

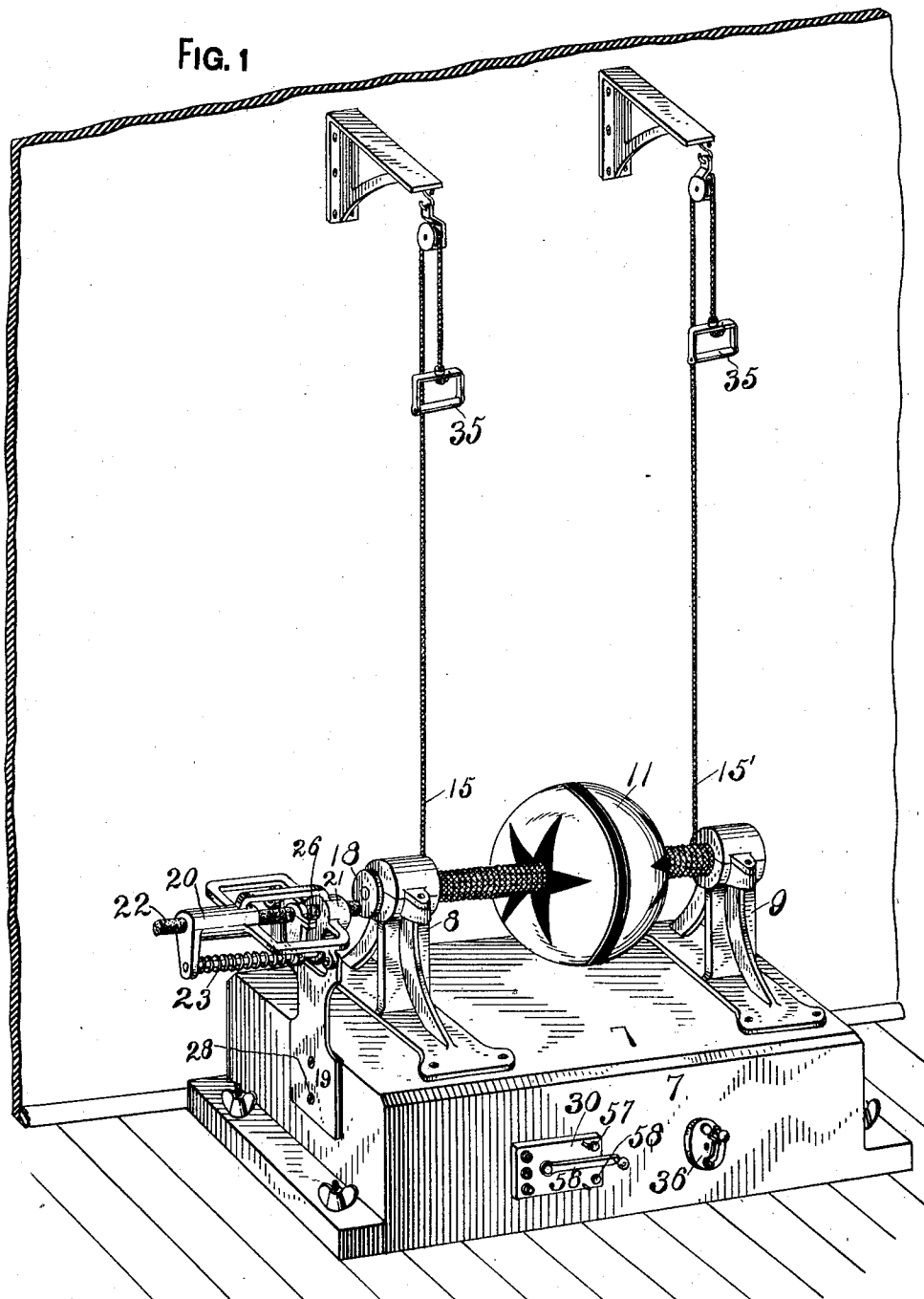
M. DUFFNER.
EXERCISING APPARATUS.
APPLICATION FILED SEPT. 7, 1910.

