UNITED STATES PATENT OFFICE.

JOSEPH KINTZ, OF WEST MERIDEN, CONNECTICUT, ASSIGNOR TO HIMSELF AND PARTRICK J. CLARK, OF SAME PLACE.

COATING IRON SURFACES.

SPECIFICATION forming part of Letters Patent No. 227,268, dated May 4, 1880.

Application filed December 4, 1879.

To all whom it may concern:

Be it known that I, JOSEPH KINTZ, of West Meriden, in the county of New Haven and State of Connecticut, have invented a new and Improved Process for Bronzing Iron Surfaces, of which the following is a specification.

The object of this improvement is to coat, protect, and ornament iron surfaces by giving to the same a golden or bronzed exterior finish.

The invention consists in first cleaning the iron and buffing those parts thereof that are to remain bright in the finished article; second, in then electroplating the entire surface of the iron article with copper; third, then dipping the buffed article in dilute acid to brighten the copper; fourth, then buffing those parts of the coppered surface that are to remain bright in the finished article; fifth, then boiling the article in a solution of salt of tin; sixth, then subjecting the article to heat until the copper and spelter by fusion become changed to bronze, all as will be hereinafter set forth.

In carrying out my invention the surface of the iron article is first cleaned by any of the usual methods, and the surface thereof is then subjected to buffers in the usual manner, whereby all the higher or projecting parts of the surface will be smoothly polished, but all other parts will remain dead or untouched by the buffer. The buffed iron article is next subjected to the action of an ordinary electro-plating-bath and the surface of the article is thoroughly covered with copper. The coppered surface is then dipped, in the usual manner, in the ordinary dilute acid dipping-bath to brighten the copper. The article is then again buffed in the usual manner, and all the coppered parts upon the raised or higher portions of the surface are brightly polished, while all parts of the article that are lower than the raised portions of the surface remain dead or untouched by the buffer. The buffed article is then boiled in an ordinary spelter solution composed of chloride of tin dissolved in a strong aqueous solution of potash or soda, in which shavings of zinc or granulated zinc are thrown. The article is boiled in this solution until it is sufficiently coated with the spelter salts. The article is then removed and finished by subjecting the article to heat until the copper and spelter coatings have, by fusion, become changed into bronze.

The final coating of bronze thus made upon the iron surface gives to the article a rich and splendid color, like gold, which is very durable, as every part of the iron surface is thoroughly protected.

The parts of the finished article that were subjected to buffing have a beautiful and permanent polish, while the portions not buffed have a deadened effect.

The contrasts between the buffed and the unbuffed parts may be varied according to the taste of the designer of the casting or iron article, and many beautiful effects may be thus produced.

I do not claim the broad idea of fusing copper and zinc layers, as I am aware that it has been done in various ways.

A patent was granted to me February 24, 1880, No. 224,925, for an improvement in coating iron surfaces, by means of which improvement I am enabled to protect said surfaces and give them a silvered appearance.

In carrying out my present invention I make use of some of the same steps that I employed in my said Patent No. 224,925, and after that I finish the article and produce a magnificent golden color by subjecting the article to the further operation of fusion by heat, as I have hereinbefore fully described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The within-described process for bronzing iron surfaces, which consists in cleaning and buffing the iron surfaces, then electroplating with copper, then dipping in acid solution, then again buffing, then boiling in a salt-of-tin solution, and then finishing by subjecting the article to heat until the copper and spelter coatings are fused into bronze, all substantially as herein set forth.

JOSEPH KINTZ.

Witnesses:

CHARLES W. MANN,

WILBUR F. DAVIS.