(No Model.)

A. L. BOGART.

INSULATING ELECTRODES FOR ELECTRIC GAS LIGHTING BURNERS.

No. 605,661. Patented June 14, 1898.

Fig. 1.

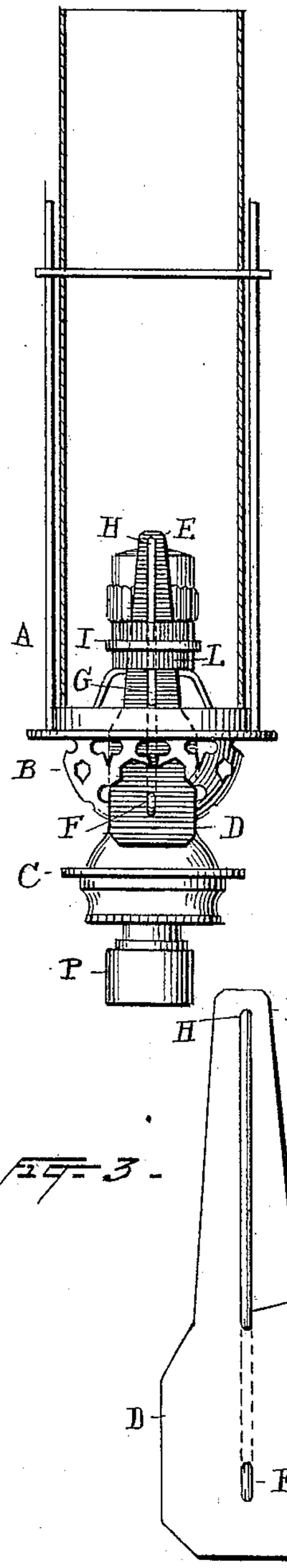


Fig. 2.

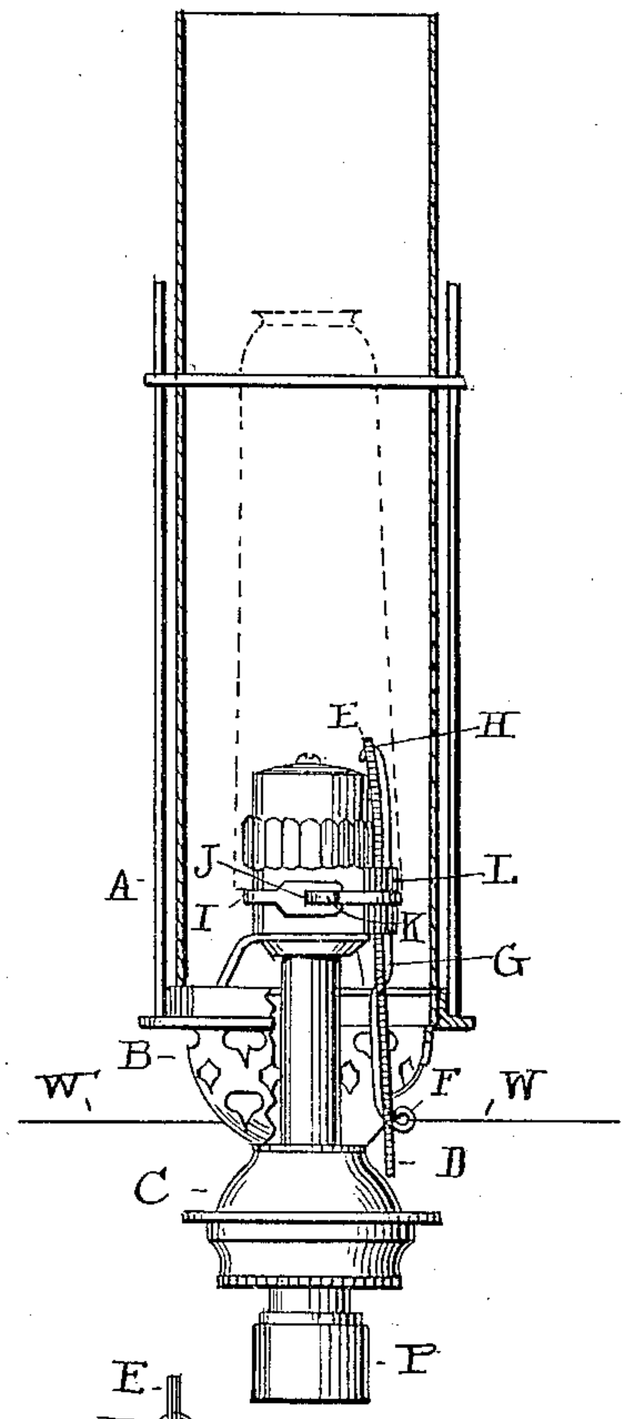
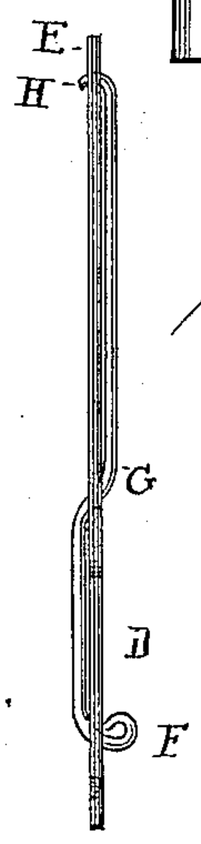


