D. FRASER.

MACHINES FOR ROLLING HORSESHOE NAIL-PLATES.

No. 179,694. Patented July 11, 1876.

Fig. 1.

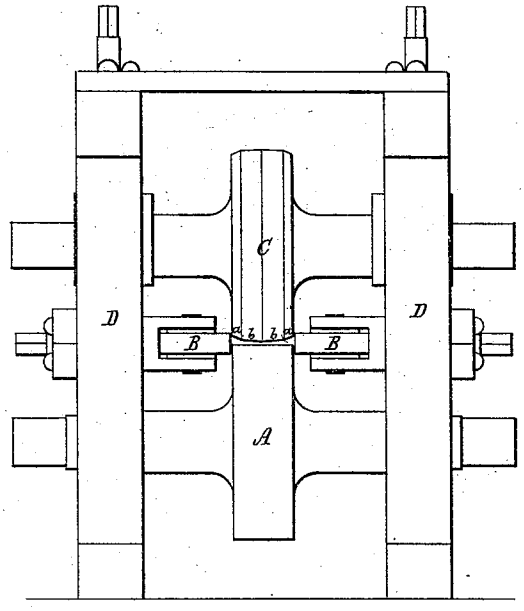


Fig. 2.

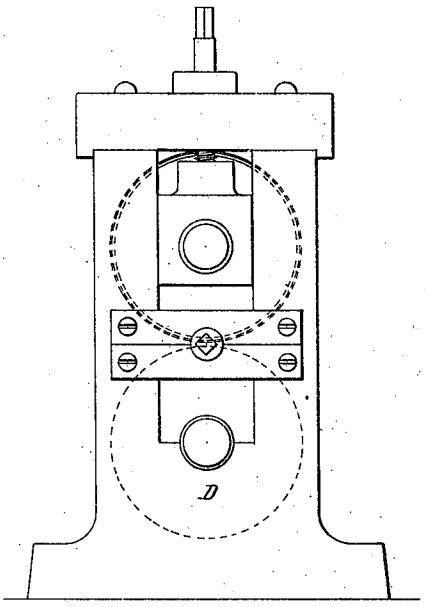


Fig. 3.

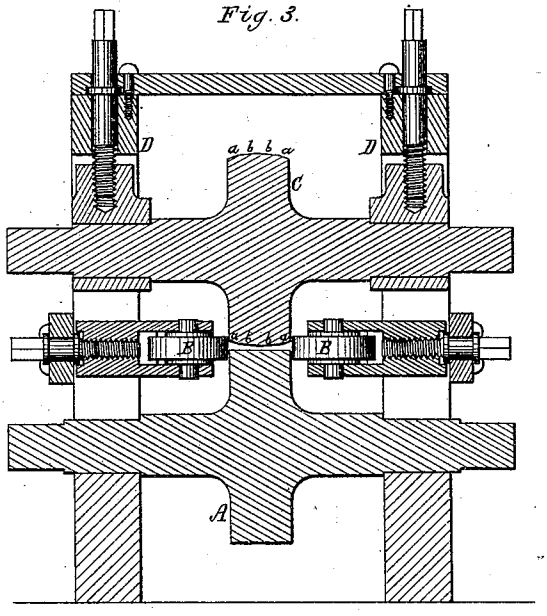


Fig. 4.

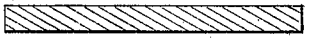
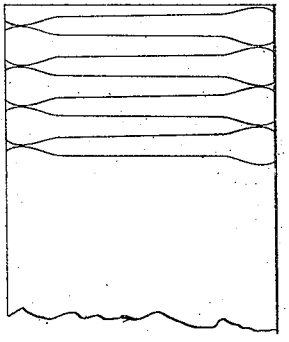


Fig. 5.

Fig. 6.



Witnesses.
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Daniel Fraser,
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R. H. Eddy

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UNITED STATES PATENT OFFICE.

DANIEL FRASER, OF NEW LONDON, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR ROLLING HORSESHOE-NAIL PLATES.

Specification forming part of Letters Patent No. **179,694**, dated July 11, 1876; application filed May 13, 1876.

To all whom it may concern:

Be it known that I, DANIEL FRASER, of the city and county of New London, of the State of Connecticut, have invented a new and useful Improvement in Machinery for Rolling Bars for the Manufacture of Horse-shoe-Nails; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, Fig. 2 a side view, and Fig. 3 a transverse section, of a rolling-machine embodying my invention. Fig. 4 is a transverse section of a bar to be reduced by such machine. Fig. 5 is a transverse section of such bar after such reduction. Fig. 6 exhibits a top view of the manner of cutting the bar into nail-blanks, each of which subsequently has to be drawn out and pointed.

In carrying out my invention I employ, in combination with a cylindrical bed-roll, A, and two other or swaging rolls, B B, an upper or grooving roll, C, having to its periphery head and shank tapers *a b*, disposed on each side of the middle thereof, the four rolls being arranged and suitably supported within a frame, all as represented in the said drawings. As shown in the drawings, the roller C is composed of four conic frusta, *a a b b*, the two middle ones *b b* having their larger bases in conjunction at the middle of the roll. Each portion *a* has its larger base in conjunction with the smaller base of the next contiguous frustum *b*. Each of the blanks is thicker at its point than at the middle of its shank, in order to provide for the necessary amount of metal for the subsequent elongation or drawing out of the shank and formation of the point. It is desirable to have the grain or fiber of the metal run longitudinally of the shank and not obliquely thereof. Without the side rolls B B the roller C, owing to the tapers *b b* and *a a* of its periphery, will, while reducing a bar, push forward the metal faster at the middle of the roller than at its ends. As a consequence the grain will be bent in a curve or curves stretching across the bar. The bar, as shown in Fig. 4, being wider than it is after reduction of it, is, by the rolls B B, reduced or compressed laterally, so as to crowd its particles toward its middle, whereby the tendency of the tapering roll C to force them forward faster at the middle of the bar is compensated for, and they are generally carried forward, so as to cause the grain to range in or about or practically in straight lines across the bar, and at right angles with its opposite edges.

I am aware that two cylindrical rolls have been used with flanged "idle" rolls for forming iron beams, in which case the lower or bed roll had to be wider than the upper one, the latter in no respect operating to force the grain forward in curves running across the bars, as will a tapering upper roll like that hereinbefore described, and which, to operate to compensate for such, requires the side rolls to contract the bar from each of its edges toward the middle.

The side rolls do not operate as idle rolls, viz., simply to prevent the metal bar from being spread wider by the other rolls, but they compress or contract it, as and for the purpose specified.

The several rolls, arranged as shown within the frame D, have their shafts or journals sustained in suitable boxes or bearings, and they are, when in use, provided with suitable mechanism for effecting the revolution of the upper of them.

What, therefore, I claim as my invention is—

The combination of the cylindrical bed-roll A and the two swaging-rolls B B, with the reducing-roll C, having to its periphery the head and shank tapers *a b*, disposed on each side of the middle thereof, as set forth, all being arranged and to operate essentially in manner and for the purpose specified.

DANIEL FRASER.

Witnesses:
GEORGE COLFAX,
LEANDER LEWIS.