W. D. WOOD.

Manufacture of Sheet-Iron.

No. 155,691. Patented Oct. 6, 1874.

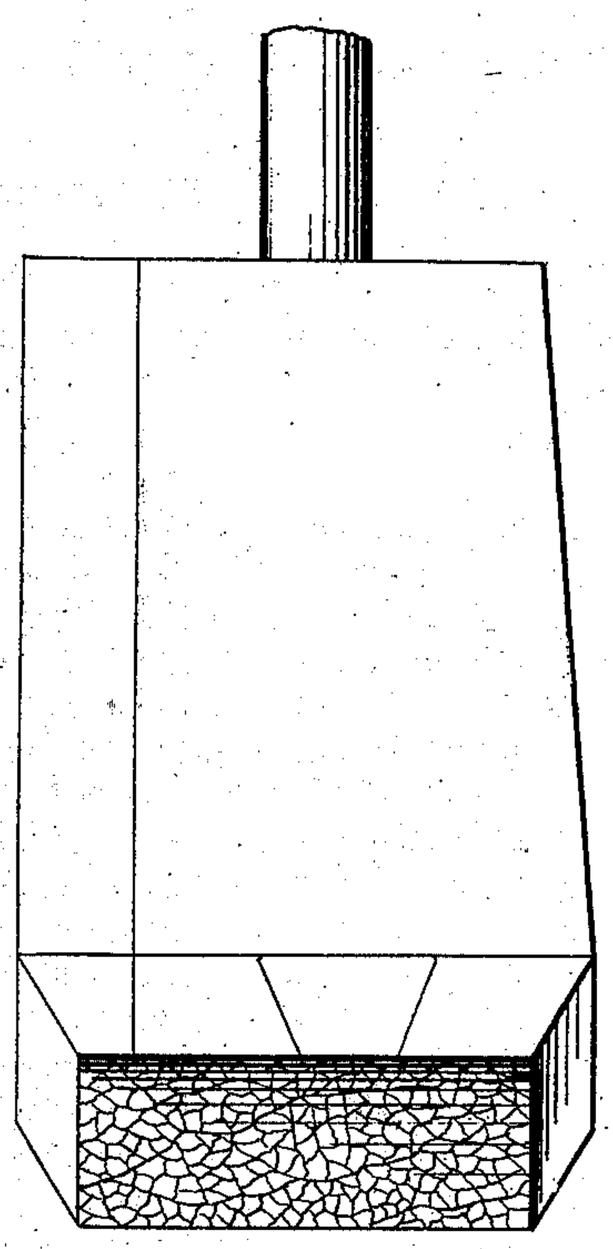


FIG. I.