1,006,470.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 1.

FIG. 1



WITNESSES

J. R. Hoffmann
L. E. Clarkley

INVENTOR

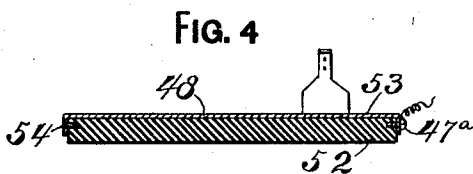
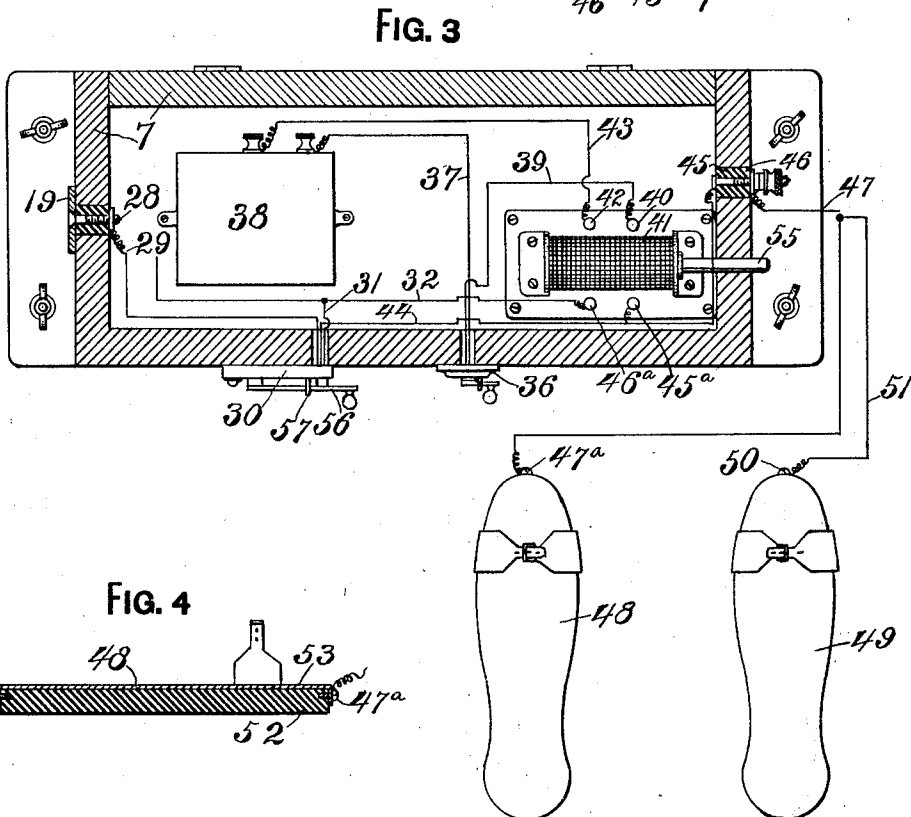
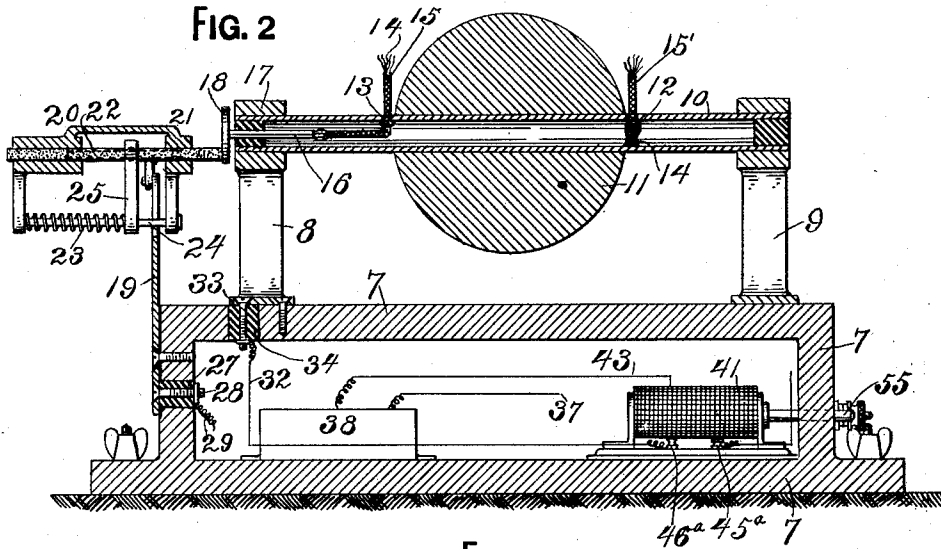
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3 SHEETS-SHEET 2.



