

UNITED STATES PATENT OFFICE.

JOHN FAIRFIELD THOMPSON, OF BAYONNE, NEW JERSEY, ASSIGNOR TO INTERNATIONAL NICKEL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

METHOD OF TREATING NICKEL-COPPER ALLOYS.

947,067.

Specification of Letters Patent.

Patented Jan. 18, 1910.

No Drawing.

Application filed September 30, 1908. Serial No. 455,522.

To all whom it may concern:

Be it known that I, JOHN FAIRFIELD THOMPSON, of Bayonne, county of Hudson, and State of New Jersey, have invented a new and useful Method of Treating Nickel-Copper Alloys, of which the following is a specification.

My invention relates to nickel copper alloys and has for its object the removal of the oxids of nickel and copper which form thereon.

In rolling or forging an ingot of a copper nickel alloy the metal is first heated in a furnace and then drawn out and rolled or forged into the desired shape. Both during the heating in the furnace and during the exposure of the heated metal to the air during the rolling or forging operation the metal becomes covered with a coating of the oxids of the two metals.

To remove the oxids of nickel and copper, especially those formed during the heating and rolling or forging, I employ a pickle consisting of a solution containing a ferric iron salt.

In the preferred form of operation, after the metal has been treated in the proper furnace and has been rolled or forged I immerse it in a tank filled with a solution containing a free acid, preferably sulfuric acid and water. Ferric salt, preferably ferric sulfate, is then added to the solution. (The ferric salt if desired may be soluble in form when introduced into the bath.) The bath is then heated to preferably about 150° F. at which temperature I have obtained the most satisfactory results. The metal is allowed to remain in the bath until the oxids upon the metal are absorbed in the solution; and is then removed and washed.

The combination of the free acid in the solution and the ferric salt act effectively to remove the oxids of nickel and copper present on the surface of the metal, and also act to prevent the reprecipitation by the nickel of the copper dissolved from the oxid back upon the metal.

It will be seen by those skilled in the art that many variations may be made in my process without departing from its spirit and scope, since

What I claim is:

1. The method of pickling nickel copper

alloys which consists in treating them with a solution containing ferric iron salt; substantially as described.

2. The method of pickling nickel copper alloys which consists in treating them with an acid solution containing a ferric iron salt; substantially as described.

3. The method of pickling nickel copper alloys which consists in treating them with a heated acid solution containing a ferric iron salt; substantially as described.

4. The herein described method of treating nickel copper alloys for the removal of the oxids of nickel and copper thereon, which consists in immersing the metal in a tank containing a solution of a free acid and water, adding a ferric salt thereto, heating the solution and thereafter removing the metal and washing the same; substantially as described.

5. The herein described method of treating nickel copper alloys for the removal of the oxids of nickel and copper thereon, which consists in immersing the metal in a tank containing a solution of sulfuric acid and water, adding a ferric salt thereto, heating the solution and thereafter removing the metal and washing the same; substantially as described.

6. The herein described method of treating nickel copper alloys for the removal of the oxids of nickel and copper thereon, which consists in immersing the metal in a tank containing a solution of a free acid and water, adding a ferric sulfate thereto, heating the solution and thereafter removing the metal and washing the same; substantially as described.

7. The herein described method of treating nickel copper alloys for the removal of the oxids of nickel and copper, which consists in immersing the metal in a tank containing a solution of a free acid and water, adding a ferric salt thereto, heating the solution to 150° F., and thereafter removing the metal and washing the same; substantially as described.

In testimony whereof, I have hereunto set my hand.

JOHN FAIRFIELD THOMPSON.

Witnesses:

HERBERT H. CULP,
THOS. H. BELL.