(No Model.)

M. G. LEWIS.

BENCH VISE.

No. 472,674. Patented Apr. 12, 1892.

Fig. 1.

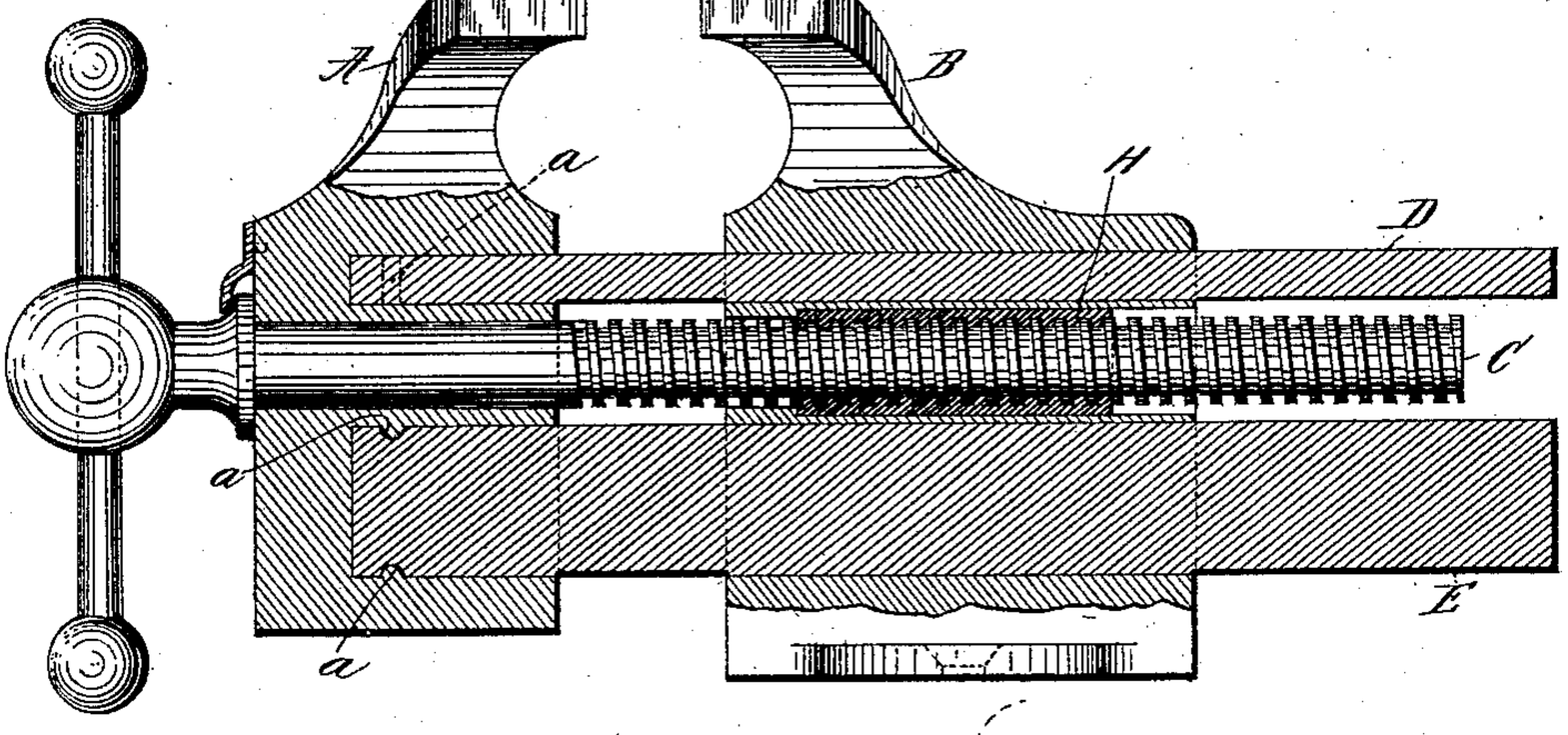


Fig. 2.

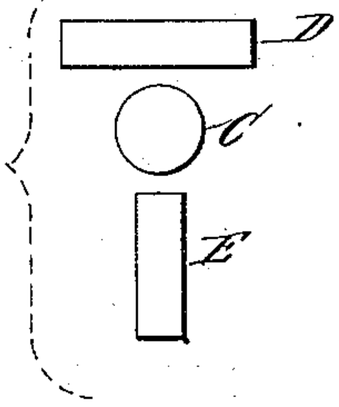


Fig. 3.