WITNESSES
J. C. [Signature]
A. C. [Signature]

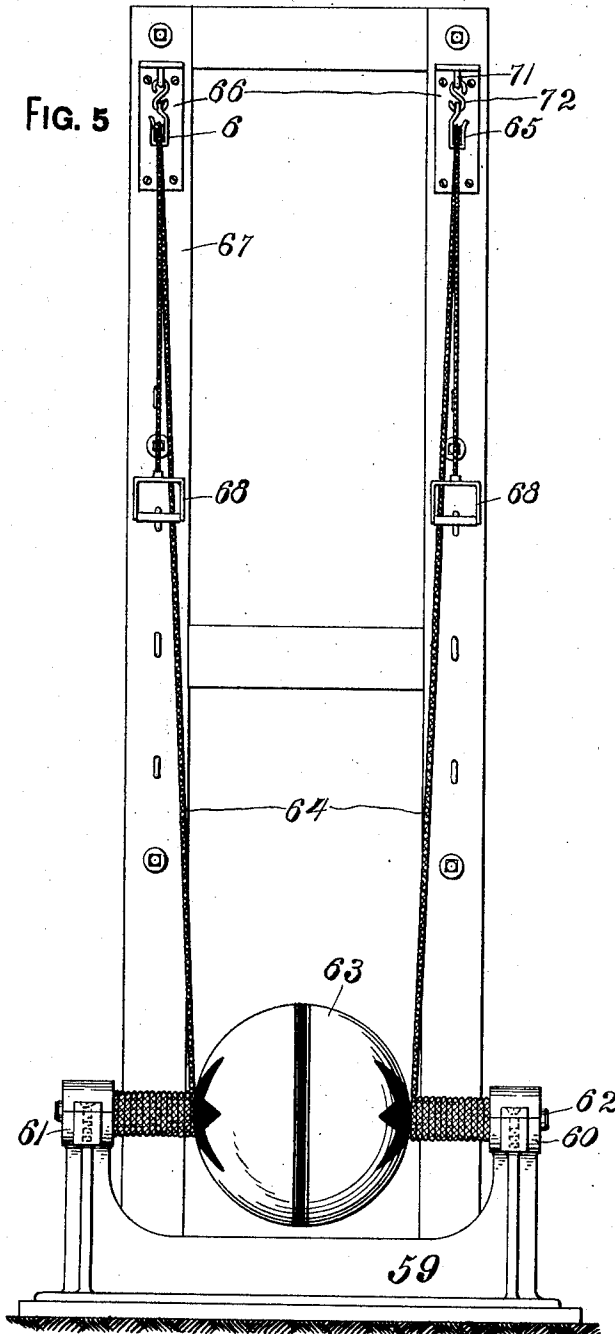
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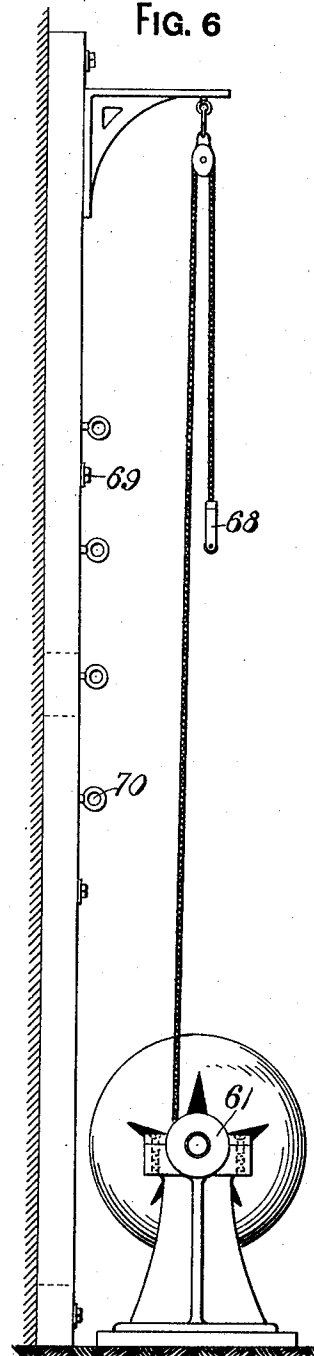
Patented Oct. 24, 1911.

