UNITED STATES PATENT OFFICE.

JAMES FERGUSON, OF BRIDGEWATER, MASSACHUSETTS.

IMPROVEMENT IN TIN-LINING METALLIC PIPES.

Specification forming part of Letters Patent No. **158,790**, dated January 19, 1875; application filed November 21, 1874.

To all whom it may concern:

Be it known that I, JAMES FERGUSON, of Bridgewater, Plymouth county, Massachusetts, have invented certain Improvements in Process of Lining Metallic Pipes with Tin or Zinc, of which the following is a specification:

The object of my invention is to coat or line the inner portions of pipes of brass and copper, and other articles, as cocks, bibs, &c., through which liquids are conducted, with a coating of tin or zinc, by the usual bath process, and without coating the outsides of such articles; and my invention in the art of lining such metallic pipes, &c., consists in coating the said pipes or other articles, exteriorly, with a paint-like solution composed of salt and whiting or their equivalents, the said solution being applied to the pipe or other article to be coated or lined internally with tin or zinc or their compounds, and so as to prevent the adhesion or deposit of the tin or zinc to the outer surfaces of such pipes or articles, when they are immersed in a bath of molten tin or zinc.

I take a cast pipe of brass, copper, or other material, and draw it as usual, and before drawing it for the last time, and while hot, I paint or coat the outside of the pipe or other article with a composition composed of chloride of sodium or salt and whiting, about equal parts in weight, and mixed with water. The hot pipe assists the coating in drying quickly, and when dry I immerse the pipe or other article as usual in a bath of molten tin or zinc, and the pipe or other article becomes coated internally, but the coating or covering of salt and whiting on the outside protects the outer side of the pipe or other article, and prevents the deposit of the tin or zinc, but when the pipe or other article is removed from the molten bath, this protecting coating may be easily washed off in water. This outer coating may be applied when the pipe or other article is cold, and subsequently dried. I do not desire to limit myself to the proportions of salt and whiting stated, as they may be mixed in other proportions with good results. It is evident that other than cast-metal pipes may be treated in this way, as, for instance, rolled or wrought pipes. The surfaces of metallic articles may be ornamented, if desired, and to do this the solution or coating herein described may be applied by stencil or otherwise, and then, when immersed in the molten bath, the tin or zinc will adhere only to the uncoated surface. The coating thus applied forms a hard cover, capable of retaining its position under the action of great heat, and it is impervious to the molten tin or zinc. Any other earths or substances capable of being applied as described, and forming a like coating, I consider equivalents of the salt and whiting, as, for instance, plaster of Paris may be substituted for whiting and any alkaline salts, as the sulphates of soda and potash might be used instead of the salt.

I claim—

The process of coating or covering the external portions of metallic pipes, cocks, &c., which are to be tinned or zinced internally by immersing them in a molten bath of tin or zinc, with a mixture of salt and whiting to prevent the molten tin or zinc from adhering to the outer portions of such pipes or other metallic articles, as set forth.

JAMES FERGUSON.

Witnesses:

GEO. W. GREGORY,

L. H. LATIMER.