

(No Model.)

C. E. CARPENTER.
ELECTRIC SOLDERING IRON.

No. 429,561.

Patented June 3, 1890.

Fig. 1.

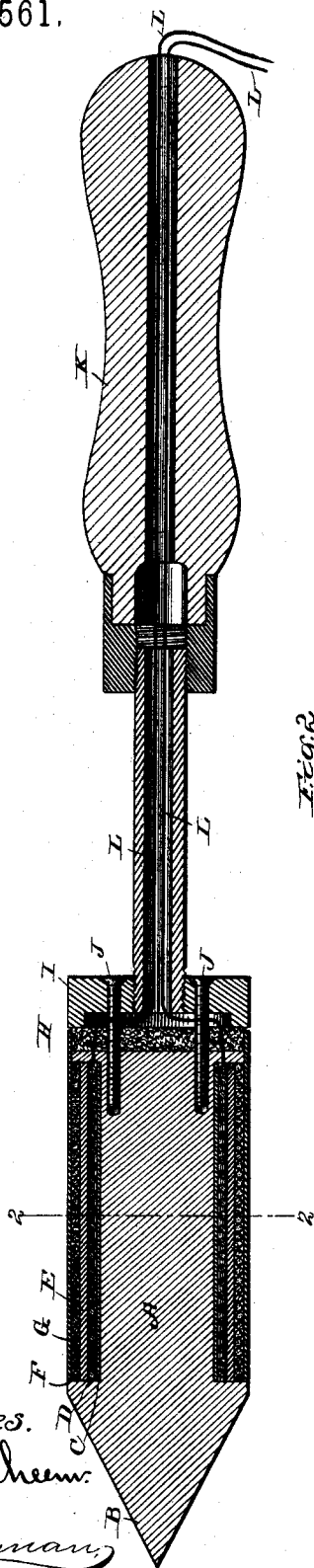
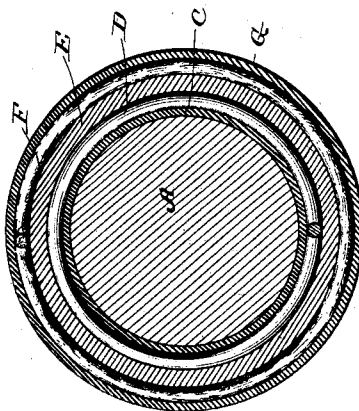


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES E. CARPENTER, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE CARPENTER-NEVENS ELECTRO-HEATING COMPANY, OF SAME PLACE.

ELECTRIC SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 429,561, dated June 3, 1890.

Application filed March 18, 1890. Serial No. 344,354. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. CARPENTER, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Electric Soldering-Irons, of which the following is a specification.

This invention relates to improvements in electric soldering-irons, and has for its prime object to utilize the heating effects produced by passing a current of electricity through a conductor of high resistance and small capacity for heating a soldering-iron, and has for a further object to confine the heat so generated to the working-point of the iron by preventing its dissipation by either conduction or radiation. These objects are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a central longitudinal section through a soldering-iron embodying my invention, and Fig. 2 a transverse vertical section thereof on the line 2 2.

Similar letters of reference indicate the same parts in both figures of the drawings.

Referring by letter to the accompanying drawings, A represents the core or body of my iron composed of copper, cylindrical in form, and having its outer end B conical or tapering, as usual in soldering-irons. This body is provided with an annular peripheral recess, in which is wound about the core, first, a layer or sheet of thin asbestos paper, or some other suitable electrical insulating material C, that will withstand the action of intense heat, upon which is wound in a spiral coil a wire or other suitable conductor D, which acts as a resistance, the volutes of the coil being sufficiently separated to prevent short-circuiting by contact therebetween. Over this conductor or resistance is wound a thick sheet or layer of asbestos E, or similar material, which acts both as an electrical and heat insulator to prevent the dissipation of heat by radiation, the whole being bound together by a winding of asbestos thread or cord F, or equivalent means, which will serve to retain the elements in close relation to each other and to the iron body or core under pressure, so as to utilize to the maximum degree the heat generated by the passage of

an electric current through the conductor or resistance. These elements are all confined within the annular recess in the iron body, and for the purpose of protection thereto and giving finish to the iron they may be covered with a metallic jacket or sheath G, extending beyond the inner end of the body-iron, so as to furnish a recess for reception of an insulating-layer of asbestos or similar material interposed between the end of said body and a ring I, secured thereto by means of screws J and furnishing convenient means for the attachment of a hollow handle K, through which passes the inleading wires L to the resistance from the source of electrical supply. It will thus be seen that the handle has metallic connection with the heated core or body of the iron only through the screws securing it to the core, and consequently the handle will not become heated during the use of the iron, for the insulation H will materially impair the conduction of heat from the iron.

I do not desire to limit myself to the particular elements or combination of elements herein shown and described, except so far as relates to the relative locations and arrangement of the core, the resistance, and the insulation interposed therebetween, for obviously both the heat-insulation for preventing radiation of the heat from the iron, as well as the pressure-producing device, may be varied to any desirable extent without departing from the spirit of my invention.

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

1. In an electric soldering-iron, the combination, with the core or body, the resistance disposed upon said body, and an electric insulation interposed between said resistance and the body, substantially as described.

2. In an electric soldering-iron, the combination, with the core or body, of the resistance disposed upon said body, an electric insulation interposed between said resistance and the body, and means for confining the same upon said body under pressure, substantially as described.

3. In an electric soldering-iron, the combination, with the core or body, of a resistance disposed upon said body, an electric insulation interposed between said resistance and

the body, and a heat-insulation enveloping said resistance, substantially as described.

4. In an electric soldering-iron, the combination, with the core or body, of a resistance
5 disposed upon said body, an electric insulation interposed between said resistance and the body, a heat-insulation enveloping said resistance, and means for binding said elements upon the body under pressure, substantially
10 as described.

5. In an electric soldering-iron, the combination, with the core or body provided with an annular peripheral recess, of an annularly-
15 disposed resistance, electric insulation, heat-insulation, and means for binding said elements upon the body under pressure, all located within said recess, substantially as described.

6. In an electric soldering-iron, the combination, with the body or core provided with an
20 annular peripheral recess and an annularly-disposed resistance, electric insulation, heat-

insulation, and means for binding said element upon the body, all located in said recess, of a handle secured to said body and a
25 heat-insulation interposed between said handle and body, substantially as described.

7. In an electric soldering-iron, the combination, with the body or core provided with an
30 annular peripheral recess and an annularly-disposed resistance, electric insulation, heat-insulation, and means for binding said elements upon the body, all confined within said
35 recess, of a sheath or jacket enveloping said elements and projecting beyond the inner end of the iron, a hollow handle secured to said inner end of the body, and a heat-insulation interposed between said handle and body, substantially as described.

CHARLES E. CARPENTER..

Witnesses:

M. F. SCOFIELD,
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