

# UNITED STATES PATENT OFFICE.

SOLOMON W. KIRK, OF COATESVILLE, PENNSYLVANIA.

## IMPROVEMENT IN THE MANUFACTURE OF STEEL.

Specification forming part of Letters Patent No. 53,307, dated March 20, 1866.

*To all whom it may concern:*

Be it known that I, SOLOMON W. KIRK, of Coatesville, in the county of Chester and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Steel; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same.

The object of my invention is to utilize the scraps and chippings of tinned iron, which accumulate to so large an extent in manufacturing districts as to make it difficult to find means of transportation or suitable depositories for the refuse.

To this end the invention consists in converting the refuse scraps and chippings into steel; and the following description will enable those skilled in the art to which my invention appertains to fully understand and use the same.

In carrying my invention into effect I first collect the scraps or small particles of refuse tinned iron into suitable quantities, and then compress the mass in a cast-iron mold, to adapt a greater amount of the material to be supplied to a crucible or other receptacle, for the pur-

pose of manufacturing. The scraps thus prepared are then charged with graphite, charcoal, cast-iron, or other suitable carbonaceous material in sufficient quantities to impart to the tinned iron from one-half per cent. to two and a half per cent. of carbon, after which it is cast into ingots, annealed, and drawn into bars in the ordinary way.

The above is the process when crucibles are used; but when the tinned iron is to be manufactured in a furnace the cast-iron is charged the same way as in a puddling-furnace, and at the time the melting commences the tinned iron is charged in sufficient quantity to take up the desired amount of carbon from the iron, after which it is worked into balls and drawn and hammered in the customary manner.

Having described my invention, the following is what I claim as new and desire to secure by Letters Patent:

Manufacturing steel from tinned iron, substantially as herein set forth.

SOLOMON W. KIRK.

Witnesses:

WM. R. ASH,  
R. HAINES.