

# UNITED STATES PATENT OFFICE.

JOHN D. WILLIAMS, OF ALLEGHENY CITY, PENNSYLVANIA.

## IMPROVEMENT IN THE MANUFACTURE OF IRON.

Specification forming part of Letters Patent No. **49,331**, dated August 8, 1865; antedated July 9, 1865.

*To all whom it may concern:*

Be it known that I, JOHN D. WILLIAMS, of the city and county of Allegheny, in the State of Pennsylvania, have invented a new process in Manufacturing Iron; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the use of sulphuric acid, salt, borax, saltpeter, and lime, compounded and used in the manner substantially as hereinafter described.

I use the ordinary boiling or puddling furnace, making the depth from the fore plate to the bottom plate about two inches more than that of the ordinary furnace. I charge the furnace and melt the metal in the usual manner. After the charge is melted down, (a charge being about four hundred and eighty pounds,) I then take about one pound of sulphuric acid and dilute it in about a pint of warm water. I also take about eight ounces of common salt, three ounces of borax, two ounces of saltpeter, and six ounces of slaked lime. Each of these I dissolve in about a pint of warm water, after which I put all these mixtures into about three

gallons of warm water, taking care to mix them well with the water. I then pour this mixture in on the melted iron and manipulate the iron in the usual manner, with this exception, to wit: The manipulating process is carried on without lowering the damper and without drawing off the slag or cinder until after the iron is withdrawn from the furnace. By treating and working the iron in the manner herein described a better and a stronger article is obtained.

Having thus described my process in the manufacture of iron, what I claim as of my invention is—

The use of the ingredients herein named, when used in the manufacture of iron, said ingredients being used substantially in the manner herein described, and for the purpose set forth.

JOHN D. WILLIAMS.

Witnesses:

JAMES J. JOHNSTON,  
ALEXANDER HAYS.