

(No Model.)

R. GREER.
INCANDESCENT ELECTRIC LAMP.

No. 541,929.

Patented July 2, 1895.

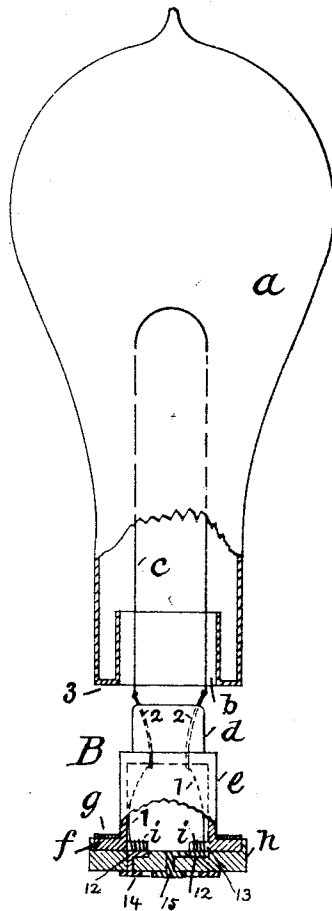


Fig. 1.

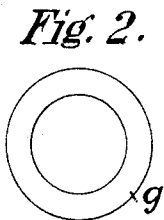


Fig. 2.

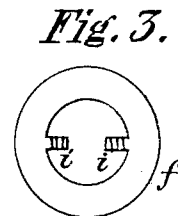


Fig. 3.

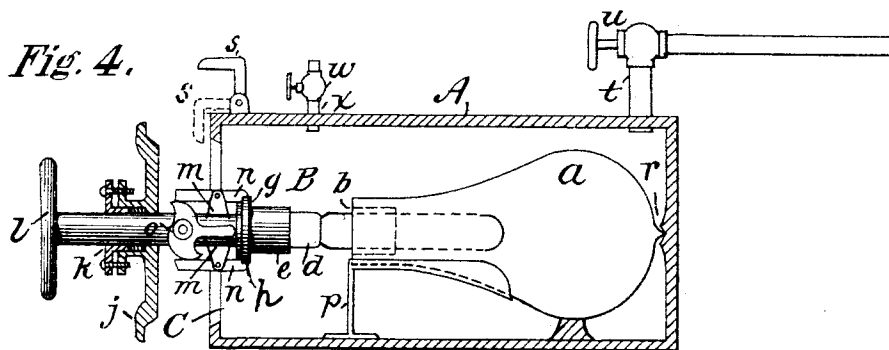


Fig. 4.

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INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 541,929, dated July 2, 1895.

Application filed November 10, 1894. Serial No. 528,364. (No model.)

To all whom it may concern:

Be it known that I, ROBERT GREER, residing at Westbrook, in the county of Cumberland and State of Maine, have invented certain Improvements in Incandescent Electric Lamps, of which the following is a specification.

This invention relates to incandescent electric lamps and especially to that form denominated stopper or plug lamps in which the filament and its support are separable from the glass bulb, and to a method of constructing such lamps simply and cheaply.

In carrying out my invention I make the glass bulb of the lamp complete with its upper end sealed and its lower end open. I attach the filament to a suitable support in such a manner that its terminals form suitable contacts to engage with the terminals of the electric mains in the lamp socket. The base of the said support fits into the lower end of the glass bulb and is encircled with a band of elastic sealing material. I provide a receiver with suitable connection to an air exhausting pump, and with an opening in its side through which the glass bulb is inserted, and means within the receiver for holding the bulb. In connection with the receiver there is a sliding rod or piston one end of which is within the receiver and which is provided with means for holding the filament and its support.

The method consists in placing the glass bulb within the receiver through the said opening and then closing the same, then exhausting the air from the receiver, and necessarily also from the glass bulb, and then sliding the said rod or piston with the said filament and support, upon its end to the opening in the bulb, and pressing the said support or "plug" into the bulb opening. The air is now admitted to the receiver, which pressing upon the exterior of the plug and bulb tends to keep them together, the elastic band preventing the air from entering the bulb and sealing the joint.

The invention also consists in the means described for connecting the filament contacts with the terminals of the electric mains, all of which I will now proceed to describe and point out in the claims.

