(No Model.)

D. C. & J. SABOURIN.

VISE.

No. 488,368. Patented Dec. 20, 1892.

Fig. 1.

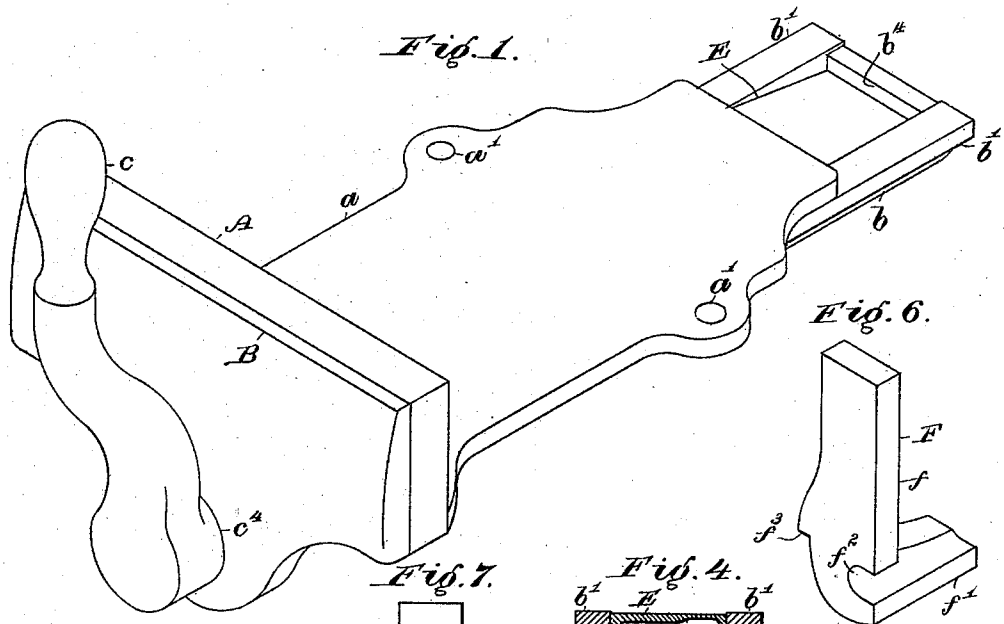

Fig. 6.

Fig. 7.

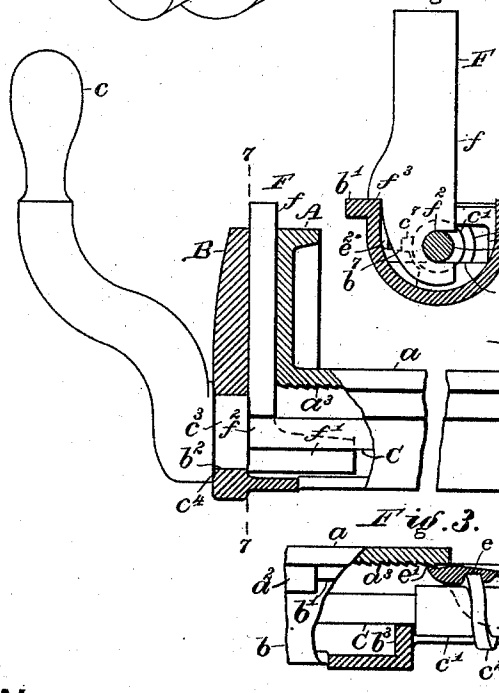

Fig. 4.

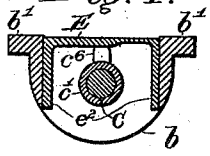

Fig. 5.

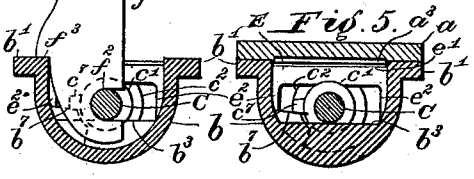

Fig. 2.

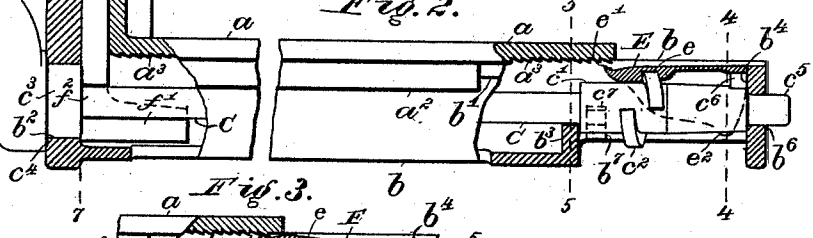

Fig. 3.

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DAVID C. SABOURIN AND JOSEPH SABOURIN, OF LOWELL, MASSACHUSETTS.

VISE.

SPECIFICATION forming part of Letters Patent No. 488,368, dated December 20, 1892.

Application filed July 28, 1892. Serial No. 441,495. (No model.)

To all whom it may concern:

Be it known that we, DAVID C. SABOURIN and JOSEPH SABOURIN, both citizens 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.

