July 4, 1933. C. L. DUFF 1,916,660

EXERCISING MACHINE

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Fig. 1.

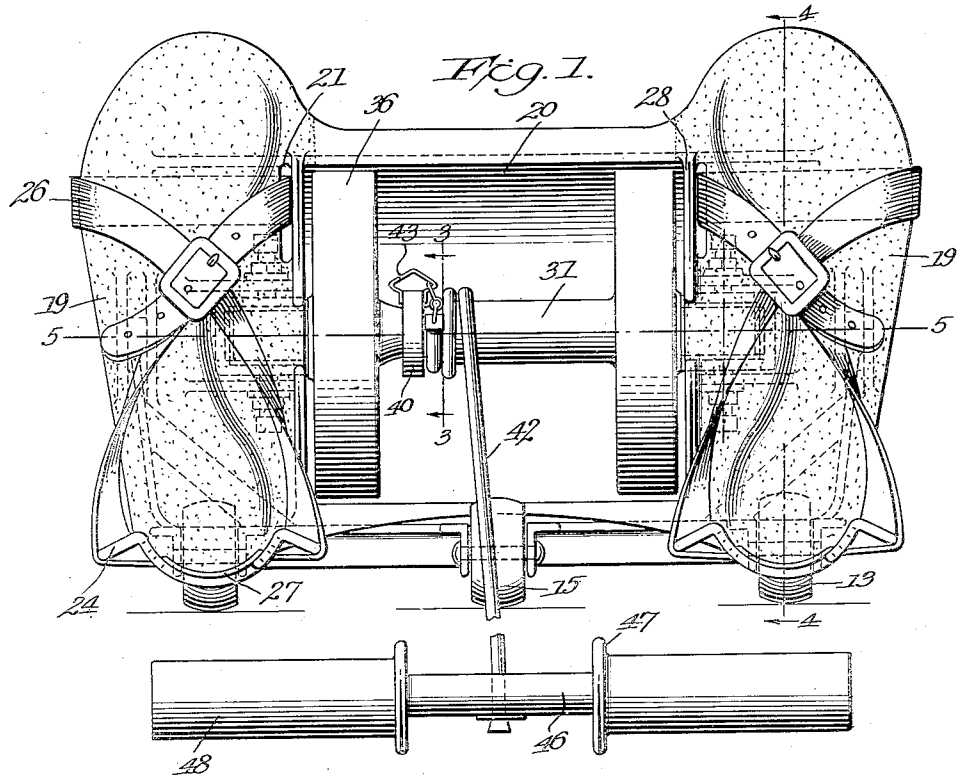


Fig. 2.

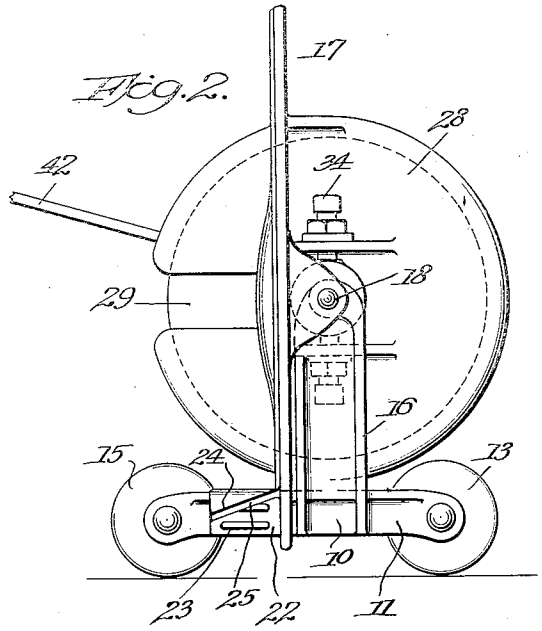
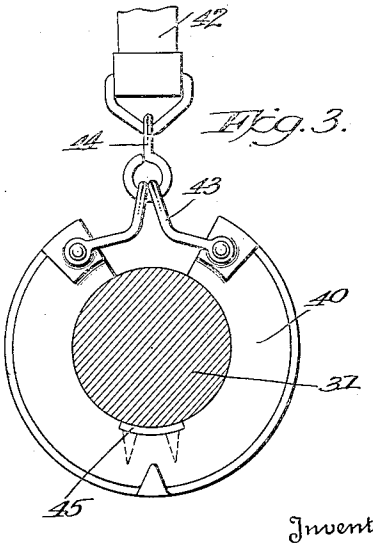


Fig. 3.



