(No Model.) 2 Sheets—Sheet 1.

W. STANLEY, Jr.

INCANDESCENT ELECTRIC LAMP.

No. 363,559. Patented May 24, 1887.

Fig. 1.

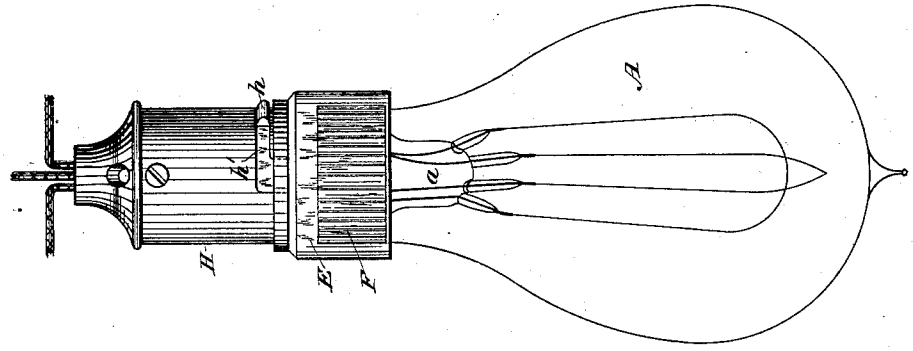


Fig. 2.

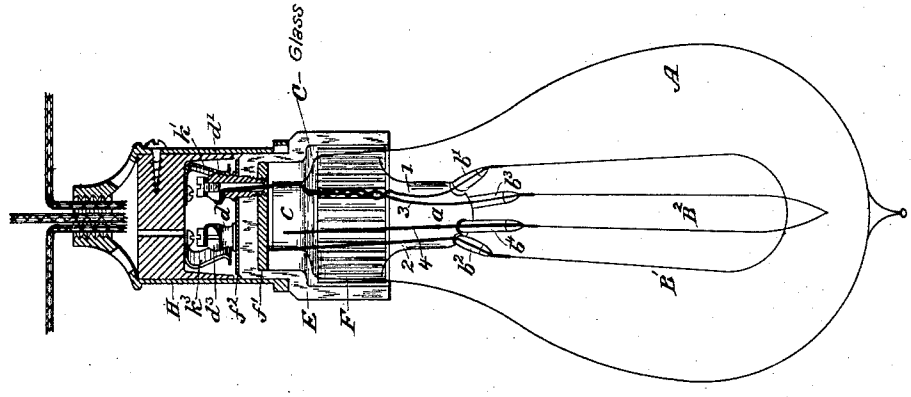
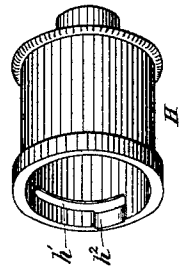
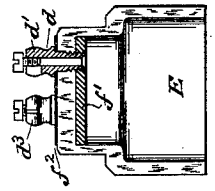


Fig. 5.





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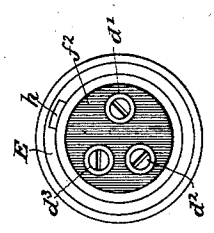


Fig. 4.

Witnesses.

J. Thornton Bell.

Rowena C. Jones.

Inventor.

William Stanley, Jr.

by Pope & Edgecomb

Attorneys.

N. PETERS. Photo-Lithographer. Washington, D. C.

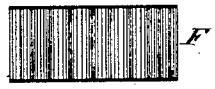
(No Model.) 2 Sheets—Sheet 2.

W. STANLEY, Jr.

INCANDESCENT ELECTRIC LAMP.

No. 363,559. Patented May 24, 1887.

Fig: 6.



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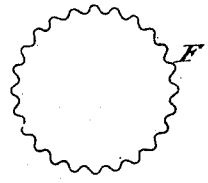

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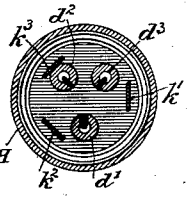


Fig: 9.

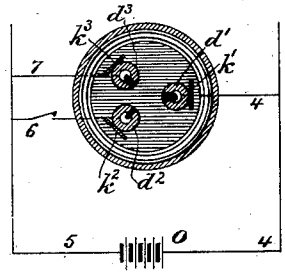


Fig: 10.

