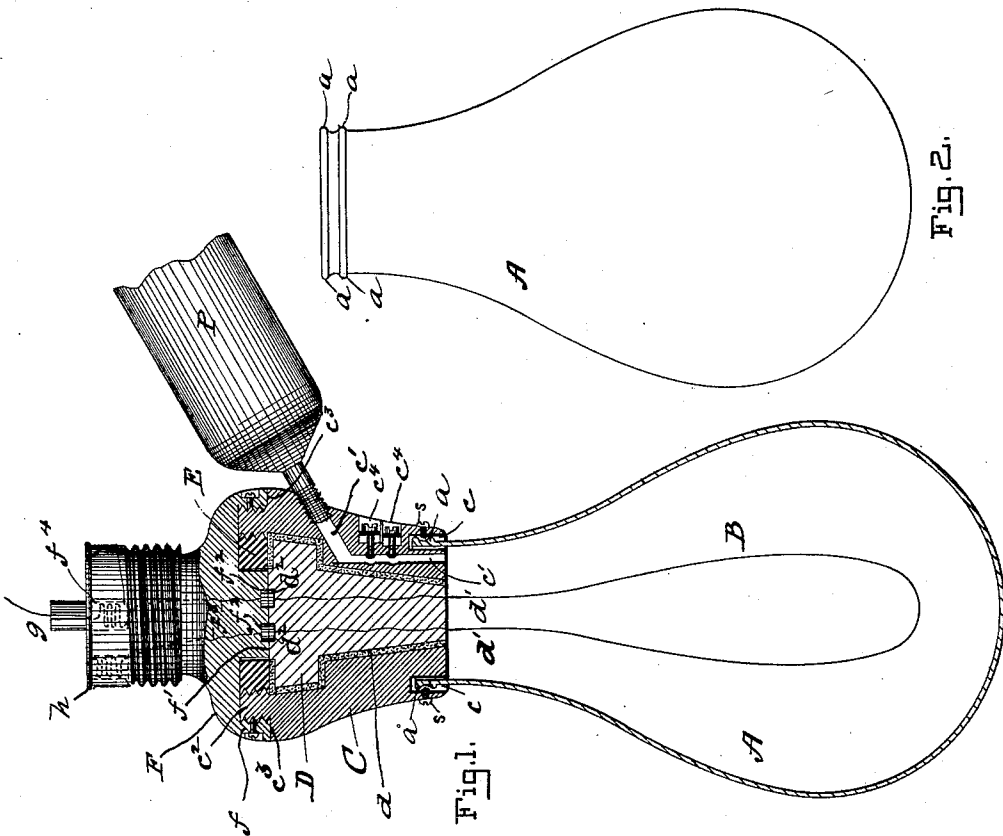
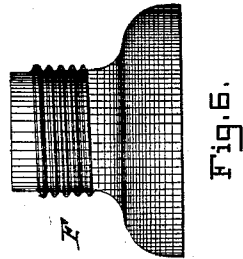
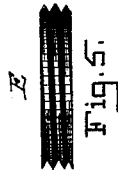
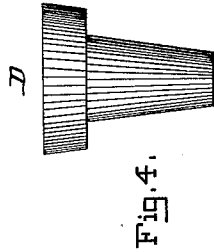


3 Sheets—Sheet 1.

No. 466,562.

Patented Jan. 5, 1892.



WITNESSES

Frank S. Ober
Wm. Rosenbaum

INVENTOR

Perrin Grant
by W. J. Johnston
Attorney

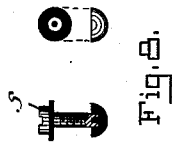
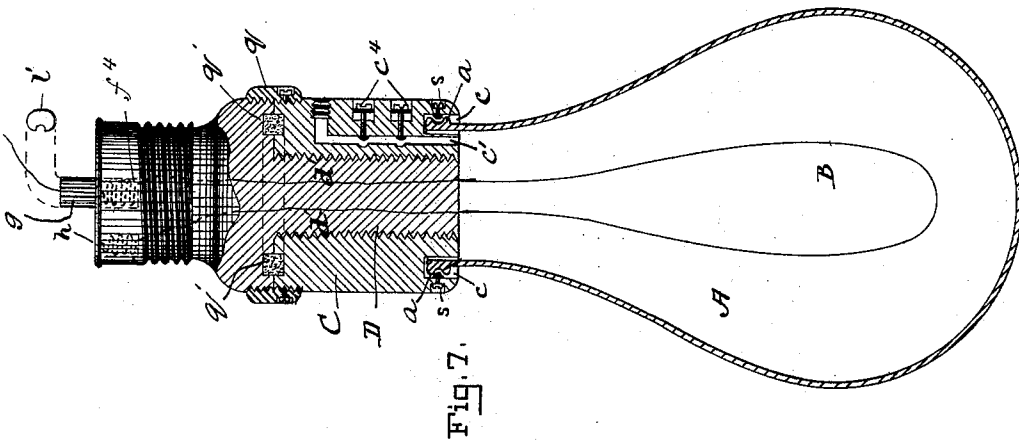
(No Model.)

