



# UNITED STATES PATENT OFFICE.

ABRAM REESE, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN ROLLING HORSESHOE-BLANKS.

Specification forming part of Letters Patent No. 83,207, dated October 20, 1868.

*To all whom it may concern:*

Be it known that I, ABRAM REESE, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rolls for Rolling Horseshoe-Blanks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a front view of a pair of rolls constructed with my improvement. Fig. 2 is a vertical cross-section of such rolls through the line *x x*, Fig. 1; and Fig. 3 shows, in perspective, a horseshoe-blank such as my rolls are adapted to produce.

Like letters of reference indicate like parts in each.

The nature of my invention consists in the construction of a pair of cylindrical rolls furnished with collars and grooves, prints and creasers, and, in certain places, flattened or cut away, in such manner as to roll horseshoe-blanks in continuous bars from properly-shaped iron bars run through between them.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation.

A and A' are two cylindrical metallic rolls, set in a housing, B, in the ordinary manner, on journals or bearings of any convenient construction, and operated by power applied in any known manner to or through gear-wheels C.

I have shown in the drawing grooves and collars of different construction, but all designed to further the same end.

*a* is a groove formed by the collars *b b'*, beveled at the bottom, and into it plays the collar *a'* on the other roll. Ordinary horseshoe bar-iron then passed between the rolls A A' in such groove *a* would receive a slight bevel on one side, about equal to the bevel required on a considerable part of the upper face of a well-shaped horseshoe. Such bars may then be passed on, to be further rolled, as yet to be described.

*c* represents a portion of the cylindrical surface of the lower roll, A, or what may be considered the bottom of a groove, bounded on one side by a collar, *b*. On the other side I limit its width, so that it shall be about as

wide as the heel of the shoe, by a section of a collar or a part collar, *d*, which is of the shape of a collar, except that its ends taper off from the groove outwardly, and that it extends around the roll only so far as may be necessary in order to form a heel for each of two successive and contiguous horseshoe-blanks. In the roll represented in the drawing there is a part collar on the opposite side of the roll, similar to that shown at *d*, and which there answers the same purpose. Between the ends of these collars *d*, and extending a little way inside of them, if necessary, and at the same time on the cylindrical face of the roll, I make a bevel die or print, *e*, which, as the bar passes through, by compressing the iron between it and the adjacent face of the other roll, bevels, as required, the lower face of the bar, which, in the shoe, becomes the upper face, through those parts of it which, in the complete shoes, extend from heel to heel, and at the same time increases the width of the bar between the same points, the absence of a collar back of the print *e* rendering such increase of width possible, and permitting the bar to spread back over the print. It will be observed that the print *e* is arranged opposite to the full collar *b*, and with its inclined face toward it. The lower face of a blank is thus shaped, and by a continuous rolling of a succession of blanks, which lower face in the blank is to become the upper face of the finished shoe.

The rolls A A' are designed to roll two shoe-blanks at one revolution, the heels *z* being formed, Fig. 3, between the collar *b* and part collar *d*, and the remainder of the shoe-blank on the prints *e*.

To form the upper face of the shoe-blank, which is to become the lower face of the shoe, I use devices shown on the upper roll, A. In its cylindrical surface, opposite the groove *c*, and running at right angles to the axis of the roll, I make a number of mortises, such as are shown at *s*, and in these insert creasers *c'*, and hold them in place, so as to crease the shoe-blank to the right depth, by set-screws *f*, inserted in the end of the rolls. These creasers have serrated edges with teeth (see Fig. 2) properly arranged to sink recesses or seats for the nail-heads in the bottom of the creases. I arrange such creasers *c'* in the roll



A with reference to the devices described in the lower roll, A', so as to crease each successive blank in those parts which, in the complete shoe, will extend from heel to toe, and from toe to heel, and so on continuously as the rolls revolve. At *xx*, Fig. 3, are shown the creases so formed, as also the sinks or recesses for the nail-heads.

