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ELECTRODE FOR ELECTRIC ARC LIGHTS.  
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974,389.

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Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

ATTEST

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# UNITED STATES PATENT OFFICE.

ADRIAN DENMAN JONES, OF HOLLOWAY, ENGLAND.

ELECTRODE FOR ELECTRIC-ARC LIGHTS.

974,389.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed April 19, 1909. Serial No. 490,945.

*To all whom it may concern:*

Be it known that I, ADRIAN DENMAN JONES, a subject of the King of Great Britain and Ireland, and residing at 39 Hartham road, Holloway, London, N., England, have invented certain new and useful Improvements in Electrodes for Electric-Arc Lamps, of which the following is a specification.

My invention relates to compound carbons for electric arc lamps and has for its object to construct carbons carrying chemicals in such a manner that disintegration and breaking away of the chemical composition is avoided.

Chemical mixtures applied in grooves or the like in a carbon electrode may become disintegrated when heated by proximity to the arc and tend to crumble away or if the electrodes are subjected to rough usage may become detached and fall away from the carbon core. It has therefore, been necessary to employ together with the mixture of chemicals used to fill the grooves or the like, some substance which gives adhesive properties to the chemical mixture and acts as a cement, and the freedom of choice of a chemical mixture is thus hampered by the necessity of considering the binding qualities as well as the light giving properties of the constituents and their effect on the steadiness of the arc.

The invention consists in so shaping a central core of carbon and applying the chemical mixture that even if the chemical mixture does not adhere to the carbon core or support, the chemicals are mechanically held and do not become completely detached from the electrode. The carbon core or support is therefore formed in such a manner that the chemicals are mechanically interlocked with the core.

To insure good operation with electrodes constructed according to the invention it is advisable that the chemicals substantially embrace and surround the carbon core. By this construction the chemicals serve to protect the carbon from air currents, and thus prolong the life of the electrode, and the carbon core forms a point of contact for restriking the arc when current is first switched on.

To effect the object of this invention various forms of construction may be used the

principle of interlocking the chemical paste and carbon remaining substantially the same throughout.

With electrodes of star shaped cross section knobs or projections may be formed upon the extremities of the rays or flutes, or small fillets or grooves may be formed upon the sides of any suitable fluted or grooved electrodes to give a hole to the paste. Again, the carbon core may have projections or arms radiating outward and then curving inward again. In another form the central core may have grooves or flutings so cut away that the chemical paste dovetails into these grooves or dovetailed holes may be provided. Generally an electrode of star section with a large central core of pure carbon and thin radiating arms or rays which have projections at their ends sufficient to mechanically lock the chemical paste, is easy to manufacture and quite satisfactory.

Referring more particularly to the drawings, the black portion in the various figures indicates carbon, the shaded or dotted portion indicating the chemical mixture surrounding the carbons. All the figures are cross sections of the electrodes.

Figure 1 shows a grooved or star shaped carbon, with the ends of the rays sufficiently thickened to form a mechanical lock for the chemicals. Fig. 2 shows the rays or arms bent to lock the chemicals within the arms. Fig. 3 shows projecting fillets upon the rays or arms of the star. Fig. 4 shows roughened edges upon the rays or arms. Fig. 5 shows a rayed carbon with locking projections or fillets on the end of the radial arms, but for ease of manufacture I prefer the form shown in Fig. 1.

It is obvious that the various forms may be modified, retaining the principle of a central carbon core with flutings or projections mechanically holding the chemicals which substantially embrace and surround the main body of the carbons.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. An arc lamp electrode, comprising a carbon core, a plurality of projecting members from said core, chemical material disposed around the core between said projecting members, and said projecting mem-

bers being shaped so as to partially inclose said chemical material, to mechanically hold it in place.

2. An arc lamp electrode comprising a  
5 carbon core provided with a plurality of radial members, and chemical material disposed around the core between said radial members, each of said radial members on the carbon core provided with lateral projec-

tions cooperating therewith and with the 10 chemical material to mechanically hold the latter in place.

In testimony whereof, I affix my signature in presence of two witnesses.

ADRIAN DENMAN JONES.

Witnesses:

ALBERT E. BARKER,  
B. CLARK.