

R. BERRENBURG.
 INCANDESCENT ELECTRIC LAMP AND METHOD OF RENEWING THE SAME.
 APPLICATION FILED NOV. 23, 1911.

1,038,076.

Patented Sept. 10, 1912.

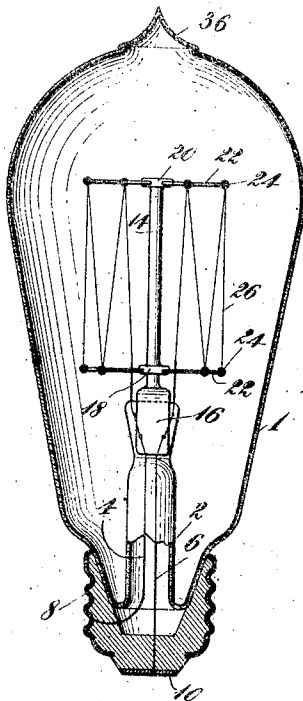


FIG. 1.

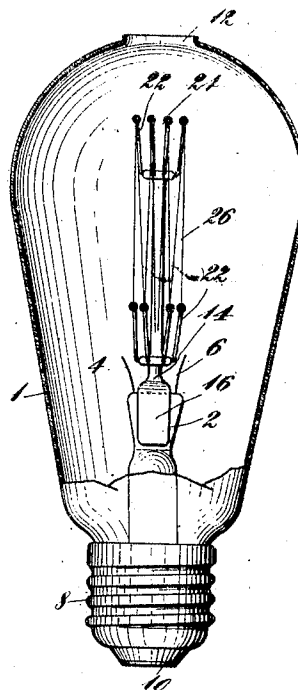


FIG. 2.

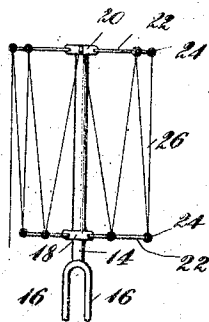


FIG. 3.

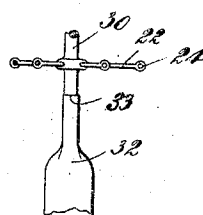


FIG. 5.

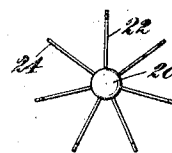


FIG. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

REINOLD BERRENBURG, OF BOSTON, MASSACHUSETTS.

INCANDESCENT ELECTRIC LAMP AND METHOD OF RENEWING THE SAME.

1,038,076.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed November 28, 1911. Serial No. 662,336.

To all whom it may concern:

Be it known that I, REINOLD BERRENBURG, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Incandescent Electric Lamps and the Methods of Renewing the Same, of which the following is a specification.

This invention relates to an improvement in incandescent electric lamps and the method of renewing the same.

The object of the invention is to produce renewed electric lamps with metal filaments by utilizing cast-off carbon or other incandescent electric lamps and replacing their filaments with new metal filaments.

I will describe my invention in the following specification and point out the novel features thereof in the appended claims.

In the accompanying drawing Figure 1 is a sectional elevation of a completed renewed incandescent electric lamp, showing one embodiment of my invention, Fig. 2 is a view showing the filament support after it has been inserted in the lamp, but before the radiating arms have been straightened to their normal position and the end of the bulb sealed, Fig. 3 is a side elevation of one form of filament carrier with the filament threaded thereon, Fig. 4 is a plan view of the same, and Fig. 5 is a fragmentary view showing a modified form of filament carrier.

A common form of incandescent electric lamp comprises a glass globe 1, provided at its inner end with a leading-in stem 2, within which the leading-in wires 4 and 6 are sealed. One of the leading-in wires, 4 for example, is connected to the screw-threaded metal shell 8, and the other leading in wire, 6, is connected to the center contact 10, insulated from the shell 8. In renewing cast-off or burned out carbon lamps, it is customary to break off the tip end of the lamp bulb, then produce a hole 12 of the desired diameter, through which an implement is inserted for breaking off the carbon filament and detaching it from the leading-in wires.

It is one purpose of this invention to utilize this old lamp structure to produce a metallic filament lamp, preferably a lamp having a drawn wire filament such as tungsten.

It is also the purpose of this invention to renew tungsten, tantalum, and other metal filament lamps by replacing their old filaments by a new wire drawn filament.

One illustrative embodiment of the invention comprises a filament carrier composed of a rod 14, preferably of glass, and bifurcated at its lower end to form fingers 16, which are flattened somewhat and separated so as to fit the flat sides of the glass leading-in stem 2. The rod 2 is preferably enlarged at 18 and 20, and into these enlarged portions a series of radiating flexible arms or supports 22, preferably of wire, are sealed. These arms are provided at their outer ends with loops or eyes 24, through which the filament 26 is threaded.

