To all whom it may concern:

Be it known that we, George K. Thompson and Joseph Eckert, Jr., citizens of the United States of America, residents of Summit, State of New Jersey, and of Maubier, in the county of Middlesex, State of New Jersey, respectively, have invented certain new and useful Improvements in Processes of Coating Ferric Articles with a Metallic Protective, of which the following is a full, clear, and exact description.

This invention relates to improvements in processes of coating ferric articles with a metallic protective whereby said articles are rendered impermeable to rust and corrosion, and has for its object the production of a process whereby a smooth, heavy coating may be deposited on the treated article, the junction between said ferric article and said protective coating being maintained chemically pure and mechanically intimate.

The first step of the process is the thorough cleaning of the article to be coated, preferably by immersing same in a solution of either muriatic or sulphuric acid whereby all rust, dirt and other impurities are removed from the surface of the article and from the pores and cavities therein, said solution being formed by mixing water and varying percentages of acid. While the solutions mentioned above constitute very efficient pickling means, still we do not limit ourselves to these methods as any means which will thoroughly clean the articles to be coated may be employed.

After the article has been thoroughly cleaned in the manner set forth, said article is passed through a bath containing zinc chloride as a flux whereby the article is prepared for the reception of the protective coating.

After the article being treated has been passed through the zinc chloride it is immersed in a bath of molten protective coating material of either lead or an alloy, the constituents of which alloy are antimony and lead, the antimony content thereof varying from 1/4 of 1 per cent to 16 per cent, and because the fluxing material has preserved the surface of the article free from oxide, a union is formed between said article and said protective coating which is chemically pure and mechanically intimate.

After the article has received the first coat of protective material, as just described, it is permitted to cool, after which it is immersed in a flux formed of a solution of tin chloride of varying percentages from 1 to 40 per cent tin chloride, and is then again immersed in the molten protective material.

By this process the tin unites on the surface of the coated article and the second dip makes a heavier and better coating.

Immediately upon being withdrawn from the molten protective coating material, the article treated is immersed in a bath of molten paraffin or stearin, to which may be added varying proportions of zinc chloride or tin chloride in percentages of zinc or tin chlorides from a trace to 26 per cent. This treatment of the article to a bath of paraffin or stearin results in a smooth, even coating of the protective material on the article.

The immersion of the lead coated ferric article in the bath of waxy material for a time sufficiently long to produce the smooth even coating, appears to result in a tempering operation and the hardened coating material firmly adheres to the ferric material.

We claim:

1. The process of coating ferric articles which comprises applying a flux to said articles, immersing them in a bath containing molten lead as a major ingredient, then cooling said articles, again applying a flux to the surfaces of said articles and immersing them in a bath containing molten lead as a major ingredient, withdrawing said articles from the last mentioned bath, and then immersing said articles in a bath of molten waxy material.

2. The process of coating ferric articles which comprises applying a flux to said articles, immersing them in a bath containing molten lead as a major ingredient, then cooling the said articles, again applying a flux to the surfaces of said articles and immersing them in a bath containing molten lead as a major ingredient, withdrawing said articles from the last mentioned bath, and then immersing said articles in a bath of molten paraffin.

3. The process of coating ferric articles...
which comprises applying a flux to said articles, immersing them in a bath containing molten lead as a major ingredient, then cooling said articles, again applying a flux to the surfaces of said articles and immersing them in a bath containing molten lead as a major ingredient, withdrawing said articles from the last mentioned bath, and then immersing said articles in a bath of molten waxy material containing a chloride.

In testimony that we claim the foregoing we hereunto affix our signatures,

GEORGE K. THOMPSON.

JOSEPH ECKERT, Jr.