July 5, 1927. 1,634,373

R. C. MANN

ELECTRIC THERAPEUTIC DEVICE

Filed Nov. 26, 1924

Fig. 1.

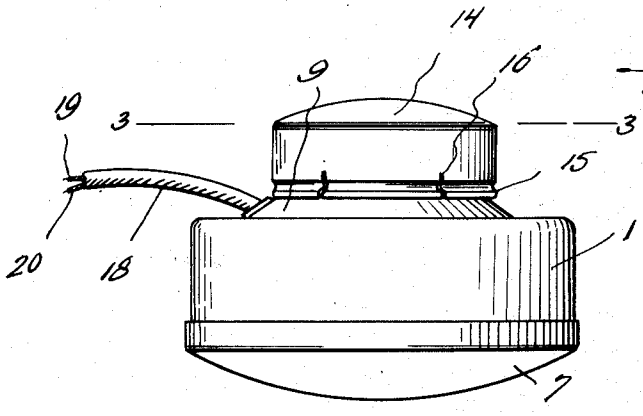


Fig. 2.

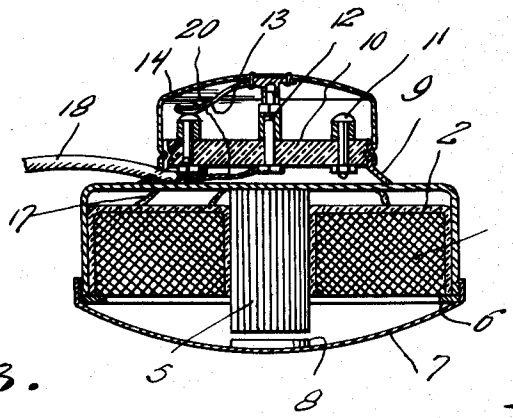


Fig. 3.

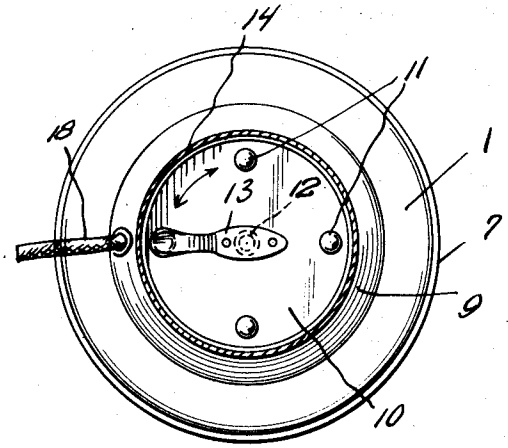
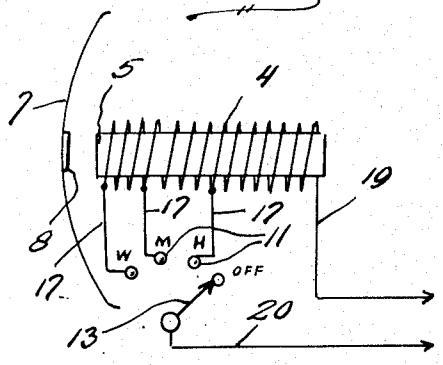


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ELECTRIC THERAPEUTIC DEVICE.

Application filed November 26, 1924. Serial No. 752,441.

This invention relates to electrically operated devices for therapeutic treatment, and one which will operate to simultaneously treat the portion of the body to which it is applied by a plurality of different effects thereon.

An object of the invention is to provide a simple construction, which will produce heat, vibration, and eddy currents, for the purpose of treating the human body, to strengthen and build up the tissues, blood, etc.

Another object of the invention resides in providing a device of this character, having a casing provided with a cover serving as a diaphragm of partial spherical form, for convenient application to the body of a human being, which carries an armature on the inner central portion adapted to be magnetically operated by an electromagnet mounted within the casing energized by a suitable source of alternating current, a controlling switch being provided on the back of the casing having tap connections with predetermined portions of the windings of the electromagnet, so that a desired amount thereof may be interposed in the circuit with the source of power and a varying heating effect of the device obtained in order that mechanical vibration, eddy currents and heat may be applied to the human body, for the treatment thereof.

The invention comprehends other objects and improvements in the details of construction and arrangement of the parts of the device, which are more particularly pointed out in the following description and claims, directed to the preferred embodiment of the invention, it being understood, however, that various changes in this construction may be made without departing from the spirit and scope of the invention as described and claimed.

In the drawing, forming a part of this application,

Figure 1 is a side elevational view of an improved electric therapeutic device.

Figure 2 is a vertical transverse sectional view therethrough.

