(No Model.)

R. C. MITCHELL.

RHEOSTAT AND HEATER.

No. 528,907. Patented Nov. 6, 1894.

Fig. 1.

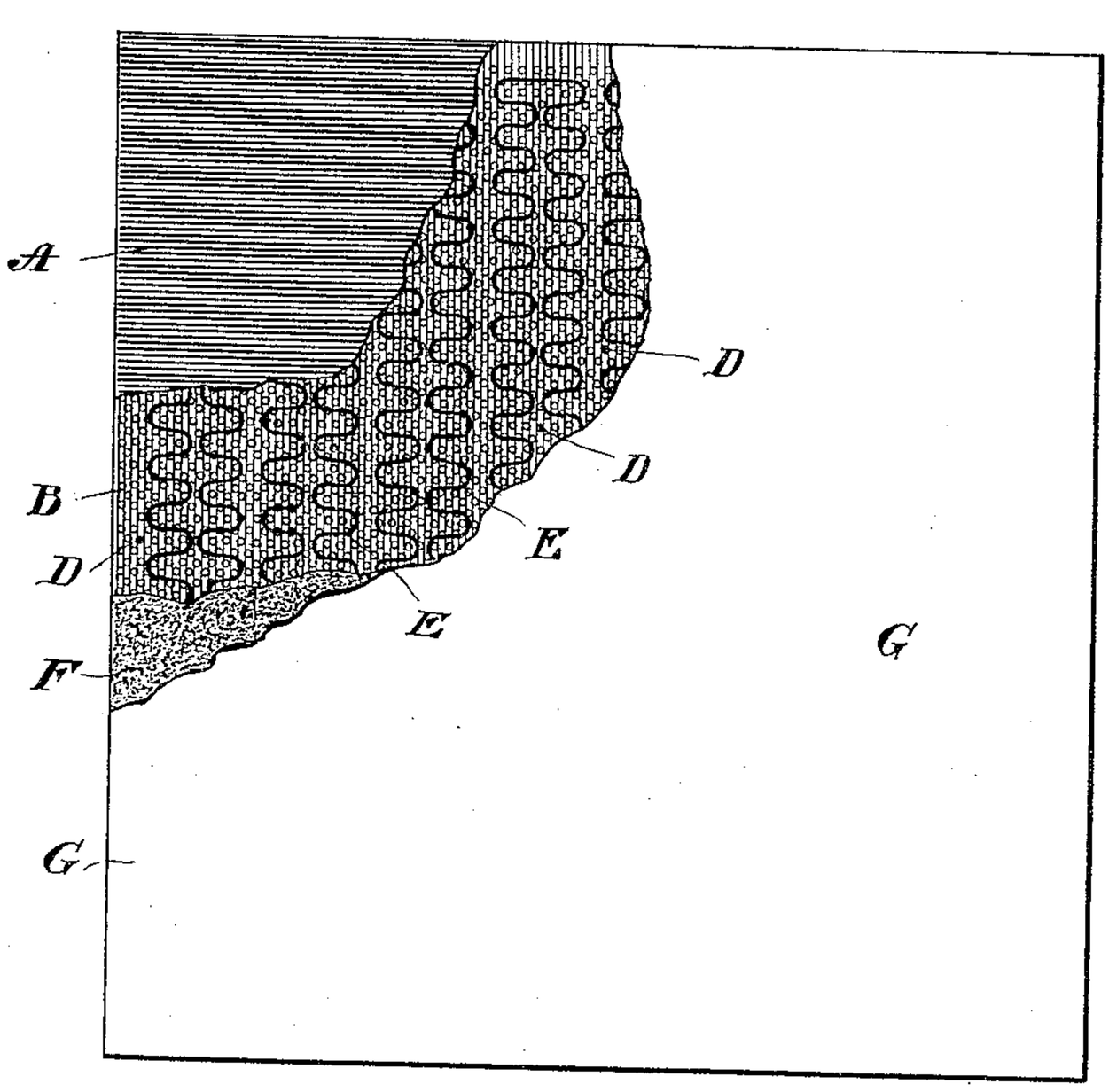
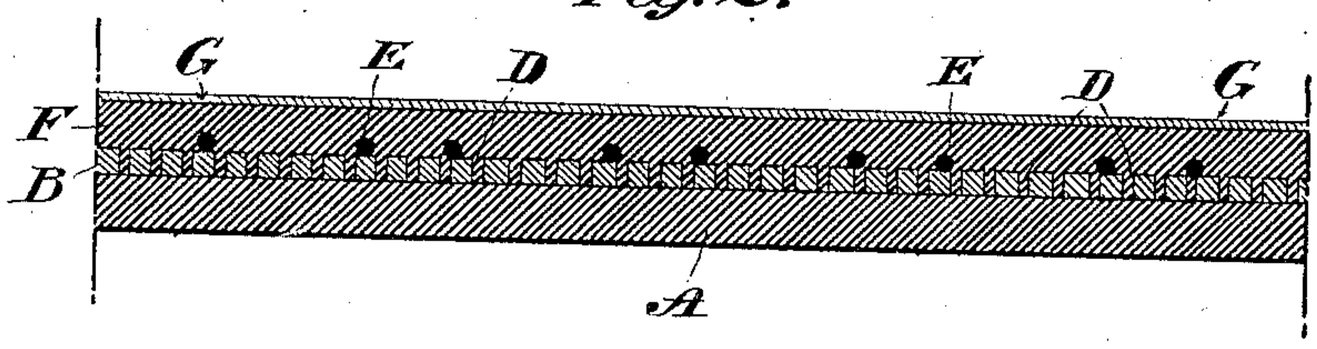


