(No Model.)

H. E. HEATH.

RHEOSTAT.

No. 557,386. Patented Mar. 31, 1896.

Fig. 1.

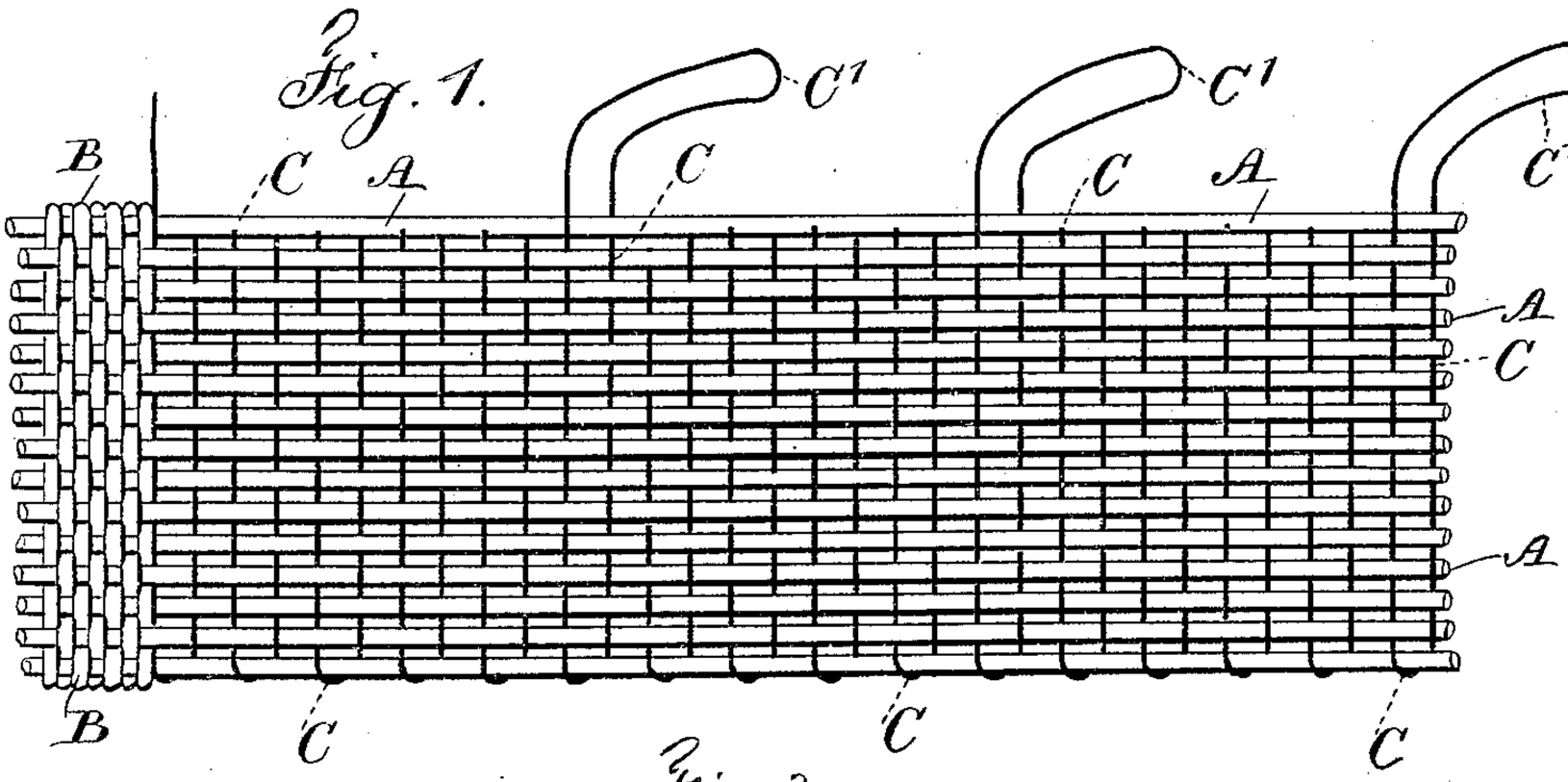


Fig. 3.

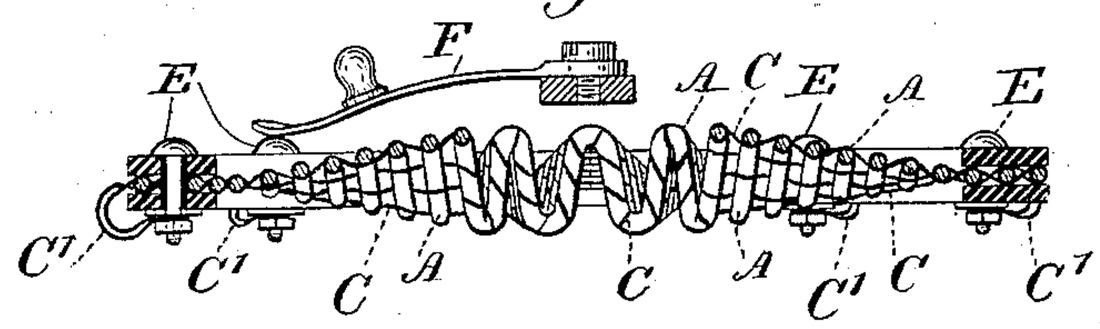


Fig. 2.

