2 Sheets--Sheet 1.

W. W. LEWIS.

Horseshoe Machine.

No. 168,336. Patented Oct. 5, 1875.

Fig. 1.

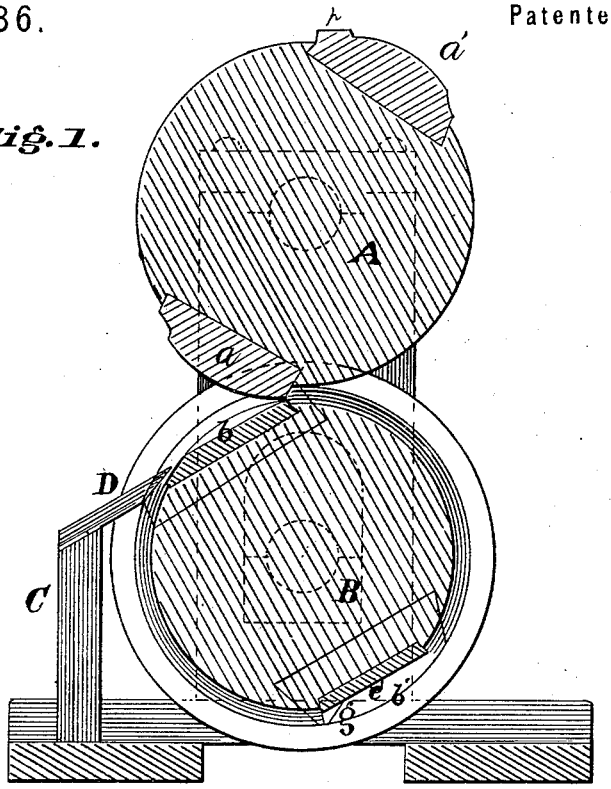
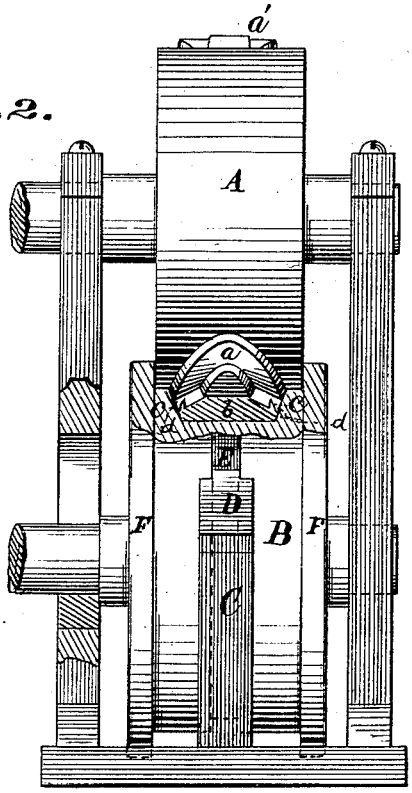


Fig. 2.



Attest.

Jeremiah F. Lodwig.

Inventor.

Wm. W. Lewis
by Dodge & Atkinson
Attys.

2 Sheets--Sheet 2.

W. W. LEWIS.

Horseshoe Machine.

No. 168,336. Patented Oct. 5, 1875.

Fig. 3.

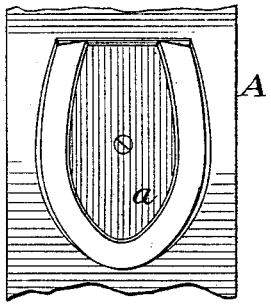


Fig. 4.

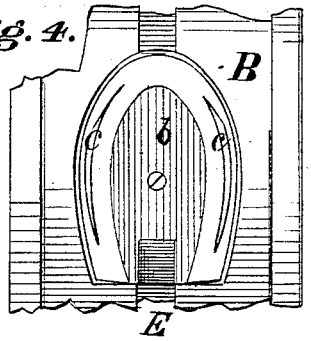
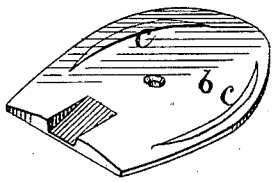


Fig.



