J. J. WARNER.

ELECTROMEDICAL APPARATUS.

APPLICATION FILED JUNE 18, 1913.

1,197,978.

Patented Sept. 12, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

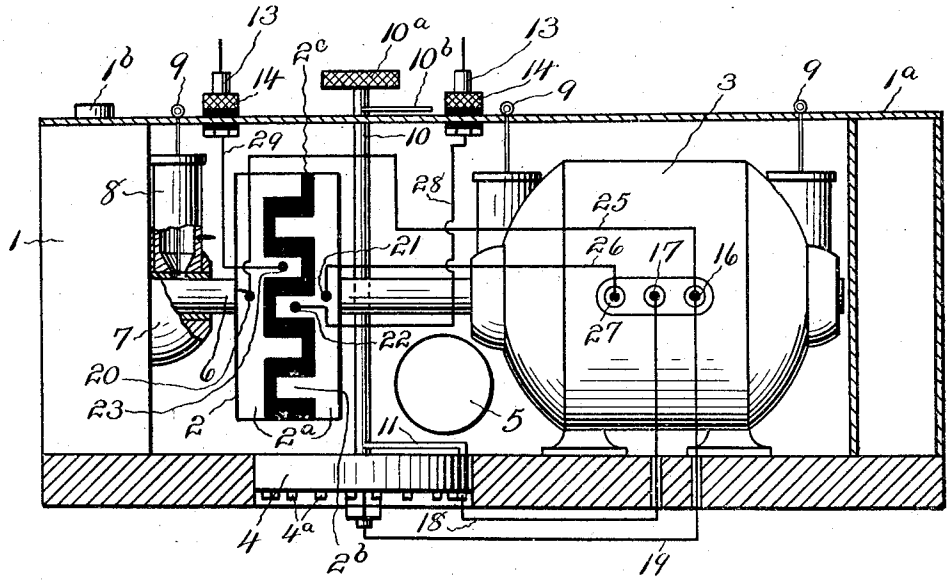
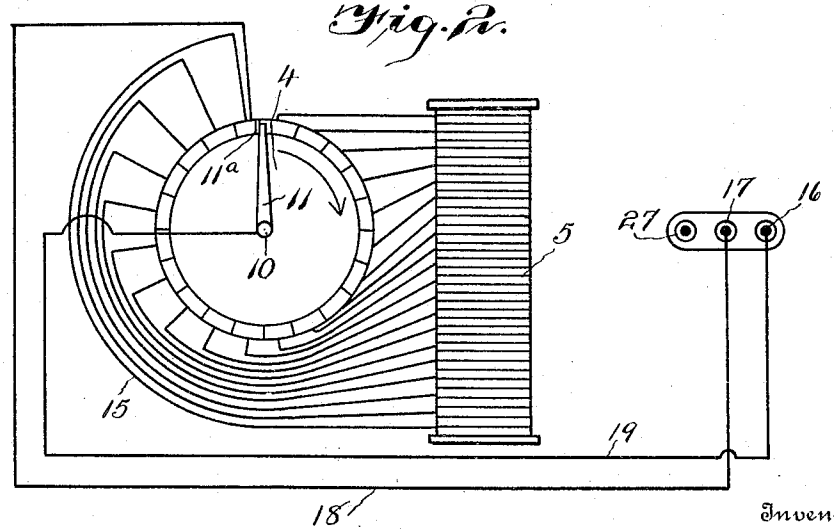


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 4.

