

W. W. LEWIS.

MACHINE FOR PUNCHING HORSESHOES.

No. 174,689.

Patented March 14, 1876.

Fig. 1

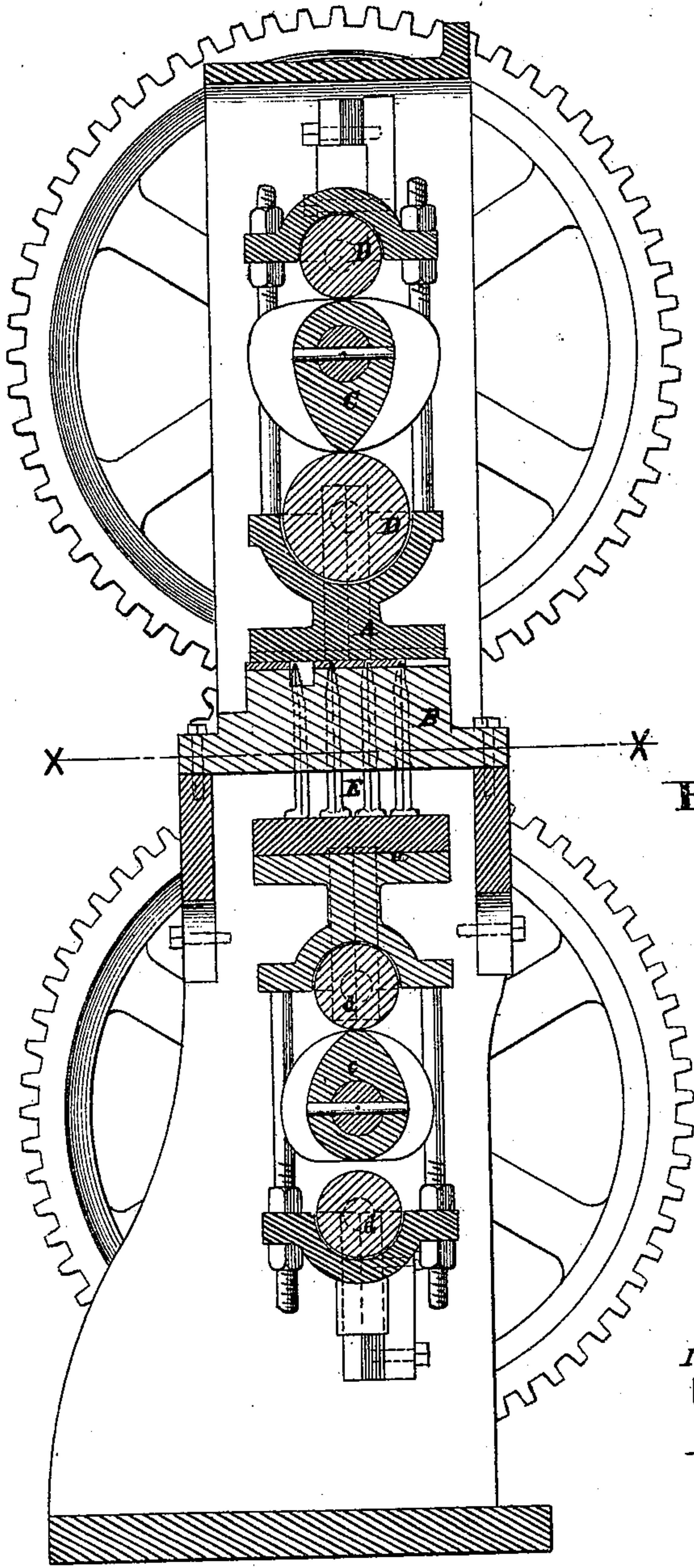


Fig. 2

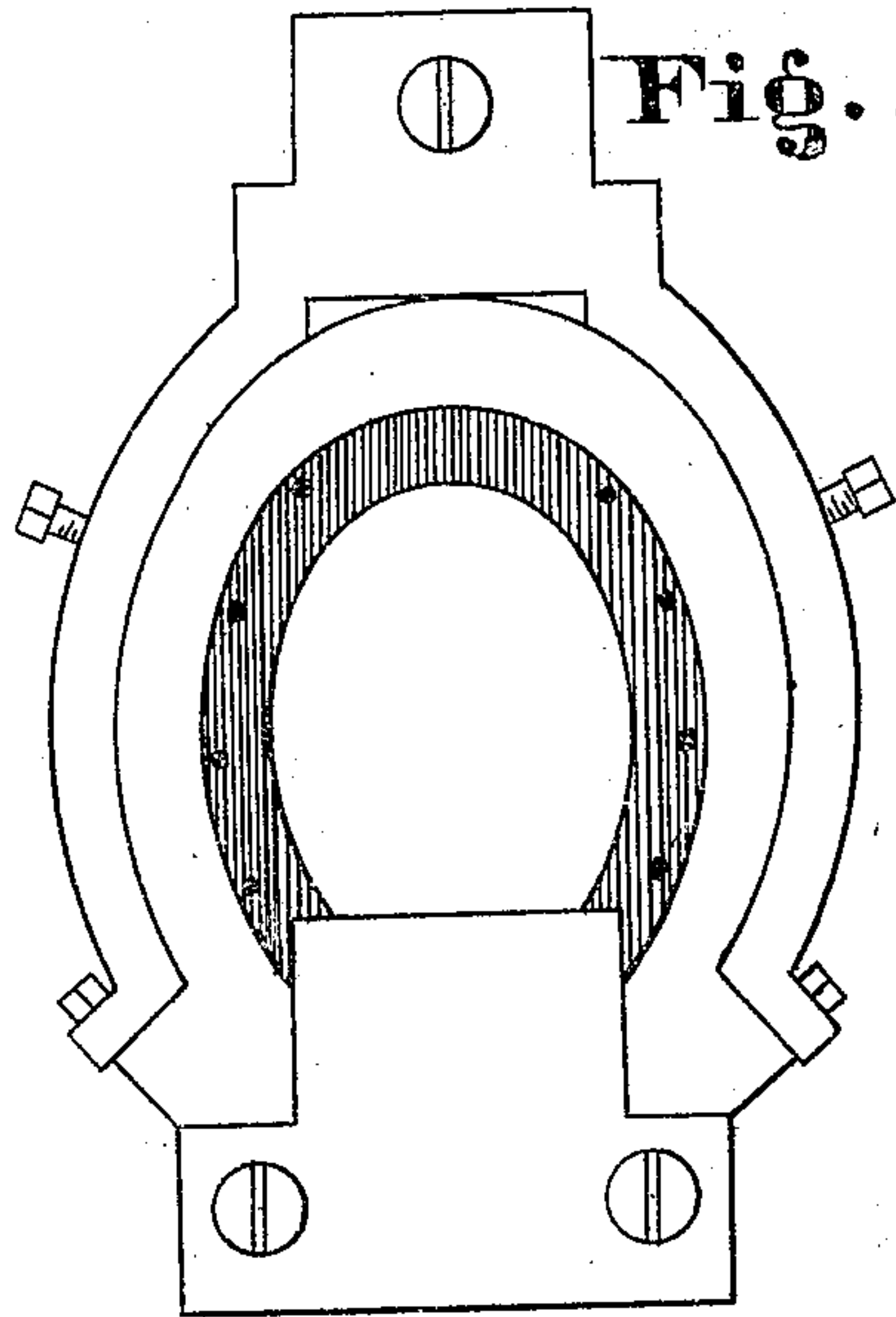


Fig. 3

