S. P. M. TASKER.
Rolling-Mill.

No. 219,833. **Patented Sept. 23, 1879.**

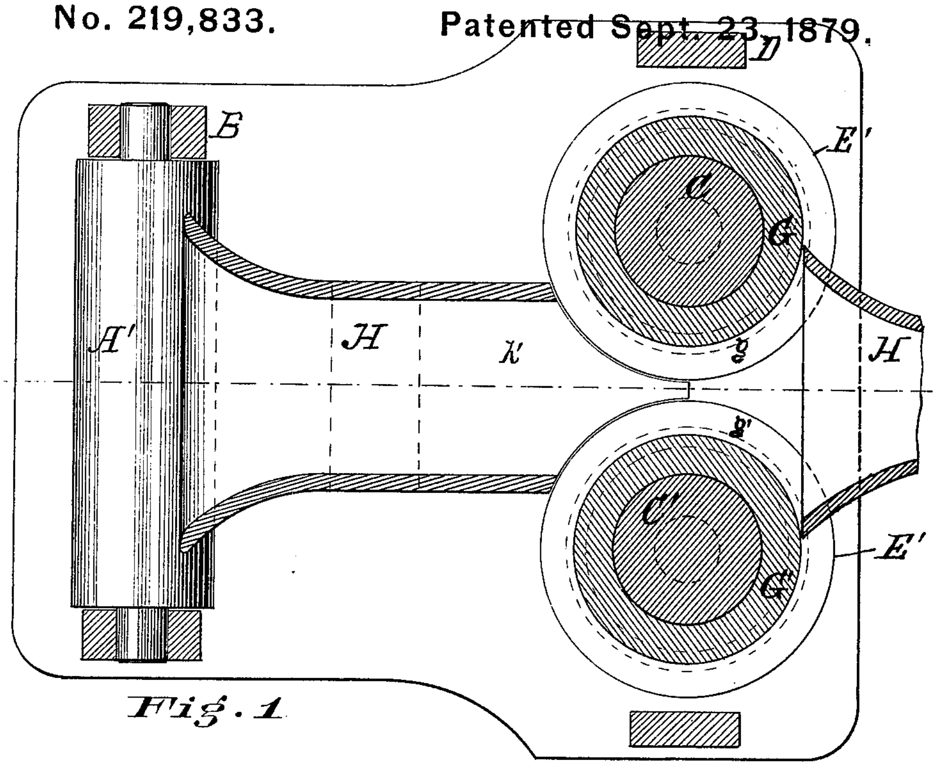


Fig. 1

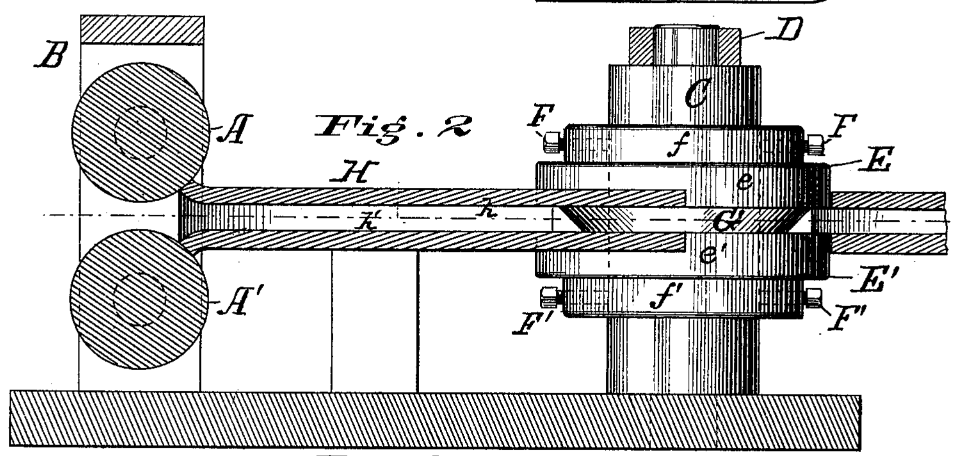


Fig. 2

Fig. 3

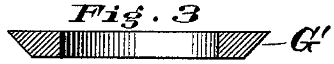
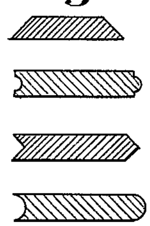


Fig. 4



Attests

Jno. A. Smith Jr.

