J. B. KIBLER.

ELECTRIC TREATING AND EXERCISING MACHINE.

APPLICATION FILED APR. 30, 1919.

1,344,002.

Patented June 22, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

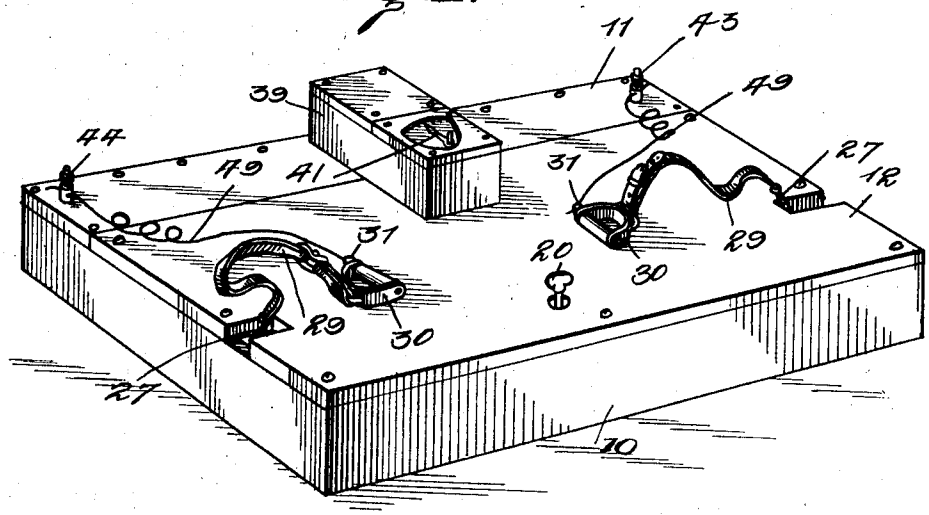
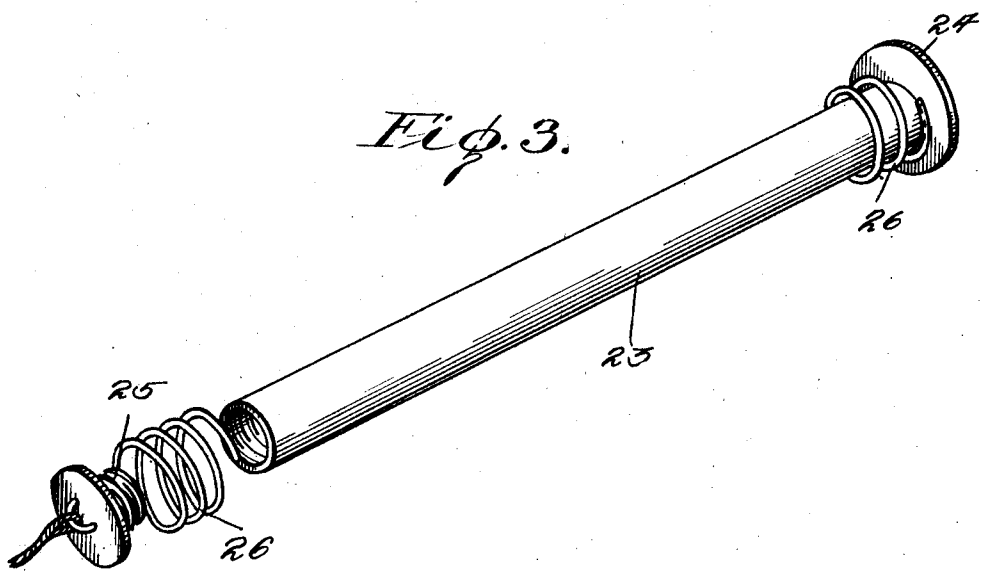


Fig. 3.



