

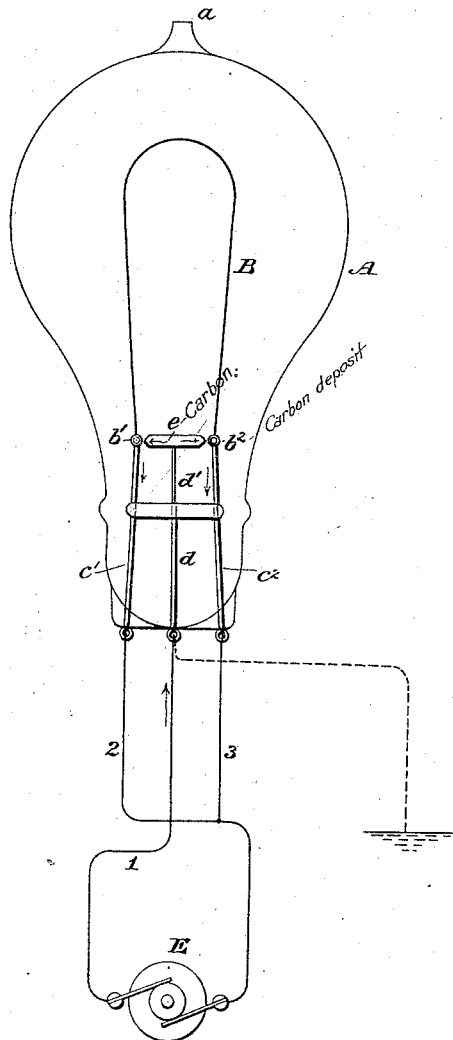
(No Model.)

E. P. THOMPSON.

MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

No. 382,846.

Patented May 15, 1888.



Witnesses.

Geo. W. Drecty  
Eugene J. Reilly

By his Attorneys

Inventor.

E. P. Thompson.

Popet & Bagcomb.

# UNITED STATES PATENT OFFICE.

EDWARD P. THOMPSON, OF ELIZABETH, NEW JERSEY.

## MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 382,846, dated May 15, 1888.

Application filed February 4, 1887. Serial No. 226,526. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD P. THOMPSON, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Incandescent Electric Lamps, of which the following is a specification.

The invention relates to the manufacture of incandescent electric lamps; and the object of the invention is to provide convenient and efficient means for expelling the occluded gases from the carbon joints formed by the union of the filament with the leading-in wires. This is accomplished by heating the leading-in wires and the joints independently of the filaments themselves both during the process of evacuation and after the air has been exhausted by means of electric currents caused to pass from an independent conductor to the respective joints and through the filament.

The invention will be described in detail in connection with the accompanying drawing, which shows in elevation an incandescent electric lamp before it is sealed, and illustrates in diagram the circuit-connection employed for carrying out the invention.

Referring to the figure, A represents the globe of an incandescent electric lamp open at the top *a* for the purpose of exhausting it. The filament B is supported upon two leading-in wires, *c'* and *c''*, in the usual manner. Between these wires there extends a third wire, *d*, carrying at its upper extremity a bar or plate of carbon, *e*. This is constructed with two points approaching into proximity to and preferably at first touching the respective joints *b'* and *b''* of the filament with the leading-in wires. These joints are formed in any of the well-known manners, and are preferably coated with a deposit of carbon, according to the usual method. It is desired to expel whatever occluded gases there may be in the leading-in wires and in the joints by means of an intense heat applied thereto. For this purpose one pole of a generator, E, is connected by a conductor, 1, with the wire *d*, carrying the carbon *e*. The other pole is connected by conductors 2 and 3 with the respective leading-in wires *c'* and *c''*. The current from the generator E will therefore traverse the block or plate *e*, passing

through both the joints *b'* and *b''* to the respective leading-in wires *c'* and *c''* back to the generator. The passage of this current will gradually cause the ends of the block *e* to disintegrate, and this gradually increases the distance between the same and the joints, at the same time it will develop an intense heat at the joints and the current will be of such intensity as to heat the wires themselves sufficiently to drive off the occluded gases. This operation takes place during the process of evacuating the lamp, so that the gases thus driven off are withdrawn from the globe. The carbon which is thrown off from the block *e* will be to a greater or less extent deposited upon the joints themselves, aiding in building up and strengthening the same. To accomplish this, the circuit-connections of the generator should be such that the carbon will be carried from the block toward the joints in a manner well understood.

For the purpose of insuring that the currents shall be easily caused to pass from the plate *e* to the joints it may be desirable to flatten the upper portion, *d'*, of the wire *d*, supporting the plate, causing it to be more or less resilient, so that by jarring the lamp it will vibrate sufficiently to cause contact with the joints and thus complete the circuit. This contact need only be momentary, for when the circuit is once established the arc will be maintained until the ends of the block have disintegrated sufficiently to cause any required space to intervene between the block and the joints. This space should be such that during the normal operation of the lamp arcs will not be formed across the same.

The block *e*, which remains in the lamp, also serves to give discharge-points to which the static charge which the lamp receives upon the closing and interrupting the circuit may pass. To utilize this feature, the wire *d* should be connected with the earth when the lamp is in operation, as indicated by the dotted lines.

I claim as my invention—

1. The hereinbefore-described method of heating the joints of incandescent electric lamps, which consists in forming electric arcs between the same and an independent conductor in a chemically-inert atmosphere, substantially as described.

2. In an incandescent electric lamp, the combination, with the leading-in wires, the filament and the joints between the same, of an independent conductor, and a carbon plate supported upon the latter and extending into proximity to the respective joints, all contained in a chemically-inert atmosphere, substantially as described.

3. In an incandescent electric lamp, the combination, with the leading-in wires, the filament, and the joints between the same, of a plate or strip of carbon extending between the joints, and a source of electricity for passing an electric current from said plate to the respective joints, substantially as described.

4. The hereinbefore-described method of building up the joints of incandescent-electric lamp filaments, which consists in causing a deposit of carbon to be made upon the joints in a chemically-inert atmosphere by means of an electric current forming arcs between an independent electrode of carbon and said joints.

5. In an incandescent electric lamp, discharge-points of carbon between the respective joints of the filament and an independent conductor supporting the same, substantially as described.

6. The hereinbefore-described process of

manufacturing incandescent electric lamps, which consists in exhausting the atmosphere from the lamps and simultaneously heating the joints of the filaments to incandescence, and strengthening the same by electrically depositing carbon thereon.

7. In an incandescent electric lamp, the combination, with the leading-in wires of the filament, of an independent conductor consisting of a plate of carbon between the joints of the filament and a flexible support carrying the same, substantially as described.

8. The hereinbefore-described process of strengthening the joints of the filaments of an incandescent electric lamp, with its leading-in wires, which consists in forming an arc between an electrode and the joints and causing a deposit of carbon obtained from said electrode to be made upon the joints by the discharge of the current in an attenuated atmosphere.

In testimony whereof I have hereunto subscribed my name this 21st day of January, A. D. 1887.

EDWARD P. THOMPSON.

Witnesses:

DANL. W. EDGECOMB,  
CHARLES A. TERRY.