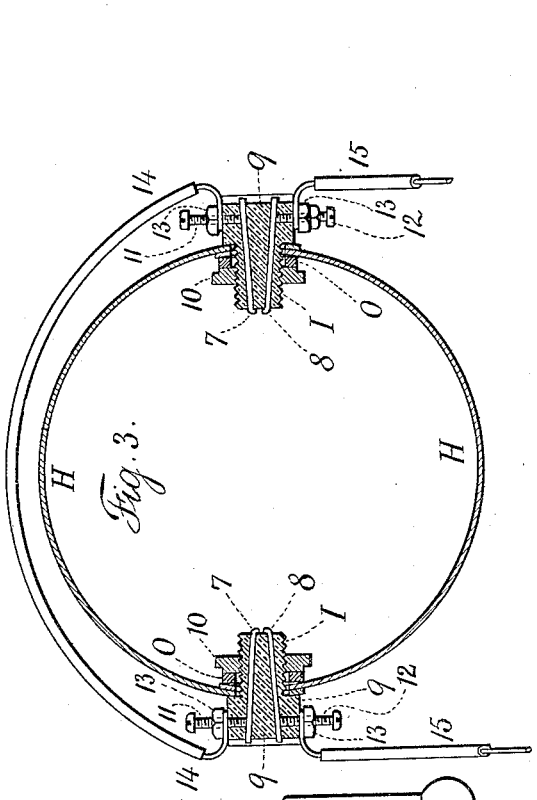
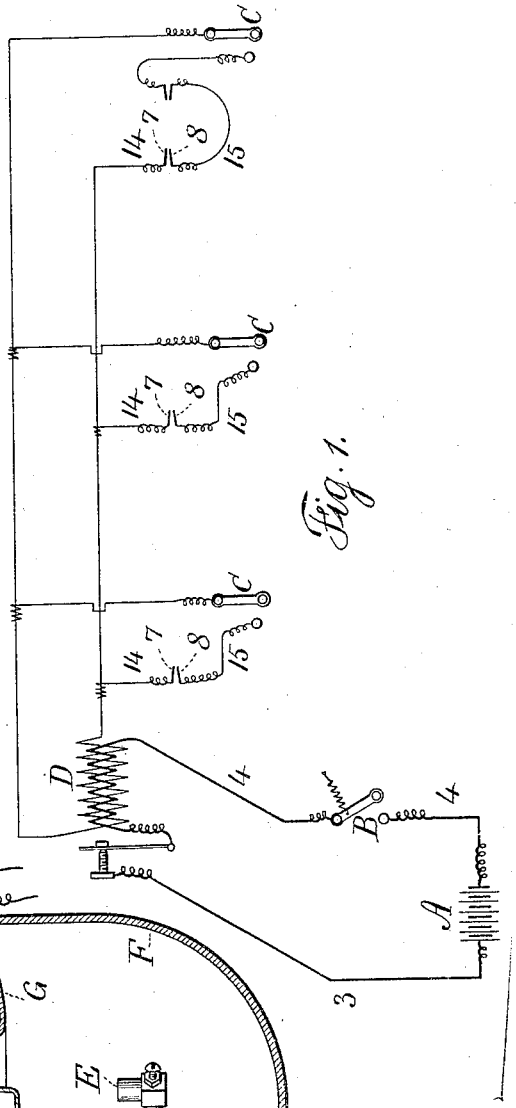
(No Model.)

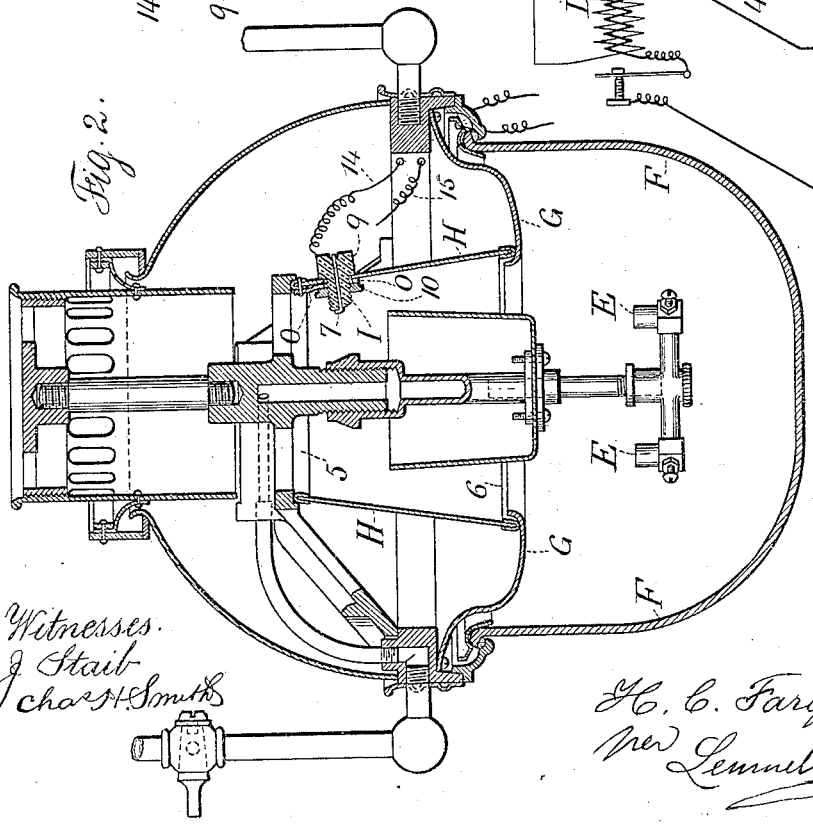
H. C. FARQUHARSON.

