UNITED STATES PATENT OFFICE.

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PREPARING FERRIC ARTICLES FOR METALLIC BATHS.

1,379,998. Specification of Letters Patent. Patented May 31, 1921.

No Drawing. Application filed November 11, 1920. Serial No. 423,443.

To all whom it may concern:

Be it known that I, JAMES H. MADDY, a citizen of the United States, residing at 610 West 116th street, New York, county of New York, and State of New York, have invented certain new and useful Improvements in Preparing Ferric Articles for Metallic Baths, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to a means of protecting articles of iron or steel from corrosion by air, water, or acid fumes.

Ferric articles of sheet-iron or steel-plate, have often been dipped in molten lead to form a preservative coating thereon; but it is found that the protection afforded by such coating is far from perfect, as pin-holes or interstices are formed in the coating during the dipping operation through which, when put into use, the atmosphere gradually gains access to the surface of the article and causes its corrosion.

The present invention prevents the formation of such defective coating when dipping in the lead bath, by first electro-plating a film of mercury upon the surface of the article, which mercury forms an amalgam with the iron or steel surface and covers it so thoroughly that the affinity of the lead for the amalgam enables the lead to adhere strongly to the article and form a continuous coating and effective protection therefor.

The solution from which the mercury is electrically deposited upon the article should be an alkaline solution of mercury, which may be prepared in the proportion of 100 cubic centimeters of water, one per cent. of cyanid of potassium, or other alkali; and from one to two per cent. of mercuric cyanid.

In practising the invention, the article is first thoroughly cleaned, as by a blast of steel grit or in an acid bath, and is then electro-plated with mercury from the solution described.

When the film of mercury is deposited over the entire surface of the article, the article is immersed in the molten lead bath and the lead coating formed thereon.

I am aware that iron or steel articles have been dipped in a mercury cyanid bath before immersing them in a lead bath to form a lead coating; but an acid bath of mercury cyanid has always heretofore been used, although the acid in the bath attacked the surface of the articles and impaired the uniformity of the lead coating subsequently deposited.

In the present invention an alkaline solution of the mercury is employed which has no such effect upon the articles, and does not interfere with the uniform deposit of the mercury by an electro-plating process.

The use of an alkaline mercury bath and the deposition of the mercuric film by electro-plating distinguishes my invention from any previous use of mercury cyanid in the coating of iron or steel articles.

Having thus set forth the nature of the invention what is claimed herein is:

The method of securing an effective continuous adhesion of lead coating to iron or steel articles in a molten bath, which consists in electro-plating a film of mercury upon the surface of the article before dipping the article in the molten bath.

In testimony whereof I have hereunto set my hand.

JAMES H. MADDY.