J. A. McCOY, JR.

RHEOSTAT.

APPLICATION FILED JULY 23, 1913.

1,099,071. Patented June 2, 1914.

Fig. 1.

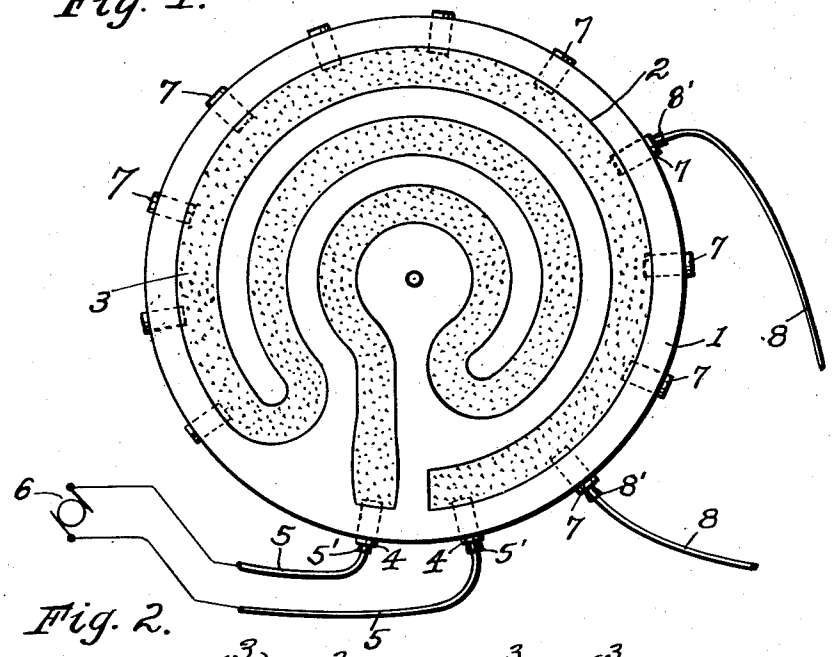


Fig. 2.

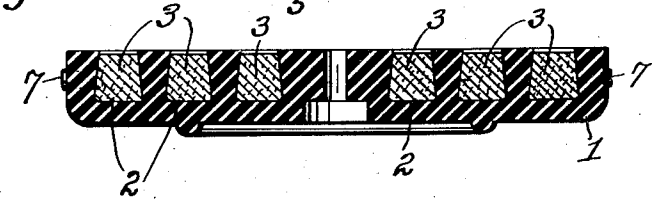
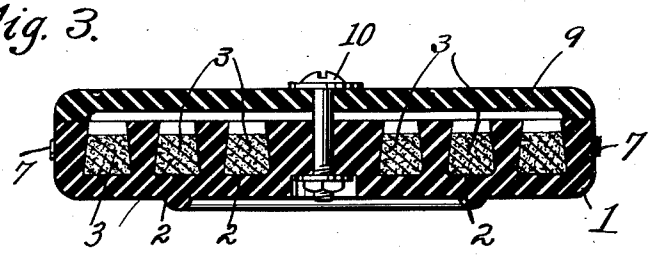


Fig. 3.



Witnesses:
T. Colcon,
A. A. Olson.

Inventor:
James A. McCoy, Jr.,
By Joshua R. H. Potts
his Attorney.

UNITED STATES PATENT OFFICE.

JAMES A. McCOY, JR., OF PARKERSBURG, WEST VIRGINIA, ASSIGNOR TO DAVIS ELECTRIC COMPANY, OF PARKERSBURG, WEST VIRGINIA, A CORPORATION OF WEST VIRGINIA.

RHEOSTAT.

1,099,071. Specification of Letters Patent. Patented June 2, 1914.

Application filed July 23, 1913. Serial No. 780,650.

To all whom it may concern:

Be it known that I, JAMES A. McCOY, Jr., a citizen of the United States, and a resident of the city of Parkersburg, county of Wood, and State of West Virginia, have invented certain new and useful Improvements in Rheostats, of which the following is a specification.

My invention relates to electrical current rheostats and more specifically to that class thereof designed for use with medical batteries.

The object of my invention is the production of a new and improved process for manufacturing rheostats of the character mentioned.

Other objects will appear hereinafter.