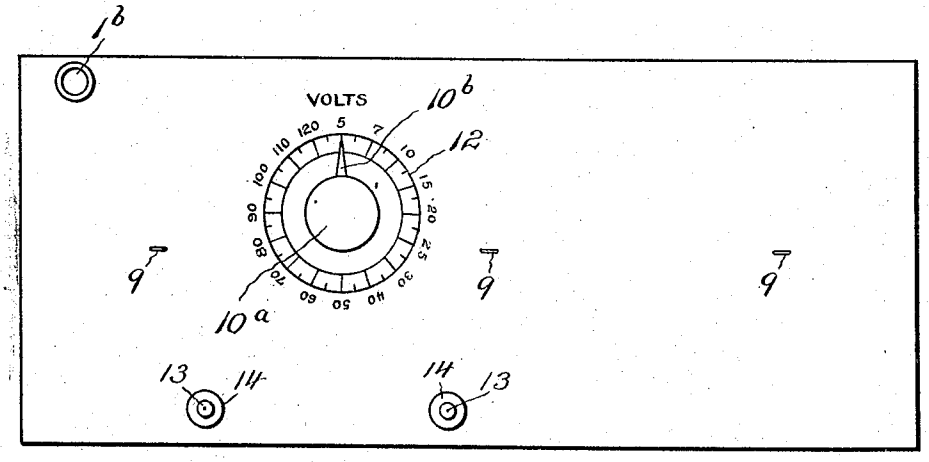
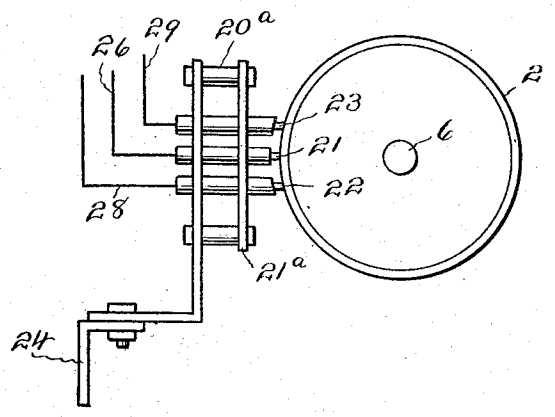


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

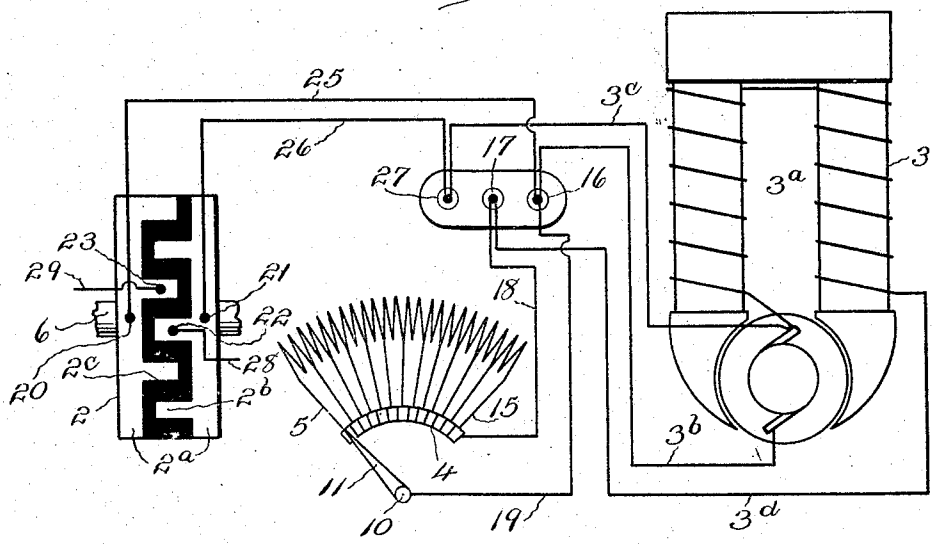
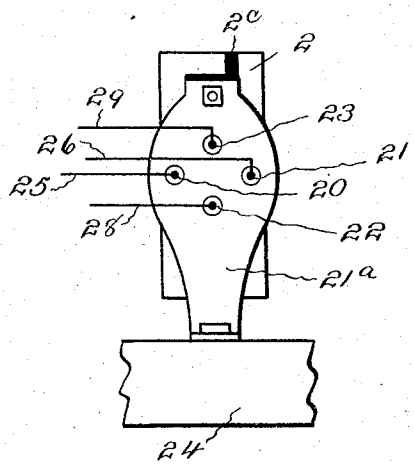


Fig. 3.a



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UNITED STATES PATENT OFFICE.

