(No Model.)

J. C. VETTER.

RHEOSTAT.

No. 438,037. Patented Oct. 7, 1890.

Fig. 1.

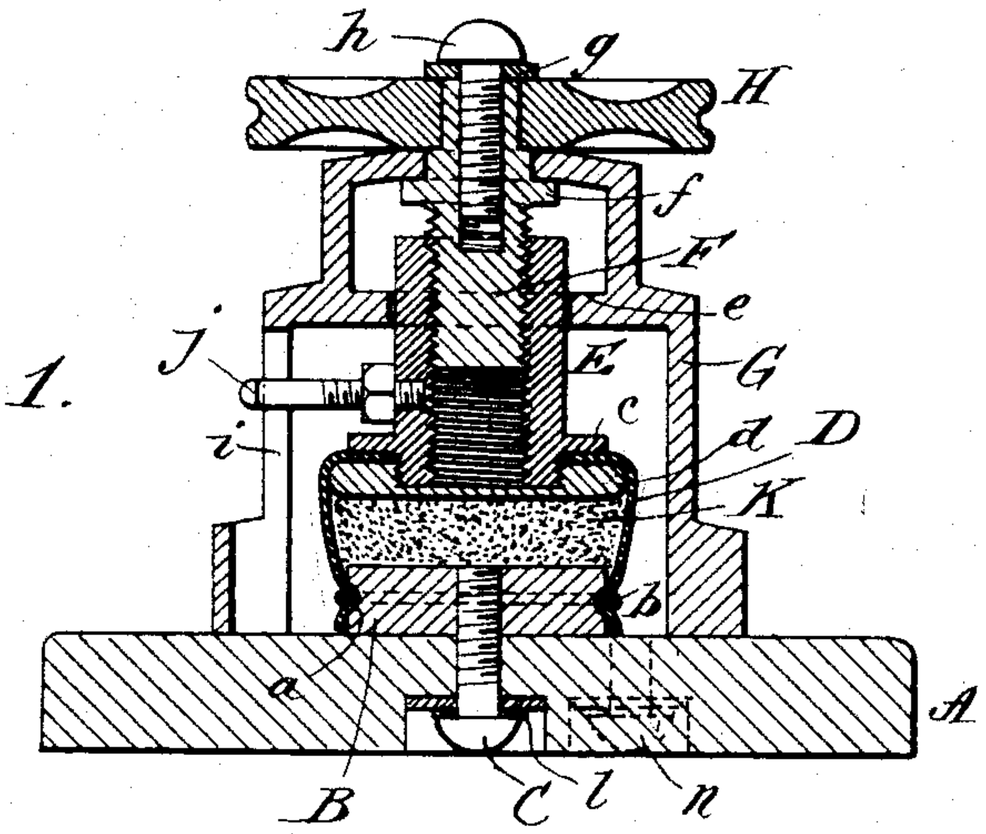


Fig. 2.

