

United States Patent Office.

JULES GEORGE DREYFUS, OF NEW YORK, N. Y.

Letters Patent No. 87,475, dated March 2, 1869.

IMPROVEMENT IN ENAMELLING IRON AND STEEL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JULES GEORGE DREYFUS, of the city, county, and State of New York, have invented a new and useful Improvement in Enamelling Iron and Steel, of which the following is a full, clear, and exact description.

In enamelling iron or steel, as heretofore practised, it has been necessary to first lay on a thin or fine coating of the enamel, for the purpose of producing a smooth or even surface for the main body of the enamel (which is afterward applied as a thick and second coating) to lie on. This process requires the metal to be subjected to two or more different heats, which is injurious to the metal, and impairs the enamel, causing it to peel, and, by the "boiling" of the enamel, to form bubbles, which gives a rough or imperfect enamelled surface.

These defects I avoid by first depositing, on the surface of the steel or iron to be enamelled, a film, or layer, of copper, which may be done by the electro-metallurgical or any other suitable process, and which forms a desirable surface for the enamel to lie on, copper holding, or "taking" the enamel better than steel or iron, so that the full and proper thickness of enamel may be put on in a single coat, without any risk of flaw or imperfection, requiring, too, only one heating of the metal, and the copper serving to protect the steel or iron from corrosion.

Thus I take the steel or iron body, whatever its intended use or character may be, and obtain thereon a deposit of copper by the usual electro-metallurgical process, or in any other manner.

The enamel may be of any suitable description that

will unite with or lie on copper. Thus, it may be composed of four (4) parts of calcined flint, one (1) part of ordinary potters' composition, two (2) parts of nitre, eight (8) parts of borax, one (1) part of white marble, calcined, half of one ($\frac{1}{2}$) part of argillaceous earth, and two (2) parts of calx of tin; said composition being powdered, mixed, and fused, and, when cold, ground, sifted, mixed with water, and made into a pap, which is then put on the surface to be enamelled, with a brush or otherwise, and allowed to dry, after which it is fused, by heating, in a muffle or otherwise, the article or body having the enamel on it.

In this way, steel or iron articles may be enamelled at or by a single heat, with the enamel put on in a single coat, a smoother or more perfect finish be given to the enamelled surface, and the opposite side or surface, where the copper has been deposited on both sides, be protected from corrosion.

Zinc, or any other suitable metal or alloy capable of being deposited in like manner on the steel or iron, may be substituted for copper, if desired.

What is here claimed, and desired to be secured by Letters Patent, is—

The process herein described of enamelling steel or iron, by first galvanizing the same, or coating it with copper, or its equivalent, substantially as specified, and afterward applying the enamel thereto, as herein set forth.

JULES GEORGE DREYFUS.

Witnesses:

FRED. HAYNES.

A. KINNIER.