United States Patent Office.

RICHARD O'NEIL, OF NEW YORK, N. Y.

Letters Patent No. 113,331, dated April 4, 1871.

IMPROVEMENT IN ORNAMENTING THE SURFACE OF METALS BY ELECTRO-DEPOSITIONS FROM SOLUTIONS.

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, RICHARD O'NEIL, of the city, county, and State of New York, have invented a new and improved Process of Ornamenting the Surfaces of Metals with other Metals; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention consists in painting on metals, with salts or solutions of salts of other metals, with a pencil which is in metallic connection with one pole of a galvanic battery, the other pole of which is in galvanic connection with the metal to be operated upon, thereby causing or producing a deposit or plating upon the metal last mentioned of the metal with the salt or solution of the salt of which the pencil is charged, by the closing of the galvanic circuit by means of the contact of the pencil with the metal to be operated upon.

The pencil employed may consist of a pointed stick of wood or other suitable material, and be dipped in a solution of a salt of the metal to be deposited, or be dipped first in water or in a menstruum of sugar or gum arabic and water, and afterward in the metallic salt, before tracing with it upon the metal to be operated upon the figure or design to be produced thereon in the metal the salt of which is used.

In case the pencil is of material which is a non-conductor of electricity the wire connecting it with the pole of the battery should be attached to it near the point, and at the connection the pencil should, of whatever material the pencil is composed, have wrapped round it a piece of foil or thin plate of the metal which is to be deposited. Or the pencil may consist of a tube of bone, metal, or other material having a suitable point, and filled with the salt of the metal to be deposited, and in such case will require to be dipped in water or in a menstruum of water and sugar or gum arabic before and from time to time during its use, and the interior of the tube should be lined near the point with the metal of the same kind which is to be deposited. Or the salt itself may be made into a pencil, or put up like the lead of a lead-pencil, in a wooden case or shell, and have its point moistened before and from time to time during its use.

The salts which I propose generally to use are the cyanides of the metals.

For a solution for a gold deposit or plating I use generally two (2) parts, by weight, of cyanide of gold, and one (1) part of sugar.

For a solution for a silver deposit I use generally one (1) part, by weight, of cyanide of silver, and one (1) part of sugar.

For a solution for a copper deposit I use generally two (2) parts, by weight, of cyanide of copper, and one (1) part of sugar.

The solutions should be of such strength or density that they will flow with sufficient freedom.

Gum arabic or other adhesive or binding material may be substituted for sugar.

By this process very beautiful effects may be produced by plating the surface of any metal in figures or designs with another metal, which is deposited by galvanic action on the metallic salts used.

Figures may be produced in one metal and these figures may be afterward shaded with lines of another metal.

The process will be expedited by keeping the plate or other metallic article to be ornamented by plating with another metal heated by a spirit-lamp or otherwise to as high a temperature as will not interfere with its being conveniently handled.

What I claim as my invention, and desire to secure by Letters Patent, is—

The within-described process of producing a deposit or plating of metal upon the surface of another metal by painting the latter with a salt or solution of a salt of the metal, to be deposited by means of a pencil which is in metallic connection with a galvanic battery, the other pole of which is in galvanic connection with the metal to be operated upon.

RICHARD O'NEIL.

Witnesses:

FRED. HAYNES,

R. E. RABEAU.