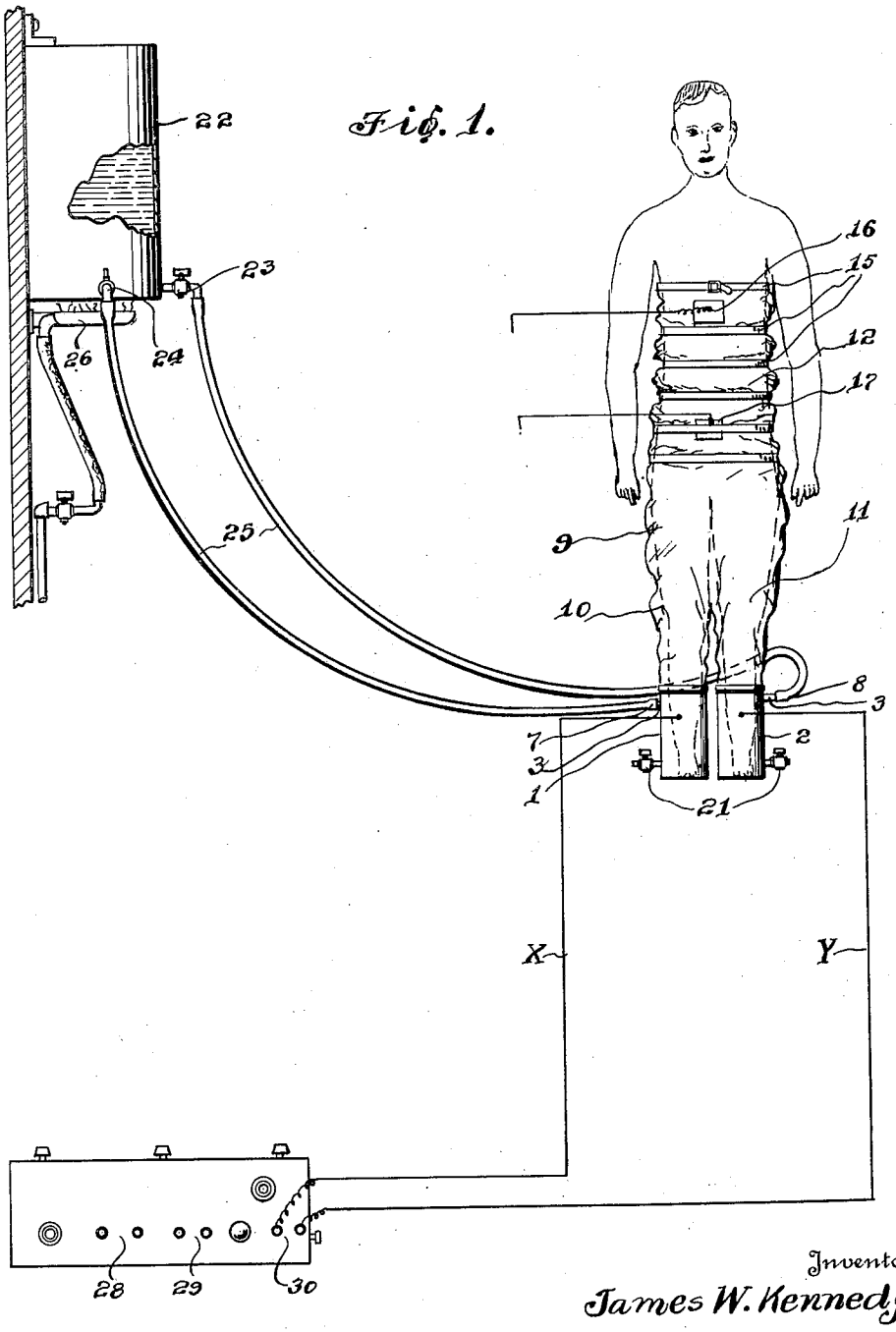
July 19, 1927. 1,636,568

J. W. KENNEDY

ELECTRICAL APPARATUS FOR TREATING NERVES, MUSCLES, AND BLOOD

Filed May 29, 1924 3 Sheets-Sheet 1

Fig. 1.



