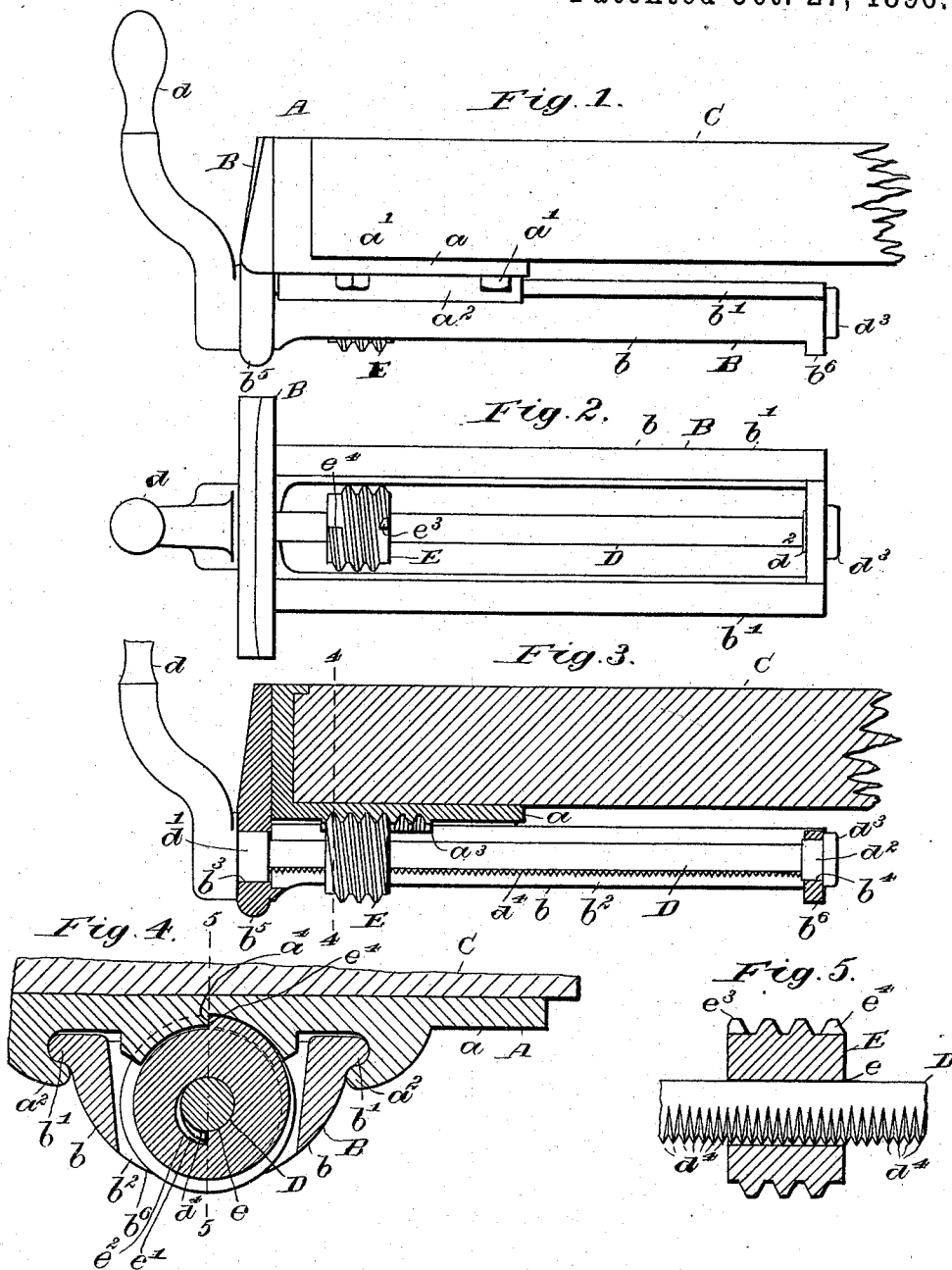


(No Model.)

D. C. & J. SABOURIN.
VISE.

No. 570,340.

Patented Oct. 27, 1896.



Witnesses.
Hukley Hyde.
Agnes Bailey

Inventors.
David C. Sabourin &
Joseph Sabourin,
By Albert M. Moore,
Their Attorney.

UNITED STATES PATENT OFFICE.

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

WISE.

SPECIFICATION forming part of Letters Patent No. 570,340, dated October 27, 1896.

Application filed July 6, 1896. Serial No. 598,090. (No model.)

To all whom it may concern:

Be it known that we, DAVID C. SABOURIN and JOSEPH SABOURIN, 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 vises of the kind known as "sudden-grip" or "quick-grip" vises, in which, with the handle in a certain position, the sliding jaw may be freely moved toward or away from the fixed jaw to get a sufficient opening to easily receive the work, and then by turning said handle the movable jaw is forced to approach the fixed jaw to clamp the work.

