UNITED STATES PATENT OFFICE.

WILLIAM H. WINSLOW, OF BROOKLYN, NEW YORK.

MAGNETIC-OXIDE-OF-IRON-PLATED WARE.

SPECIFICATION forming part of Letters Patent No. 331,105, dated November 24, 1885.

Application filed April 30, 1885. Serial No. 164,024. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM H. WINSLOW, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Magnetic-Oxide-of-Iron-Plated Ware; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of a metallic object plated with magnetic oxide of iron. I have practically and successfully produced metallic objects thus plated by first electroplating the metallic object with iron in the ordinary way, and then converting the electro-deposit of iron into magnetic oxide of iron, one way of accomplishing which is to subject the iron-plated object to an atmosphere of superheated steam. Other modes may suggest themselves to persons skilled in the art.

In order that my invention may be clearly understood, I will proceed to describe it as applied to a copper electrotype. For iron-plating—such as electrotype—I have used with very satisfactory results a bath prepared from a solution of twenty (20) parts of sal-ammoniac in one hundred (100) parts of water electrolyzed by the use of two wrought-iron plates for anode and cathode, respectively. The point of proper saturation of the bath having been reached, which may be ascertained by the ordinary test method, the iron cathode is removed and the copper electrotype put in its place. The electrotype becomes rapidly covered with a deposit of iron. The plating must be carefully conducted in order that the deposit may be bright and as smooth as the surface of the electrotype, because the beauty of the finish attained by the conversion of the deposited iron coat into magnetic oxide of iron depends largely on the character of the preliminary plating. I find that about an hour's suspension in this bath produces a thick enough film of iron on the surface of the electrotype to serve the purpose of the final operation. The iron-coated electrotype is then introduced into a fire-proof muffle filled with an atmosphere of superheated steam at a temperature of from 1000° to 1200° Fahrenheit. An exposure to this steam atmosphere of from five to seven minutes converts the iron coat on the surface of the electrotype into magnetic oxide of iron. Care must be exercised to so time the exposure to the steam atmosphere that the iron coat only is converted. If the exposure be continued too long, the surface of the copper beneath the iron will be oxidized also, as a consequence of which the magnetic-oxide-of-iron coat or plating will lose its hold on the copper, and can be rubbed off easily. The magnetic-oxide-of-iron plating thus produced is very coherent, and has a steel-bluish-black color, very attractive to the eye. Its hard and non-corrosive qualities are well known.

My invention is applicable to all articles of manufacture and objects of art in metals that are susceptible of being coated with an electro-deposit of iron, which can afterward be converted into magnetic oxide without injury to the article itself.

I am aware that metallic objects—letter-press electrotypes, for instance—have heretofore been plated with iron or steel; also, that objects of iron have heretofore been provided with a coating of magnetic oxide by a direct conversion of the surface of the iron object; but I believe that I am the first to have covered metallic objects with an electroplated coat of magnetic oxide of iron. I am also aware of United States patent No. 106,823.

The plated coating described in that patent is of a character substantially different from my magnetic-oxide-of-iron coating.

The herein-described art of covering metallic objects with an electroplated coat of magnetic oxide of iron is claimed in my application for a United States patent filed June 2, 1884, Serial No. 133,617.

I claim as my invention—

An electroplated metallic object, the plated coat of which is magnetic oxide of iron, substantially as before set forth.

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

WILLIAM H. WINSLOW.

Witnesses:
F. A. WINSLOW,
R. B. BROWNE.