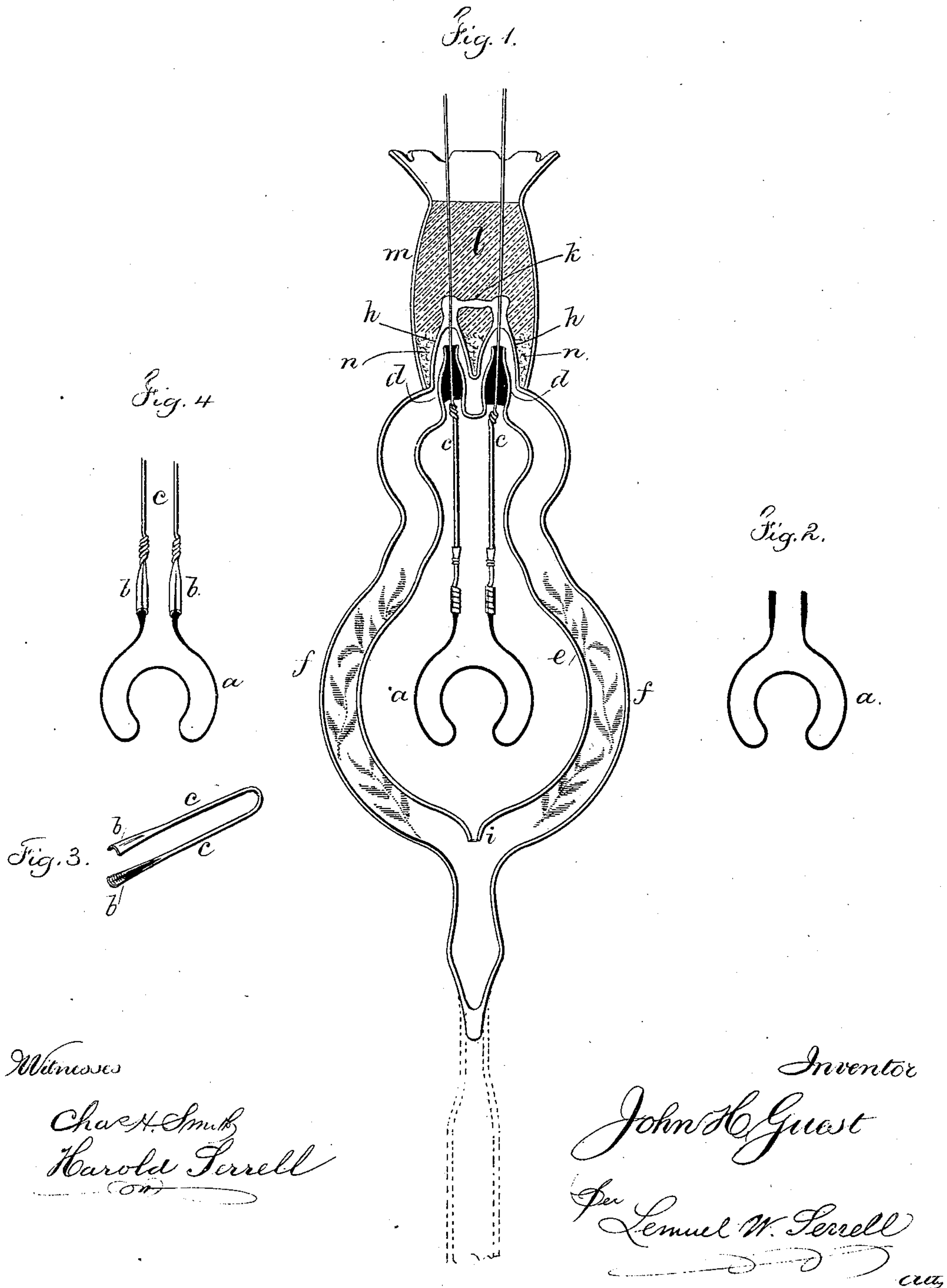


(No Model.)

J. H. GUEST.
ELECTRIC LAMP.

No. 254,641.

Patented Mar. 7, 1882.



UNITED STATES PATENT OFFICE.

JOHN H. GUEST, OF BROOKLYN, NEW YORK.

ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 254,641, dated March 7, 1882.

Application filed November 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GUEST, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Electric Lamps, of which the following is a specification.

This invention is made for the purpose of preventing injury to the glass at the places where the wires pass through the same, and at the same time for preventing any leakage at such wires.

I make use of a filling of lead between the wires and glass; but as that has been set forth in a former application by me, the same only forms one element in the combinations herein-
after set forth.