Said invention consists in the devices and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a vise containing our improvement secured to a bench; Fig. 2, a plan of the lower or sliding jaw of said vise and the parts supported thereby; Fig. 3, a vertical central longitudinal section of said vise attached to a bench, also in section in the same plane; Fig. 4, an enlarged vertical central transverse section on the line 4 4 in Fig. 3; Fig. 5, a vertical central longitudinal section of the screw on the line 5 5 in Fig. 4, showing in left side elevation a part of the rod or spindle passing through said screw.

A is the vertical fixed jaw, having an attaching-plate *a* integral therewith and adapted to be secured to the under side of a bench or table C by bolts or screws *a'*, and having also L-shaped ways *a²* to receive the side edges or flanges *b'* of the slide *b* of the movable jaw B, the under side of the attaching-plate *a* having cast or otherwise formed thereon or therein a segmental nut *a³*, all these parts being substantially as shown and described in United States Letters Patent No. 464,523, granted December 8, 1891, to us, except as hereinafter stated.

The trough-shaped slide *b* of the movable jaw B has a longitudinal slot *b²*, which extends nearly from end to end thereof to prevent dust from accumulating therein, and in holes *b³ b⁴* in the ends *b⁵ b⁶* or front and rear walls of said trough turns a spindle or rod D,

having a handle *d* cast thereon, said handle being provided with an enlarged hub *d'*, which loosely fills the hole *b³* and forms the front journal of said rod, substantially as shown in said patent, the other journal of said rod D consisting of a sleeve *d²*, which surrounds said rod within the hole *b⁴* and has a collar or flange *d³* back of said rear wall *b⁶* to prevent said rod from slipping forward out of place, said sleeve *d²* being secured on said rod in any convenient manner, but preferably by heating said sleeve and shrinking it onto said rod, there being in use very little strain on said sleeve.

The rod D is provided with a notched rib or with projections *d⁴*, which are preferably of the cam form shown in Figs. 4 and 5, said projections being arranged in a longitudinal row on said rod and each projection *d⁴* being preferably at right angles to the axis of said rod. The screw E engages the nut *a³* and has an axial hole *e*, through which said rod D may in one position slide freely, said hole *e* being in cross-section of the same shape as a cross-section of said rod through one of the projections *d⁴*. The curved wall of the enlarged part *e'* of the hole *e* has grooves *e²* at the same intervals from each other as the intervals between the projections *d⁴* and of a shape to receive and fit said projections, so that when the rod D is turned in one direction by the handle *d* some of said projections *d⁴* engage said grooves *e²* and prevent said rod D from sliding in said screw and rotate said screw and draw the movable jaw B toward the fixed jaw A to clamp the work.

When the rod D is turned in the reverse direction, the projections *d⁴* run forward out of the grooves *e²*, and the long ends of said projections strike the straight part of the enlargement *e'* of the hole *e* and reverse the motion of the screw.

The travel of the screw E in the nut *a³* is limited only by the length of said nut, and the further rotation of said screw is prevented at the rear end of the nut by the end *e³* of the thread of the screw striking the unthreaded portion of the under side of the nut and in front by stopping the thread of the nut in the middle of the same, as shown at *a⁴* in Fig. 4.

The vise as above described is easily constructed, the parts being preferably of cast-

iron, with the exception of the rod or spindle D, which should be of wrought iron or steel, and the construction does not require the labor of the machinist, except in making said rod and, if desired, in planing or grinding the inner faces of the jaws.

It will be understood that the nut a^3 is segmental merely for cheapness and convenience in casting, because, obviously, a complete nut, entirely surrounding the screw E, would act in precisely the same manner as said segmental nut; also that the sleeve d^2 is rather for convenience than necessity, as the jaw B may be moved by applying the hand directly to said jaw B.

The rod D, having projections d^1 and the hollow screw E, constructed substantially as above described, may be used with the jaws of any clamping device in which it is desirable to adjust rapidly the distance apart of the jaws and to produce the clamping effect by a comparatively slight movement of the screw in the nut.

We claim as our invention—

1. The combination of a jaw having a nut fixed thereon, another jaw movable with respect to said first-named jaw, a rod rotary in said movable jaw and having a row of projections, and an externally-threaded screw having a longitudinal opening which surrounds said rod and in which said rod, in one position relatively to said screw, slides freely in

either direction longitudinally, said opening having grooves, to engage said projections, when said rod is turned slightly in said screw from said position, to prevent a longitudinal movement of said screw and rod with reference to each other.

2. The combination of a jaw having a nut fixed thereon, another jaw movable with respect to said first-named jaw, a rod rotary in said movable jaw and having a row of projections, and an externally-threaded screw having a longitudinal opening which surrounds said rod and in which said rod, in one position relatively to said screw, slides freely in either direction longitudinally, said opening having grooves, to engage said projections, when said rod is turned slightly in said screw from said position, to prevent a longitudinal movement of said screw and rod with reference to each other, said opening having also a stop-surface, in contact with said projections, when the latter are out of said grooves to enable the motion of said screw to be reversed.

In witness whereof we have signed this specification, in the presence of two attesting witnesses, this 25th day of June, 1896.

DAVID C. SABOURIN.
JOSEPH SABOURIN.

Witnesses:

ALBERT M. MOORE,
WILLIAM KENEFICK.