

UNITED STATES PATENT OFFICE.

FRANK RUPERT GRANVILLE RICHARDS, OF COVENTRY, ENGLAND.

TREATMENT OF IRON OR STEEL FOR PREVENTING OXIDATION OR RUSTING.

1,069,903.

Specification of Letters Patent.

Patented Aug. 12, 1913.

No Drawing.

Application filed August 15, 1912. Serial No. 715,258.

To all whom it may concern:

Be it known that I, FRANK RUPERT GRANVILLE RICHARDS, a subject of the King of Great Britain, residing at 10 Meriden street, Coventry, in the county of Warwick, England, have invented certain new and useful Improvements Relating to the Treatment of Iron or Steel for Preventing Oxidation or Rusting, of which the following is a specification.

In order to prevent oxidation or rusting it has been proposed to treat iron or steel with phosphoric acid and in some cases with a compound consisting of a dilute solution of ordinary phosphoric acid and iron filings or ferrous phosphate.

According to this invention the oxidation or rusting of articles composed of iron or steel or having a surface of iron or steel is prevented by subjecting them to the action of manganese dioxid and phosphoric acid by which action a rust preventing deposit of manganese and iron phosphates is formed thereon.

A solution in the following proportions has been found in practice to be satisfactory:

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|--|--------------|
| Liquid concentrated phosphoric acid (1:5)----- | ½ gallon. |
| Manganese dioxid----- | 3 lbs. |
| Water----- | 120 gallons. |

The solution is placed in a suitable bath or other receptacle and its temperature raised to boiling point. The articles to be treated are then while thoroughly clean, immersed therein for from thirty to ninety

minutes as required according to the quality of the steel or iron under treatment. After this treatment the articles may be dried and oiled preparatory to use.

What I claim and desire to secure by Letters Patent of the United States is:—

1. The method of preventing the oxidation of iron or steel, consisting in forming thereon a rust-preventing deposit of manganese and iron phosphates by subjecting the metal to the action of manganese dioxid and phosphoric acid.

2. The method of preventing the oxidation of iron or steel, consisting in forming thereon a rust-preventing deposit of manganese and iron phosphates by subjecting the metal to the action of manganese dioxid and phosphoric acid in substantially the proportions of three pounds of manganese dioxid and one half gallon of phosphoric acid dissolved in substantially one hundred and twenty gallons of water.

3. A solution or compound for preventing oxidation or rusting of iron or steel, comprising manganese dioxid, phosphoric acid, and water in substantially the proportions of three pounds of the first, one half gallon of the second, and one hundred and twenty gallons of the third.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK RUPERT GRANVILLE RICHARDS.

Witnesses:

ALBERT BROWN,
JOHN W. ARKLE.