No. 649,976. Patented May 22, 1900.

J. ATHERTON.

ELECTRIC INCANDESCENT LAMP.

(Application filed July 24, 1899.)

(No Model.)

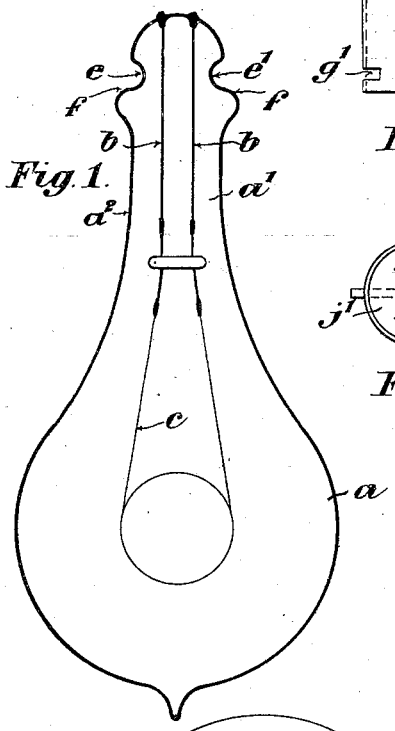

Fig. 1.

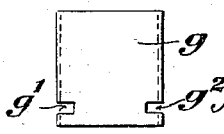

Fig. 5.

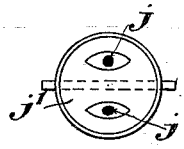

Fig. 6.

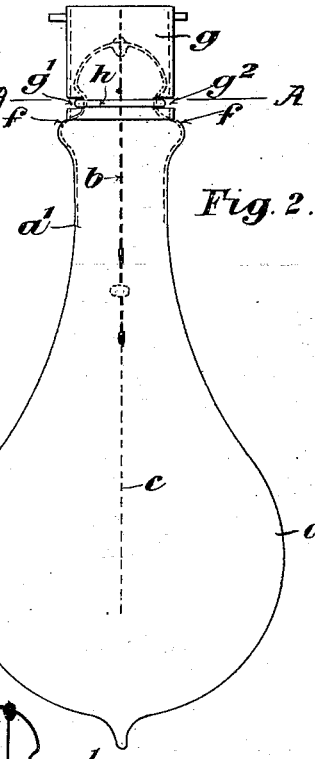

Fig. 2.

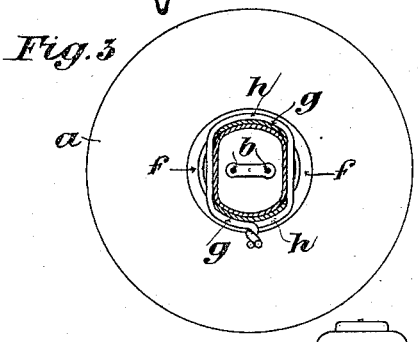

Fig. 3.

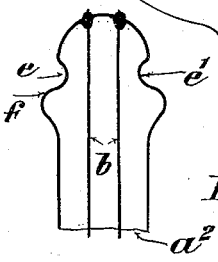

Fig. 7.

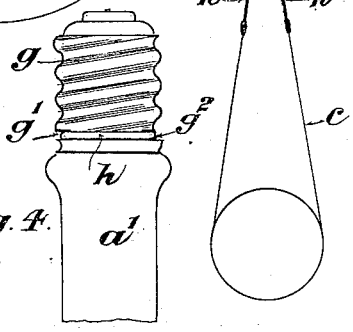

Fig. 4.

Witnesses:-
Arthur Woodman.
Samuel Lear Glenn.

Inventor
Jacob Atherton.
per John A. O'Donnell
Attorney.

UNITED STATES PATENT OFFICE.

JACOB ATHERTON, OF LONDON, ENGLAND.

ELECTRIC INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 649,976, dated May 22, 1900.

Application filed July 24, 1899. Serial No. 724,925. (No model.)

To all whom it may concern:

Be it known that I, JACOB ATHERTON, a subject of the Queen of Great Britain and Ireland, residing at 11 Charing Cross road, London, in the county of Middlesex, England, have invented new and useful Improvements in Electric Incandescent Lamps, of which the following is a specification.

This invention relates to improvements in electric incandescent lamps, and has for its chief object to construct a lamp which can be repaired in a very simple and inexpensive manner after the filaments become broken.