3 SHEETS—SHEET 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

MATTHEW DUFFNER, OF PITTSBURGH, PENNSYLVANIA.

EXERCISING APPARATUS.

1,006,470.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed September 7, 1910. Serial No. 580,843.

To all whom it may concern:

Be it known that I, MATTHEW DUFFNER, a citizen of the United States of America, and resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Exercising Apparatus, of which the following is a specification.

This invention relates to exercising devices and particularly to an apparatus in which a rotating member is operated by cords or flexible devices and in which an electric circuit is established through the operator upon his grasping the handles provided for operating the rotating member.

An object of this invention is to provide novel means for simultaneously exercising and receiving a current of electricity so that the operator may receive the benefits of the exercise and the electrical treatment under favorable conditions, means being provided for making or breaking an electrical circuit and for controlling the intensity of the current.

A still further object of this invention is to provide novel means for establishing a circuit through the hand grips of an exercising device, other novel means being provided for establishing a circuit through the feet of an operator, thus enabling the operator to be treated through the hands and arms alone, through the feet and legs alone, or through the hands and feet.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a view in perspective of a complete exercising device embodying the invention; Fig. 2 illustrates a sectional view of a fragment of the same; Fig. 3 illustrates a horizontal sectional view of the casing and the mechanism in plan therein; Fig. 4 illustrates a detail sectional view of the electrode for supporting the foot of an operator; Fig. 5 illustrates a view in elevation of an exercising device with the electrical connection omitted; and Fig. 6 illustrates a side elevation thereof.

In these drawings 7 indicates a casing or base having standards 8 and 9 supported thereon which standards terminate at their upper ends in bearings for the hollow shaft 10. The shaft 10 has a weight 11 thereon which may be in the form of a ball or of any other configuration and the said shaft is further provided with an aperture 12 and an aperture 13 on opposite sides of the ball, the aperture 12 being in a portion of the shaft at right angles to the portion containing the aperture 13. Flexible devices are wound around the shaft 10 and upon their being pulled communicate rotary motion to the shaft. The flexible members each comprise a cord having a metallic core 14 for the purpose of conducting electricity, the said core being incased by a fibrous covering 15. The cords are shown as applied to the apertures 12 and 13 and the relation of the apertures to each other is maintained for the reason that one of the cords will always be partially wound on the shaft so a pull on the cords will result in rotating the shaft. If both of the apertures are in the same relation to the shaft or in a line longitudinally thereof, the said cords when fully unwrapped from the shaft could not start its rotation and it will be necessary to manipulate the weight of the shaft for the purpose of starting the winding of the cords. The core of one of the cords is shown as being connected to a stem 16 which projects through an insulator 17 which is seated in the end of the shaft 10 and said stem 16 terminates in a disk 18 forming a contact by which electricity is allowed to find its way to the core 14 from a battery by means to be presently explained.

