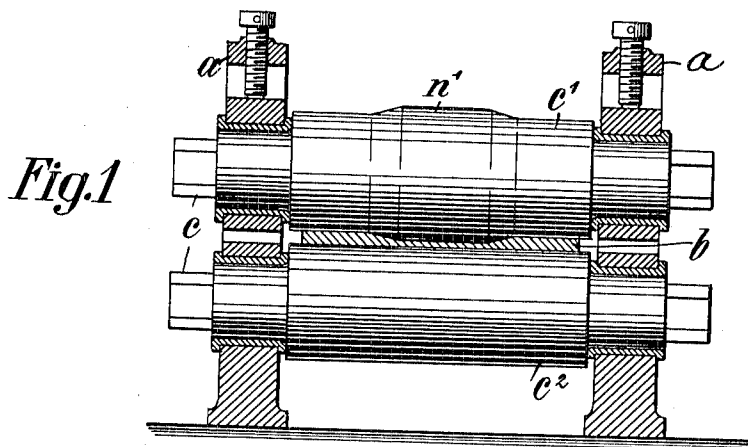
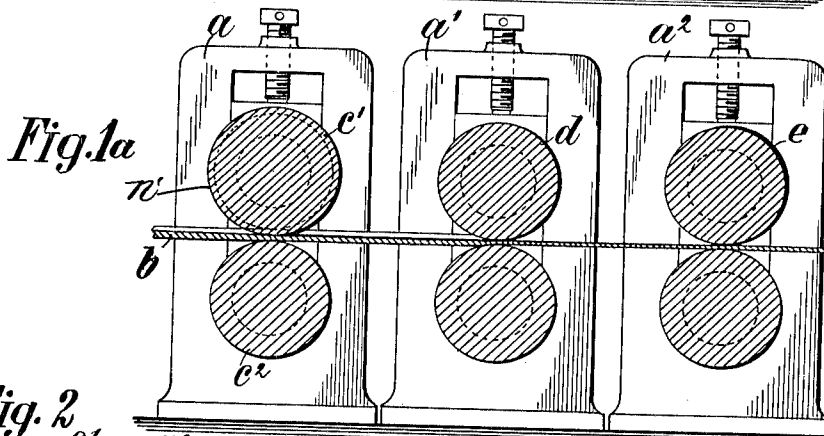
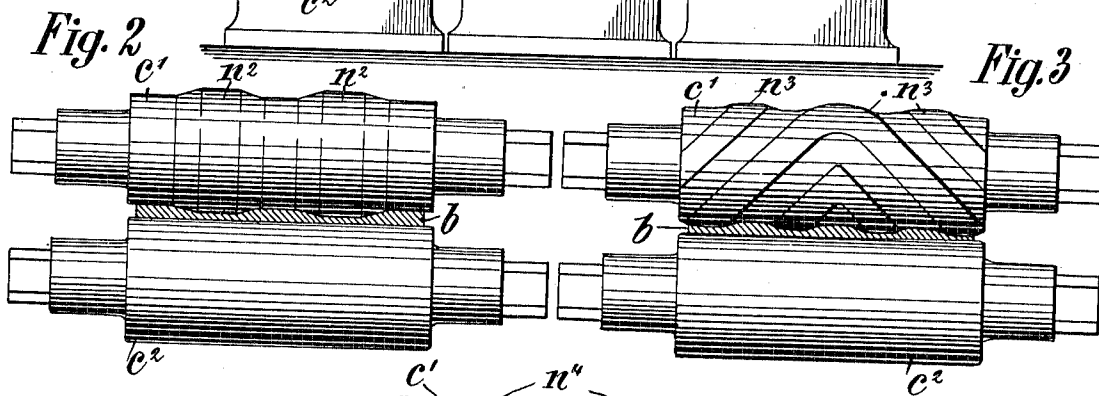
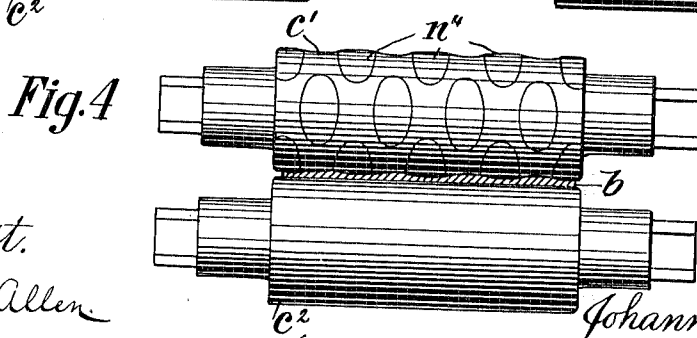


J. M. WETCKE.
 ROLLING MILL FOR SHEET METAL.
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1,106,172.

Patented Aug. 4, 1914.



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ROLLING-MILL FOR SHEET METAL.

1,106,172.

