

UNITED STATES PATENT OFFICE.

FREDERICK MOENCH, OF RUSHVILLE, ILLINOIS.

PROCESS OF PLATING CAST IRON OR STEEL.

1,165,338.

Specification of Letters Patent.

Patented Dec. 21, 1915.

No Drawing.

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To all whom it may concern:

Be it known that I, FREDERICK MOENCH, a citizen of the United States, and a resident of Rushville, in the county of Schuyler and State of Illinois, have invented a certain new and useful Improvement in Processes of Plating Cast Iron or Steel, of which the following is a specification.

My invention relates to improvements in processes for plating cast iron and steel, and it consists in the steps hereinafter enumerated.

An object of my invention is to provide a process of plating cast iron or steel with aluminum so that the latter is firmly secured to the surface of the iron or steel.

A further object of my invention is to provide a process of the type described which may be readily carried out without the use of expensive apparatus.

A further object of my invention is to provide a simple process for plating iron or steel with aluminum which can be carried out with the use of ordinary chemicals that can be obtained at a small cost in any part of the country.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

In carrying out my invention, I prepare the material such as cast iron or steel, by removing all grease, dirt, paint, etc., with a hot solution of caustic soda or potash. The strength of the solution may vary according to the result desired. I then rinse by scrubbing with a brush of any kind and with clear water, either hot or cold, and dry the iron or steel with a clean cloth. The iron or steel is now immersed into boiling hydrochloric acid C. P. in a vessel which resists the action of hydrochloric acid, such as granite, glass, or chinaware. The iron or steel is left for a few minutes, more or less, according to the amount of rust on the iron or steel article. It is now rinsed with clear water, hot or cold, and immersed in the hot acid a second time if not all of the rust is removed. Instead of immersing it in the hot hydrochloric acid, I can simply apply the hot acid to the article. After being rinsed again in cold or hot water the iron or steel is immersed in a solution

of bicarbonate of soda or carbonate of magnesium until all trace of the acid is gone. The soda or magnesium is now rinsed off with clear water, and the iron or steel is wiped dry with a clean cloth.

A solution of potassium permanganate and chlorate of potassium (one or two grains of each to each ounce of water) is applied to the article, and then the article is rinsed off with clear water, and wiped dry with a clean cloth. It is then heated to drive off all moisture and is now ready for the plating.

The aluminum is prepared by cutting it into small bits which are washed with peroxide of hydrogen and then rinsed with clear water and dried.

The iron or steel is now heated to a dull red heat and the aluminum is also heated to almost the melting point. The latter is now grasped by the pliers and the aluminum is rubbed over the iron or steel spreading it as it melts. A small portion of the iron or steel is covered at a time, and while the aluminum is in its melted condition, it is scratched in with an iridio-platinum pointed instrument or a silver plated steel sharp edged instrument. After it is well scratched in, it may be smoothed off while the aluminum is in a melted condition. One may proceed this way until the desired surface is covered. It should be finished as the process proceeds.

The article is now left to cool slowly under cover or partial cover, and when cold can be polished or finished in a manner to suit the operator.

I claim:—

1. The herein described process of plating iron or steel with aluminum which consists in removing all oxids, and subsequently all organic matter from the article to be plated, heating the article to substantially a red heat, rubbing the article with a piece of aluminum heated almost to the melting point, scratching the melted aluminum into the surface of the iron or steel, and subsequently cooling the article slowly.

2. The herein described process of plating iron or steel with aluminum which consists in first removing the oxidized portions of the iron or steel by hot hydrochloric acid and subsequently removing the organic mat-

ter by potassium permanganate and chlorate
of potassium, heating the article to a dull
red heat, rubbing the article with a piece
of aluminum previously washed with per-
5 oxid of hydrogen and heated almost to the
melting point, scratching the aluminum in
on the surface of the iron or steel, smooth-

ing the aluminum coating while the latter is
melted, and allowing the aluminum coated
article to cool slowly.

FREDERICK MOENCH.

Witnesses:

DON GARRISON,
H. H. SPEED.