The base 7 is provided with a bracket 19 which bracket supports a frame having two sleeves 20 and 21 in which a carbon or an electrical conductor 22 is slidable, the said carbon having its ends held in engagement with the disk 18 through the medium of a spring 23 which encircles a rod 24 of the frame and bears against the arm 25. The arm 25 in turn is slidable on the rod 24 and has a clamping member 26 on its ends which engages the carbon and feeds it longitudinally into engagement with the disk 18. The base 7 is also provided with an aperture containing an insulator 27 having a terminal 28 therein which is in electrical contact with the bracket 19 through the medium of the conductor 29, which conductor 29 terminates

in the switch 30. The switch 30 has connected to it a conductor 31 which is connected to a conductor 32, the latter of which has one end secured to a terminal 33 which is inserted in an insulator 34 in the base, the said terminal 33 being in electrical contact with the standard 8, and the standard 8 in turn being in electrical contact with the hollow shaft 10 to which the core 14 of the other cord is also electrically connected. It will follow from what has been said, therefore, that upon energization of the conductor 29 through the medium to be presently explained a circuit will be established through the bracket 19, carbon 22, disk 18 and the cord connected thereto through the hands of the operator and back to the conductor 32 through the shaft 10, standard 8 and parts connected thereto. In this connection it may be said that each of the flexible connections or cords have hand grips 35 that are conductors of electricity and that are connected to the cores of the flexible connections in such a manner as to receive current therefrom so that current is permitted to flow through the hands and arms of the operator when the cores of the cords are energized.

A switch 36 is seated on the outside of the base 7 and has a conductor 37 leading to it from the battery 38 and the said switch has another conductor 39 connected to a terminal 40 of the induction coil 41. The terminal 42 of the induction coil has a conductor 43 connected to it which also leads to the battery 38. The switch 30 has a conductor 44 connected to it and the said conductor 44 is also connected to a terminal 45^a of the induction coil whereas the conductor 32 is connected to a terminal 46^a of the induction coil. The conductor 44 is extended to a terminal 45 and the terminal 45 extends through an insulator 46 in the base 7. A conductor 47 extends from the terminal 45 to a binding screw 47^a of an electrode 48 which is designed to be applied to a foot of a person to be treated and another electrode 49 has a binding screw 50 to which a conductor 51 is connected so that a current of electricity will pass through the feet and legs of one standing on the electrodes when the conductor 44 is energized. In making the electrodes, I prefer that they shall consist of an insulating base 52 having a plate 53 thereon, which is a conductor of electricity, the said plate being flanged to extend over the sides of the insulating base and having a binding screw extending through the flange into the base. The binding screw serves to retain the plate on the base and as a further means for holding the plate on the base, a screw 54 is inserted in the base through the flange at the end of the electrode opposite the binding screw. The induction coil is controlled by the usual slidable controlling rod 55 which extends

through the base so that it can be manipulated from the exterior thereof.

When it is desired to operate the apparatus, the switch 36 is set to establish circuit from the battery to the induction coil and the switch arm 56 of the switch 30 may be set to engage the contact 57 or the contact 58 according to whether circuit is to be established through the hands and arms alone or through the hands and feet. As the exercising device is being operated by pull on the cords the shaft is alternately rotated in opposite directions due to the winding and unwinding of the cords on the shafts. Regardless of the direction of rotation of the shaft 10, the disk 18 will be electrically connected to the battery through the induction coil and circuit will be established through the hands and arms of the operator so that the said operator will get the benefit of the current of electricity by taking the exercise. The circuit through the cores of the cords may be cut out by utilizing the switch 36 as heretofore explained and the apparatus is therefore under the control of the user so far as the electric current is concerned.

