

H. N. POTTER.
 GAS OR VAPOR ELECTRIC LAMP AND HEATER CONNECTED THEREWITH.
 APPLICATION FILED FEB. 26, 1903.

1,012,706.

Patented Dec. 26, 1911.

Fig. 1

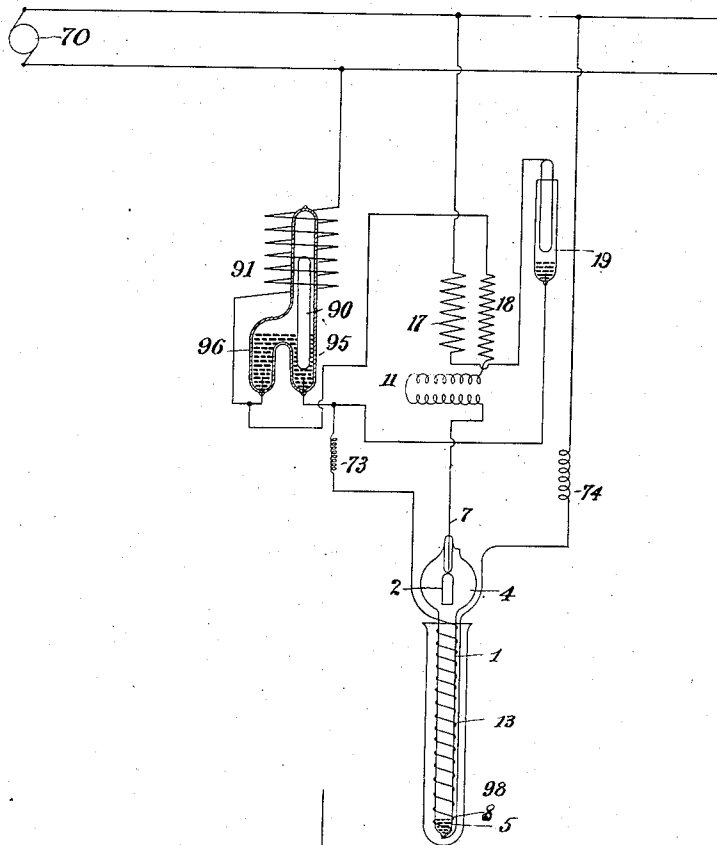
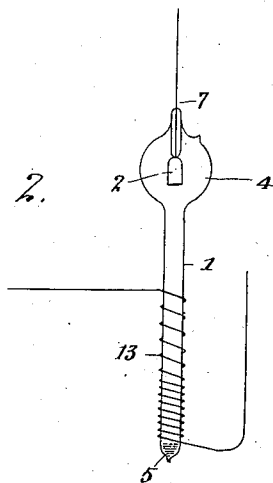


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY NOEL POTTER, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO COOPER HEWITT ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

GAS OR VAPOR ELECTRIC LAMP AND HEATER CONNECTED THEREWITH.

1,012,706.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Original application filed May 28, 1901, Serial No. 62,182. Divided and this application filed February 26, 1903. Serial No. 145,173.

To all whom it may concern:

Be it known that I, HENRY NOEL POTTER, a citizen of the United States, and a resident of New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Gas or Vapor Electric Lamps and Heaters Connected Therewith, of which the following is a specification.

My invention relates more particularly to gas or vapor electrical devices, in combination or association with means for heating such lamps and for preventing the too rapid dissipation of the initial heat.

In illustrating my invention, I have shown it in connection with a system of circuits and apparatus which may be used in operating such lamps, such a system being represented in Figure 1, while in Fig. 2 a special construction of combined lamp and heater is illustrated.

The present application is a division of an application filed by me on the 28th day of May, 1901, Serial Number 62,182.

In the first figure of the drawing, 1 represents a transparent tube, say of glass, constituting the main portion of the container for a suitable conducting gas or vapor. In the present instance, I have illustrated a lamp in which the cathode, shown at 5, is a mass or puddle of mercury, while the anode, appearing at 2, is of iron. A bulb or enlargement, 4, is formed at the upper end of the tube 1, to serve as a cooling chamber. Leading-in wires, 7 and 8, are connected, respectively, to the anode 2 and the cathode 5. I surround the body of the lamp, or a suitable portion thereof, with a heater wire, 13, which will generally be a German silver wire wound upon the outside of the tube. I generally wind such a wire more closely where it is outside the mercury cathode, as the latter, owing to its large specific heat, can absorb considerable heat and, unless extra heat is provided, the duration of starting of the lamp will be unnecessarily prolonged. This construction is illustrated in Fig. 2, where I also show the

heater wire surrounding a comparatively small portion of the tube 1.

Referring to Fig. 1, the lamp itself and the heater wire are arranged in separate parallel circuits supplied by a suitable generator, 70; while a third circuit, in parallel with the other two includes a suitable electrolytic interrupter, or other form of interrupter, 19, and the primary, 17, of a suitable starting transformer, the secondary, 18, of which is in the lamp circuit. I may employ a resistance, 73, in the heater circuit, a resistance, 74, in the common circuit and a ballast resistance, 11, in the lamp circuit.

Under the conditions illustrated in Fig. 1, current is passing from the dynamo 70 through a coil, 91, surrounding a chamber having two compartments, 95 and 96, at the bottom, with mercury in each compartment, a core 90 for the coil 91 extends down into one chamber or compartment and forces the mercury from that compartment until the two masses of mercury are connected together. This is the action of the core 90 under the influence of gravity alone. When the core is lifted by the energization of the coil 91, the mercury masses flow apart and the two chambers are no longer electrically connected. From the coil 91 the current proceeds through the mercury in the two chambers, thence through the resistance 73, the heater wire 13, the resistance 74 and thence back to the generator. A branch circuit passes through the interrupter 19 and the primary 17, as can easily be traced upon the drawing, while the third circuit passes through the secondary 18 and ballast resistance 11 to the lamp. This circuit is inoperative until the proper temperature conditions are produced in the lamp through the action of the heater wire and through the effects of whatever discharge occurs in the lamp circuit by reason of the impulses from the secondary 18 due to the effects of the interrupter 19 upon the primary 17.

In Fig. 1 I have shown an outer tube, 98, preferably of ground glass which is slipped over that part of the lamp upon which the

heater wire is wound. This is a very satisfactory way of hiding the heater wire, and as it hinders convection, it also causes the lamp to start more quickly, and prevents
5 the too rapid dissipation of the initial heat.

I claim as my invention:

The combination with a gas or vapor electric apparatus having a mercury cathode, of a winding of heater wire upon
10 the outside thereof, the wire being wound

more closely in the neighborhood of the cathode and more widely in the regions remote from the cathode.

Signed at New York, in the county of New York, and State of New York, this 15 20th day of February, A. D. 1903.

HENRY NOEL POTTER.

Witnesses:

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