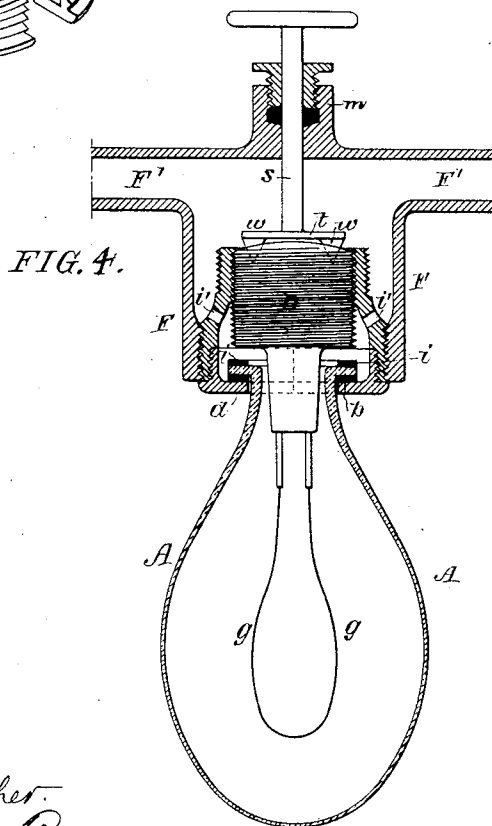
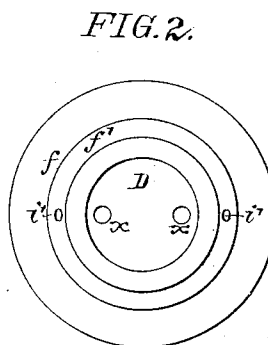
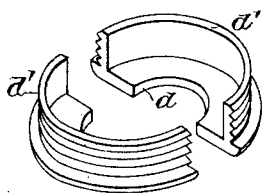
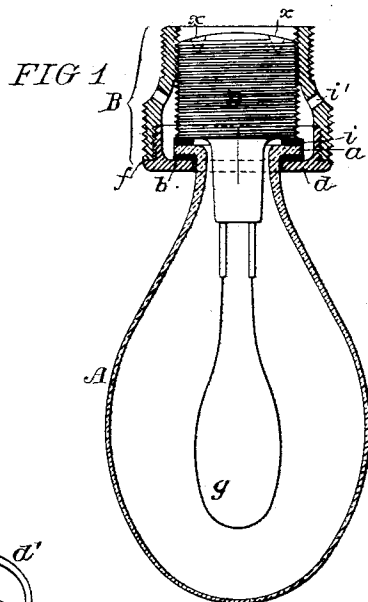


(No Model.)

F. L. FOWLER.
INCANDESCENT ELECTRIC LAMP.

No. 535,199.

Patented Mar. 5, 1895.



Witnesses:
R. Schlicher.
William A. Barr.

Inventor:
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By his Attorneys
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UNITED STATES PATENT OFFICE.

FRANK L. FOWLER, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 535,199, dated March 5, 1895.

Application filed July 30, 1894. Serial No. 518,986. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. FOWLER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Incandescent Electric Lamps, of which the following is a specification.

The object of my invention is to so construct an incandescent lamp that the filament-carrying plug and the bulb can be readily detached from each other in case it is desired to renew the filament or replace a broken bulb, or to clean a bulb which has become darkened, the lamp being furthermore constructed with especial reference to the use of simple means for restoring the vacuum after the replacing of the filament or bulb.

In the accompanying drawings: Figure 1, is a sectional view, partly in elevation, of an incandescent electric lamp constructed in accordance with my invention. Fig. 2, is a plan view of the same. Fig. 3, is a detached perspective view of part of the lamp; and Fig. 4, is a view illustrating the means adopted for restoring the vacuum after replacing a bulb or filament.

A represents the glass bulb of the lamp, which has, at its upper or contracted end, an outwardly projecting annular flange *a*, which is seated upon a packing ring *b*, the latter being seated upon an inwardly projecting flange *d* forming part of a transversely divided two-part ring *d'* which is screwed into the lower end of the collar B of the lamp and practically forms a part of the same, the collar having two external screw threads *f f'* and the thread *f'* being of somewhat less diameter than the thread *f*, so that the lamp can be adapted to either of the two different sizes of sockets usually employed.

The collar B is internally threaded for the reception of the threaded plug D which carries the filament *g* of the lamp; this plug being internally constructed and having the filament attached to it in any of the usual or available ways, this forming no part of my invention.

Between the bottom of the plug D and the flange *a* of the bulb A is interposed a packing ring *i* which serves to seal the joint be-

tween said flange and the plug and thus prevents the access of any air to the interior of the bulb after the vacuum has been produced therein.

If either the bulb or filament should be accidentally broken or otherwise become unserviceable it can be readily replaced by unscrewing the plug D and attaching a new filament thereto or the bulb can be renewed, the supporting flange *d* being detachable and separable so that it can be readily removed from or applied to the neck of the bulb below the flange. The bulb can also be removed in order to clean it should it become darkened by a deposit of carbon thereon while in use.

In order to restore the vacuum in the lamp after replacing either a filament or a bulb, the threaded portion *f* of the collar B is screwed into a socket F on a pipe F', which communicates with the vacuum pipe, the plug D having first been partially unscrewed so that the interior of the bulb can communicate with the interior of the socket F through openings *i'* formed in the collar B or, in the absence of such openings, through the space between the internal thread of the collar and the external thread of the bulb, the two threads in this case being loosely fitted.

On the back of the vacuum pipe, above the socket F, is a stuffing box *m*, through which passes a rod *s* having at the inner end a disk or bar *t* with projecting lugs *w* which are adapted to engage with recesses *x* formed in the top of the plug, as shown in Fig. 3, and by dotted lines in Figs. 1 and 2.

When the desired vacuum has been established in the bulb of the lamp the rod *s* is pushed inward until the lugs *w* engage with the recesses *x* of the plug and the latter is screwed firmly down upon the packing ring *i* so as to press the same against the flange *a* of the bulb in order to hermetically seal the latter. The rod *s* is then withdrawn and the lamp unscrewed from the socket F.

My invention comprises a simple and effective means of rendering the parts of an incandescent electric lamp detachable from each other, a single packing ring only being necessary, for although I prefer to use the ring *b* on the under side of the flange of the

bulb, this ring is used simply to provide a yielding seat for said flange, and has no effect upon the sealing of the bulb.

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

10 1. The combination of the flanged bulb of the lamp with the internally threaded collar having a seat for said flange, the filament carrying plug screwed into said collar and a packing ring interposed between the inner end of said plug and the flange of the bulb, substantially as specified.

15 2. The combination of the bulb having a projecting flange, the collar having a seat for said flange and having also external screw threads of different diameters, the filament-carrying plug screwed into said collar, and a

packing ring interposed between the said plug and the flange of the bulb, substantially as specified. 20

3. The combination of the lamp having a bulb with projecting flange, a collar with seat for said flange, and a filament-carrying plug inserted into said collar, with a vacuum pipe 25 having a socket for receiving the collar and a packed rod provided with means for engaging the plug in order to turn the same, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 30

FRANK L. FOWLER.

Witnesses:

WILLIAM A. BARR,
JOSEPH H. KLEIN.