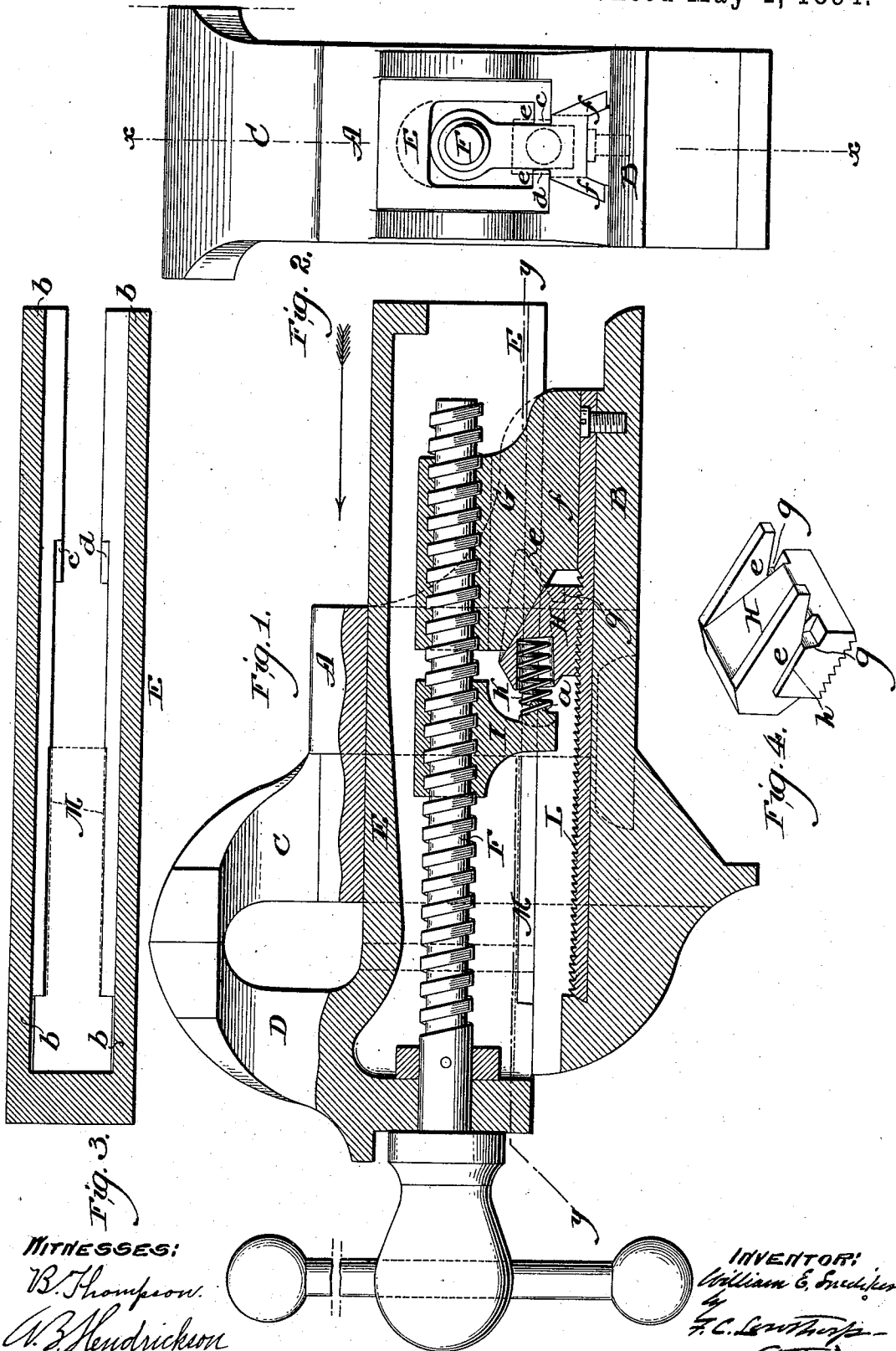


(No Model.)

W. E. SNEDIKER.
VISE.

No. 519,008.

