

T. DOLLARD.

MANUFACTURE OF HORSE-SHOES.

No. 173,916.

Patented Feb. 22, 1876.

Fig. 1.

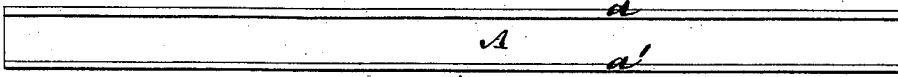


Fig. 2.

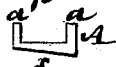


Fig. 3.

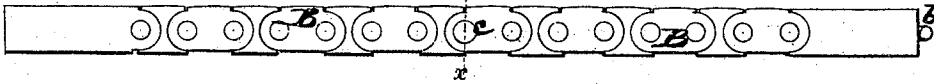


Fig. 4.



Fig. 5.



Fig. 6.

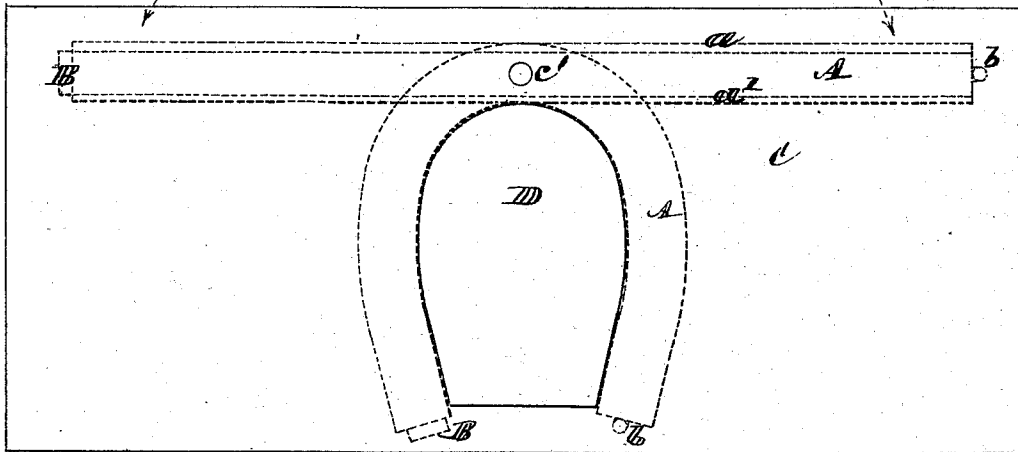


Fig. 7.

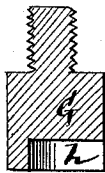


Fig. 9.

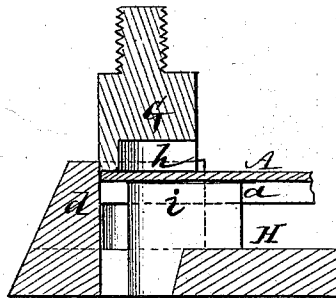


Fig. 8.

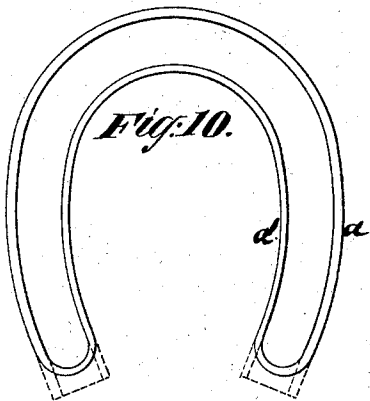
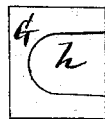


Fig. 10.

Witnesses.

John Becker.

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UNITED STATES PATENT OFFICE.

THOMAS DOLLARD, OF BROOKLYN, ASSIGNOR TO HIMSELF AND JOHN HACKETT, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF HORSESHOES.

Specification forming part of Letters Patent No. 173,916, dated February 22, 1876; application filed July 13, 1875.

To all whom it may concern :

Be it known that I, THOMAS DOLLARD, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Process in the Manufacture of Hollow Horseshoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms part of this specification.

