

UNITED STATES PATENT OFFICE.

WILLIAM M. THEOBALD, OF McKEESPORT, PENNSYLVANIA.

PROCESS OF FINISHING SHEET IRON AND STEEL PLATES.

SPECIFICATION forming part of Letters Patent No. 608,432, dated August 2, 1898.

Application filed November 8, 1897. Serial No. 657,813. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM M. THEOBALD, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in the Process of Finishing Sheet Iron and Steel Plates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel process of producing blued and polished sheet iron and steel plates or sheets with an oxidized finish; and the object is to produce an article of this class in a simple, expeditious, and inexpensive manner; and to these ends the invention consists in the process hereinafter more fully set forth, and particularly pointed out in the claim.

In carrying out my process I first take a series of sheet iron or steel plates or sheets that may have an oxidized, deoxidized, or acid-cleaned surface and pile them up one on top of the other upon an annealing bottom or pan and then cover the pile with an annealing-box. I then lute or sand all the joints between the box and its bottom to prevent the access of air to the plates, and thereby prevent undue or excessive oxidization. In this condition I introduce the plates into a suitable furnace, close the door, and after firing the furnace subject the box and pan containing the plates to an annealing heat for about six hours, more or less, which will have the effect of bringing the plates to the desired or ordinary annealing temperature. Having obtained the desired degree of heat, the annealing box or pan and its contents are now withdrawn from the furnace and allowed to cool for about twenty-five minutes, more or less, or until the temperature inside of the box has been reduced to somewhere between 900° and 1,400° Fahrenheit. After the plates have cooled to the proper degree the cover or box is removed from the pan or bottom and the plates or sheets exposed to the atmosphere until the proper coating of oxid has been attained. The plates or sheets are

now protected from further contact with the air, which may be very simply and effectually accomplished by laying them horizontally one on top of the other, so as to exclude the air. The sheets or plates now have a temperature of from 300° to 900° Fahrenheit, and are then immediately passed, one or more at a time, between smooth or highly-polished rolls, and on being rolled at the above temperature obtain a luster and polish and practically uniform degree of color, which they retain indefinitely by reason of the oxid coating becoming firmly attached to the surface of the sheets or plates. This part of the process I term "warm-rolling," and to obtain a still higher degree of luster or polish and a uniformity of color the entire process or a part of it may be repeated.

Due caution must be observed in the process to prevent undue or excessive oxidation, and for this purpose the non-oxidizing gas may be admitted to the annealing pan or box to expel the air while the plates or sheets are in or out of the furnace.

Having thus fully described my process, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The process herein described, of preparing metal sheets or plates, which consists in subjecting said sheets or plates to an annealing degree of heat for about six hours without contact with atmospheric air, then cooling said sheets or plates under the same conditions for about twenty-five minutes to a temperature of from 900° to 1,400° Fahrenheit, then exposing said sheets or plates to the action of the atmosphere until they have attained the proper degree of oxidation and finally passing said oxidized plates at a temperature of about from 300° to 900° Fahrenheit, between polished rolls, substantially as and for the purpose set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLIAM M. THEOBALD.

Witnesses:

J. D. EVANS, Jr.,
A. J. DEMMLER.