I use an incandescing filament within a globe, in combination with an external glass shade, there being a vacuum in both glasses. The outer glass shade is shown engraved or ground to produce an ornamental appearance, and the tubes into which the wires are hermetically sealed are strengthened by a bridge of glass extending across from the end of one to the other to prevent the risk of breakage either by expansion or by the contraction of the plaster that is used to connect a glass cap. Said cap covers the conductors and tubes, and is secured to said tubes and bridge by plaster-of-paris or other cement. The carbon filaments are connected at their ends to wires in a manner that secures perfect contact and lessens the risk of the carbons being broken.

In the drawings, Figure 1 is a vertical section of the lamp complete. Fig. 2 is the carbon separate, after the ends have been thickened. Fig. 3 is the clamp for the carbon, partially formed; and Fig. 4 shows the carbon with the clamps in place.

The carbon filament *a* is of uniform size from end to end at the time it is first carbonized. The ends are then dipped into a semi-liquid containing carbonaceous matter and allowed to dry. They are then dipped again one or more times into such liquid. This thickens out the ends sufficiently for the metallic conductors to be connected. The material employed is a carbonaceous liquid—such as india-ink or liquid drawing-ink—into which very finely pulverized plumbago is mixed.

The carbon filament with the thickened ends

is introduced into a metal form, and the thickened ends carbonized in any usual manner.

The carbon is received into a metal clamp, (shown in Fig. 4,) the same being formed of a piece of wire, with each end flattened, bent up into semi-cylindrical troughs, as shown in Fig. 3, and then the two end portions are brought together and the wires twisted so as to hold the semi-cylindrical clamps in proper position to each other, and then the wire is separated adjacent to the twist and straightened out. The clips are then placed upon the thickened ends of the carbon, as shown in Fig. 4, and plated with a deposit of copper or other metal to complete the connection. The wires *cc* pass through the tubes *d d* of the glass *e*, that incloses the carbon. Into these tubes *d* lead or other metal or alloy is drawn in a melted condition to seal the wires to the glass, as set forth in an application heretofore made by me.

The glass globe *e* may be exhausted and sealed at the projection *i* before said glass *e* is placed in outer ornamental shade, *f*; but generally the vacuum will be made in both glasses simultaneously, there being a small opening in the projection *i*.

It will also be apparent that in cases where there are any gases or air remaining in the exhausted globes almost all of the same will subside through the hole at *i* and pass into the outer globe. Hence the incandescing filament will not be exposed to as much of a washing action of the gases as it otherwise would, because there is no opportunity for the warmth to produce a circulation of the gases from the outer globe through the inner globe and in contact with the carbon.

The glass shade *f* is to be ornamented upon its surface by figures or designs engraved or ground upon its surface, so that the lamp will have a handsome, finished, ornamental appearance. The tubes *h h* of the glass shade *f* are hermetically sealed around the wires *c c*, and there is a bar of glass at *k*, between the tubes, to strengthen them and prevent accidental breakage by the expansion or contraction due to changes of temperature or of the plaster at *l*, that is used as a filling to the ornamental cap *m*, that incloses these tubes *h*. In connecting this cap *m* to the tubes *h* it is preferable to place the cap *m*

over the tubes, and allow it to rest upon the top of the shade *f*, and then introduce a packing, *n*, of cotton or other fibrous material, around the lower parts of said tubes *h*, and pour plaster-of-paris into the cap *m*. The packing *n* lessens the risk of injury to the glass by the expansion of the plaster as it consolidates.

The vacuum is to be made by a suitable air-pump applied to the tube at the lower end of the glass shade, after which the glass is hermetically sealed.

I claim as my invention—

1. In an electric lamp, the combination, with the incandescing filament and conducting-wires, of the glass *e*, surrounding the filament, and the glass shade *f* around the glass *e*, there being a vacuum in both the shade *f* and glass *e*, substantially as set forth.

2. The combination, with the glass *e*, tubes *d*, incandescing filament, conducting-wires, and lead packing between the glass tubes and wires, of the outer ornamental glass shade, *f*, hermetically sealed at the conducting-wires, substantially as set forth.

3. The combination, in an electric lamp, of the incandescing filament, its wires, the inner

glass, *e*, the outer glass shade, *f*, the tubes *h*, cap *m*, and the plaster uniting the tubes *h* and shade *f* with the cap *m*, substantially as set forth.

4. In combination with the conducting-wires, incandescing filament, and glass shade, a cap, *m*, a packing of fibrous material between the cap and the parts of the glass shade, and plaster within the cap, for the purposes and as set forth.

5. In combination with the tubes and hermetically-sealed wires in an incandescing electric lamp, the bridge of glass between said tubes, for the purposes and as substantially set forth.

6. The semi-cylindrical clips for the carbon, made of flattened wire, and the twisted portion to hold the parts together, in combination with the carbon having thickened ends and the plating of metal upon the parts, as set forth.

Signed by me this 17th day of November, A. D. 1881.

J. H. GUEST.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.