Our invention relates to that class of vises known as "sudden grip" or "quick grip" vises, in which the movable jaw may first be quickly moved by hand into contact with work placed against a fixed jaw and then caused to move slightly in the same direction to clamp the work securely between said jaws, and consists in the combinations and devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an isometric view of a vise provided with our improvement; Fig. 2, a side elevation of the same, partly in longitudinal, central, vertical section, showing the dog out of engagement with the rack; Fig. 3, a longitudinal, central, vertical section of the rear portion of the vise, showing the screw-rod in side elevation and the dog in engagement with the rack; Fig. 4, a transverse section on the line 4 4 in Fig. 2; Fig. 5, a transverse vertical section on the line 5 5 in Fig. 2; Fig. 6, an isometric perspective view of the hook; Fig. 7, a front elevation of said hook and a section of the slide on the line 7 7 in Fig. 2.

The drawings represent a vise adapted for the use of wood-workers, but the improvement herein described may be applied to a machinist's vise.

A is the fixed jaw, rigidly secured to the attaching-plate *a*, the latter being provided with bolt-holes *a'* to enable said plate to be attached to a table or bench. The attaching-plate *a* is also provided on its under side with L-shaped ways a^2 to support the slide *b* in a well-known manner and as shown in a previous Patent No. 464,523, granted to us December 8, 1891.

The movable jaw B is cast in one piece or otherwise rigidly secured to the slide *b*, said slide being in the shape of a trough or concave on its upper surface and provided at each side at the top of the same with parallel longitudinal flanges *b'* which slide in the L-shaped ways a^2, substantially as shown and described in said Patent No. 464,523.

The screw-rod C is preferably of steel or wrought iron and on said screw-rod may be cast the handle or lever *c* and the annular boss or enlargement *c'* together with the screw c^2. The handle or lever *c* has a cylindrical hub c^3, and turns in a round hole b^2 in the movable jaw B (said hole b^2 being large enough to allow the screw c^2 to be passed through said jaw B) and also has a cylindrical enlargement c^4, concentric with said hub, which rests against the front face of said movable jaw B when the handle and screw-rod are in their proper position. An upward projection or abutment b^3 is cast or otherwise secured in the bottom of the trough of the slide, below the screw-rod, at a distance from the rear end wall b^4 of said slide just sufficient to admit the boss *c'* between said abutment b^3 and wall b^4, and the part c^5 of said screw-rod C back of said boss is sufficiently longer than the hub c^3 to allow said rear end of said screw-rod to be introduced into the hole b^6 which forms the rear journal-box or bearing of said screw-rod before said hub enters the hole b^2 in the front jaw B. The hole b^2 is large enough to allow the rear end of the screw-rod to enter the hole b^6 while the boss *c'* rests on the top of the abutment and the screw-rod is slightly elastic and, after being pushed backward until the hub c^3 strikes the front face of the front or movable jaw B, the front or lever end of said screw-rod may be bent downward sufficiently to allow said hub c^3 to enter its hole b^2. When the enlargement c^4 of said hub is brought against the movable jaw by pushing the screw-rod backward, the boss has passed the abutment and said screw-rod straightens out and throws said boss down behind said abutment. When the boss is between the abutment and the rear wall b^4, no longitudinal movement of the screw-rod is possible and said screw-rod can be removed from its place in the slide only by springing the boss up above said abutment.

The boss *c'* is provided with the screw-thread c^2 which loosely engages a notch *e* in the under side of a dog E and draws said dog forward when the handle or lever *c* is turned

in one direction, said dog being adapted to rock on said screw-thread. The dog E engages a rack a^3, cast or otherwise secured on the under side of the attaching plate a, but is held out of such engagement, when the lever c is in a certain position, by a radial projection or lifter c^6 which, rising under the rear end of said dog, raises said rear end and depresses the front end or tooth e' of said dog, the boss c' being tapered backward from the screw c^2 to the rear end of said boss to allow the rear end of said dog to fall by its own weight when said lever is in any other position. The lever and the lifter are represented as having their axes in the same plane, which would require that said lever be in a nearly vertical plane when the dog is held out of engagement by the lifter, but, obviously, said lever and lifter may be set on the screw-rod at any angular distance from each other.

The dog E is provided with down-hanging side flanges or guides e^2 which prevent said dog from being tipped laterally by the rotation of the screw and also add to the weight of the rear portion of said dog and causes said rear portion to drop more quickly when the lifter is drawn out from under it. The boss c' is also provided with a radial projection c^7 which, when the lifter is in a vertical position, rests upon the upper side of a stop b^7, cast or otherwise secured in the concavity of the slide, and which, when the lever is sufficiently turned, strikes against the other or under side of said stop and prevents a complete revolution of the screw-rod. When the radial projection c^7 is against the top of the stop b^7, or in other words, when the lever is turned in that direction as far as possible, the dog will surely be in engagement with the rack a^3.

