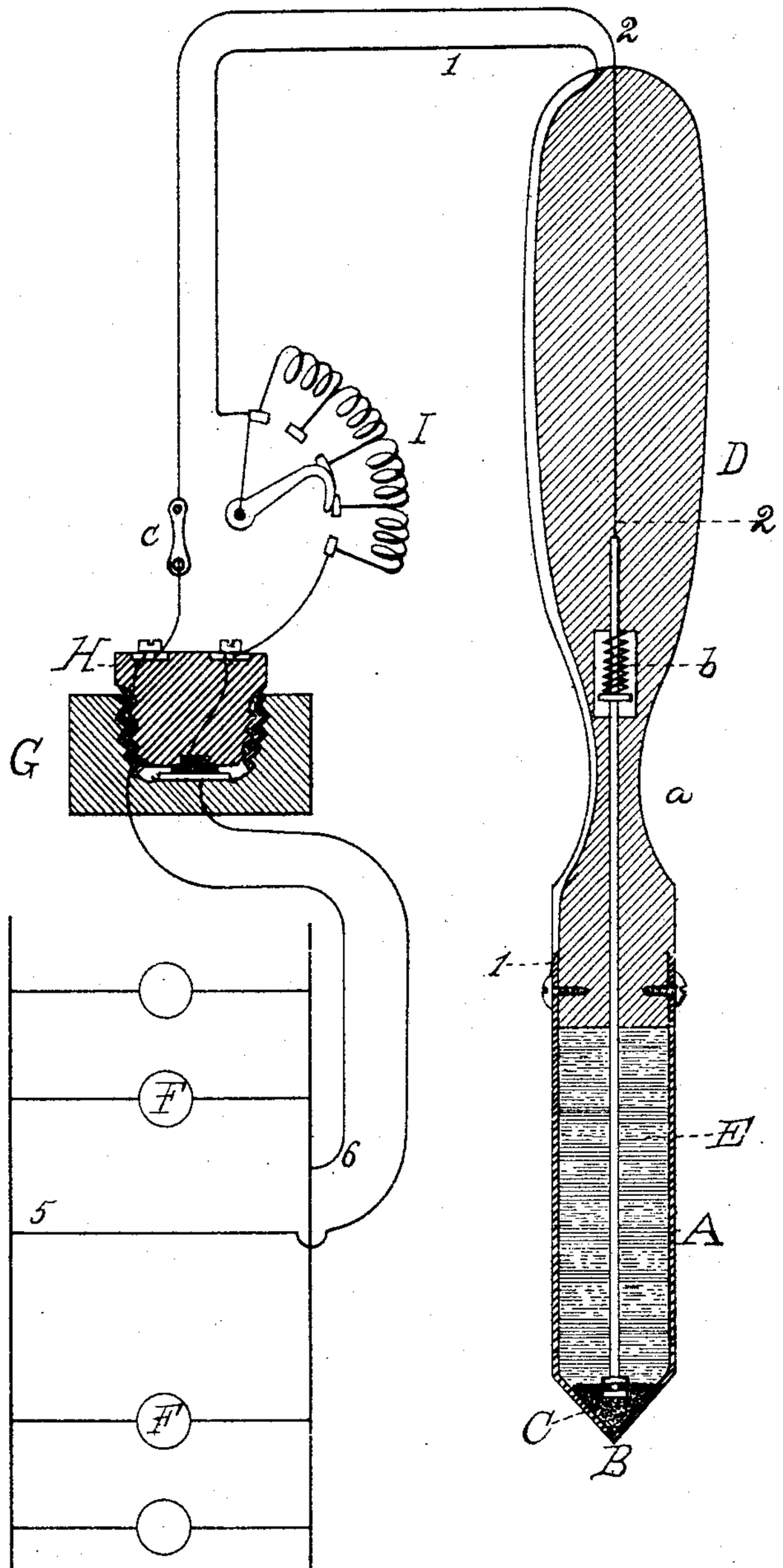
(No Model.)

C. T. HUGHES.

ELECTRICAL SOLDERING IRON.

No. 287,380. Patented Oct. 23, 1883.



WITNESSES:

E. C. Rowland

H. W. Seely

INVENTOR:

Charles T. Hughes.

