(No Model.)

M. G. LEWIS.

BENCH VISE.

No. 493,364. Patented Mar. 14, 1893.

FIG. 1.

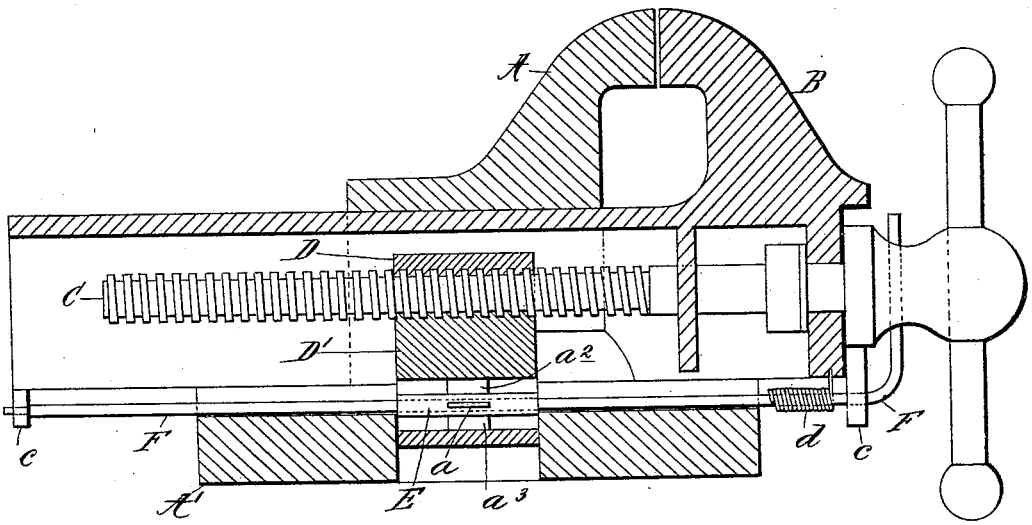


FIG. 2.

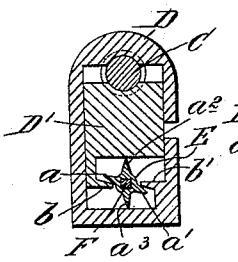
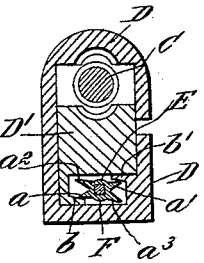


FIG. 3.



Witnessed:
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UNITED STATES PATENT OFFICE.

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

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 493,364, dated March 14, 1893.

Application filed December 3, 1892. Serial No. 453,986. (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 especially to that variety thereof now come to be known as rapid transit vises, wherein the movable head may be rapidly shifted from or toward the stationary head to open or close the jaws without the necessity of turning the vise screw—the said screw being employed by preference only to clamp the jaws upon or against the work.

The object of my invention is to simplify and improve the means for opening and closing the two part nut by which the vise screw is clutched or released, to render the operation convenient and certain at all positions of the movable head, to prevent accidental or unintentional release of the vise screw, and to secure the requisite solidity and durability of the operating parts.

To accomplish all of this 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 features of invention as will be herein first fully described and then pointed out in the claims.

In the accompanying drawings Figure 1 is a longitudinal view partly in section and partly in elevation showing a rapid transit vise constructed and arranged for operation in accordance with my invention and involving my improvements. Fig. 2 represents a cross section through the vise screw and through the divided or two part nut, illustrating the key by which the said nut is operated, the nut being shown in closed position. Fig. 3 is a view similar to Fig. 2 but showing the nut opened or out of engagement with the vise screw.

In all the figures, like letters of reference wherever they occur indicate corresponding parts.

A is the stationary head connected with or made a part of the base A′.

B is the movable head, and C the vise screw.

The nut in which the screw C turns is made in two parts D and D′, the former reaching over the screw and the latter arranged to bear upon its under side, the two parts, when in engagement with the screw, constituting a complete nut. The base is slotted as indicated to receive this nut which bears upon the walls of the slot and is firmly held so that it cannot be moved by any strain brought upon it in the direction of the length of the vise-screw by turning that screw.

To move the two parts of the nut I employ a key E. This is provided with teeth a a' on opposite sides arranged to bear upon corresponding teeth b b' upon the projecting portions of the half nuts,—and also provided with wings a^2 a^3 arranged to bear directly upon opposite horizontal portions of the half nuts. The key has a hub or is otherwise made wide enough so that it will rest in the slot provided for the nut and be in no danger of being displaced therefrom during use of the vise. To turn the key I employ an angular or other suitable form of rod F journaled upon the movable portion of the vise as in the seats c c and extending up toward the knob of the screw to form a crank or handle. Upon this rod F is a suitable spring as d anchored at one end to the movable portion of the vise and at the other to the rod, the spring being of power sufficient to turn the key to its upright position shown in Fig. 2 and arranged to hold the crank end of rod F normally at a little distance from the knob of the vise screw. When the key is straight up and down as in Fig. 2 the wings hold the two parts of the nut securely in engagement with the vise screw, and no bending or giving of that screw under strain can disengage or loosen either part of the nut without first crushing the key (which is practically impossible). Moreover, under the arrangement shown, if the screw should tend to bend upwardly, it would carry the upper section of

the nut with it and the lower section would of necessity follow, both sections still clutching the screw with undiminished security. When the key is turned (in the example shown, to the left) the teeth a a' bear upon the teeth b b' carrying the upper section D up and the lower section D' down, as will be readily understood thus unclutching the vise screw. When the nut is thus moved, the movable head may be rapidly adjusted in either direction without turning the vise screw. The rod F moves easily through the key. The crank is in such position that upon grasping the knob of the screw in order to shift the vise head, it, (the crank) is easily borne toward the knob and thus the nut released from the screw with the same movement of the hand. As soon as the crank is released, the spring d automatically turns the key so as to throw the nut into engagement with the screw. The teeth a a' b b' are employed solely to open the nut, and the wings a^2 a^3 solely to close it. Of this operating device, the parts are few and simple, easy to be made and applied, and are not liable to get out of order.

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 screw and the two part nut, of the operating key provided with wings, said wings being arranged to rest vertically between the two sections of the nut and to hold both said sections in engagement with the screw, substantially in the manner and for the purposes set forth.

2. In a bench vise, the combination of the vise screw, the two part nut of which each section is provided with teeth, the operating key having wings for sustaining the two sections and teeth for engagement with the teeth on said sections crank rod for operating the key and a spring applied upon said rod, substantially as shown 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.