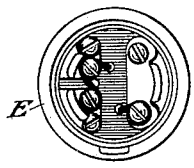


Fig: 11.

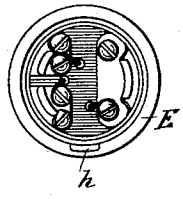
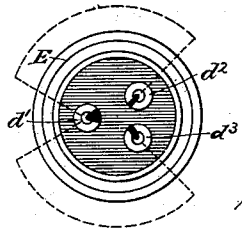


Fig: 12.



Witnesses
J. Thornden Pell.
Romeva C. Gould

Inventor
William Stanley, Jr
by Pope & Edgecomb
Attorneys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM STANLEY, JR., OF GREAT BARRINGTON, MASSACHUSETTS, ASSIGNOR TO GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 363,559, dated May 24, 1887.

Application filed October 8, 1885. Renewed September 4, 1886. Serial No. 212,751. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STANLEY, JR., a citizen of the United States, residing at Great Barrington, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

The invention relates particularly to the construction of large incandescent electric lamps—such, for instance, as are designed to furnish a light of one hundred candle-power or more.

The special object of the invention is to provide a lamp and lamp-holder suited thereto which shall be of such construction as will permit the lamp to be made of sufficient size to furnish the required amount of light.

In carrying out the invention the lamp is constructed in substantially the following manner: A large globe, which may with advantage be some eight inches in height and five inches in width, is employed as a vacuum-chamber. In this there are preferably placed two independent filaments supported in planes crossing each other at right angles. The loop of one filament extends beyond that of the other, and for this reason its supporting-points are preferably in a lower plane than those carrying the other filament. The upper end of the globe is provided with a short neck, which is designed to fit within a pressed-glass cup provided with means of attachment to the holder. The neck is preferably encircled by a corrugated brass or copper strip, which allows of expansion and contraction of the neck of the globe, and at the same time holds it securely in position. The conducting-wires are led through the neck into the cup, where they are fastened to suitable binding-posts inserted at the lower end of the cup. Preferably, two conductors leading to the respective filaments are secured to one binding-post, and the remaining two conductors lead from the remaining ends of the filaments to independent binding-posts, so that the circuits through the two are independent of each other.

The cup is preferably secured to its holder by means of a lug upon the cup and a bayonet-joint formed in the holder. The binding-posts which project from the end of the cup are constructed with their outer ends larger than the portions near their points of support. Suitable contact-springs are placed in the holder for forming the electrical connections with the respective binding-posts, and these at the same time tend to hold the cup within the holder by reason of their ends passing beyond the large portion of the binding-posts and pressing into the narrowed necks.

The holder is supported upon a suitable fixture, through which the conductors are led to and from the lamp.

In the accompanying drawings, Figures 1 and 2 are respectively an elevation and a section of the lamp and its holder. Figs. 3 and 4 are respectively a section and a plan view of the cup, and Fig. 5 a perspective view of the holder. Figs. 6 and 7 show the corrugated metal washer applied to the neck of the lamp. Figs. 8 to 12 show certain details in the construction of the holder. In Fig. 9 an arrangement of circuits is illustrated.

Referring to the drawings, A represents a suitable vacuum-chamber, which is preferably constructed with a re-entrant portion, *a*, carrying suitable supports, b' b^2 b^3 b^4, for the filaments B′ and B². The supports b' and b^2 do not extend so far from the main portion *a* as do the supports b^3 and b^4. The former carry the filament B′, while the latter carry the filament B², and the parts are so placed that the two filaments cross each other at right angles; but by reason of the difference in the lengths of the supports the filament B² crosses the plane of the filament B′ beyond the end of the loop of the latter, the lengths of the two filaments being the same.

