J. J. REIMER.

Machine for Bending Horseshoes.

No. 205,905. Patented July 9, 1878.

Fig. 1.

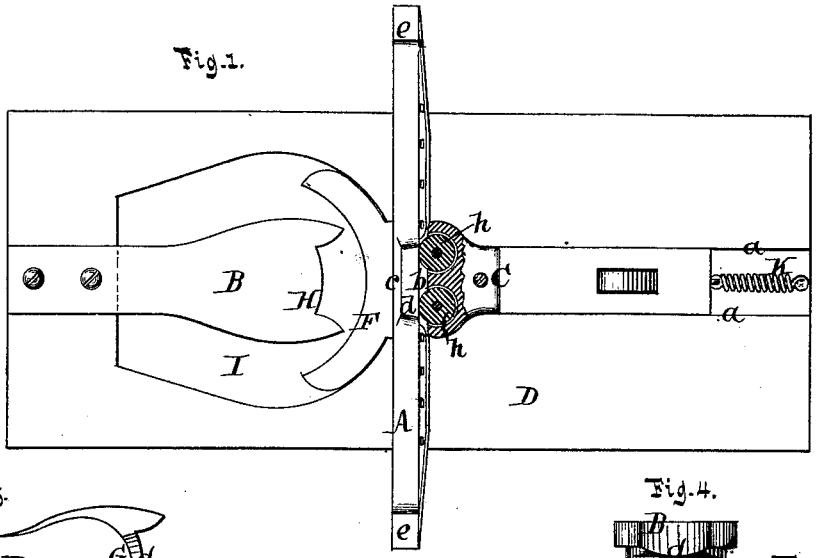


Fig. 5.

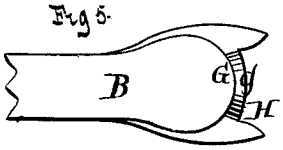


Fig. 4.

Fig. 7.

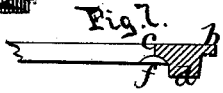


Fig. 2.

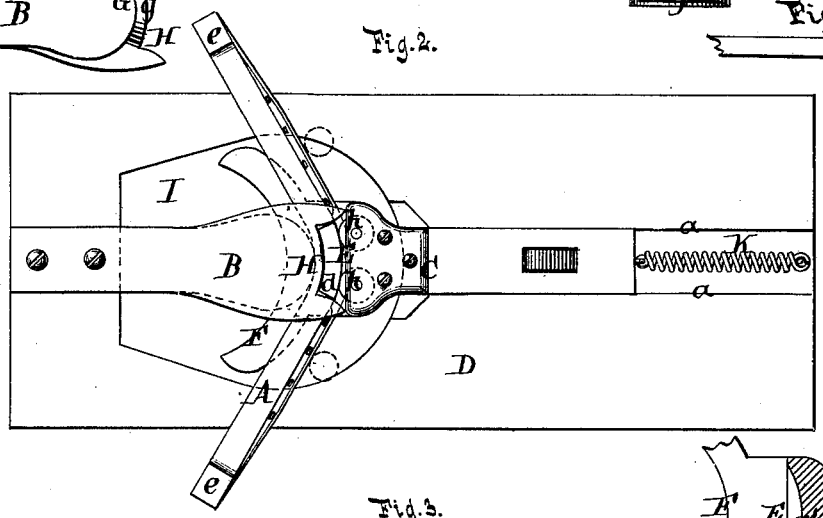


Fig. 6.

