

(No Model.)

2 Sheets—Sheet 1.

E. KAYE.
INCANDESCENT ELECTRIC LAMP.

No. 530,895.

Patented Dec. 11, 1894.

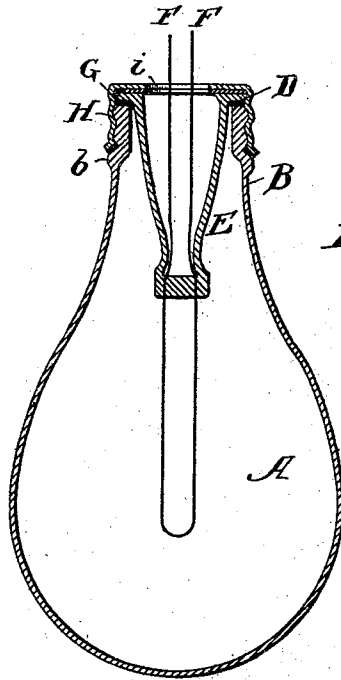


Fig. 1.

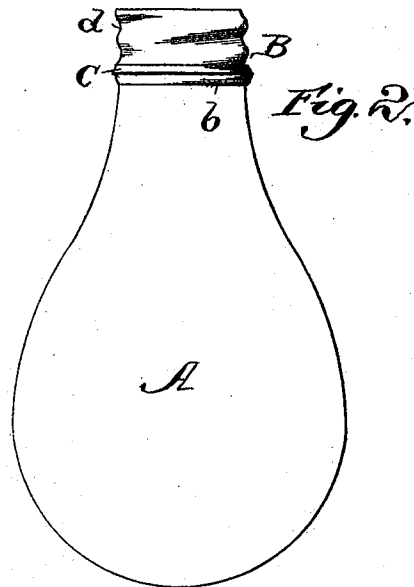
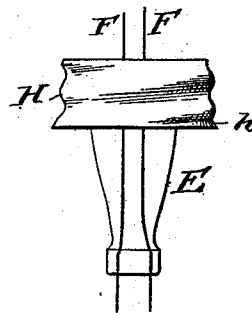


Fig. 2.

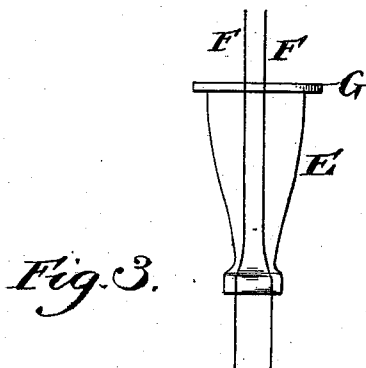


Fig. 3.

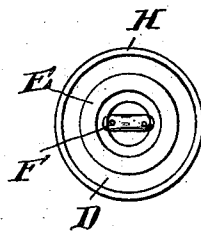


Fig. 4.

Witnesses
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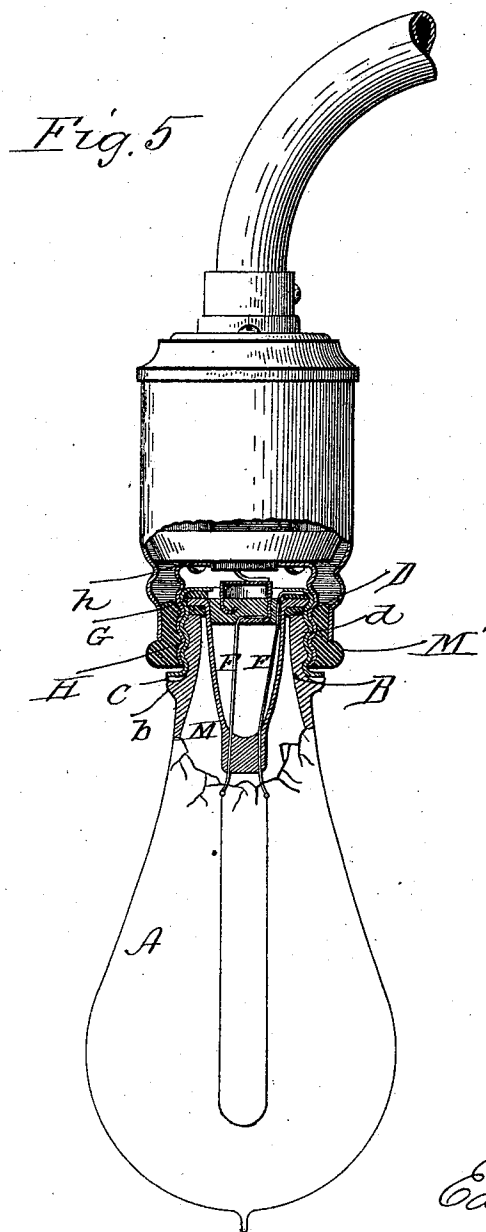
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2 Sheets—Sheet 2.