With these objects in view, the invention consists in the process hereinafter described and particularly pointed out in the appended claims.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a top plan view of a rheostat constructed in accordance with my process, the cover of the former being removed, Fig. 2 is a central section of the construction shown in Fig. 1, and Fig. 3 is a section similar to Fig. 2 showing the device completed.

The rheostat which is constructed through the employment of my process consists of base 1 of insulating or non-conducting material. Said base is preferably of circular or disk form and in the upper side thereof is provided a tortuous or winding channel 2. In this channel is arranged a current-resisting material 3 which is a substance formed of graphite and an asbestos compound, the latter being an asbestos cement comprising powdered asbestos and an agglutinant. Arranged in the peripheral portion of the base 1 communicating with the current-resisting material 3 at the respective extremities of the channel 2 are sockets 4 in which, when the device is in use, are inserted plugs 5′ of conductor wires 5 which lead to a source of electrical energy 6. With this arrangement it will be seen that the current-resisting material 3 is included in the circuit of the source 6 and wires 5, the voltage of the current entering at one of the sockets 4 being reduced in its passage through the material 3 before reaching the other of said sockets. Also arranged in the peripheral portion of the base 1 are spaced sockets 7 with which engage plugs 8′ of conductor wires 8, the outer ends of the wires 8, when the device is in use, being provided with handles or other appurtenances for passing the current through the body of the user of the device. With this arrangement it will be seen that the current passing through the material 3 upon reaching the socket 7 in which the nearest one of the plugs 8′ is inserted, will enter and pass through the branch circuit which is constituted by the conductor wires 8 and the body of the user. By adjusting the plugs 8′ in the sockets 7, the voltage of the current which is passed through the branch circuit may be increased or decreased as desired, it being clear that the more resistance is cut out the stronger the current will be and vice versa. The foregoing brief description of the construction of the rheostat and the manner in which the same is used, is given simply to aid in the understanding of the process of manufacture of the rheostat which process forms the subject matter of this application, this process being set forth in the following.

The current-resisting material 3 is formed of graphite and an asbestos compound which in the first instance are in powdered or granulated form. These two elements are mixed together, in dry form, with water, the mixture being kneaded so as to break up all of the large lumps and to thoroughly mingle the elements. The material thus formed, which is of a plastic or paste like consistency, is then packed into the channel 2 of the base 1, care being taken that all air bubbles are pressed out. The base is then placed in an oven which is preferably heated by gas, and the temperature run up to two hundred to two hundred thirty degrees Fahrenheit, and for a period of six hours, the base, with the compound therein is baked.

During the baking or drying, the compound 3 is pressed down by tamping into the channel 2 through the use, preferably, of an ebony stick. This tamping is done intermittently at intervals of about fifteen minutes. As this process continues, the compound dries and at the end of approximately six hours is in a solid form. Following this the base is permitted to remain

in the oven in a temperature of about one hundred degrees Fahrenheit for a period of twelve hours, during which time practically all of the moisture is driven out. The device is then taken from the oven and the composition 3 connected in an electric circuit, the sockets 4 being utilized in this operation, and an electric current of about 110 volts passed therethrough. Should there be a flaw or crack in the composition 3 the current will be interrupted. If there are no flaws or cracks in the composition the current is permitted to flow through said circuit for about fifteen hours. This latter operation drives out moisture from the composition should there be any remaining after the baking has been completed. After the moisture has all been extracted from said composition the latter will not become heated by the passing of an electric current through it, due to the high resistance of such composition preventing sufficient current to pass therethrough to cause heating thereof. Through the employment of this process a rheostat is formed which will be found highly efficient in use and adapted to effectually serve the purpose for which it is intended.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The process of constructing a rheostat consisting in forming a plastic mass of graphite and an asbestos compound and water; packing said mass in a containing base; applying heat to express the water and set said mass; and intermittently compressing the mass during the heating thereof, substantially as described.

2. The process of constructing a rheostat consisting in forming a plastic mass of graphite and an asbestos compound and water; packing said mass in a containing base; applying heat to express the water and set said mass; and intermittently tamping the mass during the heating thereof, substantially as described.

3. The process of constructing a rheostat consisting in forming a plastic mass of graphite and an asbestos compound and water; packing said mass in a containing base; applying heat to express the water and set said mass; intermittently tamping the mass during the heating thereof; and passing a current of electricity through said mass to complete the expression of water therefrom, substantially as described.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. McCOY, Jr.

Witnesses:
Joshua R. H. Potts,
Helen F. Lillis.