

(No Model.)

J. PEIL & C. K. MACFADDEN.
ELECTRIC INCANDESCENT LAMP.

No. 512,320.

Patented Jan. 9, 1894.

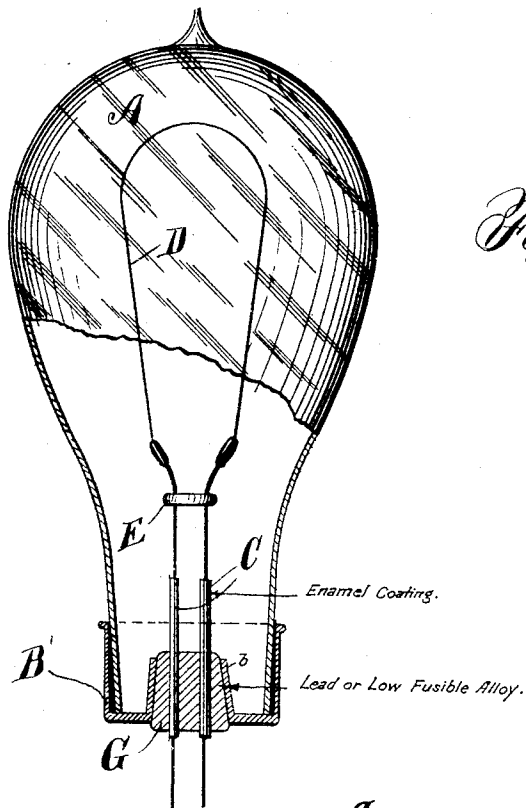
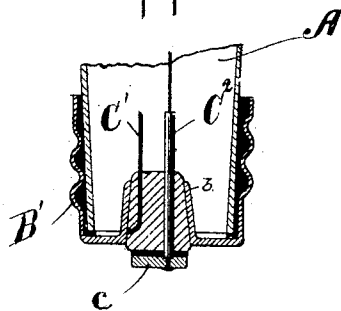


Fig. 1.

Fig. 2.



Witnesses.
Thos. F. Sheidart
Samuel E. Kibben

Inventors.
John Peil
Carl K. MacFadden
By *Browning & Browning* Attorneys.
Payson

UNITED STATES PATENT OFFICE.

JOHN PEIL AND CARL K. MACFADDEN, OF CHICAGO, ILLINOIS.

ELECTRIC INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 512,320, dated January 9, 1894.

Application filed April 18, 1893. Serial No. 470,810. (No model.)

To all whom it may concern:

Be it known that we, JOHN PEIL and CARL K. MACFADDEN, residing at Chicago, Illinois, have invented certain new and useful Improvements in Electric Incandescent Lamps, of which the following is a specification.

The object of our invention is to provide a simple, efficient and economical electric incandescent lamp; and it consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is an elevation, partly in section, showing our improved lamp; and Fig. 2 a modified form of the lower part in section.

The incandescent lamps now in use are generally formed with a receiver made entirely of glass, and conductors passing through the glass, the receiver forming a glass bulb from which the air is exhausted after the filaments and conductors have been inserted in the same. The filament is usually made of carbon, and the conducting wires, as has been found necessary, formed of platinum, otherwise, in passing through the glass, the heat generated through the same by the electric current breaks the glass seal at the bottom of the receiver, thereby rendering the lamp unfit for use. Various modifications of this form have been made, but nearly all contain the same principles—the inserting of the inleading wires through a glass seal, or its equivalent, at the bottom of the lamp, and, as above stated, the inleading wires used must necessarily be made of platinum. In all these forms, the initial cost is necessarily expensive, and the repair of the lamps, as so constructed, so expensive as to make it unprofitable.

To obviate the above disadvantages, and to provide a simple, economical and efficient electric incandescent lamp, and one which can be repaired cheaply and readily, we make a lamp formed with a glass bulb, A, provided at its lower end with a metallic cap, B, the interior surface of which is coated with a vitreous or enamel coating where it is desired to be cemented to the glass bulb. The cement used can be any glass cement, and may be applied in any usual way, but must be such as will not destroy the enamel surface and will not permit the passage of air into

the receiver. Extending inwardly from this metallic cap is a flange *b*, which forms preferably a circular tapered opening located about in the center of the cap. The inleading wires, C, are inserted through this opening, and to their upper ends may be affixed, in any convenient manner, the usual carbon filament, D. These inleading wires are coated with insulating material, preferably enamel, on that portion which extends through the opening formed by the flange, *b*, in the cap. At the upper end, near where the carbon filament is joined to the inleading wires, is the usual glass bridge, E. After the inleading wires, and carbon filament have been inserted in place, molten lead is poured into the circular opening in the metallic cap by any usual means, and allowed to cool, forming a seal, G. While we have said that this seal is formed of lead, we prefer to form it of a low fusible alloy, of such mixture that on cooling it expands, so as to make a perfect hermetical seal. At the same time, this alloy should not fuse at such temperature where it might be liable to be affected by the heat of the lamp, or above such temperature as might destroy the insulated coating on the inleading conducting wires. The air in the interior of the bulb may be exhausted in the usual manner.

In Fig. 2, we have shown a modification of the lower portion of our lamp, which consists in having one of the inleading wires, C', a bare wire making one of the terminals in the lead seal, and by it to the metallic cap, B'. The other inleading wire, C'', has a vitreous outer coating, and is inserted in the manner before described, making its terminal on a metallic piece, *c*, which is insulated from the lead seal and metallic cap. The metallic cap, B', is provided with a helical corrugation, which permits the ready insertion into a receiver containing the terminal connections with the source of electrical supply, and which forms one of the electric terminals, and the metallic contact piece contacting with the wire which forms the other electric terminal, thus making the interchangeability of lamps simple and efficient.

From the foregoing description, it will be seen that we have provided an electric incandescent lamp with a metallic seal, through

which the inleading wires may be inserted. Said inleading wires may be made of any desired material, preferably copper, which is simple and inexpensive as compared with platinum, and provide the same with an insulated coating on that portion which extends through the fusible seal, the whole being economical in construction, as well as capable of being readily and economically repaired. When the carbon filament becomes broken or consumed, a new one may be easily inserted by removing the fusible seal in any convenient manner, and withdrawing the inleading wires and affixing to their upper ends a new filament. They may be again inserted and a new fusible seal applied.

The advantages derived from our improved incandescent lamp are, that the initial expense of manufacture is comparatively small, inleading conducting wires may be made of any desired material, and the repair of the lamp is comparatively inexpensive.

While we have entered into a more or less minute description as to the details of our invention, we do not desire to be limited unduly thereto, any more than is pointed out in the claims. On the contrary, we contemplate changes in form, construction and arrangement, and the use of equivalent members, as

circumstances may suggest or necessity render expedient.

We claim:—

1. In electric incandescent lamps, the combination with a glass bulb of a metallic cap, a removable and insertible fusible metallic seal in the cap, and insulated inleading metallic wires inserted through the seal, substantially as described.

2. In electric incandescent lamps, the combination with a glass bulb of a metallic cap, a fusible metallic seal, and inleading metallic wires provided with a vitreous coating inserted through the seal, substantially as described.

3. In electric incandescent lamps, the combination with a glass bulb of a metallic cap forming one of the terminals for the inleading wires, a fusible metallic seal in the cap, inleading metallic wires inserted through the seal, one of which is provided with a vitreous outer coating, and a metallic contact piece forming the terminal for the insulated inleading wire, substantially as described.

JOHN PEIL.

CARL K. MACFADDEN.

Witnesses:

THOMAS F. SHERIDAN,

ANNIE C. COURTENAY.