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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INSULATING ELECTRODES FOR ELECTRIC GAS-LIGHTING BURNERS.

SPECIFICATION forming part of Letters Patent No. 605,661, dated June 14, 1898.

Application filed May 5, 1897. Serial No. 635,175. (No model.)

To all whom it may concern:

Be it known that I, ADRIAN LIVINGSTON BOGART, a citizen of the United States, residing at Jamaica, in the county of Queens and State of New York, have invented a certain new and useful Improvement in Methods of Insulating Electrodes in Electric Gas-Lighting Burners, of which the following is a specification.

This invention relates to electric gas-lighting, whether performed by induced or static currents of high potential, the spark for ignition of the gas being the result of the electricity jumping across a gap between two rigidly-fixed electrodes. Heretofore it has been the custom in the construction of gas-burners for this purpose to either use a rigid electrode or electrodes secured upon or about an insulating-pillar of glass, porcelain, steatite, or other heat-resisting solid insulator, the electrode or electrodes being usually free throughout their length, excepting where supported at one end, or else where the nature of the burner, as in an Argand or incandescent gas-burner, was such as would not permit of their being free and unobstructed as to position to inclose them in part at least within an envelop of glass or similar material in the shape of a tube. This latter plan was particularly necessary where incandescent gas-burners of the Welsbach type were to be ignited in series, as the structure of the burner itself is very complicated and difficult to fit up. The base of the Welsbach burner is partially closed. A projection and framework are encountered between the tip and the lower part, known as the "gallery," and, finally, at the top of the burner the mantle is encountered. The electrode should pass up within the mantle. In this construction glass tubing when used to insulate the electrode had to be necessarily employed throughout its whole length up to the spark-point. The exterior diameter of such glass tubing inclosing the electrode must necessarily be as small as possible. Otherwise either the mantle would not pass over it or it would be caught and torn in taking off old mantles and substituting new ones. Again, said glass tubing was apt to become melted or broken through the heat, and in securing it to its place rigidly the glass tube would be ruptured on account of uneven bearing.

The object of this invention is to furnish a means by which the conducting-electrode can be insulated in a simple, cheap, and lasting manner, providing flexibility throughout its length, so that it can either be bent or adjust itself about any inequalities or projections on the surface of the burner to which it is attached, and that it can be as rigidly secured as required without regard to any friability as would occur in the use of glass or analogous insulating material; lastly, that its thickness will be but trifling, so that it shall not interfere with the putting on or taking off of mantles in the case of the Welsbach type of burner, and, further, that it may be made transparent, so as not to cut off the light or throw shadows.

Practically my invention consists in the use of an insulator like mica, which is refractory, but can be used in comparatively thin and flexible sheets and in threading the metallic conductor through this mica strip from one side to the other, as occasion arises, to supply insulation, the mica consequently being at all points between the conducting-electrode and any metallic body that would cause the current to leave the conductor and jump to it. Thus the conducting-electrode may pass up almost entirely at one side of the mica strip, or, on the other hand, it may be threaded from side to side many times, according to the necessities of the metallic structure in which it is to be introduced. I further than this employ the threading process to hold the conducting-electrode to the insulating-strip.

