G. L. Gerald,

Horse Shoe Calking Vise.

No. 77,973. Patented May 19. 1868.

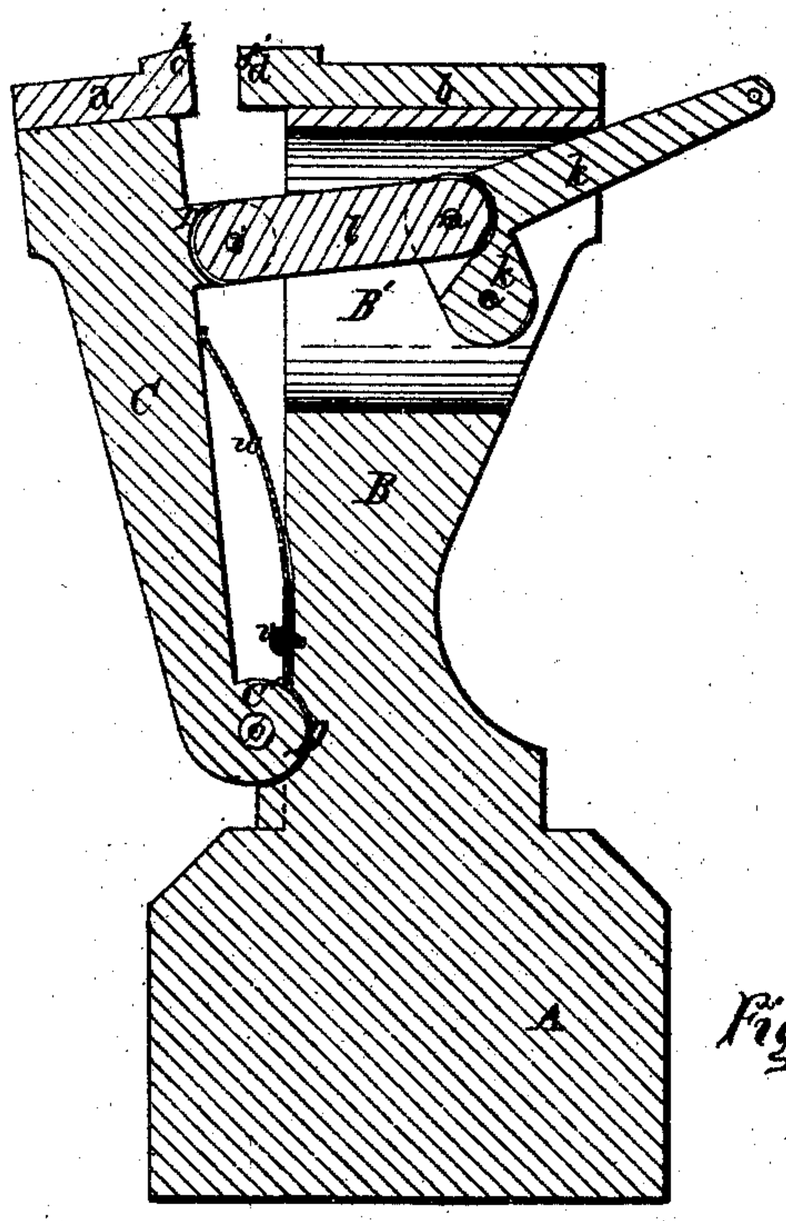

Fig. 1.

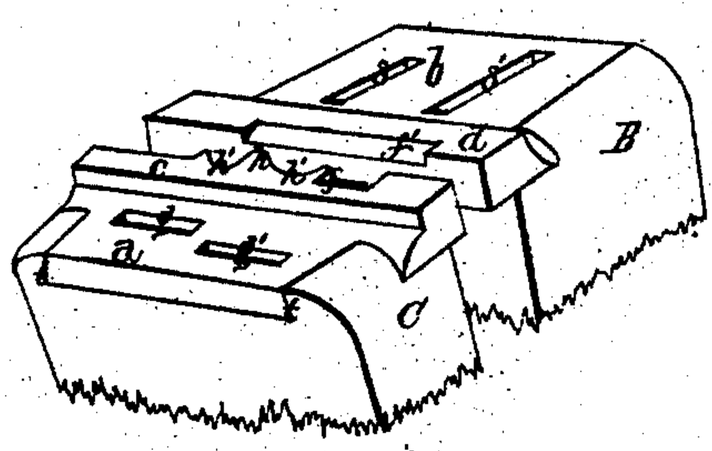

Fig. 3.

