

(No Model.)

H. LEMP & M. J. WIGHTMAN.
INCANDESCENT LAMP.

No. 401,444.

Patented Apr. 16, 1889.

Fig. 1.

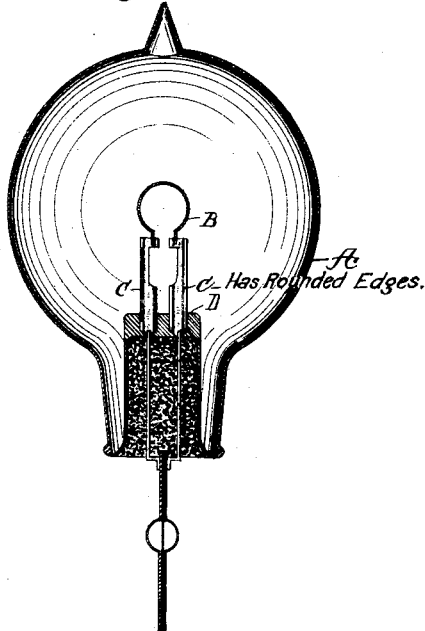


Fig. 5.



Fig. 6.



Fig. 2.



Fig. 3.



Fig. 4.

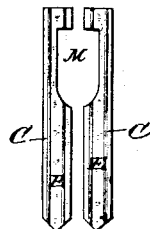
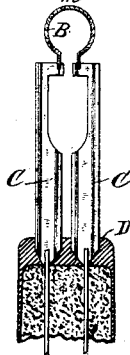


Fig. 7.



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ASSIGNORS TO THE SCHUYLER ELECTRIC COMPANY, OF CONNECTICUT.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 401,444, dated April 16, 1889.

Application filed September 14, 1886. Serial No. 213,484. (No model.)

To all whom it may concern:

Be it known that we, HERMANN LEMP and MERLE J. WIGHTMAN, citizens of the United States, and residents of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Incandescent Lamps, of which the following is a specification.

Our invention relates to incandescent lamps, and involves more particularly improvements in the construction of the leading-in conductors and in the sealing of the lamp.

Our invention, generally speaking, consists in constructing the leading-in conductors of flat pieces of sheet metal having rounded or smooth edges and compressing the glass at the point of sealing against the flat or plane surface of the same, thereby making a perfectly-tight joint at that point.

It further consists in certain details of construction, which will be more particularly described herein, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a lamp embodying our invention. Figs. 2, 3, and 4 illustrate the method of constructing the leading-in conductors. Figs. 5 and 6 illustrate the advantages of the improved construction. Fig. 7 is a detail view of the conductors with the glass pressed around the same at the point of sealing.

A indicates the globe of the lamp, and B the incandescent conductor, made of carbon and having a comparatively low resistance.

C C are entering-conductors, constructed and sealed in the manner to be hereinafter described, and connected, respectively, to the general circuit at opposite sides of the filament.

We have found that when a lamp of this general description is made with large entering-conductors C C, sealed close together in the glass, the tendency of the latter to crack is greatly increased. To overcome this difficulty, the conductors C C are made of flat pieces of sheet metal, and the glass at the point of sealing is compressed against the flat or plane surfaces of the same in the process of sealing by means readily understood by those skilled in the art, thus making a per-

fectly-tight joint. The mass of glass compressed against the plane surfaces of the sheet metal at the point of sealing is indicated at D, Figs. 1 and 7. We have found in practice that by this means we effectually overcome the tendency to cracking at the points of sealing when a current of as much as ten ampères is employed.

The conductors C C can be conveniently constructed by stamping out a single piece of sheet metal of the form shown in Fig. 3, which is divided along the line *m m* to form the two single conductors. The inner portion of the sheet metal is properly formed for making connection with the ends of the incandescent B. A convenient conformation is one in which the piece is given lateral ears or enlargements, as indicated in Figs. 3 and 4, which may be bent around the ends of the incandescent B to support the same and form electrical connection therewith. The incandescent may be attached either before or after the sealing of the conductors into the lamp A. By means of the flat conductors the heat will be more evenly distributed and liability to cracking much lessened. We have found, however, in practice that when the thin conductors are punched out of sheet metal in the ordinary way a burr is left on the edge of the strip, as indicated in Fig. 6, which interferes materially with the sealing of the glass. It is supposed that the irregularities in an edge formed by cutting or punching serve to retain a certain amount of air in the apparently-tight seal, which eventually cracks the glass or injures the vacuum on the application of heat. To overcome this difficulty, we preferably form our conducting-strips by rolling down platinum wire into the desired shape, as shown in Figs. 2, 3, and 4, thereby forming thin conducting-strips with smooth unbroken edges, as shown in Fig. 5, which form with the compressed glass a perfectly-tight seal. A platinum wire of the desired size, is rolled on by steel rollers to the required shape and size. The superfluous metal at M is removed by punching, leaving sufficient metal to form the edge of the conductors and the lateral ears or enlargements E, as shown in Fig. 4. As these strips are rolled on quite thin, they are formed with longitudinal corruga-

tions, as shown, to increase their stability mechanically as supports for the filament.

What we claim as our invention is—

- 5 1. A leading-in wire for an incandescent electric lamp and a conductor flattened through the portion within the glass of the globe, the flattened portion having rounded edges, substantially as and for the purpose described.
- 10 2. In an incandescent electric lamp, a sheet-metal entering-conductor consisting of a thin metal plate within the lamp and formed with longitudinal corrugations, as and for the purpose set forth.
- 15 3. The herein-described method of constructing electric incandescent lamps, which consists in forming a sheet-metal blank with

two legs or bifurcations separated from one another, sealing the said bifurcated portions of the blank and dividing the blank longitudinally on a line passing between the two 20 legs or bifurcations to make a separate insulated support for attachment to the ends of the incandescent conductor.

Signed at Hartford, in the county of Hartford and State of Connecticut, this 8th day of 25 September, A. D. 1886.

HERMANN LEMP.
MERLE J. WIGHTMAN.

Witnesses:

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