JOSEPH HALL.

Improvement in Machines for Rolling Sheet Metal.

No. 126,390. Patented May 7, 1872.

Fig. 1.

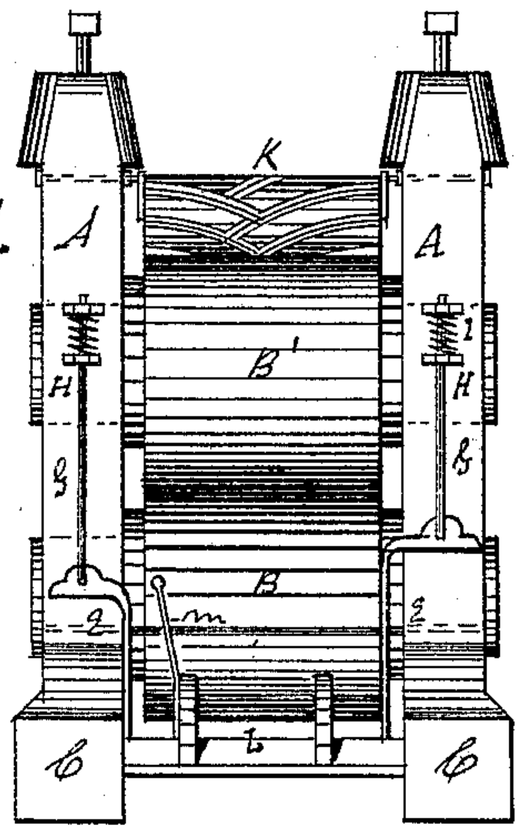


Fig. 2.

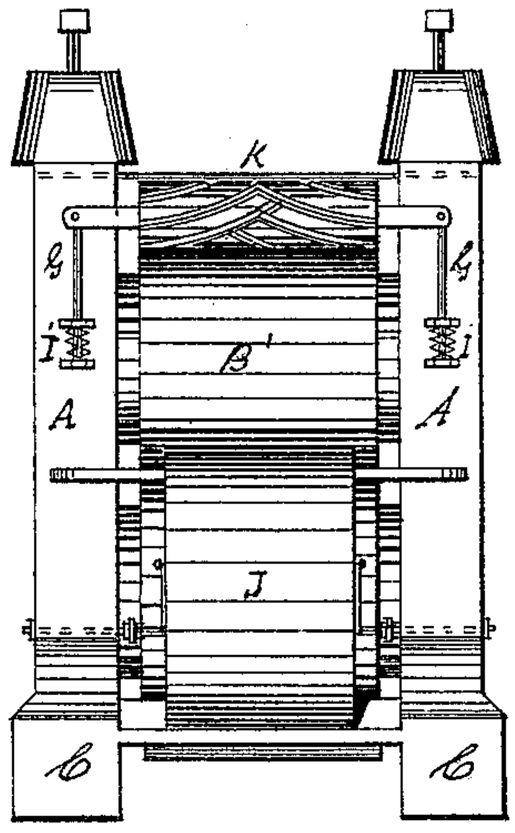


Fig. 3.

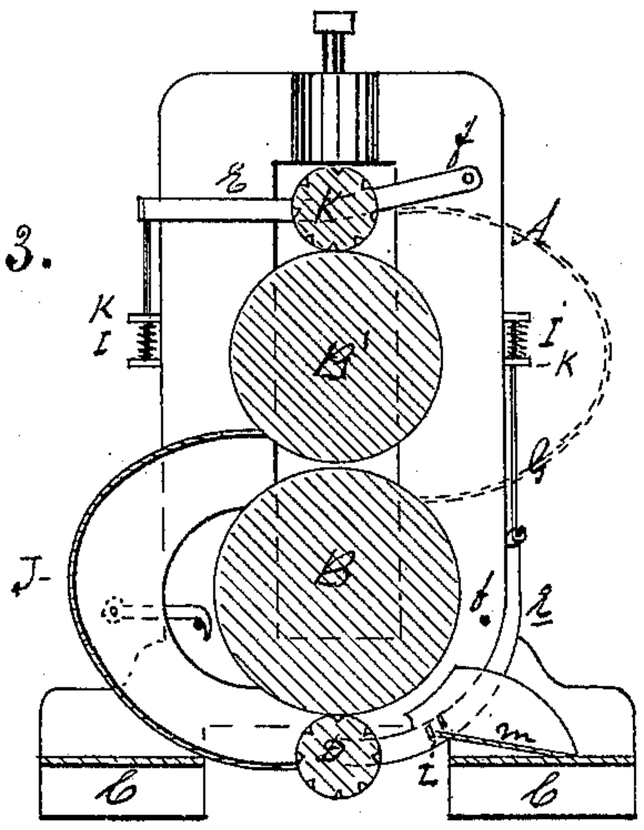
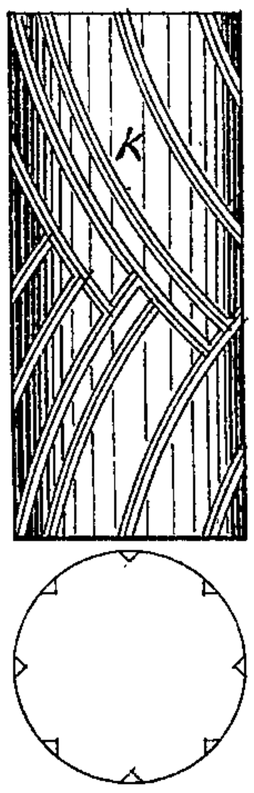


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH HALL, OF WHEELING, WEST VIRGINIA.