In the drawings accompanying this specification I show my invention as applied to one style of the well-known Welsbach incandescent light, such style being known as the "No. 34." Figure 1 is a front view of such No. 34 Welsbach light equipped with my device, but without mantle. Fig. 2 is a side elevation with a part of the gallery broken away; Fig. 3, a front view of the electrode and insulation, and Fig. 4 a side view, Figs. 3 and 4 showing the electrode and insulating device prior to being secured to or upon the gas-burner.

A represents a Welsbach incandescent light

of the type known as "No. 34," with its gallery B and air-shutter C.

D is a strip of mica or similar material having its exterior cut or shaped in such manner as to readily enter through the openings in the gallery and tapered off at its upper end E.

F G H is the conducting-electrode, consisting of a metallic wire of a sufficient degree of stoutness to answer the purpose. This wire is threaded through openings in the insulating-strip at F, G, and H and terminates above at H in a spark-point and at its lower extremity F in an eye or loop. When laid in its position in the Welsbach burner, as shown in Figs. 1 and 2, the insulating-strip rests between the conducting-electrode and the nearest metallic parts of the gallery and burner where insulation is required. It can be carefully fitted before final introduction, the wire being given the proper sets and curves to make the entire device fit best to the surfaces upon and between which it shall finally rest. The insulating-strip being elastic will accommodate itself to such curvings of the more rigid wire and retain its formation. The insulating-strip D may be secured to the metallic surface of the burner in any well-known manner, as by screws or pins, the material of the strip being tough and allowing of holes for such purpose to be drilled or punched in it. I prefer, however, for simplicity, to use the method of securing shown in the drawings, which is by means of a belt-clamp I, one end of which, J, has a slot through which the other end of the strap K is passed, pulled up taut, and bent over, holding it securely in place. To insulate the conductor between G and H from the belt I, I in this case employ a strip or strips of mica L. This strip of mica L could extend the entire distance of the main strip D should the formation of the metallic body require both sides of the conducting-electrode F G H to be protected. The loop or eye at the lower end F, I employ as a means of connecting one of the conducting-wires W from the spark-generator. Where more than one burner is to be ignited in a series, I insulate the entire metallic body of the burner upon a non-conducting pillar P. The circuit would pass through the wire W to the conducting-electrode, up the same to the spark-point at E, then jump through the air-gap from there to the metallic top of the burner, producing the spark for ignition, then through the metallic body of the burner away at any point therefrom, as through the wire W', to the loop or eye F of the next burner in series.

I would not limit myself to the specific threading as shown, as it has been specially made to answer the purposes in this particular type of burner, but may be varied according to the structure of the same in other types. The conducting-electrode wire need not be straight and plain, but can curve and zigzag, according to the necessities of the structure through which it is introduced.

I claim—

1. In an electric igniting device, the combination with one of the electrodes formed of a metal wire or strip, of an insulating-shield through which said wire or strip is threaded, substantially as set forth.

2. In an electric igniting device, the combination with one of the electrodes formed of a metal wire or strip, of a mica shield through which said wire or strip is threaded, substantially as set forth.

3. The combination with an electrically-ignited gas-burner, of a flexible insulating shield or screen between the burner and one of the electrodes, substantially as set forth.

4. The combination with an electrically-ignited gas-burner, of a flexible insulating sheet-like shield or screen to which one of the electrodes is secured, substantially as set forth.

5. The combination with an electrically-ignited gas-burner, of an insulating screen or shield between the burner and the other electrode, substantially as set forth.

6. The combination with an electrically-ignited gas-burner, of a mica screen or shield between the burner and the other electrode, said electrode being carried by the shield, substantially as set forth.

7. The combination in an electric gas-lighting device, of a conducting-electrode, an insulating flexible shield supporting the said electrode and insulating it from adjacent metallic parts by having the same threaded therethrough, as described, and means for securing said strip in place, substantially as set forth.

This specification signed and witnessed this 28th day of April, 1897.

A. LIVINGSTON BOGART.

Witnesses:
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