

UNITED STATES PATENT OFFICE.

PASCAL MARINO, OF REGENTS PARK, LONDON, ENGLAND.

ELECTROLYTIC DEPOSITION OF METALS.

1,028,895.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, PASCAL MARINO, a subject of the King of Italy, and resident of 129 Albert street, Park street, Regents Park, London, N. W., England, have invented certain new and useful Improvements in the Electrolytic Deposition of Metals, Particularly upon Iron and Steel Surfaces, of which the following is a specification.

This invention relates to the electrolytic deposition of gold, silver, platinum, copper, zinc, nickel, tin and lead or alloys thereof upon metal surfaces, and more particularly to the deposition of said metals or alloys upon iron or steel surfaces.

According to the present invention the electrolyte to be employed in the plating bath is prepared by dissolving the salt of the metal (or the salts of the metals as the case may be) to be deposited in an aqueous solution of sodium or potassium glyceroborobenzoate (by preference sodium glyceroborobenzoate).

Sodium biborate (borax) is extensively used in autogeneous or allogeneous soldering operations as a reducing agent or flux as it easily dissolves metallic oxids. Similarly, the reducing agent present in an electrolyte will dissolve any oxid, present on the surface of the article, which would detrimentally affect the adherence of the electrolytic deposit and this without affecting the surface of the article. Hence the electrolyte, prepared in accordance with this invention, pickles the article (*i. e.* removes any scale or oxid present on its surface) concurrently with the deposition thereon of the metal in solution in the electrolyte, from which it follows that the adherence of the metal coating deposited on the article is considerably increased.

Sodium glyceroborobenzoate may be prepared by mixing together equal parts (by weight) of sodium boroglycerid and sodium borobenzoate, both of which preparations are easily obtainable.

The electrolyte for depositing a single metal may be prepared by dissolving a salt or salts of the metal in an aqueous solution of sodium glyceroborobenzoate (say in the proportion of two thirds of the former to one third of the latter), but when it is desired to obtain the deposit of a metallic alloy, solutions of the above mentioned reducing agent and of the different metal salts are prepared separately, as just described, and the solutions are mixed together, the proportions between the quantities of the respective solutions employed corresponding to the proportions between the respective metals constituting the alloy.

When in the appended claim I speak of sodium glyceroborobenzoate, I desire to include also its well known equivalents, such as potassium glyceroborobenzoate. It will be further understood that when I speak of the metal to be deposited I mean to include a mixture of metals, as in the form of an alloy, and when I refer to a salt of the metal, I mean to include salts of the metals forming the mixture.

Claim.

In the process of electrolytically depositing metals, the step of preparing an electrolyte for the plating bath which consists in dissolving in an aqueous solution of sodium glyceroborobenzoate a salt of the metal to be deposited.

PASCAL MARINO.

Witnesses:

GEORGE ERNEST MINTERN,
BERTRAM BEIR.