Aug. 30, 1932. F. SCHAEFER ET AL 1,874,127

ELECTRODE FOR GASEOUS CONDUCTION LAMPS AND METHOD OF MAKING SAME

Filed Aug. 19, 1929

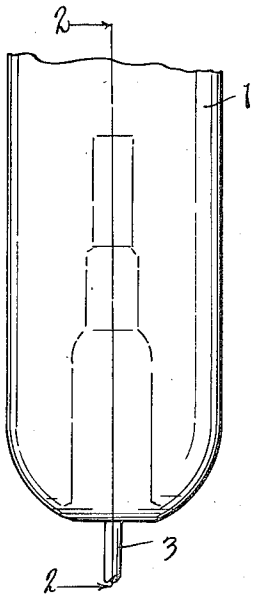


Fig. 1

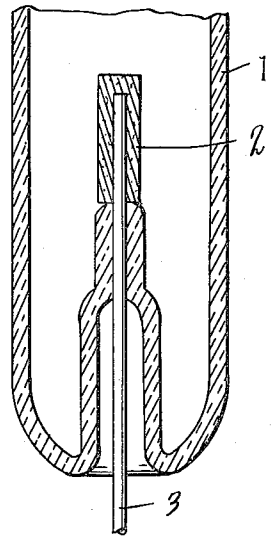


Fig. 2

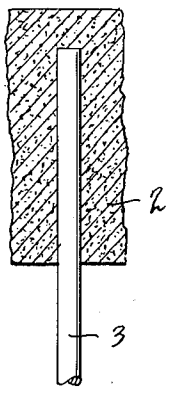


Fig. 3

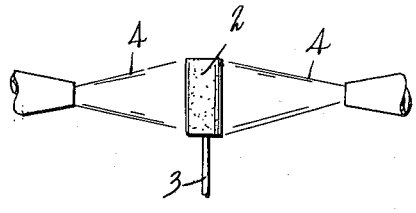


Fig. 4

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UNITED STATES PATENT OFFICE

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ELECTRODE FOR GASEOUS CONDUCTION LAMPS AND METHOD OF MAKING SAME

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In the manufacture of gaseous conduction lamps it has long been recognized that one of the difficulties is the disintegration of the electrodes in use which has a deleterious effect upon the life of the tube and also variation in the gas within the lamp, thereby affecting the electric discharge. It has been attempted to minimize this disintegration by employing electrodes having a relatively large surface area. This is only a partial remedy as even such electrodes disintegrate under certain conditions and the results are imperfect and other disadvantages are incident to the use of such electrodes.

The main objects of this invention are:

First, to provide an electrode for gaseous conduction or luminous tube lamps which is highly efficient in the matter of electric discharge, may be made in relatively small dimensions or have a small surface, and at the same time does not sputter or disintegrate in use.

Second, to provide an electrode which is not materially affected by heat or long continued use.

Third, to provide a method of making electrodes for gaseous conduction lamps and the like by which great uniformity of results may be had, and electrodes economically produced having the above recited and other advantages.

Objects relating to details and economies of our invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of our invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary side view of a gaseous tube lamp embodying our improved electrode.

Fig. 2 is a detail view mainly in longitudinal section on line 2—2 of Fig. 1.

Fig 3 is an enlarged view of the electrode.

Fig. 4 is an illustration of one of the steps in making the electrode.

Referring to the drawing, 1 represents a gaseous tube lamp and 2 one of the electrodes thereof. This electrode is provided with a lead-in wire 3.

The electrode 2 is made in accordance with our improved method which consists of an alloy of what we designate as a base metal and an active metal, preferably barium and nickel, although copper or aluminum may be employed, and instead of the barium, a metal of the alkaline earth groups may be employed with quite satisfactory results. However, as stated, we have found it very satisfactory to employ the nickel as the base element and barium.

This alloy is formed into the proper shape and dimensions for the electrode and is subjected to heat in an oxidizing atmosphere. We have obtained very satisfactory results from the use of an acetylene or other flame in the air. This treatment results in oxidizing the alloy to at least a substantial depth.

The proportions of the elements may be considerably varied with satisfactory results.

Our improved electrodes are not only highly efficient but they do not sputter even when of small dimensions and they do not become unduly heated even when in continuous use for a long period of time.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. An electrode of the class described an alloy of barium and nickel having a surface consisting of a black homogeneous substance containing the oxides of the nickel and barium.

2. An electrode of the class described consisting of an alloy of an alkaline earth metal with a base metal having a fused surface containing oxides of the base and alkaline earth metals.

3. An electrode of the class described consisting of an alloy of a base metal and an alkali or alkaline earth metal having a fused surface containing the oxide of the earth metal.

In witness whereof we have hereunto set our hands.

FRANK SCHAEFER.
ORA S. DUFFENDACK.