UNITED STATES PATENT OFFICE.

WILLIAM R. JONES, OF BRADDOCK'S, PENNSYLVANIA.

IMPROVEMENT IN WASHES FOR INGOT-MOLDS.

Specification forming part of Letters Patent No. **191,974**, dated June 12, 1877; application filed April 4, 1877.

To all whom it may concern:

Be it known that I, WILLIAM R. JONES, of Braddock's, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Washes for Ingot-Molds; 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 pertains to make and use it.

This invention has reference to the wash which is applied to the interior surface of molds, particularly those used for casting Bessemer ingots.

The mold now in general use is made of cast-iron, in one piece, having the appearance of a truncated pyramid, the taper being slight and just sufficient to allow clearance in "drawing." To assist the drawing, a wash has been commonly employed, consisting of fire-clay and water, applied by dipping or brushing, and dried before use. But even this has not secured perfect freedom in the withdrawal of the mold from the ingot. The consequence has always been that, by reason of this difficulty in drawing, a large supply of extra molds had to be kept on hand to meet the demands of the converter's successive heats, and many were soon rendered useless by the rough treatment received by them in the effort required to "draw." All this entailed heavy expense upon the manufacturers. My special object is to prevent this useless expenditure by means of a wash which shall always permit the free and unobstructed withdrawal of the mold without any sledging or battering whatever. To that end my invention consists simply of a wash composed of water and caustic lime, or oxide of calcium. The white or fire clay commonly employed as a wash takes up but little water, and when dry contains scarcely any, and does not stick well enough to give a good body. But the oxide of calcium, when mixed with water, absorbs it in large quantities, and swells to thrice its original bulk, becoming a hydrate of lime. This being mixed with more water becomes "milk of lime," the well-known "whitewash," and is in that state applied to the mold, adhering tenaciously thereto, and being capable of being laid on thickly. When the highly-heated metal comes in contact with this, the water is again liberated, and the coating diminishes so perceptibly in bulk that no difficulty is experienced in withdrawing the mold. The ingot never sticks, and the application is quite as simple and cheap as, if not cheaper than, that of the clay-wash.

The practical results are astonishing. In a prolonged actual test of the two washes, my actual experience has been as follows: With the clay-wash the average life of a mold has been fifty-two (52) "heats;" whereas with the lime-wash the average has been increased to the enormous number of one hundred and thirty-two (132) heats. This fully demonstrates the practical utility of my invention, and the saving to manufacturers gained by its use.

Having thus fully described my invention, I claim and desire to secure by Letters Patent—

The herein-described mold-wash, consisting of water and caustic lime or oxide of calcium, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of March, 1877.

WILLIAM R. JONES.

Witnesses:

E. V. MCCANDLESS,

THOS. J. MCTIGHE.