

A. A. CHAILLET.
INCANDESCENT ELECTRIC LAMP.

(Application filed Oct. 22, 1900.)

(No Model.)

Fig. 1,

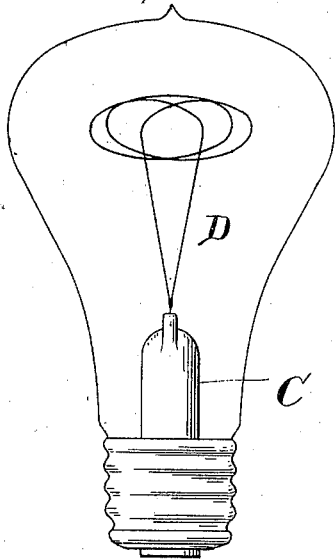


Fig. 2,

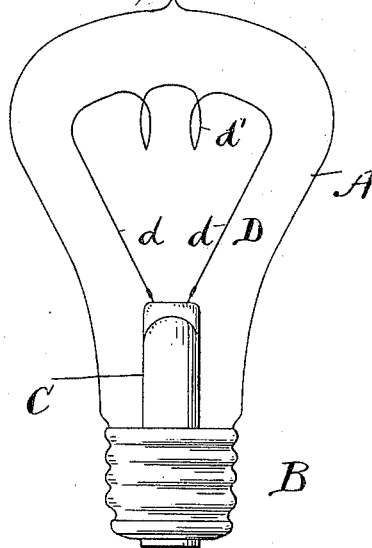


Fig. 3,

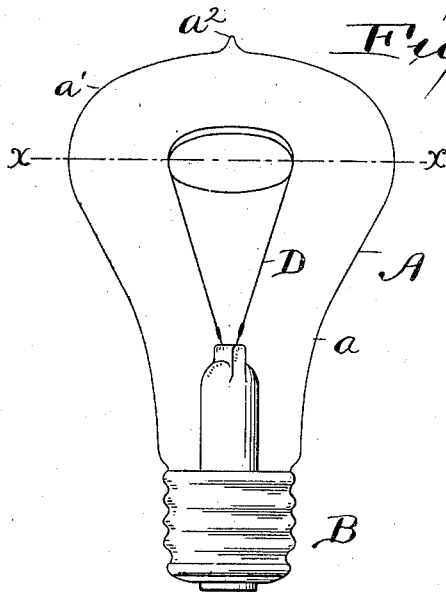
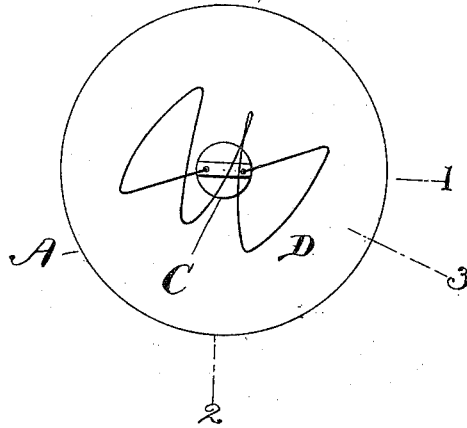


Fig. 4,



Witnesses:
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UNITED STATES PATENT OFFICE.

ADOLPHE A. CHAILLET, OF SHELBY, OHIO, ASSIGNOR TO THE SHELBY ELECTRIC COMPANY, OF SHELBY, OHIO, A CORPORATION OF OHIO.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 701,295, dated June 3, 1902.

Application filed October 22, 1900. Serial No. 33,855. (No model.)

To all whom it may concern:

Be it known that I, ADOLPHE A. CHAILLET, a citizen of the French Republic, residing at Shelby, in the county of Richland and State of Ohio, have invented a certain new and useful Improvement in Incandescent Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The object of my invention is to provide an incandescent electric lamp in which the intensity of the light shall be greatest where it is most useful. The great majority of incandescent lamps are supported from above, depending more or less nearly vertically. Now
15 the common and natural method of coiling the filament is such that the greatest intensity is emitted in a horizontal direction, where it is not nearly as useful as if emitted through
20 the tip end of the lamp or opposite its base, while the intensity decreases from the horizontal plane downward to the vertical. To overcome this waste of light in the horizontal direction, it has long been customary to
25 provide reflectors intended to direct the rays downward.