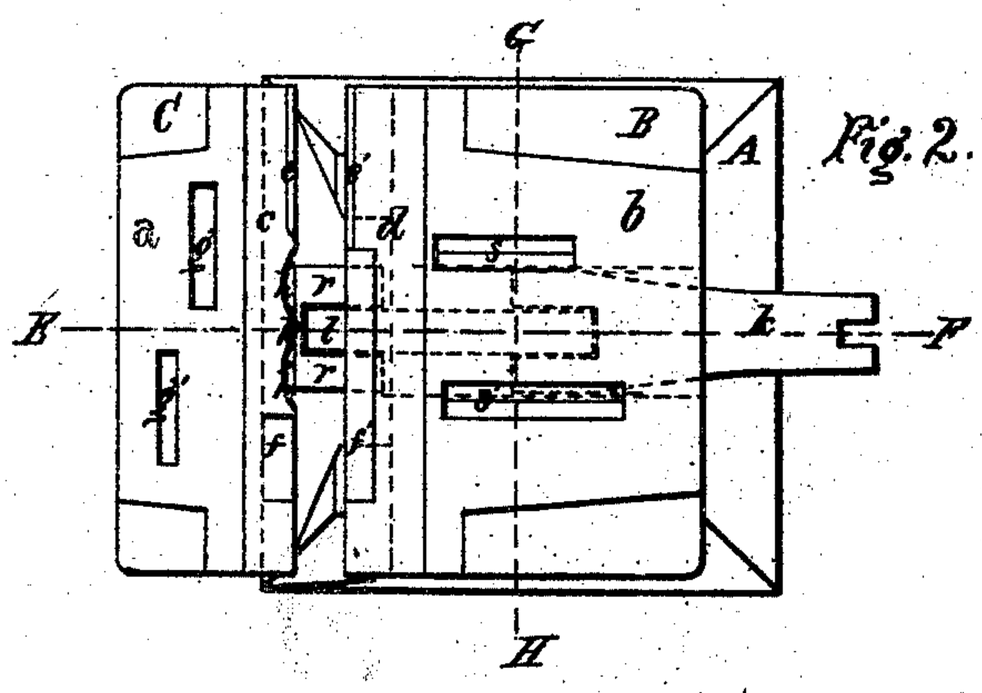

Fig. 2.

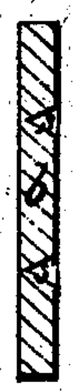

Fig. 4.

Witnesses. T. Albert Curtis
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GEORGE L. GERALD, OF THORNDIKE, MASSACHUSETTS.

Letters Patent No. 77,973, *dated May* 19, 1868.

IMPROVEMENT IN HORSE-SHOE-CALKING VISE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE L. GERALD, of Thorndike, in the county of Hampden, and Commonwealth of Massachusetts, have invented a new and improved machine to be used in the manufacture of horse and ox-shoes, which I denominate a Horse-Shoe-Calking Vise; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a transverse vertical section through the line E F, fig. 2.

Figure 2 is a plan view of said vise.

Figure 3 is a perspective view of the upper part of said vise, the lower portion being removed.

Figure 4 is a vertical section of the steel face upon the standard, through the line G H, fig. 2, showing the sectional outline of the angular recesses therein.

My invention is designed for use in welding to the curved plate which constitutes the body of a horse or ox-shoe, the edged-steel projections called toe-calks and heel-calks, and also in shaping such calks, and the toe of the shoe itself. The labor and time required in welding and shaping these calks by hand with the hammer and anvil are considerable, and the sets of shoes thus armed with calks cannot be easily made uniform, and are therefore inferior to machine-made shoes in appearance and regularity.

The hore-shoe-calking vise hereinafter described is a cheap and durable tool, in the nature of a combined anvil and vise, which latter is operated by a foot-treadle, and in the top of which tool steel plates of peculiar conformation, called "sows," are arranged, the whole operating so that the shoe to which the calk or calks are to be applied can be grasped and held by the vise, and the welding of the calk to the body of the shoe, and the operations of shaping, upsetting, and finishing, be greatly facilitated by the use of the steel die-plates or "sows."