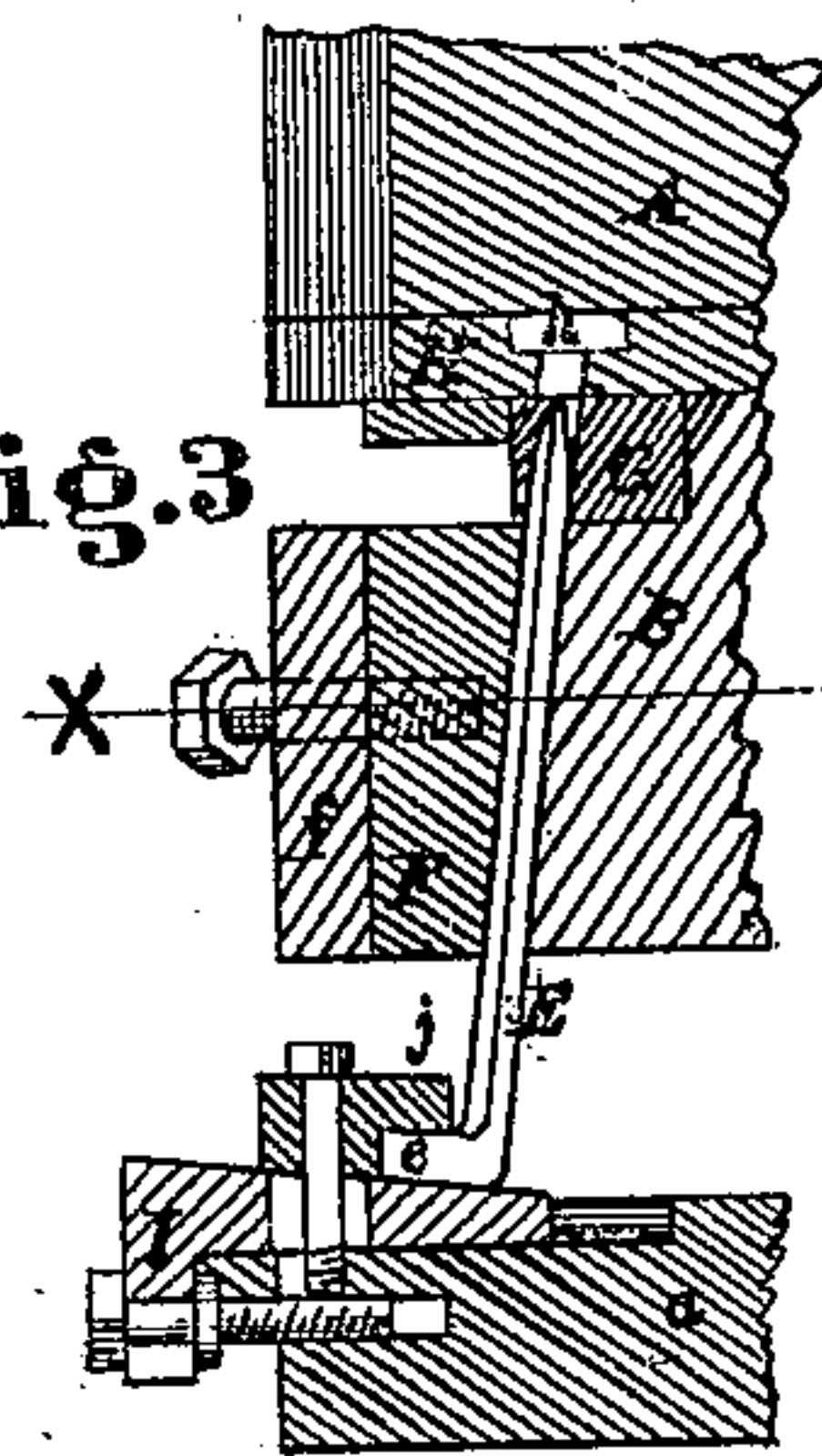


Fig. 4

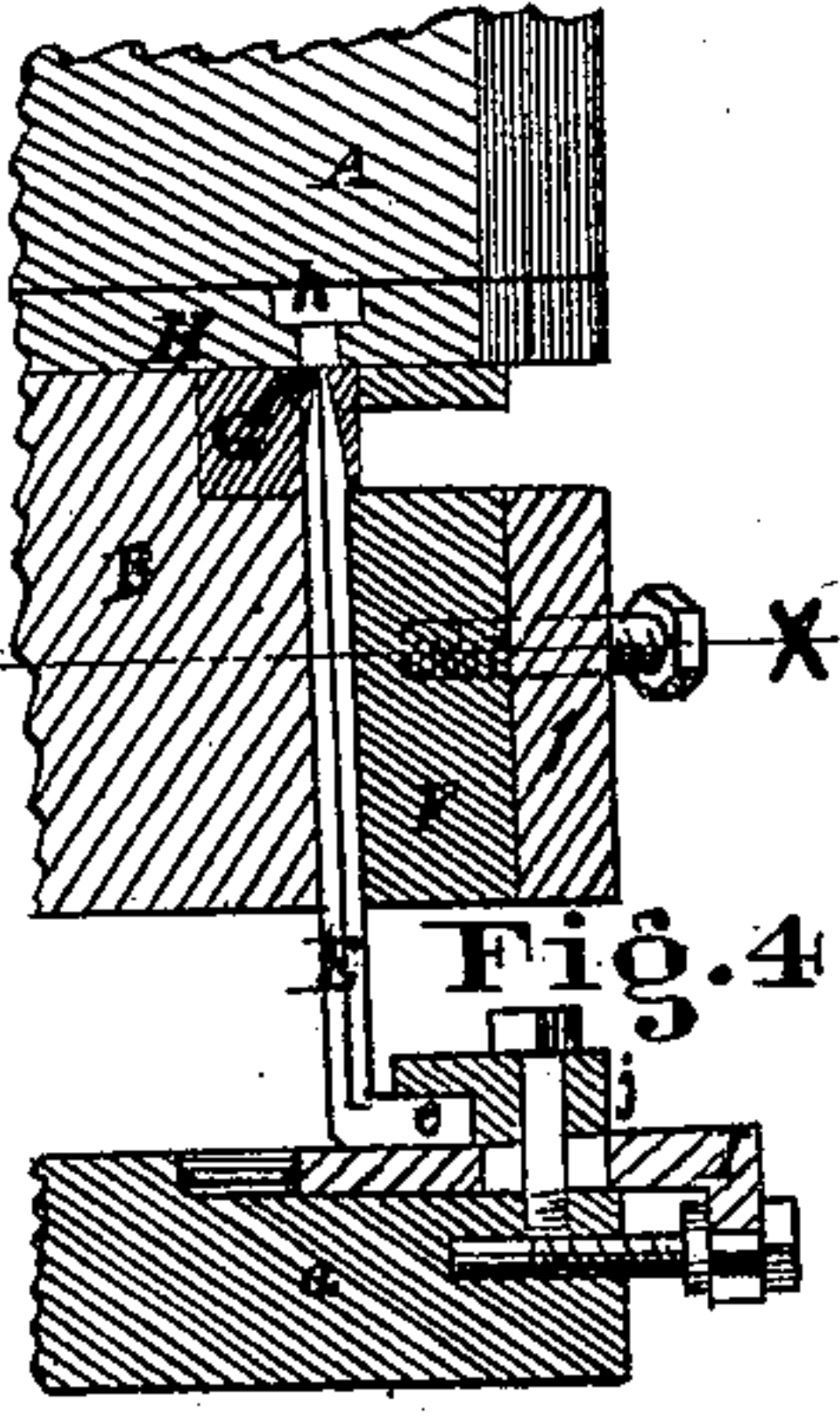


Fig. 5

