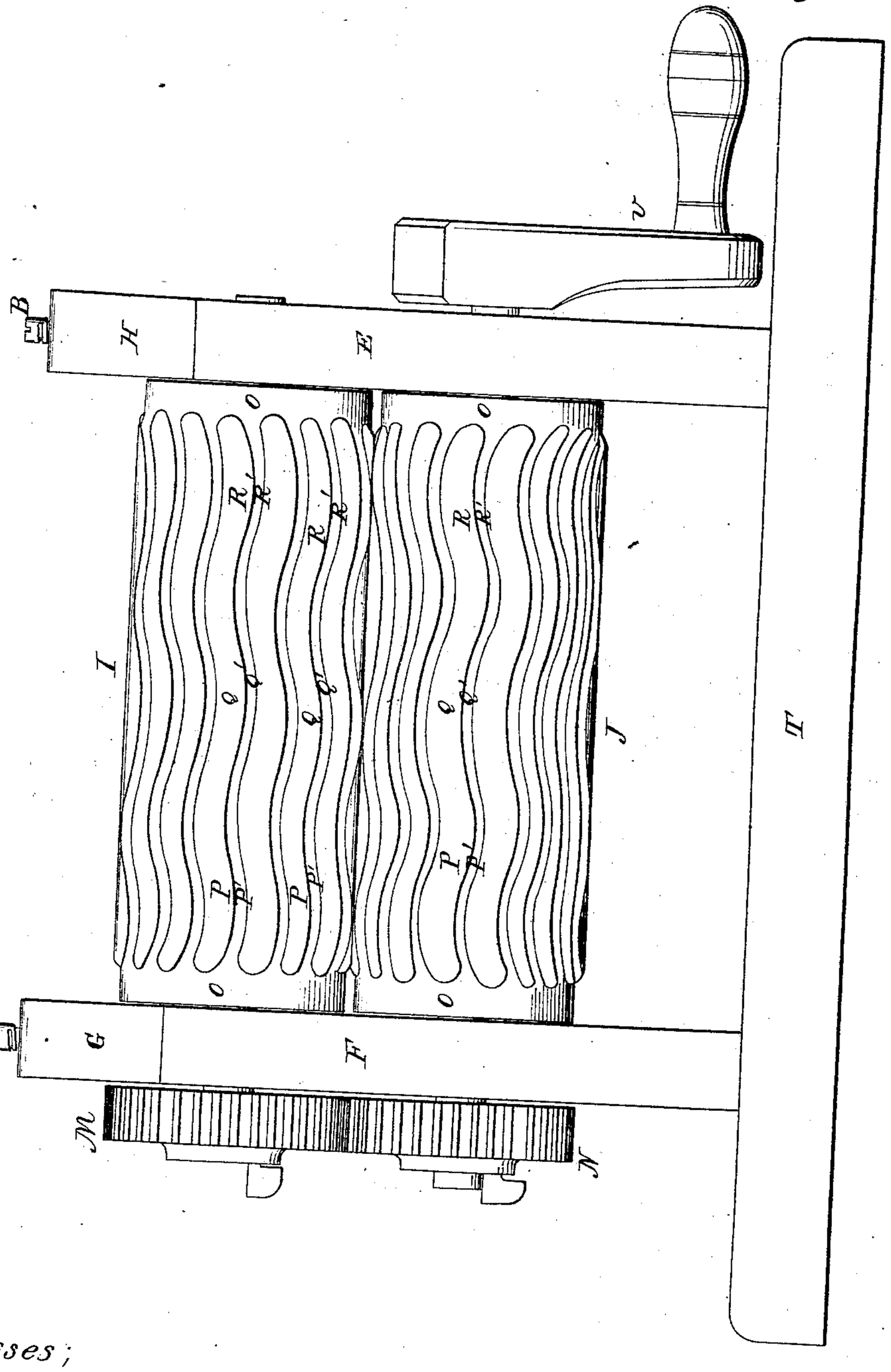
R. Montgomery,

Corrugating Metal Plates,

No. 24,883. Patented July 26, 1859.



Witnesses;
Thos H. Dodge
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UNITED STATES PATENT OFFICE.

RICHARD MONTGOMERY, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR MANUFACTURING WAVED AND CORRUGATED METAL PLATES.

