

(No Model.)

J. W. BRITTON.
PROCESS OF SCALING SHEET METAL.

No. 479,780.

Patented Aug. 2, 1892.

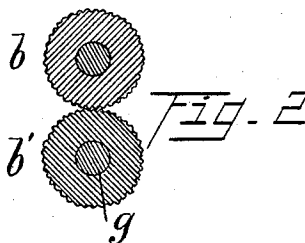
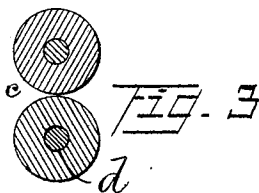
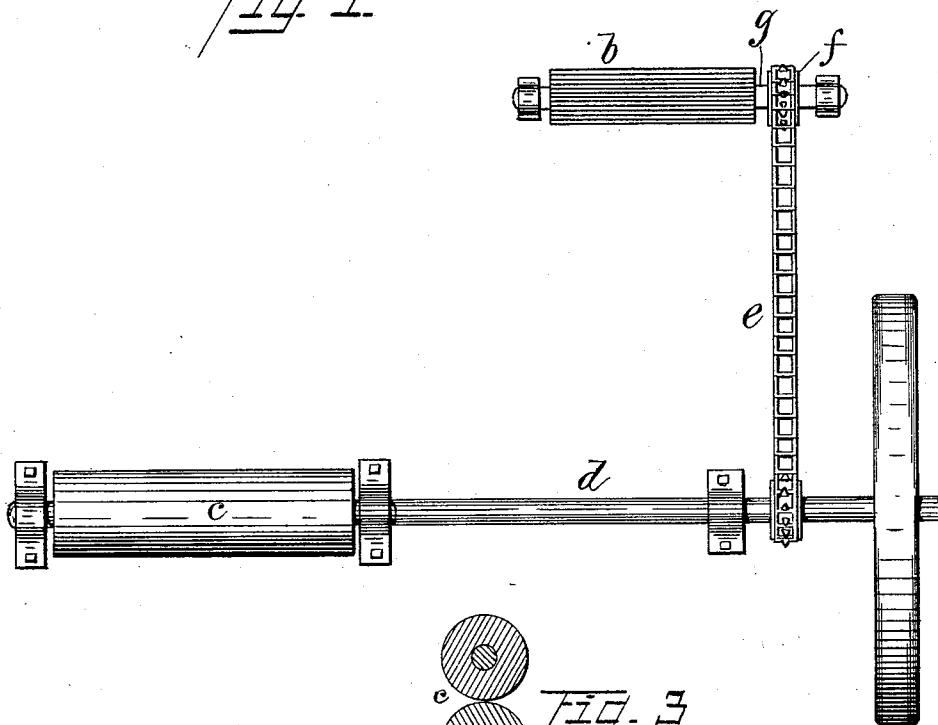


Fig. 1



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH W. BRITTON, OF CLEVELAND, OHIO.

PROCESS OF SCALING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 479,780, dated August 2, 1892.

Application filed November 20, 1891. Serial No. 412,577. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. BRITTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain Improvements in Processes of Scaling Sheet Metal, of which the following is a full and complete description thereof.

The nature of my invention relates to a process for scaling sheet metal by subjecting the metal in a heated state to the action of corrugated rolls and then running it through smooth or finishing rolls, as hereinafter described.

That the invention may be seen and understood by others, reference will be had to the following specification and annexed drawings, making part thereof.

In explanation of said invention reference will be had as in illustration of its use to sheet steel and iron; but it is, however, applicable in scaling sheet-copper and other metals requiring such treatment.

Figure 1 is a plan view showing the position of the system of rolls in relation to each other and the furnace. Fig. 2 is a cross-section of the fluted or corrugated rolls, and Fig. 3 is a cross-section of the smoothing-rolls.

Like letters denote like parts in the specification and drawings.

It is well known to those skilled in the art of manufacturing sheet steel and iron that in the process the metal is covered more or less with scales, and that in rolling the hot metal into sheets and plates this scale is compressed or embedded in the metal on both sides by the compressing action of the rolls. It is essential to remove this scale before the sheets are trimmed or coated with zinc, tin, lead, or other metal by the usual and known process, as in galvanized iron and steel. As this scale adheres closely and tightly to the sheet or plate, the means which have usually been employed for removing it are insufficient and uncertain for the purpose, which is fully understood by those skilled in this art, that the means employed does not completely remove the scale, as its adherence to the metal sheet is so tenacious. In case imperfectly-scaled sheets are subjected to the

process of being galvanized or tinned the scales resist the action of the process and remain uncoated. When such imperfectly-covered sheets are bent and formed for architectural and other uses, the scale by this manipulation often flakes off, leaving the bare metal exposed, which materially injures the construction by the oxidation of the unprotected portion of the iron.

By my improved process or method the scales are effectually removed from the plate or sheet of iron or steel (or other metal sheets which may need scaling) as follows: The sheets or plates are first placed in a furnace *a*, which may be of the usual kind employed in heating sheet metal) and heated to the required degree, then withdrawn singly and passed through between the corrugated rolls *b*, Figs. 1 and 2, or stamped with corrugated-faced hammers or dies, after which the corrugated or crimped sheets are run through smooth-faced finishing-rolls *c*, driven by the main shaft *d* in operative connection with any of the ordinary motive-power mechanisms. In connection with the main shaft is a sprocket-chain *e*, which extends to and gears in a sprocket-wheel *f* on the shaft *g* of the lower fluted roller *b'*, Fig. 2.

With my improved method or process the scales are removed effectually from the sheets in passing through between the corrugated or crimping rolls, the action of which induces a bending of the hot metal sheets, thereby causing the scales to flake off and leave a clean bare metal face on both sides of the sheet. After the sheet has been subjected to the rolls *b b'* or equivalent dies it is passed through between the smooth-faced finishing-rolls *c*, of which the top roll only is shown, as it overlies the under roll connected with the main shaft *d*, Fig. 1.

The two rolls *c c* are indicated as conjointly arranged in Fig. 3, by means of which rolls the corrugated or crimped sheet is straightened out into a flat smooth-faced piece in suitable condition and freed from scales for the process of being coated with zinc, tin, lead, or other metal. The system of rolls *b, b'*, and *c* are preferably arranged for practical operation in about the relative relation to each

other and the furnace, as shown in the drawings, for convenience and expedition in handling the metal and in working the mechanism by the operators.

5 What I claim as my invention is—

The herein-described method of scaling sheet metal by passing the heated sheets through two sets of rolls, the faces of the first set being corrugated lengthwise and the faces

of the second set smooth, substantially as set forth.

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

JOSEPH W. BRITTON.

Witnesses:

W. H. BURRIDGE,
BRAINERD MAC BURRIDGE.