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Fig. 4.

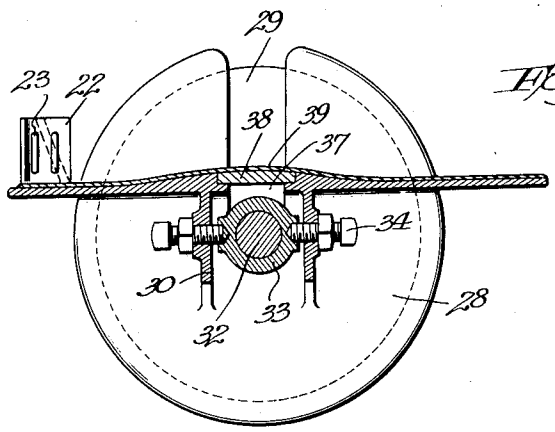


Fig. 5.

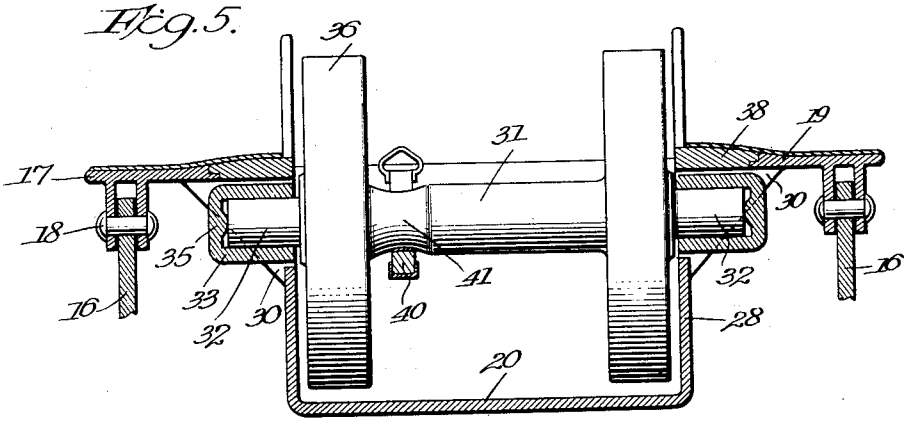
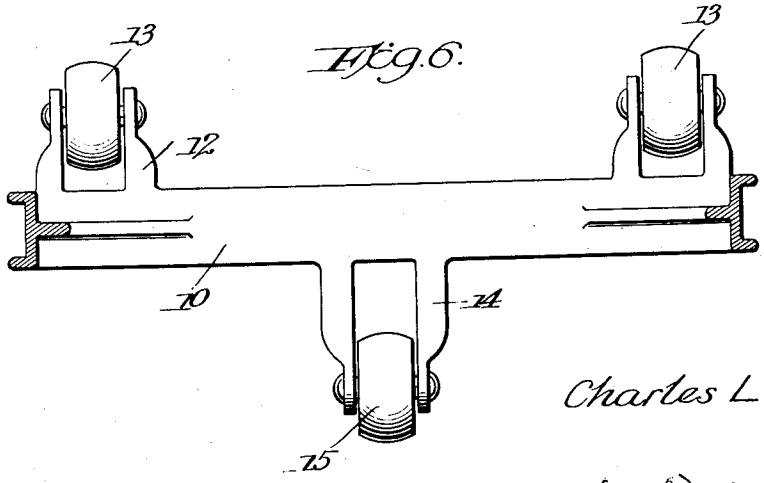


Fig. 6.



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EXERCISING MACHINE

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Fig. 7.

