UNITED STATES PATENT OFFICE

ENOCH WOOD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSIAH H. LEGGE, OF SAME PLACE.

IMPROVEMENT IN COATING IRON AND STEEL.

Specification forming part of Letters Patent No. **148,795**, dated March 17, 1874; application filed December 10, 1873.

To all whom it may concern:

Be it known that I, ENOCH WOOD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coating Iron and Steel; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

My invention consists of a new and improved composition for and method of coating iron and steel.

The ingredients, with the proportions of each, used in the composition with which the coating is accomplished are as follows: Lead, or any of its compounds, six (6) parts; borax, four (4) parts; flake white, four (4) parts; zinc, two (2) parts; brass, two (2) parts; copper, one-eighth ($\frac{1}{8}$); manganese one-eighth ($\frac{1}{8}$); tin, one-fourth ($\frac{1}{4}$); antimony, one-eighth ($\frac{1}{8}$); lime, indefinite.

Each of the foregoing-named ingredients is taken separately and pulverized, after which they are melted together in such a manner as to secure their fusion at one and about the same time. The compound thus formed upon cooling, resolves itself into a disintegrated mass, which is afterward pulverized into a fine powder, and when in this condition is ready for use in the process of coating iron or steel.

A good compound, answering the purposes named, can be prepared from the above ingredients without fusing before use in the process of coating iron or steel. Its application must of necessity take place while the iron or steel to be coated is in a heated condition, a red heat being sufficient for the purpose.

For coating rolled iron or steel, my new alloy can be applied during the process of rolling, by means of any simple device for distributing it over the surface of the iron or steel, either during or before the operation of rolling. It can be equally well applied to ordinary iron or steel castings while in a condition of red heat, by means of a metal brush, or other suitable device.

Immediately upon the application of my new alloy to the heated iron or steel, it fuses and spreads, which, upon cooling, forms a bright surface thereon. This new surface is perfectly impervious to rust or oxidation in any degree, under any and all conditions of exposure to weather or moisture. It also retains its color, and its permanency up to a condition of red heat, at which point, however, its luster is temporarily lost, but its adhesiveness maintained. It is not claimed that beyond a condition of red heat its permanency could be secured.

Its application to sheet iron, especially when required for use in positions of exposure to weather, water, or moisture, is of the greatest importance, while bending even to breakage, does not cause the coating to scale off.

By the admixture of lead, zinc, brass, flake-white, and borax in proper proportions, a surface of a darker shade is produced, while by the addition of manganese a still darker shade of coating is effected.

The advantages of my invention are apparent. It is cheap, compared with other processes, to effect the same purposes. It is durable, and can be applied effectively to any article manufactured of iron or steel, upon which a coating is desirable.

The coating in the case of rolled iron or steel, being done during the process of rolling, adds little to the cost thereof, while in the case of castings or forged iron, the process of coating being instantaneous renders it very economical.

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

1. A compound, composed of the following ingredients, in these or any other suitable proportions, namely: Lead, six parts; borax, four parts; flake-white, four parts; zinc, two parts; brass, two parts; copper, one-eighth; manganese, one-eighth; tin, one-fourth; antimony, one-eighth; and lime in sufficient quantity,

either first pulverized and then mixed together, or first fused and pulverized, for use as a coating for iron and steel, to prevent rust and oxidation, substantially as described, and for the purpose set forth.

2. The method herein described of applying an unfused coating to the surface of iron and steel, while in a condition of red heat, by means of a metallic brush or switch, or by rolling.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

ENOCH WOOD.

Witnesses:
GEO. HADFIELD,
JAS. A. MAHAFFEY.