(No Model.)

E. E. WEAVER & G. B. MANYPENNY.

INCANDESCENT ELECTRIC LAMP.

No. 476,501. Patented June 7, 1892.

Fig. 1.

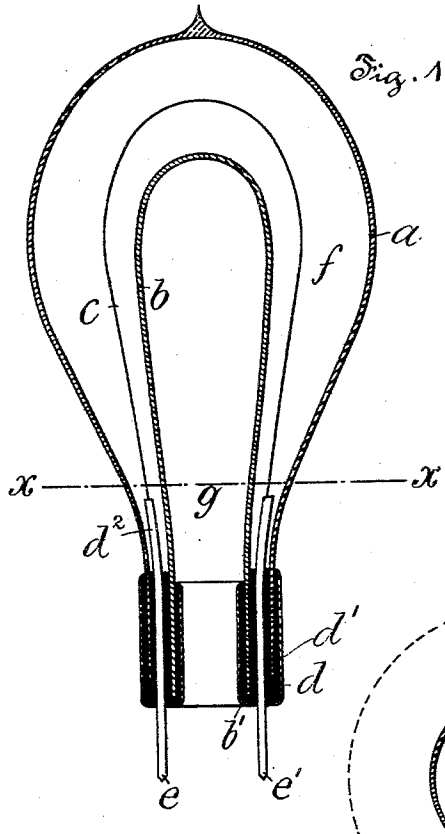


Fig. 2.

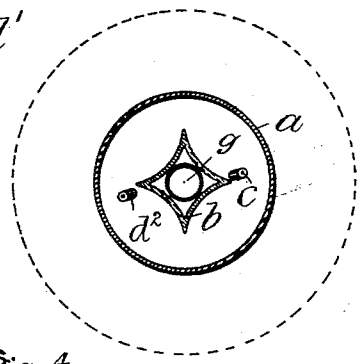


Fig. 3.

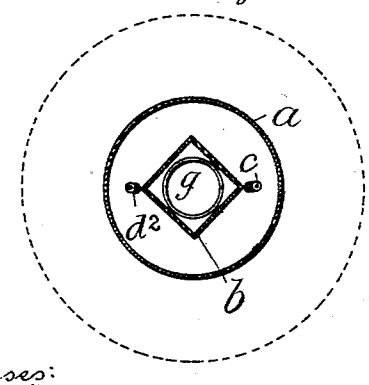
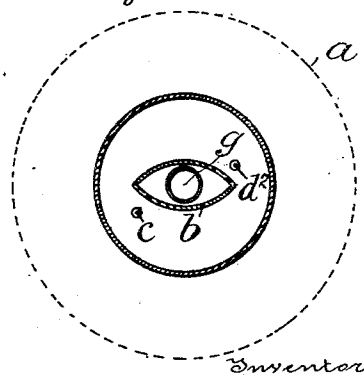


Fig. 4.



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Atty.

UNITED STATES PATENT OFFICE.

EPHRAIM E. WEAVER AND GUSTAVUS B. MANYPENNY, OF PHILADELPHIA, ASSIGNORS OF ONE-FOURTH TO JOHN WOOLMAN COMFORT AND WILLIAM STEELE AMBLER, OF JENKINTOWN, AND JOHN CUNNINGHAM, JR., OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 476,501, dated June 7, 1892.

Application filed December 5, 1891. Serial No. 414,093. (No model.)

To all whom it may concern:

Be it known that we, EPHRAIM E. WEAVER and GUSTAVUS B. MANYPENNY, citizens of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

Our invention relates in incandescent electric lamps to means for enhancing the brilliancy or illuminating power and effect thereof beyond the normal candle-power of the same without having to increase the electro-motive force of the current employed for producing the incandescent illumination of the lamps.

The principal object of our invention is to provide a simple, durable, and comparatively inexpensive device or appliance for enhancing the brilliancy or illuminating power and effect of an incandescent electric lamp beyond the normal candle-power thereof and without increasing the electro-motive force of the current employed in the line-circuit for effecting the incandescent illumination thereof.

Our invention consists of an incandescent electric lamp having a hollow reflector of irregular, square, or elliptical cross-section forming the inner wall of the vacuum-chamber of the lamp and a filament, the two parts of which are disposed in proximity to the points or ends of the reflector and supported by electrodes sealed to the socket of the lamp, the construction and arrangement of the hollow reflector being such that a supply of air is permitted around about the internal surface, whereby overheating or other damage to the reflecting-body of the lamp is prevented, substantially in the manner hereinafter described.

The nature and objects of our invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a vertical central section of an incandescent lamp embodying features of our invention and showing a body or substance of reflecting material or matter disposed between or about the filament of the lamp. Figs. 2, 3, and 4 are horizontal sections illustrating, respectively, the employment of reflecting substances or materials of irregular, square, or elliptical cross-section.

In the drawings, *a* is the exterior bulb of the lamp.

b is the body or substance of reflecting material disposed within the loop of the filament *c*. This body or substance *b* may be of curvilinear cross-section, as illustrated in Figs. 2 and 5, or of rectangular or square cross-section, as shown in Figs. 3 and 4, or of any other preferred form or shape of cross-section, and may be made of any suitable material that is provided with a surface that is adapted to reflect light. In the present instance the body or substance *c* is made of glass internally coated with silver and with a suitable amalgam, such as mercury, and this body is in the present instance of the form of a bulb or cylinder, sealed at its upper extremity and open at its lower extremity *b'*.

d is an annular socket provided with a recess *d'* for the reception of the neck of the exterior bulb *a* and with electrodes d^2 for connecting the filament *c* with the conductors or circuit connections *e* and *e'*. The lower open extremity *b'* of the reflecting body or substance *b* is fitted into the annular socket *d*, and a vacuum-chamber *f* is formed around the filament *c* and between the exterior bulb *a* and the reflecting-body *b*.

By reference to Fig. 1 it will be observed that a passage *g* is provided in the reflecting bulb or cylinder *b* for the admission of a supply of air into the interior thereof.

In use the rays of light emanating from the filament *c* and falling upon the body or substance *b* are reflected outward from the lamp, and thus the available amount of illumination or candle-power given off by the lamp is greatly augmented.

The body or substance *b* is protected from any injury that might result to it by reason of its being in close proximity to the incandescent filament *c* by means of currents of air that constantly circulate through the passage *g* and around the interior of the reflecting body or substance *b*.

Having thus described the nature and objects of our invention, what we claim as new, and desire to secure by Letters Patent, is—

The herein-described incandescent electric lamp, provided with a hollow reflector of irregular, square, or elliptical cross-section forming the inner wall of the vacuum-chamber thereof, and a filament having the two parts thereof disposed in proximity to the points or ends of the hollow reflector, and said filament, connected with electrodes, sealed to the socket of the lamp, the construction and arrangement being such that a supply of air is afforded around about the internal surface of the reflector, whereby overheating or other damage to the reflector of the lamp is prevented, for the purposes set forth.

In witness whereof we have hereunto set our signatures in the presence of two subscribing witnesses.

EPHRAIM E. WEAVER.
GUSTAVUS B. MANYPENNY.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.