(No Model.)

T. A. EDISON.

INCANDESCING ELECTRIC LAMP.

No. 273,486. Patented Mar. 6, 1883.

Fig. 1.

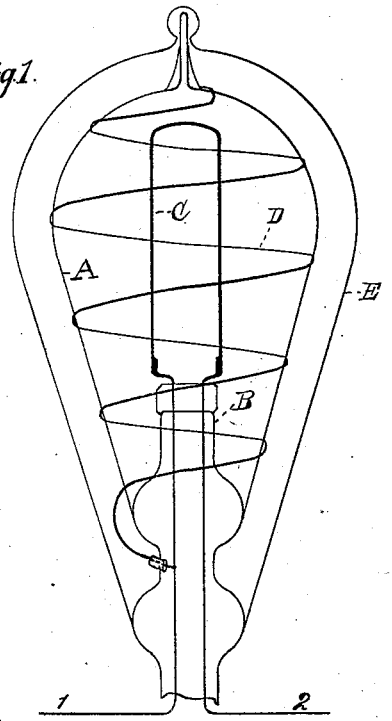


Fig. 2.

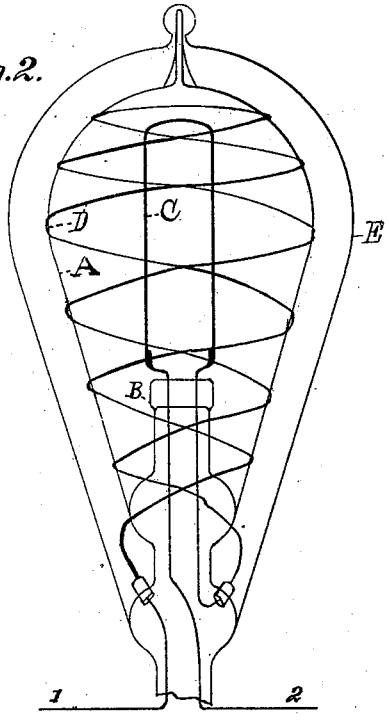


Fig. 3.

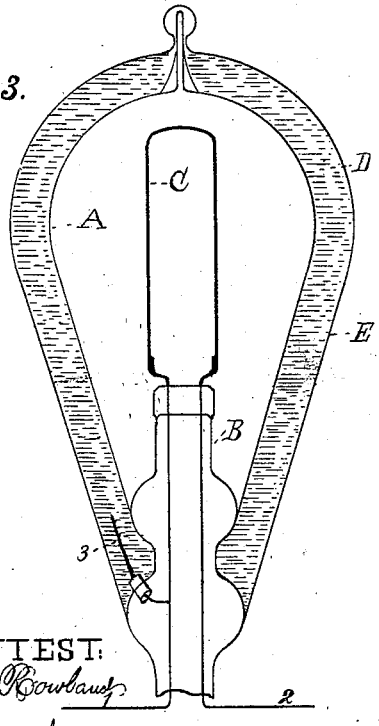
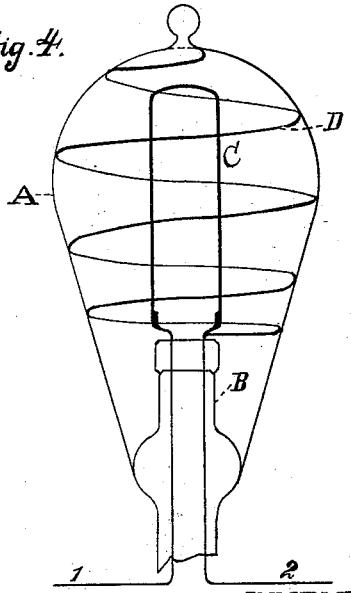


Fig. 4.



ATTEST:

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THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

INCANDESCING ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 273,486, dated March 6, 1883.

Application filed October 20, 1882. (No model.)

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 Methods of and Means for Preventing Electrical Carrying in Incandescing Electric Lamps, (Case No. 493,) of which the following is a specification.