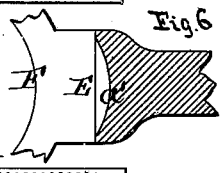
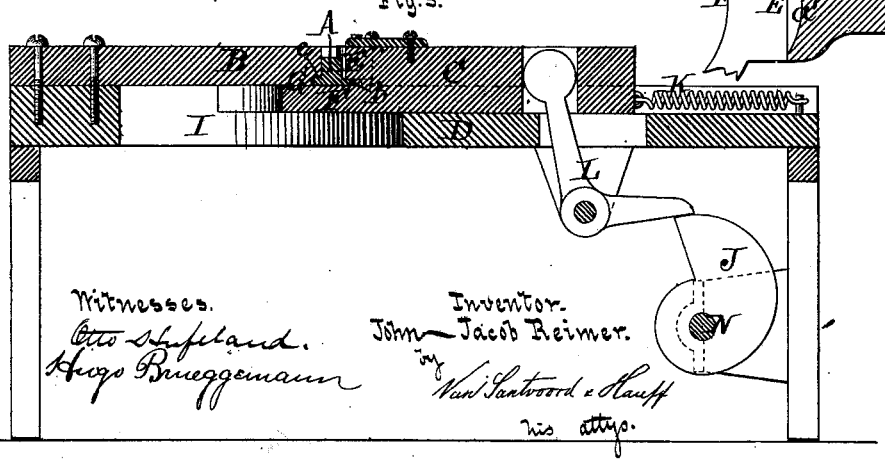


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN J. REIMER, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR BENDING HORSESHOES.

Specification forming part of Letters Patent No. **205,905**, dated July 9, 1878; application filed June 20, 1878.

To all whom it may concern:

Be it known that I, JOHN JACOB REIMER, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Machines for Bending Horseshoes, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a plan or top view of my machine, partly in section, showing the positions of the parts when the horseshoe-blank is introduced. Fig. 2 represents a plan or top view thereof when the toe part of the blank is bent. Fig. 3 is a longitudinal vertical section of the same. Fig. 4 is a front view of the toe-shaping die. Fig. 5 is an inverted plan view thereof. Fig. 6 is a horizontal section of the follower, showing the cavity to receive the ledge in front of the toe-calk. Fig. 7 is a cross-section of the blank.

Similar letters indicate corresponding parts.

My invention relates to a machine for bending the center or toe part of horseshoe-blanks, and especially that class of blanks having toe and heel calks, a ledge or offset in front of the toe-calk to form the clip, and a depressed ledge behind the toe-calk to increase the width of the shoe, its chief object being to preserve the shape of either or both of said ledges during the bending operation.

My invention consists in a toe-shaping die and a follower which co-operates with said die, and is provided with a cavity in its bearing-edge to receive the ledge or offset in front of the toe-calk during the bending operation, the toe-shaping die being provided with a forked projection adjacent to its shaping-edge to receive the toe-calk and hold the blank in position, and the follower having anti-fretion rolls on its bearing-edge to permit the toe-calk to adjust itself in the forked projection and to facilitate the operation of bending the blank, while the forked projection has a ridge to engage with the depressed ledge behind the toe-calk.

It also consists in a novel combination of certain other parts, whereby the follower is automatically retracted and the blank is dropped from the machine when it has been bent to the appropriate shape.

In the drawing, the letter A designates a horseshoe-blank the toe part of which is bent in my machine, this blank having ledges *b c* and toe and heel calks *d e e*, in addition to suitable nail-hole creases. B is the toe-shaping die, and C is the follower of my machine, these two parts being arranged in a corresponding horizontal plane and above the bed-plate D, which has ways *a* for guiding the follower toward and from the die. E is the bearing-edge of the follower, rising from the base part F thereof, which latter projects beyond such bearing-edge in the direction of the die B, and is preferably curved, its function being to assist in supporting the blank to be bent. In the lowest part of the bearing-edge E of the follower is formed a cavity, *a'*, (see Fig. 6,) of suitable shape to receive the front ledge *b* of the blank, and above said cavity are arranged anti-friction rolls *h h*.

The letter G, Fig. 5, designates the shaping-edge of the toe-shaping die. This edge of the die is round, and adjacent or above the same is formed a forked-projection, H, of suitable size and shape to receive the toe-calk *d* of the blank, the branches of this projection being, by preference, beveled on their inner edges, as clearly shown.

The object of the rear ledge *c* of the blank is to increase the width of the toe part of the shoe; and to make this ledge of the greatest possible width a depression, *f*, is formed therein, as seen in Fig. 7. On the inner or under surface of the forked projection H is formed a ridge, *g*, (see Figs. 4 and 5,) of corresponding shape to the depression *f*.