Figure 3 is a horizontal sectional view, taken on the line 3—3 of Figure 1, and

Figure 4 is a diagrammatic view, showing the wiring connection of the device.

1 indicates the casing of the device, in which is mounted a suitable insulating member 2, of annular form, for receiving and carrying the coil windings 4, a suitable iron core 5 being positioned in the central portion of the member 2, as illustrated in Figure 2 of the drawings. The open front end of the casing 1 receives a ring member 6 and the diaphragm member 7 is threaded on the open end of the casing and seated against the ring 6, in the manner illustrated in Figure 2, the remaining portion thereof being of partial spherical form, as clearly illustrated in Figures 1 and 2 of the drawings, in order to provide a surface for application to the body of a human being to be treated, so that it will conveniently fit the configuration of the body, in the application of treatment thereto. The central portion of the diaphragm member 7 carries an armature 8, of a size corresponding to the core 5 of the electromagnet, which extends into proximity thereto.

An annular shell 9 is mounted on the rear of the casing and supports an insulating block 10, on which are mounted a plurality of contacts 11, in circumferential relation, concentric with the stud 12, forming a central contact and pivotal mounting for the switch arm 13 and the dome shaped operating and cover member 14, having a beaded lower edge, as indicated at 15, formed of split sections, as indicated at 16, in order that the same may be conveniently applied and removed on the annular member 9, for rotatably mounting the same thereon. A plurality of taps 17 are provided on the windings 4, which are each connected to respective contacts 11, on the insulating blocks 10. There is one additional contact mounted on the block 10, in addition to the number of taps on the winding, in order to provide an off position for the switch arm 13, in the manner as illustrated diagrammatically in Figure 4, the same controlling the number of windings of the electromagnet interposed in a circuit with the source of power, in a manner as illustrated by the wiring diagram of Figure 4, so that the heating effect of the coil may be varied, and so the desired degree of heat can be obtained in a relatively short period of time, by connecting the switch with the point indicated by the letter H, in Figure 4, so that the part of wind-

ings will heat up more quickly than when the whole winding is interposed in circuit at one time.

A flexible cable 18 carries wire connections 19 and 20 respectively, the wire connection 19 connecting one end of the windings 4, with one side of a suitable source of power, while the wire 20 is connected to the central post 12 of the switch device, and a suitable source of power, so that the winding 4 may be interposed in circuit, for effecting the operation of the device.

The windings 4 are of such a character, that when current is applied thereto, a degree of heat will be produced therein, of a desired character, for the treatment of the body of a human being, and which is controllable within predetermined limits by the adjustment of the switch to the various contacts controlling the number of turns of the winding 4 interposed in the circuit in a manner which can be clearly ascertained by an examination of Figure 4, so that a relatively greater or less degree of heat may be obtained for treatment purposes. At the same time that the coil maintains a predetermined degree of heat, the oscillations of the alternating current will produce a constantly changing magnetic field, through the core 5, which will operate to produce a vibrating effect on the diaphragm cover member 7, so that when the same is applied in contact with the human body, mechanical vibration will be set up on the surface of the body. In addition, the iron core 5 and the diaphragm 7 are so proportioned as to permit a considerable leakage of the magnetic lines of force, through the diaphragm and into the body of the patient, so that in the operation of the device to produce heat and mechanical vibrations of the diaphragm member, through the use of an alternating current, a magnetic field will be produced about the electromagnet of an alternating character, and which when applied to the body of a human being will be projected into the body, and will produce what are termed as Foucault currents in the body.

The invention, therefore, provides for the treatment of the body to build up the tissues and the blood, through a single treatment, obtaining the results of the combined beneficial effects produced by heat and vibration.

What is claimed is:

1. A device of the class described comprising a casing, annular coil windings mounted in said casing, a core mounted in said annular coil windings, a diaphragm member mounted on one end of said casing having an armature positioned in axial alinement with said coil for operation by the magnetic field produced by the electromagnet, and controlling means for closing an electric circuit with a source of alternating current to energize said winding operable for producing within the human body eddy currents due to an alternating magnetic field, and for effecting vibration of said diaphragm.

2. A device of the class described, comprising electrically operated means adapted to produce heat and eddy currents within the human body due to an alternating magnetic field, and a semi-spherical diaphragm operable by said means for producing mechanical vibration, the heat, mechanical vibrations and eddy currents being adapted to effect the treatment of the tissues of the human body when applied thereto.

3. A device of the class described, comprising electrically operated means adapted to produce heat and eddy currents within the human body due to an alternating magnetic field for treating the tissues in the body, and means for simultaneously applying mechanical vibrations controlled by the first mentioned means.

In testimony whereof I affix my signature.

ROBERT C. MANN.