(No Model.) 2 Sheets—Sheet 1.

L. N. BOREM.

COMBINATION VISE.

No. 494,802. Patented Apr. 4, 1893.

Fig. 1.

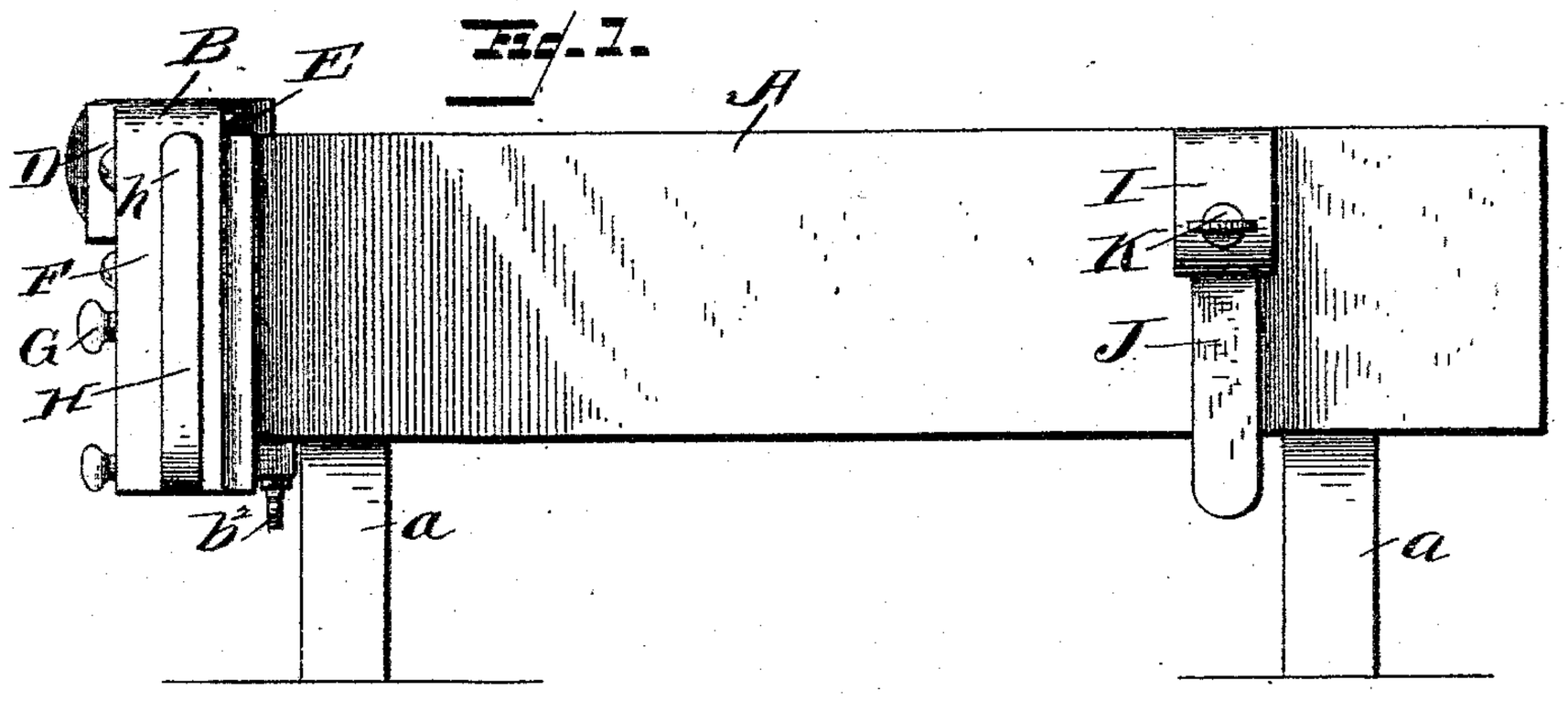
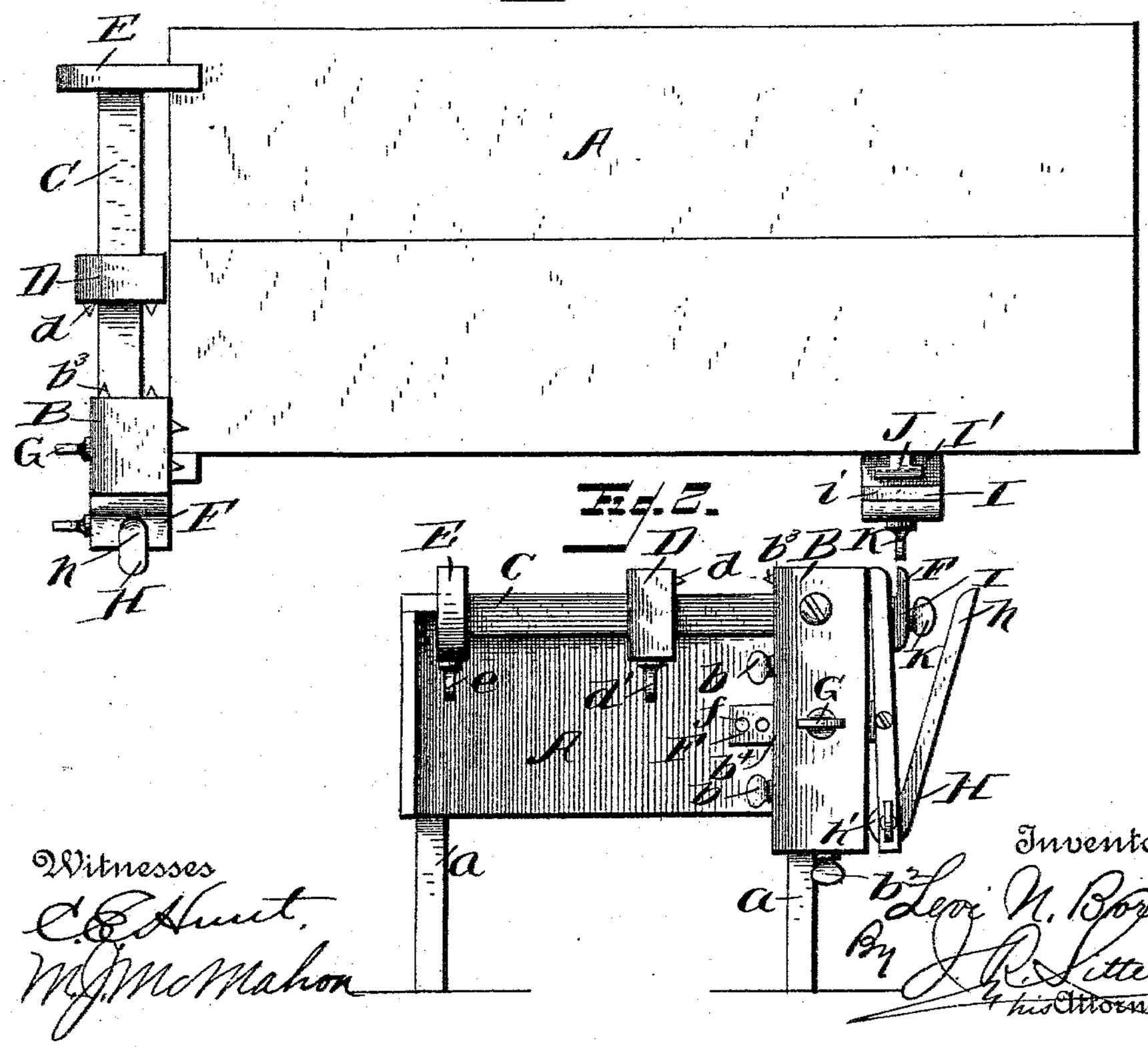


