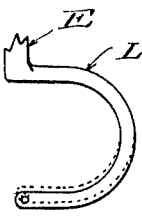
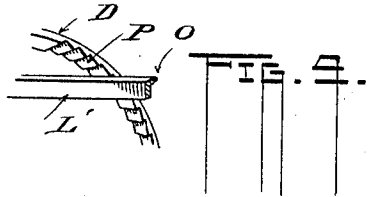
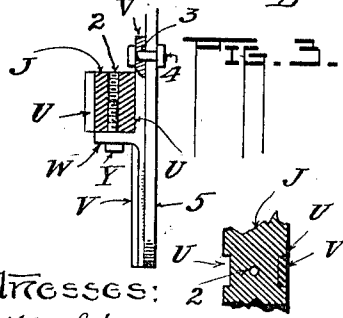
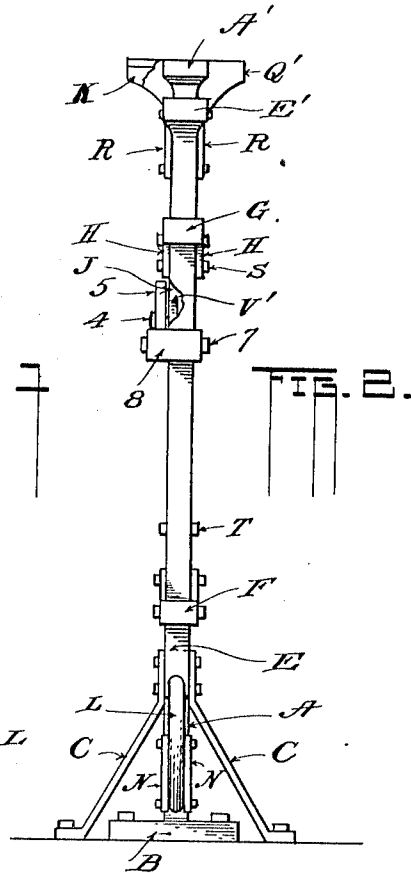
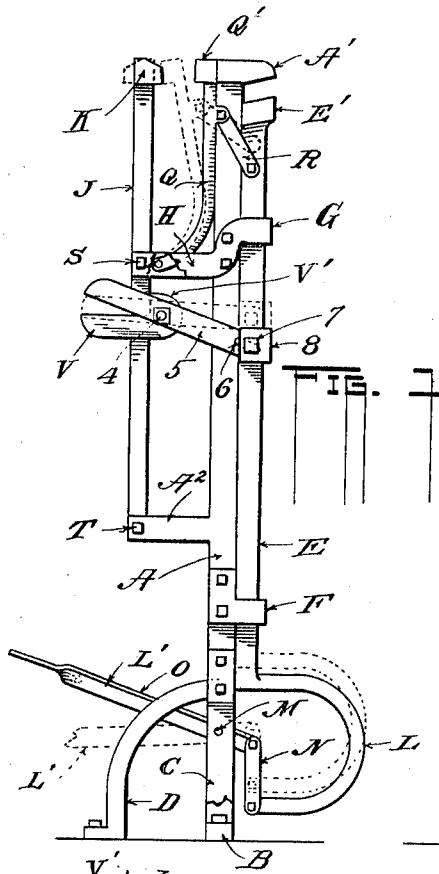


J. L. FISHER.
 VISE.

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1,061,461.

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Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN L. FISHER, OF PEKIN, ILLINOIS.

VICE.

1,061,461.

Specification of Letters Patent.

Patented May 13, 1913.

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To all whom it may concern:

Be it known that I, JOHN L. FISHER, a citizen of the United States, residing at Pekin, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Vises; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a vise for machinists' use being particularly adapted for the use of blacksmiths or horse shoers.

One of the objects of the invention is to construct a vise having a movable and a fixed jaw and a foot lever for operating the former, in which said movable jaw is operated through a very powerful toggle included with which is a spring adapted to yield under extreme pressure and which after gripping pressure has been applied to the work can be flexed and thus held so that the said extreme pressure will be maintained. A further object is to interpose between the foot lever, or its equivalent, and the part carrying the movable jaw, a yielding member by which when the jaw, as in the present instance, is made to clamp a piece of work that although the said lever may have been carried to a position where the work is firmly clamped it can be moved still farther, due to the yielding member, to thus clamp the work still tighter, there being less chance, therefore for the work to slip in the jaws.

Still another object is to provide a reversible jaw by means of which the handling of the work can be facilitated.

In the appended drawing:—Figure 1 is a side elevation of the tool. Fig. 2 is a rear elevation. Fig. 3 is a plan of the shears showing a support for one of the blades of the said shears; said support being shown in horizontal section. Fig. 4 is a detail in perspective of part of a foot-lever and a notched sector therefor. Fig. 5 is a vertical section of the support for one of the blades of the shears. Fig. 6 is a side elevation of a spring.