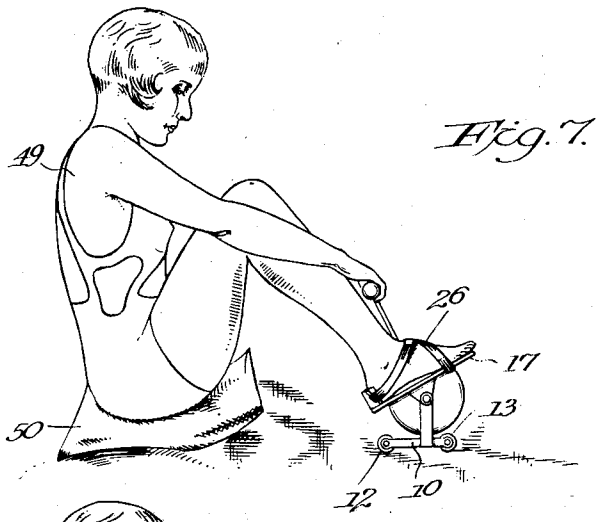


Fig. 8.

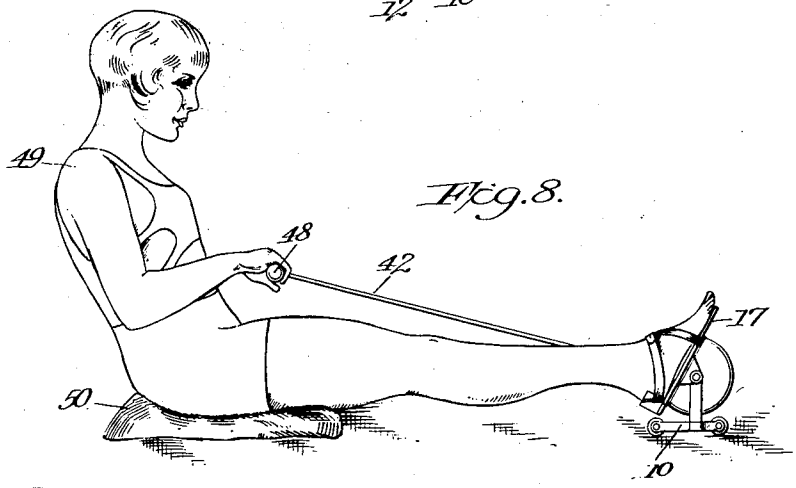
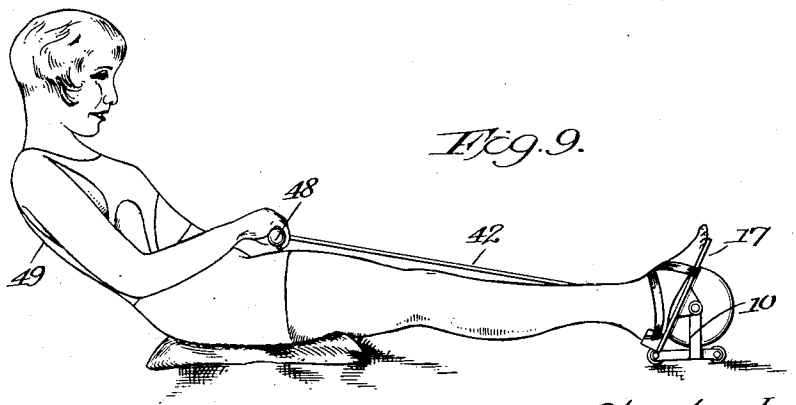


Fig. 9.



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EXERCISING MACHINE

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Fig. 10.

