(Model.)

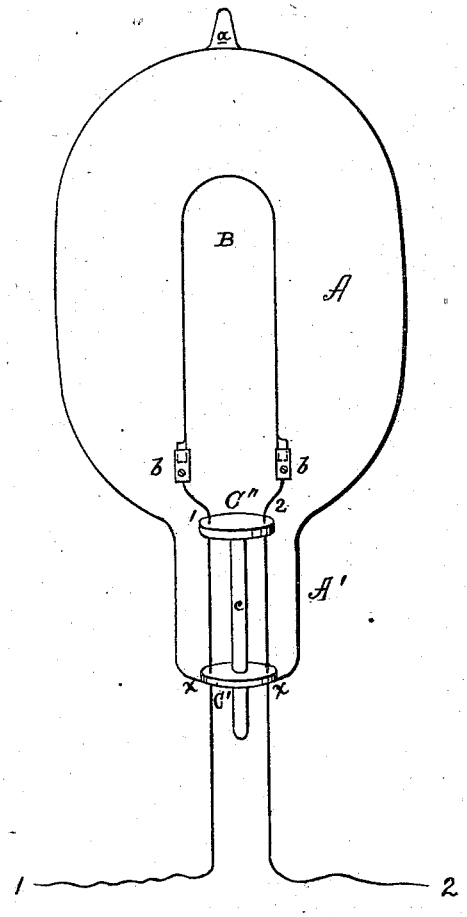
2 Sheets—Sheet 1.

# T. A. EDISON.

## Electric Lamp.

No. 239,153. **Patented March 22, 1881.**

*Fig. 1.*




*Witnesses.*

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(Model.)

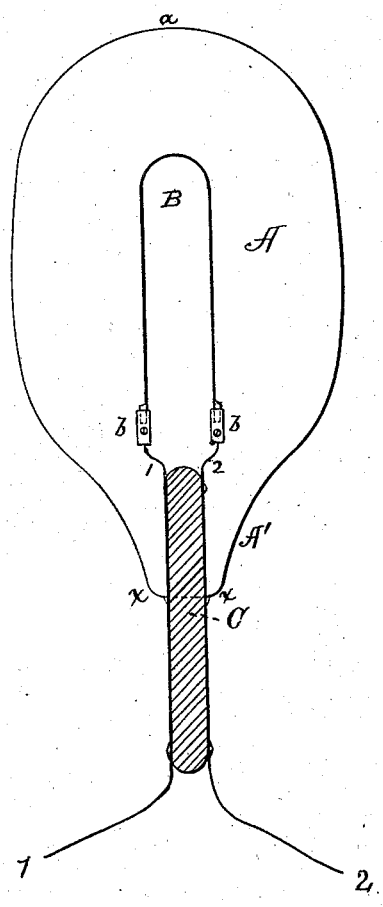
2 Sheets—Sheet 2.

# T. A. EDISON.

## Electric Lamp.

No. 239,153. Patented March 22, 1881.

*Fig. 2.*




Witnesses:

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# UNITED STATES PATENT OFFICE.

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

## ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 239,153, dated March 22, 1881.

Application filed August 27, 1880. (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 Electric Lamps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

As is well known, the electric lamp used in my system is a filament of high-resistance flexible carbon inclosed in a hermetically-sealed exhausted glass inclosing-globe, conductors leading to the carbon being sealed into the globe. As these conductors are metallic and good conductors of heat, they may heat to a considerable degree, even to the points where they are sealed into the glass, when, owing to the difference in the rates of expansion of the wire and the glass under heat influences, and the difference in their degree of heat-conductivity, there may be danger sometimes of their separation at the point of union, which would result in the destruction of the vacuum, and, consequently, of the lamp.

In the lamps ordinarily made by me there is a minimum of danger on this score, owing to the fact that by the proper adjustment of the resistance of the carbon an exceedingly small conductor is used.

It may be desirable to still further reduce this danger in such lamps, and also to provide lamps in which larger conductors, either for a greater number of carbons in multiple arc or of lower resistance, may be used with a minimum of danger from the source referred to. This may be accomplished by interposing a larger interval between the clamps of the carbon and the point at which the wires are sealed in the glass inclosing-globe, so that the length of the wire between the two points is such that heat enough to be dangerous will not be conducted through the wire to the point of sealing.

As the carbons are flexible and the conductors, even of the largest size, are so small as to be flexible, it is desirable that the conductors should be supported very near to the clamps, in order to give to the carbons and their supports the necessary stability.

The object of this invention is to furnish a lamp in which the desired results are accomplished; and to that end it consists in the features more particularly hereinafter set forth and claimed.

In the drawings, Figures 1 and 2 are views of lamps illustrating the invention embodied in slightly different forms.

Like letters of reference indicate the same parts in both figures.

A is the glass inclosing-globe, with its lower end fashioned into a neck, A′, left open when first made.

B is the incandescing conductor, of flexible high-resistance carbon, attached to clamps *b b* on the terminals of conductors 1 2.

In Fig. 1, C′ C″ are two glass disks connected by a glass rod or connection, *c*. The conductors 1 2 pass through and are sealed into both disks C′ C″. So sealed, the disks, conductors, and carbon are passed up into the globe, and the open end of the neck A′ is then hermetically sealed to the disk C′ and the globe exhausted in the usual manner. By this means the points of sealing which guard the vacuum are removed to a distance from the source of heat, while the carbons and the conductors are suitably supported.

In Fig. 2 the conductors 1 2 are fastened to a glass rod, C, either along the entire length of the rod or at intervals. The rod, with the attached conductors and carbon, is then passed into the open neck C, which is sealed around the rod at a distance from its upper end, the same results following as in the other case.

What I claim is—

1. The combination, with the glass inclosing-globe and incandescing conductor of an electric lamp, of a support hermetically sealed to the globe and supporting the carbons at a distance above the point of sealing, substantially as set forth.

2. The combination, with the conductors of an incandescent electric lamp, of a glass support to which the conductors are sealed at two or more points, one near the clamps and one where the conductors enter the inclosing-globe, so that the latter point is removed a little distance from the former, substantially as set forth.

This specification signed and witnessed this 11th day of August, 1880.

THOS. A. EDISON.

Witnesses:

WM. CARMAN,

OTTO A. MOSES.