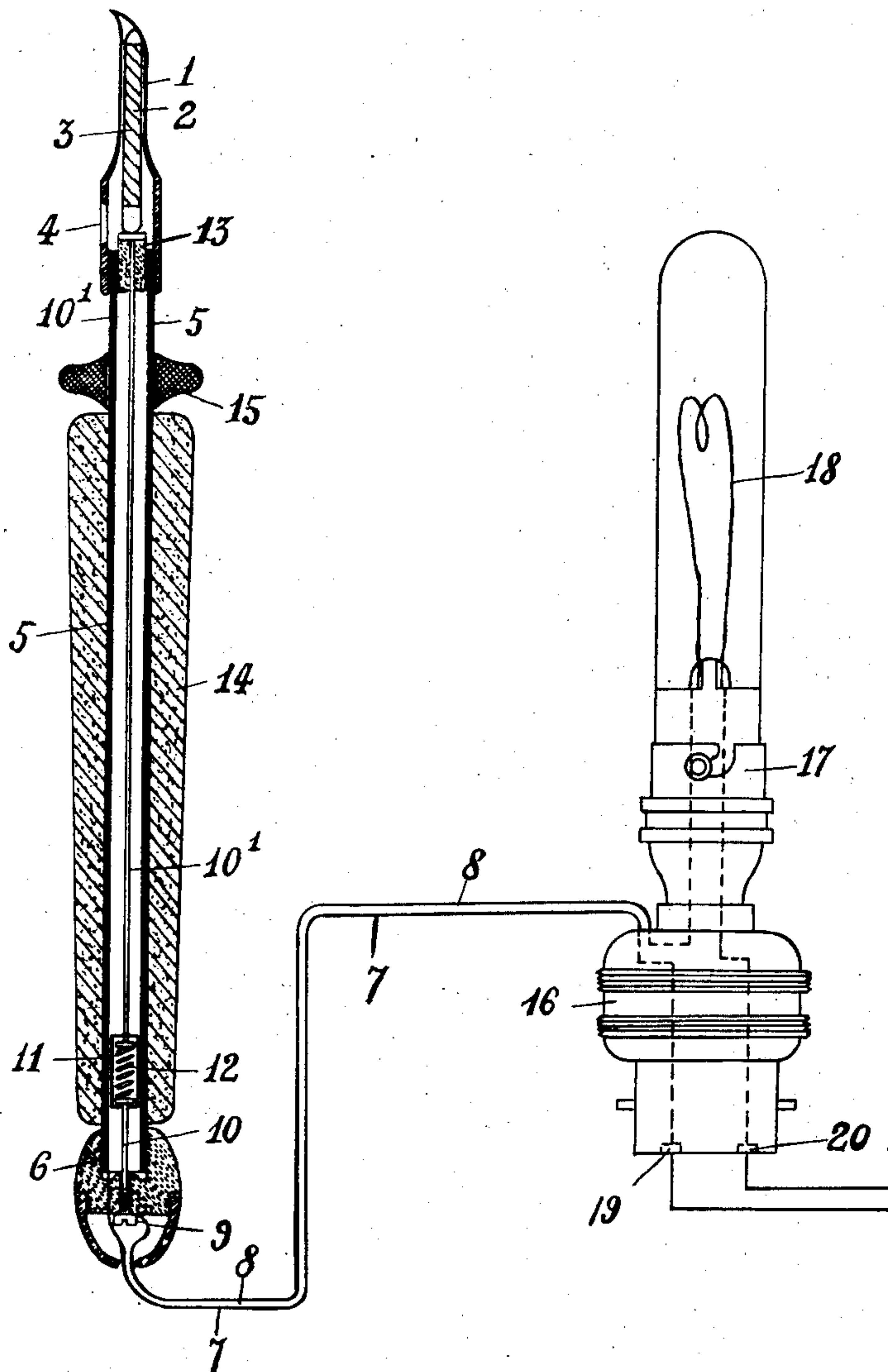


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ELECTRICAL INSTRUMENT FOR PYROGRAVURE AND SURGICAL PURPOSES.
APPLICATION FILED NOV. 28, 1908.

930,203.

Patented Aug. 3, 1909.



WITNESSES

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UNITED STATES PATENT OFFICE.

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ELECTRICAL INSTRUMENT FOR PYROGRAVURE AND SURGICAL PURPOSES.

No. 930,203.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed November 28, 1908. Serial No. 465,001.

