

No. 649,922.

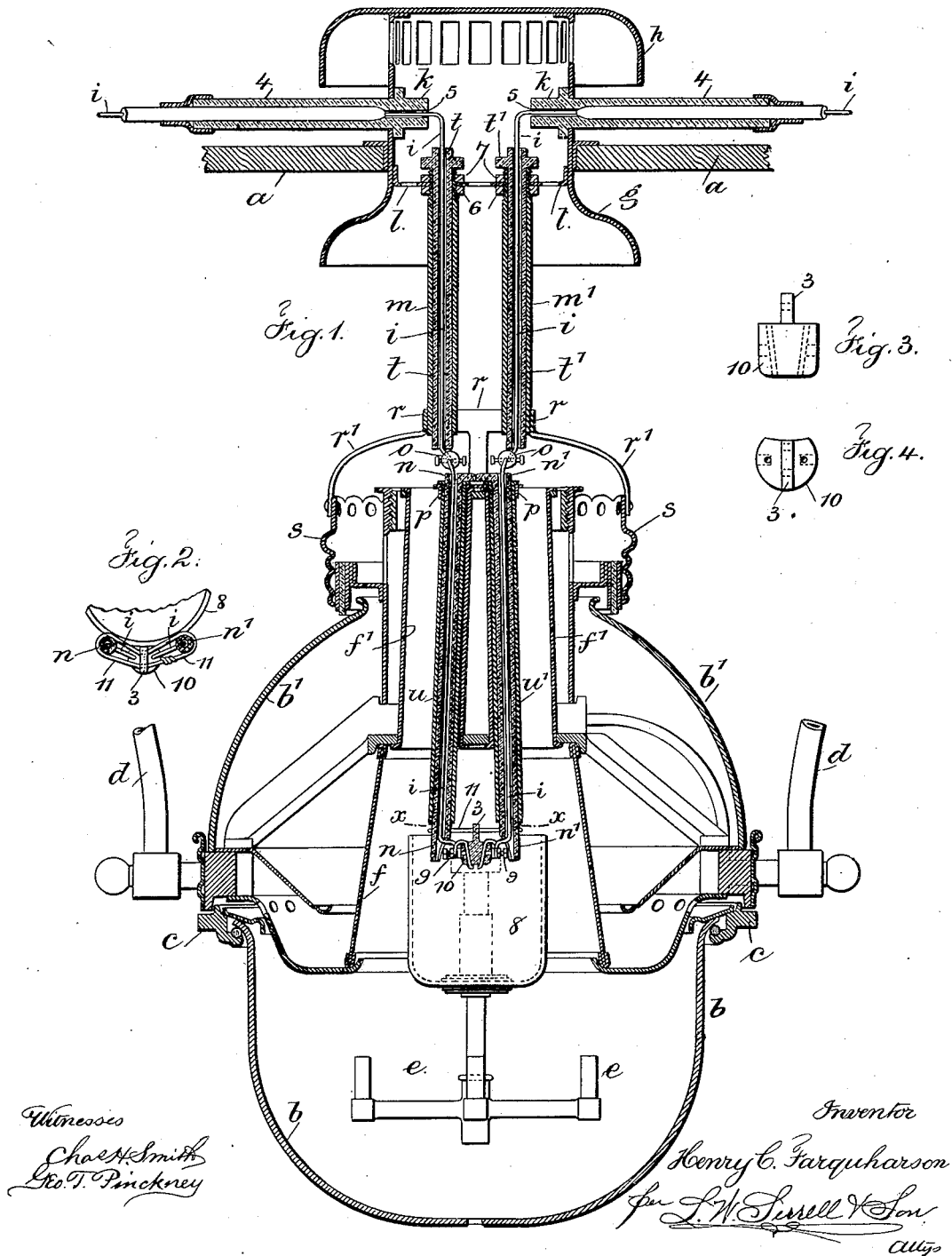
Patented May 22, 1900.

H. C. FARQUHARSON.

APPARATUS FOR ELECTRICALLY LIGHTING LAMPS.

(Application filed Sept. 5, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

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APPARATUS FOR ELECTRICALLY LIGHTING LAMPS.

SPECIFICATION forming part of Letters Patent No. 649,922, dated May 22, 1900.