Specification forming part of Letters Patent No. **24,883**, dated July 26, 1859.

To all whom it may concern:

Be it known that I, RICHARD MONTGOMERY, of the city, county, and State of New York, have invented an Improved Device for Making Waved and Corrugated Plates; and I do hereby declare that the following is a full and exact description of its construction and operation, reference being had to the accompanying drawing, and to the letters of reference marked thereon, so as to enable others skilled in the art to use my invention.

The drawing represents a front view of the machine.

Two rolls I′ J′ are arranged (one above the other) between the uprights E F of a suitable frame E F T. The lower roll J′ has fixed bearings in the uprights E F, while the upper roll I′ has its bearings in blocks which can be moved up or down in vertical slots in the uprights E F. Screws A B work through female screws in the cross-pieces H G, and bear with their lower ends against the upper surfaces of the blocks, so as to limit the vertical play of said blocks or bearings of the upper roll I′. It will be seen that by screwing down the screws A B the blocks and with them the roll I′ will be made to approach the lower roll J′, so as to decrease the distance between the surfaces of the two rolls or the open space between them, through which the metal to be rolled is intended to pass.

The journals at one end of the rolls extend through the block and upright F, respectively, and the ends of these journals are provided with cog-wheels M N, gearing into each other, so as to cause the rolls to revolve against each other whenever motion is communicated to one of the rolls, which latter is done by means of crank U, or other suitable device, attached to the shaft of the lower roll J′, extending beyond the upright E. The cogs of the wheels M and N are of sufficient length to keep the wheels in gear during all adjustments of the blocks required for practical purposes.

The rolls are each provided with a series of waved ribs P Q R and corresponding depressions or recesses P′ Q′ R′ between each two of the ribs, all these waved ribs and depressions being parallel to each other and being arranged on the surface of the rolls, so as to be parallel to the axes of the rolls, as fully shown in the drawing. The rolls are so placed in relation to each other that the ribs of one roll fit into the recesses of the other roll, and vice versa. The ribs and depressions of each roll terminate near the ends of the rolls, so as to leave smooth cylindrical shoulders O at the ends of the rolls. The diameter of these shoulders is somewhat smaller than the diameter of either one of the rolls passing through two of the ribs diametrically opposite to each other.

When a metal plate is to be rolled, power is applied to the crank U at the end of the shaft of the roll J′, after the upper roll I′ has been adjusted to a suitable height above the lower roll J, by means of the screws A B, and the red-hot metal plate is passed toward the rolls, so that its front end is caught between the two rolls, when the revolutions of the rolls will commence to draw the plate through the space between the rolls. During this process the ribs of the rolls will form the surface of the plate into waved corrugations extending across the plate. When the whole length or nearly the whole length of the plate has passed through between the rolls, the motion of the shaft of roll J′, and consequently the revolution of each of the rolls, may be reversed by reversing the motion of the crank U, which will cause the plate to move back. When the whole length or nearly the whole length of the plate has again passed through between the rolls, the motion of the rolls is again reversed, as above described, thus working the plate back and forth until finished. After each passage of the plate through between the rolls the screws A B may be turned down a little, so as to force the roll I′ toward the lower roll, thus causing the corrugations of the plate as it is worked back and forth to become gradually deeper, while the metal becomes correspondingly thinner. It will be seen that by always reversing the motion of the rolls at a certain distance from the edges of the plate, instead of allowing the entire length of the plate to pass through between the rolls, smooth margins will be left along the front and rear edges of the plate. The side margins of the plate passing through between the smooth cylindrical shoulders O will also be kept smooth, and these side margins will be thicker than the other parts of the plates, because the shoulders O are of smaller diameter than the ribbed portions of the rolls, as above described, and thus a wider space is

left between these shoulders than what there is between the corrugated surfaces of the rolls. The plates after having been worked through these rolls will represent a waved corrugated surface, and may be used for boilers, flues, or similar purposes.

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

The combination of the peculiarly-formed roll I′ with the peculiarly-formed roll J′, arranged and operating in relation to each other, as shown and set forth, whereby the manufacture of the waved corrugated metallic plate with margins of greater thickness than the middle, as patented to me on the 21st of June, 1859, is facilitated, while only one corrugation is formed at the same time, as described.

R. MONTGOMERY.

Witnesses:

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