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ELECTRICAL APPARATUS FOR TREATING NERVES, MUSCLES, AND BLOOD

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Fig. 2.

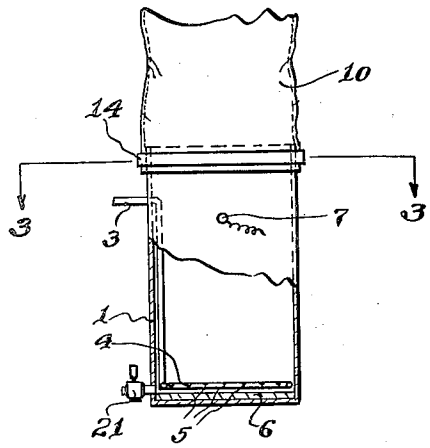


Fig. 3.

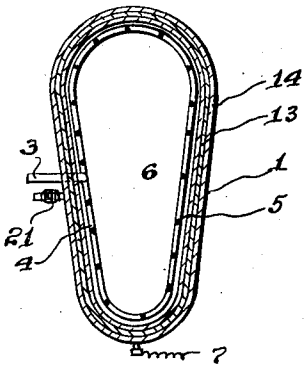


Fig. 4.

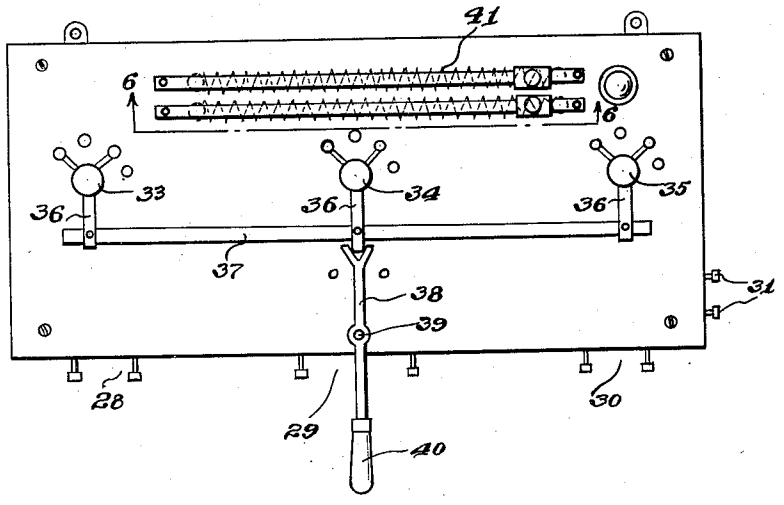


Fig. 5.

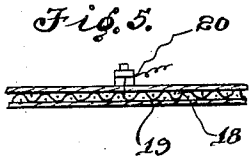
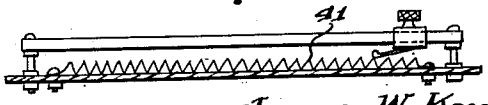


Fig. 6.