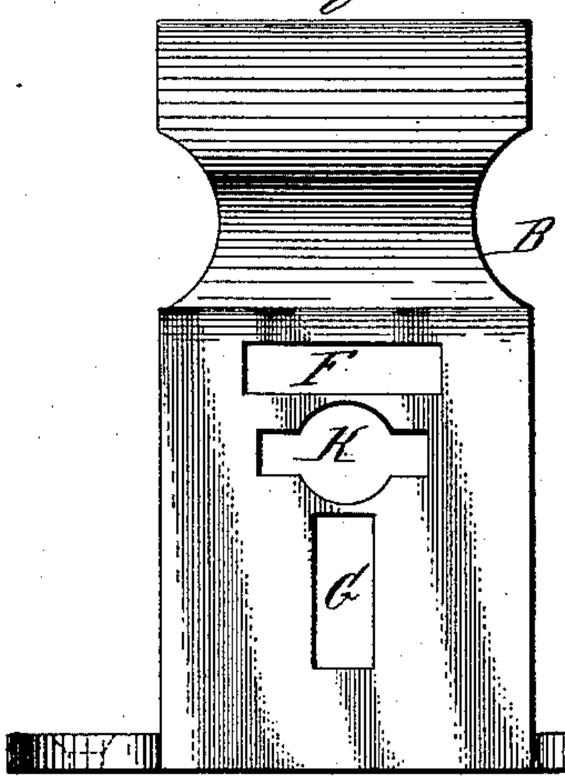


Fig. 4.

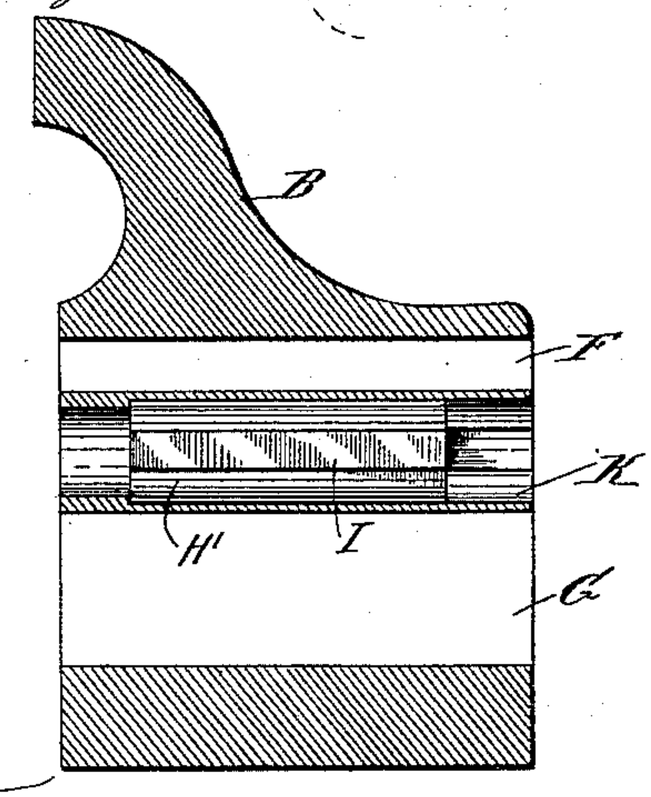
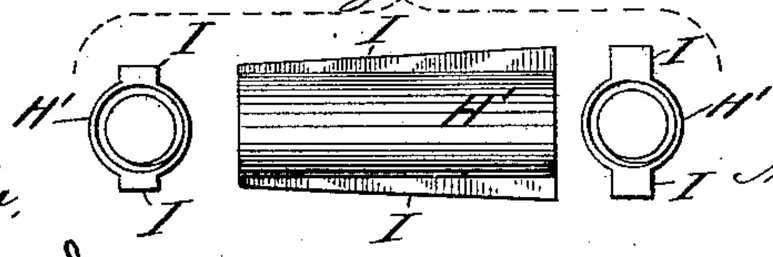


Fig. 5.



WITNESSES:

John Buckley.

L H Osgood

INVENTOR

Mortimer G. Lewis,

BY

Worth Osgood,

ATTORNEY

UNITED STATES PATENT OFFICE.

MORTIMER G. LEWIS, OF NEW YORK, N. Y.

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 472,674, dated April 12, 1892.

Application filed December 15, 1891. Serial No. 415,151. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER G. LEWIS, of New York city, county and State of New York, have invented certain new and useful Improvements in Bench-Vises, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to bench-vises, and has for its principal object the provision of a simple, cheap, and efficient form of slide-bar which will, with a lighter weight of metal, be stronger in both a horizontal and a vertical direction than the ordinary forms of slide-bars for vises, which will afford complete protection for the screw against the falling thereon of clippings or filings, &c., and against any accumulation of such matters beneath the screw, and which will be cheap and easy to apply, requiring less cutting and fitting than ordinary forms.

