

# UNITED STATES PATENT OFFICE.

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## METHOD OF MANUFACTURING ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 395,962, dated January 8, 1889.

Application filed September 22, 1882. Serial No. 72,527. (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 the Method of Manufacturing Electric Lamps, (Case No. 487,) of which the following is a specification.

The object of this invention is to render more rapid and effectual the process of exhausting the inclosing-globes of incandescing electric lamps.

I have found that if a chloride, bromide, or iodide of any element or a compound of any elements containing chlorine, bromine, or iodine, preferably in an anhydrous condition, is introduced within the globe, so that it will be heated when the incandescing filament of the lamp is heated during the process of exhaustion, the time required in exhausting the lamps is lessened and a larger number can be manufactured in a given time than has hitherto been possible. Such substance may be placed directly within the globe or in a bulb or chamber connected with the globe and forming temporarily a part thereof, where it can be heated by the heat of the filament; or it may be placed on the filament itself or on the clamps by which such filament is connected to the leading-in wires. If placed in a bulb connected with the globe, such bulb would be "sealed off" after the lamp is exhausted. The three substances mentioned have similar advantages and produce similar results when used for this purpose, and any kind of chloride, bromide, or iodide may be used, or a bichloride or even a terchloride—such as the terchloride of chromium or similar compounds of bromine or iodine—may be used. In practice, however, I prefer to use the bichloride of platinum, and to apply this by painting it on the clamps, where it can readily be reached by the heat of the filament. It is to be understood, however, that compounds of bromine or iodine may as readily be used in this way, and that such elements are for this purpose the equivalents of chlorine and of each other. The exhaustion of the globe is accomplished by means of a Sprengel or other mercury vacuum-pump, and an electric cur-

rent is used to heat the carbon filament of the lamp to incandescence during the latter portion of such exhaustion.

The chlorine, bromine, or iodine given off during exhaustion combines with the mercury vapor which enters the lamp-globe from the pump, forming a mercury compound, and mercury vapor being thus eliminated from the atmosphere of the globe the process of exhaustion is quickened and a higher vacuum is obtained, and electrical carrying between the filament and the glass, which the presence of mercury vapor assists, is avoided. The mercury compounds formed being solid, of course have no vapor tension and do not reduce the vacuum.

What I claim is—

1. The process of producing a high vacuum in the inclosing-globe of an incandescing electric lamp, consisting in placing within said globe a compound of chlorine or equivalent element and then withdrawing the air from said globe, the filament of the lamp being heated to incandescence by an electric current during a portion of the latter step, substantially as set forth.

2. The process of producing a high vacuum in the inclosing-globe of an incandescing electric lamp, consisting in placing within the lamp a quantity of bichloride of platinum and then withdrawing the air from said globe, the filament of the lamp being heated to incandescence by an electric current during a portion of the latter step, substantially as set forth.

3. The process of producing a high vacuum in the inclosing-globe of an incandescing electric lamp, consisting in placing on the clamps which hold the filament of said lamp a quantity of bichloride of platinum and then withdrawing the air from said globe, said filament being heated to incandescence by an electric current during a portion of the latter step, substantially as set forth.

This specification signed and witnessed this 16th day of September, 1882.

THOS. A. EDISON

Witnesses:

H. W. SEELY,  
R. N. DYER.