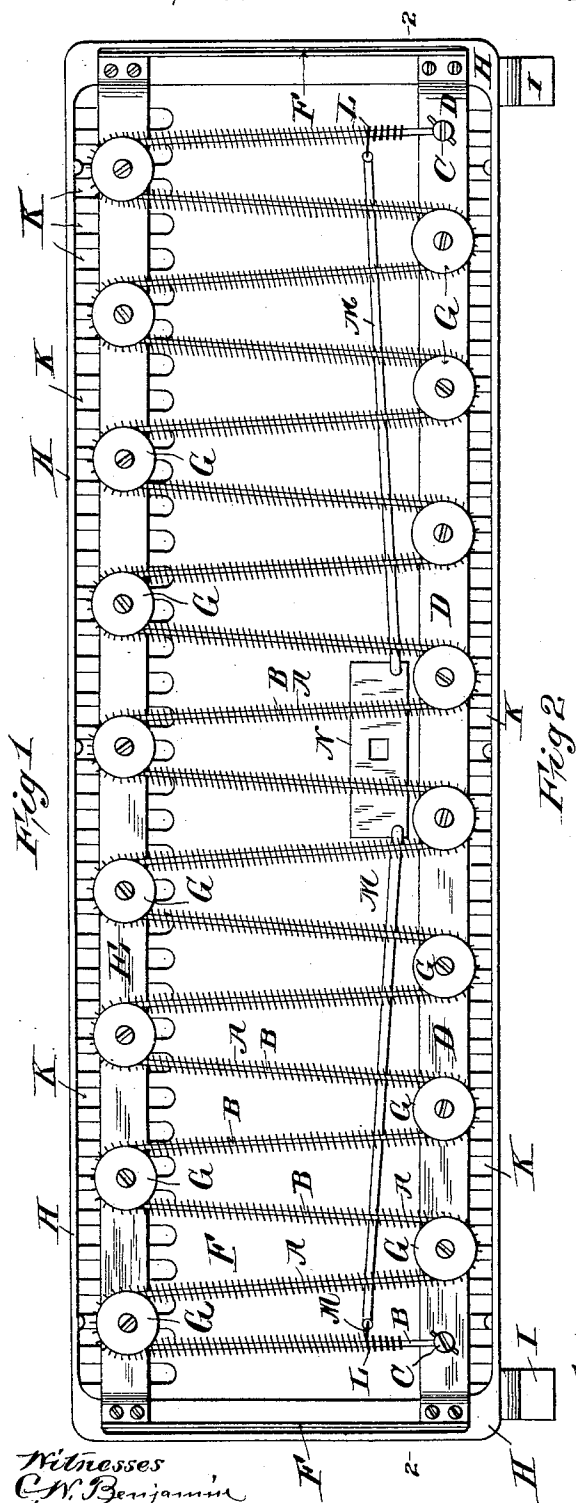


(No Model.)

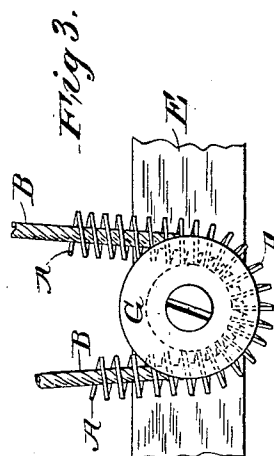
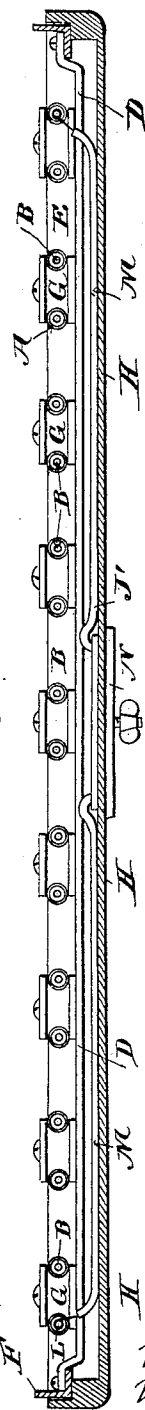
W. S. HADAWAY, Jr. & W. E. DAVIS.
RHEOSTAT OR ELECTRIC HEATER.

No. 562,527.

Patented June 23, 1896.



Witnesses
C. N. Benjamin
J. H. Barringer.



