

UNITED STATES PATENT OFFICE.

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

PROCESS OF INSULATING ELECTRIC CONDUCTORS.

No. 894,613.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed November 6, 1907. Serial No. 400,946.

To all whom it may concern:

Be it known that I, JOHN T. H. DEMPSTER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in the Processes of Insulating Electric Conductors.

This invention relates to the insulating of electric conductors and has for its object the provision of means whereby an insulating coating may be applied in a thin tenacious film in a simple and efficient manner.

More specifically my invention relates to the insulating of an alloy used as a resistance conductor.

Certain of the metals have oxids which are conducting while others are non-conducting. In carrying out my invention I produce a coating upon the alloy by oxidizing the same and then treat the coating to remove the conducting portion of the oxid. In my co-pending application Serial No. 400,691, I have disclosed an alloy which has valuable properties as a resistance conductor. This alloy contains principally nickel, iron, manganese and chromium. The oxid of iron is conducting in its properties while the oxid of the chromium is highly insulating. The oxids of nickel and manganese while not highly conducting are also not in a high degree insulating. In order to produce a coating of oxid upon the alloy, I heat the same, preferably in the form of a wire or ribbon, in an oxidizing atmosphere. This produces a coating which, while it insulates to a certain extent, would not be efficient as an insulator since it contains conducting oxids. In order to remove these oxids, the wire is boiled in dilute sulfuric acid. This removes the conducting oxids which in this case are iron, nickel and manganese, leaving the chromium oxid intact. This layer of chromium oxid is very tenacious and at the same time refractory so as to have a very high resistance against slagging.

While I have described my invention in connection with an alloy of specific metals and have also described a particular process of treating the alloy to remove the conducting oxid, it should be understood that I do not limit my invention to the specific details herein described except in so far as it is limited by the scope of the claims annexed hereto.

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

1. The process of insulating an electrical conducting alloy, which consists in oxidizing the same to form a coating thereon and then treating said coating to remove the conducting oxids.

2. The process of insulating an electrical conducting alloy, which consists in heating the same in an oxidizing atmosphere and then treating it to remove part of the oxid.

3. The process of insulating an alloy of metals having conducting and non-conducting oxids, which consists in oxidizing the same to produce a coating thereon and then treating it to remove the conducting oxid.

4. The process of insulating an alloy of chromium and a metal having a conducting oxid, which consists in oxidizing the same to produce a coating thereon and then treating it to remove the conducting oxid.

5. The process of insulating an alloy containing chromium and iron, which consists in oxidizing the same to produce a coating thereon and then treating it to remove the conducting oxid.

6. The process of insulating an alloy containing iron and a metal having a non-conducting oxid, which consists in oxidizing the same to produce a coating thereon and then treating it to remove the conducting oxid.

7. The process of insulating an alloy containing iron and a metal having a non-conducting oxid, which consists in oxidizing the same to produce a coating thereon and then treating it with sulfuric acid to remove the conducting oxid.

8. The process of insulating an alloy containing chromium and a metal having a conducting oxid, which consists in oxidizing the same to produce a coating thereon and then treating it with sulfuric acid to remove the conducting oxid.

9. The process of insulating an alloy containing chromium and iron, which consists in oxidizing the same to produce a coating thereon and then treating it with sulfuric acid to remove the conducting oxid.

In witness whereof, I have hereunto set my hand this 5th day of November, 1907.

JOHN T. H. DEMPSTER.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.