Inventor

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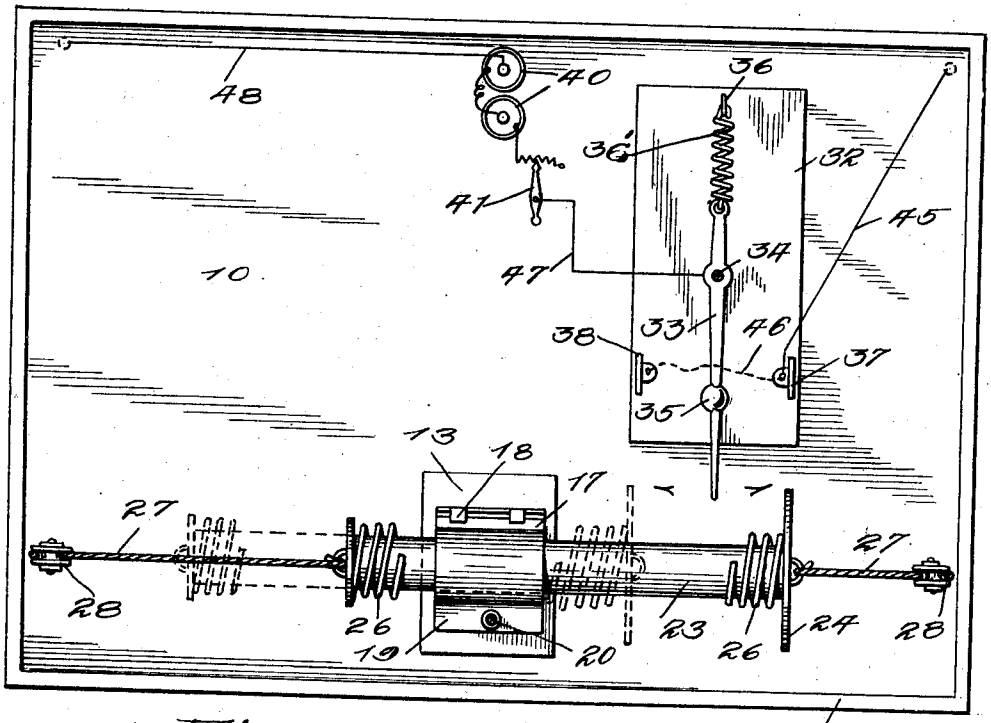


Fig. 2.

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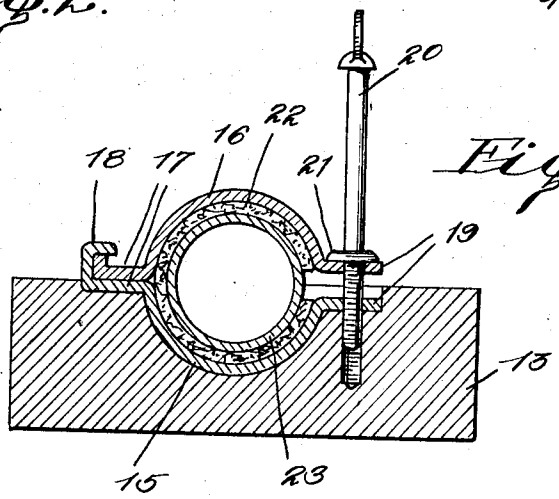


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN B. KIBLER, OF GIRARD, PENNSYLVANIA.

ELECTRIC TREATING AND EXERCISING MACHINE.

1,344,002. Specification of Letters Patent. Patented June 22, 1920.

Application filed April 30, 1919. Serial No. 293,697.

To all whom it may concern:

Be it known that I, JOHN B. KIBLER, a citizen of the United States, residing at Girard, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Electric Treating and Exercising Machines, of which the following is a specification.

This invention relates to an improved electric treating and exercising machine and has as one of its principal objects to provide a device whereby a patient may, coincidently with the taking of physical exercise, receive the stimulating effect of a galvanic current intermittently administered.

The invention has a further object to provide a machine wherein the current will be administered while the muscles of the patient are under tension or physical exertion so as to thereby enhance the stimulating effect of the current upon the patient.

And the invention has as a still further object to provide a machine which may be adjusted for varying the physical exertion required to operate the device and wherein the resistance of the stimulating current may be also varied.

Other and incidental objects will appear hereinafter. In the drawings:

Figure 1 is a perspective view of my improved machine,

Fig. 2 is a plan view showing the casing of the device with the lid removed,

Fig. 3 is a perspective view showing the plunger employed in detail, and

Fig. 4 is a transverse sectional view more particularly illustrating the mounting of the plunger.