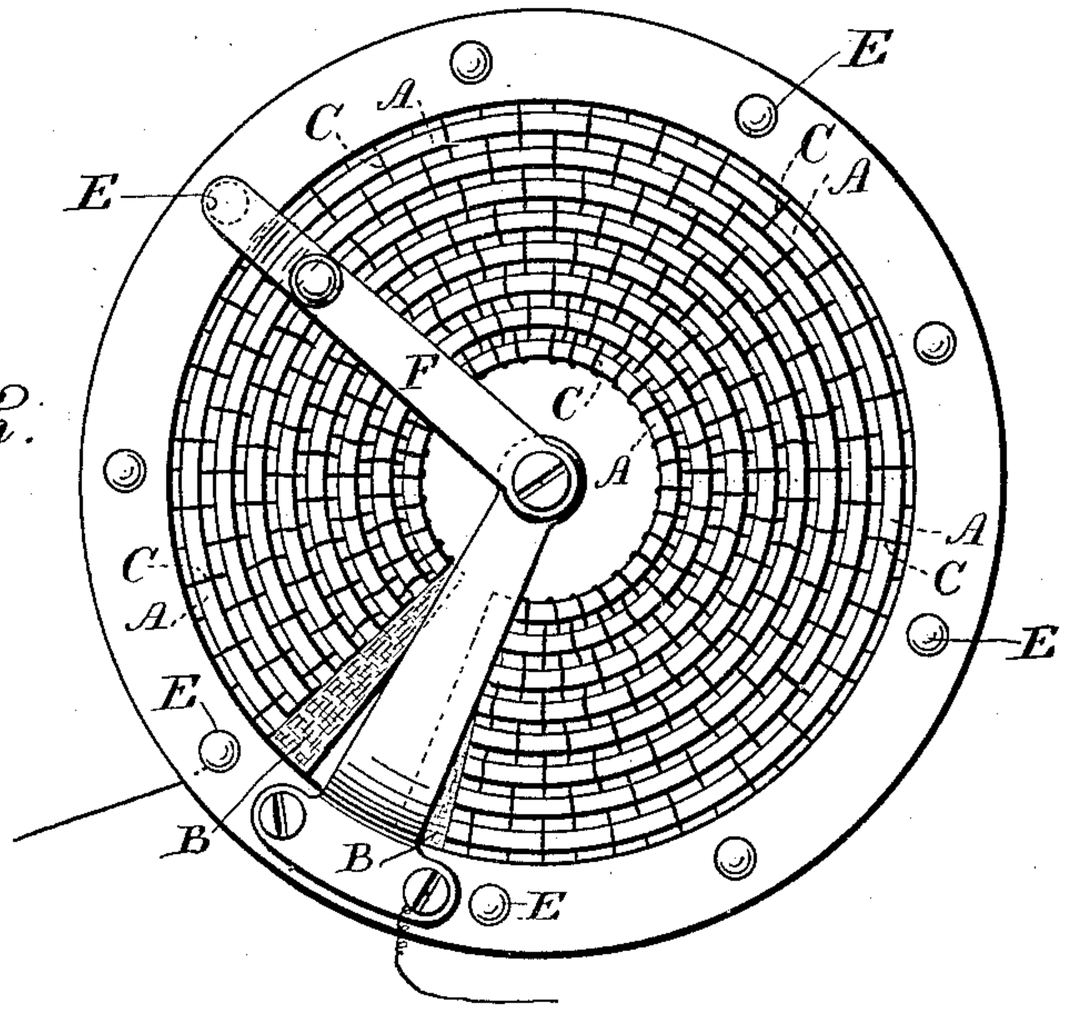
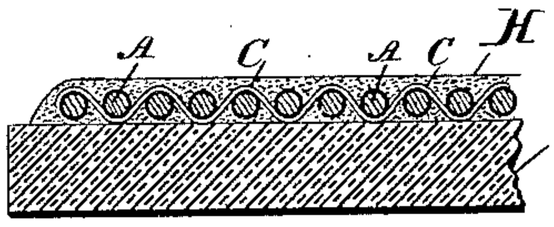


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY E. HEATH, OF WINDSOR, CONNECTICUT, ASSIGNOR TO THE EDDY ELECTRIC MANUFACTURING COMPANY, OF SAME PLACE.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 557,386, dated March 31, 1896.

Application filed December 26, 1895. Serial No. 573,279. (No model.)

