

(No Model.)

A. WHITE.
VISE.

No. 469,493.

Patented Feb. 23, 1892.

Fig. 1.

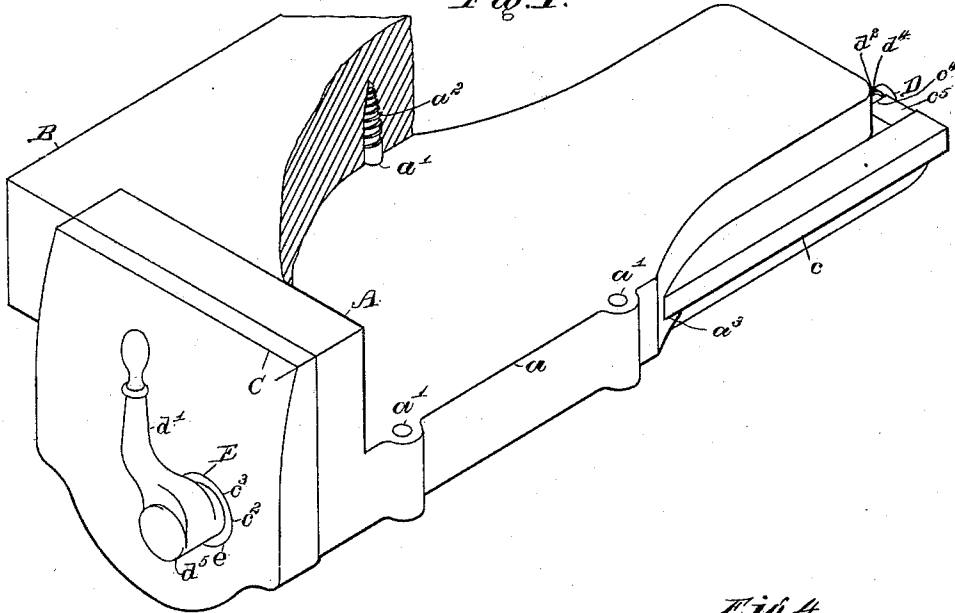


Fig. 2.

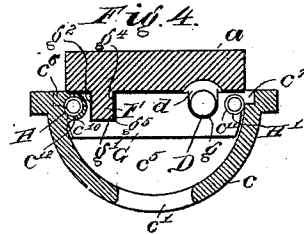
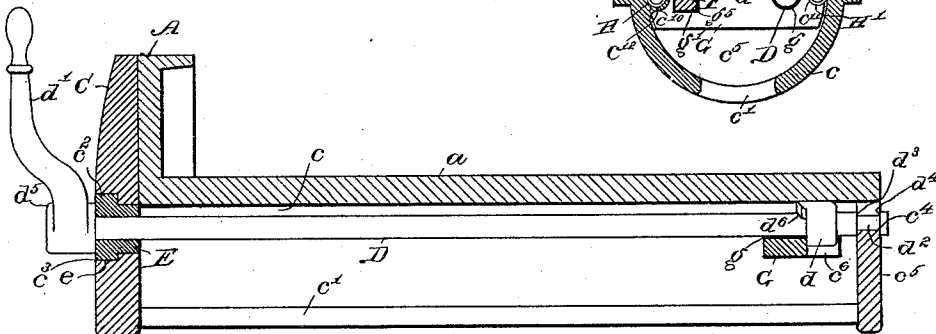
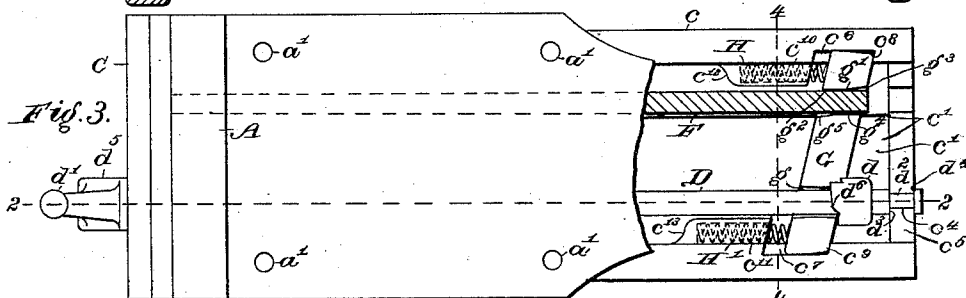


Fig. 3.