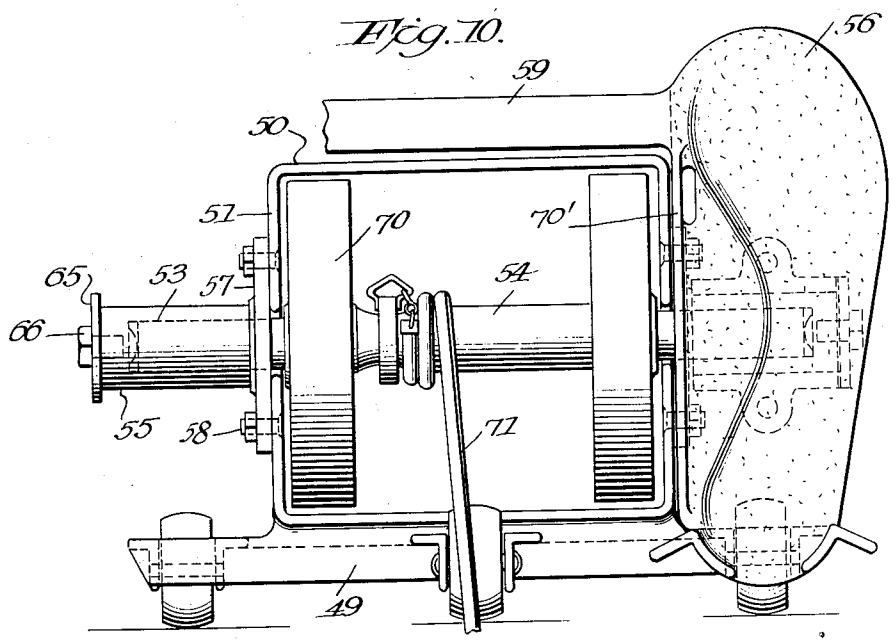


Fig. 11.

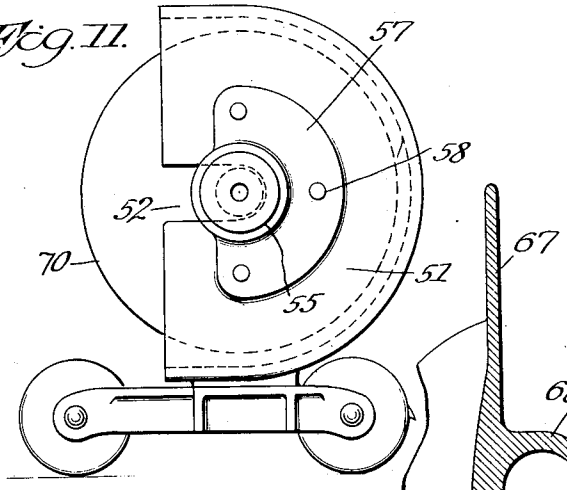


Fig. 12.

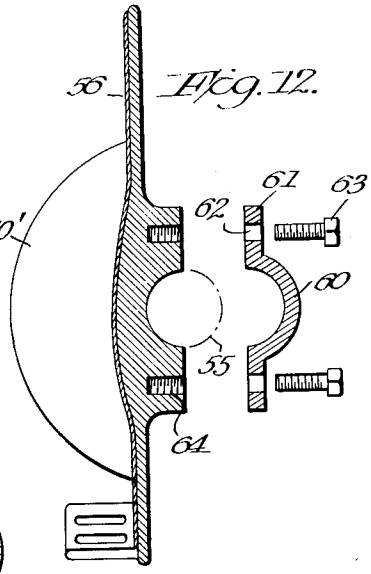
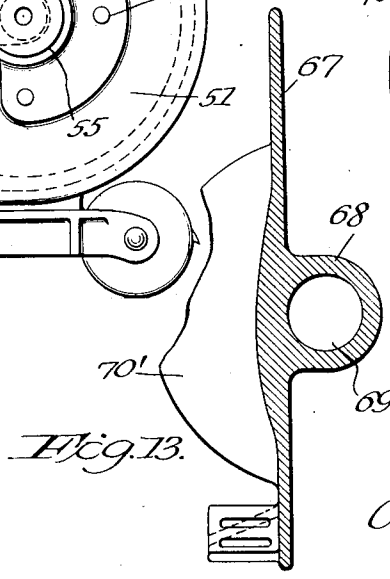


Fig. 13.



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Patented July 4, 1933 1,916,660

UNITED STATES PATENT OFFICE

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EXERCISING MACHINE

Application filed December 3, 1932. Serial No. 645,617.

The present invention relates to improvements in the construction and operation of a portable exercising apparatus of the rowing type in which the machine is arranged to be moved toward and away from the operator.