To all whom it may concern:

Be it known that I, HARRY E. HEATH, a citizen of the United States, residing at Windsor, in the county of Hartford and State of Connecticut, have invented an Improvement in Rheostats, of which the following is a specification.

In electric heaters and in rheostats wire, forming the resistance, has been supported by non-conducting and refractory material, such as asbestos, and in some instances asbestos cloth has been used with wires interwoven in forming fireproof fabrics and also for electric heaters.

In my present invention I make use of flexible non-conducting wire-holders, with which the wire is interwoven, and the wire is carried off at intervals in the form of ends or loops, so that the whole or a portion of the wire may be included in the electric circuit for varying the resistance of the rheostat, and the interwoven materials are easily shaped according to the character of the rheostat or resistances without the risk of the wires coming into contact and being short-circuited, and the rheostat thus produced is adapted to being covered with a varnish or enamel and connected to a plate or other suitable support, as hereinafter indicated, but advantageously by such enamel.

In the drawings, Figure 1 is a representation of the rheostat in a flat condition after the parts have been laid together. Fig. 2 is a plan view, and Fig. 3 a section, illustrating the rheostat as made up into a circular form; and Fig. 4 is a section showing part of the rheostat as attached to a tile or support.

The longitudinal wire-holders A are preferably of asbestos cords of a suitable size and strength, and these are advantageously connected together by weft-threads at B, which may also be of asbestos.

The conducting-wire C is interwoven with the cords A as the weft to pass alternately above and below the cords or wire-holders, and at a sufficient distance apart to prevent the current passing from one wire to the next, and where the wire-holders are in the form of asbestos cords the wires will embed themselves, so that the risk of the wires slipping is effectually prevented, and it becomes unnecessary to introduce asbestos or other similar weft-threads to keep the wires apart. Hence the rheostat is similar to a fabric with the wire-holders forming the warp and the conductors the weft, and the wire or conductor is passed off at intervals at either or both edges of the material in the form of loops C′, so as to divide up the rheostat into sections each of the desired resistance, and where the rheostat is to be variable these loops C′ are usually connected to binding-posts or contacts, and it will be apparent that the wire forming the loops may be severed, so as to allow for the wire ends being grouped together in any desired manner in constructing the rheostat or resistance.

This rheostat may be wound upon a cylinder of non-conducting or refractory material in making up the rheostat or resistance, and it may be cut off in any desired lengths; but usually it is advantageous to introduce weft-threads at each end, so as to make a complete fabric with the desired number of intermediate loops or ends to the conductors.

When this rheostat or resistance is to be protected from atmospheric or similar influences, it may be coated with any desired enamel or varnish, and where such resistance is liable to be heated it may be coated with an enamel that can be vitrified, and it may be connected with a backing—such, for instance, as a tile of pottery or earthenware—by such enamel. The tile is shown at G and the vitrified coating or enamel at H, Fig. 4.

I have represented in Figs. 2 and 3 the rheostat, made as shown in Fig. 1, as bent around into the form of an arc of a circle, the loops C′ being outwardly and the inner edge being corrugated or crinkled to allow the outer edge to remain substantially flat, and the loops C′ or wire ends are connected with insulated contact-plates E, and there is an arm F pivoted at the center, which may be swung around to either of the contact-plates, so as to bring more or less of the rheostat into the electric circuit. I do not, however, limit myself to any particular manner in which this rheostat is to be connected up for use, and I remark that while I prefer the asbestos cords for forming the wire-holders A, I do not limit myself in this particular.

I claim as my invention—

1. The combination in a rheostat, of parallel flexible and non-conducting wire-holders and wires interwoven alternately above and below such holders for sustaining such wire electric conductor, and by which conductor the wire-holders are held in position substantially as set forth.

2. The combination in a rheostat, of parallel flexible and non-conducting wire-holders and wires interwoven alternately above and below such holders for sustaining such wire electric conductor, and by which conductors the wire-holders are held in position the wire being carried off at intervals to form loops or connecting ends in the rheostat, substantially as set forth.

3. The combination in a rheostat, of parallel flexible and non-conducting wire-holders and wires interwoven alternately above and below such holders for sustaining such wire electric conductor, and by which conductor the wire-holders are held in position the wire being carried off at intervals to form loops or connecting ends in the rheostat and conducting-plates connected with such loops or ends of the conductor, substantially as set forth.

4. The combination in a rheostat, of parallel flexible and non-conducting wire-holders and wires interwoven alternately above and below such holders for sustaining such wire electric conductor and an enamel or covering material upon the surface of the wires and wire-holders, substantially as set forth.

5. The combination in a rheostat, of a supporting device and parallel flexible and non-conducting wire-holders and wires interwoven alternately above and below such holders for sustaining such wire electric conductor and an enamel or covering material upon the surface of the wires and wire-holders, said material fastening the wires and holders to the supporting device, substantially as set forth.

Signed by me this 18th day of December, 1895.

HARRY E. HEATH.

Witnesses:
WM. R. C. CARSON,
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