

UNITED STATES PATENT OFFICE.

N. C. GRIDLEY, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN THE MANUFACTURE OF SHEET AND PLATE IRON.

Specification forming part of Letters Patent No. 93,083, dated July 27, 1869.

To all whom it may concern:

Be it known that I, NELSON C. GRIDLEY, of the city of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented certain new and useful Improvements in the Manufacture of Sheet and Plate Iron; and I do hereby declare that the following is a full, clear, and exact description thereof.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to a process in the manufacture of sheet and plate iron for removing the scale and "slag" from the surfaces thereof, and at the same time making a uniform hardened surface, susceptible of a high degree of finish, thereby preventing or greatly lessening the tendency to oxidation and corrosion.

The sheet or plate iron is first rolled in the usual manner, slightly thicker than the desired merchantable thickness, and without being passed through the usual finishing-rollers, and is then fed to, by means of and between two or more rollers, commonly used, of the material, length, and diameter desired, or by any other known method therefor, and the surfaces thereof brought in contact with, and under pressure of, a soft steel roller, or its equivalent, of the length and diameter desired, revolving with great rapidity in an opposite direction to the feeding rollers or machinery. The action of this soft steel roller upon and against the surface of the sheet and plate iron is that of abrasion, cutting slight particles or a portion therefrom, removing the scale and slag, and at the same time hardening the surface thereof, making it uniform, and firmly covering and closing the pores of the iron,

thereby preventing or greatly lessening the tendency to oxidation and corrosion.

The surfaces of the sheet and plate iron thus treated can be brought to a high degree of finish or polish under the emery-wheel or other known methods. If such surfaces should become, under the action of the soft steel roller, or its equivalent, as aforesaid, too hard or brittle to be easily worked or manipulated, the desired or proper temper or tone may be restored by use of the emery-wheel, or by rolling or by annealing by any of the known processes therefor, and without materially changing the character of the surfaces aforesaid. The desired color may also be given thereto by any of the known processes therefor.

I do not claim the construction or combination of any machinery in the manufacture of sheet and plate iron to produce the results specified; but

What I do claim, and desire to secure by Letters Patent, is—

1. The process of removing the scale and slag from, and at the same time hardening the surfaces of, sheet and plate iron, by means of one or more soft steel rollers, or their equivalent, substantially in the manner described.

2. In the process of manufacturing sheet and plate iron, the use of one or more soft steel rollers, or their equivalents, for removing the scale and slag, and at the same time making a uniform hardened surface, preparatory to its receiving the desired finish and color, substantially in the manner and for the purpose described.

N. C. GRIDLEY.

Witnesses:

SAML. I. FRIDGE,
F. T. DAY.