Another illustrative embodiment of the invention is shown in Fig. 5; in which the filament carrier comprises a rod 30, having its attaching end preferably flat so that it may be cemented, or otherwise affixed to the leading-in stem 32 by a butt joint between a flat surface 33 on the inner end of the stem, and the opposing flat end of the rod 30. This form of carrier is adapted primarily for use in metal filament lamps, such as tantalum, tungsten and the like, having a glass filament carrier which can be broken off and replaced by my new carrier. This form of carrier may also be used with other types of lamps in which a flat attaching surface is provided at the end of the leading-in stem.

In order to insert the filament carrier and filament in the lamp bulb, the arms 22 are bent up close to the rod 14 so that the structure can be inserted through the hole 12 in the tip end of the bulb. The carrier shown in Figs. 1, 2 and 3 is placed in position on the leading-in stem 2, with its flattened fingers 16 straddling said stem and in engagement with the flat sides thereof, said fingers having been previously coated with a suitable cement. When renewing a lamp having a flat ended stem, as shown for example in Fig. 5, the carrier is inserted in the same manner as described above, except that its flat end is coated with cement and butted against the flat surface 33 on the inner end of the leading-in stem or what was formerly the root of the glass rod in the old lamp. After the cement has set, the arms or wires 22 are straightened out, and the ends of the filament are connected to the leading-in wires 4 and 6. Then a glass tube is fused to the tip end of the bulb at the hole 12, in a well known manner now common in renewing carbon lamps, and the lamp connected to a pump for exhaustion.

When the required degree of vacuum is obtained in the bulb, the tube is sealed off to form the new tip 36, and the lamp is complete.

5 While I have illustrated and described two illustrative embodiments of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope
10 of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction shown and described, but

What I claim is:—

15 1. A renewed incandescent electric lamp, comprising a bulb, a leading-in stem in said bulb, a filament-carrier cemented to said leading-in stem having a plurality of series of radiating supports, and a metallic fila-
20 ment mounted on said supports.

2. A renewed incandescent electric lamp, comprising a bulb, a leading-in stem in said bulb, a filament-carrier having one end bifurcated and secured to said stem, and a
25 flexible metallic filament mounted on said carrier.

3. A renewed incandescent electric lamp, comprising a bulb, a leading-in stem in said bulb, a glass filament-carrier cemented to
30 said leading-in stem, a plurality of apertured radiating arms mounted on said carrier, and a flexible metallic filament threaded through the apertures in said arms.

4. A renewed incandescent electric lamp,
35 comprising a bulb, a leading-in stem in said bulb, a glass filament-carrier cemented to said leading-in stem, a plurality of series of flexible wires radiating from said carrier, each provided with an eye at its outer end,
40 and a flexible metallic filament threaded through said eyes.

5. The method of renewing incandescent electric lamps, which consists in forming an
45 aperture in the tip end of the lamp bulb, inserting a filament carrier with a filament

threaded thereon through said aperture, cementing the carrier to the leading-in stem within the bulb, connecting the filament to the leading-in wires, and resealing the bulb

6. The method of renewing incandescent
50 electric lamps, which consists in forming an aperture in the tip end of the lamp bulb, inserting a filament carrier having flexible arms upon which a filament is threaded through said aperture, said arms being po-
55 sitioned to enable the entire filament and carrier to be inserted through said aperture, affixing the filament carrier to the leading-in stem, connecting the filament to the leading-in wires, exhausting the bulb, 60 and resealing the bulb.

7. The method of renewing incandescent electric lamps, which consists in forming an aperture in the tip end of the lamp bulb, inserting a filament carrier having flexible
65 arms upon which a filament is threaded through said aperture, said arms being positioned to enable the entire filament and carrier to be inserted through said aperture, affixing the filament carrier to the leading-in
70 stem, spreading out the flexible arms, connecting the filament to the leading-in wires, exhausting the bulb, and resealing the bulb.

8. The method of constructing renewed incandescent electric lamps, which consists
75 in mounting the filaments upon their supporting wires, bending the supports together, inserting the structure through an aperture in the tip end of the lamp bulb, affixing the filament carrier to the leading-in
80 stem within the lamp, bending outward the supporting wires and spreading the filaments, and resealing the bulb.

In testimony whereof I have affixed my signature, in presence of two witnesses.

REINOLD BERRENBURG.

Witnesses:

CHARLES E. DOW,
WILLIAM J. SPERL.