2 Sheets--Sheet 1.

S. GARDINER, Jr.

Burner for Electrical Gas-Lighting.

Patented June 29, 1875.

No. 165,090.

fig. 2.

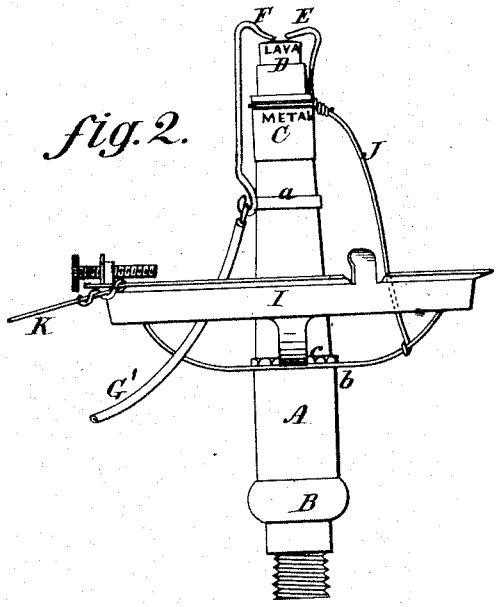


fig. 1.

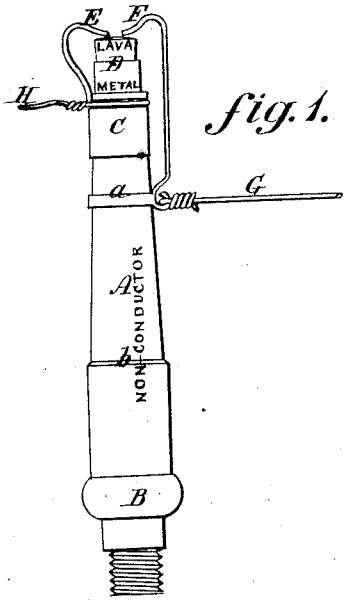
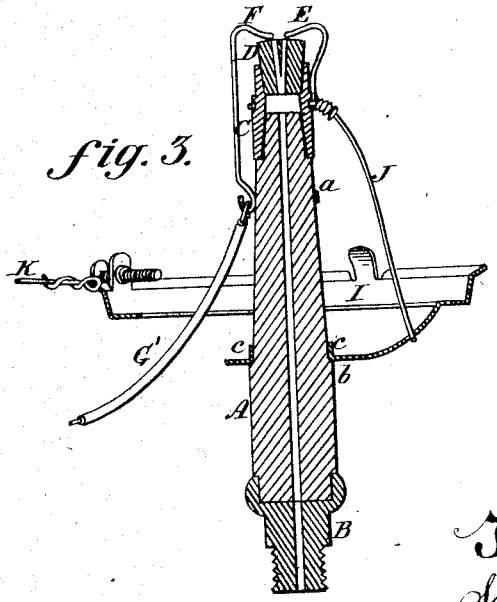


fig. 3.



Witnesses:

J. Wesd Wagner,

H. Rutherford.

Inventor:

Samuel Gardiner, Jr.

By his Attorneys

Johnson and Johnson

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

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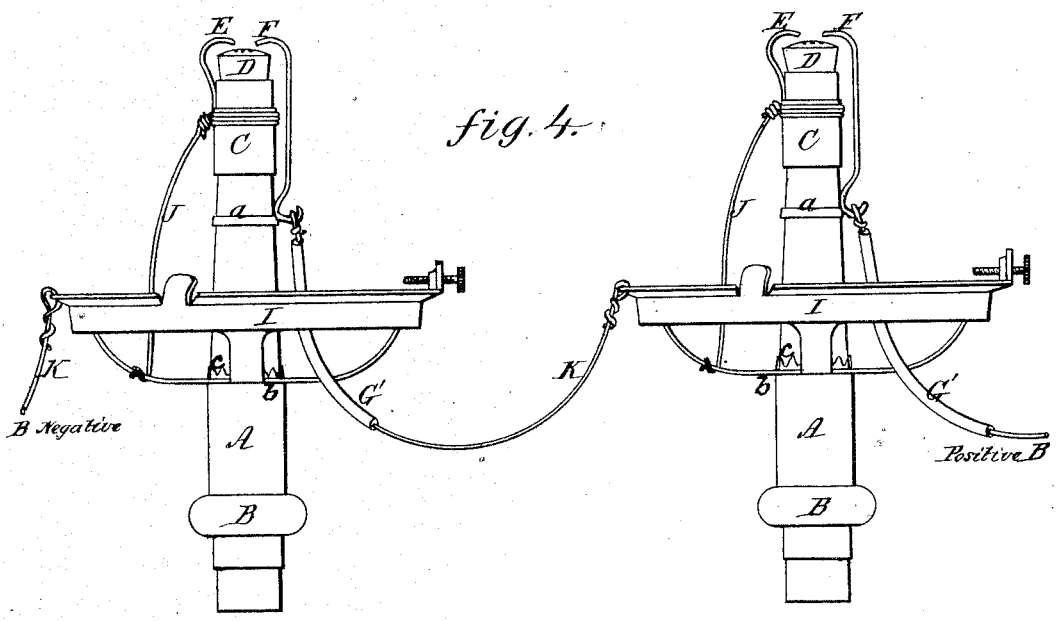

fig. 4.

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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

SAMUEL GARDINER, JR., OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN BURNERS FOR ELECTRICAL GAS-LIGHTING.

Specification forming part of Letters Patent No. **165,090**, dated June 29, 1875; application filed November 6, 1873.

