(No Model.)

# G. R. MOORE.

## BLACKSMITH'S VISE.

No. 470,764. Patented Mar. 15, 1892.

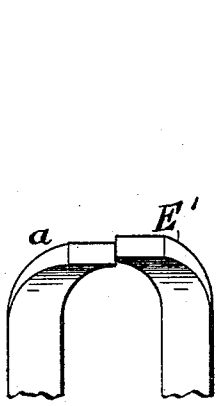


Fig. 3.

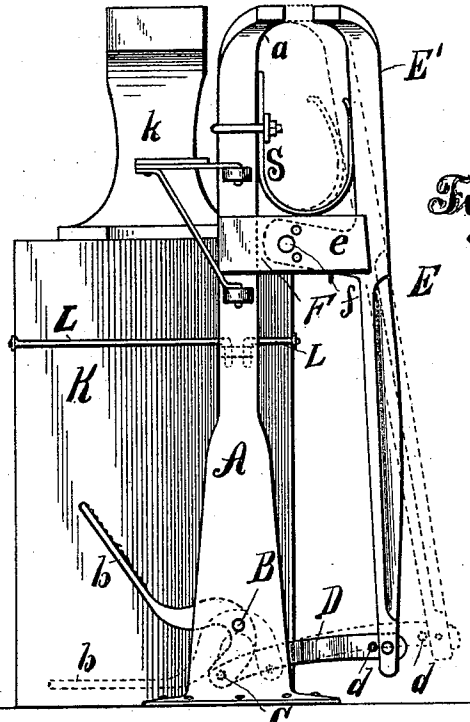


Fig. 1.

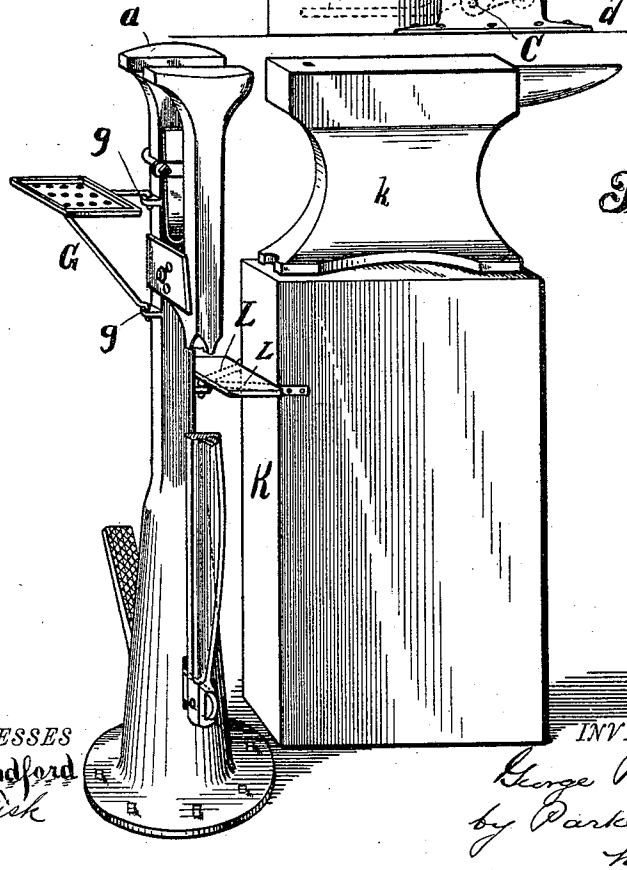


Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

GEORGE R. MOORE, OF NEW YORK, N. Y., ASSIGNOR TO MARTIN J. DUNN AND FREDERICK W. RIDER, OF DETROIT, MICHIGAN.

## BLACKSMITH'S VISE.

SPECIFICATION forming part of Letters Patent No. 470,764, dated March 15, 1892.

Application filed July 29, 1891. Serial No. 401,104. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE R. MOORE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Blacksmith's Vise, of which the following is a specification.