An important object of the invention is to provide a simple, efficient and inexpensive apparatus for exercising and developing the muscles of the legs, back and arms.

A further object consists in providing a portable exercising apparatus with a revoluble member arranged to be actuated when the machine is moved toward and away from the operator so as to simulate the action of rowing.

A further object of the invention is to provide an exercising machine which may be either moved relative to the body of the operator or be maintained in a fixed position so that parts of the body to be exercised or developed may be moved relative to the machine.

Other objects and advantages of the invention will become apparent from the following description when taken in conjunction with the accompanying claims and drawings.

Referring to the drawings in which is shown a preferred embodiment of the invention:

Figure 1 is a plan view of the exercising apparatus with a portion of the connecting strap cut away.

Figure 2 is an end view of Figure 1.

Figure 3 is a sectional view taken substantially along the line 3—3 of Figure 1.

Figure 4 is a detail sectional view taken substantially along the line 4—4 of Figure 1.

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 1.

Figure 6 is a bottom plan view of the supporting base with parts in section.

Figure 7 is a side elevation of the machine showing the position of the body of the operator when the machine is in its initial or innermost position.

Figure 8 is a side view substantially similar to Figure 7 showing the position of the body of the operator when the machine is moved its full distance away from the operator.

Figure 9 is a view similar to Figure 8 showing the position of the body of the operator after the strap has been paid out and just prior to allowing it to rewind on the shaft of the rotor.

Figure 10 is a plan view of a modified form of the exercising machine with parts removed.

Figure 11 is an end view of Figure 10.

Figure 12 is a detail sectional view of the foot platform shown in Figure 10.

Figure 13 is a sectional view of a modified form of foot platform.

Referring to the drawings in which like numerals indicate like parts in the several views, the portable exercising apparatus in general, is indicated by the numeral 10 and essentially comprises a supporting base 11 (Figure 2) having at its forward end a pair of spaced arms 12 in which are journaled the rollers 13 (Figure 6). Extending medially from the rear of the base 11 are a pair of arms 14 which support the rear roller 15. Standards 16 project upwardly from the sides of the base and have pivotally connected thereto a platform or frame 17 as at 18. The platform 17 is preferably formed with the foot engaging portions or abutments 19 and an intermediate recess portion or shell 20 (Figure 1). The abutments 19 are arranged to receive the feet of the operator and have strap openings 21 in the forward side or toe thereof. A pair of spaced plates 22 extend upwardly from the heel of each abutment 19 and are formed with a series of transversely disposed slots 23 and have outer flared ends 24 (Figure 1) which are tapered as at 25 (Figure 2). A flexible strap 26 extends through the openings 21 and the slots 23 to detachably secure the foot of the operator to the platform 17. The strap 26 may pass through any pair of slots 23 so that the portion 27 thereof between the plates 22 constitutes a soft heel rest for the foot of the operator while the length of the foot platform 17 may be adjusted to different sizes by passing the strap through opposite pairs of the slots 23. The strap 26 in passing over the beveled surface 25 in the flange 24 will be turned or twisted so as to take any kink

out of the strap and provide a smooth flat surface for engaging the foot of the operator.

The recess or shell portion 20 (Figure 5) has its sides 28 extending upwardly beyond the foot portion 17 and preferably is of circular shape. The sides 28 have radial openings 29 (Figure 4) and spaced web portions 30 which extend outwardly from the sides and are located beneath the foot portion 17. A revoluble ponderous member, preferably in the form of the shaft 31, is arranged to be rotatably mounted in the recess portion 20 and has its reduced ends 32 mounted in bearings 33 that are positioned between the webs 30 and maintained in self-aligned position by the set screws 34 which extend through the web. A ball 35 may be machined in the bearing 33 for taking up the end thrusts of the shaft 31 when the device is in operation. The shaft 31 is preferably provided adjacent its ends with enlarged annular weighted members 36 that are keyed or otherwise suitably connected thereto. While the shaft 31 may be made of metal, and the members 36 integrally connected thereto, preferably a wooden shaft is employed. The opening 37 in each of the foot portions 17 through which the ends of the shaft 31 pass may be closed by a cover 38 while the upper surface of the foot portions are formed with an arch support 39 so as to insure the comfortable engagement of the feet of the operator with the platform.

