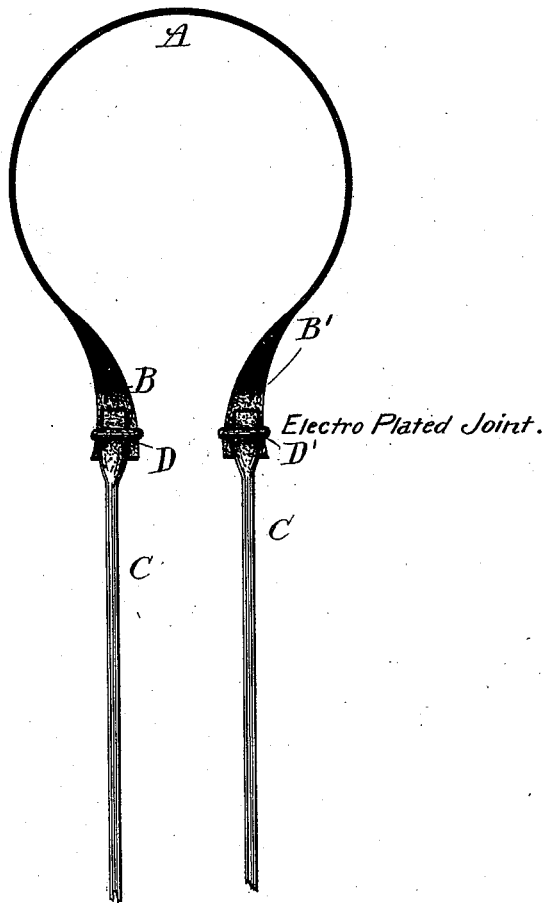


(No Model.)

E. WESTON.
INCANDESCENT ELECTRIC LAMP.

No. 400,378.

Patented Mar. 26, 1889.



Witnesses.

Edward Weston
Alex. Scott

Inventor.

Edward Weston
by Leonard E. Curtis
Att'y.

UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 400,378, dated March 26, 1889.

Application filed May 5, 1881. Serial No. 32,553. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WESTON, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Electric Lamps, of which the following is a specification.

My invention involves a novel method of uniting together a carbon strip or pencil and a metallic conductor in such manner that a durable and perfect electrical connection may be secured between the two, and all auxiliary clamping devices dispensed with. Though applicable, generally, to electric lamps in which a portion of the path of the current is through carbon or a substance possessing similar qualities, the invention is more especially designed as an improvement on the methods heretofore practiced of mounting the carbon conductors of incandescent lamps to their supporting-wires.

In incandescent lamps which contain carbon as the medium of converting electrical energy into light, the most prominent characteristics, as is well known, are an exhausted and hermetically-sealed receiver, inclosing a slender strip or pencil of carbon, the ends of which are enlarged or widened and retained by a variety of clamping devices connected with the metallic conductors introducing the current into the receiver. It is practically impossible to maintain a perfect electrical contact between the delicate carbon strip and a metal clamp, for the reason that the requisite pressure for forcing their surfaces into close union would crush the carbon. To remedy this, washers of soft carbon have been interposed between the surfaces, the whole being held together by nuts and screws; but even in this case the screws become loosened by the rapid changes in temperature, incident to sudden variations or breaks in the current, and the clamps are destroyed by the intense heat developed by the increasing resistance of the joints as the pressure or the amount of surface in contact is lessened. These difficulties I overcome by uniting the ends of the carbon strip to the metal conducting-wires by means of an electro-deposited metal joint, and this I accomplish in substantially the following way: The carbons are

formed in any proper manner with a slender body and widened or enlarged ends. These are brought in contact with the ends of the wires and the two held together by clamps, by short lengths of wire, or by other means, and the joints thus formed submerged in an electroplating-bath where they are kept exposed to the action of an electric current until a sufficient quantity of metal is deposited thereon to form a firm and durable connection between the carbon and the metal. By this means a homogeneous joint is secured, which adheres to the carbon surface, as well as to the metal, so intimately as to be practically integral with it.

The drawing hereto annexed illustrates a carbon joined to the conducting-wires by the above-described method.

A is the central narrow portion of the carbon; B B', the enlarged or widened ends; C C', the metallic conductors, and D D' the joints of electro-deposited metal. The carbon ends are shown attached to the conductors by short lengths of wire. Clamps of any ordinary description may, however, be used, and the metal deposited on and around them in the same manner. The wires C C' before being joined to the carbon may be sealed in a glass plug or base, which is adapted to fit or be sealed to the inclosing-globe of the lamp, as it is desirable to form a deposit of metal about the joints only. The remaining portions of the carbon and the wires should be coated with an insulating material which may be readily removed, or the joints alone submerged in the bath. The surfaces of both carbon and metal should be carefully cleaned before immersion in the bath, and this may be effected either by brushing or by the use of acids.

The joints may be formed by the electro-deposition of copper, nickel, or other metals, and may be as strong as the character of the carbon or the lamp requires. As the deposited coating is confined to the widened or enlarged portions of the carbon, it is not likely to be fused by the heat of the incandescent part of the strip.

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

1. The method of securing an electrical connection between the carbon conductor and metallic wires of an electric lamp, which consists in securing their respective ends in contact, as described, and then submerging the joints thus formed in an electroplating-bath until a metallic coating of the desired thickness is deposited on and around the same, as set forth.

2. In an incandescent electric lamp, the

combination of the supporting-conductors and a carbon strip attached thereto by electro-deposited metallic connections, substantially as described.

In testimony whereof I have hereunto set my hand this 1st day of May, 1881.

EDWARD WESTON.

Witnesses:

LEONARD E. CURTIS,

HENRY HINE.