Fig. 3.



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W. J. McMahon

Inventor
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his Attorney

(No Model.) 2 Sheets—Sheet 2.

L. N. BOREM.

COMBINATION VISE.

No. 494,802. Patented Apr. 4. 1893.

Fig. 4.

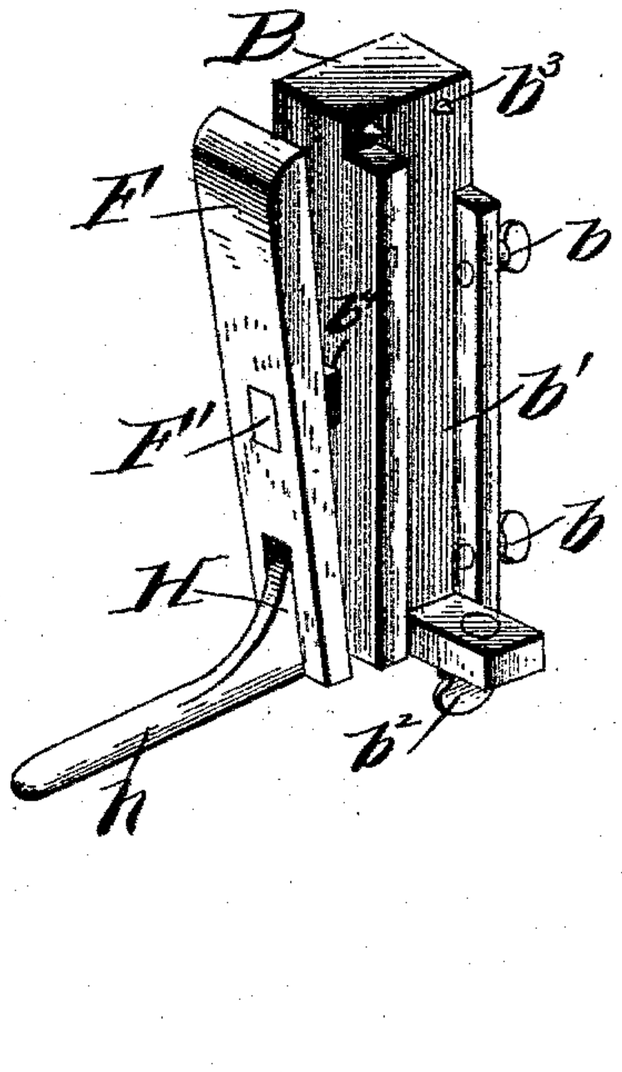


Fig. 5.

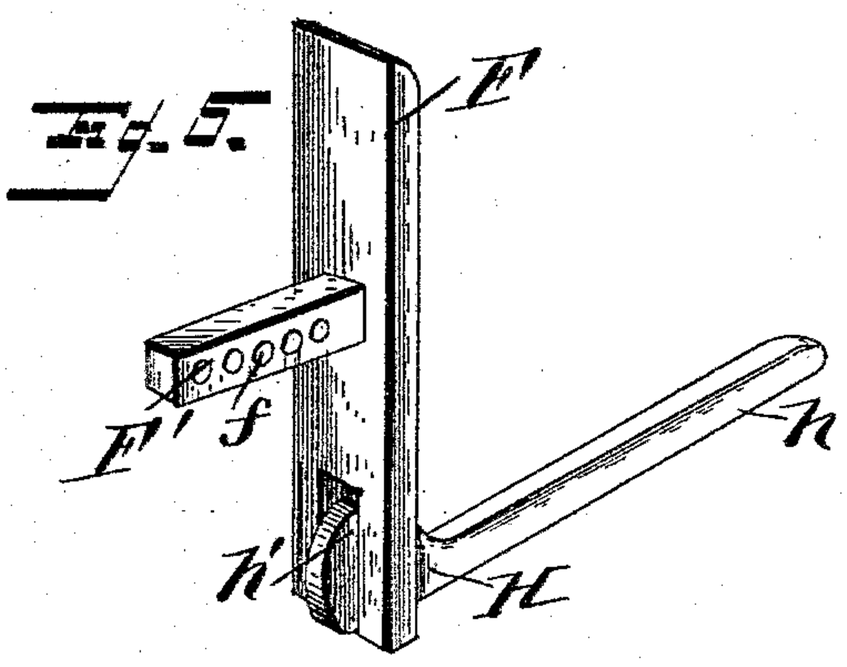


Fig. 6.