John Jolley Jr.

Inventor

Stephen P. M. Tasker,

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J. Bonsall Taylor.

2 Sheets—Sheet 2.

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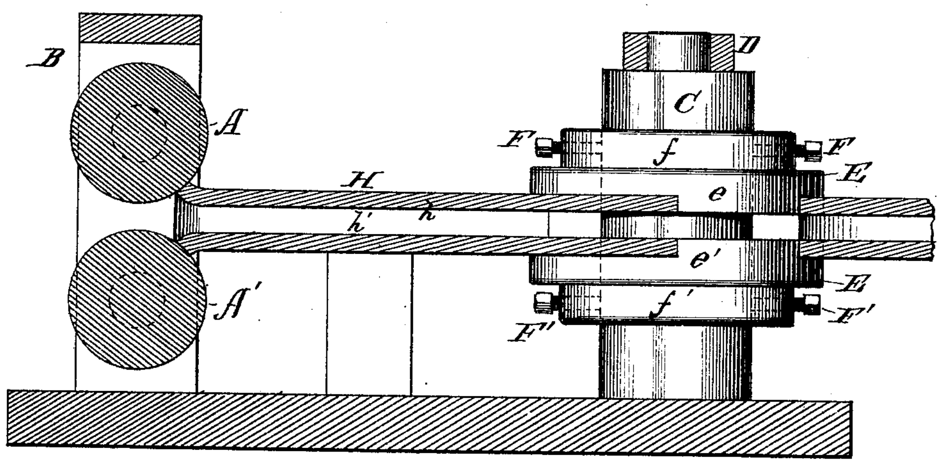

Fig. 5

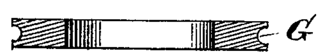

Fig. 6

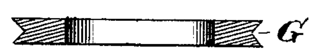

Fig. 7

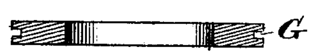

Fig. 8

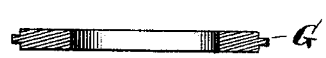

Fig. 9

Attests

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UNITED STATES PATENT OFFICE.

STEPHEN P. M. TASKER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN ROLLING-MILLS.

Specification forming part of Letters Patent No. **219,833**, dated September 23, 1879; application filed May 19, 1879.

To all whom it may concern:

Be it known that I, STEPHEN P. M. TASKER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Continuous Rolling-Mills for Rolling and Edging Flat Metal, of which the following is a full, clear, and true description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central horizontal section, viewed from above, of so much of my improved machine as is necessary to illustrate its practical construction in the plane of the feed, and between the rolls A A′; Fig. 2, a central longitudinal vertical sectional elevation of the same portion of the machine, in a vertical plane between the vertical rolls; Fig. 3, a cross-section of one form of shaper or die; and Fig. 4, cross-sections of forms of sheets, plates, or bars produced by the use of my machine; Fig. 5, a view similar to Fig. 2, the shapers being omitted; and Figs. 6, 7, 8, and 9, sectional views of various forms of shapers.

My improvement relates to rolls for flat-rolling, and more especially to that subdivision of the same which both roll the flat surfaces and shape the edges of the product acted upon.

The object of my invention is to produce flat sheets, bars, strips, or plates of metal, the edges of which are shaped to any desired configuration—as, for example, to such forms as are represented in Fig. 4 in the drawings.

In the drawings, I have represented so much of a construction of machine embodying my invention as is necessary to a comprehension of the said invention.

In the drawings, A A′ represent a pair of plain-faced horizontal rolls mounted in a suitable housing, B; C C′, a pair of vertical rolls, also mounted in a suitable housing, D. E E′ are two circular-flanged collars, fitted, in the arrangement represented, to the two vertical rolls, and adapted to be secured at any desired point thereon by means of set-screws F F′ or similar devices. These collars may be constructed of any desired form, that represented consisting of a neck portion, *f f′*, to which the set-screws are applied, and a flange or head, *e e′*, being a convenient form.

The opposing surfaces *g g′* of the collars are flat and true with the opposing inner faces *h h′* of the guides, and are to be set in such manner as to be correspondent with the said inner faces, whatever may be the size of the guides, so that, by the combined arrangement of the guide and the collars, a continuous inclosed passage-way is formed, the collars aiding to hold the sheet in place in its transit, and to prevent the metal from spreading while the edges are being rolled, serving also to aid in carrying the sheet along and in preventing its buckling.