In the apparatus shown in Figs. 5 and 6, the electrical feature is omitted and an exercising device *per se* is supplied. In this form of the apparatus, a base 59 has journal bearings 60 and 61 thereon, in which a shaft 62 is rotatable, the said shaft having a weight 63 thereon which may be of such size as desired. The flexible devices such as cords 64 are wound around the shaft on opposite sides of the weight and said cords extend through pulleys 65 which are suspended from brackets 66 secured against the surfaces of the seats of the frame 67. The cords 64 have hand grasps 68 of any appropriate type so that the cords may be pulled for the purpose of unwinding the same from the shaft, which shaft under the momentum due to the pull directed on the cords while being unwound from the shaft and the presence of the weight on said shaft will rotate a sufficient degree to rewind the cords on the shaft in a direction opposite to that in which they were first wound and each pull on the cords results in unwinding the cords and upon their release being rewound on the said shaft. The frame 67 may be anchored to a wall through the medium of the lag screws 69 or through the medium of the screw eyes 70 and the base 59 may be anchored in any appropriate way. It has been shown in the drawings that the pulleys 65 are connected to eyes 71 of the brackets 66 through the medium of the hooks 72 so that the pulleys may be readily applied to and removed from the brackets.

I claim—

1. In an exercising apparatus, a base, shaft supporting members thereon, a shaft, flexible members adapted to be wound on

the shaft, one of said flexible members being electrically connected to the shaft, a weight on the shaft, a conductor rotatable with the shaft, insulated therefrom and electrically connected to one of the flexible members, a source of electricity electrically connected to the conductor, and means for electrically connecting the shaft to the source of electricity.

2. In an exercising apparatus, a shaft, means for supporting the same, a weight on the shaft, and flexible members adapted to be wound on the shaft and having their ends connected to the shaft, the points of attachment of the said flexible members with the shaft being out of alinement with relation to each other longitudinally of the shaft and means associated with the shaft for electrically charging the flexible members.

3. In an exercising apparatus, a base, shaft supporting members thereon, a shaft, flexible members adapted to be wound on the shaft, one of said flexible members being electrically connected to the shaft, a weight on the shaft, a conductor rotatable with the shaft, insulated therefrom and electrically connected to the other flexible member, a source of electricity electrically connected to the conductor, and means for electrically connecting the shaft to the source of electricity.

4. In an exercising apparatus, a hollow shaft, means for mounting the shaft to permit its rotation, an insulator extending into the shaft, a conductor extending therethrough and into the shaft and having a contact on its outer end, a conductor in engagement with the contact, a source of electricity, means for electrically connecting the last mentioned conductor to the source of electricity, flexible pulling members connected to the shaft, one of said pulling members being electrically connected to the conductor within the shaft and the other of said flexible pulling members being electrically connected to the shaft, means for

electrically connecting the shaft to the source of electricity, and switches in the circuit of the flexible pulling members.

5. In an exercising apparatus, a hollow shaft, means for mounting the shaft to permit its rotation, an insulator in the shaft, a conductor extending therethrough and into the shaft and having a contact on its outer end, a conductor in engagement with the contact, a source of electricity, means for electrically connecting the last mentioned conductor to the source of electricity, flexible pulling members connected to the shaft, one of said pulling members being electrically connected to the conductor within the shaft and the other of said flexible pulling members being electrically connected to the shaft, means for electrically connecting the shaft to the source of electricity, switches in the circuit of the flexible pulling members, foot engaging electrodes, and means for electrically connecting the electrodes to the source of electricity.

6. In an exercising apparatus, a shaft, means for rotatably supporting the shaft, flexible pulling devices wound around the shaft, the said pulling devices being conductors of electricity, and means for establishing a circuit through the shaft and the pulling devices when said pulling devices are grasped by an operator.

7. In an exercising apparatus, a shaft, means for rotatably supporting the shaft, flexible pulling devices wound around the shaft, said pulling devices being conductors of electricity, means for establishing a circuit through the shaft and the pulling devices when the latter are grasped by an operator, and foot engaging electrodes in circuit with the flexible pulling members.

In testimony whereof, I affix my signature in the presence of two witnesses.

MATTHEW DUFFNER.

Witnesses:

ANNA A. MILLIGAN,
C. B. MILLIGAN.