A clutch 40 carried by a reduced portion 41 of the shaft 31, is connected to the actuating strap 42 by the link 43 and coupling 44 (Figure 3) so that in the operation of the machine the strap 42 is alternately wound and unwound on the shaft. The clutch 40 is preferably made of leather or other suitable wear resisting material and may have secured to the inner surface thereof, a metallic shoe 45 so as to reduce the friction between the parts. Since the shaft 31 of the revoluble member is preferably made of wood, the friction between the steel shoe 45 and the shaft is much less than the friction of the leather clutch 40 on the shaft. Consequently, the momentum of the revoluble member when in operation will be maintained much longer by provision of the metal shoe 45 and will provide more force for the operator to overcome, thus increasing the efficiency of the apparatus and also lessening the wear on the clutch.

The flexible member 42 is connected at its outer end to a reduced portion 46 of the handle 47, which handle is provided with the grips 48 arranged to be engaged by the hands of the operator.

In use the machine is arranged to be moved on the floor or other plane surface toward and away from the operator. As shown in Figure 7, the machine is in its initial or innermost position with the feet of the operator clamped to the platform 17 by the straps 26, which straps have been previously adjusted so that the feet will fit comfortably in the arch supporting portion 39. Likewise the actuating strap 42 may be adjusted by wrapping the strap around the reduced portion 46 so as to be of the proper length for any length of arm or body stroke when the machine is moved away from the operator to its outermost position or maintained in a fixed position. As shown in this figure, the body 49 of the operator is upright and the machine is moved close to the operator with the strap 42 wound on the shaft 31. A cushion or seat 50 may be provided for permitting the operator to assume a comfortable position on the floor. As the legs of the operator are stretched or moved to their extended position, as shown in Figure 8, the machine is moved away from the operator, causing the shaft 31 to rotate in its bearings 33 and the platform 17 to move about its pivots 18 so that the feet will assume a normal inclined position. In order that the strap 42 when paid out will remain in its extended position without rewinding on the shaft 31, it is necessary for the operator to apply pressure to the strap and, in so doing, assume the substantially inclined position as shown in Figure 9. As long as the operator holds the strap in the extended position, the shaft 31 will rotate relative to the friction clutch so that the strap will not be rewound on the shaft. However, the instant the operator slackens the pull on the strap 42, the latter will rewind in the opposite direction from the way it was unwound, causing the body of the operator to assume the upright position (Figure 7) and the machine to be moved inwardly. This operation may be repeated as long as desired, with the result that the muscles of the legs, back and arms are exercised. The machine is admirably suited for exercising and reducing corpulent parts of the body. Regular use of the device will prevent these muscles from becoming dormant or inactive, and thus develop or retain a slim and attractive form or physique.

In the modified form of the invention illustrated in Figure 10, the base or carriage 49 has integrally connected thereto the shell or housing 50. The end walls 51 of the shell are each formed with an opening 52 for receiving the ends 53 of the rotor shaft 54 that extend laterally beyond the shell 50, so as to assume the position shown in Figure 10. A tubular sleeve 55, which constitutes a bearing for the foot member or platform 56, is provided with an annular extending flange 57 that is bolted or otherwise secured as at 58 to the outer face of the adjacent end 51 of the shell so as to receive and constitute a bearing for the end portions 53 of the rotor. Each of the foot members 56 may be movably mounted on the sleeve 55 and con-

nected to each other so as to be simultaneously operated by a bar or arm 59. The foot members 56 may be secured to the sleeve 55 by a curved clamping member 60 that has laterally extending arms 61 provided with openings 62, through which extend the threaded bolts 63 that fit in complementary threaded openings 64 in the underside of the foot member 56, so that when these parts are set up the foot member 56 will be journaled on the sleeve 55. A washer 65 may be detachably connected to the end of the sleeve 55 by the bolts 66 or integral therewith for insuring the foot member 56 being maintained in proper position. Should it be desired, the foot member 56 may be independently mounted on the sleeve 55 and the connecting strap 59 dispensed with. In such a construction, a foot member 67 (Figure 13) may be employed, which member is movably connected to the sleeve 55 by means of a depending boss 68 provided with a bearing opening 69 arranged to receive the sleeve 55 and be retained in position thereon by the washer 65.