The letter I designates an opening formed beneath the toe-shaping die B in the bed-plate D, this opening being of such a size as to allow the blank to drop through the same. J is the cam by which the follower C is moved up to the toe-shaping die, and K is the spring by which the follower is retracted when it is released from the action of the cam. The cam J acts on an arm, L, which projects from the follower C, and is mounted on a shaft, N, in the machine-frame.

The operation of my machine is as follows: The blank A is laid on its top face between the toe-shaping die B and the follower C, as shown in Fig. 1. The follower is then moved up to

the die, when the front ledge *b* of the blank is received in the cavity *a* of the follower, and the toe-calk is brought in the forked projection H of the die, while at the same time the center or toe part of the blank is bent around the shaping-edge G of the die. The quarters of the blank are then bent so as to complete the bending operation by the action of the rollers mounted in arms having an oscillating and reciprocating motion, as in the bending-machines now generally in use. The arrangement of this part of the machine being well known, a detailed description thereof is deemed unnecessary. After the blank has received the last bend, as stated, the follower C is retracted and the shoe is released.

It will be perceived that by providing a cavity to receive the front ledge *b* of the blank the essential pressure of the follower is brought to bear on that part of the blank which is beneath this ledge—that is to say, on the thickest part of the shoe—and hence the general shape of the ledge is preserved.

When the blank A is moved up to the die it is brought under the forked projection F, and its toe-calk *d* is brought between the branches thereof, whereby the blank is not only held in a central position, but is also held down, so that it is not liable to be twisted out of shape.

If the blank A is out of a central position when it is moved up to the die by the action of the follower C, it is automatically brought in the required position by the forked projection H—that is to say, because of the fact that the toe-calk *d* adjusts itself automatically in the fork.

By the anti-friction rollers *h h* on the bearing-edge of the follower the blank A is allowed to move lengthwise, and the toe-calk *d* is permitted to enter the forked projection, as last stated. These rollers also allow the follower C to move over the edge of the blank in bending the same without friction, and thus not only facilitate the bending operation, but leave the edge of the blank intact. During the operation of bending the blank A the ridge on the forked projection H lies in the depression *f* in the rear ledge of the blank, and by this means this ledge is prevented from being flattened.

The cam J, by which the follower is moved up to the die, is so arranged that its action on the follower ceases when the blank has received the second bend, and hence the follower is retracted by the spring K at that moment. By the jolt taking place when the follower C is retracted the bent blank is loosened from the shaping-edge G of the die, and the same is caused to drop through the opening I in the bed-plate.

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

1. In a machine for bending horseshoe-blanks having toe and heel calks, and having a ledge or offset in front of the toe-calk to form the clip, the combination of a toe-shaping die, having a forked projection adjacent to its shaping-edges to receive the toe-calk, and having a ridge on the forked projection to enter the depression in the rear, with a follower which co-operates with said die, and which is provided with a cavity to receive the ledge or offset and preserve the shape thereof during bending, substantially as described.

2. In a machine for bending horseshoe-blanks having toe and heel calks, the combination of a toe-shaping die, having a forked projection adjacent to its shaping-edge to receive the toe-calk and hold the blank in position during the bending operation, with a follower co-operating with said die, substantially as described.

3. In a machine for bending horseshoe-blanks having toe and heel calks, the combination of a toe-shaping die, having a forked projection adjacent to its shaping-edge to receive the toe-calk, with a follower which co-operates with said die and carries anti-friction rolls on its bearing-edge, to permit the toe-calk to adjust itself in the forked projection and to facilitate the bending operation, substantially as described.

4. In a machine for bending horseshoe-blanks having toe and heel calks, and having a depressed ledge behind the toe-calk to increase the width of the shoe, the combination of a toe-shaping die, having a forked projection adjacent to its shaping-edge to receive the toe-calk, and having a ridge on the forked projection to enter the depression in the rear ledge and preserve the shape thereof during the bending operation, and a follower co-operating with said die, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 19th day of June, 1878.

JOHN JACOB REIMER. [L. S.]

Witnesses:
E. F. KASTENHUBER,
CHAS. WAHLERS.