Application filed September 5, 1899. Serial No. 729,404. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. FARQUHARSON, a citizen of the United States, residing at the city, county, and State of New York, have invented an Improvement in Apparatus for Electrically Lighting Lamps, of which the following is a specification.

My present invention is designed as an improvement upon the device shown and described in Letters Patent granted to me June 20, 1899, No. 627,105. In the device of this patent the electric conducting-wires and the tubes of porcelain or similar material surrounding the same were exposed, and it has been found in practice that these were liable to be broken or so damaged in the cleaning and handling of the lamp that the utility and effectiveness of the device were seriously interfered with; and the object of the present invention is to overcome these difficulties and to remove the possibility of the porcelain tubes being broken or the electric connections displaced or the parts thereof separated.

In carrying out my invention I provide metal tubes the ends of which are rigidly connected to fixed points, and through these metal tubes the porcelain tubes and the electric conducting-wires therein are passed, as will hereinafter be more fully explained.

In the drawings, Figure 1 is a vertical section representing a car-lamp in position, the same embodying my improvement; and Fig. 2 is a sectional plan at *xx* of Fig. 1. Fig. 3 is an elevation, and Fig. 4 a plan view in larger size, of the holder for the spark-points.

As in my aforesaid patent, the car-lamp is to be of any desired character, a portion of the roof of the car being represented at *a*. The lamp-globe is represented at *b* and is supported by a ring *c* and rods *d* from the roof *a* of the car. The burner is represented at *e*, and there is a compound chimney at *ff'* above the burner and inside the lamp-shade *b'*. These parts are to be of any desired size.

A ventilator is usually provided above the lamp in the form of a hood *g* inside the car and a cover *h* outside the car and above the same, a connecting-pipe passing through the roof of the car between the said parts, so as to connect the parts and allow the products of combustion to pass away and at the same time to exclude moisture or rain. These parts are the same as are described in my aforesaid patent, and I also provide, as in

said patent, along with these parts the electric conducting-wires *i*, the couplings *k* passing through holes in the pipe between the hood and cover, which couplings are of porcelain or similar material and tubular and provided with holes *5*, and which tubular portions *4* of the couplings are large enough to receive into them the electric conductors and their insulating covering, the naked electric conductors *i* passing through the holes *5*, which are then turned downward and pass to the lamp.

Within the hood *g* is a bridge-plate *l*, having perforations through which the products of combustion from the lamp pass to the cover *h* outside the car. This bridge-plate also has two perforations for the metal tubes *m m'*, the upper ends of which are threaded where they pass through the bridge-plate, the said threaded ends being provided with clamping-nuts *6* and *7* at opposite sides of the bridge-plate to securely connect and hold the said metal tubes to the bridge-plate. These tubes *m m'* are surrounded at their lower ends by a ring *r*, which is secured to the tubes, and this ring is provided with integral arms *r'*, spread outward and downward to engage and be permanently connected to the ring *s* at the upper end of the lamp. The lamp and the hood *g* are thus rigidly connected by parts of metal which can be cleaned and polished and the appearance of which is thus made acceptable and pleasing in the lamp.

The porcelain tubes *t t'* fit within the metal tubes *m m'* and are provided with enlarged upper ends above the upper ends of the said metal tubes, the said enlarged ends supporting the said porcelain tubes within and from the metal tubes. The conducting-wires *i* pass down from within the upper end of the hood through the said porcelain tubes *t t'* and out at their lower ends to the couplings *o*.

Within the lamp-body and passing down through the upper chimney *f'* into the lower portion or chimney *f* are the metal tubes *u u'*, securely connected at their upper ends to the friction-plate or an equivalent plate *p* and supported mainly thereby. Within these metal tubes *u u'* are the porcelain tubes *n n'*, terminating outside of and adjacent to the porcelain deflecting-cup *8* above the burner *e*, and the electric conducting-wires pass down from the coupling *o* through the por-