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ELECTROMEDICAL APPARATUS.

1,197,978. Specification of Letters Patent. Patented Sept. 12, 1916.

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To all whom it may concern:

Be it known that I, JESSE J. WARNER, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Electromedical Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in what may be termed electro-medical apparatus designed as indicated, more especially for medical or surgical purposes, the same relating more particularly to that type of electrical machines wherein a direct continuous current, such as is generated by a shunt-wound dynamo, driven from any suitable source of power, as a water-motor, an electric motor or otherwise, may be changed or converted into an alternating or sinuous current of a similar nature as is produced by an alternating current generating dynamo.

The invention has for its object to provide a machine of the aforesaid character which shall be simple, direct and positive in action and effective for its intended purposes.

A further object is to carry out the aforesaid ends with facility and in an expeditious manner.

The invention consists of certain instrumentalities and features substantially as hereinafter fully disclosed and defined by the appended claim.

In the accompanying drawing is illustrated the preferred embodiment of my invention wherein it will be understood that various changes and modifications may be made as relate to the detailed construction and arrangement of the parts without departing from the spirit of the invention as embraced in the claim, and in which drawing:—

Figure 1 is a vertical longitudinal section with the circuit wires disclosed diagrammatically of the machine. Fig. 2 is an enlarged detailed plan view showing more particularly the rheostat and the resistance coil suitably wired to the generator terminals. Fig. 3 and Fig. 3ª represent views in vertical section and in end elevation of the commutator and adjunctive parts, together with the brushes, the brush wires and brush holder, certain of these parts being shown fragmentarily, as is also the commutator carrying shaft. Fig. 4 is a plan view of the machine with the closure of the containing receptacle or case displaced, showing more particularly the dial, its index and the index actuating or adjusting finger piece equipped shaft or controller adjunctive of the rheostat; the apertures or passages for the insertion of the wires and the manually engaged plugs attached to said wires, the lubricant feeding means for the bearings of the generator and motor being disclosed in outline. Fig. 5 is a fragmentary partly sectional view and partly diagrammatical view of the machine, disclosing more particularly the commutator, the rheostat with its resistance coil and the electrical generator wiring with its wire terminals.

In carrying out my invention, I employ a motor 1, preferably of water-wheel type, or it may be of electrical character or otherwise, a commutator 2, an electrical generator 3, a rheostat 4 and a resistance coil 5, all being suitably housed within a casing 1ª, the water-wheel of the first named being attached to and driving a shaft 6 carrying or rotating the commutator and actuating the generator, said shaft being journaled in suitable bearings 7 in the form of castings secured to the bottom of and within the casing 1ª; a water-inlet is provided through the casing 1ª in the form of a nozzle 1ᵇ to which may be connected a water-hose.

The castings, forming the bearings 7, are adapted to provide for feeding lubricant to the shaft 6 by the aid of feeding devices 8 suitably applied to said castings or bearings and actuated by means of wires or flexible connections 9 secured to said feeding devices and extending through apertures in the casing 1ª for convenient manipulation by the attendant.

The commutator 2, circular in general outline, as usual, includes in its makeup or composition copper-members 2, said copper members having opposed spaced-apart alternating or staggered rectangular exten-

sions or projections 2^a for the reception therebetween of a continuous member or segment 2^c of non-conducting material, the same thus assuming a tortuous or sinuous outline, the projections or extensions 2^b thus adapted to be intercepted by a medium line perimetrically encompassing the commutator.

