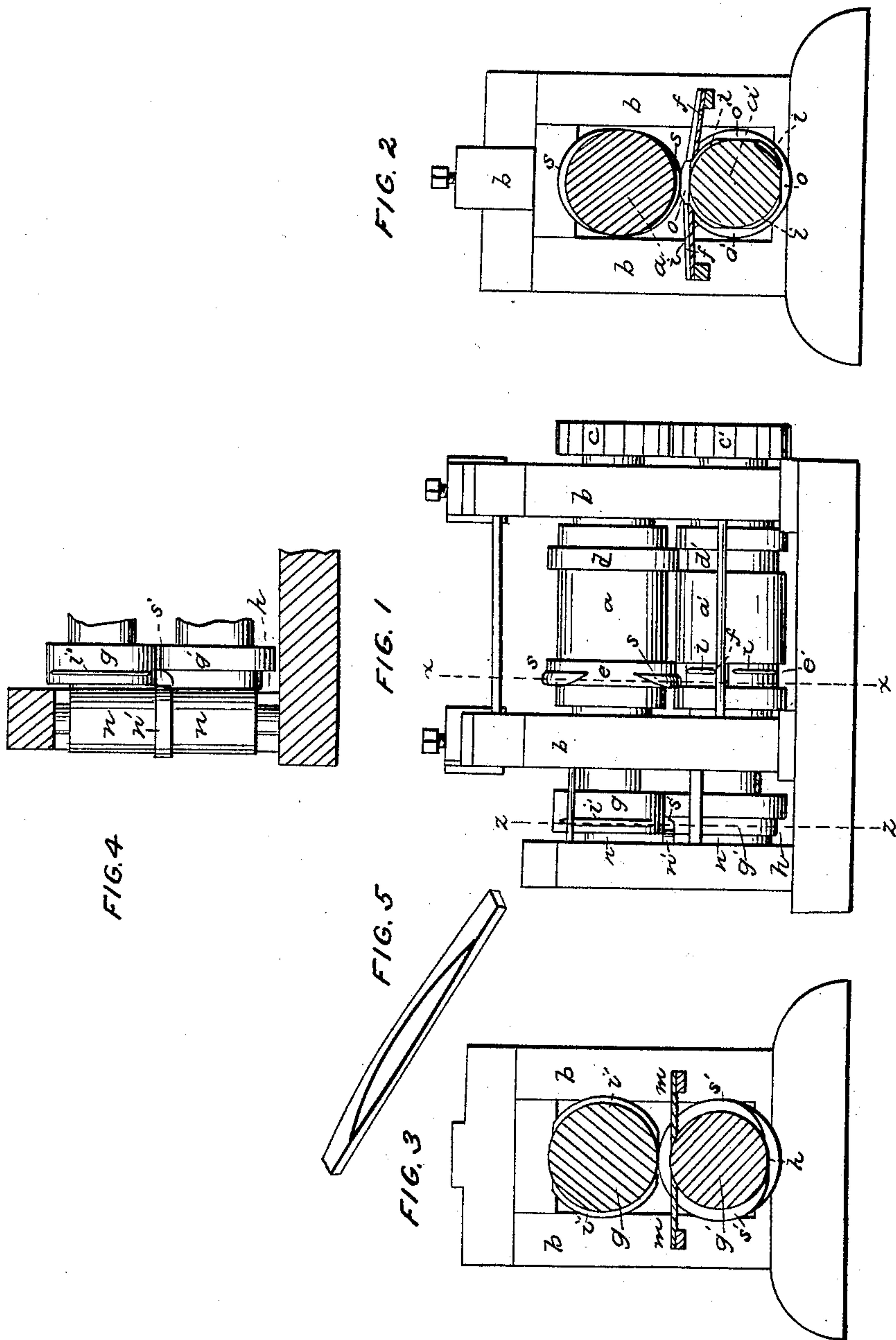


A. REESE.
Rolling Horseshoe Bars.

No. 67,348.

Patented July 30, 1867.



WITNESSES:

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INVENTOR:

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United States Patent Office.

ABRAM REESE, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 67,348, dated July 30, 1867.

IMPROVED MACHINE FOR ROLLING HORSE-SHOE BARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ABRAM REESE, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Machines for Rolling Horse-Shoe Bars; and I do hereby declare the following to be a full, clear, and exact description thereof.

The object of my invention is to roll bars of iron of irregular width and thickness, for the various uses to which such bars are applicable in the arts and manufactures, and the nature of it consists in the construction and arrangement of cylindrical rolls, with properly-shaped grooves or recesses and flanges which grooves, recesses, and flanges are provided with creasers and formers such as to give to the bar or blank to be rolled the requisite shape, bevel, and flare preliminary to its being applied to the uses for which it is designed. The machine I am about to describe shows the application of my invention to the manufacture of horse-shoe blanks, by rolling common or horse-shoe bar iron into bars, or a succession of blanks, of such form and shape as, when properly cut and bent, to be made into horse-shoes. Such is one of its most useful applications, though not the only one.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation as applied to rolling horse-shoe blanks, referring for that purpose to the drawings hereto annexed and forming a part of this specification, in which—

Figure 1 is a front elevation of my improved rolls.

Figure 2 is a cross-section of such rolls, through the line *x x*, fig. 1.

Figure 3 is a similar section of the same, through the line *z z*, fig. 1.

Figure 4 is a vertical side elevation of that part of the rolls shown in cross-section in fig. 3, the housing being removed; and

Figure 5 represents a horse-shoe blank, or a section of a bar made up of such blanks as rolled by the machine.

