

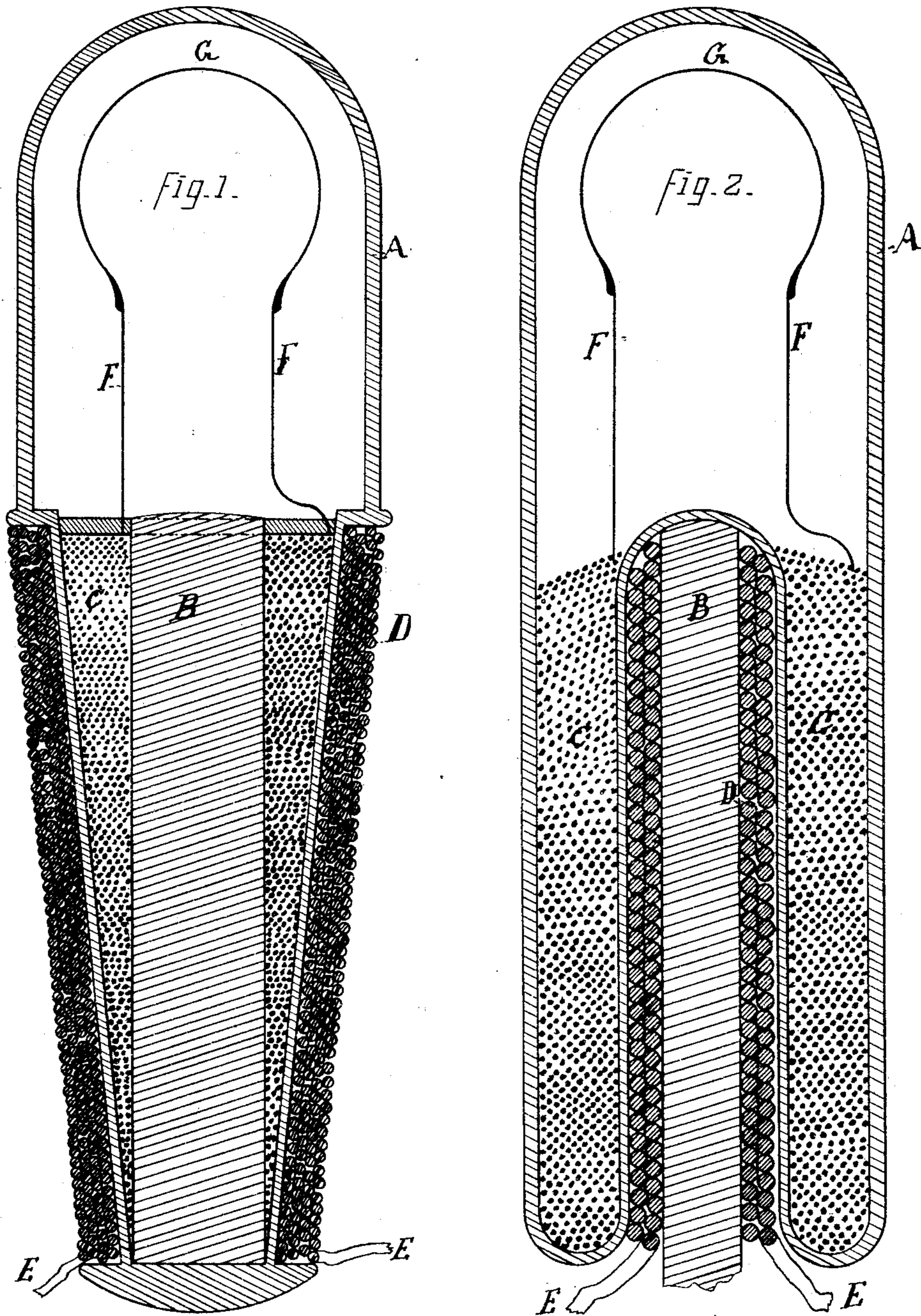
(No Model.)

P. DIEHL.

INCANDESCENT ELECTRIC LAMP.

No. 255,497.

Patented Mar. 28, 1882.



WITNESSES  
*Rudolph Diehl.*  
*Jacob Diehl.*

INVENTOR  
*Philip Diehl.*

# UNITED STATES PATENT OFFICE.

PHILIP DIEHL, OF ELIZABETH, NEW JERSEY.

## INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 255,497, dated March 28, 1882.

Application filed January 10, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP DIEHL, of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

One of the main objections of electric vacuum-lamps based on the principle of incandescence consisted in the leakage of the lamps, as owing to the difference in the expansion and contraction of the glass globe and of the conducting-wires air will gradually get in and destroy the vacuum established therein, so as to render the lamp useless.

The object of this invention is to furnish an improved electric lamp based on the principle of incandescence, in which the light-giving part of the lamp is inclosed within an evacuated and hermetically-sealed glass globe without any wires passing through the body of the globe to the interior of the same; and the invention consists of an electric lamp composed of a hermetically-sealed glass globe, and a light-giving part supported at the interior of the globe and placed in circuit with a secondary coil which is arranged within an extension made integral with the globe and placed in inductive relation to a primary coil exterior of the lamp.

In the accompanying drawings, Figures 1 and 2 represent vertical transverse sections of my improved electric lamp, showing different forms of the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a hermetically-sealed glass globe which is made of suitable size and shape at that end which incloses the light-giving part, and which is provided with an extension of conical, cylindrical, or other shape, that is made integral with the main part of the globe. The air is exhausted from the interior of the globe, so as to establish a vacuum therein; or an artificial atmosphere may be provided within the same by charging the interior of the globe with a suitable gas, whereby a longer duration is secured to the light-giving part of the lamp. At the interior of the extension of the glass globe A is arranged a secondary coil, C, of fine wire, which is placed in inductive relation to a primary coil, D, of coarser wire, which is arranged exterior to the glass globe by being either wound around the extension of the

glass globe, as shown in Fig. 1, or by being placed into a cylindrical cavity formed by the extension, as shown in Fig. 2. One of the coils only, either the primary or secondary, is wound around an iron core, B, as shown respectively in Figs. 1 or 2, though in practice it may be preferable to use cores in both coils. The carbon filament or other light-giving part is held between the terminal wires F F of the secondary coil C, so as to be in the same circuit therewith, said light-giving part being made of any desired shape and material, and connected in any approved manner to the conducting-wires F F. The primary coil D is connected by the conducting-wires E E with the poles of a magneto or dynamo electric machine arranged for alternating currents, or with a battery or other source of electricity. In the latter case an automatic current-breaker has to be placed in the circuit.

The change of polarity, or the closing and breaking of the current in the primary coil, will induce currents in the secondary coil at the inside of the lamp, the rapid succession of which will heat up the light-giving part to incandescence, and establish thereby a steady and reliable light that is not liable to the interruptions caused by the gradual destruction of the vacuum, and that will consequently be of much longer duration, owing to the entire absence of leakage.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An electric lamp consisting of a hermetically-closed glass globe, a light-giving part inside of the globe, a secondary coil supported within the globe and placed in circuit with the light-giving part, and a primary coil arranged exterior to said globe and in inductive relation to the secondary coil, substantially as set forth.

2. The combination of a glass globe containing the light-giving part, an extension made integral therewith, and secondary coil supported at the interior of the extension and placed in circuit with the light-giving part, and of a primary coil arranged exterior to the globe and in inductive relation to the secondary coil, substantially as specified.

PHILIP DIEHL.

Witnesses:

FOSTER M. VOORHEES,  
JACOB DIEHL.