

UNITED STATES PATENT OFFICE.

JOSEPH DIXON, OF JERSEY CITY, NEW JERSEY.

PROCESS FOR MAKING CAST-STEEL.

Specification forming part of Letters Patent No. 7,260, dated April 9, 1850.

To all whom it may concern:

Be it known that I, JOSEPH DIXON, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Method or Process of Manufacturing Steel; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes my invention from all other things before known, and of the manner of using the same.

By my improved process I make cast-steel directly from the pig or cast iron, and thus avoid the laborious and expensive process heretofore and now universally practiced of first converting the pig or cast iron into wrought-iron.

The nature of my invention in the process of making cast-steel directly from pig or cast iron consists in partly decarbonizing the pig-iron by cementation in an oven with pulverized oxide of iron, and then melting the partly decarbonized pig or cast iron in crucibles.

The mode of procedure which I have practiced with success is to cast the pig-iron in thin plates of about half an inch in thickness, which plates I then pile in an oven such as is used in making blistered steel, interposing between such plates pulverized oxide of iron in strata about equal in thickness to the plates of pig-iron. The oven is then closed and heated. For an oven containing about ten tons of pig-iron I apply the heat for about ten days, taking care not to raise the heat so high as to melt the oxide of iron, but sufficiently

intense to keep the plates of pig or cast iron at a cherry-red heat. The operator will be able to ascertain when this process has sufficiently progressed by the taking out a plate and observing if the granular formation has been changed, and by hammering to see if it has assumed the character of what is called "malleable cast-iron."

After the plates of pig-iron have by the above process been sufficiently decarbonized they are taken out of the oven and broken up and melted in crucibles in the same manner as in making cast-steel from blistered steel.

The length of time during which the first part of the process is to be continued must depend in a great measure on the thickness of the plates of cast-iron and the quality of steel desired to be produced. The thicker the plates the greater the length of time required, and with a given thickness of plates the longer they are heated the softer will be the steel.

What I claim as my invention, and desire to secure by Letters Patent in the above process of making cast-steel, is—

Partly decarbonizing pig or cast iron in an oven stratified with pulverized oxide of iron, substantially as described, and then melting such decarbonized pig or cast iron in crucibles, substantially as described.

JOS. DIXON.

Witnesses:

JOHN W. QUINCY,
ALEX. PORTER BROWNE.