ELECTRIC GAS LIGHTING APPARATUS.

No. 553,304. Patented Jan. 21, 1896.







Witnesses.
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Inventor:
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UNITED STATES PATENT OFFICE.

HENRY C. FARQUHARSON, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND DENISE FRANK ROOT, OF SAME PLACE.

ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 553,304, dated January 21, 1896.

Application filed November 4, 1895. Serial No. 567,803. (No model.)

To all whom it may concern:

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

In railway-cars gas-lights are extensively employed, in which there is a globe below the lights, an annular reflector above the lights, and a chimney rising from such annular reflector, and this chimney is usually made of mica. Difficulty has arisen in lighting gas-burners of this general character because the globe usually has to be unlatched and swung down, the gas turned on, and then a match or taper applied to the same, and where the train passes through tunnels it is usual to light the gas, and this involves considerable labor on the part of the trainmen and is frequently a disturbance to the passengers.

The object of the present invention is to provide an electrical appliance for easily and reliably igniting the gas so that the same may be turned on and lighted from one point and the whole or a portion of the lights in a car can be ignited, or the electrical appliance may be used separately with either lamp, thus facilitating the lighting operation and allowing for the gas to be turned off and extinguished or turned on and ignited whenever required when passing through tunnels or otherwise; and while the present improvement is especially intended for railway-cars containing gas-lamps of the character before mentioned it may be applied to gas lamps or burners of other construction and employed in other places.

I employ a spark-point holder of refractory material that is a non-conductor of electricity, so that such spark-point holder is not injured by the heat to which it is exposed, and it is adapted to pass through the chimney and reliably hold the spark-points in position for igniting the gas, and such spark-points are advantageously made of short pieces of platinum or similar wire, and the outer part or head of the holder is provided with screws for clamping the wire of the spark-points, and to which screws the electric conductors are connected, and the circuit connections are made in such a manner that one or more of the burners may be ignited, as heretofore set forth.

In the drawings, Figure 1 is a diagrammatic elevation illustrating electric connections that may be made use of. Fig. 2 is a vertical section representing a portion of a gas-lamp with the spark-points applied to the same. Fig. 3 is a sectional plan view showing two of the spark-points upon a chimney and in larger size.

The battery, or other source of electric energy, is illustrated at A, and the circuit-wires 3 and 4 leading from the same are arranged so that the current may be directed through all of the lamps by a switch B, or there may be a switch C at each lamp. These electric connections may be of any desired character, and it is advantageous to employ an induction-coil D to insure the proper sparks between the points.

The gas-burners E are of any desired character, and I have represented the same as within the globe F and below the annular reflector G, above which is the chimney H. It will be understood that the present improvements are available with different kinds of gas-burners and chimneys.

In the lamp illustrated in the drawings the chimney II is shown of mica, but the same may be of metal or other suitable material. Where mica is made use of it is generally in two or three pieces, lapped upon the edges and riveted and having an upper metal band 5 and a lower metal band 6, and I find it advantageous to apply the spark-point holder I at a perforation made through the two thicknesses of mica where they lap one on the other, as illustrated at Fig. 3, but the perforation is to be made through the chimney regardless of the material of which such chimney is composed and at such place as will be in line with the gases ascending from the burner or burners, so as to ignite the same by the spark.