WITNESSES—

Heikley Hyde,
Myrtle L. Beale.

INVENTOR—

Albert White,
By Albert M. Moore,
His Attorney.

UNITED STATES PATENT OFFICE.

ALBERT WHITE, OF LOWELL, MASSACHUSETTS.

WISE.

SPECIFICATION forming part of Letters Patent No. 469,493, dated February 23, 1892.

Application filed December 9, 1891. Serial No. 414,476. (No model.)

To all whom it may concern:

Be it known that I, ALBERT WHITE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Vises, of which the following is a specification.

My invention relates to vises of that class in which a movable jaw may be quickly adjusted by hand toward or from a fixed jaw, according to the thickness of the work to be grasped, and then secured and caused to move slightly toward said fixed jaw by the turning of a lever.

In the accompanying drawings, Figure 1 is an isometric perspective view of part of a work-bench and a vise embodying my improvements secured thereto; Fig. 2, a vertical longitudinal section of said vise on the line 2 2 in Fig. 3; Fig. 3, a plan of said vise, the rear portion of the attaching-plate being broken away to show the longitudinal rib secured to said plate, the cramp-bar, cam, cam-rod, and springs; Fig. 4, a transverse vertical section on the line 4 4 in Fig. 3 through the attaching-plate, slide, rib, cam-rod, and springs, showing the cramp-bar in front elevation.

A is the fixed jaw, provided with an attaching-plate *a*, having holes *a'*, through which screws or bolts *a²* are driven up into the bench B to secure said fixed jaw to said bench in a well-known manner. The attaching-plate *a* is also provided with grooved flanges or ways *a³* to receive the side edges of the slide *c* of the jaw C in the usual manner. The general shape of the slide (see Fig. 4) is that of a trough having in the bottom thereof a slot *c'*, extending nearly from end to end thereof, for the escape of chips and dust. In the sliding jaw C is journaled the cam-rod D, which carries a spiral cam *d*, rigidly secured thereto, as by being cast thereon, the rod D being preferably of steel or wrought-iron. The lever or handle *d'* may also be cast on the cam-rod or otherwise rigidly secured thereto in any well-known manner. When the cam *d* and lever *d'* are cast on the rod D, it is necessary that the opening *c²* in the front or sliding jaw C should be large enough to allow said cam to be passed through said front jaw. The front journal of the cam-rod turns in a journal-box

E, which fills the opening *c²* and which is first cast or otherwise formed to have a running fit on said cam-rod and is placed on said rod before the handle *d* and cam *d'* are cast thereon, said journal-box E being provided at its front end with an external annular flange *e*, which fills a corresponding enlargement *c³* of the front end of the opening *c²* and prevents said journal-box from being pushed through said opening into the trough or slide *c*. The cam-rod near its rear end is reduced or annularly grooved to form the rear journal *d²*, which rests in a half-round groove or half journal-box *c⁴* in the vertical rear end *c⁵* of the slide, the shoulders or sides *d³* *d⁴* of the groove *d²* resting against the front and back of the end *c⁵* and preventing any longitudinal movement of said cam-rod and holding the hub *d⁵* of the lever *d* against the front end of the journal-box E, and thereby retaining said journal-box E in the opening *c²*.

The construction above described is applicable to many vises of the class to which the improvement herein described belongs, but which employ other means for gripping the work.

