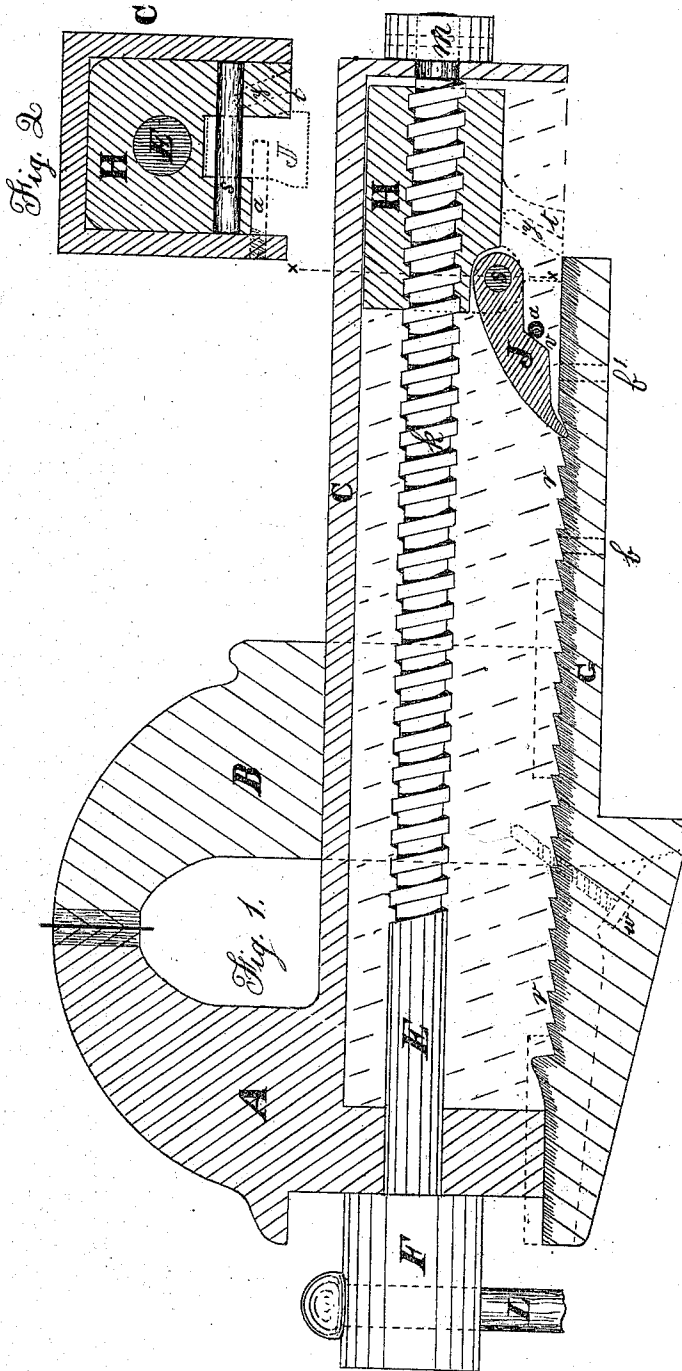


Crawley & Baylies,

Vise.

No. 102,919.

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EDWIN CRAWLEY AND THOMAS L. BAYLIES, OF RICHMOND, INDIANA.

Letters Patent No. 102,919, dated May 10, 1870.

IMPROVEMENT IN VISES.

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

We, EDWIN CRAWLEY and THOMAS L. BAYLIES, of Richmond, county of Wayne and State of Indiana, have invented certain Improvements in Vises, of which the following is a specification.

Our invention relates to improvements in that class of vises in which the movable jaw is adjusted directly by the hand of the operator without the intervention of screws or other devices, and in which a ratchet and pawl are used to retain the nut in proper position while the required pressure is produced by the screw.

The first part of our invention relates to a combination of devices whereby the pawl is caused to be engaged with and released from the teeth of the ratchet by the movements of the operating lever.

The second part of our invention relates to a combination of devices whereby both the adjustment of the jaw and the gripping of an article are effected by the action of the screw.

Figure 1 is a longitudinal vertical section through the middle of the vise, and shows the positions the parts assume when the jaws are gripping an article between them.