The spark-point holder is of refractory material, advantageously of talc or similar material, especially such material as is sometimes used for the tips of gas-burners and usually

called "lava." This material is adapted to being turned up to shape and screw-threaded and bored, and such material is not injured by the heat to which it is exposed and it is a non-conductor of electricity. In making these spark-point holders holes are bored through the same, which preferably converge so as to bring the spark-points 7 and 8 closely adjacent to each other at the inner ends and wider apart at the outer ends, and the holder is reduced in size and screw-threaded on its exterior in the part which passes through the opening in the chimney, so that there is a head 9 at the outer end of the holder, and a nut 10 is screwed upon the inner portion of the spark-point holder so as to clamp and hold the same firmly to the chimney. Holes are bored into the head 9 for the reception of the screws 11 and 12, which screws clamp the wires forming the spark-points, and they also receive around them nuts 13 for clamping the conducting-wires 14 15 leading to the main circuit-wires 3 and 4 from the battery.

It will now be understood that the spark-point holder can be easily applied to the chimney at the proper place, and the wires of the spark-points are protected from the action of heat except at their inner ends, and the screws 11 and 12 hold the spark-points firmly in position, and the wires 14 and 15 can be connected or disconnected without loosening the screws or the spark-points. Hence there is but little or no risk of the parts becoming misplaced or the electric connections interrupted.

I find it advantageous to employ spark-points and their holders at opposite sides of the chimney and to connect the circuit-wires from one to the other, as illustrated in Fig. 3, so that where there is a ring of flame or several burners the gas may be ignited at two or more places simultaneously. Where one or more of these holders are applied to a mica chimney the parts are strengthened by a ring O of metal surrounding the reduced portion of the spark-point holder where it passes through the chimney, and the metal of this ring is extended as a strap or arm to either the top or bottom metal band 5 or 6 surrounding the upper or lower end of such mica chimney, at which place the strap of the ring O is to be connected to such band, preferably by riveting the parts together. In this manner the band is prevented from separating from the mica, and at the same time the parts support each other, so that there is less risk of the mica being injured where the spark-point holder is applied to the same, and where the mica chimney is made of three parts with the edges lapped one on the other there may be three of these spark-point holders if desired.

The strap from the ring O may extend both up and down and connect the top and bottom bands, and the strap may be either inside or outside the chimney. When the chimney is sufficiently strong the holder may be screwed directly into such chimney. If desired a second nut may be used to form a lock upon the screw. The lamps that are below the car-ceiling usually are suspended by three or more tubes with the gas in one of the tubes, and the circuit-wires can be led through two of the other tubes.

The spark-points are easily kept in operative condition by passing a brush across the same to remove any deposit of carbon.

I do not limit myself to any particular arrangements of circuit connections, as these may be varied to suit the particular cars or arrangements of lamps.

I claim as my invention—

1. The combination with the chimney in a gas burning lamp, of a spark-point-holder formed of a refractory substance that is a non-conductor of electricity, such holder being perforated and the spark-points introduced in the perforations, screws for holding the spark points and wires for the electric circuit clamped to the screws, substantially as set forth.

2. The spark point holder formed of refractory non-conducting material and having a head and a screw threaded shank and perforated with converging holes, in combination with the spark points inserted through the holes, screws for clamping the spark point wires, and a nut on the reduced screw threaded portion of the holder for clamping the holder to the chimney in a gas burning lamp, substantially as set forth.

3. The combination with a gas burning lamp having a mica chimney, of a spark point holder of refractory non-conducting material passing through the mica of the chimney, a nut for clamping such holder to the chimney, spark points passing through perforations in the holder and clamping screws for securing such spark points in position, substantially as set forth.

4. The combination with a gas burning lamp having a mica chimney, of a spark point holder of refractory non-conducting material passing through the mica of the chimney, a nut for clamping such holder to the chimney, spark points passing through perforations in the holder and clamping screws for securing such spark points in position, conducting wires bent around the screws and nuts for clamping such wires to the screws, substantially as set forth.

5. The combination with a gas burning lamp having a chimney, of a spark point holder having a head and a reduced screw threaded portion, a metal eye through which the reduced portion of the holder passes, said eye having an arm fastened at its end to the chimney, a nut for clamping the parts together, there being perforations through the spark point holder for the wires of the spark points, clamping screws for holding such wires, and circuit wire connections for the spark points, substantially as set forth.

6. The combination with a gas burning

lamp having a chimney, of two spark point holders having heads outside the chimney, and reduced portions passing through the chimney and nuts for clamping the holders to the chimney, spark points formed of wires and passing through perforations in the holders, clamps for holding such wires in position, and circuit connections leading to the opposite holders and a wire connecting one holder to the other, substantially as set forth.

Signed by me this 30th day of October, 1895.

HENRY C. FARQUHARSON.

Witnesses:
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S. T. HAVILAND.