Attest.

Jeremiah F. Twohig.

Inventor.

William W. Lewis
by Hatch & Parkinson
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM W. LEWIS, OF CINCINNATI, OHIO.

IMPROVEMENT IN HORSESHOE-MACHINES.

Specification forming part of Letters Patent No. **168,336**, dated October 5, 1875; application filed May 20, 1875.

To all whom it may concern:

Be it known that I, WILLIAM W. LEWIS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Horseshoe-Machines, of which the following is a specification:

My invention relates to machines for making horseshoes; and consists in a pair of rolls furnished with dies for forming the shoe after the iron has been bent. To this end I arrange dies on a pair of rolls, preferably in pairs, one die of each pair on each roll, and so adjust the rolls that the dies of one pair shall act on the iron at the same time, and, by their combined action, form or stamp out both faces of the shoe at once.

For delivering the completed shoe from the dies I use a device which I will more fully describe hereinafter.

Figure 1 is a section, in the plane of revolution, of a pair of my rolls with two pairs of dies, showing one pair in position for delivering the shoe and the device by which the delivery is effected. Fig. 2 is a back elevation with a portion of the lower roll cut away to show the die-plate in section, and showing also the delivering device. Figs. 3 and 4 show a pair of dies of one form.

A and B are rolls constituting a pair, and furnished with dies *a a'* and *b b' d*. The dies *b b' d* are straight in the direction of rotation, though they may be curved, if desired, and the dies *a a'* are of a correspondingly-greater curvature, so that as the rolls revolve the dies will preserve their proper distance apart, the curvature of the dies *a a'* being greater in the same proportion as that of *b b'* is less, referring to that of the rolls as a standard. F F, Fig. 2, are collars, between which the roll A fits, as in a groove, thus insuring perfect accuracy of position of the dies. The faces that form the shoe of the dies *a* and *b d* are inclined to the axes of the rolls, (see Fig. 2,) and the die-plate *b* is furnished with creasers *c c*, for creasing the shoe.

The object of the inclined faces is to permit of the crease being undercut, it being a mechanical necessity that the crease be cut at right angles to the axis of the roll carrying the creaser. This undercut is plainly shown in Fig. 2.

The shoe after coming from these dies *a* and *b d* will be perfectly straight from toe to heel, and more or less bent, according to the degree of undercut of the crease, from side to side, and after being straightened out will be ready for use.

The action of the delivering device is clearly shown in Fig. 1. The point of the piece D projects into a groove, E, which groove must be of such depth that the point D can project far enough to catch the toe of the shoe as the rolls revolve, which it does, and thus lifts or guides the shoe out of the die.

If plenty of water were used in the operation of rolling, the shoe would generally drop out of itself; but by the use of the delivering device C D this result is insured.

As will be seen by reference to Fig. 2, the shoe will be formed with perfectly clean and sharp edges, there being no possibility of a fin being formed by the rolling.

The dies *a*, like dies *b*, may be plates, the faces of which are shaped to produce the required form. Thus, it will be seen, I can easily and cheaply repair my rolls when it becomes necessary

I claim as my invention—

1. The creasers *c c*, in connection with the inclined faces on the opposite die *a*, for the purpose of producing an undercut crease, as described.

2. The combination of die *a*, formed with inclined faces, and countersunk die *b d*, substantially as and for the purposes specified.

3. The combination of roll A, having a die, *a*, with inclined faces, roll B, having a recessed die, *b d*, and collars F F, substantially as and for the purpose shown.

4. The combination of die *a*, when formed with inclined faces, die-plate *b*, and delivery-point D, substantially as and for the purpose described.

WILLIAM W. LEWIS.

Attest:

WM. BATES,

D. S. J. KELLY.