A. V. WILKER.

ARC LIGHT ELECTRODE.

APPLICATION FILED JAN. 22, 1913.

1,114,953. Patented Oct. 27, 1914.

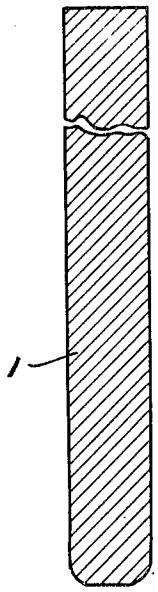


Fig. 1

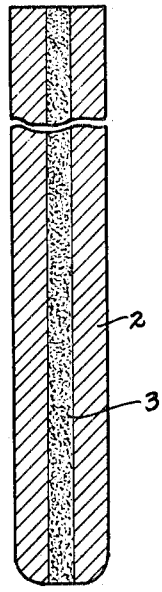


Fig. 2

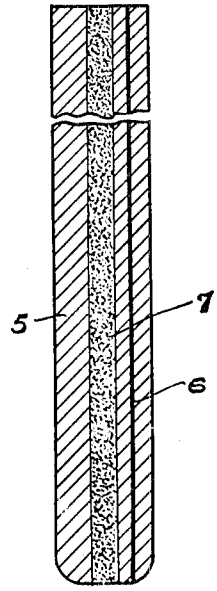


Fig. 3

WITNESSES

H. G. Grover

C. H. Kronbach.

INVENTOR

ARTHUR V. WILKER

BY Ira J. Adams

ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR V. WILKER, OF BEREA, OHIO, ASSIGNOR TO NATIONAL CARBON CO., OF CLEVELAND, OHIO, A CORPORATION OF NEW JERSEY.

ARC-LIGHT ELECTRODE.

1,114,953. Specification of Letters Patent. **Patented Oct. 27, 1914.**

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To all whom it may concern:

Be it known that I, ARTHUR V. WILKER, a resident of Berea, in the county of Cuyahoga, in the State of Ohio, have invented new and useful Improvements in Arc-Light Electrodes, of which the following is a clear and exact description.

This invention relates to arc light electrodes and particularly to that type known as flaming arcs.

An electric lamp with plain carbon electrodes emits only a small part of the light from the arc itself as is well known. It has been the practice to impregnate the electrodes with certain salts, oxids or metals to improve the candlepower and color of the arc. Some of the flaming materials used in the electrodes have objectionable features when baked in the furnace. Others have the disadvantage that they are non-conductors of electricity when cold.

One object of this invention is to use compounds that will greatly increase the flaming power of arc lamps without causing difficulties in baking in the furnace after being incorporated in the electrodes.

Another object of the invention is to construct an electrode of certain flaming materials that are conductors of electricity when cold as well as when highly heated.

Other objects will appear in the following description of my invention, particular reference being had to the drawings in which:

Figure 1 is an elevation of a solid flame carbon composed of materials in accordance with my improvement. Fig. 2 is a longitudinal section of a cored carbon in accordance with my improvement. Fig. 3 is a longitudinal section of a cored carbon in which is used a metallic rod composed of metals in accordance with my improvement.

The silicids and carbids of the rare earth elements such as cerium, thorium, lanthanum, didymium, yttrium, neodymium, praseodymium, samarium, ytterbium, scandium are conductors of electricity and possess features that are valuable in flaming mixtures for arc lamp electrodes and I propose to make electrodes containing any one of these compounds or any combination thereof. The carbids or silicids can be combined with calcium fluorid or with potassium salts or other compounds known to be beneficial in flaming mixtures. The silicids or carbids together with the other desired compounds are thoroughly mixed with tar or other known binder and made into the proper shape such as is shown at 1 in Fig. 1. The formed electrodes are then baked. The manner in which the electrodes are made is old and well known in the art and need not be further described.

The flaming mixture need not be incorporated into a solid carbon as in Fig. 1, but may be made into a mix, and placed into a carbon shell 2 as is indicated by reference character 3 in Fig. 2.

The rare earth metals referred to in this specification are ductile and may be drawn into wires to be used with electrodes in the same way as zinc wires are now used. Fig. 3 shows this arrangement. The outer shell is indicated at 5 and has a wire 6 extending lengthwise thereof, which is made of any of the rare earth metals or alloys containing them. I have shown a core 7 in the electrode, though the wire 6 may be used with solid carbons such as are shown in Fig. 1. I also propose to use the rare earth elements in the form of metals or alloys to construct an electric light electrode. In this case the electrode may be made of solid metal or it may be made of a mixture of the powdered metal with a suitable binder.

Having described my invention what I claim is:

1. An electric light electrode containing a silicid of the rare earth group.

2. An electric light electrode containing cerium silicid.

In testimony whereof I have hereunto signed my name.

ARTHUR V. WILKER.

Witnesses:
F. D. LAWRENCE,
F. H. ODELL.