

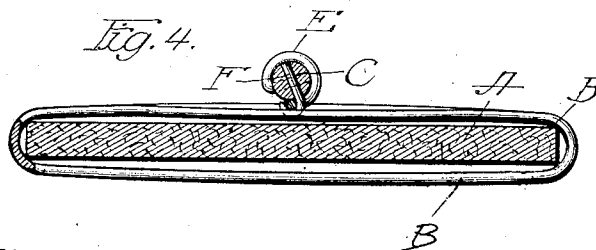
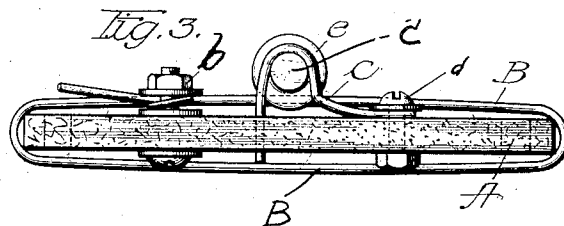
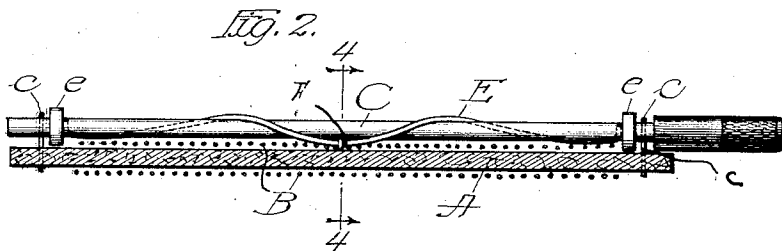
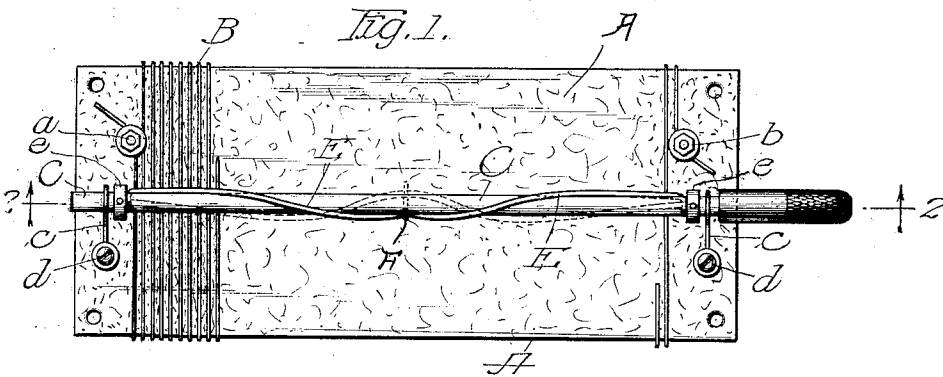
A. F. VICTOR.
RHEOSTAT.

APPLICATION FILED JULY 17, 1919.

1,364,967.

Patented Jan. 11, 1921.

2 SHEETS—SHEET 1.



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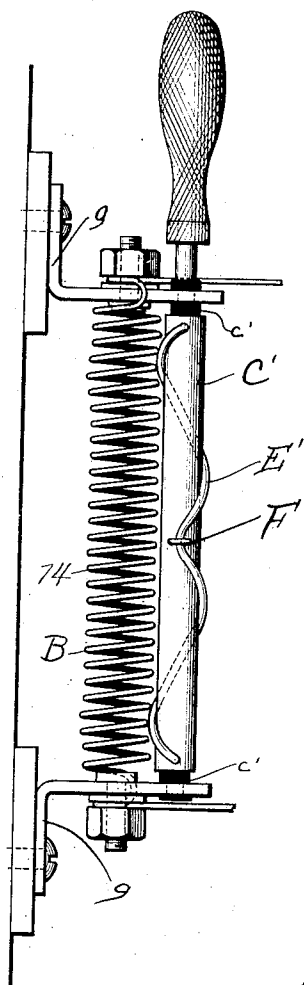