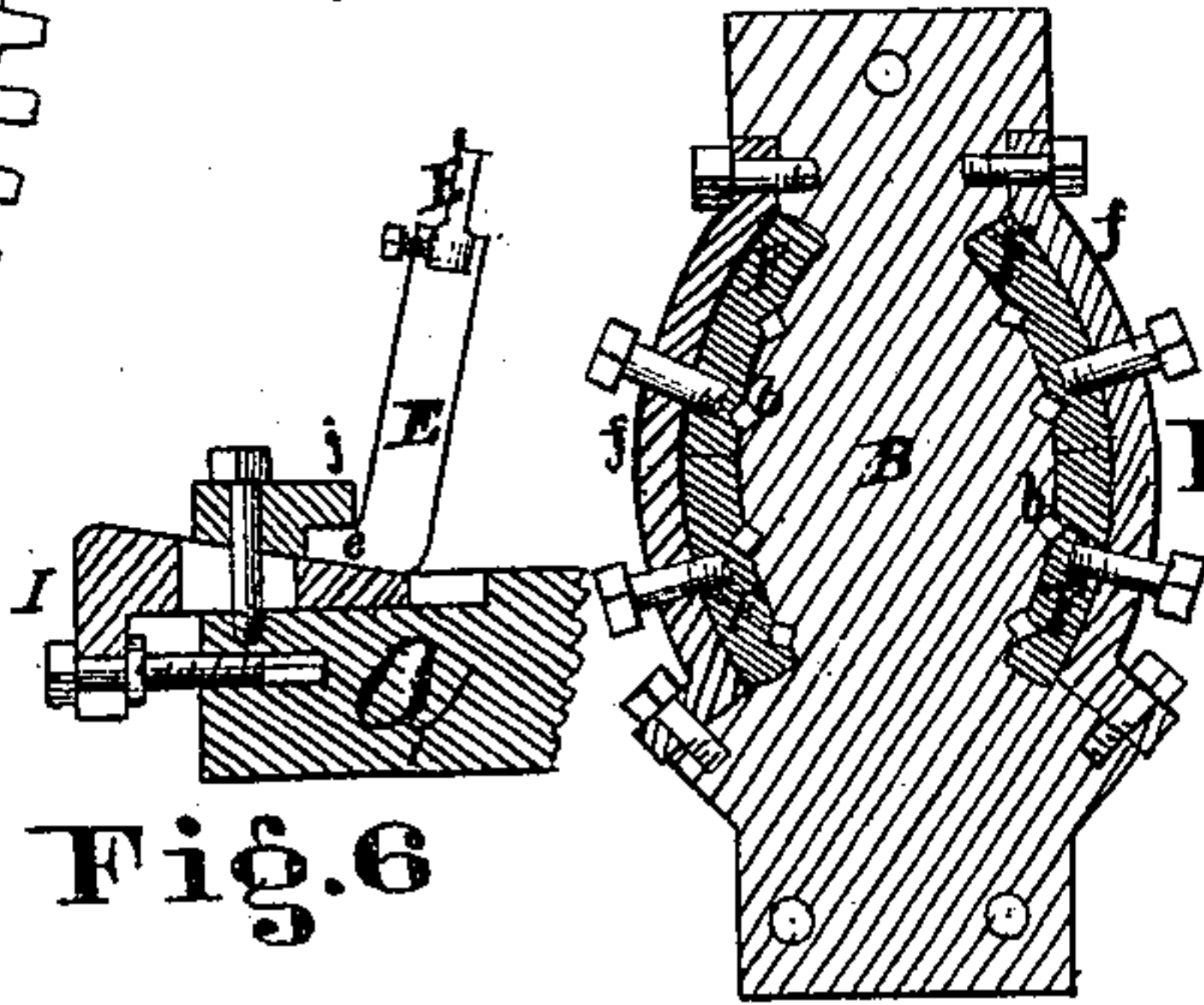


Fig. 6

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UNITED STATES PATENT OFFICE.

WILLIAM W. LEWIS, OF CINCINNATI, OHIO.

IMPROVEMENT IN MACHINES FOR PUNCHING HORSESHOES.

