

# UNITED STATES PATENT OFFICE.

JOHN T. H. DEMPSTER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PROCESS OF PREVENTING SURFACE OXIDATION OF RESISTANCE-CONDUCTORS.

957,193.

Specification of Letters Patent.

Patented May 10, 1910.

No Drawing.

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*To all whom it may concern:*

Be it known that I, JOHN T. H. DEMPSTER, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Processes of Preventing Surface Oxidation of Resistance-Conductors, of which the following is a specification.

10 This invention relates to means for preventing surface oxidation of resistance conductor, to be used in electric heaters and the like and has for its object the provision of means whereby the oxid is prevented  
15 from forming when the conductor is heated.

In the construction of electric heaters and the like, high resistance conductors are frequently used, containing metal which forms an oxid on the conductor. This oxid has  
20 been found in some cases to attack the mica or other insulating material with which it is in contact when the conductor reaches a high temperature. This is particularly true of certain resistance conductors containing  
25 iron, as for instance an alloy of iron, nickel and chormium. A resistance conductor of this composition, when heated, forms an oxid or scale which has been found to combine with mica to form a low melting point  
30 mixture.

One of the objects of my invention, therefore, is to prevent formation of this oxid.

In carrying out my invention, I interpose between the resistance conductor and the  
35 mica a layer or film of easily oxidizable material which combines with the oxygen instead of combining with the metal. This process is adapted for use in cases where the resistance conductor is to be sealed in, as  
40 for instance where the conductor, in contact with mica, is cast into a body of metal. In this case it is found that a small amount of oxygen is always retained by the mica or

around the conductor. By placing an oxidizable substance next to the mica, this oxygen combines with the substance and prevents surface oxidation.

The particular material which I have found to serve the purpose is carbon, in the form of paraffin or lampblack, which is suspended in some volatile liquid, as for instance, turpentine or gasolene. The lampblack may be mixed to form a paint, which may be laid on the mica next to the conductor, so that when the conductor is heated  
55 by passing current through it, or during the casting-in process, the carbon will combine with the oxygen and form carbon dioxide, and the surface oxidation of the conductor be prevented

60 While I have described my invention as employing a specific material and as operating in a definite manner in accordance with the patent statutes, it should be understood that I do not limit my invention  
65 thereto, since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

70 What I claim as new and desire to secure by Letters Patent of the United States, is

1. The process of treating resistance conductors to prevent initial oxidation, which consists in applying thereto a readily oxidizable substance.

2. The process of treating resistance conductors to prevent initial oxidation, which consists in applying thereto a coating of carbon.

80 In witness whereof, I have hereunto set my hand this 19th day of March, 1909.

JOHN T. H. DEMPSTER.

Witnesses:

HELEN ORFORD,

MARGARET E. WOOLLEY.