The attaching-plate *a* is provided with a longitudinal rib F, rigidly secured thereto parallel with the ways *a³*. The slide *c* is provided with flat-bottomed recesses *c⁶* *c⁷*, in which rests the cramp-bar G about flush with the top of said slide. The cramp-bar G is provided with a notch *g*, in which the cam-rod D turns freely out of contact with said bar G in all positions of the latter, and with another notch *g'*, which admits the rib F. The cramp-bar G when not pressed forward by the cam *d* is held against the rear walls *c⁸* *c⁹* of the recesses *c⁶* *c⁷* by one or more springs, those shown being spiral wire springs H H', arranged in holes *c¹⁰* *c¹¹*, formed in the rear ends of brackets *c¹²* *c¹³* or inward projections cast on the slide *c*, said springs being compressed between the bottoms or closed ends of said holes *c¹⁰* *c¹¹* and the front face of said cramp-bar G. Each side of the notch *g'* is in two planes, the side farthest from the cam having a front portion *g²* and the side nearest the cam having a rear portion *g⁴*, parallel with the rib F and out of contact therewith when said cramp-bar is not pressed forward by the cam *d* to al-

low the jaw C and slide c at such times to be moved freely by hand to vary the distance between the jaws. The remaining portions $g^3 g^5$ of the sides of said notch g' are parallel with each other and are forced into contact with the opposite sides of the rib F when the end of the cramp-bar nearest the cam d is moved forward, while the other end of said cramp-bar is not advanced. The cam d is arranged back of the cramp-bar and in contact therewith; but the cam-surface d^6 or scroll-surface of said cam does not press against said cramp-bar when the handle or lever is in a certain position, preferably a vertical position; but when said lever is turned down to the right in Fig. 1, toward the observer in Fig. 2, or down in Fig. 3 said cam-surface d^6 first crowds the adjacent end of the cramp-bar forward or toward the jaws, the other end of said cramp-bar being held back by the spring H, which, being farther from the cam, has a greater leverage on the cramp-bar than the spring H' and overcomes the resistance of the last-named spring until, by the turning of said cramp-bar, the surfaces $g^3 g^5$ strike the opposite sides of the rib F and prevent the further turning or movement of said cramp-bar and cause said cramp-bar to grip the rib with such force that the further turning of said lever and cam causes said cam to move backward, carrying the slide with it and causing the jaw C to approach the fixed jaw A. A reverse movement of the lever relieves the pressure of the cam upon the cramp-bar, which is pushed back into the rear ends of the recesses and out of contact with the rib F, leaving the movable jaw free to be moved by hand.

The spring H farthest from the cam, if made stout enough, will disengage the cramp-bar from the rib and return said bar to place; but for greater security I prefer to use a spring at each end of said bar.

I claim as my invention—

1. The combination of a fixed jaw provided with a longitudinal rib, a sliding jaw, a bar supported on said sliding jaw and having a notch to receive said rib, and a cam also supported on said sliding jaw and adapted and arranged to advance one end of said bar to

cause the sides of said notch to engage said rib, as and for the purpose specified.

2. The combination of a fixed jaw provided with a longitudinal rib, a sliding jaw, a bar supported on said sliding jaw and having a notch to receive said rib, a cam also supported on said sliding jaw and adapted and arranged to advance one end of said bar to cause the sides of said notch to engage said rib, and one or more springs to restore said bar to position when released by said cam, as and for the purpose specified.

3. The combination of a fixed jaw provided with a longitudinal rib, a sliding jaw provided with recesses, a bar arranged in said recesses and having a notch to receive said rib, and a cam journaled on said sliding jaw and adapted to advance one end of said bar to cause the sides of said notch to engage said rib, as and for the purpose specified.

4. The combination of a fixed jaw provided with a longitudinal rib, a sliding jaw provided with recesses, a bar arranged in said recesses and movable therein and having a notch to receive said rib, a cam journaled on said sliding jaw and adapted to advance one end of said bar to cause the sides of said notch to engage said rib, and one or more springs to restore said bar to position when released by said cam, as and for the purpose specified.

5. The combination of the sliding jaw having an opening and having a slide, the cam-rod, a cam secured on said rod, a handle or lever also secured on said rod, and a journal-box loose on said cam-rod and filling said opening and retained therein by said handle and by a shoulder with which said cam-rod is provided, which shoulder extends back of said slide and prevents a forward movement of said cam-rod and handle, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 7th day of December, A. D. 1891.

ALBERT WHITE.

Witnesses:

ALBERT M. MOORE,
MYRTIE C. BEALS.