3 Sheets—Sheet 2.

P. GRANT.
INCANDESCENT LAMP.

No. 466,562.

Patented Jan. 5, 1892.



WITNESSES
Frank S. Ober
Wm. Reinbaum

INVENTOR
Perrin Grant
by *W. D. Johnston*
Attorney

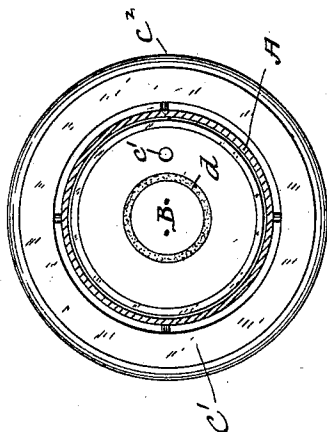
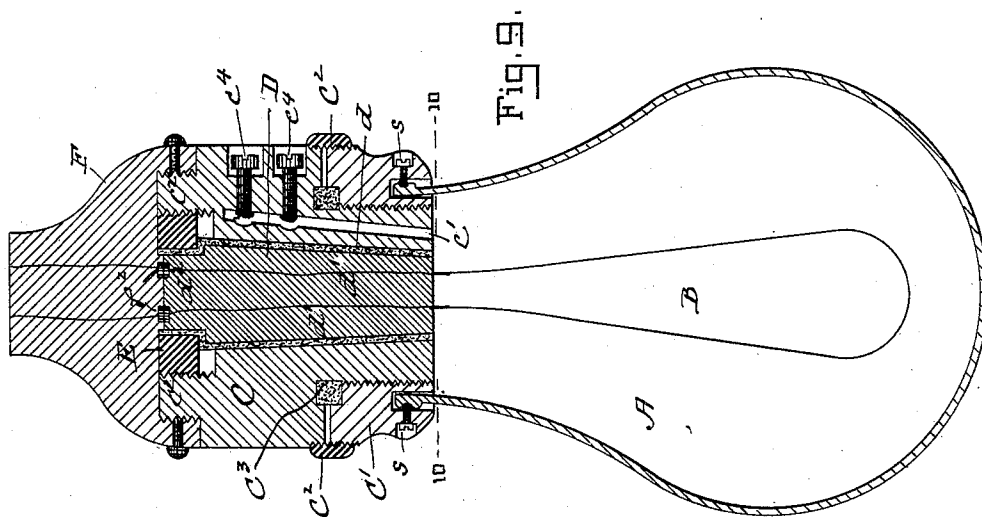
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3 Sheets—Sheet 3.

P. GRANT.
INCANDESCENT LAMP.

No. 466,562.

Patented Jan. 5, 1892.



WITNESSES

Frank S. Ober
M. A. K. R. R. R.

INVENTOR

Perrin Grant
by *W. O. Johnson*
Attorney

UNITED STATES PATENT OFFICE.

PERRIN GRANT, OF PORTSMOUTH, VIRGINIA.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 466,562, dated January 5, 1892.

Application filed July 7, 1891. Serial No. 398,685. (No model.)

To all whom it may concern:

Be it known that I, PERRIN GRANT, a subject of the Queen of Great Britain, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification.

My invention relates to incandescent lamps, the object being to provide a lamp that may be taken apart at any time for the insertion of a new carbon filament or for making other repairs without destroying the glass globe or any portion of the lamp, and when so taken apart the globe may be cleaned on its interior surface to remove the deposits of carbon caused by the disintegration of the old filament.

The invention consists of the details of construction, which will now be described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of an incandescent lamp constructed in accordance with my invention. Fig. 2 is a view of the glass globe ready for mounting. Figs. 3, 4, 5, and 6 are details of the neck or coupling of the lamp constituting the principal part of my invention, and Figs. 7, 8, 9, and 10 are views of modifications of my lamp.

A represents the glass globe inclosing the carbon filament B. The neck of this globe is formed with two annular flanges *a a* with a small space or groove between them.