Specification forming part of Letters Patent No. 174,689, dated March 14, 1876; application filed August 27, 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 on Machines for Punching Horseshoes, of which the following is a specification :

My invention relates to machines for punching horse and mule shoes; and has for its object the rapid and easy punching of the nail-holes at such angles as conform to the natural requirements of the animal's foot. To this end I employ a system of independent punches, sufficient in number to punch all or nearly all the holes at once, each of which is more or less inclined to the face of the shoe, according as they are nearer the toe or the heel, the degree of inclination increasing from the heel-punches, which are at right angles to the face of the shoe, to the toe-punches, which are most inclined, so that the nail may be driven in the proper direction.

These punches are operated by a sliding head and cam, or otherwise. I will now describe a machine which embodies my invention.

Figure 1 is a section through the middle of the machine. Fig. 2 is a top view of the form-block which receives the shoe and guides the punches. Fig. 3 is a section through the form-block and upper sliding head, showing one of the toe-punches and its gearing. Fig. 4 is same, showing heel-punch. Fig. 5 is a section through X X, Figs. 1, 3, and 4. Fig. 6 shows one of the punches and its adjusting arrangement.

A and *a* are two sliding heads, operated by two threefold cams, C and *c*. The sliding heads are constructed in two parts, between which the cams revolve, the parts being joined by rods, by which they may be adjusted. Friction-rollers D *d* are interposed between the cams and sliding heads. B is a form-block, which may be taken out and replaced by another when a change in the size of shoe to be punched is desired. This block serves as a bed for the shoe, which is shown in section at G, Figs. 3 and 4. The sides of the form-block are grooved to form part of the slide-bearings for the punch-rods, (see Figs. 3, 4, and 5,) the other part being formed by the adjustable boxes F, which are secured in

position by the casing *f* and set-screws. These slide-bearings are cut at different angles to the top of the block, where the shoe rests, so that the punches may be guided and the shoe punched obliquely to conform to the obliquity of the animal's foot, being at right angles at the heel, Fig. 4, slightly oblique next the heel, and more and more oblique toward the toe. E E are the punch-rods, which slide in the bearings. In Fig. 6 the construction of the punch-rods is shown. Their bases rest on wedges I, (E being the punch-rod,) which move in grooves in the sliding head *a*, and which serve to adjust the length of the punches, as well as to give a bearing at right angles to the direction of punching, the angles of the wedges being such as accomplish this. At its base the punch-rod has a foot, *e*, which extends under a counter-bearing, *j*, by which the punch is withdrawn after punching the shoe. The punch proper is shown at E', Fig. 6, and is secured in a recess in the end of the punch-rod E by a set-screw, or otherwise, so that it may be removed when broken or worn. A is a sliding head, which moves down and holds the shoe in place on the form-block while being punched. It is provided with a plate, H, Figs. 3 and 4, and dies *h* to receive the punchings. The plate is provided with wedges, by which it may be adjusted to shoes of different thicknesses. It has not been thought necessary to show these wedges in the drawing.

If desired, the punch-rods may be fitted with friction-rollers at their bases, though I do not consider this as necessary.

In operating the machine, the shoe is placed on the form-block B; the sliding head A holds it down until the punching is completed, when the head moves up, the punches being withdrawn by the head *a*, so that the shoe can be removed and replaced by another, when the same performance is re-enacted.

Instead of having a wedge, I, for each punch, two plates may be used, one for the punches of each side, shaped to receive the bases of the punches, which would have to be of the same length.

I claim as my invention—

1. The removable bed-block B, having

grooves on its sides to receive the punch-rods, said grooves being inclined at different angles to the face of the block, where the shoe rests, in combination with the adjustable boxes F, substantially as and for the purposes described.

2. In combination with a system of independent punches, inclined at different angles to the face of the shoe to be punched, an adjustable base or bases for adjusting the length of the punches, which gives the same a bearing at right angles to the direction of punching, substantially as specified.

3. In a machine for punching horseshoes, the combination of the system of independent and adjustable punches E, bed-block B, and wedges I, substantially as and for the purposes set forth.

4. In a machine for punching horseshoes, the combination of punch-rods formed with foot *e*, counter-bearing *j*, and wedges I, substantially as and for the purposes set forth.

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Attest:

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