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2,603,486

PUSH AND PULL EXERCISER

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2 SHEETS—SHEET 1

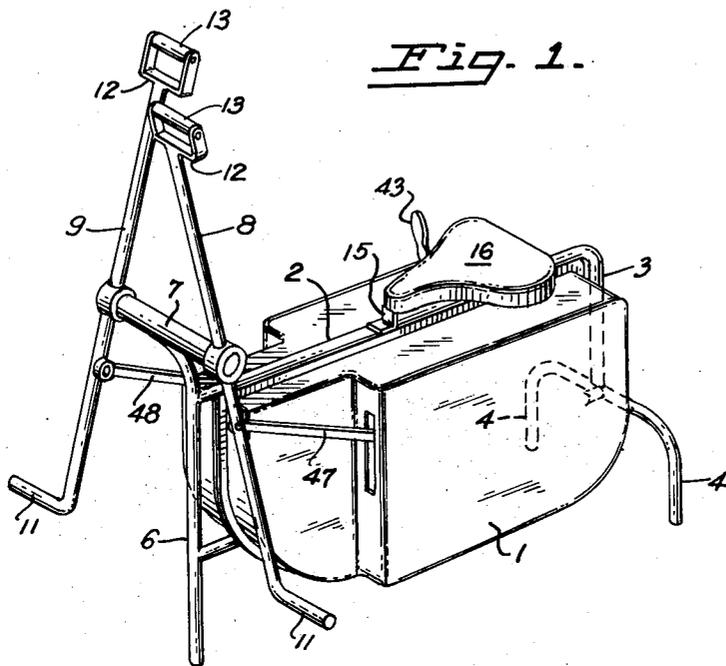


Fig. 1.

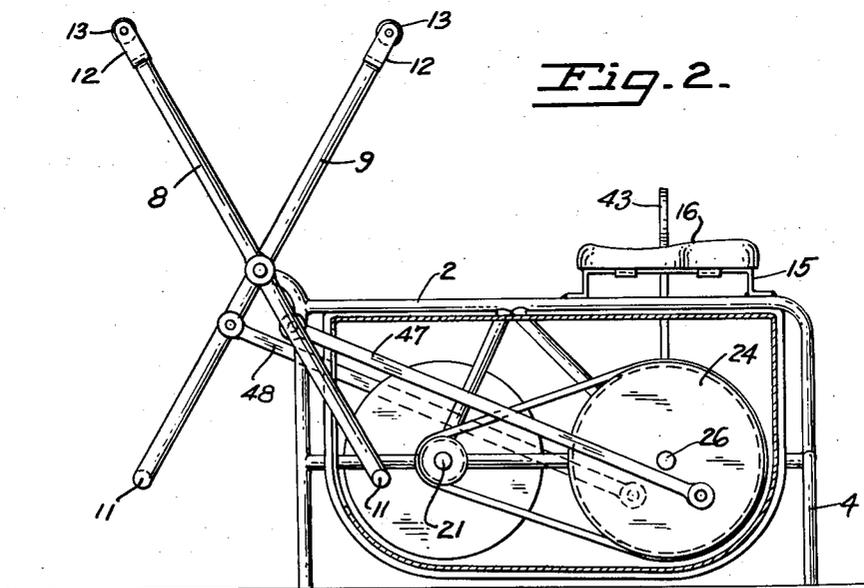


Fig. 2.

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Fig. 3.