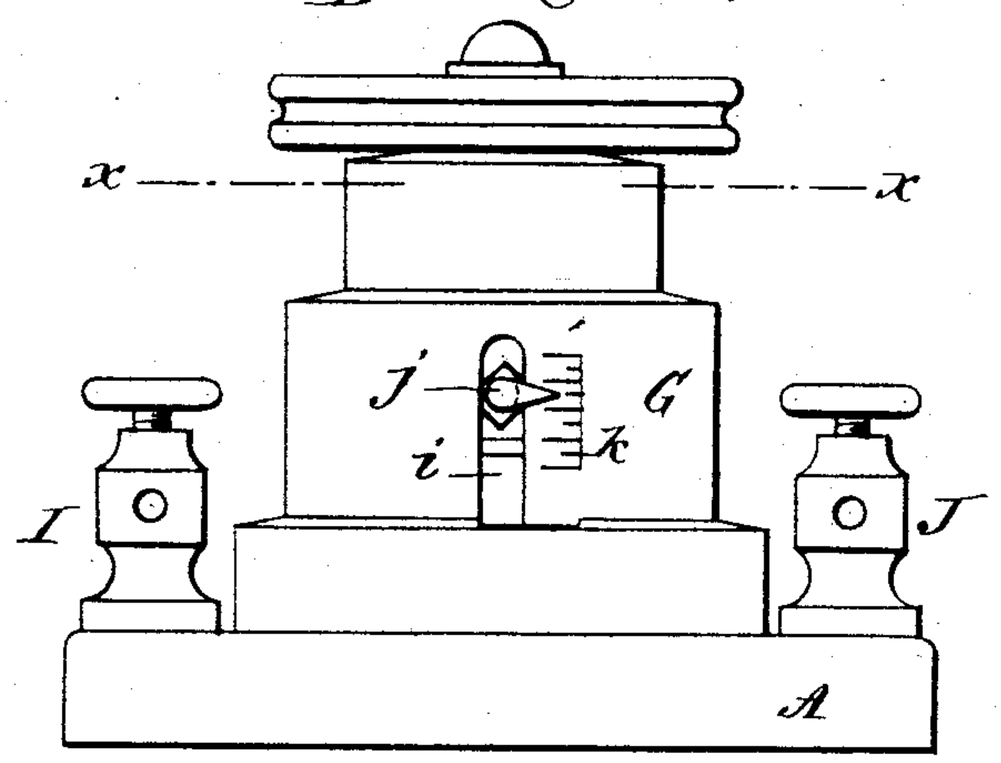
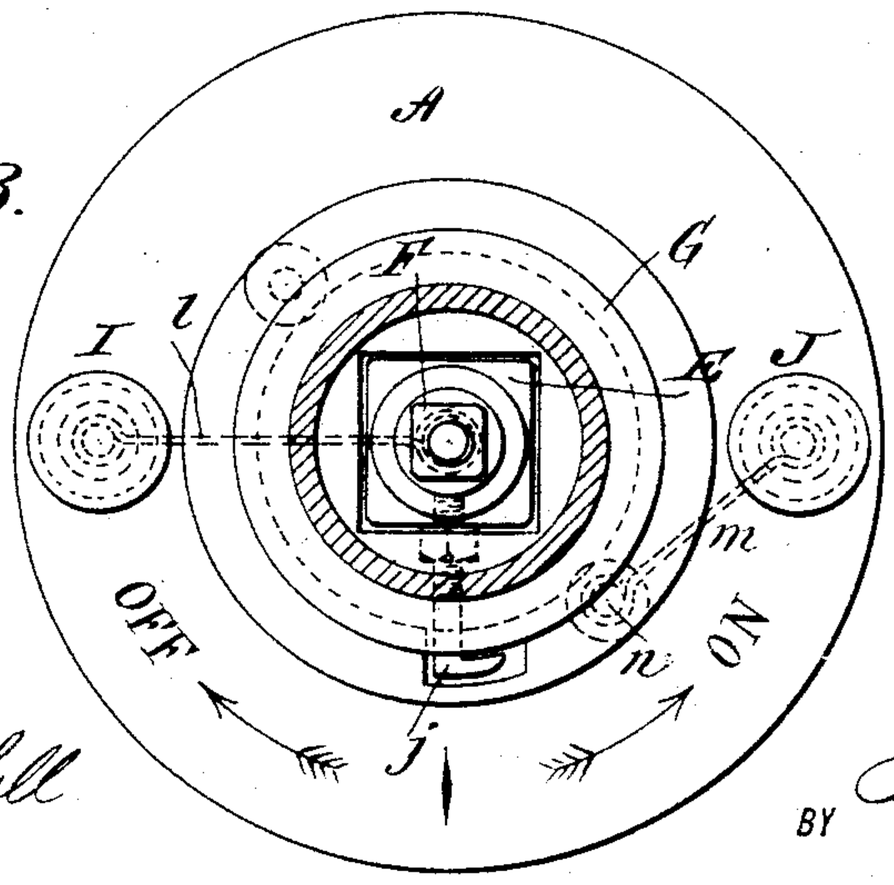


Fig. 3.



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RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 438,037, dated October 7, 1890.

