UNITED STATES PATENT OFFICE.

WALLACE C. DICKEY, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF PLANISHED IRON AND STEEL.

SPECIFICATION forming part of Letters Patent No. 639,537, dated December 19, 1899.

Application filed August 14, 1899. Serial No. 727,243. (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 Planished Iron and Steel, of which the following is a specification.

This invention relates to the manufacture of planished iron and steel; and it consists in the application subsequently to the reoxidizing process of an improved composition to the surface of the sheets before the final step of planishing, composed of finely-comminuted aluminium and the oxid of lead.

Heretofore it has been found difficult to apply as thick a protection-coating of the paint composed of graphite, tin, and lead as is desirable, owing to the great tendency of the lead when melted to form globules instead of remaining evenly spread. By reason of this inherent property of the lead to form into globules the finished surface will show fine specks, streaks, or brush-marks, even after hard hammering. Tin under certain conditions, as high heat, becomes oxidized, and thus transformed into a lusterless powder. Tin also fuses at a much lower heat than aluminium and volatilizes at a low red heat. Graphite, being non-fusible, obstructs the free flow of the soft metals when fused into the interstices of the surface of the sheets and prevents the formation of a continuous and uniformly-close metallic surface. By the use of aluminium (in place of graphite and tin) compounded with lead these defects and objections are completely overcome and avoided, and its effects upon the surface of the steel are to increase its tenacity, flexibility, and ductility, and so lessens its liability to break or scale when forming it into difficult shapes, and as thick a coating may be applied as desired and remain evenly spread, and thus obtain much better protection. It also better stands a long and high heat, holds a polished surface longer, is a much better rust-resisting compound, and is not affected by salty atmosphere. In fact, aluminium and lead possess the qualities or properties desired and obviate the objections possessed by the old compound.

The preparation of the sheets in carrying out this improvement is reoxidizing by the steaming and bluing process; but instead of using the paint composed of graphite and the oxid or salts of lead and tin I make a new compound, using any compound or mixture of aluminium which would be reducible by the reheating to a metallic aluminium, preferably of finely pulverized or ground aluminium and a pure oxid of lead in about the proportion of five to ten per cent. aluminium to ninety to ninety-five per cent. of lead. This may be applied in the required quantity by the use of a brush or other suitable means to the sheets, which are then packed in bundles, placed in the furnace, heated to the required degree, and then planished by the use of hammers or rollers in the customary manner. Iron and steel thus treated with this compound are of a much superior quality, finer finish, and greater durability.

Having described my invention, what I claim is—

The improvement in the manufacture of sheet iron and steel, consisting in coating the sheets with a mixture of finely-comminuted aluminium and oxid of lead, and subsequently planishing them by hammering or rolling in the usual manner.

Signed by me at Pittsburg, Pennsylvania, this 10th day of August, 1899.

WALLACE C. DICKEY.

Witnesses:
B. L. RIFE,
H. H. PATTERSON.