

UNITED STATES PATENT OFFICE.

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

ALLOY.

953,412.

Specification of Letters Patent. Patented Mar. 29, 1910.

No Drawing.

Application filed November 29, 1909. Serial No. 530,332.

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 Alloys, of which the following is a specification.

This invention relates to alloys and has for its object the provision of a material which will adapt itself readily as a resistance conductor for use in rheostats and the like.

One of the objects of my invention is to produce a resistance metal which will have a relatively high resistance, but not of such high resistance or as costly to manufacture as that disclosed in my Patent No. 901,428.

In carrying out my invention I employ a very large percentage of iron in combination with tellurium, silicon and manganese. In order to make this compound, the tellurium and silicon may first be formed into an alloy in the manner disclosed in my Patent No. 923,152. This alloy, having been cast, is broken into pieces and placed in the ladle. The molten iron, which has been previously decarbonized and purified, is then poured into the ladle or, if desired, the tellurium-silicon alloy can be added to a bath of molten iron. When this has all been melted in the furnace, it is cast into ingots and may be rolled into rods or sheets or drawn into wire.

The proportions of metals used in my alloy may be varied. I have found, however, that a suitable alloy may be formed by the use of approximately 91.6 per cent. iron, 2

per cent. tellurium, 6 per cent. silicon and .4 per cent. manganese. The manganese is added for the purpose of facilitating the formation of the alloy and to promote the working in the rolls and dies.

The alloy formed by this process is relatively cheap and has a sufficient resistance for use in rheostats and the like. It has high tensile strength and can be rolled and drawn without difficulty.

It should be understood that while I have, in accordance with the patent statutes, set forth an alloy containing metals in specific proportions I do not limit my invention to the exact proportions of metals mentioned, 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. An alloy containing iron, tellurium and silicon.

2. An alloy containing tellurium, silicon and more than 75 per cent. of iron.

3. An alloy containing iron, tellurium and silicon, the iron being largely in excess of the other metals.

4. An alloy containing tellurium, silicon and iron, the tellurium and silicon together being less than 15 per cent.

5. An alloy of tellurium, manganese, silicon, and more than 75 per cent. of iron.

In witness whereof, I have hereunto set my hand this 27th day of November, 1909.

JOHN T. H. DEMPSTER.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.