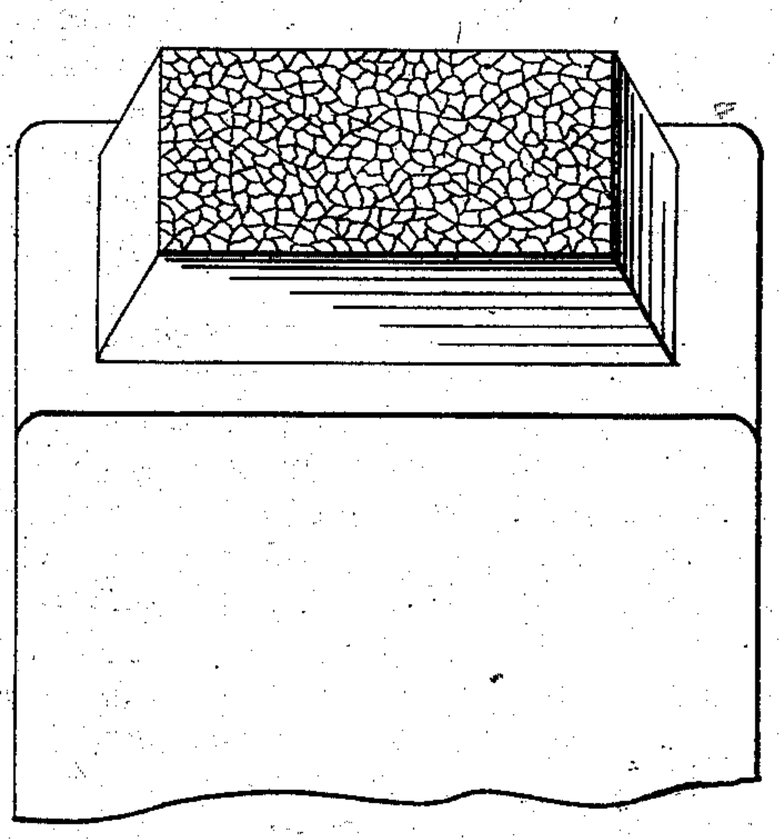
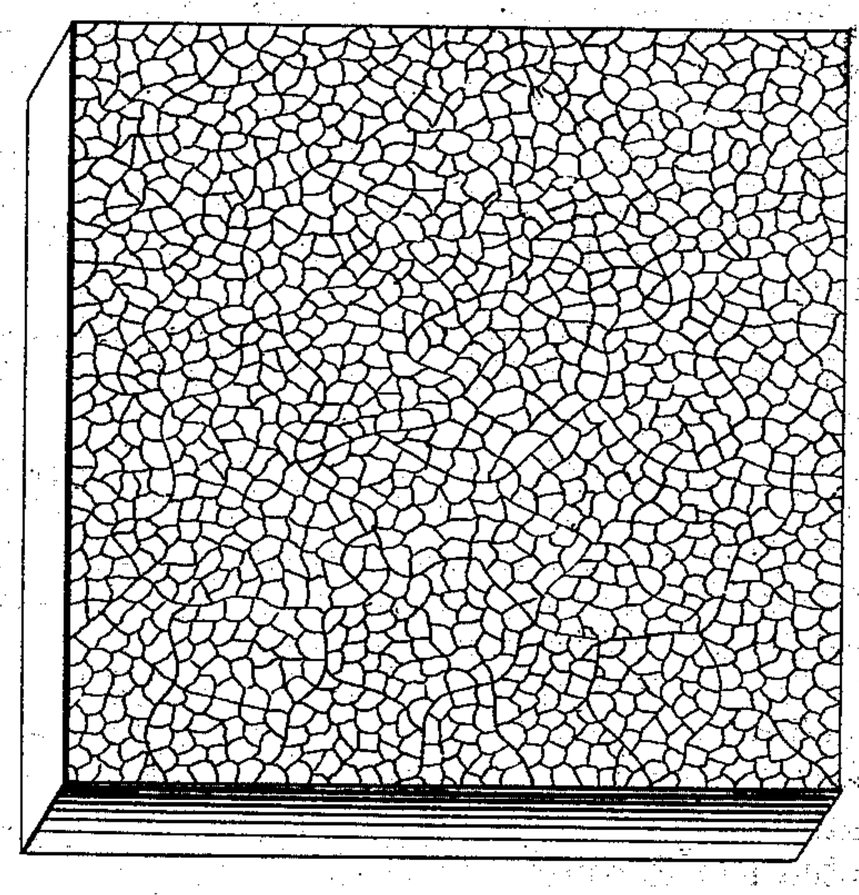


FIG. II.



WITNESSES

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UNITED STATES PATENT OFFICE.

W. DEWEES WOOD, OF McKEESPORT, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF SHEET-IRON.

Specification forming part of Letters Patent No. **155,691**, dated October 6, 1874; application filed March 2, 1874.

To all whom it may concern:

Be it known that I, W. DEWEES WOOD, of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Sheet-Iron; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the mode of finishing sheet-iron for the purpose of imparting to its surface a highly-polished and mottled appearance.

