No. 608,343. Patented Aug. 2, 1898.

J. F. McELROY.

ELECTRIC HEATER.

(Application filed Apr. 6, 1895.)

(No Model.)

Fig. 2.

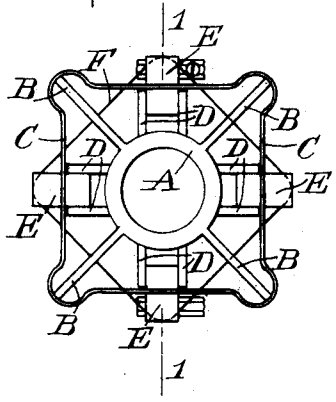
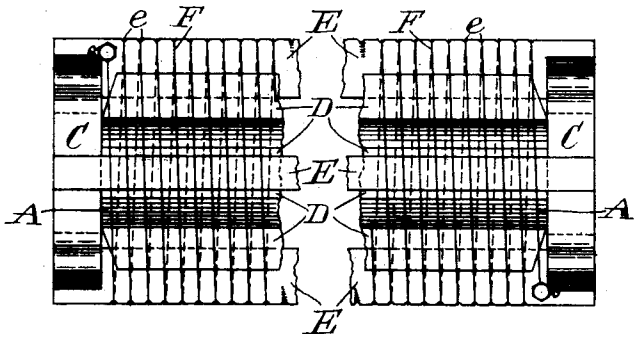


Fig. 1.



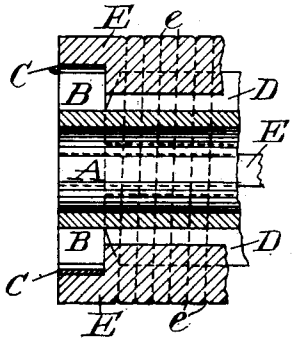


Fig. 3.

Witnesses=

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UNITED STATES PATENT OFFICE.

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ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 608,343, dated August 2, 1898.

Application filed April 6, 1895. Serial No. 544,727. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing in the city and county of Albany, State of New York, have invented a new and useful Improvement in Electric Heaters, of which the following is a specification.

My invention relates to improvements in devices for heating by electricity; and the object of my invention is to provide a compressible frame about which the resistance may be wound and which will adapt itself to the pressure of the wire caused by the expansion or contraction thereof. I accomplish this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is an end elevation. Fig. 3 is a section along the line 1 1 on Fig. 2.

Similar letters refer to similar parts throughout the several views.

Many attempts have been made to construct electric heaters by winding wire on the frame or insulators of different forms. These frames have heretofore been made rigid, so that the wire has been wound upon a practically incompressible insulator. The result has been that when a current is sent through the wire, heating it to a very high temperature, the expansion of the wire causes it to buckle and become loose upon the framework, in many cases short-circuiting between neighboring wires. It is also apt to get loose and bunch at one end of the heater. The result is when the wire then cools its tension breaks it in two and the operation of the heater is destroyed. To obviate this difficulty and maintain a constant and even pressure at all times upon the resisting wire, I prefer to make a framework compressible, so that when the wire expands with heat the insulated framework also expands and maintains a constant and even tension on the wire. This tension is just sufficient to keep the wire stretched, but not in any way endanger its life while hot. As the wire again cools and contracts the spring of the framework will yield sufficiently to maintain an even tension on the wire.

It is evident that many forms of compressible frames for electric heaters may be devised, and I do not wish to limit my invention to any particular form, as the principle of compressible insulators or cores or frames is capable of a very wide application.

In the drawings I show two methods of accomplishing the desired result.

The drawings represent a heater provided with an iron frame A, to which are secured radially-extending arms B B. At each end of this frame I construct a flat steel spring C, bent in the form of a rectangle and made to fit over and be held in position by the arms B B. This spring C is attached to the iron framework, preferably at the angles of the rectangle, and the insulators E E are attached, preferably, at the middle of the sides, having their ends resting upon the spring C and capable of movement between the lugs D D, projecting from the iron frame A, so that the insulators may be drawn toward the center by compressing the steel spring.

Around the insulators E, I place the wire F, usually notching the insulators at *e* to provide for holding the wire, although this may not be necessary.

The operation of this device is apparent, the spring C allowing the insulators to be contracted, and as the wires become heated and expansion ensues the resiliency of the spring will keep the wires taut.

What I claim as my invention, and desire to secure by Letters Patent, is—

In an electric heater, the combination of a central core-piece carrying radial arms at either end, an encircling spring placed about said arms, insulating-bars placed upon said encircling springs and extending longitudinally parallel with the core-piece, a resistance wound upon said insulating-bars and straining the encircling springs against the tension of the wire, substantially as described.

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Witnesses:
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