UNITED STATES PATENT OFFICE.

THOMAS ALVA EDISON, OF LLEWELLYN PARK, NEW JERSEY.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 462,540, dated November 3, 1891.

Application filed March 25, 1889. Serial No. 304,717. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ALVA EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in the Manufacture of Incandescent Electric Lamps, (Case No. 831,) of which the following is a specification.

In the use of incandescent electric lamps it is found that the candle-power of a lamp gradually decreases as it is used.

The object of my invention is to lessen the rapidity or amount of this diminution, which I do by the addition of a new step in the process of making the lamp, as follows:

After the lamp has been exhausted of air and hermetically sealed by the fusion of the exhaust-tube in the usual manner, I connect the lamp with an electric circuit and pass a current through the filament sufficient to bring it to a temperature far above that of the atmosphere, but much less than that to which the filament is raised when in use. In other words, I raise the filament to a temperature which produces less than one-half the normal candle-power of the lamp, such temperature usually producing a bright red heat in the filament. This heating should be continued for about one hour, the lamp being preferably surrounded by a metallic case or inclosed in a hot chamber, so that the heat will be retained by the glass. I find that in lamps which have been thus heated after sealing, the fall of candle-power during any period of use is about ten per cent. less than in lamps which have not been treated in this way. I am unable at present to explain the reason of this. The heating of the glass chamber drives off any air which is occluded in the glass and decomposes such foreign matters as are condensed on its inner surface, and the vaporous portions of such matters are driven into the vacuum and remain there permanently, but whether or not this has anything to do with the effect above described I do not know. The fact, however, is as I have stated, that the use of my invention makes a material difference in the loss of candle-power when the lamp is in use.

What I claim is—

1. The improvement in the method of making incandescent electric lamps, which consists in heating the filament of a lamp to a temperature much below its normal incandescence after the lamp is exhausted and sealed, substantially as set forth.

2. The improvement in the method of making incandescent electric lamps, which consists in heating the filament to a red heat after the lamp is exhausted and sealed, substantially as set forth.

This specification signed and witnessed this 22d day of March, 1889.

THOMAS ALVA EDISON.

Witnesses:

W. PELZER,

RICHD. N. DYER.