

J. RIDGE.

Improvement in Vises:

No. 132,776.

Patented Nov. 5, 1872.

Fig. 1.

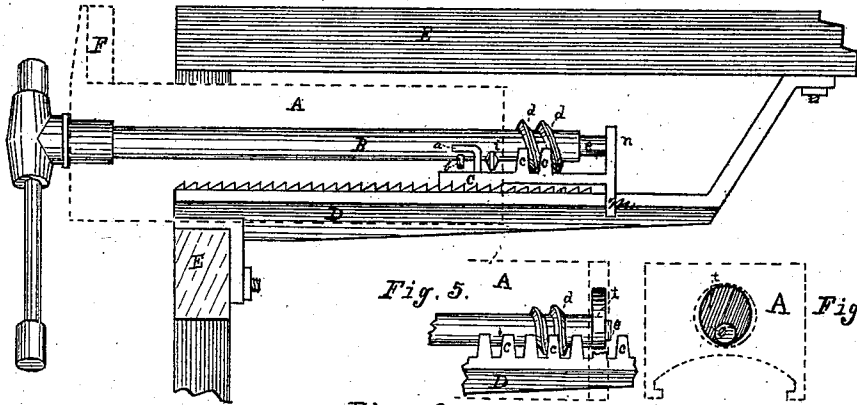


Fig. 5.

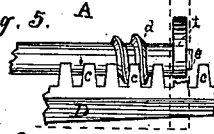


Fig. 2.

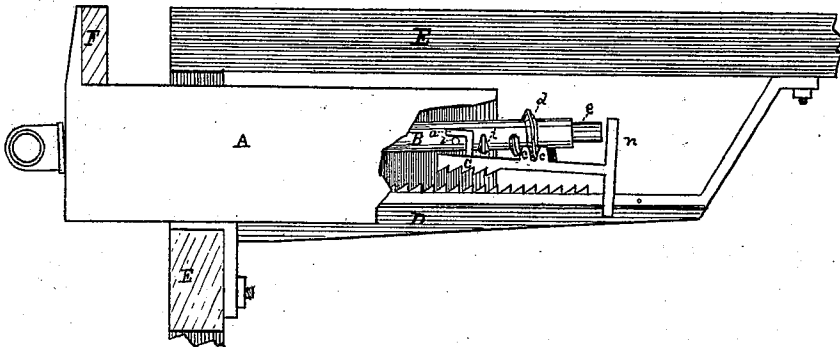


Fig. 6.

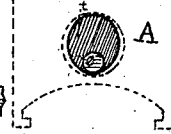


Fig. 3.

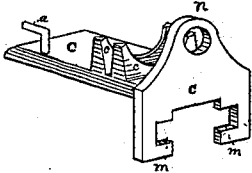
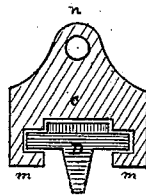


Fig. 4.



Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

JOSEPH RIDGE, OF RICHMOND, INDIANA, ASSIGNOR OF ONE-HALF HIS
RIGHT TO WILLIAM H. HALE, OF SAME PLACE.

IMPROVEMENT IN VISES.

Specification forming part of Letters Patent No. 132,776, dated November 5, 1872.

To all whom it may concern:

Be it known that I, JOSEPH RIDGE, of Richmond, in the county of Wayne and State of Indiana, have invented an Improvement in Vises, of which the following is a specification:

My invention relates to a vise the movable jaw of which is readily adjustable, so that said jaw may be instantly changed from any position within its scope to another, and thus obviate the slow process of adjusting by means of the screw. This has been accomplished by others, but in too expensive a manner, the entire screw and nut being retained for the purpose of compression in the most successful instance that I am aware of. The object of my invention is to dispense with the screw and nut and other superfluous mechanism, and use only such mechanism, constructed of metal, as may be cheaply cast, with the exception perhaps of one or two inexpensive parts.

Figure 1 is a side view, showing the positions of the parts while the jaws are being clamped. Fig. 2 is a side view, showing the parts when the jaw is being adjusted. Fig. 3 is a perspective view of an adjustable plate. Fig. 4 is an end view of the same, also showing a cross-section of the bed-plate. Figs. 5 and 6 show a modified form of arranging the mechanism for the purpose of obtaining quick adjustment.

