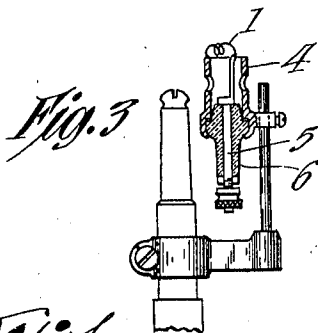
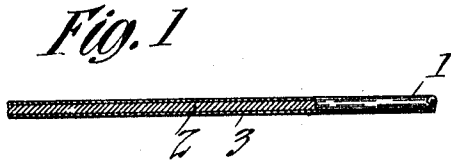
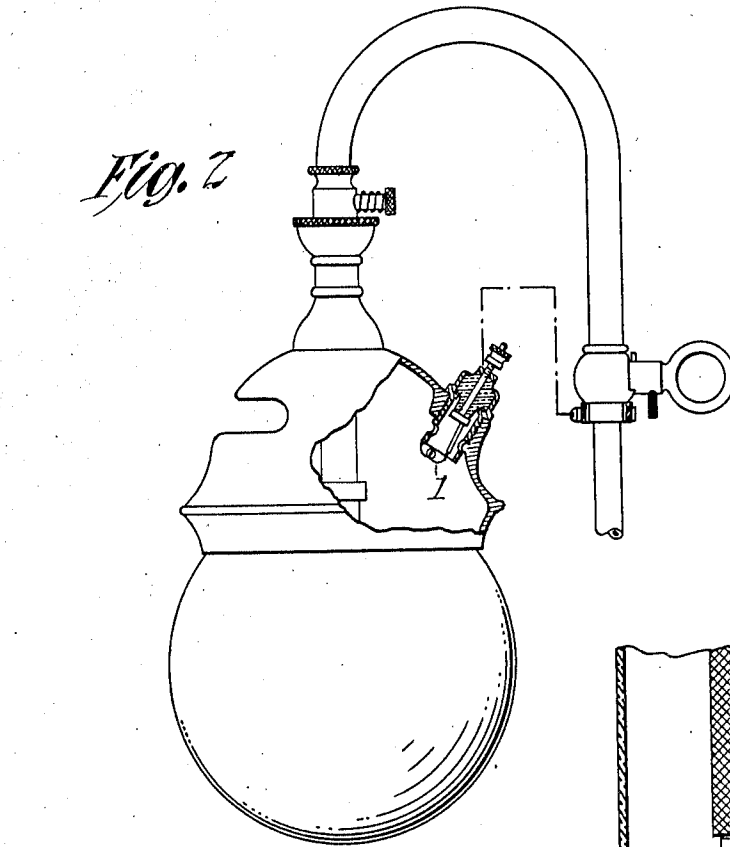


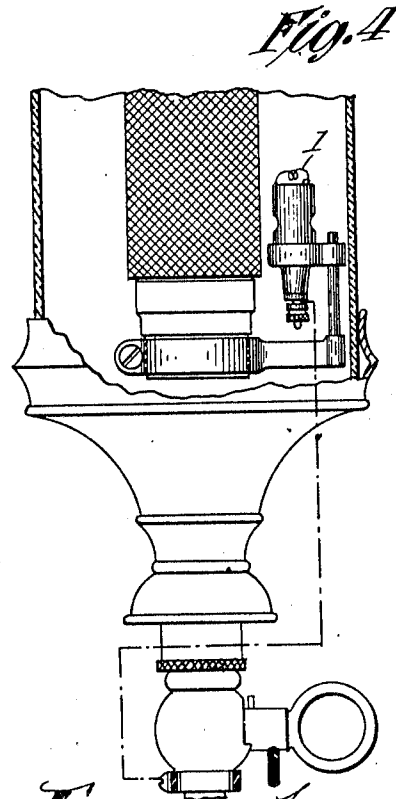
H. LYON.
CONDUCTIVE FILAMENT.
APPLICATION FILED OCT. 3, 1910.

1,026,401.

Patented May 14, 1912.



Witnesses:
Frank Lewis
Dyer Smith



Inventor:
Howard Lyon
by Delos Holden
his Atty.

