

UNITED STATES PATENT OFFICE

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IMPROVEMENT IN MANUFACTURE OF STEEL.

Specification forming part of Letters Patent No. **217,962**, dated July 29, 1879; application filed
May 20, 1879.

To all whom it may concern:

Be it known that I, SIDNEY GILCHRIST THOMAS, of Queen's Road Villas, in the county of Surrey, England, have invented a new and useful Process for the Manufacture of Steel, which process is fully set forth in the following specification.

This invention relates to an improvement on my process for dephosphorizing phosphoretic pig-iron for making steel.

Previous to this invention I had dephosphorized the iron by melting it in a converter lined with calcareous or magnesian or like basic material, and adding to the molten metal similar basic material, whereby a basic slag was produced, in which the phosphorus was removed.

The present invention consists in treating the iron to a refining process preliminary to the dephosphorization in the converter in the presence of basic material in such converter.

In carrying out this process I refine the pig-iron in a fixed refinery or vertical Bessemer converter (lined with fire-brick or ganister or silica bricks) until about from five-tenths of one per cent. to seventy-five one-hundredths of one per cent. of silicon only is left in the metal. I then run it direct into an ordinary tipping converter, lined with a calcareous material, preferably the basic bricks described by me in former specifications.

I do not, however, permit the slag to run into the tipping converter, but stop the "runner," so as to divert the slag into a slag-bogey.

The amount of basic addition—namely, lime, or a mixture of from two to four parts of lime to one of iron ore, added in the tipping converter—is regulated by the amount of phosphorus and silicon in the refined metal. The amount of addition which it is desirable to employ is about four or four and one-half times the weight of the silicon and phosphorus in the refined metal. The metal is then blown in the usual way in the basic-lined converter, with, if necessary, a slight "overblow."

Having thus described the nature of my invention, and the manner in which it may be employed, what I claim is—

The process of dephosphorizing metal, consisting in first refining the metal in a fixed Bessemer converter or refinery, with a silicious or other lining, and subsequently running the metal into a Bessemer converter with a calcareous basic lining and in the presence of calcareous basic additions, substantially as specified.

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