Application filed November 5, 1889. Serial No. 329,336. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. VETTER, of the city, county, and State of New York, have invented a new and Improved Rheostat, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical transverse section of my improved rheostat. Fig. 2 is a front elevation, and Fig. 3 is a horizontal section taken on line *x x* in Fig. 2.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to provide a simple and effective rheostat for varying electrical currents of medium strength and intensity.

My invention is more particularly designed for use in connection with medical batteries; but it is equally well adapted to other purposes within the range of the instrument.

My invention consists in an extensible and compressible cell provided with insulating sides and a conducting top and bottom, means for moving the top toward or away from the bottom, and a powdered conductor or semi-conductor contained in the cell and adapted to be compressed so as to increase its conductivity, or loosened so as to increase its resistance, all as will be hereinafter more fully described.

To the base A is secured a metallic button B by the screw C, passing upward through a hole in the center of the base and entering the said metallic button B. The periphery of the metallic button B is provided with a groove *a*, and over the edge of the button is stretched an elastic rubber tube D, which is clamped on the button by a wire *b*, which forces the sides of the tube into the peripheral groove *a*. The upper edges of the tube D are turned inward and are clamped between a flange *c* on the follower E, and a cap *d* screwed on the lower end of the said follower. The periphery of the cap *d* is rounded to prevent injury to the rubber tube D. The follower E is square in section, and is bored longitudinally and internally threaded to receive an adjusting-screw F. The follower E passes through a square hole in the horizontal partition *e* of the casing G. The said casing G incloses the tube D and parts connected therewith, and the screw F extends through a central aperture in the top of the casing G, and is squared to receive the milled wheel H. The screw F is provided with a collar *f* below the top of the casing G, which, together with the milled wheel H, prevents the screw from longitudinal movement, while it is allowed to turn freely in the cap.

The milled wheel H is held upon the top of the screw F by a washer *g* and a screw *h*, passing through the washer into the end of the screw F. In the side of the casing G there is a slot *i*, and in the side of the follower E is inserted an index *j*, which projects through the said slot over the scale *k*, formed on the side of the casing G.

The base A is provided with binding-posts I J, which are connected up with the rheostat in the manner shown in Fig. 3—that is to say, the binding-post I is connected by a wire *l* with the central screw C, which is in electrical connection with the button B. The binding-post J is connected by a wire *m* and the screw *n* (shown in dotted lines) with the casing G. The space between the button B and the cap *d* is filled with the powdered or granulated semi-conductor K. The circuit-wires are connected with the binding-posts I J, and the current flows from the binding-post I through the wire *l*, screw C, button B, semi-conductor K, cap *d*, follower E, casing G, screw *n*, and wire *m* to the binding-post J.

By turning the milled wheel H so as to force the follower E downward the particles of the semi-conductor K are brought into closer contact with each other, increasing the conductivity of the contents of the tube D. By turning the milled wheel H in the opposite direction the particles of the semi-conductor K are loosened and the resistance of the rheostat is increased.

On the base A are engraved arrows and the words "Off" and "On," to indicate the direction in which the screw of the milled wheel must be turned to increase or diminish the current.

The scale *k* upon the casing G indicates approximately the amount of compression of the semi-conductor.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a rheostat, the combination of a flexible laterally-extensible receptacle having a metallic top and bottom, a powdered or granulated semi-conductor contained by the receptacle, and means, substantially as described, for compressing and loosening the particles of the same.

2. In a rheostat, the combination of a receptacle formed with a top and bottom of conductive material and flexible or elastic sides, a granulated or powdered conductor or semi-conductor contained by the receptacle, and an adjusting-screw for moving the top of the receptacle toward or away from the bottom thereof, substantially as described.

3. In a rheostat, the combination of the metallic button B, the flexible tube D, the cap *d*, the powdered semi-conductor K, the internally-threaded follower E, provided with a flange *c*, the screw F, and the casing G, substantially as specified.

4. In a rheostat, the combination of the casing G, provided with the slot *i*, the follower E, furnished with the index *j*, an extensible receptacle, and a powdered or granulated conductor contained by the said receptacle, substantially as specified.

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