J. RUSSELL.

Manufacture of Horseshoes.

No. 199,228. Patented Jan. 15, 1878.

Fig: 1.

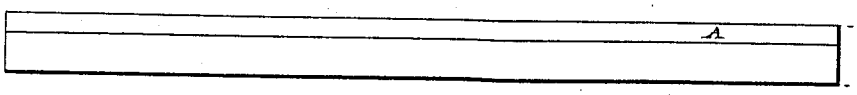


Fig: 2.

Fig: 3.

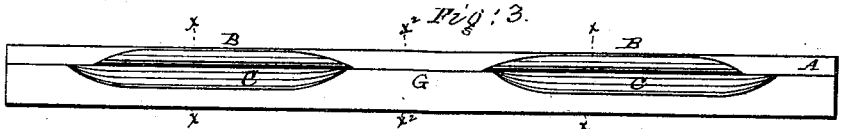


Fig: 4.

Fig: 5.

Fig: 6.

Fig: 7.

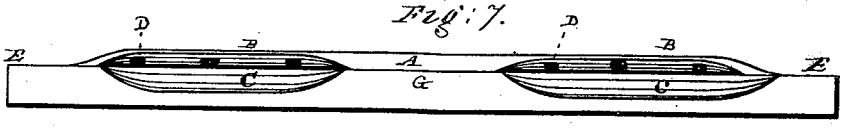


Fig. 11.

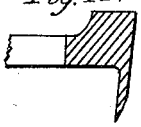


Fig: 8.

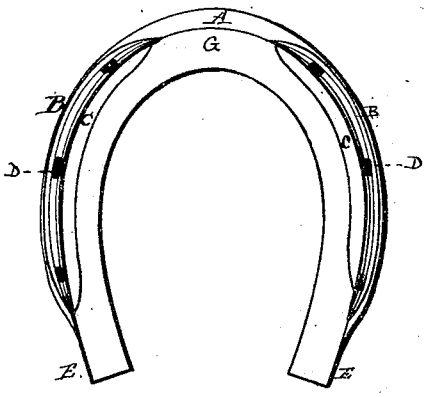


Fig: 9.

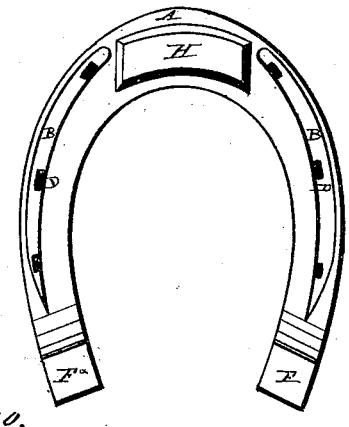
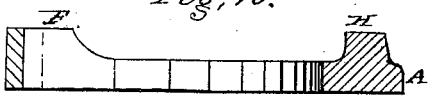


Fig: 10.



Witnesses.
Charles L Barrick
Thomas O'Meara

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UNITED STATES PATENT OFFICE.

JACOB RUSSELL, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN THE MANUFACTURE OF HORSESHOES.

Specification forming part of Letters Patent No. **199,228**, dated January 15, 1878; application filed January 3, 1878.

To all whom it may concern:

Be it known that I, JACOB RUSSELL, of Newark, Essex county, State of New Jersey, have invented a new and useful method or process of making solid toe-calked horseshoes from blanks of rolled bar-iron, which process is fully set forth in the following specification, reference being had to the accompanying drawings, in which the same letters of reference, wherever they occur, refer to like parts.

Figure 1 represents a plan view of the bar of rolled iron. Fig. 2 is a cross-section of the same. Fig. 3 represents the blank having in its face a channel for the nail-heads and a beveled edge opposite the same on the body of the plate. Figs. 4 and 6 represent cross-sections of the blank through the line *x x*, Fig. 3, and Fig. 5 through the line x^2 x^2, same figure. Fig. 7 represents the bar with the ends chamfered off for the heel-calks. Fig. 8 represents the bar as bent or shaped before compression by the roll. Fig. 9 represents the shoe as compressed into shape by the rolls. Fig. 10 is a cross-section of the same through the line x^3 x^3, Fig. 8. Fig. 11 represents a section of the shoe through the toe-calk, showing the ledge or offset bent up to form the clip.