The parts *g* of the periphery of the upper roll, A, between the creasers *c'*, I flatten or cut away somewhat, the other parts, *g'*, remaining of cylindrical shape. When such parts *g* come opposite the lower roll, the distance between their flattened faces and the cylindrical face *c* of the other roll being greater than the distance between the rolls at other parts of their revolution, the bars passed through will at such points be less reduced in thickness than elsewhere, and as such flattened parts *g* come between the creasers *c'*, they necessarily roll the heels *z* and toes *z'* of the shoe-blank, Fig. 3, which parts consequently are, as should be the case, less reduced in thickness than the other parts of the shoe-blank. Hence, between the collar *b*, part collar *d*, one flattened part, *g*, and bottom of groove *c*, I form the contiguous heels *z* of two successive blanks. The print *e* forms the bevel, which in the shoe extends from heel to heel on its upper side. The serrated creasers *c'* make the creases *x* and recesses required; and the toe of the shoe, *z'*, is left thicker by one of the flattened parts *g* coming opposite the center of the print *e*. But I do not consider the part collars *d* to be indispensable, and, at the opposite ends of the rolls A A', I have shown an arrangement of devices for rolling such blanks which dispenses with them.

*h* is the cylindrical face of the roll, having dies or prints *i*, similar to the corresponding prints *e*, already described, and similarly arranged relative to other devices, but without the part collars *d*.

The upper roll, A, has flattened and cylindrical parts *l* *l'*, similar and similarly arranged to the parts *g* *g'*.

Creasers *c'* are inserted in the mortises *s*, as before.

The heels *z* and toes *z'* of the shoe-blanks are then formed between the flattened parts *l* of the upper roll, A, and the smooth cylindrical face of the lower roll, A', such flattened parts *l* permitting the bars to pass through, thicker than the thickness which the print *i*, operating against the cylindrical parts *l'*, gives to the rest of the shoe-blank. The dies or prints *i* should, however, be opposite to and inclined toward the collar *b'*, whereby the bar will be held in place and prevented from passing from under the creasers *c'*.

The creasers *c'*, I make removable or adjustable by the set-screws *f*, so that they may be easily renewed when worn out or broken, and may be adjusted to crease the blanks or bars to any required depth.

Beveled or common horseshoe bar-iron may be used with these rolls, as preferred.

By a proper arrangement of the devices above enumerated, the rolls may be fitted up so as to roll one, two, or more blanks at a revolution.

The devices described I claim as greatly advantageous for rolling horseshoe-blanks over other devices generally in use for such purposes, since they form all parts of the blank perfectly, accurately, and with rapidity in continuous bars. I get rid of a large amount of friction by using only a part collar, *d*, on one side of the groove *c*, or of a still larger amount by dispensing entirely with such a collar or part collar, and rolling directly against the cylindrical face of the roll and print *i*.

I am aware that serrated creasers have been bolted to the rolls in which they were set, and that a print for beveling the upper face of a horseshoe-blank has been constructed in the bottom of a groove, having collars on both sides, where the groove decreased in width either way from that part which was designed to form the toe of the shoe. But it is difficult, not to say impossible, to deliver a bar without injury to the product from a groove which alternately widens and narrows; and this is one of the main difficulties which my invention is designed to overcome. By dispensing wholly or in part with the collar which has heretofore formed that side of the groove toward which, in rolling the horseshoe-blank, the metal has been spread, and by arranging the print opposite the remaining collar, so that the metal, in spreading, shall spread out over the print, and at the same time be held by the print well against the remaining collar, I obviate all difficulty in delivering the bar from the rolls as it is rolled, and also secure other advantages, as already stated. Hence, in rolls for rolling horseshoe bars or blanks,

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Dispensing with the collars on the rolls, which in machines heretofore made confine the inner-edge of the shoe blank, by arranging the prints *i* *i*, one or more, and collar *b'*, on a smooth-faced roll, A', and without any confining-collar, in the manner shown and described.

2. The arrangement of the part collar *d* and prints *e* alternately with each other on the face of the roll and opposite to the full collar *b*, so as to limit the spread of the iron at the heel parts of the blank or bar, and at the same time permit the free spread of the iron over the prints *e* at and near the toe parts of the blank or bar, substantially as hereinbefore set forth.

In testimony whereof I, the said ABRAM REESE, have hereunto set my hand.

ABRAM REESE.

Witnesses:

A. S. NICHOLSON,  
GEO. H. CHRISTY.