In the drawings, Figure 1 represents a view in elevation partly in section, with the plug

partly withdrawn, of an electric incandescent lamp embodying my invention. Figs. 2 and 3 are details of the same, and Fig. 4 illustrates the method of assembling or making the incandescent lamp devised by me.

a is the glass bulb made as shown, sealed at the top and open at the bottom. The opening *b* is a straight smooth cylinder.

B represents the plug or stopper and consists of a hollow cylinder of glass provided with a flange or base *f* from the inner face or circumference of which the lugs *i i* project. The filament *c* is connected to the wires 2 2 sealed in the upper part *d* of the plug, which are connected to the wires 1, 1, the ends of which are wound around the lugs *i, i*, and soldered. These soldered ends are the contacts which connect with the electric mains which furnish the current to the lamp. The part *e* of the plug is made to fit snugly into the cylindrical opening *b* of the bulb *a* and may be ground therein.

g is a ring or band which rests upon the top of the base or flange *f* and may be of any suitable elastic material, as rubber.

h is a base of insulating material secured to the flange *f* in any suitable manner, and is provided with a metal ring 14 on its under side to which the contact pin 12 is soldered which makes connection with one of the filament wires *i*; and 15 is a metal plate in the center of the ring soldered to the contact pin 13 which makes contact with the other filament wire *i*. By means of these contacts 14 and 15 the filament is connected to the usual socket which is provided with the terminals of a supply main and a switch.

Fig. 4 illustrates the method of constructing or assembling the lamp. *A* represents a receiver, provided with an opening *C* at one end, through which a lamp bulb, *a*, is inserted. *p* and *r* are supports for the bulb by which it is held in alignment. *j* is a stopper for the opening *C* provided with an air tight gland *k* through which passes a rod or piston *l* having upon its inner end an enlargement or disk *y* just inside of which upon both sides of the piston *l* are studs *m, m*, to which are pivoted the jaws *n, n*, between the outer ends of which plays the double cam *o*, pivoted to the piston *l*. *s* is a clamp to hold the stopper *j* when it is in position to close the opening *C*. *x* is a

pipe provided with a cock *w* to admit air to the receiver *A*; and *t* is a pipe provided with a cock *u* which is connected with an air exhausting apparatus. Not shown.

5 The method of constructing a lamp is as follows: A bulb *a* is placed in the receiver, as shown. The base of a plug or stopper *B* is placed against the disk *y* and between the jaws *n, n*, and secured by the cam *o*. The piston with the plug *B* is passed into the receiver so that the filament enters the bulb. The stopper *j* is secured to the receiver before *e* reaches the cylindrical opening *b*, when the cock *w* is closed to prevent air from coming
10 in, and the cock *u* is opened to allow the air in the receiver to be exhausted. When the air is exhausted from the receiver and also from the bulb *a*, the piston is gently forced inward until the elastic ring *g* touches the annulus seat or end 3 of the bulb. The cock *u*
20 is now closed, and the cock *w* opened and air admitted to the receiver, and as its pressure is felt upon the base or flange *f* it is forced hard against the bulb hermetically sealing
25 the plug to the bulb, the interior of the latter remaining a vacuum.

I claim—

1. The herein described method of making incandescent lamps which consists in placing
30 wholly within a receiver upon suitable supports a glass bulb open at its lower end, and then inserting into the said receiver a plug consisting of a filament and its support the base of which is encircled with elastic mate-

rial, then closing the receiver and exhausting 35 the air therefrom, and then forcing the plug into the glass bulb, as set forth.

2. The herein described method of making incandescent lamps which consists in placing
40 wholly within a receiver upon suitable supports a glass bulb open at its lower end, and then inserting into the said receiver a plug consisting of a filament and its support the base of which is encircled with elastic material, then closing the receiver and exhausting
45 the air therefrom, and forcing the plug into the glass bulb, and then admitting air into the receiver, as set forth.

3. The herein described stopper incandescent lamp, consisting of a glass bulb provided
50 with a straight cylindrical opening and an annular seat at its lower end; and a hollow plug to which the filament is secured provided with a stopper to fit the cylindrical opening of the bulb and with a base or flange having upon
55 its upper face a ring of elastic material, the said flange having lugs extending from the opposite sides of its inner circumference upon which the filament wires are wound.

In testimony whereof I have signed my
60 name to this specification, in the presence of two subscribing witnesses, this 7th day of November, 1894.

ROBERT GREER.

Witnesses:

JOSEPH A. GATELY,
GEO. WILLIS PIERCE.