The globe A is provided with a neck portion, C, which is narrowed at its end, as shown at *c*. It is designed that the conductors 1, 2, 3, and 4, leading from the filaments, shall extend through the portion *c* of the neck to suitable binding-posts or cups, d', d^2, and d^3. The two conductors 1 and 3 preferably lead to the post d', and the remaining conductors, 2 and 4, to the posts d^2 and d^3, respectively. The neck of the globe is designed to enter a suitable glass cup,

E, which is preferably of pressed glass, and it is secured in position by means of the conductors, which are fastened to the binding-post. A collar or washer, F, intervenes between the neck of the globe and the sides of the cup E. The collar is preferably of corrugated copper or other metal, and while it holds the neck of the globe tightly and prevents it from jarring, it at the same time permits it to expand and contract when heated and cooled without injury.

The cup E is narrowed at its upper end, through which the three binding-screws d', d^2, and d^3 extend. Preferably these are screwed into a washer or plate, f', of non-conducting material, such as vulcanized fiber. A similar plate, f^2, preferably covers the outer or upper surface of the end of the neck, and by this means good insulation is secured.

It is designed that the cup shall enter a metallic holder, H, and be secured thereto by means of a lug, h, entering a bayonet-joint, h', in the metal of the holder. The entrance to the bayonet-joint is not an open slot, but is formed by cutting away the metal, as shown at h^2, leaving a sufficient band to render the holder stiff and rigid at its edge. The lug h is made upon the neck of the cup when the latter is first formed.

Within the metal holder H there are placed three contact-springs, k', k^2, and k^3, which are designed to make contact with the respective binding-posts d', d^2, and d^3. The binding-posts are provided with narrowed necks, as shown at d, and the contact-springs press inwardly toward the binding-posts, so that when the neck of the cup is inserted within the holder the springs tend by their pressure to draw the binding-posts farther into the holder, and they thus tend to hold it rigidly and secure good electrical connections.

It is apparent that the lamp must be turned in the holder after it is inserted. When first inserted, the binding-post d^2 will make contact with the spring k^3; but when the neck is turned so as to lock the lamp in position, then the three binding-posts will be brought into contact with their respective contact-springs.

In Fig. 9 the relation of the circuits which it is preferred to employ is shown. In this figure, O represents a battery or generator supplying the electricity, and 4 represents the conductor leading to the contact-spring k', and thus to the two conductors 1 and 3, leading to the filaments B′ and B², respectively. The other pole of the battery is connected by the conductor 5 with conductors 6 and 7, leading to the contact-springs k^2 and k^3, respectively, and these connect through their posts d^2 and d^3, respectively, with the remaining ends, b' and b^2. A circuit-interrupting key may, if it is desired, be included in one of the conductors—as, for instance, the conductor 6.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, with an incandescent electric lamp, of a glass cup for receiving the neck of the same, binding-posts inserted within said cup, an intervening corrugated metallic washer between said cup and globe, and a metallic holder for receiving said cup.

2. The combination, substantially as hereinbefore set forth, with the globe of an incandescent electric lamp, of a cup for receiving the same, hollow binding-posts for establishing electrical connections through the same, a metallic holder for receiving said cup, and contact-springs in said holder.

3. The combination, substantially as hereinbefore set forth, with the globe of an incandescent electric lamp and a cup for receiving the same, of openings through said cup for securing electrical connections through the same, a metallic holder for receiving said cup, contact-springs within said holder, and means for uniting said cup with said holder.

4. The combination, substantially as hereinbefore set forth, in an incandescent electric lamp, of two filaments, two pairs of supporting-points for said filaments, one of which pairs extends into said globe a greater distance than the remaining pair.

5. The combination, substantially as hereinbefore set forth, with an incandescent electric lamp, of the cup for receiving the neck of the same, binding-posts extending through said cup and adapted to secure the conductors leading from the lamp, and a non-conducting plate within said cup, through which said binding-posts extend and into which they are fastened, substantially as described.

6. The combination, substantially as hereinbefore set forth, of an incandescent electric lamp, the cup for receiving the neck of the same, binding-posts extending through said cup and adapted to secure the conductors leading from the lamp, a non-conducting plate within said cup, through which said binding-posts extend and into which they are fastened, substantially as described, and a plate of non-conducting material at the base of said binding-post.

In testimony whereof I have hereunto subscribed my name this 28th day of September, A. D. 1885.

WILLIAM STANLEY, JR.

Witnesses:
D. W. EDGECOMB,
CHARLES A. TERRY.