UNITED STATES PATENT OFFICE.

HOWARD LYON, OF GLOUCESTER CITY, NEW JERSEY, ASSIGNOR TO WELSBACH LIGHT COMPANY, A CORPORATION OF NEW JERSEY.

CONDUCTIVE FILAMENT.

1,026,401.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed October 3, 1910. Serial No. 584,987.

To all whom it may concern:

Be it known that I, HOWARD LYON, a citizen of the United States, and a resident of Gloucester City, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Conductive Filaments, of which the following is a description.

My invention relates to conductive filaments for use in electric igniters, incandescent lamps and analogous devices in which the filament is subjected to a high temperature, and has for its object the provision of an improved filament adapted to withstand for an indefinite period of time the high temperatures produced in such devices.

The invention consists briefly in the use of a core of an infusible or highly refractory material such as tantalum, tungsten or other highly refractory metal, upon which is a sheath of a metal of the platinum group or an alloy containing such metal. Such filament is particularly useful in an electric igniter to be affixed to gas burners. In such devices, in order to secure a high resistance and a concentrated heating effect with a source of current of low voltage such as a single dry cell, it is usual to make the ordinary platinum filament of extremely minute cross section. Such material when warmed by an electric current in presence of an explosive mixture of illuminating gas and air is acted upon catalytically and is heated to an extremely high temperature by the chemical action which takes place. This high temperature tends to melt and destroy the filament, so that it may give way at the first ignition or after a very few ignitions unless carefully protected by special means for reducing or minimizing such temperatures, as disclosed for example in my application filed June 11, 1910, Serial No. 566,408.

By the use of an infusible core of tantalum, tungsten, or other highly refractory metal, the effect of high temperature upon the sheath of platinum or platinum alloy is practically nullified since the particles of the latter are held in position and supported by the core. The filament is capable of withstanding a temperature sufficient to cause the platinum to fuse inasmuch as the capillary action of the core will hold the fused metal in position thereon. As soon as the temperature falls sufficiently the

platinum solidifies and the filament is then in its original condition.

In order that the invention may be more fully understood, reference is made to the accompanying drawing in which—

Figure 1 is a side view, partly in section, of a fragment of the improved filament greatly magnified; and Figs. 2, 3 and 4 are side views, partly in section, of various types of gas burner equipped with electric igniters employing the improved filament.

The filament 1 is of minute cross section and is composed of an infusible or refractory core 2 of tantalum, tungsten, or other highly refractory metal. Upon the core 2 is a sheath 3 of platinum or a metal of the platinum group or an alloy containing platinum or such metal. Such metals and alloys when warmed or heated have a catalytic action upon illuminating gas. Any suitable mounting for supporting said filament and applying current thereto may be used, that shown comprising a metallic base 4 to which one end of the filament is joined and a conductor 5 carried by an insulator 6, the conductor being connected to the other end of the filament.

The sheath 3 may be applied to the core 2 in any desired manner. For instance, when the core is of ductile material a sleeve of platinum or platinum alloy may be placed around the same and the whole then drawn down to a small cross section. In case a non-ductile core is used a film of platinum or other metal may be deposited thereon in a partial vacuum by a glow, convective or silent electrical discharge obtained in the usual manner from a Ruhmkorff coil or a Holtz machine; a layer of platinum may then be plated upon said film by electrodeposition. This method may also be used for covering cores of ductile material.

Having now described my invention, what I claim is:

1. A conductive filament for igniters composed of a refractory metallic core and a sheath consisting of material having a catalytic action upon illuminating gas.

2. A conductive filament for igniters, incandescent lamps and the like, composed of a refractory metallic core and a sheath containing a metal of the platinum group.

3. A conductive filament for igniters, incandescent lamps and the like, composed of

a core of tantalum and a sheath containing a metal of the platinum group.

4. A conductive filament for igniters composed of a core of tantalum and a sheath
5 consisting of material having a catalytic action upon illuminating gas, substantially as set forth.

This specification signed and witnessed this 29th day of September, 1910.

HOWARD LYON.

Witnesses:

JOSEPH H. JOHNSON,
OLA C. SELLERS.