UNITED STATES PATENT OFFICE.

WALLACE C. DICKEY, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF PLANISHED IRON AND STEEL.

SPECIFICATION forming part of Letters Patent No. 630,867, dated August 15, 1899.

Application filed May 13, 1899. Serial No. 716,764. (No specimens.)

To all whom it may concern:

Be it known that I, WALLACE C. DICKEY, a citizen of the United States of America, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Iron and Steel, of which the following is a specification.

This invention relates to improvements in the manufacture of planished sheet iron and steel.

The objects of the invention are the production of a much better quality of goods at reduced cost.

The invention consists in subjecting the sheets to the steam-bluing process, in connection with the other parts in the method, in the manufacture of sheet iron and steel.

Heretofore the steam-bluing has not been employed in the methods or processes as they are practiced. I have discovered that by applying the methods and means in practice to the steam-blued sheets a much better article is made, more uniform in color, and that does not rust or corrode as readily under exposure. The steam-bluing gives them a ferrous-oxid surface that resists corrosion most excellently.

In carrying out my improvement I proceed as follows: The sheets are rolled in the usual manner either by the tight or loose rolling process. These sheets are then annealed in a box-annealing furnace at customary heats. Instead of laying the sheets down on their sides, as generally practiced, I stand them on their edges and preferably, though not necessarily, fill the annealing-box with some hydrocarbon gas during the annealing process. When sufficiently annealed, the box is withdrawn from the furnace and allowed to cool slightly, keeping the edges well together to exclude free access of air. Then I introduce a jet of superheated steam, care being taken that it is free from oil or any foreign matter that would tend to create a film of carbonaceous matter, akin to or similar to lampblack, as a deposit on the surface of the sheets, into the box and maintain it there until the temperature is reduced to about 300° to 400° Fahrenheit, and then cut it off, allowing the box to cool down thereafter in the usual way. The cover of the box is then removed and the sheets will be found to have a uniform blue color over their entire surfaces, being a ferrous-oxid coating and excellent to resist corrosion. I then paint or coat the sheets with a composition of graphite and the oxid or salts of tin or lead, or both, in proportion of about ten per cent. of graphite and an equal proportion of the oxid of tin to about eighty per cent. of the oxid of lead or ten per cent. of graphite to ninety of lead alone, by weight. This may be done by dipping the sheets into a vat or tank containing the above composition held in solution by some quick drying fluid, preferably gasolene, or it may be spread on with a brush or by passing the sheets between rolls covered with cloth upon which the mixture is spread. The sheets are then made up into packs of thirty to sixty sheets, placed in an ordinary reverberatory furnace and heated to a high red heat, and then planished in the packs by hammers or may be brought to a polish by passing singly or in pairs, or more, between heavy rolls. If they are found not sufficiently polished by once hammering, the packs may be opened, exposing the sheets to the air while still slightly red, when they are repacked, reheated, and again hammered or rolled. They may then be taken to the shears, trimmed, and packed for the market. Sheets treated in this manner will be found to have acquired a high degree of luster, closely resembling the so-called "Russia iron," and will wear extremely well under heat or exposure.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

The improvement in the manufacture of planished sheet iron and steel, consisting, first, in annealing the sheets in the usual manner; second, subjecting the sheets to the steam-bluing process to form a ferrous-oxid coating; third, coating such sheets by applying a mixture of graphite and the oxid or salts of tin or lead, or both, and fourth, planishing said sheets by hammering or passing through rolls, substantially as described.

Signed by me, at Cleveland, Ohio, this 12th day of May, 1899.

WALLACE C. DICKEY.

Witnesses:

GEO. W. TIBBITTS,

CHARLES L. STOCKER.