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ELECTRICAL APPARATUS FOR TREATING NERVES, MUSCLES, AND BLOOD

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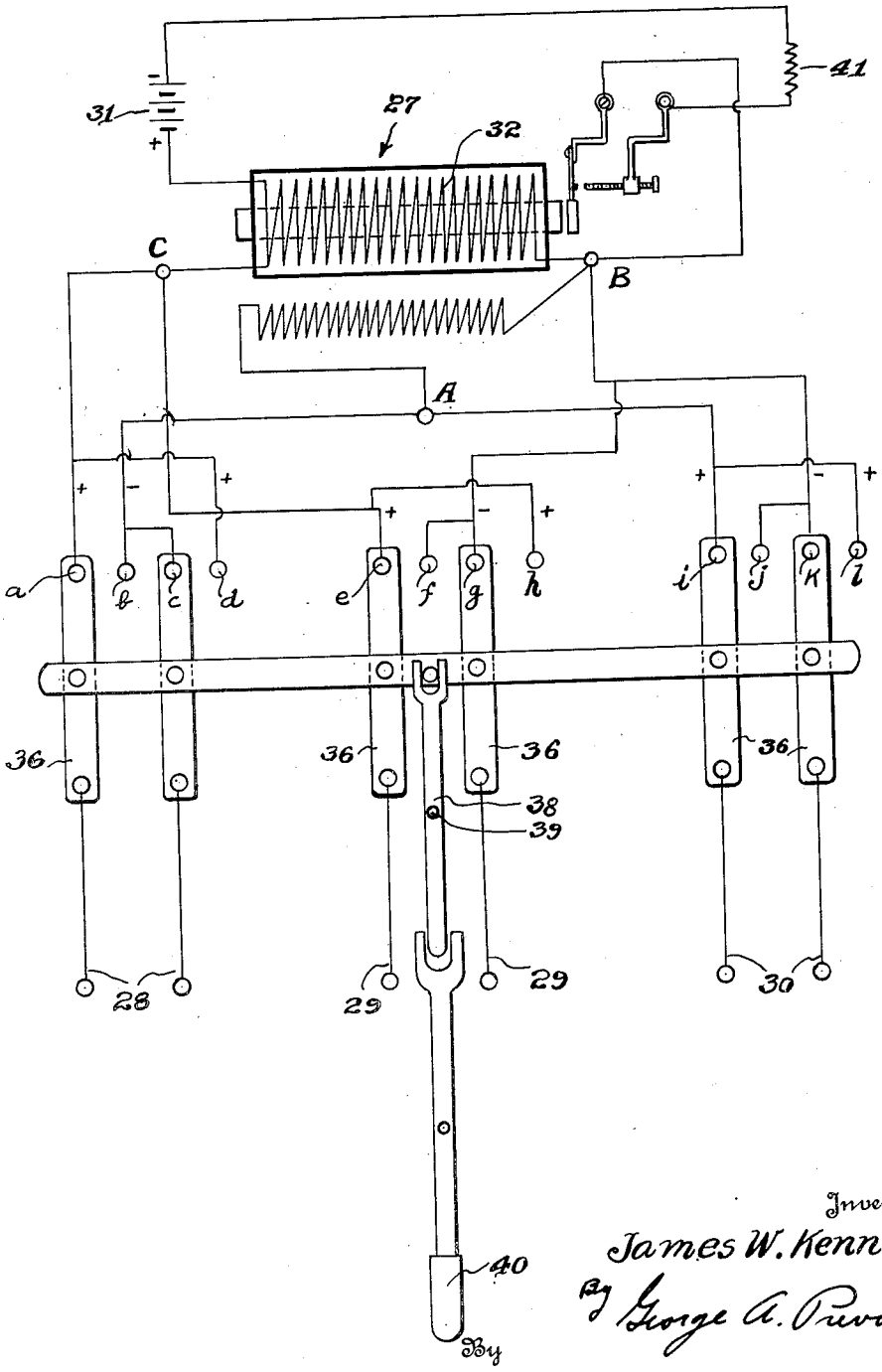
Fig. 7.



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Patented July 19, 1927. 1,636,568

UNITED STATES PATENT OFFICE.

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ELECTRICAL APPARATUS FOR TREATING NERVES, MUSCLES, AND BLOOD.

Application filed May 29, 1924. Serial No. 716,746.

My invention relates to new and useful improvements in electrical apparatus for treating the nerves, muscles and blood, and has for its object to provide an apparatus of this character which will open the pores of that portion or portions of the body being treated, relax the muscles and at the same time send a regular interchanging current through the body.

Another object of my invention is that the device may be adjusted to treat any portion of the body desired.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings, in which numerals of like character designate similar parts throughout the several views;

Fig. 1 is a view showing all of the parts in use.

Fig. 2 is a view partly in section of one of the foot tanks.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a plan view of the vibrating coil, having my improved current interchanging means thereon.

Fig. 5 is a detail view in section of the electro pad.

Fig. 6 is a view taken on line 6—6 of Fig. 4, showing the voltage control, and

Fig. 7 is a diagrammatic view showing the wing of the switch controls.

In the drawings 1 and 2 designate the two foot tanks, composed of any electric conducting material, preferably nickel plated copper. On one side of each of these tanks I provide a water inlet tube 3, which extends down the inside of the tank as shown in Fig. 2 and terminates in an endless tube 4, which extends around the inner wall of the tank at the lower portion thereof. This tube is provided with a plurality of apertures 5 along its upper surface through which hot water finds its way into the tank.