In carrying the invention into effect, I employ a preferably oblong casing 10 which, as shall later appear, provides a platform. This casing may be constructed of wood or any other approved material and at its upper side is provided with a fixed top strip 11 with which mates a lid or closure 12 for the casing removably secured thereon. Fixed to the bottom wall of the casing adjacent the forward side thereof is a block 13 located substantially midway of the ends of the casing and mounted upon this block is an adjustable boxing. As shown in detail in Fig. 4 of the drawings, the boxing is formed of mating arcuate plates 15 and 16 respectively, the plate 15 being countersunk in the block and being suitably secured thereto. At their rear sides the plates are formed with mating lateral flanges 17, the outer margins of which are bent up at substantially right angles and the upturned portion of the flange of the plate 15 is, at spaced points, provided with lugs 18 engaging over the upturned portion of the flange of the plate 16 so that the upper plate may fulcrum upon the lower plate. At their forward sides the plates are formed with mating lateral flanges 19. Coacting with these flanges is a centrally located adjusting screw 20 freely fitted through the flange of the plate 16 and having threaded engagement with the flange of the plate 15, being provided with a shoulder 21 bearing over the former flange so that this screw may be adjusted for swinging the plate 16 toward the plate 15. As will be observed upon reference to Fig. 1, the adjusting screw 20 extends up through the lid 12 of the casing. Within the boxing is arranged a friction element or liner 22 which is preferably formed from a piece of relatively thick soft leather and slidable through this liner is a plunger 23. The plunger is preferably tubular and is provided at one end with an annular flange 24 while a flanged plug 25 is threaded into the plunger at its opposite end. Surrounding the end portions of the plunger to engage one with the flange of the plug and the other with the flange 24, are cushioning springs 26 designed to coact with opposite ends of the boxing selectively for cushioning the plunger toward the end of its stroke in each direction. Connected to opposite ends of the plunger are ropes or other suitable flexible elements 27 which are carried beneath pulleys 28 mounted upon the bottom wall of the casing adjacent opposite ends thereof. From these pulleys the ropes are then directed up through suitable notches formed in the ends of the lid 12 of the casing and carry straps 29. These straps are each preferably equipped with a buckle so that the length of the straps may be adjusted and freely connected with the straps at their ends are handles 30 which, as will later appear, provide electrodes. To this end, the handles are equipped with binding screws 31 threaded into corresponding ends of the grips of the handles.

In use, the patient stands upon the casing 10 which thus provides a platform for the

patient when one of the handles 30 is grasped in each hand. Then, by swinging first one arm and then the other, the plunger 23 may be reciprocated through the boxing therefor, the body being simultaneously rocked from side to side so that practically all of the muscles of the patient will be brought into play. When the plunger is thus reciprocated, it will be seen that the friction element 22 will coact therewith for resisting longitudinal movement of the plunger so that considerable exertion will be required on the part of the patient in reciprocating the plunger. Furthermore, as will be clear, the screw 20 may be adjusted for tightening the friction element about the plunger so that the frictional resistance to movement of the plunger will be increased accordingly. Thus, the physical exertion required of the patient to operate the device may be readily varied.

Fixed to the bottom wall of the casing 10 in the rear of the plunger 23 is a plate 32 and mounted upon this plate is a circuit closer. This circuit closer includes an arm 33 pivoted at a point intermediate of its ends upon a pivot pin 34 upstanding from the plate. Adjacent its outer end the arm is formed or otherwise provided with a weight 35 and, as will now be observed, the free outer end of the arm projects into the path of travel of the flange 24 upon the plunger. Upstanding from the plate 32 in the rear of the arm 33 is a pin 36 and connected at one end to this pin is a spring 36′, the opposite end of which is engaged with the free inner end of the arm. Mounted upon the plate at opposite sides of the outer end of the arm are upstanding contact posts which, for convenience, have been indicated at 37 and 38 respectively and as will now be clear, the spring 36′ will normally maintain the free end of the arm midway between these posts.