Specification of Letters Patent.

Patented Aug. 4, 1914.

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To all whom it may concern:

Be it known that I, JOHANN MARTIN WETCKE, a subject of the King of Prussia, residing at 14 Cölnerstrasse, Duisburg, Germany, have invented certain new and useful Improvements in Rolling-Mills for Sheet Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention.

This invention relates to a mill for rolling sheets or plates of metal, and preferably comprises a plurality of pairs of bearing frames, in each of which a set of rolls is mounted.

I am aware that heretofore rolls have been employed for first pressing predetermined portions of a plate or sheet of metal and then pressing the remaining portions thereof, to expand the plate or sheet in the direction of its breadth. This has been done by the employment of pairs of rolls provided with spirally pressing faces. I am also aware that it is old in this art to employ rolls with spiral threads arranged symmetrically relatively to the center of the roll, in order to stretch a plate or sheet of metal, or flatten the same, if its surfaces are uneven.

Now, in carrying out my invention, I employ a plurality of sets of rolls, in one of which, preferably the first set through which the metal is passed, one member is provided with projections and recesses which are symmetrical relatively to the center of the roll, for rolling out a plate or sheet of metal in a longitudinal direction only, it being understood that the roll associated with that having projections on its surface is a smooth surface roll, as are also the rolls in the other sets through which the plate or sheet of metal passes. In passing through the first set of rolls, therefore, the plate or sheet of metal is pressed in predetermined portions, and the remaining portions are pressed while passing through the other set or sets of smooth rolls, so that in leaving the mill, the plate or sheet of metal has a uniformly smooth surface. It will be understood that this operation may be repeated by the use of additional sets of rolls, arranged as hereinbefore described, and that with a given number of rollings a greater reduction of the thickness of the plate or sheet of metal is obtained than with the mills which are hereinbefore admitted to be old. It is further understood that the

projections and recesses arranged on one member of the first set of rolls may be made in any suitable form in which the requirement is fulfilled that they be placed symmetrically relatively to the center of the roll.

In the drawing, Figure 1 is a central cross section taken through the first set of rolls of a mill made in accordance with my invention. Fig. 1^a is a central longitudinal cross section of the same, and Figs. 2, 3, and 4 are front elevations illustrating modified forms of the first set of rolls employed in carrying out my invention.

Referring to Figs. 1 and 1^a, the mill made in accordance with my present invention, comprises pairs of bearing frames, indicated at *a*, *a'* and *a''*, placed the one behind the other, and fitted, respectively, with pairs of rolls *c*, *d*, and *e*, through which, in succession, a plate or sheet of metal *b* is passed, in being rolled. The first pair of rolls comprises an upper roll *c'* provided centrally with a circumferential projection *n'*, and a lower roll *c''*, the surface of which is smooth. The surfaces of the rolls *d* and *e*, in the bearing frames *a'* and *a''* also have smooth surfaces. In passing the plate of sheet metal *b* through these rolls, and as will be apparent, in passing through the first set, the central portion thereof will be pressed or flattened, and that in passing through the rolls *d* and *e* the outer or remaining portions thereof will be pressed or flattened, so that when leaving the mill the surfaces of the plate or sheet of metal are uniform.

In Fig. 2, I have shown the upper roll *c'*, of the first set of rolls, as provided with a pair of circumferential projections *n''*, similar in all respects to the projection *n'*, shown in Figs. 1 and 1^a.

In Fig. 3 I have illustrated the upper roll *c'* of the first set of rolls, as provided with projections *n'''*, while in Fig. 4, I have shown the upper roll *c'* as provided with a plurality of suitably spaced oval projections, indicated at *n¹*, it being understood, however, that the effect in rolling the plate of sheet metal, as shown in the modified forms of the invention, is similar in all respects to that hereinbefore described, in the use of the structure shown in Figs. 1 and 1^a.

I claim as my invention:

1. A rolling mill comprising a plurality of bearing frames arranged in pairs, one behind another, and a set of rolls in each

pair of bearing frames, the surface of the one roll in the front set being provided with a projection and the surfaces of all the other rolls smooth, whereby, in passing a plate through the rolls a portion thereof only is pressed by the front set of rolls and the remainder thereof by the other rolls.

2. A rolling mill comprising a plurality of bearing frames arranged in pairs, one behind another, and a pair of rolls in each pair of bearing frames, the surface of one roll, in the front set, being provided with a circumferential projection, and the other

with a smooth surface, the surfaces of the rolls in the other sets being also smooth, 15 whereby in passing a plate or sheet of metal through the rolls, a portion thereof only is pressed by the front set of rolls and the remainder thereof by the other rolls.

In testimony whereof I have signed my 20 name to this specification in the presence of two subscribing witnesses.

JOHANN MARTIN WETCKE. [L. s.]

Witnesses:

HELEN NUFER,
F. NUFER.