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M. VON RECKLINGHAUSEN.  
GAS OR VAPOR ELECTRIC APPARATUS.

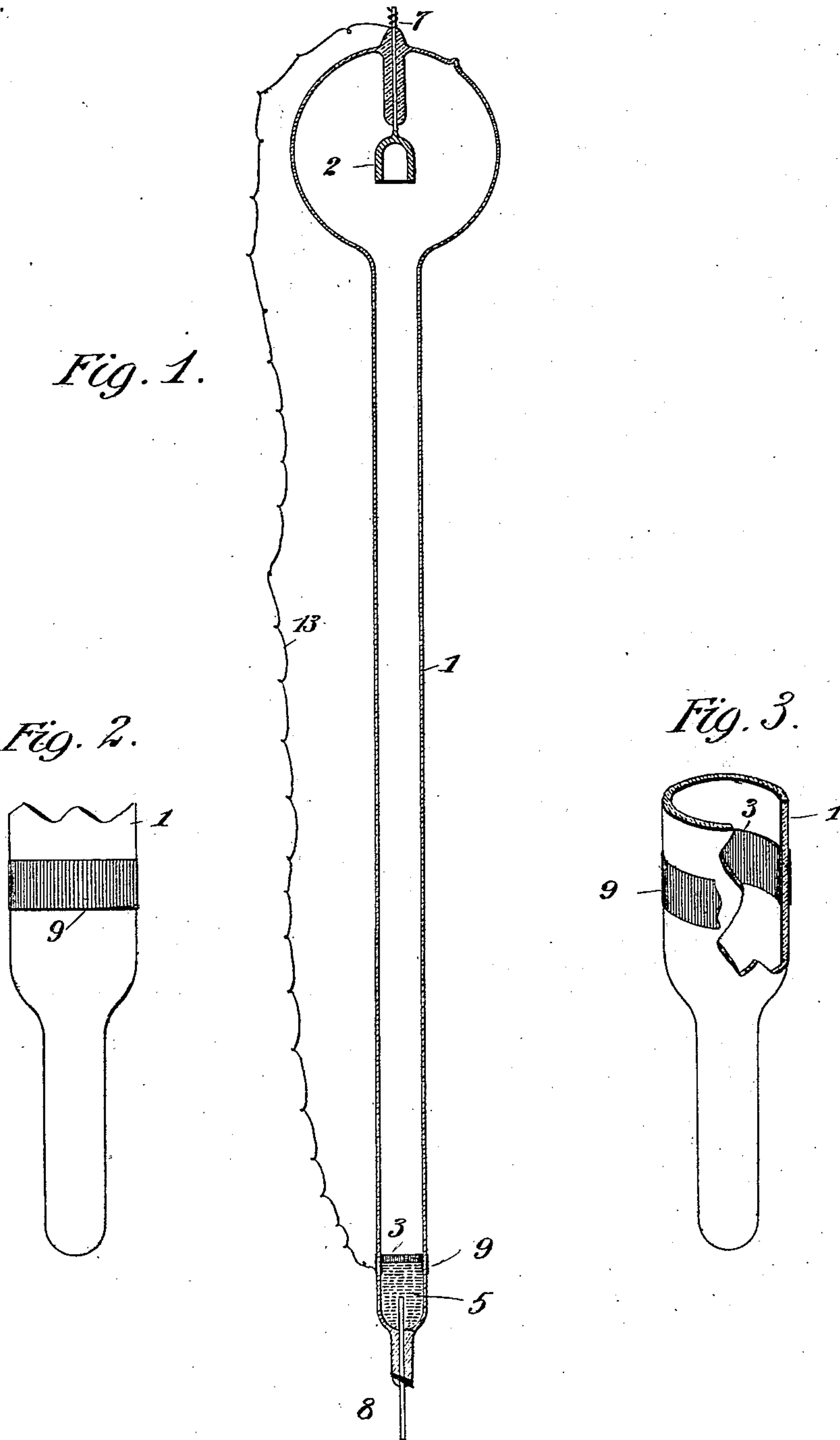
APPLICATION FILED DEC. 8, 1902.

NO MODEL.

*Fig. 1.*

*Fig. 2.*

*Fig. 3.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GAS OR VAPOR ELECTRIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 750,891, dated February 2, 1904.

Application filed December 8, 1902. Serial No. 134,366. (No model.)

*To all whom it may concern:*

Be it known that I, MAX VON RECKLINGHAUSEN, a subject of the Emperor of Germany, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas or Vapor Electric Apparatus, of which the following is a specification.