Spaced rotors 70 are keyed or otherwise secured to the shaft 54, and are positioned within the shell so as to be actuated by the flexible member 71 in substantially the same manner as the strap 42 previously described. A guard 70′ extends upwardly from each of the foot members 56 and 67 adjacent the ends 51 of the shell so as to prevent the feet of the operator from coming in contact therewith.

It will be noted that the modified form of the invention illustrated in Figure 10 differs from that shown in Figure 1, in that in the former the shell is rigidly connected to the base, while in the latter the shell is arranged to be moved with the foot platform. Otherwise, the construction and operation of the machine is substantially the same.

In view of the flexible character of the invention, it will be seen that it may be used for exercising various parts of the body and in certain exercises, it may be maintained in a fixed position relative to the operator. In other words, the operator may assume the position as shown in Figure 8 and without bending the knees, exercise the back, arms and abdomen muscles by bending the body at the hips until the shoulders touch the floor during which operation the arms may assume various beneficial positions with the knees being rigid during the entire movement. The strap or pulling cords 42 and 71 may be adjusted to the desired length by wrapping or unwrapping them on the handle to suit the particular movement or stroke which it is desired to perform. Likewise, the machine may be used by the operator while sitting on a chair with the apparatus strapped to his feet and bending at the waist so as to exercise the arm and shoulder muscles.

It is to be understood that the forms of the invention herewith shown and described are merely illustrative of preferred embodiments, and that such changes may be made as fall within the purview of one skilled in the art without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. An exercising machine of the class described including a portable base having revoluble means for permitting the movement of the machine toward and away from the operator, a platform mounted on the base and provided with foot engaging portions, a revoluble member having its shaft journaled on the platform between said portions, and a flexible member connected at one end to said shaft and having a handle at its opposite end arranged to be grasped by the operator whereby upon the movement of the machine or the arms of the operator to actuate the revoluble member and cause the flexible member to be wound and unwound on the shaft.

2. An exercising machine of the class described including a portable base having revoluble means for permitting the machine to be moved towards and away from the operator, a platform pivotally mounted on the base and provided with foot engaging portions and an intermediate recess portion, a rotor mounted in said recess portion and having the ends of its shaft journaled in said foot portions, means for detachably connecting the feet of the operator to the foot portions, a clutch mounted on the shaft of the rotor, a flexible member connected at one end to the clutch so as to be wound and unwound on the shaft, and means connected to the opposite end of the flexible member arranged to be gripped by the operator so that upon movement of the machine to cause the actuation of said rotor.

3. An exercising machine of the class described including a portable base having revoluble means for permitting the machine to be moved towards and away from the operator, a platform pivotally mounted on the base and provided with foot engaging portions and an intermediate recess portion, a rotor mounted in said recess portion and having the ends of its shaft journaled to the underside of said foot portions, means detachably connecting the feet of the operator to the foot portions, a clutch mounted on the shaft of the rotor and a flexible member connected at one end to the clutch so as to be wound and unwound on the shaft, and means connected to the opposite end of the flexible member arranged to be gripped by the operator so that upon movement of the machine to cause the actuation of said rotor.

4. An exercising machine of the class described including a portable base having rev-

oluble means for permitting the machine to be moved toward and away from the operator, a platform movably connected to the base and provided with foot engaging portions and an intermediate recess portion, the sides of said recess portion extending outwardly from the foot engaging portions and formed with radial openings, a rotor mounted in said recess portion and having its shaft journaled in bearings positioned at the inner end of said openings, a clutch mounted on said shaft, and a flexible member connected at one end to said clutch and having a handle connected to the other end thereof, said flexible member arranged to be wound and unwound on the shaft upon the actuation of the machine.