A subordinate object is the provision and application of a peculiar form of nut which may be removed and replaced when worn, and which will possess ample bearing in its seat, while it permits a close approach of the two sections of the slide-bar to the top and bottom of the screw without weakening the structure.

To accomplish these objects and to secure other and further advantages in the matters of construction, operation, and use, my improvements involve certain new and useful arrangements or combinations of parts and peculiar features of invention, all of which will be herein first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a view partly in section and partly in elevation, showing a bench-vise constructed with my improved form of slide-bar and indicating the general manner of mounting and holding the same. Fig. 2 represents in end elevation the relative position of the top and bottom sections of the slide-bar and their disposition with respect to the operating-screw. Fig. 3 is a rear elevation of the back jaw of a vise prepared not only to receive my improved slide-bar, but also a peculiar form of nut which may be (but is not necessarily) used with said bar. Fig. 4 is a sectional elevation of the back jaw of a vise with my improved form of nut mounted therein. Fig. 5 is a detail view showing the nut in plan and the ends thereof in elevation.

Like letters of reference wherever they occur indicate corresponding parts in all the figures.

A is the front jaw or head of the vise, which is movable toward or from the rear jaw B or stationary part.

C is the operating-screw by which the movements and the necessary clamping of the work are effected.

The slide-bar upon which the head is sustained is, according to my invention, made in two independent parts D and E, both said parts being of substantially-rectangular section, of thickness less than the diameter of the screw, and of width considerably greater than that diameter. These parts are preferably made of rolled metal, as steel or iron, which can be obtained at a low price and which is abundantly accurate of finish. One of these parts D is located above the screw, its flat face being turned toward the screw, and the other E at right angles to the first and its edge toward the screw. The two thus located form a T, the width of the upper member being opposed to any horizontal strain which may be brought upon the vise-jaws and the other member opposed to all vertical strains. In either direction each member is reinforced or aided in resisting any strain by the thickness of the other member. The upper part is wide enough to effectually protect the screw against accident by work falling upon it and against clippings and filings dropping upon it, and the lower part having only its edge turned toward the screw will permit matters or substances which may be projected upon it to fall down and out of the way before they can reach the screw, and thus the screw is as well protected as in the common forms of bars. The two sections of the bar are secured in the head by casting the latter upon them, they being provided with indentations or notches, as *a a*, so that the cast metal will unite with them very firmly. Of course they might be secured in the head in any other way. The rear or stationary portion of the vise is channeled, as at F G, to receive the sections of the bar and permit them to move freely.

The improved bar being of wrought metal is more elastic than one of cast metal, and therefore not so liable to breakage, and being finished when applied does not require planing or dressing, as do the cast-metal bars. The forcible clamping of any work brings a vertical strain upon the bar, and if the work be placed at one side of the jaws then a horizontal strain is produced, which should be withstood with equal rigidity as the first. The improved construction of bar is well calculated for this effect. The screw located between the two sections may enter any form of nut, as at H, Fig. 1. A peculiar form of nut advantageous for use with this particular bar (though not of necessity to be used with it) is shown in Fig. 5, wherein H′ is the barrel of the nut made as light as practicable, so as to occupy but little space between the sections of the bar. Upon the sides of this nut are pins I I, which contribute to the nut all the strength that is required. They are slightly inclined, as indicated. The back jaw is recessed, as at K, and into this recess from the back the nut is introduced. It may be driven in, if desired. It brings up at the front against a shoulder in the body of the vise. The inclined fins effectually prevent the nut from being drawn forward by the operating-screw, and the nut is thus made abundantly secure, while it does not occupy an undue space between the sections of the bar. The nut is preferably made of malleable metal, and it may be easily driven back and out when worn and another put in its place.

The improvements as thus described will be found to answer all the purposes or objects of the invention previously set forth.

Having now fully described my invention, what I claim as new herein, and desire to secure by Letters Patent, is—

1. In a bench-vise, the combination, with the vise-heads and the operating-screw, of the slide-bar composed of two flat metal sections, one located above with its flat face turned toward the screw and extending beyond the same and the other arranged at right angles with the first below the screw, presenting its edge to the screw, substantially as and for the purposes explained.

2. In a bench-vise, the combination, with the stationary part or head recessed as explained, of the nut for the operating-screw, said nut being composed of the barrel and side fins inclined as explained, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

MORTIMER G. LEWIS.

Witnesses:
W. J. MORGAN,
WORTH OSGOOD.