means including a frame comprising upper and lower plates straddling portions of the rods, a pinion in the frame and a bolt for tightening the engagement of the plates with the rods.

5. An exerciser including spaced friction rods, said rods having longitudinally extending slots, racks in the slots, said racks being disposed in opposed relation, means operatively connecting the friction rods with each other, said means including a frame comprising spaced upper and lower plates, said plates straddling portions of the rods, linings between the plates and said portions of said rods, clamping plates carried by the upper and lower plates, a bolt extending through the clamping plates and upper and lower plates and extending between the rods, a pinion on the bolt and having teeth extending into the slots into engagement with the racks, said pinion and racks cooperating for maintaining the rods in proper relative positions, and an adjusting nut on the bolt, said bolt connecting the upper and lower plates of the frame to each other and providing means for adjusting the frictional connection between the rods.

6. An exerciser including a pair of spaced friction rods, handles connected to corresponding opposite ends of the rods, and means mounting the rods for relative longitudinal shifting movement, said means including a frame comprising spaced upper and lower plates, clamping plates, a bolt extending through the plates and operatively

connecting the frame with the rods and the rods with each other, and an adjusting nut on the bolt and being rotatable for tightening the clamping plates about portions of the rod for tightening the frictional connection between the rods and the frame.

7. An exerciser including spaced friction rods, means operatively connecting the rods for relative sliding movement, means carried in the first-mentioned means and between the rods for engaging said rods and for varying the frictional connection between said rods, and means for permitting securing of one of the rods to an anchoring surface.

8. An exerciser including spaced friction rods, means operatively connecting the rods for relative sliding movement, means carried in the first-mentioned means between the rods and engageable with said rods for varying the frictional connection between the rods, handle yokes connected with the friction rods, and handles carried by the handle yokes, one of said handle yokes being formed with a lug pierced to define an eye, said eye permitting attachment of one end of the device to a supporting surface.

GEORGE G. PORTER.