In the use of incandescing electric lamps particles are thrown off from the carbon filament and deposited upon the glass inclosing-globe, resulting in the gradual destruction of the filament and the blackening of the globe, obscuring the light. This, I think, is due to the static attraction between the glass globe and the heated electrified particles, the globe having a lower potential than the filament. In my application No. 479 (Serial No. 74,095) is shown and described means for neutralizing this static attraction.

The object of my present invention is more especially to produce more efficient means for the purpose. This I accomplish by bringing the conductor connected with one of the leading-in wires of the lamp directly into contact with the glass globe, which has the effect of raising the globe to the same or nearly the same potential as the filament. When the conductor for neutralizing the static attraction is attached to the outside of the inclosing-globe, to prevent the discharge of the electricity I provide an external protecting-globe, which protects the neutralizing-conductor from the effects of the surrounding atmosphere. If the neutralizing-conductor is a solid material—such as a wire or strip of metal, carbon, or other suitable material—the external globe will be exhausted and sealed with or after the main lamp or globe; but if this neutralizing-conductor is a transparent or semi-transparent liquid or other mass the space between the main and protecting globes may be filled with the liquid or mass and sealed before or after the lamp-globe is exhausted. A heavy oil or substance, like Canada balsam or olive oil or water, may be used for the purpose, and a metal wire attached to one of the leading-in wires of the lamp is immersed in the liquid, so that the same will be electrically charged. If platinum is used for the neutralizing-conductor, it may be fused to the glass of the globe or not, as desired. When the neutralizing-conductor is placed within the lamp-globe the external protecting-globe is dispensed with. The internally-arranged conductor may be sustained in position against the globe by its own resiliency; or if platinum is used it can be attached to the globe by a fusion of the glass. When the neutralizing-conductor is located within the lamp-globe I prefer to connect it with the negative wire of the lamp, and when such neutralizing-conductor is external to the lamp-globe I prefer to connect it with the positive wire of the lamp. The neutralizing-conductor may be placed directly in the circuit of the filament, it being of low resistance, so as not to be heated by the passage of the current therethrough.

In the accompanying drawings, forming a part hereof, Figure 1 is a view of a lamp with an external neutralizing-conductor connected to one leading-in wire; Fig. 2, a similar view when the neutralizing-conductor is in circuit with the filament; Fig. 3, a view of a lamp with a protecting-globe and a liquid neutralizing-conductor, and Fig. 4 a view of a lamp having an internal neutralizing-conductor.

Like letters denote corresponding parts in all four figures.

A is the exhausted and sealed glass globe of the lamp; B, the tube supporting the carbon filament C and the leading-in wires 1 2.

D is the neutralizing-conductor, bearing directly upon the globe A and in contact therewith, either upon the outside or inside of the globe. The neutralizing-conductor may be connected with one of the leading-in wires 1 2, its other end being free, as shown in Figs. 1, 3, and 4; or the neutralizing-conductor may be in circuit with the filament, as shown in Fig. 2.

E is the outer protecting-globe, which is used when the neutralizing-conductor is located on the outside of the lamp-globe A. This protecting-globe is exhausted and sealed with or after the lamp-globe; but where a liquid is used, as in Fig. 3, the space within the protecting-globe is filled with the liquid. This liquid is connected with one of the leading-in wires by a wire, 3, sealed into the glass and immersed in the liquid.

I do not wish to express a preference for any one of the arrangements described and shown,

since, although I have tried them all, I cannot immediately determine the best form, on account of the long time required to make a comparative test of the life of the lamps.

What I claim is—

1. The method of preventing electrical carrying in incandescing electric lamps, consisting in raising the globe to the same or nearly the same potential as the filament, substantially as set forth.

2. In incandescing electric lamps, the combination, with the filament and the inclosing-globe, of a neutralizing-conductor connected with the lamp-circuit and located in contact with the lamp-globe, substantially as set forth.

3. In incandescing electric lamps, the combination, with the lamp-globe and the neutralizing-conductor external thereto, of the outer protecting-globe, substantially as set forth.

4. In incandescing electric lamps, the combination, with the lamp-globe and the neutralizing-conductor of solid material external thereto, of the outer exhausted protecting-globe, substantially as set forth.

This specification signed and witnessed this 12th day of October, 1882.

THOS. A. EDISON.

Witnesses:

H. W. SEELY,

RICHD. N. DYER.