

UNITED STATES PATENT OFFICE.

JOHN B. JONES, OF BROOKLYN, NEW YORK.

ALLOY FOR COATING METALS.

SPECIFICATION forming part of Letters Patent No. 293,886, dated February 19, 1884.

Application filed July 15, 1882. (No specimens.) Patented in Canada September 1, 1883, No. 17,575.

To all whom it may concern:

Be it known that I, JOHN B. JONES, of Brooklyn, in the county of Kings and State of New York, have invented an Alloy for Coating Metals, of which the following specification is a description.

The object of my invention is the production of a compound metal or alloy for deoxidizing and coating iron plates, the same being electro-positive to the iron, and having its melting-point so low as to permit the use of vegetable oil or animal fats high in carbon upon the surface of the compound while in a melted state, and forming a fluid compound adapted to cover the iron with a thin coating, so that such coated iron will resist atmospheric oxidation more effectually than when coated with tin, as now practiced, without increasing the cost of production of iron plates so coated over tin plates, and improving the iron for manufacturing purposes.

My invention consists in a compound metal or alloy composed of metallic sodium, lead, tin, and zinc, compounded for use as a metal bath, into which iron plates or sheet-iron, iron sheets, or other metal articles are immersed and deoxidized, and thereby coated, so as to prevent future oxidation.

To carry my invention into practical effect I employ the following proportions of metallic sodium, tin, lead, and zinc, viz: one-half to five parts of metallic sodium in four hundred and eighty parts of the volume required, so that eight hundred and twenty-eight parts of lead, two hundred and thirty-six parts of tin, and three hundred and ninety-one parts of zinc would require from one-half to fifteen parts of metallic sodium. These proportions may, however, be varied a little. The metallic sodium, tin, zinc, and lead are to be melted in a large crucible and thoroughly intermixed to form my improved alloy. On the surface of this mixture, while in the melted state, I place a vegetable oil or animal fat high in carbon, to prevent oxidation and subserve the general purpose of a flux bath. This alloy or compound metal may be cast in ingots to be remelted, as desired for use; or it may be poured into the tank or kettle as soon as compound-

ed, the articles to be coated being immersed in the bath in this tank or kettle in the usual way until the desired coating is obtained. If it is desired that the articles or metals coated shall have a white or silver appearance, I vary the proportions above given to fifteen to thirty per cent. of zinc, the other metals being used in the quantities stated. If metals to be coated are intended to be used for roofing or other purposes which will necessarily expose them to the action of the atmosphere, appearance being of secondary consideration, the proportions stated will be varied as follows, according to the quantity of alloy required, viz: one hundred and seventy-five to two hundred and sixty-five per cent. of lead and fifteen to one hundred per cent. of zinc, the proportions of metallic sodium and tin remaining as before.

My improved alloy is more electro-positive to the iron and tin alone, or tin and lead, and renders the coated material less liable to oxidation. The use of the metallic sodium increases the electro-positive character of the alloy and diminishes the melting-point of the compound to such an extent that vegetable oils or animal fats high in carbon can be employed, and thus oxidation be prevented or arrested, which will not be the case when any alloy now known which is electro-positive to the iron is used as a coating, because any metal or compound metal whose melting-point exceeds 500° when brought to the working temperature would instantly ignite oils or fats, if employed as described.

In use, my improved alloy can be employed to coat metals in the same manner as tinning is now done, instead of operating in the same way as the more expensive process of galvanizing; and thus I can coat metals with my improved alloy at considerably less expense than can be done with the galvanizing process.

Metals coated with my improved alloy have as much if not more resistance to oxidation than galvanized metals, and much greater resistance than ordinary tin-plate or sheet-tin.

I am aware that it has been proposed to coat metals by dipping them in a bath of molten cadmium, or a cadmium alloy, on the surface of

which is a layer of melted fat, the article to be coated being first dipped in a solution of chloride of zinc.

I am also aware that it has been proposed
5 to coat articles of iron in a bath of molten zinc, mercury, and sodium or potassium.

What I claim is—

An alloy for coating iron, consisting of lead, tin, and zinc, with metallic sodium added, sub-

stantially in the manner and proportions specified, whereby the alloy is rendered electro-positive to iron, its melting-point reduced, and oxidation destroyed, arrested, or prevented, as set forth.

JOHN B. JONES.

Witnesses:

ERNEST C. WEBB,

CHAS. DE L. YOUNG.