INVENTORS,
William S. Hadaway, Jr.
William E. Davis,
BY
Betts, Hyde & Betts
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM S. HADAWAY, JR., OF NEW YORK, N. Y., AND WILLIAM E. DAVIS,
OF MALDEN, MASSACHUSETTS, ASSIGNORS TO THE CENTRAL ELECTRIC
HEATING COMPANY, OF NEW YORK, N. Y.

RHEOSTAT OR ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 562,527, dated June 23, 1896.

Application filed July 18, 1895. Serial No. 556,329. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. HADAWAY, Jr., residing in the city, county, and State of New York, and WILLIAM E. DAVIS, residing in the city of Malden, county of Middlesex, and Commonwealth of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Rheostats or Electric Heaters, of which the following is a full, true, and accurate description, reference being had to the accompanying drawings, wherein similar letters refer to like parts in the several views.

The object of our invention is to produce an electric heater wherein the resistance-conductor is combined with a suitable non-conducting core in such a manner that if the conductor is broken the broken ends will be supported by the non-conducting core and short-circuiting or grounding prevented, and the parts of the conductor will be instantaneously and widely separated from each other.

Figure 1 is a plan view of one form of heater embodying our invention. Fig. 2 is a longitudinal section of said heater. Fig. 3 is an enlarged view of one of the knobs, showing a portion of the spirally-wound conductor and its non-conducting core.

A is the resistance-conductor, preferably made of spring metal wound in the form of a spiral.

B is a non-conducting core which supports the conductor, and sustains its ends, if the same is broken, and prevents the short-circuiting or grounding of the current which might otherwise occur.

The non-conducting core shown is an asbestos cord B, extending lengthwise through and threaded within the coils of the conductor A. As shown, the ends of the asbestos cord are attached to terminal-supports C C, Fig. 1, secured to the lower bar of a frame D, and the upper and lower bars E E of this frame are secured to the shorter angular bars F F, forming a rectangular frame. Knobs G, of insulating material, are secured to the longer bars E E, and are recessed to receive and hold the spiral conductor A.

The non-conducting core B and the resistance-coil surrounding it are wound back and

forth across the frame and over the knobs G, and the frame is secured in an outer casing H, (one-half of such casing only being shown in the drawings.) This casing may be attached to a wall by bolting it thereto, or be secured to the floor, or suspended underneath a seat or table by the legs I. Air circulates through the heater, when in use, through the openings K in the casing.

The terminals of the resistance-conductor are soldered, or otherwise secured, at L L to insulated conductors M M, which are connected with contacts carried within a porcelain block N, fitted in the casing.

The resistance-conductor is strung out upon the core to distend its coils and keep it under a constant strain or tension, so that upon the breaking of the conductor at any place the strain will cause the portions to instantaneously separate from each other, preventing the formation of an arc and the striking of the parts together, which might fire near-by combustible material. The non-conducting core serves to hold the conductor, whether broken or not, from falling against the casing, and prevents the ends of the conductor from dropping to the frame, by reason of the attachment of such ends to the core.

In the manufacture of the rheostat or heater we prefer to form the conductor into a coil before securing it to the core, and we prefer that the core shall lie loosely in the coil before the ends of the core are attached to it, so that, when such ends are attached, the tightening of the core will strain or distend the coil.

Having described our invention, what we claim is—

1. In a rheostat or electric heater, the combination of insulated supports, and of an insulated core stretched and suspended between said supports; with a helical resistance strung upon said core and attached thereto so as to be normally distended whereby, upon the breaking of any coil of the helix, the broken ends will be instantaneously separated by the contraction of the portions of the helix; and means for connecting said helix in an electrical circuit, substantially as and for the purpose described.

2. In a rheostat or electric heater, the combination of the casing, the longitudinal bars on opposite sides thereof, and the insulated block carried by the casing; with insulators
5 carried by the said bars, a non-conducting core passing from one insulator to another, the helical resistance strung upon said core and attached thereto so as to be insulated from the casing, and conductors connecting

the helix to the insulated block, substantially as described.

In witness whereof we have hereunto signed our names this 16th day of July, 1895.

WILLIAM S. HADAWAY, JR.

WILLIAM E. DAVIS.

In presence of—

WM. H. BERRIGAN, Jr.,

JAMES J. COSGROVE.