

(No Model.)

C. SEILER.
ELECTRIC HEATER.

No. 379,822.

Patented Mar. 20, 1888.

FIG. 1.

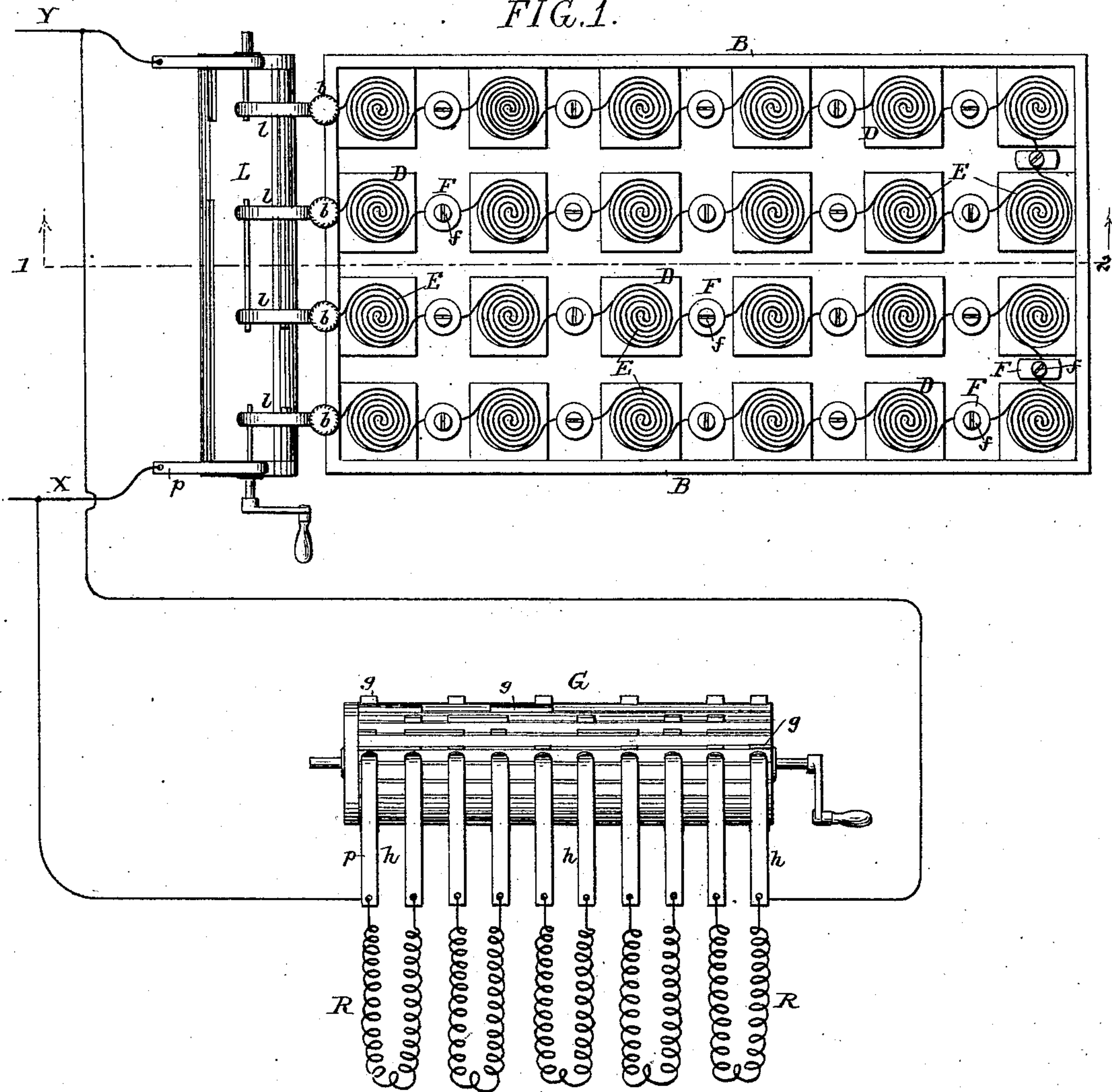
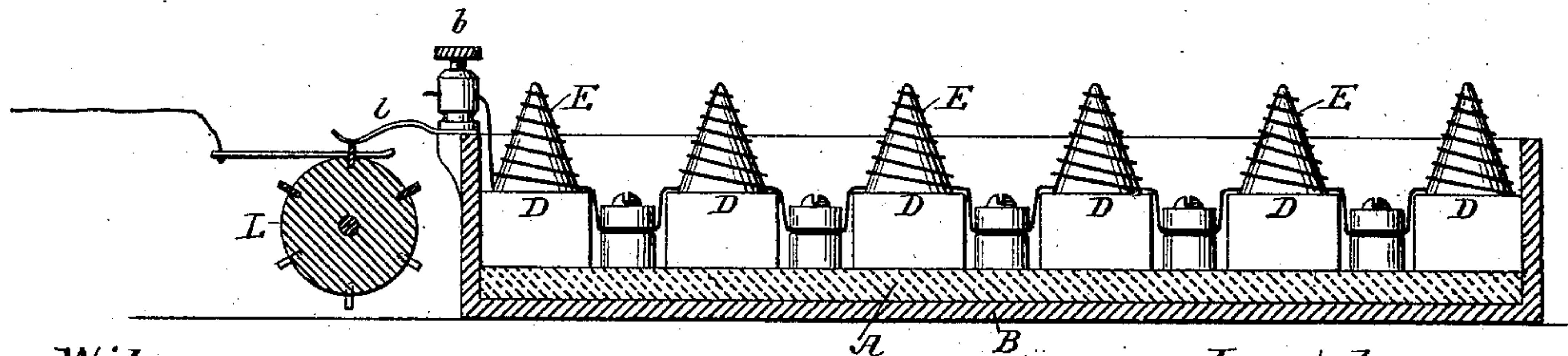


FIG. 2.



