UNITED STATES PATENT OFFICE.

GEORGE ALEXANDER DICK, OF LONDON, ENGLAND.

MANUFACTURE OF ALLOYS CONTAINING IRON AND ZINC.

SPECIFICATION forming part of Letters Patent No. 306,227, dated October 7, 1884.

Application filed February 24, 1883. (No specimens.) Patented in England May 25, 1882, No. 2,484; in France November 2, 1882, No. 139,643; in Belgium November 3, 1882, No. 59,466, and in Italy November 18, 1882, XVI, 14,784, and XXIX, 303.

To all whom it may concern:

Be it known that I, GEORGE ALEXANDER DICK, of London, England, have invented certain new and useful Improvements in the Manufacture of Metallic Alloys and Compounds, of which the following is a specification.

This invention relates to the manufacture of alloys containing zinc and iron; and it has for its object to furnish a product that contains a definite amount of iron in contradistinction to such alloys as contain iron in varying quantities.

The invention consists in a method of manufacture which involves the use of a bath of molten zinc maintained at a temperature of about 1,200° Fahrenheit, and into which a quantity of iron is introduced until such time as the point of saturation of the zinc bath is reached.

In carrying out my method of manufacture I dissolve wrought-iron in a bath of molten zinc to the point of saturation of the latter, this result being permitted by maintaining the bath for some time at as high a temperature as is possible without vaporizing the zinc—that is to say, about 1,200° Fahrenheit. This saturated solution, containing about nine per cent. of iron, is periodically removed from the crucible, and a fresh supply of zinc is poured over the heated wrought-iron contained therein.

The alloy formed by the above method is found to supply a great want, as by the employment of the same a definite quantity of iron can be introduced into the zinc, and the alloy is thus of a definite, pure, and uniform composition. Such an alloy of zinc and iron can be introduced into other alloys or combined with other metals, such as copper containing a requisite amount of manganese.

I am aware of the English Patent No. 7,781, granted A. D. 1838, which sets forth a method of obtaining zinc alloy consisting in melting the zinc in a crucible or other vessel and covering it with borax, or a layer of any other material or composition which will protect it from the atmosphere. Into this red-hot melted zinc small pieces of iron are thrown, so as to have the alloy formed by such mixture contain ninety-nine per cent. of zinc and one per cent. of iron.

I disclaim the broad idea of adding iron to molten zinc, and confine myself to the addition of such quantities of iron to molten zinc held below but near the temperature of 1,200° Fahrenheit that the alloy obtained contains a definite and a larger percentage of iron than has ever before been known.

I claim—

The manufacture of an alloy of iron and zinc by bringing the iron into contact with molten zinc heated to a temperature of about 1,200° Fahrenheit and dissolving the iron to saturation in the zinc, so that the product will contain a known or definite proportion of iron, substantially as herein set forth.

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Witnesses:

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