The tool consists of an upright member A, in this case being formed from a bar having a foot B at its lower end by which it may be secured to the floor and having at each side a brace C for holding it rigidly in an upright position aided by a brace D at the front of the tool which answers also as a sector to

hold a certain foot lever, all of which will be described presently. Adjacent to the upright portion A just described is a vertically movable bar E which preferably lies against said member A being slidable in guides F and G secured to the latter. The said guide G has two extensions H lying parallel to one another and extending forward. Between these extensions is erected a member J carrying a jaw K, which will be described presently, the lower end of said member J being supported in an extension A² on the member A. The lower end of the bar E has secured thereto or formed therewith, as desired, one end of a U-shaped spring L whose other end is connected to the short end of a lever L' pivoted on the member A, at M in any good manner through two links N. The lever, as shown in Fig. 4, preferably has a lip O adapted to engage any one of a series of teeth P of the brace or sector D already described. It will be seen that by pressure upon the foot lever the bar E will be raised to carry its jaw E' in the direction of the jaw A' of the member A and that if the lever is locked beneath one of the teeth P the work clamped in the jaws will be permanently held. Also that when the lever is released the bar E will drop to its lowest position. Pivoted between the extensions H of the guide G is the lower end of an arm Q having at its upper end a jaw Q' the pivot of the arm lying quite close to the bar J as shown. Said jaw Q' in its normal position, or when the bar E is in its lowest position, lies against the member A. The arm Q is connected to the bar E by means, for instance, of a link R at each side of the upright member A whereby in an upward vertical movement of the member E the links will move the jaw Q' against the jaw K and act in the manner of a toggle and provide thereby a very powerful clamp since the more nearly the links approach a position at right angles to the arm Q the more powerful the pressure becomes.

For certain kinds of work it is found advantageous to reverse the position of the jaw K carried on the bar J so that it may occupy either of the two positions shown; one of which positions is shown in broken lines and the other by the full lines, the change being made by the removal of a bolt S which passes through the extensions H of the guide G and by removal of a bolt T extending through bar J and the projection A² of the

member A. Incidentally the change is found of advantage since part of the upper working surface of the jaw K is preferably beveled or formed at an angle to the other part of its said working surface so that by reversing it the relative positions of the surfaces of the clamping jaws are changed so as to provide for a different handling of the work; this being especially true in making horseshoes, the said jaw having one position for winter work when it is necessary to sharpen the calks of horse shoes by "drawing out" said calks with a hammer, the other position being used in the warmer seasons when there is no ice and when the calks, therefore, need no sharpening.

In conjunction with the tool is a shears for use, for instance, in cutting bars the right length in making shoes. The portion J is provided in each of two opposite sides with a groove U for receiving a stationary blade V of the shears a plan of this blade being shown in Fig. 3. Its rear end lies within one of the grooves, see Fig. 5, said blade being provided with a lug W extending at right angles to its length by means of which and a set screw Y which passes through it into a threaded hole 2 in the bar J said blade is secured in place. The extreme rear end of the blade is provided with a broad vertical extension V' provided with an aperture 3 to receive a bolt 4 the latter extending through a vertically movable blade 5 and said enlargement V'. The rear end of said blade 5 is slotted as at 6 in Fig. 1 and through said slot extends a bolt 7 which also extends through a clamp 8 and the bar E; the slot 6 being provided in order that the blade and the said bar E will move freely relative to each other and it will be now seen that a movement of the foot-lever L' to close the jaws of the vise also results in operating the shears. A reversal of position of the bar J necessitates a removal of the shears and this is done by removing the screw Y and after the reversal has been made the blade V of the shears can be placed in the other groove U located at the opposite side of the said bar J from that first occupied by the blade; the said screw Y entering at the other end of the hole 2. The spring L, is practically unyielding except under considerable pressure of the foot lever and very firmly clamps the work but permits some latitude of adjustment of said lever, however, to gain a still

greater clamping pressure, that is to say, when the foot lever has been depressed to a point where the work will be firmly held said lever can be depressed to a greater extent the spring thus flexing as indicated by the broken lines in Fig. 6. The lever can thus be carried to a lower tooth to place the spring under a strain to place additional pressure upon the work. There is thus less chance for the work to move in the jaws and it is evident also that if the lever were placed at its lowest limit of movement in the absence of the equivalent of the spring and were locked beneath a tooth it would perhaps not properly clamp the work. The spring therefore provides greater latitude.

It is not my intention to confine myself necessarily to the exact structure shown and described since I may make various changes such as will lie within the meaning of the appended claims.

I claim—

1. In a vise the combination of an upright support, a movable jaw pivotally supported therefrom, a member slidable vertically upon the support, a single arm pivoted at one end to said member and having pivotal attachment at its other end to the jaw at a relatively higher position, a lever adapted to impart an upward movement to the said vertically movable member, and a stationary jaw to receive the first.

2. The combination in a blacksmith's vise, of a standard erected upon the floor and including a fixed jaw spaced from said standard, a member slidable vertically upon the standard and having a U-shaped spring formed therewith at its lower end, a foot-lever pivoted between its ends on the standard, a link connecting the lever with the free end of the spring and adapted to place a lifting strain upon the same, a jaw pivoted relatively to the standard, its pivot lying adjacent the fixed jaw, and an arm pivotally attached at one end to the slidable member and pivoted at its other end to the pivoted jaw and adapted to move the latter in the direction of the fixed jaw in the upward movement of the slidable member.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN L. FISHER.

Witnesses:

L. M. THURLOW,
ARTHUR KEITHLEY.