

UNITED STATES PATENT OFFICE.

JOHN L. RANDALL, OF ALBANY, NEW YORK, ASSIGNOR TO HIMSELF AND
STEPHEN MUNSON, OF SAME PLACE.

IMPROVEMENT IN PURIFYING IRON AND MAKING STEEL.

Specification forming part of Letters Patent No. **182,708**, dated September 26, 1876; application filed
June 6, 1876.

To all whom it may concern:

Be it known that I, JOHN L. RANDALL, of Albany, in the county of Albany and State of New York, have invented a new Process for the Purification of Iron and Production of Steel by the same process, of which the following is a specification:

The invention consists in treating molten cast-iron, while in a receiver, with pulverized titanic or equivalent iron ore, potassic ferrocyanide, and potassic nitrate, as hereinafter described.

I first melt the cast iron or steel, and tap it into a receiver, wherein I then add to the molten metal from ten to fifty per cent. of titanic iron ore, sand, or equivalent, having previously stirred into the molten iron from two to ten per cent. of fine potash, or ferrocyanide of potassium, and from two to ten per cent. of nitrate of soda, all of which, also, is to be finely ground or pulverized, the same being to purify the metal, and enable it to unite strongly with the titanic ore. The ore and the chemical are to be thoroughly puddled, stirred, or mixed with the molten metal, and then the whole poured or drawn off into beds or molds, as may be desired.

By the combination of the molten metal

with the pulverized titanic iron ore or titanic iron sand, or any other finely-pulverized iron ore having like properties of strength that will do for the purpose, together with the said named chemicals in the way and manner above set forth and described, I am enabled to use old as well as new material, utilizing refuse metal the vitality of which has been nearly destroyed, restoring it to a high standard of excellence and value, and thereby, also, by the said combination of materials, to produce a superior and uniform grade of metal suitable for extra fine castings, and as a substitute for steel, and at much less expense than common or ordinary iron can be produced.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The process of purifying iron and producing steel, which consists in treating molten cast-iron while in a receiver, with pulverized titanic ore, potassic ferrocyanide, and potassic nitrate, substantially in the manner named, and the proportions herein set forth.

JOHN L. RANDALL.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.