The construction of my invention is as follows: The base, A, and standard, B, are of iron, cast in one piece, the former being made of sufficient bottom, area, and weight to afford a solid and steady support, and an opening, B′, being made through the standard to receive the levers which operate the jaws C. Upon the lower end of the jaw C is formed the curved projection C′, which, with the ears upon the standard B and pin O, forms a hinge, and the jaw C is thus arranged to move toward or from the upper part of the standard. A curved spring, one end of which is fastened to the standard, while the other bears against the jaw, tends to press the latter from the standard, and hold open the vise for the reception of the shoe. To close the vise, the bell-crank lever *k*, the fulcrum of which is the pin k^1, set in the standard, is attached to the link *l*, which moves freely about a pivot, passing through the ears *r r*, which project from the inner side of the jaw. The bell-crank lever *k* is made of sufficient thickness for the construction in it of a rectangular recess or mortise, into which the end of the link enters, and in which it is held by a pin passing through the sides of the mortise and the link. If the longer arm of the bent lever *k* be depressed, the link *l* and the jaw C will be drawn toward the standard, and the inner edges of the steel die-plates will be brought in contact, like the jaws of a vise. When the bent lever is released, the curved spring will again press back the jaw. At the hole k^2 in the end of the lever *k*, I propose to attach a chain or rod, the lower end of which is connected with a foot-treadle.

Upon the upper part of the jaw and standard are respectively placed the steel die-plates or sows *a* and *b*, the peculiar conformation of which, as shown in figs. 2, 3, and 4, is an important part of my invention. These die-plates are attached to the iron parts which support them during the casting of the latter, or firmly fastened in properly-made sockets formed in the iron supports. The sides of the outer portions being bevelled, as shown at *t t*, fig. 3, are prevented from springing upward from the seats during the powerful hammering to which they are subjected. The die-plates are made thicker at the inner ends, *c* and *d*, and the upper faces of *c* and *d*, and also of the thinner parts, are made plane surfaces, in which, however, are formed the recesses and shaping-devices, which I will proceed to explain.

The edges of the dies are bevelled at *e e′*, at a small angle, the bevel extending nearly or quite to the lower edge of the plate. A longer portion of the edge of *b* is bevelled at *f′*, so that a calk can be laid in the space thus chamfered out. A bevelled recess, *f*, of about the same sectional area, but of less length

than *f'*, is made in the edge of the other die-plate, *a*. The edge of *a* between the bevelled portions *e* and *f* is formed in the double curve *h' h h'*, as shown in figs. 2 and 3. In the upper face of *a* are also made the angular recesses *g g'*, and in like manner the angular recesses *s s'* are formed in the face of *b*, the location of the recesses in the surface of the die-plate being immaterial. It is to be observed that the angle of inclination of the two sides of the respective recesses is different, and also the depth of the recesses, and other recesses may be formed in the plate, if required for any particular kind of work.

The operation of my invention in reference to the most important of the many uses to which it may be applied is as follows:

If the shoe and calk be heated to the proper temperature for welding, and the calk be clasped between the bevelled edges *e e*, point downward, the shoe can be applied to the base of the calk thus held, and the welding can be performed quickly, easily, and accurately. When the calks have been applied, if any of them need elongating or sharpening, the bevelled edge *f'* is used, the body of the shoe being held between the edges of the die-plates, while the calk which is to be hammered lies in the bevelled space *f'*.

In thus operating upon the two heel-calks, it is found to be convenient to use the bevelled space *f'* for one calk, and then to reverse the shoe and apply the other calk to the opposite bevelled space *f*. A small lip or projection is generally made upon the upper edge of the toe of a horse shoe, and to produce this lip the shoe (having the toe-calk welded upon it) is placed in the vise, so that the toe-calk lies in the bevel *f'*, and so that the curved projection *h* is directly behind the calk. If the vise be drawn together, and the toe of the shoe hammered, a lip will be formed, projecting over the end of *h*. The angular recesses *s s'*, *g g'* are used for "upsetting" the calks when the same are found to be too long, and also operate as dies or gauges, whereby the calks on a set of shoes can all be made of uniform size and inclination.

I am aware that bolt-heading machines for blacksmiths' use have been constructed, having a standard and jaw, the latter being operated by means of a treadle; and I do not therefore claim the said device, or any part of it, irrespective of my arrangement and construction, but, having described my invention,

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

A calking-vise, having the dies *a* and *b*, with the shaping-devices hereinbefore described formed thereon, said dies *a* and *b* being opened and closed by means of the lever *k*, link *l*, and spring *w*, all constructed and operating substantially as herein described, and for the purposes specified.

GEORGE L. GERALD.

Witnesses:

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