In order to insulate these tanks so that the patient will not directly touch the metal, I provide a pad 6 of non-conducting material, preferably rubber, in the bottom of each tank.

At suitable points in the upper portions of the foot tanks. I provide connecting posts 7 and 8, which will be described later. At the lower portion of each tank, are outlets 21 for draining off the water after the treatment.

9 represents a waterproof collapsible garment or sack, composed of a suitably treated fabric, which consists of two limb containing portions 10 and 11, and a body portion 12. The portions 10 and 11 are open at their lower extremities, and fit tightly over the walls of the foot tanks 1 and 2, as shown in Fig. 2, and a suitable packing may be interposed at 13, Fig. 3 between said walls and the fabric, to render the device water tight, when the adjustable bands 14 are placed thereon.

The body portion 12, is provided with a plurality of adjustable sack supporting straps 15 which limit the expansion of said sack when the water level is raised therein, and which also serve as means for adjusting the sack to any portion of the body.

At predetermined places in the body portion 12, are electropads 16 and 17 preferably consisting of a strip of corrugated metal screen 18, as shown in Fig. 5, faced with a suitable absorbent material 19, said screen having secured thereto a binding post 20.

22 designates a hot water tank of any kind which I preferably secure to the wall, at a point higher than the highest point on the body sack 12. This tank is provided with two outlets 23 and 24 which I connect with the inlets 3 in the foot tanks, through the medium of the rubber tubes 25.

Beneath the tank 22, I place heating means 26 which may be of any desired kind, the one shown in the drawings being the usual gas burner.

27 represents a vibrating coil, similar to the usual medical vibrating coil, but wired in such a manner as to provide a combined primary and secondary circuit 28, a primary circuit 29 and a secondary circuit 30. The battery (not shown) is connected at the terminals 31, having a tension of approximately three volts, stepped up by means of the aforementioned coils.

Referring to the diagrammatic view of the wiring of the coil instrument, shown in Fig. 7, 32 represents an ordinary primary and secondary vibrating coil having terminals A, B and C. In connection with these terminals, I provide three sets of binding studs, *a*, *b*, *c* and *d*, *e*, *f*, *g* and *h*, and *i*, *j*, *k* and *l*.

Terminal A is connected to studs *b* and *e* and terminal C is connected to studs *a*

and *d*, forming the primary and secondary circuit. Terminal B is connected to studs *f* and *g*, and terminal C to studs *e* and *h*, forming the primary circuit, and terminal B is connected to studs *j* and *k* and terminal A to studs *i* and *l*, forming the secondary circuit.

The current is successively taken from these three circuits by means of pivoted switches 33, 34 and 35 as shown in Fig. 4, or a similar arrangement as diagrammatically shown in Fig. 7, which when turned from one direction to the other changes the poles and causes the current to flow in constantly changing directions.

In cases which require the connection of more than one circuit, and in order to facilitate the oscillation of a plurality of switches, I provide an arm 36 on each switch body, which is pivotally secured to a bar 37. Engaging one of said arms 36, is a forked lever 38 pivoted at 39 and provided with a handle 40. When this lever is moved in one direction the bar 37 is moved and in turn operates the switches 33, 34 and 35. While I have described this means of oscillating the switches, it is obvious that any desired means may be employed.

Although any means may be employed for reducing the voltage of the battery when desired, I have shown a sliding rheostat 41.

The operation of my device is as follows:

The tank 22 is filled with water and the heater 26 is started. The foot tanks 1 and 2 are then partly filled with luke-warm water, and the patient is placed in the garment or sack 9 in such a position that one foot rests in each foot tank. This garment is raised to the desired height on the body of the patient as shown in Fig. 1, depending upon the portion of the body to be treated, and the straps 15 are adjusted according to the size of the patient, the top strap being tight enough to secure the garment in place on the wearer.