It will be seen that the jaw B may be made to approach the fixed jaw whatever be the position of the lever c, but cannot be moved farther from said fixed jaw, except when said lever is in the position required to bring the lifter c^6 to the top of the screw-rod.

Vises of the class herein represented are most commonly secured to a bench with the tops of their jaws flush with the top of said bench and it is a common practice to secure work on said bench between pins inserted in holes in said bench and a block of wood arranged between the jaws of a vise, the proper distance between the pins and said block being secured by wedges introduced between said block and the fixed jaw of the vise, the block projecting above the top of the bench. The hook F, shown in Figs. 2, 6 and 7, is preferably of metal, as cast-iron, and consists of a vertical part f which rests against the inner face of the movable jaw B and projects above the top of said jaw, and a backwardly-extending part f' which reaches under the screw-rod C, to prevent the lower portion of said hook being thrown backward when the upper part of said hook is pressed against the work, the shank or vertical part f of said hook being suitably notched, at f^2, to admit said screw-rod. The shank or vertical part f of the hook F is provided with a laterally projecting shoulder f^3 which rests upon the top of the slide b, to prevent said hook from being moved laterally by the friction of the screw-rod thereon, when the lever is thrown into the position to disengage the dog E. In practice, the hook can be instantly placed in the position shown in the drawings and forced against the work by sliding the movable jaw toward the fixed jaw and tightened against the work by turning the lever in the manner required to clamp the jaws upon the work, the work being held at the back by pins, such as are above referred to. The use of the hook F saves time and labor heretofore required in introducing wedges between the clamping-block and the fixed jaw.

We claim as our invention:—

1. The combination of a fixed jaw, provided with a rack, a movable jaw, a screw, journaled in said movable jaw, a rocking dog, supported directly by said screw and engaged directly by said screw and normally in engagement with said rack, and a lifter, to rock said dog and disengage the same from said rack, as and for the purpose specified.

2. The combination of a fixed jaw, provided with a rack, a movable jaw, a screw, journaled therein, a dog, engaged directly by said screw and adapted to be rocked in one direction on said screw, by its own weight, into engagement with said rack, and a lifter, to rock said dog in the other direction, out of engagement with said rack, as and for the purpose specified.

3. The combination of a fixed jaw, provided with a rack, a movable jaw, a screw, journaled therein, said movable jaw having a slide, provided with a concavity in its upper surface, a dog, arranged in said concavity, and having a notch, engaged by the thread of said screw, and having lateral down-hanging guides, to fill said concavity laterally and prevent the lateral tipping of said dog, said dog being adapted to be rocked in one direction into engagement with said rack, and a lifter, to rock said dog in the other direction, out of such engagement, as and for the purpose specified.

4. The combination of the jaw, provided with a hole, the slide, secured to said jaw and having an abutment and a rear wall, provided with a hole, and a screw-rod, having its journals in the holes in said jaw and rear wall and having a boss or enlargement, arranged between said abutment and said rear wall, and extending from said abutment to said rear wall to prevent a longitudinal movement of said screw-rod, as and for the purpose specified.

5. The combination of a movable jaw, provided with a hole, the slide, having an abutment or upward projection, and a rear wall, provided with a hole, a screw-rod, having a hub, arranged to turn in the hole in said jaw and having a boss or enlargement of a sufficient length to fill the space between said

abutment and rear wall, and having a screw, adapted to be passed through the hole in said front jaw, the rear end of said screw-rod extending beyond said enlargement, to form a journal for said rod and to enter the hole in said rear wall, as and for the purpose specified.

6. The combination of a movable jaw, provided with a hole, the slide, having an abutment or upward projection, and a rear wall, provided with a hole, and a screw-rod, having a hub, arranged to turn in the hole in said jaw and having a boss or enlargement of a sufficient length to fill the space between said abutment and rear wall, and having a screw, adapted to be passed through the hole in said front jaw, the rear end of said screw-rod extending beyond said enlargement for a distance greater than the length of said hub, said screw-rod being adapted to be bent to enable said enlargement to be passed over said abutment and to straighten out, to throw said enlargement between said abutment and said rear wall, as and for the purpose specified.

7. The hook, provided with a vertical part, adapted to rest against the inner face of the movable jaw of a vise and to project above the same, and having a horizontal part, adapted to extend under the screw-rod of said vise, and said hook being adapted to be moved with said movable jaw toward the fixed jaw of said vise, as and for the purpose specified.

8. The combination of the fixed jaw, the movable jaw, the screw-rod, journaled thereon, and the hook, provided with a vertical part, adapted to rest against the inner face of said movable jaw, and with a horizontal part, adapted to extend under said screw-rod, said hook being adapted to be moved with said movable jaw toward said fixed jaw, as and for the purpose specified.

In witness whereof we have signed this specification, in the presence of two attesting witnesses, this 21st day of July, A. D. 1892.

DAVID C. SABOURIN.
JOSEPH SABOURIN.

Witnesses:
ALBERT M. MOORE,
ALVIN W. STOCKWELL.