C represents a brass neck or casting provided with a double conical longitudinal opening through its center and having an annular groove *c* in its lower end. It is also provided with a passage *c'*, leading from a point inside of the groove *c* out through the side of the neck or casting. The upper end of this neck has an annular flange *c²*, provided with screw-threads inside and outside. This flange is of less diameter than the neck, thus leaving an annular shoulder *c³*. In the side of the neck are two lateral perforations with counter-sinks communicating with the passage *c'*. These openings are tapped out and fitted with screws *c⁴ c⁴*, whose inner ends are tipped with rubber to form valves which close the passage *c'*. In the double conical opening is

placed a glass plug D, of the same shape as said opening and somewhat smaller, in order that packing material *d* may be inserted between it and the walls of the opening. This plug is provided with platinum wires *d'*, which are inserted when the plug is made. The wires at one end project and carry the carbon-clamps and at the other end connect, respectively, with two copper disks *d² d²*, which are held in the upper face of the plug.

E represents a ring-nut having its threads on the outside. This fits the inner thread in flange *c²* and holds the plug *d* tightly in its seat.

F is a cap made of fiber, hard rubber, or other suitable insulating material. Its lower end is formed with an annular flange *f*, extending around the outer edge and provided with screw-threads which engage with the threads on the outside of the flange *c²*. A cylindrical projection *f* is formed in the center of the lower end of this cup, which projects through the opening in the ring-nut E and rests upon the upper end of the plug D. The face of this cylindrical projection is provided with two flush copper disks *f² f²*, which correspond, and when the parts are together make contact with the disks *d²*, respectively. Platinum wires *f³* connect with the copper disks *f²* and extend up through the cap to two chambers *f⁴*, in which the wire is coiled up, as shown. The ends of these wires are connected, respectively, with a metallic pin *g* and a metallic ring *h*. The object of coiling the wire, as described, is to provide for take-up when the ends become broken or burned out. The cross-section of the pin *g* is elliptical, and the said pin is provided with a groove, in which the end of the wire is soldered. As shown, the upper end of the cap is contracted in diameter to the standard size of a lamp-neck and provided with threads which are adapted to engage with the threads in the ordinary lamp-socket.

In putting the lamp together, the neck of the globe A is inserted into the groove *c* and held therein by set-screws *s s*, the ends of which enter the groove between the flanges *a a*. A suitable cement is then forced into the groove until the joint is air-tight. I do not confine myself to any particular method

of securing the neck of the lamp into this groove. There are other ways quite as good as that described which may be utilized. The parts of the coupling are put together in the manner above described, care being taken to carefully pack the space between the plug D and the neck C. The globe is then exhausted by the application of an air-pump, (represented by P,) to the outer opening of the passage *c'*. When the air has been thoroughly exhausted from the globe, the valve-screws *c'* *c'* are forced in and the passage *c'* closed. The countersinks occupied by the heads of the screws are filled with plaster-of-paris or other cement. Next the air-pump is removed and the outer end of the passage *c'* filled with cement and the whole lamp is effectually sealed. When it becomes necessary to renew the carbon filament, the cement is removed from the several places, and by the aid of a screw-driver the globe may be easily removed. After the filament has been replaced and the globe cleaned, the latter may be replaced in the same manner as before described.

In the modification shown in Fig. 7, the construction is such that fewer parts are required to make the joints tight. The plug D is formed integrally with the cap F and it is joined to the neck C by a sleeve *g*. The abutting shoulders of the parts C and D are grooved to form a chamber in which packing or sealing material *g'* may be placed.

In Figs. 9 and 10, the modification consists of a structure containing one more part than that shown in Fig. 1, the additional part being a removable ring C', in which the neck of the lamp-globe is secured in the manner before described. This removable ring is held

in place by a threaded sleeve C², and a sealing-ring C³ is inserted between the parts.

In the forms shown in Figs. 1 and 7 unless the legs of the filament are close together it will be impracticable to insert or replace a filament without removing the neck of the lamp from its anchorage in the groove *c*; but with the construction Fig. 9 the lamp may be disconnected from the remaining portion of the structure by removing the part C', and then it is not necessary to remove the plug D in order to replace the filament.

Having thus described my invention, I claim—

1. In an incandescent lamp, the combination of a neck C, carrying the lamp-globe and provided with a valved exhaust-passage, with a removable cone-shaped plug carrying the leading-in wires, air-tight packing between said neck and plug, and a nut and cap, substantially as shown and described.

2. In an incandescent lamp, the combination of a neck C, carrying the lamp-globe and provided with a valved exhaust-passage, with a removable cone-shaped plug carrying the leading-in wires and provided with contact-pieces *d*², a nut for holding said plug in place, and a cap also carrying contact-pieces.

3. The combination, with the globe and neck, of removable plug, the nut E, and cap F, for the purpose described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PERRIN GRANT.

Witnesses:

S. HUNTER GRIFFIN,
GEO. A. BROOKS.