This invention relates to that description of shoes (for horses, mules, and other animals) which are hollow on their under side, and the cavity or space so formed subsequently filled with prepared rubber or other suitable soft and flexible material. Heretofore these shoes have been made of malleable cast-iron, whereas my invention has more particularly for its object the manufacture of the same from rolled or hammered steel, which will materially add to their durability. To this end I use a gutter-shaped steel bar, cut up into sections of the necessary length to form a shoe by bending it around a suitable former, after a flexible or chain-like mandrel has been inserted in each bar-section or length, and subsequently closing, by means of dies, the ridges or sides of such section at the ends of the shoe.

Figure 1 is an under-side view of a section or length of a gutter-shaped steel bar suitable for making a horseshoe in accordance with my invention, and Fig. 2 a transverse section of the same. Fig. 3 is a longitudinal face view of a flexible or chain-like mandrel used in the construction of the shoe, and Fig. 4 a transverse section of the same on the line *x x*. Fig. 5 is an end view of the gutter-shaped bar-section with the flexible mandrel therein. Fig. 6 is a diagram in illustration of the bending of the gutter-shaped bar-section, with the flexible mandrel therein, around a former, to give said section the required shoe-form. Fig. 7 is a vertical section of a top die for closing the ends of the hollow shoe; Fig. 8, an inverted plan of the same, and Fig. 9, a vertical section of upper and lower dies in the course of their operation on the one end of a shoe. Fig. 10 is an under view of the hollow shoe.

A is a section or length, suitable for making a horseshoe, of a gutter-shaped metal bar,

preferably steel. B is a flexible or chain-like mandrel of a width and depth corresponding to the space between the sides or ridges *a a'* of the bar, and of fully or nearly the same length as the latter. This mandrel, which may be provided with a stop, *b*, at its one end, is slipped into the hollow or gutter space of the bar, as represented in Fig. 5, and afterward the bar with the mandrel in it turned upside down, and a central projecting pin, *c*, of the mandrel entered within a hole, *c'*, in a table, C, to center and properly place the bar-section relatively to a former, D, on the table, so that said bar-section, while heated and containing the flexible mandrel which keeps it in form, may be bent by any suitable means around the former D, as shown in Fig. 6, to give to the gutter-shaped bar or section thereof the requisite hollow shoe-shape, but with its ends open as represented by dotted lines in Fig. 10, after which the mandrel B is dropped out of the shoe. The one ridge or side *a* of the bar or shoe formed therefrom is made thicker than the opposite ridge or bar *a'*, to provide for the difference in curvature consequent on bending the bar-section, and to give a slightly broader bearing or wearing-surface on the outside edge of the hollow shoe. Said bar is also made tapering or thinned off on its outer surface from its thicker side or ridge *a* to its thinner side or ridge *a'*, as shown in Fig. 5, for the purpose of giving the necessary inward dish to the top of the shoe after it is bent.

To close the open ends of the shoe, as represented by full lines in Fig. 10, each of said ends is passed, alternately or otherwise, under a die, G, of a press, as shown in Fig. 9, the end of the shoe butting up against the back *d* of the lower die H, or, which is the same thing, against a stop attached to the upper die.

The upper die G is hollowed or recessed as at *h*, to conform to the required shape of the shoe at its ends, and which, in coming down on the back of the open-end portion of the hollow shoe, around a projection, *i*, on the lower die of corresponding shape with the recess *h*, causes the ridges *a a'* to be brought together and closed at the end of the shoe.

I claim—

1. As an improvement in the art of making horseshoes, the preparation, by rolling or otherwise, of a trough-like bar, such as that hereinbefore described, and the bending of said bar around a form to the required shape, while inclosing a flexible metallic mandrel to prevent the buckle or collapse of the walls of said bar during the operation, substantially as described.

2. The gutter-shaped bar A having its one or outer edge *a* made of greater thickness than its opposite edge *a'*, for the purposes herein described.

3. The gutter-shaped bar A having its upper surface made beveling or inclining from its side or edge *a* to its opposite side or edge *a'*, substantially as and for the purpose herein set forth.

4. The dies G H constructed to close either end of the hollow shoe, essentially as specified.

THOS. DOLLARD.

Witnesses:

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FRED. HAYNES.