The rheostat 4 has a circular series or arrangement of contact points 4^a, and centrally, and independently movable thereof is a shaft or controller 10 carrying a contact finger 11, the direction of movement thereof being indicated by the arrow, and which contact finger is adapted to be moved over the face of said rheostat and engage any of the contact points 4^a thereof for controlling the amount of voltage to be used in treating the patient medically or in using the device for surgical purposes, as will be presently made more clearly apparent. A stop 11^a suitably secured to the face of the rheostat prevents the initial movement of the contact finger 11 in the wrong direction and limits the extent of the reverse movement thereof when it is required to return the contact finger to initial position. This shaft or controller has applied or attached to its upper end a knurled finger piece or disk 10^a adapted to provide for the convenient manual actuation of said shaft or controller, said shaft or controller also being equipped with an index or pointer 10^b playing over a dial 12 suitably arranged upon the casing 1^a and graduated for the purposes of this machine for indicating the raising and lowering of the voltage according to the requirements of the case under treatment.

Plugs 13 are provided for insertion into the terminals 14 seated in non-conducting material in the closure of the casing, to which plugs are designed to be applied suitable hand-holds for the person to grasp while being treated, said terminals being tubular to receive said plugs and being suitably seated in the upper part of the casing.

The rheostat 4 is suitably wired or connected by wires 15 to the resistance coil 5, a wire connection being effected between each of the plurality of contact members 4^a and each of the individual helices of the resistance coil as seen in Figs. 2 and 5, the shaft or controller 10 and the rheostat being connected to the generator terminals 16 and 17 by wires 18 and 19, respectively.

The shunt-wound generator or dynamo 3 is connected by wires 3^b, 3^c, leading from the brushes of the latter to the terminals 16 and 27, the windings of the armature 3^a being connected as at 3^d to the terminal 17.

Brushes 20, 21, 22 and 23 are applied to or engage alternate or staggered commutator segments or members 2^a and 2^b throughout the perimetric surface of the commutator as it is rotated through the shaft 6 from the motor 1, these brushes including their holders 20^a and parallel supports or brackets 21^a receiving the brush-holders, said supports, themselves, being supported from base-irons or members 24 so as to allow of the presentation of the brushes to the perimetric surface of the commutator as seen particularly in Fig. 3. The brushes 20 and 21 are connected by wires 25 and 26 to the generator terminals 16 and 27 as seen in Figs. 1 and 5, which thus provide for the flow of the direct current through said brushes to the commutator segments or members 2^a, 2^b, providing for the maintenance of these segments or members always charged with the same kind of current (positive or negative). As the commutator continues to rotate the brushes 22 and 23 connected by wires 28 and 29 to the hand-hold plug-receiving terminals 14 alternately engage the segments or members 2^a, 2^b, of said commutator, thus providing for alternately changing the current in the wires 28 and 29 from positive to negative electricity at each engagement of these segments and brushes in the rotation of the commutator, as in the application or using of the device.

From the foregoing it is thought that the operation of the invention has been made clearly apparent, it only being necessary to add, possibly, that the operator or person receiving the treatment grasps the hand-holds (not shown) or other conductors attached to the plugs 13 and applies the last referred to parts to the tubular terminals 14 in electrical circuit with the brushes 20 and 21. The requisite electrical current will be generated and the operator or patient accordingly receive an electrical shock from the current which will be directed through the arms and shoulders, it being understood that the controller 10 is suitably actuated for controlling the voltage as called for under the attending conditions.

I have found that in the use or application of my invention positive and almost instant relief from headache, female troubles, as well as many other ailments, is realized, the invention therefore being highly effective as a curative agent both for medical and surgical purposes as above indicated.

I claim:

An electro-medical apparatus including a motor, its shaft, a commutator mounted upon said shaft, a shunt-wound electrical generator actuated by said shaft, said commutator comprising annular complemental members having intermediate thereof a sinuous insulating member, providing for changing the direct current from said electrical generator into an alternating current, a rheostat having a circular arrangement of peripheral contacts and indicia registering

with said contacts indicating voltage, brushes wired to said complemental members of said commutator and to the terminals of said electric generator, a controller shaft equipped with a finger arranged to engage said contacts of the rheostat, said controller shaft and rheostat being wired to said electrical generator, manually actuated members wired to certain of the brushes and equipped with hand-holds.

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

JESSE JAMES WARNER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."