UNITED STATES PATENT OFFICE.

THEODORE G. BUCKLIN, OF WEST TROY, NEW YORK.

IMPROVEMENT IN PREPARING METALLIC PATTERNS FOR CASTING.

Specification forming part of Letters Patent No. **6,440**, dated May 8, 1649; antedated November 8, 1848.

To all whom it may concern:

Be it known that I, THEODORE G. BUCKLIN, of West Troy, in the county of Albany and State of New York, have invented a new and Improved Mode of Finishing Cast-Iron Patterns for the Use of Founders and for other purposes, of which the following is a full and exact description.

The nature of my invention consists in converting the surface of iron castings into plumbago by treating them with dilute acid, which dissolves out most of the iron, but leaves the carbon, which is insoluble in the menstruum, in the form of graphite or plumbago, which, when dry, is capable of being smoothed and polished, so as to make it suitable for the surface of patterns and for the protection of the interior iron from oxidation. Preparatory to operating upon the castings a tub or other convenient vessel is provided of the proper size, in which is placed a suitable quantity of dilute sulphuric or other acid, or a mixture of acids, in the proportion of one part of the acid to about ten parts of water. It is to be observed that for this purpose the proportion of the acid must not greatly exceed that above given, because its action would then be too energetic and it would corrode the surface of the casting unequally, and thus render it unfit for a pattern. Into this menstruum the castings are placed and allowed to remain undisturbed for a space of time varying from one to forty-eight hours, according to the thickness which the coating of plumbago is required to be made. If the surface of the casting should happen to be uneven, and it is required to reduce it to a uniformly even and true plane, the depressions should be insulated from the action of the acid by means of a coating of beeswax or other substance capable of resisting the action of the acid, and the protuberances then subjected to its action until sufficiently reduced, when, if the thickness of the entire casting were required to be lessened, the wax might be removed and the whole surface subjected to the action of the acid by immersing it in the tub. When this part of the process has progressed to the required point the further action of the acid is arrested by dipping the casting into a strong solution of potash or other alkali, after which it is carefully dried by a fire or in an oven prepared for the purpose. The next step is to remove by means of a knife, scraper, chisel, or plane so much of the protuberant or other parts as may be deemed necessary, and then with a smooth piece of steel or other hard substance of the proper shape level and burnish the whole surface, which will then be in the best possible condition for a pattern to be molded from, and thus obviating the necessity of using either wax or varnish.

What I claim in the before-described process as of my invention, and desire to secure by Letters Patent, is—

Converting the surface of iron castings into plumbago by treating them with dilute acid, and then reducing them to the required form and size and smoothing and polishing them, substantially in the manner and for the purpose herein set forth.

THEODORE G. BUCKLIN.

Witnesses:

FRS. BONRASSO,

MIRANDA MARTIN.