By Richd A. Dyer

Atty

UNITED STATES PATENT OFFICE.

CHARLES T. HUGHES, OF MENLO PARK, NEW JERSEY.

ELECTRICAL SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 287,380, dated October 23, 1883.

Application filed September 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. HUGHES, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a certain new and useful Improvement in Electrical Soldering-Irons, of which the following is a specification.

The object I have in view is to produce means for heating a soldering-iron by electricity which will be simple and cheap in construction, will be capable of withstanding the rough usage to which a soldering-iron may be subjected, and will be efficient in operation; and my object is further to produce an electrical soldering-iron and connections adapted for use in a multiple-arc system of lighting by electrical incandescence. The object is accomplished by constructing the iron hollow, and providing it with an inclosed resistance, which is heated by the current and in turn heats the point of the iron by conduction and radiation therefrom. The iron itself forms a part of the circuit, and the inclosed resistance is forced directly against the point of the iron from the inside, only sufficient thickness being left to give the necessary strength.

For the inclosed resistance a finely-divided material is employed—such as powdered carbon, peroxide of lead, or other conducting element or compound of high specific resistance—and a non-heat-conducting material—such as mineral wool—is packed solidly in the hollow iron above the inclosed resistance. For connection with a multiple-arc system of electric lighting, a plug fitting a lamp-socket is used, from which a flexible cord extends to the handle of the iron, and an adjustable resistance is located in the circuit outside of the plug. A circuit-controller is also employed, which may be in the lamp-socket or external thereto.

In the accompanying drawing a soldering-iron embodying the invention is shown in vertical section, the connections being shown diagrammatically.

The head of the iron is a square or round copper tube, A, drawn or spun into shape, and having its lower end closed and shaped to form the point B of the iron. Within this hollow point is the heating-resistance C, of finely-divided material, which is pressed down upon the metal of the point by a metal rod, *a*, having a metal plate on its lower end, making contact with the resistance, and preferaby provided with a washer of insulating material, as shown, to confine the finely-divided material to the point of the iron.

In the upper end of the copper tube A is secured the wooden handle D, the tube A being made of sufficient length to prevent the injurious heating of the upper end of the tube, and the tube being filled below the handle and above the resistance with mineral wool or other suitable non-heat-conducting material, E. The rod *a* passes up into the wooden handle, and is forced downwardly by means of a spring, *b*, although this might be dispensed with. Conductors 1 2 are connected one with the tube A and the other with the rod *a*. These are joined into a flexible cord of sufficient length to permit the free movement of the soldering-iron.

The iron may be supplied from any suitable source of electrical energy. It is, however, especially designed for use with a multiple-arc system of electric lighting. 3 4 are the main house-conductors of such a system in multiple-arc circuits, from which are lamps, motors, or other translating devices, F. A multiple-arc circuit, 5 6, extends to the terminals of a lamp-socket, G, in which is removably secured the plug H, the terminals of which are connected with the soldering-iron. An adjustable resistance, I, is included in the circuit of the soldering-iron, and also a circuit-controller, *c*, which may be in the socket or external thereto.

What I claim is—

1. In an electric soldering-iron, the combination, with the metallic head, of a high-resistance material located in contact with the metal of said head, and circuit-connections whereby said metallic head and said high-resistance material are brought into circuit, substantially as set forth.

2. An electric soldering-iron having a hollow point, in combination with a heating-resistance inclosed thereby and in contact with the metal of the point, the point forming part of the circuit, substantially as set forth.

3. An electric soldering-iron having a hollow point, in combination with a heating-resistance of finely-divided material inclosed

thereby and in contact with the metal of said point, the point and resistance being both in circuit, substantially as set forth.

4. A soldering-iron having a hollow head and point, in combination with a heating-resistance within the hollow point and in contact with the metal of the same, the point and resistance being both in circuit, and a non-heat-conducting material above such resistance, substantially as set forth.

5. In an electric soldering-iron, the combination, with the metallic head, of a high-resistance material in contact with the metal of said head, a spring for holding the high-resistance material in contact with the metal, and circuit-connections whereby said high-resistance material and said head are brought into circuit, substantially as set forth.

CHARLES T. HUGHES.

Witnesses:
RICHD. N. DYER,
EDWARD H. PYATT.