Patented May 1, 1894.



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WISE.

SPECIFICATION forming part of Letters Patent No. 519,008, dated May 1, 1894.

Application filed October 17, 1893. Serial No. 488,406. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SNEDIKER, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention is an improvement on a vise for which Letters Patent of the United States, numbered 188,688 were issued to me March 20, 1887, and the object of my present invention is to provide a quick acting screw vise of simple construction while obviating the objectionable slotting of the upper wall of the sliding bar incident to the device shown and described in said Letters Patent. In the former device the sliding bar being longitudinally slotted in both its upper and lower walls to admit of the passage therethrough of both the reciprocating nut and the clamping block the bar is materially weakened and becomes liable to fracture.

Incidentally it is also an object of my present invention to provide such a construction as will permit of the vise being readily changed from a quick acting vise to an ordinary slow acting screw vise at pleasure.

In the drawings forming a part of this specification Figure 1 shows a vertical longitudinal section through the vise on the line $x-x$ of Fig. 2. Fig. 2 shows a rear end view of the vise. Fig. 3 is a horizontal sectional view of the sliding bar taken on the line $y-y$ of Fig. 1. Fig. 4 is a perspective view of the clamping block.

In the drawings A is the case of the vise, of which the base B and the back or stationary jaw C form integral parts.

D is the front or movable jaw, which is integral with the sliding bar E.

F is the operating screw.

G is the reciprocating nut.

H is the clamping block, and I is the abutment sleeve.

K is a spiral spring placed upon a small button or stud a on the depending lug of the abutment sleeve I, and fixed at its other end in an opening in the front end of the clamping block H.

L is a rack attached to the upper face of the lower wall or base B of the case A.

The bottom or lower wall of the sliding bar

E is longitudinally slotted throughout its length, as shown in Fig. 3, the lines $b-b$, $b-b$ representing the inner sides of the side walls of the sliding bar. At c , d there are off-sets in the slotted lower walls, and these off-sets are beveled as shown in Figs. 1 and 3. The clamping block H is beveled on its upper face to contact with the reverse bevel on the front of the reciprocating nut G. The clamping block H is also provided with two beveled wings e , e , the beveled portions of which contact with the beveled portions c , d of the bottom wall of the sliding bar, as shown in Figs. 1 and 2. The metal plate M is fixed in the portion of the slot in the sliding bar lying toward the outer jaw D of the vise. This plate M is maintained in its position by being slightly beveled at its edges and lying on the beveled edges of the walls surrounding this portion of the slot in the sliding bar, or it may be otherwise supported and made fast to the sliding bar. The abutment sleeve I is cored to fit loosely upon the operating screw F as shown in Figs. 1 and 2, and its depending lug abuts against the end of the plate M. Inserted in the face of the depending lug of the sleeve I is a small stud a on which hangs one end of the compressed spiral spring K, the opposite end of which spring lies in an aperture formed in the forward face of the clamping block H, as shown in Fig. 1. The reciprocating nut G has a beveled forward end to contact with the beveled face of the clamping block H. This nut is also provided in its upper portion with a longitudinal threaded aperture through which passes the operating screw F. The lower portion of the nut is bifurcated longitudinally, as shown at f , f in Fig. 2. These bifurcations reciprocate in longitudinal grooves formed in the lower portion of the case A, as appears in Fig. 2, and, receiving the strain of any upward thrust of the reciprocating nut, retain or lock the nut in its proper plane of action, and prevent its being forced upward so as to bind upon the operating screw.

