

H. J. J. JABURG, JR.
ELECTRODE AND PROCESS FOR MAKING THE SAME.
APPLICATION FILED AUG. 30, 1909.

968,949.

Patented Aug. 30, 1910.

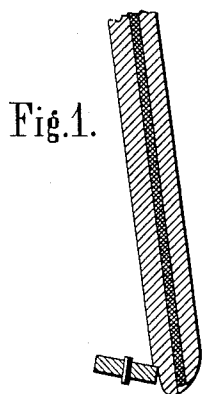


Fig. 1.

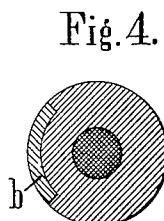


Fig. 4.

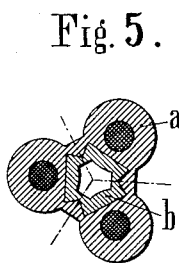


Fig. 5.

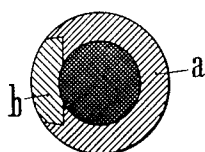


Fig. 2.

Fig. 6 .

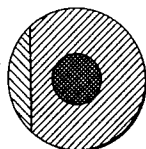
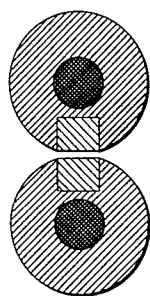


Fig. 3.

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UNITED STATES PATENT OFFICE.

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ELECTRODE AND PROCESS FOR MAKING THE SAME.

968,949.

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To all whom it may concern:

Be it known that I, HENDRICUS JOHANNES JACOBUS JABURG, Jr., electrical engineer, a citizen of the Kingdom of the Netherlands, and resident of 20 Helmerstraat, in the city of Amsterdam, Netherlands, have invented new and useful Improvements in Electrodes and Processes of Making the Same, of which the following is a specification.

10 My invention relates to electrodes for arc lamps and more particularly to an electrode or carbon circular in cross section and which is appropriately supported for the purpose of automatic adjustment while burning.

15 The edge of the support is of sufficient width and strength to hold the electrode in the proper position and the support may be rotatable if desired. Various devices have been made with a view to obviate the burning away of the support or the irregular burning away of the supporting edge, by the employment of appropriate materials. Thus, for instance, a rib or strip of readily melting metal has been placed or fitted in a longitudinal notch or groove of the electrode in any desired manner. Or a rib of carbon has been formed on the electrode and consisting of the same material as the latter. However, none of these devices has given the desired result.

20 It has been found that in order to form a supporting edge on the electrode the material most suitably adapted and which neither leaves a dripping slag or residue on the support nor causes the latter to be scorched is pure carbon of a smaller density than that of the remaining portion of the electrode. The supporting edge therefore as well as the electrode itself are accordingly made of carbon, but the body of the supporting edge is less dense than the electrode itself, consequently a smaller quantity of heat is necessary for its combustion. The heat supply is not impeded nor is the lateral distance of the supporting edge increased as in the case of flanged or ribbed carbons, because the amount of heat used is proportional to the material consumed by combustion. By appropriately selecting a supporting edge of the proper density, the burning away of this edge can be so controlled as to maintain a certain distance between the support or carrier and the point of the electrode. The support therefore is relatively remote from the crater and the point of highest temperature, while a large

surface area is offered to the air for the consumption of the carbon. Moreover a carbon round in cross section is always preserved and as already mentioned no slag can drop on to the support. To the burning edge which burns away, a substance giving off or developing oxygen is preferably added, such as, for instance, dioxid of barium or manganese or the like, in order to provide during the burning away of the carbon for the presence of a sufficient quantity of oxygen. If desired the whole electrode may be provided with a coating or cover made of the supporting substance.

In order that my invention may be more fully understood reference is made to the accompanying drawing in which:

Figure 1 shows an electrode, in section, resting on its support. Fig. 2 is a cross section of the electrode shown in Fig. 1. Figs. 3 and 4 are cross-sections of different forms of electrodes. Figs. 5 and 6 illustrate the method of forming double or multiple electrodes as a whole from which single electrodes, according to this invention, can be subsequently made by division.

It will thus be seen that the object of my present invention is to arrange on the electrode a supporting edge of pure carbon, maintaining the electrode of ordinary circular or round cross-section but having the supporting edge less dense than the other part of the electrode in order that the supporting edge will burn at a lower temperature than is required to burn the body of the electrode, owing to the smaller density of the edge. The supporting edge may be made of lamp black or powdered charcoal compacted together and mixed with substances which will give off oxygen under the action of heat, such as dioxid of barium or manganese. By this arrangement the supporting edge will always be burned away at some distance from the point or crater of the electrode so that the arc can not reach the support. Electrodes of this kind can be produced in various ways. For instance, an electrode can be provided with lateral grooves and the supporting edge can be glued in.

An excellent form of electrode made according to this invention is shown in Fig. 2, in which an outer body or covering *a* of dense carbon of the cross sectional form shown is made in any known manner, but hollow and having a longitudinal slot on one

side. A separate supporting edge *b* is then separately made and inserted in the slot of the body *a*, after which an appropriate filling or wick substance is so forced or pressed
5 into the central cavity of the body *a* that the supporting edge is secured in its place and unable to move in its seat. Or several electrodes as a whole can first of all be made as shown in Fig. 5 or 6 and subsequently
10 split up or divided into single electrodes. But the outer body or covering of hard carbon and the supporting edge can also be produced simultaneously and pressed together. Also the supporting edge can be impregnated with substances giving off oxygen
15 or with other material; its cross section may vary and it may be sunk in a groove of the electrode. Or the supporting edge may be produced by treating a portion or strip *b*
20 (Fig. 4) of the outer body of the electrode by changing the nature or consistency of the material at that point. During the pressing in of the substance the electrodes can if desired be covered. Or an ordinary
25 electrode can be impregnated laterally with the substance giving off or developing oxy-

gen. Preferably the support is made of a material which is a bad conductor of heat as, for instance, corundum.

I claim:

1. An electrode having a body of hard carbon and a supporting edge made of carbon less dense than the body of the electrode and impregnated with a substance which gives off oxygen when heated, substantially
35 as described.

2. The process of making electrodes which consists in forming a number of electrodes joined together, made of hard carbon and inserting in one side of each of said electrodes carbon less dense than the body of
40 the electrode, and then severing the electrodes from each other, substantially as described.

In testimony, that I claim the foregoing
45 as my invention, I have signed my name in presence of two witnesses, this eighteenth day of August 1909.

HENDRICUS JOHANNES JACOBUS JABURG, JR.

Witnesses:

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