To all whom it may concern:

Be it known that I, LOUIS MANDARELLI, whose post-office address and residence is 3 Rue de Chantilly, Paris, France, have invented certain new and useful Improvements in Electrical Instruments for Pyrogravure and Surgical Purposes, of which the following is a specification.

This invention relates to an instrument furnished with a point which can be heated to a state of incandescence by means of an electric current and is employed in pyrogravure and for surgical purposes.

The invention is intended to insure an instrument that can be easily and surely managed and of simple construction.

This instrument comprises substantially a point (made of platinum or other suitable material) that can be heated to incandescence by means of a body raised to a very high temperature by an electric current of any kind. The bearing body is arranged in the interior of the point and inserted in an electric circuit which comprises an incandescent lamp that serves both as a resistance and as a means of illumination. This lamp is mounted on a plug which is adaptable to any system of electric installation. In order to utilize the instrument all that is necessary is to introduce the plug into a source of current (continuous or alternating). The point soon becomes incandescent and is ready for working. A supple wire of sufficient length enables the point to be used with the same ease as a pencil or brush.

The accompanying drawing given as an example illustrates an instrument for use in pyrogravure.

1 is the point that can be made incandescent under the action of the heat given off by the heating body 2 placed in the interior of the point. This heating body comprises a coil of platinum wire (or other suitable material) 3 embedded in a refractory material, an agglomeration of magnesia for example. At the two ends of the body 2 are metal heads to which the wires 3 are attached. When an electric current flows through the winding 3 the body 2 is raised to a very high temperature which causes the point 1 to become incandescent. In the back part of the point 1 are openings or slots 4 which by circulating the air serve for cooling this part of the point, so that only the front end of the point remains incandescent. The back end

of the point 1 is screwed on to a metal tube 5, the other end thereof which is likewise screw-threaded receiving a cap 6 composed of ivory or other suitable material. The cap 6 has an electric conductor 7 running through it and connected with the tube 5. The other electric conductor 8 runs to the terminal 9, which is in contact with the conducting rod 10 the flat end of which enters a small tube 11. A rod 10' forms the extension of the rod 10, a small spiral spring 12 placed in the tube 11 being interposed between 10 and 10'. The tube 11 is surrounded by an insulating material which insulates it from the tube 5. The front end of the rod 10', carries a small sleeve 13 made of insulating material, by means of which and the insulated tube 11 the rod 10' is centered and insulated in the middle of the tube 5. The front end of the rod 10' comes in contact with one of the ends of the winding 3 of the heating body 2. The other end of the winding comes in contact with the interior of the point 1. This contact is maintained by the action of the spring 12.

A sleeve 14 made of cork or other insulating material surrounds a part of the tube 5 the front end of which receives a ring of porcelain or the like 15 for protecting the hand of the operator against the heat of the point.

The two conductors 7 and 8 run to the plug 16 which can be applied to any source of current. This plug carries a socket 17 which receives the incandescent lamp 18 mounted in series. The current thus flows from the contact 19 through the conductor 7, the tube 5, the point 1, the winding 3, the rod 10', the tube 11 and the spring 12, the rod 10, terminal 9, conductor 8, lamp 18 and finally to the contact 20.

The two conductors 7 and 8 are united as a single cable of suitable length. The lamp 18 acts as a resistance and as a means of illumination.

The current may be taken from a town supply system or from any source of electricity whatever supplying either continuous or alternating current.

It is easy to see how the instrument described can be transformed into an instrument for surgical purposes. All that is necessary is to make the point 1 of suitable form and to arrange if necessary a button-interrupter. It is moreover obvious that the

practical details may be modified without altering the nature of the invention.

What I claim and desire to secure by Letters Patent is:—

5 1. In a device of the class described, the combination with a platinum point, a body within the point, means for electrically heating the body to bring the point to a state of incandescence, said point having an opening
10 near its rear end for the circulation of air, and a handle for the point.

2. An electrical instrument of the class described, comprising a hollow point, a body within the point comprising a platinum wire
15 winding, a metal tube supporting the point, an electric conductor connected with said tube, a spring rod in the tube, a second conductor connected with said spring rod, and

said spring rod being connected with the wire winding of the heating body. 20

3. An electrical instrument of the class described, comprising a hollow point having an opening at its rear end for the circulation of air, a body within the point, a metal tube connected to the point, a rod within the tube
25 having one end engaging with the body, electric conductors connected with the tube and with the rod, and a handle of non-heat conducting material surrounding the tube.

In testimony whereof I affix my signature, 30
in presence of two witnesses.

LOUIS MANDARELLI.

Witnesses:

EMOND DURAND,
CHARLES FABER.