G G′ is a shaper, edge-die, or former, fitted to likewise encircle the vertical rolls, and adapted to be held between the collars E E′ so as to become fixed in position, as indicated in Fig. 2. In diameter the shaper is less than the collars, so as to be overlapped by both collars, which are of greater diameter, and which, as explained, form a portion of the inclosed way through which the sheet is caused to pass. Each of the vertical rolls, Figs. 1 and 2, is similarly equipped with collars and shapers.

In Fig. 3 is represented, in section, the shaper G′. (Shown in Fig. 2 in side elevation.) The function of these shapers is the shaping of the edge of the sheet to a form corresponding with that of the shapers, whatever the same may be.

H is a guide for conducting the metal to be rolled from and between the various pairs of rolls.

Several sets of rolls may be used in series, in which arrangement the guides are employed between each set.

The form of guide represented is funnel-shaped or bell-mouthed at its receiving end, inclosed or box-like, and of a construction and arrangement employed by me for many years.

In the arrangement represented the collars do not touch, but a small space is left between them, into or near which the discharging end of the guide H projects. The sides of the guides are cut away, to correspond with and merge into the periphery of the collars E E′, while the top and bottom of the guides coincide, as described, as to their inside faces, with the opposing faces of the collars, so as to form a continuous inclosed pass or way.

When desired, the collars can be made to

touch together, and the guide shaped to correspond. When the rolls are arranged in series, each succeeding guide is funnel-mouthed, and preferably arranged as represented in Fig. 1.

The shapers may be of any form desired, so as to form any given configuration on the edge of the sheets or plate.

In the operation of my machine, the sheet metal, being first passed between the rolls A A′, is by them rolled out upon its flat surfaces, caused to enter the guide H, and from thence caused to travel between the vertical rolls, and to pass between the flanges of the collars E E′, which form a continuation of the guide, so to speak, and in such manner is brought into contact with the shapers G, and thereby fashioned upon its edges to a form corresponding to that of the shapers employed.

It is obvious that different forms of dies or shapers may be employed, and that the form of the same may be predetermined to the resultant shape desired.

When it is sought to roll a plain square edge on one side of the metal, the shaper on such side is dispensed with, and the metal shaped upon its edge by the body of the vertical roll; and, when desired, the shapers may be all dispensed with, and the collars alone employed, the vertical rolls acting upon the sides of the sheet to true such sides.

The apparatus can, of course, be adjusted to any desired thickness or dimension of plate by varying the adjustment of the rolls, the size and interior dimension of the guides, the width and diameter of the shapers, and the consequent distance apart and adjustment of the collars.

It is, however, essential that in any adjustment of parts the diameter of the shaper should be less than that of the embracing-collars.

Instead of making both collars on each roll adjustable, one may be fixed.

The adjustability of the collars renders the rolls to which they are applied susceptible of use with varying sizes of sheets, and effectuates the practical making of an adjustable pass or rolling groove, while the employment of shapers still further adds to their efficiency.

It will be understood that the shapers may be dispensed with at will, as represented in Fig. 5, either as to any given shaper, or as to any given series of shapers, acting upon a given side of the sheet under process of rolling, or as to all, and the rolls employed with the adjustable collars only.

The guides may be made adjustable, or different sets may be employed.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an apparatus for rolling and edging sheet metal, consisting, essentially, of a pair of horizontal rolls and a pair of vertical rolls arranged in alternate series, suitably mounted and driven and united by an inclosed guide or way, the combination, with the vertical rolls and with the guide, of two adjustable collars upon each vertical roll, substantially in the manner shown and described, and for the purpose specified.

2. In an apparatus for rolling and edging sheet metal, consisting, essentially, of a pair of horizontal rolls and a pair of vertical rolls arranged in alternate series, suitably mounted and driven and united by an inclosed guide or way, the combination, with the vertical rolls and with the guide, of adjustable collars and shapers applied to the vertical rolls, substantially in the manner shown and described, and for the purpose specified.

In testimony whereof I have hereunto signed my name this 15th day of May, A. D. 1879.

STEPHEN P. M. TASKER.

In presence of—
J. BONSALL TAYLOR,
W. C. STRAWBRIDGE.