The development of gas or vapor electric apparatus as represented, for example, by the well-known Cooper Hewitt lamp has led to the adoption of certain standard features, among which is the employment of pure mercury for one or both of the electrodes when the vapor used in the apparatus is mercury vapor. In connection with the use of pure mercury for the negative electrode, particularly when the positive electrode is of iron or some material other than mercury, there sometimes arises a difficulty in starting the apparatus owing, possibly, to the fact that the pure mercury does not come into sufficiently intimate relation with the inclosing chamber. Whatever may be the reason, I have found it to be a fact that if the inside of the lamp tube or container of the apparatus near the negative electrode is lined with a metallic substance—for instance, platinum—the starting of the apparatus is rendered easier.

The invention forming the subject of the present application resides in providing means for lining the tube or container in the neighborhood of the negative electrode in the manner described, it being understood that the usual starting-band outside the tube, also in proximity to the negative electrode, is still employed. As a convenient mode of applying the platinum lining to the proper part of the tube, I may burn it to the inner surface of the tube, much in the same way as the burning process is conducted in the making of metallic mirrors. Thus I may paint the interior of the tube or the bulb in which the negative electrode is contained with platinum chlorid in lavender-oil. I may then apply heat gradually until the glass is softened and maintain the glass in that condition for a considerable period—say five minutes. In this way the interior of the tube or bulb will be coated with platinum,

after which the bulb can be completed and sealed off.

I prefer to construct the starting-band on the outside of the tube or bulb in the same manner and by the same operation—that is to say, the described paint may be applied to both the exterior and the interior of the bulb or tube and the process completed in the manner set forth above. In this way both an internal coating and an external starting-band can be applied by a single operation. The external band will then take the place of the usual band of metallic foil or similar substance which is generally applied to Cooper Hewitt gas or vapor electric apparatus.

The metal may be applied to both the exterior and the interior of the tube or bulb in other ways than that described without departing from the spirit of this invention. In any case the usual starting-band of metallic foil may be used, if preferred, even though the inner metallic lining is applied by the burning-in process.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a vertical section of a gas or vapor electric lamp of the character described, and Figs. 2 and 3 are detail views.

In the drawings, 1 is a tube or container of such a lamp, 2 is an electrode of iron, and 5 an electrode of mercury, the electrodes being respectively connected through the ends of the leading-in wires 7 and 8.

At 3 and 9 I show, respectively, the inner and outer metallic coatings, which may both or either be applied by the burning-in process hereinbefore described or by any other suitable process.

The lining 3 and the band 9 are, as shown, arranged in proximity to the negative electrode 5, and the band 9 is connected by a wire 13 with the leading-in wire 7 in the usual manner.

It is known that apparatus constructed on the principle of the Cooper Hewitt lamp may be utilized for other purposes than that of illumination, while at the same time such apparatus is subject in a general way to the same laws as the lamp itself. For example,



it may require starting devices, and accordingly my present invention is applicable not only to gas or vapor electric lamps, but broadly to apparatus of this character whether used as  
5 a lamp or not.

What I claim as my invention is—

1. A gas or vapor electric apparatus having a positive electrode of any suitable material and a negative electrode of mercury, both in-  
10 closed within a suitable container, a part of the container next to the mercury being lined with a metal.

2. A gas or vapor electric apparatus consisting of a transparent container, a positive  
15 electrode of any suitable material, and a negative electrode of mercury, a part of the container adjacent to the mercury being coated inside and outside with metallic material, the outer band being electrically connected with  
20 the positive electrode.

3. A gas or vapor electric apparatus consisting of a transparent container, a positive electrode of any suitable material, and a nega-

tive electrode of mercury, the part of the container adjacent to the mercury being coated  
25 inside and outside with metallic material.

4. A gas or vapor electric apparatus consisting of a container, a gas or vapor, a positive  
electrode of any suitable material, and a negative  
electrode of some volatilizable substance,  
30 the container adjacent to the negative electrode being lined with metallic material.

5. A gas or vapor electric apparatus, consisting of a transparent container, a positive  
electrode of any suitable material, and a negative  
35 electrode, both the positive and negative electrodes being within the container, the part of the container adjacent to the negative electrode being coated with a metallic paint.

Signed at New York, in the county of New  
York and State of New York, this 5th day of  
December, A. D. 1902.

MAX VON RECKLINGHAUSEN.

Witnesses:

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