Fig. 5

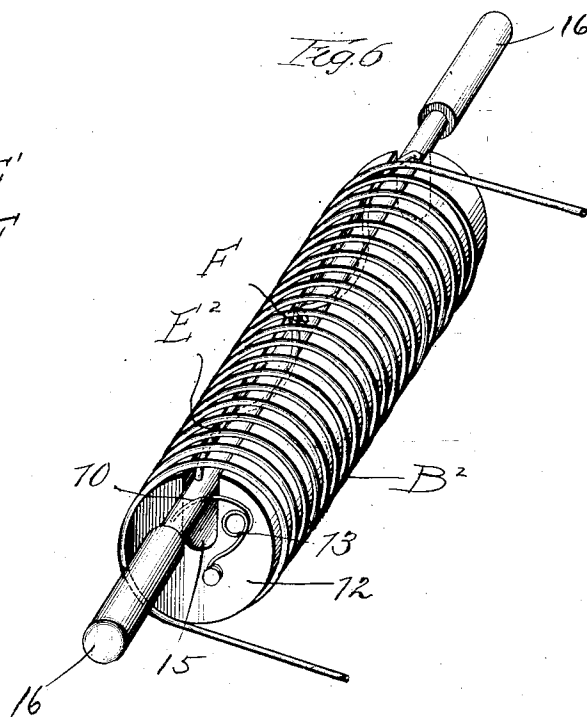


Fig. 6

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UNITED STATES PATENT OFFICE.

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RHEOSTAT.

1,364,967.

Specification of Letters Patent.

Patented Jan. 11, 1921.

Application filed July 17, 1919. Serial No. 311,483.

To all whom it may concern:

Be it known that I, ALEXANDER FERDINAND VICTOR, a subject of the King of Sweden, (having declared my intention of becoming a citizen of the United States,) residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Rheostats, of which the following is a full, clear, and exact description.

My invention relates to improvements in rheostats, and its object is to greatly simplify and reduce the cost of the same and, when it is manipulated, to make the increase or decrease of resistance to the electric current constant and so gradual that the transition from one resistance to the other is hardly noticeable. This I accomplish by the means hereinafter fully described, and as illustrated in the drawings, in which—

Figure 1 is a plan view of my improved rheostat.

Fig. 2 is a central longitudinal sectional view of the same.

Fig. 3 is an end view thereof.

Fig. 4 is a transverse section taken on dotted line 4—4, Fig. 2.

Fig. 5 shows a side elevation of a modified construction of my invention.

Fig. 6 is a plan view of yet another modification.

Referring to the drawings, A represents a flat piece of suitable insulating material; B represents a resistance coil, one end of which is connected to a terminal *a* at one end of said plate and from thence has the convolutions thereof wound around the plate until the opposite end of said plate is reached, whereupon its opposite end is connected to the terminal *b*.

A longitudinal shaft C, which is, preferably, made of steel, extends across the convolutions of the resistance coil, and has one end projected beyond the end edge of the plate and provided with a suitable hand-grasp made of insulating material. This shaft is journaled in and kept pressing toward said convolutions by laterally disposed hooks *c, c*, made of spring wire. The shanks of these hooks are fastened by screws *d, d*, to said plate, between its end edges and the end convolutions of the coils, and the points of the hooks extend through holes in said plates.

Between the hooks and the end convolutions of the coil, shaft C has transverse holes made therein, and the ends of a copper wire E are bent inward and inserted and secured in these holes. I prefer to secure said ends by collars *e, e*, mounted and secured on said shaft in such position that they impinge against and bite into the bent ends of the wire E, but any other method of anchoring said ends will answer just as well. From its ends, wire E is curved or made to describe spiral courses in the same direction until its center of length is reached, and at this point it is secured to shaft C by a staple F, one or both ends of which latter are embedded in and securely fastened to said shaft.

The curvature of wire E describes two reverse corresponding spirals between its ends and its center of length, constituting, as it were, two continuing contacts. As shaft C is revolved corresponding portions of each of these spiral contacts come in contact with the convolutions of the coil and cut out the electric current between their points of contact, and leave only the end portions of the coils between the convolutions engaged by said points of contact and terminals *a* and *b*, in the circuit. As the shaft is turned in one direction the points of contact of said wire will approach the ends of the coil, thus cutting out more of the convolutions and decreasing the resistance to the current, and when the shaft is turned in the other direction the points of contact of the wire approach the center of length of the coil and increase the resistance thereof.