5. An exercising apparatus of the class described including a portable base having rollers connected thereto for moving the machine on the ground toward and away from the operator, a platform movably connected to the base and provided with foot engaging portions and an intermediate recess portion, said recess portion having its sides extending outwardly from the foot engaging portions, each of said sides having spaced webs and a radial opening, a rotor mounted in said recess and having its shaft journaled in bearings mounted between said webs, each of said foot portions having an opening for permitting the insertion and removal of the rotor into said recess portion, a cover for the opening in said foot portions, a clutch connected to said shaft, and a flexible member connected to said clutch and arranged to be wound and unwound on the shaft upon the actuation of the machine.

6. An exercising machine of the class described including a portable base, a platform movably connected to the base and provided with spaced foot engaging portions, each of said portions having means at the front thereof for receiving a strap, spaced heel plates connected to the rear of the foot portion, each of said heel plates having an outwardly flared inclined end and a series of transversely disposed slots, said slots arranged to receive the strap to adjust the length of the foot portion and provide a soft heel rest, and said flared ends acting to turn the straps to provide a smooth and flat foot engaging portion.

7. An exercising machine having a portable base provided with a pair of ground engaging front rollers and a medially disposed rear roller, said base having standards extending upwardly from the sides thereof, a platform movably connected to the standards and having spaced foot abutments and an intermediate shell portion, a rotor revolubly mounted in said shell portion, and a flexible member connected to the rotor and arranged to be wound and unwound thereon during the operation of the machine.

8. An exercising machine of the class described including a base, a revoluble member having its shaft journaled on the base, a flexible member connected to the revoluble member and arranged to be grasped by the operator so as to be wound and unwound on the revoluble member, and a foot platform movably connected to the base and in axial alignment with the shaft of the revoluble member.

9. An exercising machine of the class described including a base having a shell member connected thereto, a revoluble member mounted within the shell, spaced foot member, means pivotally connecting the foot members to the base adjacent the sides of the shell member, and a flexible member connected to the revoluble member and arranged to be grasped by the operator so as to be wound and unwound on the revoluble member.

10. An exercising machine of the class described including a portable base, a rotor shaft revolubly mounted on the base, spaced foot engaging members movably connected to the base in axial alignment with said shaft, and a flexible member connected to the shaft and arranged to be grasped by the operator whereby upon movement of the machine or the arms of the operator to actuate the rotor shaft and cause the flexible member to be wound and unwound on the shaft.

11. An exercising machine of the class described including a portable base having a shell portion, a rotor shaft mounted in said shell and having its ends extending from the sides thereof, foot members journaled to the ends of said shaft, and a flexible member connected to the shaft and arranged to be grasped by the operator whereby upon movement of the machine or of the arms of the operator to actuate the rotor shaft and cause the flexible member to be wound and unwound on the shaft.

12. An exercising machine of the class described including a portable base having a shell portion, a rotor shaft mounted in said shell portion and having its ends extending from the sides thereof, spaced foot members connected together so as to be simultaneously operated, said foot members being journaled to the ends of said shaft, and a flexible member connected to the shaft and arranged to be grasped by the operator so as to be wound and unwound thereon.

13. An exercising machine of the class described including a base, a rotor shaft mounted on said base, spaced foot members, means movably connecting the foot members to the ends of said rotor shaft, and a flexible member connected to the shaft and arranged to be wound and unwound thereon.

14. An exercising machine of the class described including a portable supporting member having revoluble means for permitting the machine to be movable over a substantially flat surface towards and away

from the operator, spaced foot abutments movably connected to the supporting member, a revoluble ponderous member journalled on the supporting member and a strap connected to the revoluble member and arranged to be grasped by the operator to be wound and unwound on the revoluble member when the supporting member is moved towards and away from the operator.

15. An exercising machine of the class described including a portable supporting member having revoluble means for permitting the machine to be movable over a substantially flat surface towards and away from the operator, and having a shell portion connected thereto, spaced foot platforms movably connected to the supporting member, a revoluble ponderous member journalled in said shell portion and a strap connected to the revoluble member arranged to be grasped by the operator to be wound and unwound on the revoluble member when the portable member is moved towards and away from the operator.

In testimony whereof I affix my signature.

CHARLES L. DUFF.