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UNITED STATES PATENT OFFICE.

CARL SEILER, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 379,822, dated March 20, 1888.

Application filed December 22, 1887. Serial No. 253,672. (No model.)

To all whom it may concern:

Be it known that I, CARL SEILER, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain
5 Improvements in Electric Heaters, of which the following is a specification.

My invention relates to the production of heat by passing a current of electricity through a conductor of high resistance; and the object
10 of my invention is to provide an electric heater of this character for the production of heat for domestic and industrial purposes, with the view of getting the best possible heating effect with the simplest construction.

15 In the accompanying drawings, Figure 1 is a plan view of my improved electric heater in its preferred form. Fig. 2 is a longitudinal section on the line 1 2, Fig. 1.

One of the main features of my invention
20 consists in so combining the conductor, which is to be heated to redness by the current of electricity passed through it, with a large radiating-surface of fire-proof insulating material as to get a better heating effect than can
25 be obtained from the heating of the conductor alone. For this purpose I provide the radiating-surface with a number of projections of suitable character, around and in contact with
30 the radiating-surface is of such character as to be capable of itself becoming heated by contact of the heated conductors. As the most convenient way of constructing the radiating-surface, I make these projections in the form
35 of cones, which are preferably made detachable, as hereinafter described.

In connection with heating-coils, a regulating device is provided to control the amount of current supplied, and consequently the
40 amount of heat to be obtained.

In the apparatus illustrated in the accompanying drawings, A is a plate of fire-proof insulating material lying on the bottom of a shallow metal trough, B. On this plate are
45 the cones D, which, as I have said, are preferably made separate or detachable from the plate A, for convenience of repair or alterations. Like the plate A, these cones are made of a material which is fire-proof and an
50 insulator of electricity, and in the case of the cones the material must also be of such a char-

acter as to be capable of taking the heat of the conductors and of becoming red-hot when the conductors are heated to a red heat. The material used may be porcelain, fire-brick, or
55 other material which will answer the requisites named. A piece of wire, E, made of platina or other suitable refractory material, is wound around each one of the cones in a double spiral, as shown in the drawings. The
60 terminals of each coil are connected to the terminals of adjoining coils, preferably through the medium of metal plates F, which at the same time separate adjoining cones from each other. These plates F are secured in place by screws
65 f, so that the terminals of the wires may be thereby clamped between the plates. The adjoining coils E are preferably connected up in series by means of these clamps, as illustrated in Fig. 1, and as many cones with their
70 coils are employed as the size or character of the heater may demand.

It will be understood that the radiating-surface described, instead of being flat, may be
75 curved, round, cylindrical, or of any other convenient conformation, according to the different purposes for which the heater is to be used.

In order to regulate the amount of heat to be obtained, I combine with the heater a regulating device consisting of resistances R and a
80 commutator, G, such as described and claimed by me in Letters Patent No. 366,034. As shown in the drawings, this commutator may consist of wood or any other material adapted to turn in suitable bearings and having upon
85 its peripheral surface metallic projections g at suitable intervals. Upon these projections are adapted to bear contact-fingers h, forming the terminals of resistance-coils or other forms of resistance, Fig. 1.

The contact-finger p at one end of the commutator-cylinder is connected to one of the line-conductors, X, while the contact-finger h
90 at the other end of the cylinder is connected to the other line-conductor, Y, as illustrated in the drawings, or the commutator and resistances may be connected in any suitable way in a shunt or short circuit around the coils of the heater. The metallic projections of the
95 commutator-cylinder are of such a character that by partially rotating the cylinder more or less of the resistance may be introduced
100

into or cut out of the short circuit around the heating-coils and the amount of current supplied to the latter correspondingly controlled.

In Fig. 2 I have shown the terminals of the series coils as connected to binding-posts *b*; but, if desired, there may be combined with the rows of coils a commutator or switch, *L*, similar in character to the commutator *G*, and contact-fingers *l* at the terminals of the rows of coils may be adapted to bear on the projections of the commutator-cylinder, so that by turning the latter more or fewer rows of coils may be included in the circuit, according to the amount of heat desired.

I claim as my invention—

1. An electric heating device consisting of fire-proof insulating material having projections around and in contact with which heating-conductors are placed.
2. An electric heater consisting of a radiating-surface of fire-proof insulating material, having conical projections around and in contact with which heating-conductors are placed, and which are capable of being heated by the coils.

3. An electric heater consisting of a surface of fire-proof insulating material and detachable cones thereon and heating-conductors around the cones.

4. The combination of the surface of fire-proof insulating material, having detachable cones, with heating-conductors coiled on the latter, and metallic clamps for the terminals of the adjacent coils.

5. The combination of the electric heater, line-conductors, and a short circuit around the electric heater, with resistances and a commutator-switch in the said short circuit, as described.

6. The combination of the rows of heating-coils and connected contact-fingers with a commutator or switch to include more or fewer of the rows of coils in circuit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL SEILER.

Witnesses:

HENRY HOWSON,
HARRY SMITH.