E represents a cross-section of a work-bench, to which the bed-plate of the vise is secured, in a manner apparent from the drawing. D represents the bed-plate, which is provided on top with ratchet-teeth. The sides of the bed-plate, near the top, project so as to form flanges throughout its length. A represents the box-slide to which the jaw F is attached. Box A is open at the bottom and rear end, and is provided with lugs or flanges along the inside at the bottom to form sliding bearings for the channels on each side of the bed-plate at its front end, as shown in Figs. 1 and 4. Said flanges also serve, in conjunction with the flanges of the bed-plate, to keep the rear end of said box-slide from being thrown upward when the jaws are compressed. B represents the screw-shaft, which, instead of being provided with screw-thread throughout its length, has but one or two revolutions *dd*, near its rear end. C represents a sliding plate, which per-

forms both the functions of a pawl and nut. Plate C is provided with lugs *m* that engage the under sides of the bed-plate flanges, and thus keep said plate C from being lifted from the bed-plate. Said plate C also has sliding bearings on said flanges, as shown in Figs. 3 and 4. On the under surface of the horizontal part of plate C are ratchet-teeth that engage with the ratchet-teeth of the bed-plate. On the upper surface of the plate C are concave lugs *c c*, forming sections of a nut or female screw. Shaft B has a journal, *e*, at its rear end, which, during a portion of the operation of the vise has a bearing in the orifice in the vertical tail piece *n*. A hook, *a*, is attached to plate C, and a pin, *b*, projects from shaft B for the purpose of lifting said plate, as hereinafter described. The shaft B being inserted in the box-slide through a suitable orifice at the front end of said box-slide, and secured, by means of a pin through said shaft, closely within said front end, and the plate C being placed in position on said shaft B, the sliding bearings of said parts are entered on the front of the bed-plate flanges and slid into position, as shown in Figs. 1 and 2, or intermediate positions.

In Fig. 1 the mechanism is shown as when being clamped, the plate C being down and its teeth engaged with the teeth of the bed-plate. By turning to the left or unscrewing the pin *b* is brought in contact with the hook *a*, beneath the latter, and the horizontal part of plate C is thus raised, as shown in Fig. 2, so that box A, shaft B, and plate C may slide back and forth on the bed-plate, by which means the jaw may be adjusted. One or two revolutions of thread are found to be sufficient for the purpose of clamping. In the accompanying example the shoulder of the journal *e*, by coming in contact with plate *n*, is made to stop the shaft in its revolution to the right before the screw is exhausted. In turning to the left the pin *b* and hook *a* perform that function; also, in the accompanying example the journal is brought out of its bearing in plate *n* as the mechanism is brought into position to slide, by which greater play is given in raising plate C. Sufficient play may be had with the journal entered by giving it considerable latitude in its bearing, and by giving considerable play

for plate C on the flanges of the bed-plate; but as the journal always enters readily the plan shown is thought preferable. It is necessary, of course, that some play be given between the flange *m* of plate C and the flanges of the bed-plate; but it is desirable that no more play than is necessary should be given between the under surfaces of the bed-plate flanges and the upper bearing of journal *e*, so that when the jaw is subjected to strain in an extended position it will be more firmly maintained in a position parallel to the stationary jaw or bench face. In order to prevent the teeth of plate C from resting on the edges of the bed-plate teeth when said plate C is dropped, which might occasionally happen, and thus cause the jaw to jump a distance equal to that from one tooth to the next, a lug or cam, *l*, is cast on shaft B, as shown in Figs. 1 and 2, which lug or cam in the event of such resting strikes the top of plate C as the shaft begins to turn to the right, and thus either forces said teeth into position or stops the shaft until the position of the jaw is slightly changed.

In Figs. 5 and 6 a modification is shown, in which the entire plate C is dispensed with. The sections *c* of the nut are cast on the bed-plate

along so much of its length as will equal the distance desirable for adjusting the jaw, and the slide-box A is extended back equal in length to the shaft B. The end of said slide-box is closed, as shown in Fig. 6, having a circular orifice in which a cam, *t*, on journal *e* operates. Thus, by turning shaft B, the cam operates when in one position to throw said shaft above the bed-plate, disengaging it from the threads, and permitting the jaw to be adjusted by sliding. By turning the shaft from its disengaged position the threads of the two parts are gradually made to engage, and a portion of a spiral revolution is obtained for the purpose of clamping.

What I claim as my invention is—

1. The combination of shaft B having pin *b*, and plate C having hook *a* and nut-sections *c*, substantially as and for the purpose specified.

2. The plate C having nut-sections *c c*, bearings *m*, and tail piece *n*, in combination with shaft B and bed-plate D, substantially as and for the purpose specified.

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Witnesses:

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