celain tubes $n n'$, and the lower ends of these wires pass through a holder of fireproof non-conducting material located outside the deflecting-cup 8, so as to insure the ignition of the ascending gas, and the lower ends of the said wires terminate as spark-points adjacent to one another against the under surface of said holder. This holder 10, of fireproof material, is cut away partially on one side, so as to set against the cup 8, and it is partially supported by the conducting-wires, which are clamped thereto by the screws 9. This holder of fireproof non-conducting material is shown of approximately the same construction as a holder described and claimed in an application for Letters Patent of like date herewith, Serial No. 729,403, the said holder having a central vertical flange 3, perforated at two points for the wire 11, which passes through the said perforations and around the lower ends of the porcelain tubes $n n'$ as an additional means of support, the ends of the wire 11 being twisted together. It will thus be seen that the electric conducting-wires are provided with insulating-conduits right through the lamp and that the said conduits—or, in other words, porcelain tubes—are inclosed in metal tubes having a fixed position with regard to the lamp and the parts at the top of the car for the same. The said porcelain tubes are thus protected, so that there is little liability of their becoming in any way damaged or broken, and the electric wires are protected, so that they are not readily accessible except at the couplings and at the spark-point holder. The parts of the lamp can thus be readily cleaned and kept bright without the risk of breaking any parts or affecting the utility of the device.

I claim as my invention—

1. The combination with a gas-lamp, a hood and means for suspending the same, and a spark-point within the lamp; of electric conductors entering the hood and passing through the lamp to the spark-point, metal tubes bridging the exposed space between the hood and the lamp and at the ends thereof connected to the hood and the lamp, and porcelain tubes within the metal tubes and surrounding the electric conductors, substantially as set forth.

2. The combination with a gas-lamp, means for suspending the same, a spark-point holder within the lamp and a hood and cover above the lamp and connected to the roof of the car, of electric conductors and insulating devices therefor entering the cover and hood of the car, the electric conductors passing to and through the lamp to the spark-point holder, porcelain tubes surrounding the said electric conductors, metal tubes surrounding the porcelain tubes within the lamp and between the lamp and the hood, and means for connecting the respective ends of the tubes rigidly in position at the lamp and to the hood, substantially as set forth.

3. The combination with a gas-lamp, means for suspending the same, a spark-point holder within the lamp and a hood and cover above the lamp and connected to the roof of the car, of electric conductors and insulating devices therefor entering the cover and hood of the car, the electric conductors passing to and through the lamp to the spark-point holder, a perforated bridge-plate in the hood beneath the roof of the car, a ring and arms connected therewith and extending to the ring at the top of the lamp and metal tubes between the bridge-plate of the hood and the ring above the lamp secured at their respective ends to said parts, porcelain tubes passing through said metal tubes and receiving the electric conducting-wires, metal tubes passing down through the lamp-chimney within the lamp and connected to the lamp-body and porcelain tubes passing within said metal tubes and receiving within them the lower ends of the electric conducting-wires, substantially as set forth.

4. The combination with a gas-lamp, means for suspending the same, a spark-point holder within the lamp and a hood and cover above the lamp and connected to the roof of the car, of electric conductors and insulating devices therefor entering the cover and hood of the car, the electric conductors passing to and through the lamp to the spark-point holder, porcelain tubes surrounding the said electric conductors, metal tubes surrounding the porcelain tubes within the lamp and between the lamp and the hood, and means for connecting the respective ends of the tubes rigidly in position at the lamp and to the hood, the spark-point holder being suspended at the lower ends of the lower pair of porcelain tubes above the burner, and a portion of the said holder being perforated and a wire passing through the perforations and around the lower ends of the lowermost pair of porcelain tubes as an additional support for the spark-point holder, substantially as set forth.

5. The combination with a gas-lamp, a hood and means for suspending the same, and a spark-point within the lamp; of electric conductors entering the hood and passing through the lamp to the spark-point, metal tubes bridging the exposed space between the hood and the lamp, a perforated bridge-plate within the hood through which the upper threaded ends of the metal tubes pass, clamping-nuts upon the tubes at opposite sides of the bridge-plate and a ring connected to the upper end of the lamp and to the lower end of the metal tubes, and porcelain tubes within the metal tubes and surrounding the electric conductors, substantially as specified.

Signed by me this 1st day of September, 1899.

HENRY C. FARQUHARSON.

Witnesses:

GEO. T. PINCKNEY,
S. T. HAVILAND.