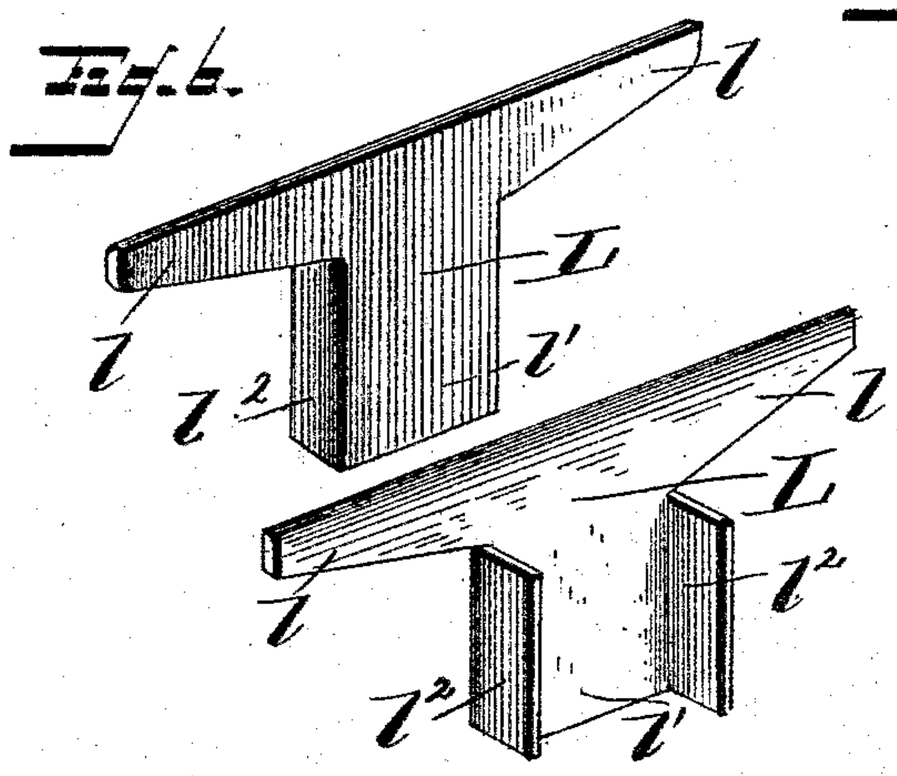
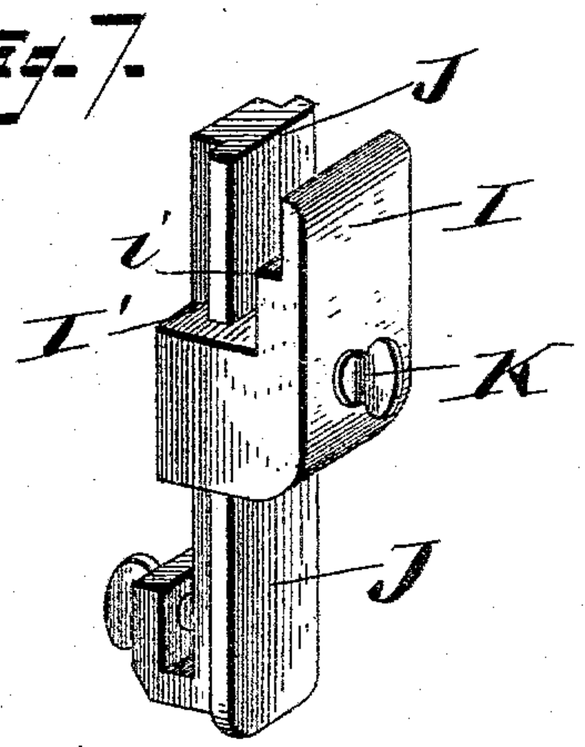


Fig. 7.



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UNITED STATES PATENT OFFICE.

LEVI N. BOREM, OF ENGLEWOOD, ILLINOIS.

COMBINATION-VISE.

SPECIFICATION forming part of Letters Patent No. 494,802, dated April 4, 1893.

Application filed August 24, 1892. Serial No. 443,989. (No model.)

To all whom it may concern:

Be it known that I, LEVI N. BOREM, a citizen of the United States, residing at Englewood, in the county of Cook and State of Illinois, have invented a new and useful Combination-Vise, of which the following is a specification.

My invention relates to new and useful improvements in vises or clamps, and is especially adapted for use in connection with carpenters' benches, or may be attached to such places as are most convenient, whereby the same may be best used for the purposes hereinafter specified.

The first feature of the invention consists essentially in combining with two clamping jaws, adapted to receive and hold a board for edge planing, or a saw for sharpening, of an adjustable sliding clamping head or bench dog provided with teeth adapted to bind between it and the head of the vise clamp, a board for surface planing.

The second feature of the invention consists in mounting upon the bench a vertically adjustable stop block upon which one end of a board secured in the vise for edge planing is received and held in position.

The third feature of the invention resides in the peculiar construction of the vise clamp, whereby adjustability of the fulcrum for the movable clamping jaw is attained to accommodate different widths of board.

Other minor details of invention reside in the peculiar construction, arrangement and combination of parts, all as will be hereinafter more fully described, and afterward pointed out in the claims.

Referring to the drawings, wherein like symbols of reference refer to like parts wherever they occur: Figure 1, is a side elevation of my improved vise and stop block secured on a bench for convenience of illustration. Fig. 2, is an end elevation of the same looking at that end to which is affixed device. Fig. 3, is a top plan view. Fig. 4, is a perspective view of the vise detached showing the clamping jaws in a distended position. Fig. 5, is a perspective view of the sliding jaw with its adjustable fulcrum bar. Fig. 6, is a perspective view of a pair of detachable face plates adapted to be secured on the ends of the respective clamping jaws when it is desired to clamp a saw for sharpening. Fig. 7, is a perspective view of the stop block and its guide way detached.

