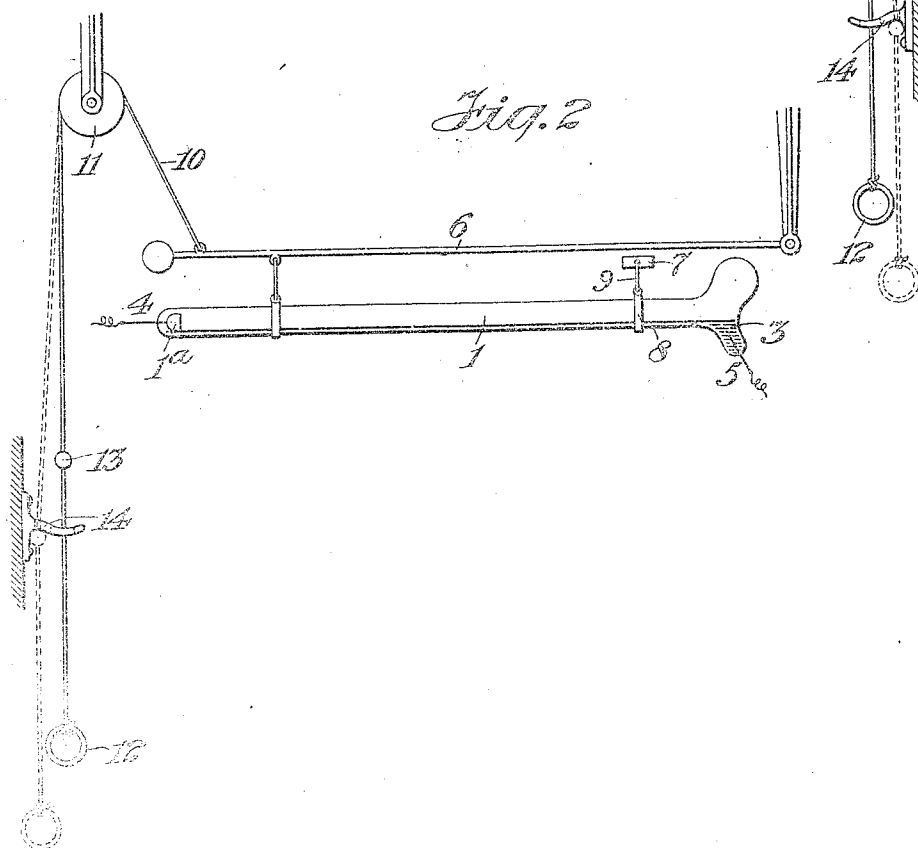
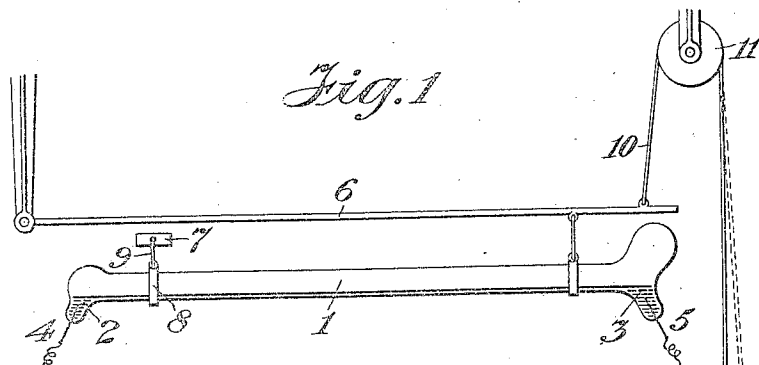


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 STARTER FOR VAPOR ELECTRIC APPARATUS.  
 APPLICATION FILED MAY 27, 1904.

1,031,931.

Patented July 9, 1912.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## STARTER FOR VAPOR ELECTRIC APPARATUS.

1,031,931.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed May 27, 1904. Serial No. 210,074.

*To all whom it may concern:*

Be it known that I, PETER COOPER HEWITT, a citizen of the United States, and resident of New York, county of New York, State of New York, have invented certain new and useful Improvements in Starters for Vapor Electric Apparatus, of which the following is a specification.

My invention relates to the construction and operation of electric lamps, particularly that class in which electric current is caused to traverse a mercury or vapor path between two or more electrodes.

The invention relates particularly to a method of starting the operation of the lamp and for convenience will be described more particularly in connection with a gas or vapor lamp in which one or more of the electrodes consists of mercury.

As is well known current will traverse the vapor path between the electrodes when the device has once been started under the influence of a lower difference of potential than is usually required for starting it. For this reason, various means have been employed for producing an initial current of higher electro-motive force and applying same to terminals of a device for the purpose of breaking down the initial resistance. By causing a temporary electrical connection between the electrodes and then breaking the same, it is also possible to conveniently start the flow of current through the device.

The present invention relates to special means for providing such connection and consists generally in establishing a small thin connection of mercury between the electrodes and causing same to be interrupted when it is desired to start the flow of current.

The invention will be described more particularly in the accompanying drawing which illustrates the invention as applied to a vapor lamp, although it will be understood that the invention is also applicable to electric current rectifiers and other apparatus for transforming electrical energy. The two figures illustrate two forms of lamp having my invention applied thereto.

Referring to the drawing, 1 represents an

inclosing chamber provided in this instance with two electrodes, 2 and 3, located at the respective ends of the chamber. When the device is in an approximately horizontal position a thin long bridge of mercury connects the two electrodes with each other. A slight tilting of the device separates the stream and causes the mercury composing the connecting bridge to pass to the lower electrode. The construction of the device is such that a sufficient quantity of mercury will remain at the upper end of the tube to form an electrode. Electrical connections are made with respective electrodes by means of suitable leading-in conductors, 4 and 5. A convenient holder, 6, is employed for supporting the device and permitting of its being tipped as required. The device is provided with a suitable heat radiating capacity.

It is understood that instead of having both electrodes of mercury, it is possible to have one of the electrodes of metal, such as iron, as shown by Figure 2 at 1<sup>A</sup>, the mercury making contact with both electrodes when the device is in its horizontal position and flowing to the other electrode 3 when tilted.

One end of each lamp is connected with a support, 7, by means of a ring, 8, and a link connection, 9, the whole structure serving as a pivot on which the lamp can move when the holder 6 is reciprocated.

As a convenient means for tilting the apparatus, I may connect with the holder 6 a cord, 10, extending over a pulley, 11, and having at its opposite end a ring, or handle, 12, by means of which the cord can be pulled and the holder moved or tilted. On the cord I may place a ball, 13, which may cooperate with a catch, 14, secured to a suitable support, so that when the ball is placed under the catch as shown in dotted lines in the drawing, the lamp will be held in the position to which it is drawn.

I claim as my invention:—

A vapor electric apparatus comprising a lamp, said lamp including an exhausted container having a relatively long straight tubular portion, suitable electrodes in said container, and a lever arm pivoted at one end and supporting the lamp by a flexible link near the other and a separate flexible

support for the other end of the lamp, together with a cord and pulley for raising or lowering the free end of said lever arm whereby a thread of mercury may be formed  
 5 or broken between said electrodes and anchor means for holding said tube in an inclined position.

Signed at New York, in the county of New York, and State of New York, this 23rd day of May A. D. 1904.

PETER COOPER HEWITT.

Witnesses:

R. A. HEWITT,

WM. H. CAPEL.