In operating the vise the operating handle is given a slight turn to the left, and the operating screw rotating drives the reciprocating nut back from the clamping block. The clamping block being released from downward pressure due to contact with the beveled

eled face of the reciprocating nut, is forced backward by the spring K. The action of this spring causes the beveled wings *e, e* to slide up the beveled portions *c, d* of the slotted lower wall of the sliding bar until the forward ends of the beveled set-off portions of the wall contact with the small stops shown at *g, g* in the clamping block which appear in Figs. 1 and 4. The serrations of the under face of the clamping block are thus removed from contact with the serrations on the rack L, and the sliding bar is free to be drawn out so as to enable the jaws to grip the object to be operated upon. To close the jaws firmly upon the object the sliding bar is first pushed back as far as it will go, and the operating handle is then turned to the right. This rotates the operating screw and the reciprocating nut is driven forward, and the beveled face thereof contacting with the opposing beveled face of the clamping block, the clamping block is forced forward and downward until the serrations on its lower face take into the serrations on the rack, and a very slight further turn of the handle induces a strong wedging action between the reciprocating nut and the clamping block, and the jaws are firmly fixed upon the object held between them. The clamping block is prevented from rising too great a distance from its seat on the rack by guides on both of its sides, one of which is shown at *h* in Fig. 4. These guides contact with the under side of the slotted lower wall of the sliding bar, as will be readily understood.

If it be desired to convert the quick acting vise here shown into a slow acting screw vise of ordinary form, the reciprocating nut G is removed from the operating screw and the plate M is removed from the sliding bar. The abutment sleeve I and the clamping block are thrown forward on the operating screw until the abutment sleeve contacts with the collar on the front end of the screw. The reciprocating nut G is again placed upon the operating screw and drawn forward until it contacts with the clamping block. A pin is then set in the base of the vise back of and in the track of the reciprocating nut and in the place usual for such pin in a slow acting screw vise; and this completes the transformation of the vise into the slow acting form.

Having thus described my invention, what I claim is—

1. In a vise, the combination of the operating screw; a reciprocating nut having a threaded portion contacting with said screw; the case, said nut and case having interlocking guides and guide-ways; a clamping-block having one face beveled and another serrated; a spring bearing against the clamping-block, and a rack constructed to engage the serrated face of said clamping-block; substantially as shown and described.

2. In a vise, the combination of the operating screw; a reciprocating nut having a threaded portion contacting with said screw;

the case, said nut and case having interlocking guides and guide-ways; a clamping-block having one face beveled and another serrated; a spring bearing against the clamping-block; a rack constructed to engage the serrated face of said clamping-block, and the sliding bar slotted to permit of the clamping-block operating therethrough; substantially as shown and described.

3. In a vise, the combination of the operating screw; a reciprocating nut controlled by the operating screw, and provided with a guide co-operative with a guide formed in or upon the inner side of the case, and having a beveled face; a clamping block having a face beveled oppositely to the beveled face of the reciprocating nut, and provided with serrations on its opposite face; an abutment sleeve, and a spring supported by said abutment sleeve and bearing against the clamping block; a rack having serrations which contact with the serrations on the clamping block; the sliding bar having a longitudinal slot through which the clamping block operates, and the case provided with a guide co-operating with the guide on the reciprocating nut; substantially as shown and described.

4. In a vise, the combination of the operating screw; a reciprocating nut controlled by the operating screw, and having a beveled face; a clamping-block having a face beveled oppositely to the beveled face of the reciprocating nut, and provided with serrations on its opposite face, and having beveled guides on its sides; an abutment sleeve, and a spring supported thereby and bearing against the clamping-block; a rack the serrations of which contact with the serrations of the clamping-block; the sliding bar having a longitudinal slot through which the clamping-block operates, the walls of said slot being off-set and beveled at points where they contact with the beveled guides of the clamping-block; and the case, said case and said reciprocating nut being constructed with interlocking guides and guide-ways; substantially as shown and described.

5. In a vise, the combination of a slotted sliding bar; a plate adjustable to fit in a portion of the slot in said sliding bar; the operating screw; an adjustable abutment sleeve depending upon said screw; a beveled faced clamping block having serrations on its face opposite to the beveled side thereof; an actuating spring sustained by said abutment sleeve and bearing against said clamping block, and a rack with which the serrations on the clamping block engage; a beveled faced reciprocating nut upon the operating screw having a guide and the case provided with a guide with which the guide on said reciprocating nut engages; substantially as shown and described.

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Witnesses:

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