Projecting up through the fixed top strip 11 of the casing as well as the lid 12 thereof, is a battery box 39 in which are mounted one or more batteries conventionally illustrated at 40. The box also contains an approved rheostat conventionally designated at 41. This rheostat is connected in series with the batteries. Upstanding from the fixed top strip 11 adjacent its ends are binding posts 43 and 44. A wire 45 leads from the binding post 43 to the contact post 37 and a wire 46 connects these posts. Connected with the pivot pin 34 of the arm 33 is a wire 47 leading to the rheostat while a wire 48 leads from the batteries to the binder post 44. Extending from the binding posts 43 and 44 to the binding screws 31 of the handles 30 are wires 49, it being observed in this connection that slack in these wires is provided so as to allow the free movement of the handles.

Assuming now that a patient operating the device first pulls upon the handle at the left of Fig. 1, it will be seen upon reference to Fig. 2, that the flange 24 upon the plunger 23 will be shifted into engagement with the free end of the arm 33 and will swing this arm toward the contact post 38. However, before the arm reaches this post, the flange will clear the free end of the arm and thus release the arm when the spring 37 will cause the arm to rebound and strike the contact post 37. Coincidently, the circuit through the handles or electrodes 30 will, as will be apparent in view of the preceding description, be closed, so that the patient will, while undergoing the physical exertion of moving the plunger, be subjected to the stimulating influence of the current. When the handle at the right of Fig. 1 is then pulled upon, the flange 24 upon the plunger will again engage the free end of the arm 33 and move the arm toward the contact post 37. However, as in the former instance, the flange will release the arm before it reaches this contact post when the arm will rebound and strike the contact post 38. The circuit through the handles or electrodes will thus again be closed for again stimulating the patient. Accordingly, it will be seen that as the patient shifts the plunger back and forth, an electric current will be intermittently administered and this while the muscles of the patient are under tension. A maximum stimulating effect from the current will thus be had. Furthermore, as will be clear, the rheostat 41 may be operated for varying the resistance of the current at will.

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

1. A device of the character described including a plunger, means for resisting movement of the plunger, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with said electrodes and operable by the plunger for closing the circuit through the electrodes.

2. A device of the character described including a plunger, means for resisting movement of the plunger in opposite directions, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with the electrodes and operable by the plunger when moved in each direction for momentarily closing the circuit through the electrodes.

3. A device of the character described including a plunger, frictional means resisting movement of the plunger, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with said electrodes and

operable by the plunger for closing the circuit through the electrodes.

4. A device of the character described including a plunger, means for resisting movement of the plunger, means for adjusting said first mentioned means whereby to vary said resistance, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with the electrodes and operable by the plunger for closing the circuit through the electrodes.

5. A device of the character described including a plunger, a boxing, a liner within the boxing slidably receiving the plunger therethrough and adapted to resist movement of the plunger, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with said electrodes and operable by the plunger for closing the circuit through the electrodes.

6. A device of the character described including a plunger, a boxing formed of mating plates, a liner disposed between said plates and slidably receiving the plunger therethrough, the liner being adapted to frictionally resist movement of the plunger, means for adjusting one of the plates with respect to the other whereby to tighten the boxing about the plunger, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with said electrodes and operable by the plunger for closing the circuit through the electrodes.

7. A device of the character described including a plunger, manually operable means for reciprocating the plunger including hand electrodes, a circuit closing arm in circuit with said electrodes and means carried by the plunger for actuating said arm to close the circuit through the electrodes when the plunger is reciprocated.

8. A device of the character described including a plunger, manually operable means for reciprocating the plunger including hand electrodes, a pivoted spring returned circuit closing arm in circuit with the electrodes, and means carried by the plunger to contact with said arm when the plunger is reciprocated and adapted to clear the arm whereby the arm will rebound and momentarily close the circuit through said electrodes.

9. A device of the character described including a plunger, means for resisting movement of the plunger in opposite directions, means for cushioning the plunger toward the end of its stroke in opposite directions, manually operable means for reciprocating the plunger including hand electrodes, and a circuit closer in circuit with said electrodes and operable by the plunger for closing the circuit through the electrodes.

In testimony whereof I affix my signature.

JOHN B. KIBLER. [L. S.]