Fig. 2.



WITNESSES:

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RHEOSTAT AND HEATER.

SPECIFICATION forming part of Letters Patent No. 528,907, dated November 6, 1894.

Application filed January 17, 1894. Serial No. 497,209. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. MITCHELL, of the city of New York, county and State of New York, have invented certain new and useful Improvements in Rheostats and Heaters, of which the following is a specification.

My invention consists in the novel mechanism hereinafter fully described.

The object of my invention is to provide in a rheostat and heater, a positive means of insulating the resistance wire from the base, whether the said base be flat or curved.

My invention is illustrated by the accompanying drawings, in which—

Figure 1, is a plan view of a flat rheostat or heater, sections of the several layers being broken off from one corner thereof for the purpose of revealing the construction. Fig. 2, is an enlarged transverse cross-section of a portion of the mechanism.

Similar letters refer to similar parts in both views.

My invention is of particular value as an electric heater for the reason that in all such devices the base plate is formed from steel or iron, and it is therefore particularly important that a perfect insulation be interposed between the said plate and the resistance wire.

It is also important that this insulation be as thin as possible so that the source of the heat, the hot resistance, can lie very closely to the base plate of the heater, in which event the heat from the resistance wire will have very little to penetrate before acting directly on the heater plate. This latter feature is a recognized factor of importance.

A is a base or support made from any suitable material, and may be flat or cylindrical or of any desired shape.

B is a sheet of insulating material, by preference mica. By the use of mica are gained several points. First it is an admirable non-conductor, and second, it is non-fusible, does not get soft and is not seriously affected by heat. It is obvious that any other substance, that possesses substantially these properties, may be substituted.

D D are perforations formed in the sheet B. These perforations may be of any desired shape or number.

E is a resistance wire shaped in any desirable manner.

The sheet of insulating material B is placed upon the base A and then the resistance wire E is placed upon the sheet B. A suitable cover of insulating substance F is then placed over the sheet B and resistance wire E and allowed to run, or is forced, down into and through the perforations D D until it contacts with the plate A. By preference I make use of a cohesive substance such as enamel, or lava or the like. The apparatus is then placed in a furnace and the insulating substance is baked so as to harden it and thus unite the several parts into one solid body. By preference a considerable part of the sheet B is perforated so that a large holding surface on the base A is exposed to the covering F. Where lava or other porous insulation is used I preferably treat its exposed surface to a coating of waterproofing substance G, for instance enamel, that is not seriously affected by heat.

It is obvious that the perforations may extend entirely across the width of the sheet B thereby cutting it into several sheets to lie between the plate A and the resistance E.

If the base A is cylindrical the sheet B may be wrapped around it.

The particular advantage of placing an insulating material, that does not become soft by heat, between the base and the resistance wire is, that there is no possibility of the resistance wire being pressed through this sheet of insulation against the plate, should the surface of the insulation F be rolled or otherwise presssed, thereby causing a ground or short-circuit.

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

1. The combination of the base A, the perforated insulation B, the resistance E, with the covering F, substantially as described.

2. The combination of the base A, the resistance E, having interposed between the plate A and resistance E, the perforated in-

sulation B of mica with a covering of insulating substance F enveloping the resistance E and contacting with the base A through the perforations D D substantially as and for the purpose specified.

3. The combination in a heater, of a metal base A, the resistance wire E with the perforated sheet or sheets of non-fusible insulation B interposed between the base A and wire E with a covering of insulating substance F substantially as and for the purpose specified.

ROBERT C. MITCHELL.

Witnesses.
JOHN KENNY, Jr.,
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