In Fig. 5 of the drawings, I show a modified construction of my invention in which the shaft C' (which is the equivalent of shaft C) is disposed vertically and has its journals *c'* made of insulating material and journaled in the ends of L-shaped brackets *g, g*, that are attached to and project from a wall or other suitable support.

Between its journals this shaft has a copper wire E' secured thereto at its center by a staple F' and which describe spiral courses around the shaft in the same manner as the wire E of the preferred form of my invention.

The ends of a vertical resistance coil are suitably secured to brackets *g, g*, so that its axis is parallel to the axis of the shaft C' and in such close propinquity thereto

that when the shaft is turned on its axis the wire E' will engage the outer circumference of the convolutions of the resistance coil and provide the same effect as is produced by the wire E and the resistance coil shown in the first four figures of the drawings.

In Fig. 6, I show yet another modified construction of my invention in which the resistance coil B² is wound around a tubular support 12 that is made of insulating material. This tubular support is provided with a longitudinal groove 15 and a longitudinal shaft 10 is loosely seated in this groove and has its ends extend beyond the same and is provided with handles 16, 16, of insulated material for rotating the same. Shaft 10 has a wire E² secured thereto in the same manner as the wire E, and said shaft has its ends engaged by the free ends of U-shaped springs 13 that urge the shaft 10 outward and keep the wire E² engaging the inner circumference of the convolutions of the resistance coil all the time. By turning the shaft 10 the resistance of the resistance coil is increased or decreased in the same manner as hereinbefore described.

All of these modifications and changes in construction affect only the mechanical embodiment of the principle of my invention, and I desire it to be understood that I claim them all as coming within its scope.

What I claim as new is:

1. A rheostat comprising a resistance coil, and two integral longitudinally disposed rotatable spiral metal contacts engaging the convolutions of said coil; the curvature of one of said spirals being the reverse of the other.

2. A rheostat comprising a resistance coil, and two integral longitudinally disposed rotatable spiral metal contacts that yieldingly engage the convolutions of said coil; the curvature of one of said spirals being the reverse of the other.

3. A rheostat comprising a resistance coil, an insulated support therefor, and two integral longitudinally disposed rotatable spiral metal contacts engaging the convolutions of said coil; the curvature of one of said spirals being the reverse of the other.

4. A rheostat comprising a resistance coil, an insulated support therefor, and two integral longitudinally disposed rotatable spiral metal contacts journaled in bearings attached to said support engaging the convolutions of said coil; the curvature of one

of said spirals being the reverse of the other.

5. A rheostat comprising resistance coil, an insulated support therefor, and two integral longitudinally disposed rotatable spiral metal contacts journaled in bearings attached to said support and yieldingly engaging the convolutions of said coil; the curvature of one of said spirals being the reverse of the other.

6. A rheostat comprising a resistance coil, a metal shaft extending longitudinally over the same, and two spiral metal contacts mounted on said shaft that extends from each end of the same toward the center of length of the shaft in oppositely curved spiral courses and engaging the convolutions of said coil.

7. A rheostat comprising a resistance coil, a rotatable metal shaft extending longitudinally over said coil parallel to the axis of the same, and a wire contact having its ends secured to said shaft and extending from thence toward the center of length of the shaft in oppositely curved spiral courses, and engaging the convolutions of said coil.

8. A rheostat comprising a resistance coil, a plate of insulating material to which the terminals of said coil are secured, a rotatable metal shaft extending longitudinally over said coil parallel to the axis of the same, a wire contact having its ends secured to said shaft and extending from thence toward the center of length of the shaft in oppositely curved spiral courses, and means for keeping said contact in engagement with the convolutions of said coil.

9. A rheostat comprising a resistance coil, a plate of insulating material to which the terminals of said coil are secured, a rotatable metal shaft extending longitudinally over said coil parallel to the axis of the same, a wire contact having its ends secured to said shaft and extending from thence toward the center of length of the shaft in oppositely curved spiral courses, and spring wire hooks in which the ends of said shaft are journaled and which keep said contact wire bearing against the convolutions of said coil.

In witness whereof I have hereunto set my hand and seal this 8th day of May, 1919.

ALEXANDER FERDINAND VICTOR.

Witnesses:

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E. BALLWEG.