

UNITED STATES PATENT OFFICE.

JOHN D. GREY AND JOHN LIPPINCOTT, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PROCESSES FOR COATING IRON WITH ZINC.

Specification forming part of Letters Patent No. 127,412, dated June 4, 1872; antedated May 16, 1872.

Specification describing a new and Improved Process for Coating Iron with Zinc, invented by JOHN D. GREY and JOHN LIPPINCOTT, of Baltimore, in the county of Baltimore and State of Maryland.

This invention is an improvement on the common process of coating iron articles with zinc by dipping the articles in a bath of melted zinc, resting on a stratum of melted lead, within a pot of suitable size.

The ordinary method is to use a thin stratum, usually three or four inches, of lead, and a very much thicker stratum of zinc, usually about thirty-six inches and weighing from twenty to thirty tons. So large a quantity of zinc under continuous heat drosses badly, and the dross sinks to the bottom of the stratum of zinc, but, being of less specific gravity than lead, it cannot reach the bottom of the pot. The reason why the dross is kept from contact with the pot is that if such contact is allowed the dross not only adheres very firmly to the pot, and is consequently difficult to remove, but also injures the material of the pot. The dross accumulates to the extent of from twelve hundred to fifteen hundred pounds per week, and has to be weekly removed in order that it may not obstruct the coating process. To effect its removal ladles are passed into the lead stratum below the dross. The lead stratum has, therefore, two functions: First, to prevent the dross from falling to the bottom of the pot; and second, to form a medium into which to introduce the ladle below the dross.

Our improved process has for its object to prevent the deposition of dross altogether. This we accomplish by increasing the lead stratum so that it forms the main portion of the bath, and decreasing the zinc stratum till

it forms but a comparatively thin covering, so small in quantity that it is possible to work it out daily and renew with fresh metal, thus giving no time to form dross to any appreciable extent.

The lead portion of our bath requires no renewing. No dross being deposited it will last indefinitely, and the wear of the pot will be practically nothing.

The two metals do not amalgamate, and, as the zinc remains separate on the surface of the lead, we are enabled to use it with great economy, working all that portion which forms dross by the ordinary method into the coating, and thus effecting the saving between the difference in the price of zinc and dross, which is some five cents per pound.

If the article to be coated is of such dimensions as to pass through the zinc stratum, it enters the lead bath without injuring the zinc coating.

We do not limit ourselves to any particular thickness for the zinc stratum, as we find it is practicable to coat iron when there is not more than an inch of zinc, and three or four inches is ample for all practical purposes.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The improved process, herein described, for coating iron with zinc.

To the above specification of our invention we have signed our names this 21st day of October, A. D. 1871.

JOHN D. GREY.

JOHN LIPPINCOTT.

Witnesses to both signatures:

SOLON C. KEMON,

THOS. D. D. OURAND.