E. KAYE.
INCANDESCENT ELECTRIC LAMP.

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Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD KAYE, OF MONACA, PENNSYLVANIA.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 530,895, dated December 11, 1894.

Application filed February 4, 1893. Renewed November 10, 1894. Serial No. 528,430. (No model.)

To all whom it may concern:

Be it known that I, EDWARD KAYE, a citizen of the United States, residing at Monaca, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to electric lighting by incandescence, and has for its object the provision of a novel form and construction of bulb and appurtenant parts for the reception of the filament.

In the bulbs in general use in lighting by incandescence, the leading-in wires to which the filament is secured have been sealed in a glass cylindrical section, stopple or cane, and the latter has been sealed by fusion with the body of the bulb, so as to constitute with the latter a single integral piece of glass, but the process of sealing the leading-in wires in the glass of the stopple and subsequently sealing the latter to the body of the bulb by fusion is difficult and costly, as it necessitates the employment of highly skilled artisans and the output of each worker is at best comparatively small, owing to the complexity of the operation and the percentage of loss in breakage due to the fragile character of the material and parts operated on.

The sealing of the leading-in wires and the fusion of the stopple or cane to the body of the bulb are ordinarily done at the electric lamp factory, the bulbs being manufactured at the glass factory and accordingly two forces of skilled glass-workers are necessarily employed.

In carrying my invention into effect I propose to prepare the body of the bulb and a plug or stopple with the leading-in wires embedded and sealed therein at the glass house or manufactory, and to furnish these parts ready for the attachment and insertion of the filament and the creation of the vacuum to hands skilled in that branch of manufacture, the construction of the body of the bulb, the plug or stopple and appurtenant parts being such, according to my improvements, that the plug or stopple can be readily and speedily inserted in position and securely sealed to

the body of the bulb without fusion of any of the parts or particularly skillful manipulation. I further propose to so construct the bulb and the stopple that these parts can be made to such size and in such manner that they may be taken apart for the replacement of a broken filament, or that either may be replaced when damaged or broken by a similar piece taken from stock. My invention consists in the novel construction, combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of my improved lamp or bulb and its appurtenant parts joined together; Fig. 2, a side elevation showing the bulb and the plug or stopple detached and ready for attachment; Fig. 3, a side elevation of the vitreous portion of the plug or stopple with the leading-in wires sealed in position; Fig. 4, a top view of the stopple. Fig. 5, is a vertical central section of the lamp inserted in a socket.

A, designates the body of the bulb, and B, the neck of the same. A shoulder *b* is formed on the neck B, and a gasket C, of rubber or other suitable material surrounds the neck and seats against this shoulder. Below the shoulder *b*, a screw-thread *d* is formed on and integral with the neck B, and the end of the neck is ground flat, forming a seat for a second gasket D, similar to the gasket C, but of somewhat smaller diameter.

E, designates the plug or stopple which is in form a hollow cone of such width at the base as that the latter will fit neatly into the open neck of the bulb.

F, F, designate the leading-in wires which pass through the hollow center of the plug or stopple and are sealed therein by heating the glass at the narrow end of the plug until it is soft, and then compressing it against and around the wires.

A flange G, is formed on the plug at its base, and when the plug is in position in the bulb the gasket D, lies between this flange and the ground end of the neck of the bulb.

H, designates a collar or cap made preferably of spun metal and with a screw thread on its inside adapted to engage the screw-thread *d* on the neck of the bulb. A lateral flange *h*, is formed on the edge of the cap and when the latter is screwed onto the neck of

the bulb, the gasket C is compressed between this flange and the shoulder *b*, on the neck.