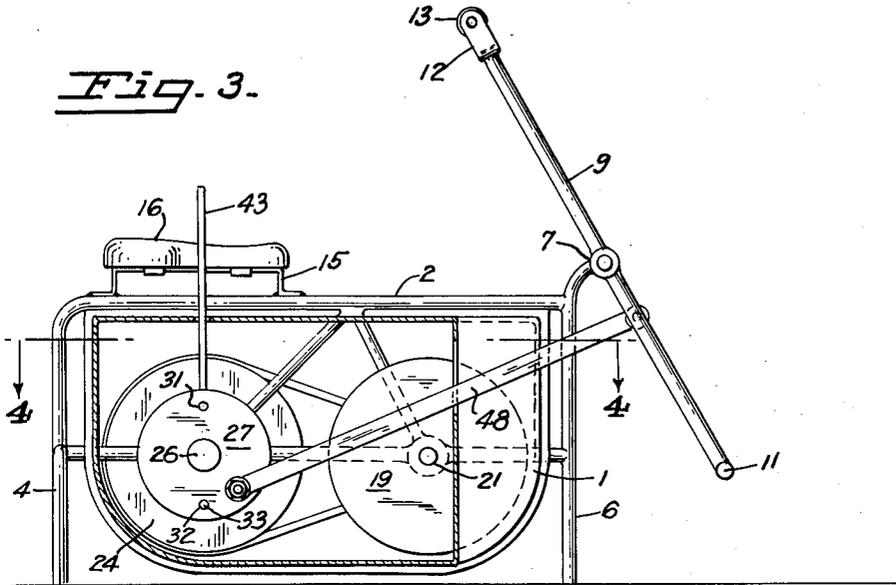


Fig. 4.

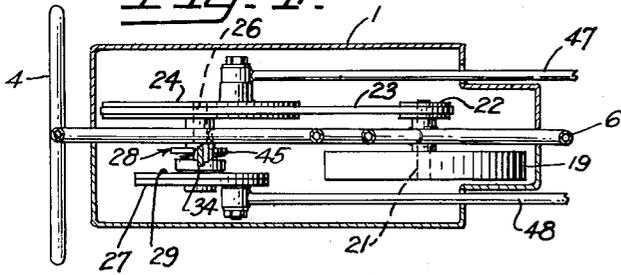


Fig. 5.

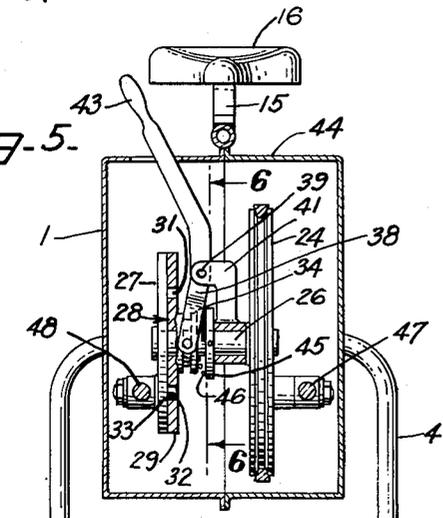
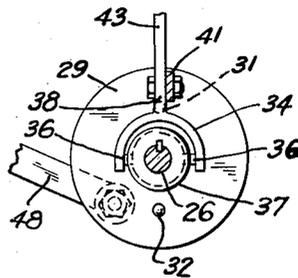


Fig. 6.



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# UNITED STATES PATENT OFFICE

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## PUSH AND PULL EXERCISER

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Application July 23, 1948, Serial No. 40,281

1 Claim. (Cl. 272-79)

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This invention relates to an exercising device. The object of this invention is to provide an exercising device for a human body which device has means for moving arms, legs and the body of a person.

Another object of this invention is to provide a device of the type described in which the legs and the arms of a person may move in unison or oppositely to one another.

Another object of this invention is to provide a device of the type described which permits vigorous and forceful exercise, and which can be selectively adjusted for a variety of leg and arm motions.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description, reference is had to the accompanying drawings for the illustrative embodiment of the invention, wherein:

Fig. 1 is a perspective view of the device.

Fig. 2 is a longitudinal vertical cross section of the device, some parts being shown in elevation.

Fig. 3 is a side view of the device with the casing broken off to show the clutch arrangement.

Fig. 4 is a plan view of the device taken on the line 4-4 of Fig. 3.

Fig. 5 is a cross sectional view taken along the line 5-5 of Fig. 4; and

Fig. 6 shows details of the clutch arrangement, in section, the section being taken substantially on lines 6-6 of Fig. 5.

In detail my device consists of a substantially rectangular box 1 containing a mechanism, said box being supported on a pair of parallel longitudinal frame members 2 extending therethrough. The members 2 are supported at the rear end on a back standard 3 resting on two widely spaced legs 4, and at the front end on a front standard 6, so that the weight of the device is distributed among said legs 4 and the front standard 6, thus rendering the device stable.

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The top of the front standard 6 is formed with a horizontal cross bar 7, which rotatably carries a lever 8 on one end and a lever 9 on the other end thereof. The levers 8 and 9 extend downwardly from said cross bar 7 and have their extremities bent outwardly at right angles to form pedals 11. Said levers also extend upwardly from said bar 7 substantially the same distance and each has a fork 12 on its upper end. The outer ends of each fork are spanned by a hand grip roller 13.