The object of my invention is to obtain a ledge or reserve of metal in the plate beyond the circumference of the solid toe-calk, whereby a toe-clip or support for the horse's foot to rest against may be upset without drawing any metal from the toe-calk to weaken it.

In horseshoes, as heretofore generally constructed, the toe-calk has been formed flush, or nearly so, to the front edge of the shoe, and, where a large and strong toe-clip is to be put on the shoe, it is customary to draw the metal therefor from the calk and body of the shoe, greatly at the expense of the strength of the shoe. To avoid this weakening of the shoe, I provide it with a substantial ridge or offset in front of the toe-calk sufficiently large to supply the metal for the clip, and adapted to be readily and quickly bent up and formed without in the least weakening the shoe.

The method or process by which I effect this improvement in the construction of horseshoes is as follows: A bar of iron is first rolled to the shape shown in Figs. 1 and 2, in which A represents a ledge or offset of metal, of about the thickness of the shoe-plate when the shoe is completed, and forming the front edge of the shoe. When thus shaped, the bar is next submitted to compression in another set of rolls to countersink channels or creases B B in the upper face of the ledge A, for the concealment of the nail-heads for holding the shoe to the horse's foot, also to compress or bevel off the edge, or both edges, if desired, of the metal bar opposite the channels, as shown at *c c*, Figs. 3, 4, and 6. Between the ends of the beveled edges of the bar it is left unchanged in form, as shown in Fig. 7. The object of beveling off the edges of the bar at *c*, and directly opposite the channels, is to prevent the metal filling up the channels when the bar is being flattened out to form the shoe, and that of leaving the space G between their ends unchanged, for obtaining metal for the solid toe-calk H within the offset or ledge of metal A. This beveling should be so proportioned that when the compressing takes place the metal will not be compressed beyond and into the creases. At the same time that the bar is thus shaped it is creased or marked at the proper place for cutting off in lengths for each horseshoe, and nail-holes D punched in the channels. When the bar of metal has thus been cut into suitable lengths, they are called "blanks," and their ends are chamfered off, as shown at E E, Figs. 7 and 8. The object of this is to admit of narrowing the metal, so as to give proper shape and strength to the heel-calks, as represented at F, Figs. 9 and 10. The blank is next brought to a proper heat, and bent, by a suitable former, to the shape of the horseshoe, as shown in Fig. 8. When thus shaped, it is again heated to a proper heat, and submitted to compression in suitably-shaped roller-dies, to flatten out the bar into the shoe-plate, except at the heel and toe, for the development of the calks thereon. As thus formed, the toe-calk H is upset from the solid metal at about midway of the front and back edges of the plate. By this means two very important advantages are obtained over all other machine-made horseshoes—first, the calk is a solid portion of the plate; and, second, that the upset or clip for the support of the

toe of the horse is taken entirely from the ledge or offset of metal A in front of the calk, Fig. 10, instead of drawing the metal away from the toe-calk to form the clip or toe-support upset, as is generally the case with all machine-made horseshoes.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States—

1. The within-described improvement in the manufacture of horseshoes, which consists in first rolling the bar with a ledge or offset along one edge, forming the crease at the junction of said ledge and the body of the bar, and at the same time reducing the adjacent corner of the bar to the length of the crease, bending the bar into form, and finally, and by direct pressure, reducing the metal so as to form the toe and heel calks, and, at the same time, reduce the thickness of the bar between the calks, substantially as and for the purpose set forth.

2. The horseshoe constructed, substantially as described, with solid toe and heel calks, and an offset or ledge extending in front of the toe-calk, and adapted to supply the metal for the toe-clip, as and for the purpose set forth.

JACOB RUSSELL.

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