The end of the collar or cap H, has a hole *i* in its center through which the leading-in wires may pass and one of these wires may be soldered to the cap and the latter, being spun with a screw-thread, as before described, may be screwed into a lamp socket of the ordinary character. The thread on the inside of the cap which engages with the thread on the neck of the bulb being spun or pressed in the cap is projected on the outside of the same and constitutes a thread which will engage with a screw-threaded socket or holder *M'*, as shown in Fig. 5, of the drawings.

The parts being constructed as described are put together in the following manner: The plug or stopple first has the leading-in wires sealed into it in the manner hereinbefore described, and the gasket C, is placed in position on the neck B. A small quantity of soft plaster of paris, or other plastic material, is placed in the bottom of the collar or cap H, and the plug or stopple is pressed down on the plastic, the flange G, sinking into the plastic and the latter rising around the edges and spreading over the top of the flange. The gasket D, is then passed down over the conical part of the plug and upon the top of the flange, and adheres to the plastic thereon. The filament is attached to the leading-in wires after the plug or stopple has been secured in the cap in the manner described and the plug and its filament are securely attached to, and sealed in, the bulb by screwing the cap on the neck of the bulb, thus bringing the flange on the edge of the cap into contact with the gasket C, and the ground end of the neck of the bulb into contact with the gasket D. If desired, the hollow center of the plug may be filled with a suitable plastic material. After the plug and filament are attached in position, as described, the vacuum is established in the ordinary manner, thus completing the manufacture of the bulb.

Having described my invention, I claim—

1. In an incandescent electric lamp, the combination of a bulb having a threaded neck and shoulder, and a stopple or plug having a flange, leading in wires sealed in said plug and a filament connected to said wires, with a cap screwing on said neck and gaskets fitting against the shoulder and the end of the neck, said cap being constructed and adapted to fit into a lamp socket, substantially as described.

2. An incandescent electric lamp, having a threaded neck, in combination with a removable plug or stopple and a cap threaded interiorly to screw onto said neck and threaded exteriorly to screw into a lamp socket, substantially as described.

3. An incandescent electric lamp, comprising a bulb, a plug or stopple having leading in wires sealed therein, and connected to the incandescing filament, and a cap or ferrule securing said plug and bulb together, and constructed and adapted to fit into a lamp socket

and forming the connection between the lamp and the socket, to which socket it is mechanically connected or coupled, substantially as described.

4. An incandescent electric lamp, comprising a bulb having a neck, a plug or stopple inserted in said neck and formed with a flange at its base, leading in wires sealed in said plug or stopple and connected to the incandescing filament and a cap or ferrule which covers said flange and connects the bulb and plug together, said cap or ferrule being electrically connected to the filament and constructed and adapted to fit into a lamp socket to which it is mechanically connected or coupled.

5. An incandescent electric lamp, comprising a bulb having a neck, a tubular plug or stopple inserted in said neck and formed with an outwardly projecting flange, leading in wire inserted and sealed in said plug and connected to an incandescing filament and a cap or ferrule covering said flange and connecting the bulb and plug together, said cap or ferrule being electrically connected to the filament and adapted to fit into a lamp socket and to be mechanically coupled or interlocked therewith.

6. An incandescent electric lamp, comprising a bulb having a neck, a plug or stopple inserted in said neck, and having a widened base, leading in wires sealed in said plug and connected to an incandescent filament, and a metallic cap or ferrule secured to said neck and connecting said bulb and plug together, said cap or ferrule being electrically connected to the filament and constructed and adapted to fit into a lamp socket and to be mechanically coupled or interlocked therewith.

7. An incandescent electric lamp, comprising a bulb having a neck, a plug or stopple inserted in said neck and detachable therefrom, leading in wires sealed in said plug and connected to an incandescing filament, and a cap or ferrule covering the base of said plug and detachably secured to the neck of the bulb, said cap or ferrule being electrically connected to the filament and constructed and adapted to fit into a lamp socket and electrically connect the filament and socket and provided with means for mechanically coupling or interlocking the cap and socket together.

8. An incandescent electric lamp, comprising a bulb having a screw threaded neck, a screw threaded metallic ferrule fitted on said neck, and a hollow glass plug or stopple fitting within said neck and held in place by said ferrule, said plug or stopple having one end open and the other end closed and holding the leading in wires, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD KAYE.

Witnesses:

A. M. JOHNSON,
H. J. SPEYEDE.