

(No Model.)

F. B. BADT.
ELECTRIC RHEOSTAT.

No. 544,278.

Patented Aug. 13, 1895.

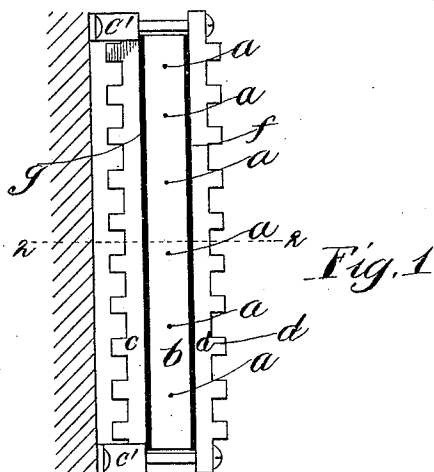


Fig. 1

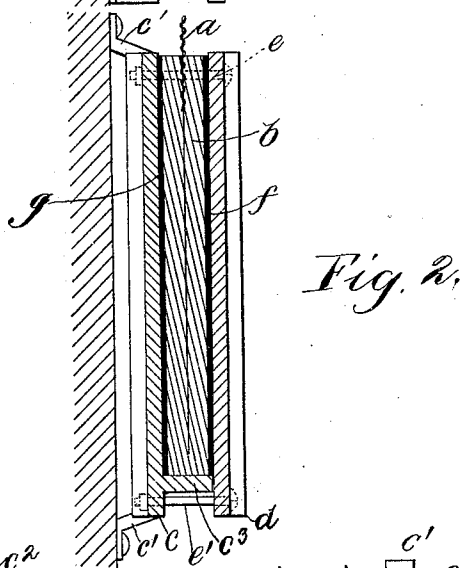


Fig. 2.

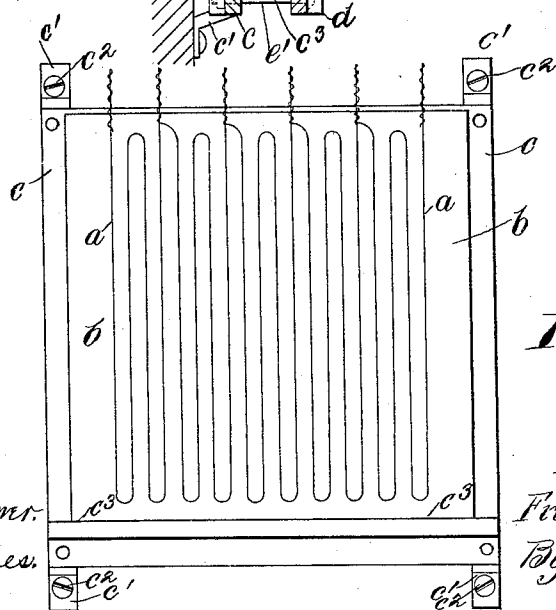


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS B. BADT, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SIEMENS & HALSKE ELECTRIC COMPANY OF AMERICA, OF SAME PLACE.

ELECTRIC RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 544,278, dated August 13, 1895.

Application filed May 31, 1895. Serial No. 551,138. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. BADT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Rheostats, (Case No. 55,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a rheostat, and its object is to provide a rheostat of non-combustible material in which the conductors carrying the current may be thoroughly insulated, while the heat generated thereby may be readily radiated.

In accordance with my invention the resistance coils or conductors are embedded in a plate of glass, the glass being molded about the conductor in the formation of the glass. The glass plate is clamped between a pair of metal plates, preferably cast iron, and ribbed to afford considerable radiating surface, a layer of yielding or elastic material being interposed between the glass and the metal plates whereby the expansion of the glass may be permitted.

I will describe my invention more in particular by reference to the accompanying drawings, in which—

Figure 1 is a plan view of a rheostat embodying my invention. Fig. 2 is a sectional view thereof on line 2 2, Fig. 1. Fig. 3 is a view of the rheostat with the upper radiating plate removed, showing the position of the conductors within the glass plate.

Like letters refer to like parts in the several figures.

The resistance coils or conductors *a a* are embedded within the glass plate *b*, the glass being molded about the conductors during the formation of the glass plate, whereby the conductors are completely inclosed within the plate, and form a part of the same. The conductor is brought from the end of the plate at intervals, whereby the contact terminals of the rheostat may be electrically connected with the conductors. I have illustrated the conductors as bent double and twisted upon themselves at the points where they extend from the edge of the plate, the

conductors being thus strengthened and affording an increased carrying capacity and an increased radiating-surface for the heat produced by the passage of the current through the conductors. The glass plate as thus formed is clamped between the metal plates *c* and *d* by means of bolts *e e'*. The plates are provided with ribs upon their outer faces, whereby increased radiating-surface is provided. One of the plates *c* is provided with legs *c' c'* at its corners, through which screws *c² c³* may be passed to screw the plate to the switchboard or other support. The plate *c* also carries a shelf or projection *c⁴* adapted to bear the weight of the glass plate *b*. Between the glass plate and the radiating-plates *c* and *d* are interposed layers *f* and *g* of yielding or elastic material, adapted to permit the expansion of the glass plate under the influence of heat. The layers *f* and *g* may be made of asbestos or sand, or any other yielding material which will readily convey the heat from the glass to the metal plates.

The rheostat as thus constructed thoroughly insulates the electrical conductors, as they are formed integrally with and completely inclosed by the glass plate, and as glass is a fairly good conductor of heat, the heat generated in the conductors is readily conveyed through the glass plate to the metallic radiating-plates, from the surfaces of which it is radiated. Furthermore, the materials of which the rheostat is made are non-combustible, and danger from fire produced by the overheating of the coils is thus avoided.

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

1. In a rheostat the combination with a glass plate, of electrical resistance conductors embedded in said plate and extended from the plate at intervals for connection with the contact terminals of the rheostat, and metallic plates between which said glass plate is adapted to be clamped, and supported, substantially as described.

2. In a rheostat, the combination with a glass plate, of electrical conductors or resistance coils embedded or molded in said plate, metallic radiating plates upon the opposite sides of said glass plate, and a layer of yield-

ing material interposed between said glass plate and each of said radiating plates, to permit the expansion of the glass; substantially as described.

- 5 3. In a rheostat, the combination with the glass plate *b*, of the electrical conductors or resistance coils *a a*, embedded or molded therein, the radiating plate *c* carrying the shelf *c*³ upon which said glass plate is adapted to rest, radiating plate *d* between which
10 and the radiating plate *c* said glass plate is

clamped, and the layers *f* and *g* of yielding, heat-conductive material interposed between said glass plate and said radiating plates respectively; substantially as described. 15

In witness whereof I hereunto subscribe my name this 24th day of May, A. D. 1895.

FRANCIS B. BADT.

Witnesses:

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