To all whom it may concern:

Be it known that I, SAMUEL GARDINER, Jr., of Washington, in the District of Columbia, have invented certain new and useful Improvements in Gas-Burners for Lighting Gas by Electricity, of which the following is a specification:

My invention relates to burners used in lighting gas by electricity, either by spark or the connected platina coil; and my invention consists of an insulated metallic globe-holder, in combination with a wire connecting it with the negative electrode of one burner, and an insulated wire connecting said globe-holder with the next succeeding burner or series of burners through its positive electrode, as shown in Fig. 4, Sheet 2, of the drawings, whereby the globe-holder is used in the circuit of a series of burners as a means of conducting the electric current throughout a series of burners, so that said holder, while performing its function as such, serves to dispense with a secondary insulated wire, and renders it very convenient to make the connection of one burner of a series with another where globes are used; also, of the negative electrode as a constituent part of, and a prolongation of, a separate metallic nipple, in combination with the burner-tip, for the purpose of maintaining a fixed adjustment of the said negative electrode with the burner, and accomplish thereby absolute stability in the relation of these parts, as in practice this is most essential, because the least derangement of these points must render the igniting of the gas uncertain.

The invention herein also consists in combining, with an insulated metallic globe-holder and a series of burners, an insulated wire, which passes from the burner through and beneath the globe-holder, to make the proper connection, the object and purpose of which combination are to prevent the current of electricity entering the globe-holder from said wire, as would be the case with an uninsulated connection, and by which a series of burners are united to each other by wires, out of the way of the globe and its holder, they passing, for that purpose, out of the bottom of the globe and away from the flame.

In the accompanying drawings, Figure 1 represents an elevation of my improved burner; Fig. 2, a similar view, in connection with an insulated globe-holder; and Fig. 3, a vertical section of the burner, with the globe-holder in place; Fig. 4, Sheet 2, an elevation of two of the burners, connected through the medium of the metallic globe-holders.

The pillar A is made of porcelain, or any other suitable non-conductor, in form tapering from the top to its bottom. It is supported upon and within a metallic base, B, into the socket of which it is secured by cement, or in any other proper way; and the base is provided with a screw, for connecting the burner with the gas-pipe. The upper end of the pillar A has fitted upon it a metallic nipple, C, secured in place by cement upon a shoulder, against which the nipple fits. Into the upper end of this nipple a lava-tip, D, is secured, also, by cement, the sockets in the nipple being made tapering, to fit the corresponding ends of the pillar and the tip, to make a close and firm fit of these parts.

By this construction and combination of lava-tip and metal nipple with the non-conducting pillar, the two former are insulated from the gas-fixtures, and each made to serve its particular and joint function without the least possibility of impairing the force of the electric current.

The electrodes or points E and F are supported, respectively, by the non-conducting pillar A and the conducting-nipple C, so that their separated ends will lie upon, or just above, the lava-tip, the point E being soldered to, or otherwise forming a part of, the nipple C, and the point F secured to the pillar by a band, *a*, to which it is soldered, and which, being fitted upon the tapering form of the pillar, finds its seat, so as to bring the bent point either above or upon the lava-tip D, as the point F is adjusted simply by being bent until the band *a* reaches a tight place, and is firmly bound by cement.

This function of the band *a* is the better effected by making it to taper, so as to fit the corresponding form of the pillar, and in this way the support for the point F is fixed without being controlled by any particular fixed position of the point.

This band *a* also forms the point of attachment for the conducting-wire G′ of the positive

pole, while the wire J, for the negative pole, connects with the insulated nipple C, so that the latter serves to both support the point E, and make the connection with the next burner or series of burners.

With the insulated pillar I have arranged a metallic globe-holder, I, fitted upon and held by the tapering form of the pillar A, said holder being pressed down to a tight position, or upon a shoulder, *b*, and the base of the holder having points *e*, for a bearing upon the sides of the pillar, and a notch, by which to pass the holder over the conducting-wire. The insulated metallic holder I is connected to the insulated nipple by a wire, J, and this connection forms the means of communication with the next succeeding burner or burners by a wire, K, leading from the holder I to the insulated band of the next burner. In such arrangement it is necessary that that portion of the conducting-wire G′ leading from the band *a* to the battery, or from one burner to the other, should be insulated at that part which passes from the band through and beneath the globe-holder. When, however, the holder is not used, this wire G′ may connect directly from one burner to another without being insulated.

The advantage of combining the lava-tip with the insulated nipple is, that the lava-tip, being a good non-conductor of electricity, it insures a certainty of the spark jumping from one conducting-point to the other at the point of ignition of the gas, whereas with a metal tip this advantage is not so certainly obtained, as the spark is liable to jump into a part of the tip away from the point of ignition, and thereby render the lighting, to a very great extent, unreliable.

The electrode E should be platina-pointed, or both points may be platina-pointed; and the point E being fastened directly upon the nipple, when once adjusted by being bent over the tip it retains its adjustment and fixed position, which is a matter of vital importance.

It is obvious that either of the electrodes may be made the positive or negative.

The burner is provided with a passage for the gas to the escaping-orifice, in the usual manner.

I claim—

1. The insulated globe-holder I, in combination with the wires J and K, the one connecting with one burner, A, through its electrode E, and the other with the next succeeding burner by the electrode F, with the said holders in the circuit throughout the series of burners, substantially as described.

2. The negative electrode E, as a part of, and a prolongation of, the separate metallic nipple C, and in combination with the burner-tip D, substantially as and for the purposes herein set forth.

3. The combination, with the burner and the metallic globe-holder I, of the wires J K, connecting said globe-holder with the negative electrode E and the insulated wire G′ of the positive pole passing through and beneath the globe-holder, whereby a single burner may be lighted through the medium of said globe-holder, as herein set forth.

SAML. GARDINER, JR.

Witnesses:
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