UNITED STATES PATENT OFFICE.

ALBERTO ARA AND MARIO DEL BUBBA, OF FLORENCE, ITALY.

IMPROVEMENT IN PRESERVING METALS FROM OXIDATION.

Specification forming part of Letters Patent No. **163,291**, dated May 18, 1875; application filed August 29, 1874.

To all whom it may concern:

Be it known that we, ALBERTO ARA, captain of artillery, and MARIO DEL BUBBA, telegraph official, both of Florence, in the Kingdom of Italy, have invented a certain Improved Composition or Varnish for Preserving Metals from Oxidation, of which the following is a specification:

The destruction to which nearly all metals are exposed from oxidation has become still more evident of late through the great extension in the use of both cast and wrought iron in naval, architectural, and ornamental constructions.

Among the many compositions that have been tried for preserving metals from corroding, not one has given satisfactory results until the present, which has attained that object by the nature of its constituents, by the easy mode of applying it, and also by its low cost.

It is composed of quartz, of a suitable solvent, such as carbonate of potassa, and metallic oxides, such as oxide of lead and oxide of cobalt, in equal proportions, the selection of oxide being made according to the color to be given to the composition, and the other components also vary according to the metals to be operated upon, and the quality of the composition or varnish required.

We first reduce these ingredients to fine powder. Water is added, so as to form a mixture of the consistency of paste, of which a layer is applied with a brush on the surface of the articles to be varnished or protected, and this done, they are exposed to the open air to dry. We afterward place these articles in cast-iron or fire-brick muffles, and the latter in kilns of suitable construction, and heat them up to 800° centigrade. The heat, acting on the silex and on the oxides, causes these matters to melt, and fixes them so firmly on the surface of the metals that on being gently cooled they are found, when taken out, to be covered with a polished silicate, and even and well fitted to resist the impact of hard bodies without scaling or cracking.

This composition is applicable to many metals, but more especially and with the greatest advantages to cast and wrought iron, which, by this means, may, through their low price, be employed for many articles now made of copper and tin. Iron thus treated becomes coated with a silicate of iron, and may be exposed without fear in very damp places, and be placed in water without undergoing any oxidation.

This composition will be very useful for marine purposes, to replace the resinous and oily varnishes until now used, and which answer very imperfectly for protecting ships' armor-plating and other iron used in ships. It may also be advantageously used for articles made of cast and sheet iron, such as barriers, chandeliers, armatures, and others.

What we claim is—

The process of preserving metals from oxidation, which consists in applying to the surface of the metal a composition consisting of quartz, carbonate of potassa, and a metallic oxide, in equal parts, pulverized and mixed together with water to the consistency of a paste, and then exposing the metal thus coated to the air to dry the coating, and afterward submitting it to about 800° centigrade, all as above set forth.

ALBERTO ARA.
MARIO DEL BUBBA.

Witnesses:
SILVIO SIMONI,
GAETANO STEFANI.