

UNITED STATES PATENT OFFICE.

EHRENFRIED CORLEIS AND HERMANN RENISCH, OF ESSEN, GERMANY,
ASSIGNORS TO THE FIRM OF FRIED. KRUPP, OF SAME PLACE.

MANUFACTURE OF CARBON RODS FOR ELECTRIC-ARC LAMPS. 3406

SPECIFICATION forming part of Letters Patent No. 504,105, dated August 29, 1893.

Application filed April 26, 1893. Serial No. 471,943. (No specimens.)

To all whom it may concern:

Be it known that we, EHRENFRIED CORLEIS and HERMANN RENISCH, subjects of the King of Prussia, residing at Essen, in the Kingdom of Prussia, Germany, have invented new and useful Improvements in the Manufacture of Carbon Rods for Electric-Arc Lamps, of which the following is a specification.

Our invention has reference to an improved electrode or carbon for arc lamps, it relating especially to carbons impregnated with a chemical for the purpose of prolonging the life of the same and to increase the intensity of the light.

In the combustion of the ordinary carbons, an annular layer of finely divided carbon particles is formed in proximity to the arc owing to a secondary combustion of the carbon. These particles are not useful in adding to the luminosity of the arc, but are dissipated or fall down and are wasted, in consequence whereof the carbons are reduced in cross-section and the life of the same is shortened. To remedy this defect carbons have heretofore been impregnated or mixed with phosphate of lime, silicic acid, magnesia, borate and phosphate of magnesia, aluminium oxide, silicate of aluminium, oxide, boric acid, zinc chloride, copper nitrate, strontium nitrate, hydrate of potash, borax and sulphate of soda, phosphoric acid, and phosphate of ammonia or solutions of the same.

The object of our invention is to entirely prevent the secondary combustion, and consequently to increase the intensity of the light and to prolong the life of the carbons. With this object in view we impregnate the carbons with substances such as tungstic acid or its salts which are not consumed at a white heat, but only in the luminous arc, so that the form

assumed by the end of the upper carbon is more favorable for the emission of light.

In carrying out our invention we mix with the paste from which the carbons are subsequently made, tungstic acid or a salt of the same, or to obtain a similar result we impregnate the crude or finished carbons with tungstic acid, or salts of the same. From practical experiments made with impregnated carbons, we have determined that the life of carbons usually burning eighteen hours, is increased to twenty-one hours,—the limit being determined by the lower carbon, as the upper carbon remains in a condition to burn for about two hours longer. By increasing the diameter one millimeter a life of twenty-three hours was obtained, so that an increase of from seventeen to twenty-eight per cent. was obtainable.

In practice we have found that impregnation with a solution containing twenty-five per cent. of tungstate of sodium gives good results. Of the salts adaptable for the purpose of the present invention may be mentioned as examples tungstate of potassium and tungstate of sodium.

What we claim as new, and desire to secure by Letters Patent, is—

An arc light carbon impregnated with tungstic acid, or a salt of this acid, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EHRENFRIED CORLEIS.
HERMANN RENISCH.

Witnesses:

CHRISTIAN SONNENSCHN,
ALBERT KLINGHAMMER.

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H.C.L.