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

The iron, after being previously broken down into sheets by rolling, may be treated in the following manner: Being first cleaned of its scale in any usual way, and after being thoroughly dried, it is immersed in a bath of graphite or plumbago and oil, or equivalent mixture, after which it is piled in packs of three or more sheets each, and, after being heated to a proper rolling temperature, is subjected to the rolling process. The sheets are then trimmed and annealed, and, when cold, arranged in packs of three or more sheets, preparatory to the final operation of hammering. The process, so far as already referred to, is the same as that described in Letters Patent of the United States granted to me on April 8, 1873, No. 137,585, and reissued the first day of July, 1873, and need not therefore be more fully detailed. In the patent just referred to it is stated that the packs of sheets thus prepared are subjected to rapid hammering when cold, for the purpose of imparting the desired polished surface.

The surface given to sheet-iron thus prepared, rolled, and hammered, as described in my said patent, is perfectly smooth and highly polished, whereas the surface given by my present improved process is more highly polished, but not perfectly smooth. Heretofore, generally, in the manufacture of sheet-iron, the sheet has been submitted to the hammer before being thoroughly scaled, the scale being in part worked into the face of the sheet by the blows of the hammer, and in part broken off, giving, as a consequence, irregularity in the finish of the sheet. One of the first essentials of my improved process is that all scales shall be removed from the sheet. This improvement has reference to the hammer finishing process, irrespective of the previous treatment of the sheets of iron, provided, as above specified, all scale has been removed from the iron; and it consists in a method of finishing sheet-iron by hammering the sheets by rapid strokes between a hammer and anvil, the operative faces of which, or of either of which, are planished or mottled by slight indentations, the general contour of the surface being otherwise plane. For this purpose a steam-hammer is preferable, as great rapidity of stroke can be thereby attained. The dies or operative faces of the hammer and anvil are made of common cast-iron, or of chilled cast-iron planed smooth and true, and are then indented or mottled by repeated strokes with a small-sized planishing-hammer, as illustrated in the drawing, Figure 1 being the operative faces of the hammer and anvil, and Fig. 2 a detached view.

I prefer, as before stated, to have the face of both the hammer and anvil thus indented; but, if desired, one of them may be smooth and the other mottled.

In the manufacture of sheet-iron it is not absolutely necessary, in order to give the desired mottled and polished surface, that the sheets should be first treated with the plumbago bath, in the manner described in my former patent, before referred to; but I prefer that mode. Indeed, the hammering operation may be employed with good effect on sheets from which the scale has been thoroughly removed, only in the latter case the high finish is not obtained; but the best results are obtained where the sheets have been previously submitted to the carbon bath, for the reason that the plumbago or similar material employed acts as a lubricant, and preserves the uniform finish of the sheet, preventing any weld or adhesion between the face of the hammer and the sheet, and the consequent stripping off or breaking of the polished film formed upon the face of the sheet.

In the finishing of sheet-iron by means of the mottled hammer and anvil, I pile the sheets previously annealed in packs, usually

of three or more, then heat the pack to a very dull red heat, and then pass them rapidly under the mottled hammer. The result of this operation is an increased polish of the surface of the iron, as compared with sheets finished by means of rolls, or by plane-surface hammering, and a peculiar character of gloss, different from and far superior to that which is produced by any other known means. After being thus hammered such sheets need not, ordinarily, be reannealed, although this may be done, if preferred, or found in any case to be desirable.

I have described the sheets as being heated previously to hammering; but this is not absolutely necessary, a similar result as to surface polish resulting from the hammering of the sheets when cold with the mottled hammer.

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

As an improvement in the process of manufacturing sheet metal patented to me April 8, 1873, No. 137,585, reissued July 1, 1873, in virtue of which I am enabled to produce sheet metal very closely resembling what is known as Russia sheet-iron, the operation of hammering with a hammer and upon an anvil whose operative faces are true planes otherwise than that they are mottled over with slight indentations, as described, instead of with the ordinary plane-faced hammer heretofore used.

In testimony whereof I, the said W. DEWEES WOOD, have hereunto set my hand.

W. DEWEES WOOD.

Witnesses:

FREDERICK STANDISH,

T. B. KERR.