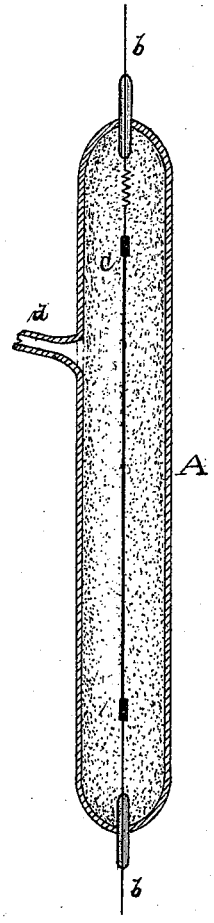
(No Model.)

T. A. EDISON.

PROCESS OF COATING CONDUCTORS FOR INCANDESCENT LAMPS.

No. 492,150. Patented Feb. 21, 1893.



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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, ASSIGNOR TO THE EDISON ELECTRIC LIGHT COMPANY, OF NEW YORK, N. Y.

PROCESS OF COATING CONDUCTORS FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 492,150, dated February 21, 1893.

Application filed October 26, 1882. Serial No. 75,204. (No specimens.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Processes of Coating Conductors for Incandescent Lamps, (Case No. 503,) of which the following is a specification.

The object of my invention is to prevent the "electrical carrying" which occurs in incandescing electric lamps; that is, the transferring by static attraction, of highly electrified particles of carbon from the incandescing filament to the oppositely-charged glass of the inclosing globe.

To this end my invention consists in the process of covering the flexible carbon filament of an incandescing electric lamp with a coating of insulating material not decomposable by carbon, and fusible at the highest temperatures only. For this purpose I prefer to use one of the earthy oxides, such as lime, magnesia, or zirconia, I having discovered that such oxides cannot be decomposed by carbon except in the presence of watery vapor which of course does not occur in the vacuum chambers of incandescing electric lamps; but boron, silicon or like elements may be used, these being sufficiently good insulators or bad conductors for the purpose, or any element or compound which possesses the properties mentioned. The effect of this coating of the filament is that the static attraction will draw over particles of the oxide or other material instead of particles of carbon. The insulation will become incandescent from its contact with the heated filament, and the light will therefore not be lessened.

I have devised several different processes which may be advantageously employed for covering the filament with a durable and continuous coating of insulation. By one method, the filament which in this case is preferably straight, is placed in a glass tube with platinum wires connected to its ends, such wires being sealed in the glass of the tube. The tube is then filled with an oxide such as those named above, in a finely divided condition, and packed closely around the filament. Means are provided for producing a vacuum in the tube, and during the exhausting process, the tube is heated externally to assist in expelling the air and vapors therefrom.

After the vacuum is obtained, the filament is heated to a very high incandescence by the passage of an electric current, which heating melts the oxide contiguous to said filament, and fuses the oxide to the filament. The filament being removed from the tube, will be found to be completely coated with the oxide. The filament so coated, is placed in the lamp globe and the latter is exhausted and sealed off in the usual manner.

Instead of exhausting the tube which contains the oxide it may be filled with nitrogen or other nearly inert gas the same effect being produced.

In the case where the tube is exhausted, said tube may be heated in a flame so that the glass is softened and the tube will contract under the pressure of the atmosphere upon the oxide, pressing it closely against the filament. The whole may then be placed in the inclosing lamp-globe.

The process described is illustrated in the drawing, wherein—

a is the flexible carbon filament having wires *b b* attached to its ends and sealed in the glass of the tube A. Within the tube A is packed the finely divided oxide *c*. A tube *d* is used to connect the tube A with an exhausting apparatus.

What I claim is—

1. The process of coating a flexible carbon filament designed for the incandescing conductor of an electric lamp, with insulating material, consisting in heating said filament while in a mass of such material, thereby fusing a layer of such material to said filament, substantially as set forth.

2. The process of coating a flexible carbon filament, designed for the incandescing conductor of an electric lamp, with insulating material consisting in embedding such conductor in an insulating oxide or compound in a suitable receptacle, exhausting air therefrom, and finally passing a current through said filament sufficient to fuse a coating of such oxide onto the filament, substantially as set forth.

This specification signed and witnessed this 19th day of October, 1882.

THOS. A. EDISON.

Witnesses:
H. W. SEELY,
EDWARD H. PYATT.