If that portion of the body only, below the hips is desired to be treated, the lower strap is tightened and the wires X and Y from the vibrating apparatus are connected to the posts 7 and 8 respectively on the foot tanks 1 and 2. The current is then turned on, the limbs of the patient completing the circuit between the two posts 7 and 8, causing the current to flow through the limbs of the patient. At the same time that the current is passing through the body, the cocks 23 and 24 on the hot water tank 22 are intermittently opened and closed until the temperature of the water in the foot tanks reaches the proper degree. This hot water flows through the tubes 25 into the inlet tubes 3 and the apertures 5 being in the upper surface of the endless tube 4, the hot water will flow upwardly, and not come in direct contact with the patient's limbs. The heat of the water and the vapor therefrom causes the pores on the enclosed portion of the body to open and the body to sweat. While the patient is in this heated condition, the lever 29 on the vibrating apparatus is oscillated as before described, causing a regular interchange of circuits thus interchanging the current through the portion of the body being treated.

This interchange causes the muscles to expand and contract, and acts upon the blood and nerves of the patient inducing the system to throw off the poisons through the open pores.

In order to make the operation and result of my invention clearly understood, we will take the following example: We will say that I have a patient whose limbs and spine are to be treated. I first place his limbs in the tanks 1 and 2 which are in electrical contact with the secondary circuit 30, and the electropads 16 and 17 are placed one on each side of the spine, causing that portion of the body to be in electrical contact with the primary circuit 29. Instead of the electropads 16 and 17, I may employ the device shown and described in my Letters Patent No. 1,604,585 of Oct. 26, 1926.

The oscillation of the lever 40 causes the arms 36 to reciprocate and change the electrical flow of current from one polarity to the other as has been before stated. This change in polarity causes the muscles in the limbs to alternately contract and expand, assuming a movement similar to that of walking, and the spine to assume a snake-like movement. This action relieves the nerves centers from any impingement.

Any portion of the body may be treated in this manner by simply changing the electric connections. For instance, if the right side is desired to be treated, the wire X remains as before described, but the wire Y is connected to one of the electro-pads 16 or 17, as shown in Fig. 1. If it is desired to treat only that portion of the body above the hips, the two wires X and Y may be connected to the electro-pads 16 and 17, which causes an interchange of current between those points only.

With my improved device, it is possible to treat the limbs with the primary current, and at the same time treat the spine or upper portions of the body with the secondary current or vice versa, by simply connecting these different circuits to the electro-pads 16 and 17 in addition to the connection to the foot tanks, the lever 29 causing all currents to interchange at the same time.

After the treatment, the water is drained off through the outlets 21 in the tanks 1 and 2 and the apparatus may be taken apart and sterilized before using again.

From the above, it is believed that my invention may be clearly understood without

further description, and in closing it should be stated that numerous changes may be made in the details of construction without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:—

1. Electrical apparatus for treating the human system, comprising limb receiving tanks, means secured to said tanks for enclosing portions of the body, means for supplying hot water to said tanks, electric terminals on each of said tanks, the limbs of the patient serving to complete the circuit between said terminals, and means for reversing the current passing through said portions of the body.

2. Electrical apparatus for treating the human system, as claimed in claim 1, wherein said limb receiving tanks are provided with insulating means, and means for causing the incoming hot water to flow upwardly to avoid direct contact with a patient's limbs.

3. Electrical apparatus for treating the human system, as claimed in claim 1, wherein said body enclosing means consists of a water proof sack having adjustable supporting straps thereon, electric contact means on said sack whereby portions of the body above the hips may be treated.

4. Electrical apparatus for treating the human system, as claimed in claim 1, wherein a plurality of different currents may be passed through the body, said reversing means comprising a plurality of oscillating switches operated simultaneously from a single source.

5. Apparatus as claimed in claim 1, wherein said means for supplying hot water to said tanks, includes a hot water tank, means for heating said tank and tubes connecting said tank with said limb receiving tanks.

6. Apparatus as claimed in claim 1 wherein said means for enclosing portions of the body are of flexible material and are removably connected to said tanks.

7. Apparatus as claimed in claim 1 including means for gradually increasing the temperature of the water in said tanks and body enclosure attached thereto.

In testimony whereof I affix my signature.

JAMES W. KENNEDY.