This invention relates to vises, especially to that kind employed by blacksmiths in the manufacture and repair of horseshoes, and has for its object a vise operated by foot-power, in which the shoe to be treated can be firmly held against the upsetting strokes of a hammer in the hands of the workman.

A further object also is to provide an adjustment, by means of which the relative height of the two jaws may be varied, so that one may be used as a swage or block or former in the turning of the calks of a horseshoe.

These results are produced by means of the structure shown in the accompanying drawings, in which—

Figure 1 shows a side elevation; Fig. 2, a perspective. Fig. 3 shows the position of the two jaws when the adjustment has been changed from the position shown in Fig. 1.

A represents a standard fixed to the floor, having its upper end *a* turned into a vise-jaw having a somewhat broad and flat upper surface. Across the lower part of the standard A, upon a hinge or pin B, is a lever *b*, linked at C to the bar D. The bar D is hinged to the lower end of the second member E of the vise, and the two members are hinged together by the interlocking arms or projections *e* and F, held together by the pin *f*. The arms *e* and F are perforated by two or more perforations at different elevations to permit of the adjustment of one of the jaws with respect to the other, so that the upper surface or anvil part and biting part of the jaw E′ may be raised or lowered with respect to the anvil part of the jaw A.

In the end of the bar D are two or more holes to permit of an adjustment of the lower end of the jaw E if it is necessary or desired.

A curved spring S, clamped to the standard A and bearing at its free end against the jaw E, serves to throw the jaws open.

Two eyes *g g′*, located above one another on the standard A, serve to support a bracket G and a swinging shelf supported thereby, the swinging shelf being so arranged that it can swing around toward the anvil-block A and out of the way or around to the side of the vise and out of the way of the operator when turning from the anvil-block to work at the vise.

In a vise of this kind it is desirable that it should be arranged in immediate connection with the anvil, in order that the operator may lose no time in transferring the heated metal from one place to another, and I place the vise adjacent to the anvil-block and tie or fasten it to the block by means of the rods L *l*, which serve also to support a small tool-shelf.

At some seasons of the year the work required to be done in an instrument of this kind differs from that to be done at other seasons, and to adapt the machine to work of these different kinds I employ the adjustable feature hereinbefore described, which enables me, when I desire to turn a heavy calk without any liability of upsetting the iron in the wrong direction, to do so by raising the jaw E′ a slight distance above the jaw *a*, and thus employ it as a former against the part of the shoe opposite the calk.

The double-link lever *b d* enables me to hold the jaws together with great force by placing the foot of the operator on the arm *b* and pushing downward.

In constructing the lever and its link portion or toggle-joints I make the links of such relative lengths that when the jaws of the vise have been closed to the proper distance to embrace a horseshoe the links of the lever will be practically parallel. This, as it is manifest, provides that at this point the force of the lever is at the maximum and that just as the link portion is being brought to the parallel position the force exerted by the lever is very great, and the power with which the jaws will grip the shoe is greater than that which could be produced by any other form of lever.

I am aware that foot-levers operating directly on the vise have been used for closing the jaws; but I am not aware that a construction has been used in which the prime

object was to produce the maximum force at the instant the jaws grip the iron.

Having thus described my invention, what I claim as novel, and desire to have secured to me by Letters Patent, is—

1. In a blacksmith's vise, the combination of two holding-jaws and a link-lever adapted to bring the links of said lever approximately parallel at the instance of gripping the iron, substantially as and for the purposes described.

2. In a blacksmith's vise, the combination of two jaws adjustably held together, a link-lever fixed to one jaw and adjustably connected to the other jaw and adapted to bring the links of said lever approximately parallel at the instance of gripping the iron, and a distending-spring, all arranged and combined as described.

3. The combination of a fixed standard having a vise-jaw at its upper extremity, a movable jaw hinged thereto arranged to have its upper surface and a portion of its gripping-face raised above the corresponding surface and the gripping-face of the opposing jaw, and a link mechanism arranged to force the two surfaces into grip, substantially as and for the purpose described.

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE R. MOORE.

Witnesses:
F. W. RIDER,
M. J. DUNN.