IMPROVEMENT IN MACHINES FOR ROLLING SHEET METAL.

Specification forming part of Letters Patent No. 126,390, dated May 7, 1872.

To all whom it may concern:

Be it known that I, JOSEPH HALL, of Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Rolling-Mills, hereinafter described, of which the following is a specification, reference being had to the accompanying drawing and the letters of reference marked thereon.

My invention relates to improvements in that class of machines commonly called "rolls," such as are used for reducing iron and steel into sheets, plates, bars, &c.; and consists in the combiuations and arrangements of the various parts of the attachments with the ordinary rolls, as hereinafter more fully described.

Figure 1 is a front view of a pair of rolls with my improvements thereto attached. Fig. 2 is a back view of the same. Fig. 3 is a vertical cross-section. Fig. 4 is a side view of my corrugated or indented roll for polishing-rolls.

Like letters of reference indicate like parts.

A represents the housings, in which the journals of rolls B B′ work, and which housings are secured to bed-plate C. D is a transfer and polishing roll, attached to the housings and held in place by means of bent levers E extending across the housings. One end of each of these levers is pivoted to the housings, on the back side, at *f*, and their other ends are connected with the vertical rods G, which pass through apertures in lugs H on the housings, the ends of which rods above the lugs are provided with the spiral springs I. In these levers E, and at points in a line with the axes of the rolls B B′, work the journals of this roll D. The object of this roll and the described attachment will be hereinafter explained. J is a plate-guide, bent in the form as shown in Figs. 2 and 3, and attached in any convenient detachable manner. Its object, also, will be hereinafter made known. K is a corrugated or indented roll, attached to the housings by means similar to those by which the roll D is connected therewith. The surface of this roll may be either corrugated, as shown, or it may be indented in any suitable manner. The object of this roll K, and its superiority by reason of being corrugated, will be hereinafter stated. L is a plate-scraper, worked by lever *m*. The purpose of this is to remove the scale from off the plate as it passes through it or is drawn through it by the rolls D and B as the plate is fed to the machine.

Having now described the construction and arrangements of my attachments to ordinary rolls, I will proceed to explain their purposes and operations.

The transfer and polishing roll D, which may be either of a plain surface, or corrugated like roll K, is always in contact with and driven by the bottom roll B, except when the metal or plate is being transferred from one side of the rolls to the other by their use, as hereinafter described. It being in contact with and driven by roll B, it is evident that it will quite, one-half of the time, act as a polishing-roll upon the lower roll B.

In the ordinary rolls the metal enters in between rolls B on one side, and, as it is necessary to pass it several times through the same rolls, it is transferred back, to be again rolled, by shoving it under the bottom roll by hand. Another way recently introduced for transferring the metal to be again passed through the rolls is by a small movable roll operated by the hand or foot, placed beneath the bottom roll. In operation this small roll is depressed by the hand-lever to receive the metal, and then elevated to bring it in contact with the big roll.

In mine the metal or plate is shoved through the scraper until it comes in contact with the peripheries of rollers D and B, when it is drawn through or transferred and forced up and around the guide J between the rolls B, from whence it comes out on the side on which it was first put into the rolls, the whole process being done automatically, without any manual assistance other than supplying the plate to the rolls. This is not the case with any of these methods. By its thus working automatically the labor of at least one man can be dispensed with. Besides, in none of the others is the scraper so arranged with the rolls as to scrape the plate while it is being transferred under the rolls from one side to the other; but it is located near where the plate enters the large rolls B. This roll D being partly attached to the housings by means of springs I, it will always accommodate itself to the work to be done. The polishing-roll K, by reason of its being corrugated or indented, polishes the roll B′ in much less time and with su-

perior effect, from the fact that one of a plane surface more or less mashes and compacts the scales upon the roll and does not remove it therefrom; while the corrugated surface, by reason of the edges of the corrugations, cuts the scales, which fall into the channels and are carried off. In one there is a constant pressure; in the other a pressure and a relief, and consequently the natural different effect. The difference in effect between the two is aptly illustrated by the corrugated wash-board and one of a plain even surface. This roll K, by reason of its spring attachment to the housings, can accommodate itself to inequalities on the large roll. It is evident that by placing the guide J on the other side of the rolls, as shown by dotted lines in Fig. 3, and around the top roll, the plate can be turned down instead of up, as it does when placed as we have particularly described; but this change, it is evident, is simply a modification of the latter.

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

1. The combination and arrangement of rolls B B′, transfer and polishing roll D, guide-plate J, and metal scraper L, substantially as described.

2. The corrugated or indented roll K, in combination with the adjacent roll B, substantially as and for the purposes described.

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Witnesses:
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