Figure 2 is a transverse vertical section of the box-slide, shaft, and nut, taken through the dotted line *x x*.

The same letters in the different figures refer to corresponding parts.

A is the movable jaw to which is secured the box-slide C.

B is the stationary jaw secured to the bed-plate G.

Said jaw is provided with a rectangular opening through which box-slide C passes, by which means the jaws are maintained in proper position with reference to each other.

E is a shaft which extends through jaw A and box-slide C.

That portion of said shaft which is inclosed in the box-slide is provided with threads K, having the same pitch as those ordinarily used in vises.

The end of said shaft which projects beyond the outer face of jaw A is provided with a boss, F, through an opening in which a lever, L, passes for the purpose of turning said shaft.

On that portion of the shaft E which extends beyond the rear end of the box-slide is secured a nut or washer, m, which, in conjunction with the shoulder of boss F, prevents any endwise motion of shaft E, independently of the movable jaw.

H is a nut which embraces shaft E, and is provided with threads which engage with those on said shaft. Said nut fits snugly into the interior of box-slide C, but moves freely endwise therein.

J is a pawl, which is hinged to the front end of nut H at a point beneath shaft E, by a pin, s.

At certain times, as will be hereinafter explained,

said pawl engages with the ratchet-teeth *r* formed in the upper face of bed-plate E.

A portion of the under side of pawl J is formed into an inclined plane *v*.

A is a pin which passes through the side of box-slide C, and extends into the interior of the same sufficiently to raise pawl J from the ratchet-teeth, when the inclined plane on the said pawl, is brought into contact with said pin.

W is a screw or pin, (shown in dotted lines,) which extend through bed-plate G, and is for the purpose of retaining nut H in a fixed position, when the vise is to be used as an ordinary vise, as will be hereinafter explained.

The operation of the mechanism is as follows:

To release pawl J from the ratchet *r*, shaft E is turned to the left by means of lever L, which causes nut H to move endwise on shaft E until the inclined plane *v* on the pawl comes in contact with pin *a*, when the continued turning of the shaft raises, by the action of the said inclined plane, the pawl from the ratchet. Jaw A is then free to be adjusted with reference to the article to be held in the vise.

To secure an article in the same, jaw A is brought against said article, and the lever L is then turned to the right, which movement causes nut H to move endwise on shaft E until the inclined plane *v* on pawl J is free from pin *a*, when said pawl drops and engages with the ratchet *r* and prevents any further movement of the said nut, when the continued turning of the lever L to the right causes the jaws to compress the article between them with a force due to the action of the threads K with those in nut H.

The arrangement of the parts herein shown and described may be changed, so that the vise may be operated as an ordinary vise, in which both the adjustment of the jaw and the gripping of an article are effected by the action of the screw-shaft E.

To make the change above referred to, the lever L is turned to the left until pawl J is disengaged from the ratchet *r*, as hereinbefore explained.

Jaw A is then withdrawn until the hole *y*, formed in lug *t*, (shown in dotted lines,) is brought directly over pin W, and the nut H being retained in this position by means of said pin W, the vise may be operated in all respects as an ordinary screw-vise.

Another change in the action of the vise may be effected by placing pin W in either of the holes *b b'*, (shown in dotted lines,) formed in bed-plate G, the jaw A having been first withdrawn sufficiently to permit said pin to enter behind nut H.

By this means the jaw A is adjusted by the action of the screw-shaft E, for a certain distance, which distance is limited by the position of pin W, and for the remainder of the distance through which said jaw is de-

signed to move, the adjustment is effected by the hand of operator, as hereinbefore explained.

Having thus described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. The combination of nut H, pawl J, pin *a*, ratchet *r*, and screw-shaft E, when arranged as described, so that a movement of the nut, by means of the screw, in one direction releases the pawl from the ratchet, and a movement thereof in the opposite direction engages said pawl and ratchet, substantially as described, and for the purpose set forth.

2. The combination of the movable nut H, screw or pin W, screw E, and jaws A and B, substantially as described, and for the purpose set forth.

In testimony whereof, we have signed our names to this specification before two subscribing witnesses.

EDWIN CRAWLEY.

THOMAS L. BAYLIES.

Witnesses:

FREDK. KOONES,

L. W. CONNOR.