In the drawings A, represents a bench of an ordinary or approved construction provided with the usual legs *a*. This I have shown for convenience of illustration, as it is obvious that the detachable vise may be secured to a convenient place provided with a projecting ledge, as is most desirable to the user.

B, indicates a fixed head of the vise provided with binding screws or thumb nuts *b*, on its inner face, which are adapted to impinge against the ends of the side board of the bench. The inner end face of this head I preferably groove, as at *b'* and place in the bottom thereof another binding screw or thumb nut b^2. For this purpose I preferably extend the bottom of the slot outwardly to form a lug or bearing for the thumb nut.

Projecting laterally from the head is a guide rail C, upon which is slidingly mounted a locking head D, from the inner face of which project teeth or taperings lugs *d*, which, act in conjunction with similarly projecting teeth b^3, on the inner face of the head B, to clamp and retain therein a board for the purpose of surface planing. To rigidly retain the sliding block D, on the rail C, and clamp the board tightly between it and the head B, I provide an impinging binding screw *d'* in the lower face thereof which, impinging against the guide rail C, retains the sliding block D, in its adjusted position.

Secured to the outer end of the guide rail C, is a clamp E, through which the guide rail passes and is secured. The inner end of this clamp is split or bifurcated to afford reception for the projecting ledge of the bench, and one end of the bifurcated portion forms a bearing for a binding nut or thumb screw *e*, which passes therethrough, and impinges against the ledge of the table.

F, indicates the movable jaw of the clamp provided at about its center with a fulcrum bar F', which is pivoted therein, the free end of which is adapted to pass through an opening b^4 in the vise head B. I form adjusting holes *f*, in the fulcrum bar whereby a pivot pin G, passing through the opening b^4 in the head may be passed through any one of these adjusting holes, thereby enabling the mov-

able clamp to be adjusted laterally to accommodate different widths of material.

H, indicates a locking cam mounted in the lower extremity of the movable clamping jaw, said cam being provided with an actuating handle *h*, the function of which cam being when the fulcrum bar is adjusted to give the clamping jaw the desired width, and the material is in place, the handle *h*, which, when disengaged, was horizontally disposed, is elevated, thus thrusting the cam surface *h'* of the cam, into engagement with the vise head and forcing the upper extremity of the movable clamp F, toward the vise head, and clamping the material in position.

I, represents a stop block preferably formed in its upper face with a series of steps *i*, to accommodate different widths of material, and is provided on its inner face with projecting guide flanges I' which clasps the T-shaped guide-way J, detachably secured to the bench. Projecting inwardly from the lower extremity of this guide-way is a semi U-shaped strap through the end of which passes a binding nut or thumb screw adapted to impinge against the inner side of the side board of the bench, and retain the guide-way in a vertical position.

To vertically adjust the stop block on the guide-way I provide the same with a binding screw K, which impinges against the head of the guide-way thus permitting, when the screw is released, the movability of a stop block to any position on the way to accommodate different widths of material relative to the top of the bench.

L, indicates removable face plates consisting of laterally extending arms *l*, a depending body portion *l'*, and laterally extending locking flanges *l²*, the function of which latter is to clasp the head and movable clamping jaws of the vise and retain the face plates in position. If desired the inner surface of these face plates may be roughened to form biting edges to more rigidly hold the saw to be sharpened, in position, and prevent slipping. If desired I may also rigidly secure the face plates to the jaws of the device permanently instead of having them detachable, as is herein shown and described.

I am aware that many minor changes in the construction and arrangement of the parts of my device may be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a vise, the combination, with the head provided with thumb-nuts and binding screws on its inner faces and a lug extending outwardly from the bottom of the head and carrying a thumb-screw, of a clamping jaw pivotally secured to the end of the head, and a locking cam fulcrumed in the clamping jaw below the fulcrum bar, substantially as specified.

2. In combination with a vise provided with a removable clamping jaw and means for locking said jaw in position, a guide rail projecting laterally from the vise head, a sliding locking head having tapering lugs projecting from its inner face, and similar teeth on the inner face of the vise-head, substantially as and for the purpose set forth.

3. In combination with a vise provided with a locking jaw and means for locking said jaw in position, of a guide rail projecting laterally from said vise, means for attachment on the end of said locking rail, a sliding block mounted on said rail, means for locking said block in an adjusted position, and teeth or projections on said block and vise head above the rail, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

LEVI N. BOREM.

Witnesses:
G. E. STORMS,
O. A. OAKES.