A seat 16 is slidably held on a longitudinal bracket 15 on the top of said box 1 so that it may be adjusted to any position relative to said levers, to accommodate persons of various sizes who may comfortably rest their feet on said pedals 11 and reach the hand grips 13.

The mechanism inside of the box 1 consists of a comparatively heavy fly wheel 19 keyed to a stub shaft 21, the latter being journalled in the lower frame member 2 nearer to the front standard 6. The fly wheel 19 is connected by means of a small pulley 22 also keyed to said stub shaft 21, and a belt 23 to a large pulley 24. The large pulley 24 is keyed to a shaft 26 rotatably journalled in said lower frame member. The shaft 26 carries on its other end a freely rotating disc 27 which may be operatively locked to said shaft by any clutch arrangement 28. For the purpose of illustration I have shown said clutch as consisting of a clutch plate 29 rotatable with the shaft 26 and slidable thereon. The plate 29 is provided with a plurality of holes 31 and 32 adapted to be engaged by a pin 33 carried by the disc 27, which pin locks the plate and the disc together. The clutch plate 29 is operated by a yoke 34 having pins 36 engaging a collar 27 on said clutch plate 29.

The yoke 34 is integral with a shifting lever 38 fulcrumed at 39 to a support 41 on the frame member 2, which lever 38 has a handle 43 thereon protruding above the top 44 of said box 1. A compression spring 46 between the collar 45 and the clutch plate 29 presses the latter against the wheel 27 and its pressure may be overcome by shifting the lever 38 to the left, looking at Fig. 5, for the purpose of disengaging said clutch plate 29 from the disc 27. The clutch arrangement 28 is provided for the purpose of locking the wheel 27 and the pulley 24 together in either of the two relative positions defined by the location of the holes 31 and 32, generally 180° apart. A link 47 has one end thereof journalled on the outer face of the pulley 24 and the other end thereof to the lever 8.

An identical link 48 is journalled on the outer face of the disc 27 at one end and on the lever 9 at its other end. The links 47 and 48 are journalled at equal radial distance with respect to the center of rotation of the shaft 26, and also equidistant below the journals of the levers 8 and 9, which latter are in parallel planes.

The device is operated as follows: a person sits on the seat 16 and adjusts it to a comfortable position. The levers 8 and 9 may be either in parallel direction, as shown in Fig. 3, or angularly offset, as shown in Figures 1 and 2, depending upon the relative position of the disc 27 to the clutch plate 29. Supposing, that the levers 8 and 9 are parallel, the person puts his feet on the pedals 11, takes hold of the hand grips 13 and proceeds to stretch and push his legs against the pedals 11 and simultaneously to pull the hand grips 13. The combined efforts of his legs and arms would cause the levers 8 and 9 to oscillate forth and back in unison, slowly at the beginning as the energy developed by said person shall be used for gradually increasing the momentum of the fly wheel 19. The speed of oscillation increases slowly on account of the inertia of said fly wheel.

After exercising for a time desired, the person shall apply considerable effort to stop the movement of said levers 8 and 9. When the movement of said levers is stopped the person may, by pushing the handle 43, disconnect the clutch plate 29 from the disc 27 and release the clutch plate 29 after it is turned to change the position of the levers 8 and 9 from parallel to angular, as shown in Figures 1 and 2, in which case the pin 33 shall engage the hole 32 in the clutch plate 29. By this arrangement the lever 9 moves oppositely to the lever 8, thereby forcing the operator to move his legs and arms in a different manner and in different positions than the above described. In

this way different muscles are exercised selectively at will.

It is to be noted that between the holes 31 and 32 a number of other holes may be provided if desired, and in accordance into what hole the pin 33 is inserted, the lever 9 may take some intermediate position between the positions as shown in Fig. 2 and Fig. 3 and accordingly provide still a different type of exercise. Also in place of the flywheel a motor may be substituted for exercising by force exerted on legs and arms.

I claim:

An exercising device comprising a frame, a seat on the frame, a pair of oscillating levers journalled to the front end of said machine, said levers having pedals on the lower ends thereof to be engaged by feet of the operator, and handgrips on the upper ends thereof to be engaged by the hands of the operator; a shaft attached to the frame, a disk and a pulley rotatably carried by said shaft, a link connecting one of the levers to a disk, a second link connecting the second lever to the pulley, a clutch between said disk and the pulley for selectively connecting the same in various angular relations to each other, a fly wheel carried by said frame, and means operatively connecting said fly wheel with the pulley.

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