A further object is to provide the lamp with a cap or base which can be readily removed from and effectually secured to the lamp without the use of cement; and my present invention more especially consists in improvements in connection with said cap.

According to my invention the lamp-bulb is formed with an elongated tubular neck, which is blown in one with the bulb, and the said neck can be readily cut or divided by means of a red-hot wire or otherwise to enable a broken filament to be removed and replaced by a fresh one, the detached neck (or part of the neck) being afterward fused onto the bulb. It is of great importance that an easily-removable cap or base should be provided on the lamp-bulb of this construction, as if the ordinary cemented caps were used there would be great danger of the connections or joints being destroyed and the cement also being injured by the heat employed in rejoining the neck of the bulb.

In the construction of the lamp the ordinary filament is attached in any convenient or well-known manner to elongated terminal wires connected to the above-mentioned easily-removable cap, such elongated wires being necessary, owing to the length of the tubular neck on the lamp-bulb. When the lamp is required to be renewed, the elongated neck is cut or divided, as above mentioned, and a new filament already attached to two short connecting pieces or wires (such filaments and connecting-wires being kept in stock for the purpose of renewals) is substituted for the broken one, which is disconnected from the terminal wires, the short connecting-wires on the new filament being fused onto the existing terminal wires in the disconnected neck of the lamp-bulb, the bulb being then fused onto the neck and exhausted in the usual manner, when the lamp will again be ready for use.

In order that my invention may be clearly understood and readily carried into effect, I will describe it with reference to the accompanying drawings, in which—

Figure 1 is an elevation of a lamp according to my present invention with the cap or base removed. Fig. 2 is a view showing my special form of cap attached to the tubular neck of the lamp, the cap in this figure being adapted to fit in the lamp holder or socket by means of the usual bayonet-joint. Fig. 3 is a sectional plan on line A A, Fig. 2. Fig. 4 shows the cap adapted to be screwed into the lamp holder or socket. Fig. 5 is a view of my special cap detached from the lamp; and Fig. 6 is an end view of same, showing the wire terminals. Fig. 7 shows the elongated neck detached from the lamp-bulb and the renewal filament with short connecting-wires.

The same letters refer to the same parts in the several figures.

a, Fig. 1, is the lamp-bulb, provided with the tubular neck *a'*. The main object in making the lamp in this way is that owing to the length of the neck *a'* and its comparatively-small diameter it can be readily separated or cracked by means of a red-hot wire or otherwise and readily re-fused to the bulb after the new filament has been inserted without injuring the terminal wires where they pass through the glass.

b b are the terminal wires, and *c* is the filament. The top or end of the elongated neck *a'* is formed with recesses or indentations *e e'* on opposite sides thereof, also a bead or shoulder *f*. The cap *g*, Fig. 2, has slots or openings *g' g²* on opposite sides thereof, which slots correspond with the recesses *e e'*, respectively, in the elongated neck *a'*.

h is a wire ring which fastens the cap *g* to the lamp, said wire taking in the slots *g' g²* in the cap *g* and in the recesses *e e'* in the elongated neck *a'*, the inner end of cap *g* resting on the shoulder *f*. It is obvious that the wire ring *h* can be readily removed, so that the cap *g* can be taken off the lamp, and it can be as easily replaced.

j represents the terminals of the cap g, and j' the insulating material in which said terminals are set.

In Fig. 7, $k\,k'$ are the short connecting-wires to which the renewal filament is attached.

Assuming that the filament of the lamp is broken and that it is desired to replace it by a new one, it is only necessary to crack the glass around the tubular part or neck of the lamp at a suitable point, such as a^2, Fig. 1, then withdraw the damaged filament, cutting the wires $b\,b$, reinsert the fresh filament with short connecting-wires attached, joining said short connecting-wires $k\,k'$, Fig. 4, to the existing terminal wires $b\,b$ in the neck a', then re-fuse the bulb a onto said neck, and replace the cap g, which has been removed, as above mentioned. The lamp can be exhausted in any convenient manner, and will then be ready for use again.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In an incandescent lamp, the combination, with a cap having slots $g'\,g^2$ one on each side thereof, of a bulb provided with a neck having indentations which come opposite the said slots, and a wire wound circumferentially around the cap into engagement with the said slots and indentations and having its end portions twisted together, substantially as set forth.

JACOB ATHERTON.

Witnesses:
S. CHEESWRIGHT,
W. WHESON.