Like letters of reference indicate like parts of each.

a and *a'* are two cylindrical metallic rolls made in any known manner. They are operated on journals of any convenient form, and in housings *b* of any desirable construction. They receive their motion in the usual way, and are connected by gear-wheels *c c'*. One of the rolls *a* has a flange, *d*, of square or rectangular cross-section surrounding it, which plays into a groove, *d'*, in the other roll *a'*. The breadth of such groove *d'*, and its depth below the outer face of the flange *d*, should be of the size necessary to reduce a common bar of iron to the shape required for a horse-shoe bar, usually about three-quarters of an inch in breadth by three-eighths of an inch deep. Another set of rolls, or as shown in the drawings, the same set *a a'*, have another groove *e'* and flange *e* fitted with creasers and formers, so that by being passed through them the horse-shoe bar is reduced to a series of blanks of variable width and thickness, but of the required shape.

Horse-shoes, it is well known, have to be creased on the under side and near the outer edge, so as to form a recess for the nail heads. The upper side of a properly-shaped shoe flares or is bevelled downward and inward, commencing a little forward of the corks, the slope of such flare or bevel increasing from those points forward to the toe, and the width of the shoe at the same time usually being correspondingly increased in the same direction, consequently to make the creases required in the shoe I make in the bottom of the groove *e'* suitably-shaped projections or creasers *i i* extending partly around the roll, and each creaser *i* of such length and all so arranged that each alternate interval *o* shall be of the length required between the ends of creases at the toe of the shoe, and the other intervals *o'* shall be equal to the distance between the adjacent ends of the creases of two consecutive blanks. Thus the blanks will be creased at the proper intervals.

In order to flare and bevel the blank as required for the upper face of the shoe, I make the flange *e* with projecting formers *s s* on its outer face, so arranged as to flare and bevel the successive blanks in the manner required for the shoe, substantially as above set forth. Such formers *s s* should taper both in width and depth, each from the middle toward either end, so that the flare may be greatest at the middle of each blank, or in other words, at the toe of the shoe. Of course the devices described should be so constructed and arranged that the intervals *o* between the creasers *i* shall, as the rolls *a a'* revolve, come opposite, or nearly so, to the middle of the formers *s*, and the intervals *o'* opposite the intervals between the ends of such formers *s*.

The width of the horse-shoe bar should be the width required in the shoe just forward of the corks and back of the points where the flaring begins, or nearly so. The formers *s*, of course, while flaring the upper

face of the shoe-blank must necessarily reduce it somewhat in thickness along its inner edge, and consequently increase its width. Such variation of width I provide for by the spring-guide *f*, so placed as readily to allow the bar to be fed into the groove *e'*, and as the bar increases and decreases in width while passing through under the action of the formers *s*, the spring-guide *f* is forced back by the bar till the blank at its broadest part fills the groove *e'*, and after the middle of each former *s* is passed, the former *s* tapers, the width of the blank becomes less, and the rigidity of the spring-guide *f* causes it to follow up the bar in its gradually reducing width, and hold it in place in the groove *e'*. The bar is thus rolled into a series of consecutive horse-shoe blanks, each properly creased and flared, and of the variable width and thickness required in a horse-shoe, as shown in fig. 5.

As a modification of the machine described I have shown a somewhat different form of roll in figs. 4 and 3 for accomplishing the same result. *g* and *g'* are either a prolongation of the rolls *a* and *a'*, or another set of cylindrical metallic rolls of somewhat similar construction. One of the rolls *g* has on its cylindrical surface the creasers *i'* similar in shape, arrangement, and operation to the creasers *i*, above described. The other, *g'*, has a recess, *h*, under the creasers *i'*, and the lower face or print *s'* of such recess *h* corresponds more or less exactly to the outer face of the flange *e* with its formers *s*, and accomplishes the same results in substantially the same way. As shown in the drawings, the rolls *g* and *g'* are designed to form one horse-shoe blank at a revolution, while the rolls *a* *a'* are so fitted as to shape two at each revolution. Guides *m* are also used, but as I usually shoulder the recess *h* out of one end of the cylindrical surface of the roll *g'*, I prefer to regulate the width of the blank while being widened and flared by the print *s'* by the use of an upright friction-roller *n*, whose journals bear against springs set in the housing *b*. Such roller *n* may, if so desired, have a flange, *n'*, opposite to and of proper width to enter the recess *h* for the purpose of bearing against the edge of the bar while passing through. The direction of pressure of the roller *n* or the spring-guides *f* should be against the slope of the formers *s* or the print *s'*. The spring-guides *f* may be attached on either or both sides of the rolls, so that the rolls may be fed while revolving in either direction. In either of the ways described I roll a bar or series of horse-shoe blanks of the shape substantially as shown in fig. 5, and needing only to be cut apart and bent in order to be ready for market, which may be done by other mechanical appliances adapted to such purposes. As already stated, I apply this mode of rolling to forming or shaping bars of irregular width or thickness for other purposes to which such bars are applicable, or for which they are useful; hence, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A pair of cylindrical metallic rolls, one grooved and the other flanged, with a projecting creaser or creasers *i* in the bottom of one or more of the grooves, and one or more projecting formers *s* on the outer face of the corresponding flanges, in combination with one or more spring-guides *f*, all constructed, arranged, and operating substantially as described.

2. A pair of cylindrical metallic rolls, one having one or more creasers *i'* on its outer cylindrical surface, and the other shouldered or made with a recess, *h*, and print *s'*, in combination with a vertical friction-roller, *n*, all constructed, arranged, and operating substantially as and for the purposes above described.

In testimony whereof I, the said ABRAM REESE, have hereunto set my hand in presence of—

ABRAM REESE.

Witnesses:

GEO. H. CHRISTY,

A. S. NICHOLSON.