

# UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

MANUFACTURE OF CARBONIZABLE MATERIAL FOR THE CONDUCTORS OF INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 304,880, dated September 9, 1884.

Application filed November 20, 1883. (No specimens.)

*To all whom it may concern:*

Be it known that I, EDWARD WESTON, a subject of the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Carbonizable Materials for the Conductors of Incandescent Lamps, of which the following is a full, clear, and exact description.

In a patent granted to me September 26, 1882, No. 264,987, I have described a carbonizable plastic compound, and the method or process of manufacturing the same, which compound I designate "non-fibrous or amorphous cellulose." This material, when prepared by the process discovered by me, is peculiarly well adapted to the manufacture of carbon conductors for incandescent lamps. I have found, however, when this material is produced by the aid of reducing agents containing sulphur in their composition, that traces of this element remain which impair to a sensible degree the carbon conductors made from it. My present invention involves the removal of the traces of sulphur compounds from the material as a step in the process of manufacture preliminary to the production therefrom of the carbon conductors.

In describing my improvements I will describe in detail so much of the process of manufacture of the cellulose in a non-fibrous or amorphous state as is necessary to an understanding of the invention. I first convert a desired quantity of cellulose—that is to say, cotton, linen, or paper, by any of the ordinary and well-known processes—into pyroxyline. This substance, after being washed and dried, I dissolve with a mixture of ether and alcohol to convert it into collodion, or with naphtha, nitro-benzole, or camphor, alone or with other solvents, to produce celluloid. From either of these compounds I produce the pure amorphous cellulose by forming them into sheets or other forms, and immersing the same in a bath of ammonium sulphide, proto-chloride of iron, sulphate of iron, or other chemically-equivalent agents, the effect of any of these agents being to deprive the collodion or celluloid of their nitrous principles and to reduce them to their original chemical condition, as cellulose, but cellulose without fiber or definite structure.

To obtain the carbon-conductors I cut or stamp blanks of the desired shape from the sheets of the cellulose, and these blanks I then carbonize in a close retort or muffle; but when reducing agents into whose composition sulphur enters are employed, (and I have found it very desirable to use such agents,) it is very difficult to obtain a material free from traces of sulphur, which, though not chemically combined with the cellulose, impairs by its presence the quality of the carbon residue produced by destructive distillation. I therefore immerse the cellulose, before carbonization, in some solvent of sulphur to free it from all traces of the latter. The solvents that I use for this purpose may be bisulphide of carbon, turpentine, chloroform, caprylic alcohol, or others. The carbon prepared from cellulose thus treated is of a very superior quality for purposes of incandescent lighting.

It may be stated that the solvents of sulphur may be applied to the sheets of cellulose or to the blanks after they are cut therefrom, and that the latter may be cut from the material after it has been reduced or before, the blanks in the latter event being immersed in the reducing agents. These are, however, matters of detail that do not affect the invention.

What I claim is—

1. The improvement in the process of manufacturing carbonizable cellulose for the conductors of incandescent lamps, which consists in treating collodion or celluloid with reducing agents containing sulphur in their composition, and then removing the traces of sulphur from the material, as and for the purpose set forth.

2. The method or process of manufacturing carbonizable cellulose for the conductors of incandescent lamps, which consists in treating collodion or celluloid with ammonium sulphide, or equivalent reducing agent containing sulphur in its composition, and then removing the traces of sulphur by suitable solvents, as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 9th day of November, 1883.

EDWARD WESTON.

Witnesses:

HENRY A. BECKMEYER,  
FRANK N. CRANE.