I have discovered and devised a peculiar coil of the filament which will emit light in its greatest intensity through the lower hemisphere of the pendent globe, while the difference between the mean intensity at any angle below the horizontal plane and the vertical shall be greatly reduced, whereby when the lamp is supported in any of its customary
35 pendent positions its greatest intensity of light shall be within the useful downward cone of rays. To still further intensify this downward projection of the rays, I form the globe in a peculiar manner, so that the rays
40 will not lose intensity by refraction, but will pass perpendicularly through the globe. I am thus enabled to obtain a lamp which with the same candle-power will throw about thirty per cent. more light downward, whereby the
45 net efficiency of the lamp is greatly increased and the necessity of reflectors is avoided.

Besides its use singly, my lamp has particular advantages when used in clusters, for in such clusters the usual and most convenient
50 arrangement places the lamps beside each other, whereby a large portion of the rays of

the ordinary lamp being emitted horizontally are useless, simply illuminating the adjacent lamps and the space behind and above them. With my lamp, the projection of the rays being
55 downward, the lamps can be clustered side by side at angles of, say, from thirty degrees to sixty degrees from the vertical and the whole useful light obtained from each lamp.

60 My invention includes the filament as I coil it to obtain the above-described effect; also the combination therewith of the peculiarly-constructed globe.

The filament is coiled in a form which presents a loop elongated transversely of the axis of the lamp, preferably a series of substantially elliptical loops the major axis of which is transverse to the longitudinal axis of the lamp or to the plane bisecting the angle
65 which the legs of the filament make.

The globe is of a piriform or general pear shape, but flattened at its tipped end, so as to be substantially parallel with the lower lines of the filament-loops when the lamp is
75 suspended from above. This prevents refraction of the rays, allowing them to pass through the glass perpendicularly.

The drawings clearly illustrate my invention.

80 Figures 1, 2, and 3 are side elevations of the lamp; and Fig. 4 is a plan, the various elevations being taken from correspondingly-numbered arrows about Fig. 4.

Referring to the parts by letters, A represents the globe, B the socket-cap secured to the lower end thereof, and C the mount for the filament. The socket-cap and mount may be of any desired form. Supported from the upper end of the mount is the filament D.
85 The two legs d of this filament in the preferable form flare in substantially straight lines and are then connected by the series of more or less nearly elliptical loops d' , as shown. These loops have their major axes at right
90 angles to the longitudinal axis of the lamp.

The globe flares from the cap preferably in a slightly concave curve a to give it a graceful appearance until it is opposite the ends of the major axes of the filament, when it rounds
100 abruptly to the tip a^2 , the extreme end of the globe being nearly flat. The globe from the

intersecting plane in which the major axes of the ellipses of the filament approximately lie (indicated by the broken line xx in Fig. 3) is thus a dome a' , every axial section of which
 5 is substantially a semi-ellipse of a curvature corresponding to the curvature of the ellipses of the filament. I use the term "dome end" of the lamp to mean the end ordinarily hav-
 10 ing the sealed off point or tip a^2 , whether that tip is present or not.

The major axes of the ellipses of the fila-
 15 ment are preferably not exactly in the same plane, but occupy a curving plane substan-
 tially parallel with the surface of the globe at its end. Thus the globe is substantially equi-
 20 distant from the filament for the whole of its lighted end, and the most useful rays pass through the globe substantially perpendicu-
 lar thereto, whereby very little of their effect is lost in refraction.

Having described my invention, I claim—

1. In an incandescent electric lamp, a fila-
 25 ment having consecutive convolutions which form a helix whose axis is transverse to the
 axis of the lamp, the helix being flattened in a direction parallel with the axis of the lamp,
 substantially as described.

2. In an incandescent electric lamp, a fila-
 30 ment coiled to form a helix whose longitudi-
 nal axis is in a plane at right angles to the axis of the lamp, the helix being flattened in a direction parallel with the axis of the lamp,

combined with a pear-shaped globe flattened on its end to correspond to the flattening of the helix, substantially as described. 35

3. In an incandescent electric lamp, a fila-
 40 ment coiled in a plurality of convolutions to make a helix transverse to the axis of the lamp, the helix being flattened parallel with the axis of the lamp and terminating on op-
 45 posite sides of its greater diameter, the fila-
 ment-legs leading diagonally directly from such terminations, substantially as described.

4. In an incandescent electric lamp, a fila-
 50 ment coiled in a plurality of convolutions to make a helix having its longitudinal axis in a plane at right angles to the axis of the lamp, the convolutions being shortened parallel with the axis of the lamp, and the helix ter-
 55 minating on opposite sides of its greater di-
 ameter, the filament leading therefrom in two substantially straight diagonal legs, com-
 bined with a globe of a pear shape flattened on its dome end and carrying internally a
 mount in which the extreme ends of said fila-
 ment-legs are fastened, substantially as de-
 scribed.

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

ADOLPHE A. CHAILLET.

Witnesses:

J. A. FISH,
 L. D. HARPER.