(No Model.)

H. GREER.

SPIKE ROLL.

No. 305,808. Patented Sept. 30, 1884.

Fig. 1.

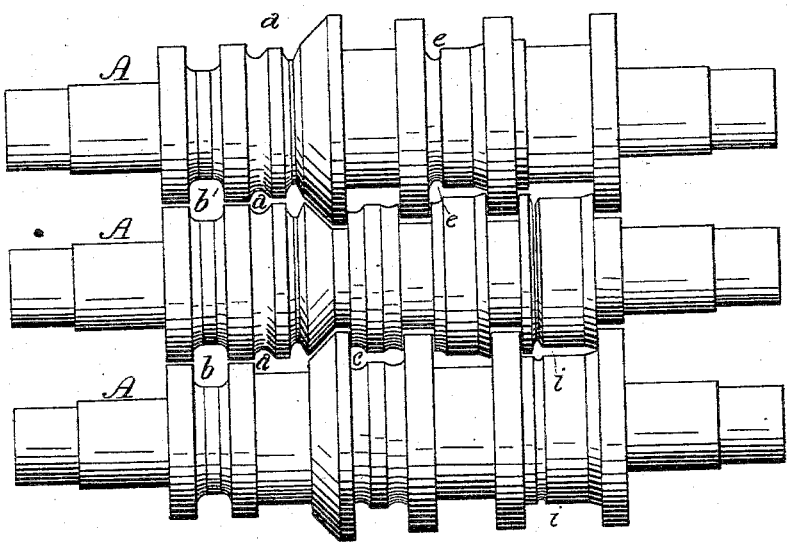


Fig. 2.

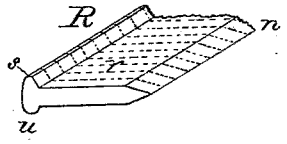
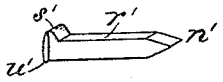


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HOWARD GREER, OF CHICAGO, ILLINOIS.

SPIKE-ROLL.

SPECIFICATION forming part of Letters Patent No. 305,808, dated September 30, 1884.

Application filed December 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, HOWARD GREER, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented or discovered a new and useful Improvement in Spike Rolls and Blanks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a front view of a three-high rolling-mill. Fig. 2 is a perspective view of the blank produced, by the rolls shown in Fig. 1. Fig. 3 is a perspective of a finished spike.

My present invention relates to an improvement in rolls for the manufacture of bars, billets, or blanks, from which, by a transverse cutting operation done in parallel lines, spike-blanks are produced, which by further work thereon are made into completed or finished spikes.

In a separate application already filed I have described and laid claim to so much of the operation referred to as relates to the shearing or cutting and the finishing of the spikes, and the present invention is accordingly limited to the rolls and the bars or blanks produced therefrom.

In the accompanying drawings, A A A represent the rolls of a three-high mill properly grooved for the progressive reduction of railroad-rails or the crop or fag ends thereof into spike bars or blanks. The rail, or part thereof being properly heated, is passed between the two upper rolls, A A, through the grooves *a* formed therein, and these grooves are so shaped that they will reduce the head and flange of the rail, and work a portion or all the displaced material into the web portion of the rail. The product of this pass is then given a quarter-turn and brought back through the grooves, which are so shaped as to reduce the vertical height of the bar and still further thicken up the middle or web portion thereof. A similar pass, and for still further effecting the same purpose, may be made through the grooves *b'*, and so as to bring back the bar to the feeding side. The bar is then turned back by a quarter-turn onto its side and is then passed through another pair of grooves, *c*, which grooves are so made as to still further reduce the comparatively thick edges or portions of the bar and thicken the middle or web portion with reference to so disposing the metal that in the finishing pass or passes the desired final shape may be secured along with a practically uniform reduction and elongation.

The form of product which I wish to secure is substantially that represented in Fig. 2, which represents a bar or blank doubly beveled along one edge, as at *n*, such bevels corresponding to those desired on the point *n'* of the finished spike, as represented in Fig. 3. The body portion of the blank is represented at *r*, has a width corresponding to the length of the shank or body portion *r'* of the finished spike, and also a thickness approximately equal but preferably a little greater than the width of one side of the spike-shank. The opposite edge of the bar or blank of Fig. 2 is made with a rib, *s*, along one side thereof, and which rib contains exactly or approximately a suitable amount of metal for the formation therefrom of the overhanging lip *s'* of the completed spike; but as it is important that the spike-head should be broader than the shank or should have laterally-projecting ears for the engagement therewith of the claw-bar, it is important that this edge of the rolled blank should have an excess of metal from which to form such ears. In the present invention I secure this by making a light rim or bead, *u*, on the edge of the bar opposite to the rib *s*, so that after the bar or blank R has been cut into spike-blanks by transverse parallel cuts, as described in the application No. 113,386, above referred to, such bead *u* will give in each transversely-cut blank the proper amount of metal for the formation, by suitable swaging or compressing action, of the usual ear, *u'*, on each side of the spike-head.

Returning now to the rolls, the bar as produced from or shaped by the groove *c* is passed through another pair of grooves, *e*, made in the two upper rolls, and thence by another pass through the grooves *i* of the lower pair of rolls, though the number of grooves and passes is immaterial, but such grooves should be properly proportioned in accordance with rules well understood in the art of metal-rolling, whereby the partly-reduced bar shall be progressively reduced and finally delivered from

the rolls in substantially the form represented in Fig. 2.

In the description thus far given I have assumed the use of the ordinary or standard size and form of the American steel rail. The same system of grooves may be employed in the same manner in working the double-headed rails of foreign manufacture, except that such rails commonly having a thicker web than the Americal rails little or no thickening of the web will be required, and hence the passes through the grooves *b b'* will not then be essential. It will be observed, however, that while the forms of the grooves *a c e i*, as also their proportions, will, in rolling double-headed rails, remain substantially unchanged, their width, particularly in the earlier passes, must be increased somewhat, as the double-headed rail is a little higher than the standard American T-rail, though neither of them is of a height equal to the length of the standard American spike; but I do not limit myself to the use of rails or the fag or crop ends thereof, as rolls having the same or or a like system of grooves may be employed for the progressive reduction of a suitably-shaped billet from the form or approximately the form represented by the grooves *a* to the form represented by the blank R; and, in fact, the double-headed form, substantially such as represented by the grooves *a*, may be secured by passing a rectangular billet of suitable size through the grooves *a* or *c* or other grooves of similar construction; nor is it necessary that all the grooves of such a system or series should be made in the same train, as they may be divided up or distributed between two or more trains with either the two-high or three-high arrangement of rolls, provided only they be so arranged as to provide for the convenient passing of the bar or blank through the series, whereby the finished product R is secured without necessary reheating.

No claim is made for the blank herein described and shown, as the same, in so far as it is patentable, will form the subject-matter of another application.

I claim herein as my invention—

In a roll train or mill, the combination of two or more rolls, said rolls being provided with a series or system of grooves, substantially such as are represented at *a*, *c*, *e*, and *i*, in any desired number, for the progressive reduction of a railroad-rail or the fag or crop end thereof or a similarly-shaped billet to a blank of the form substantially as represented at R, for the purposes set forth.

In testimony whereof I have hereunto set my hand.

HOWARD GREER.

Witnesses:
R. H. WHITTLESEY,
GEORGE H. CHRISTY.