(No Model.)

J. A. BLAKE.

VISE.

No. 590,385. Patented Sept. 21, 1897.

Fig. 1.

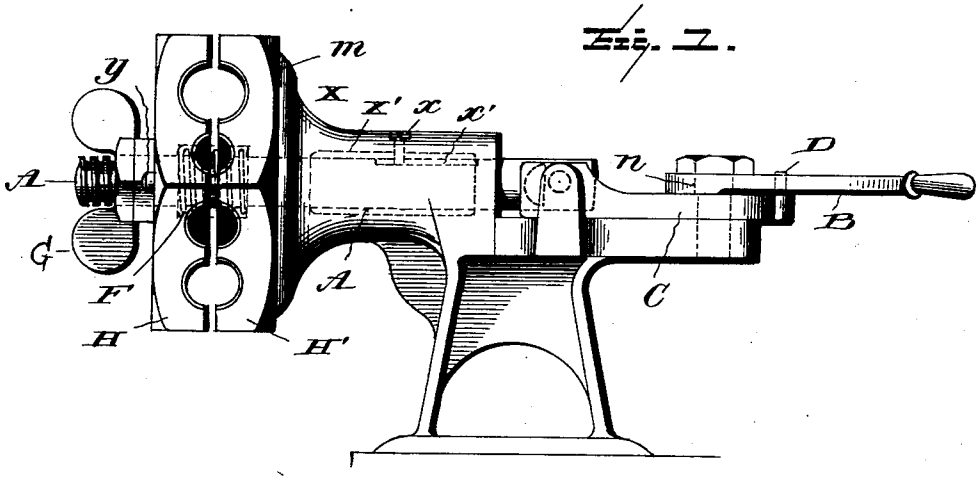


Fig. 3.

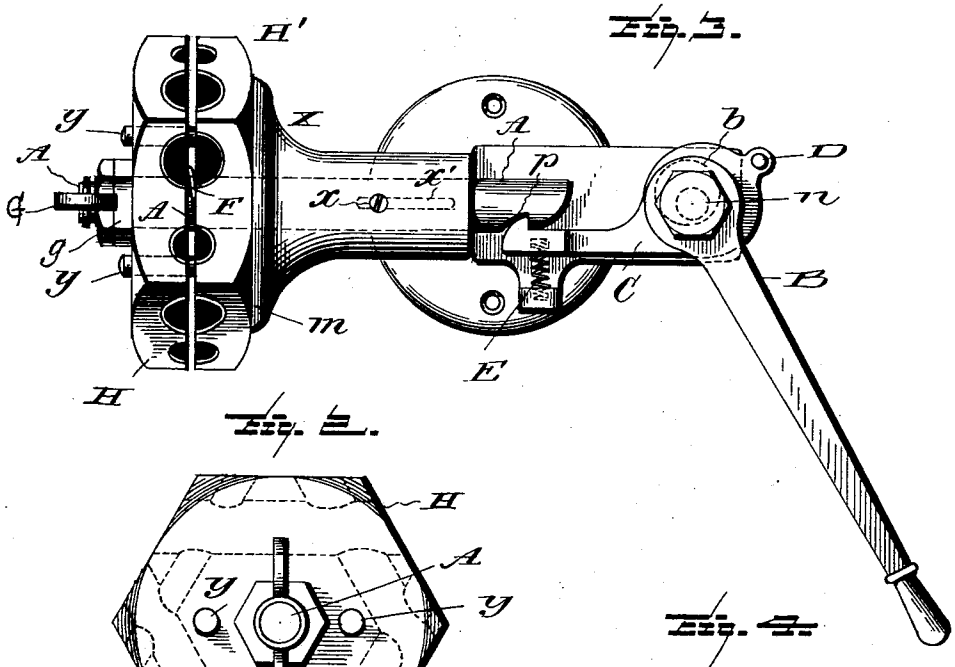


Fig. 2.

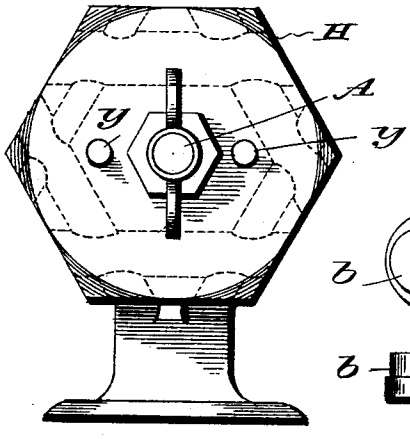
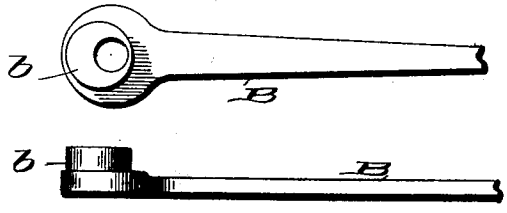


Fig. 4.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. BLAKE, OF WATERTOWN, NEW YORK, ASSIGNOR TO THE PRENTISS VISE COMPANY, OF NEW YORK, N. Y.

VISE.

SPECIFICATION forming part of Letters Patent No. 590,385, dated September 21, 1897.

Application filed March 27, 1897. Serial No. 629,477. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BLAKE, a citizen of the United States, and a resident of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention has to do with vises for holding pipes or rods, and has been designed with more particular reference to the needs of a vise for holding bicycle or other tubes or finished round bars.

Under my invention the movable jaw of the vise—that is to say, that jaw which moves to and from the other—is actuated to move in a direction to clamp the work by means of what may conveniently be termed a "latch," adapted to engage the bar or stem which carries said jaw and capable both of an oscillatory or swinging movement by which it can be brought into and out of engagement with said stem and of a bodily movement lengthwise or in a direction to force the jaw to close tightly upon the work, in combination with means by which these several movements may be imparted to the latch. While I do not desire to be understood as limiting myself to the precise means hereinafter described for this purpose, yet I prefer to employ a pivoted lever-handle having an eccentric hub, upon which the latch is freely hung, the eccentricity of the hub determining the extent of longitudinal movement of the latch, while a pin or shoulder on the latch, against which the lever-handle brings up at a certain point in its movement, serves as a means by which the tilting or swinging of the latch is effected in a direction to disengage it from the stem, the latch being normally pressed by a spring in a direction to cause it to engage the stem.

The foregoing and other features of my invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a vise embodying my invention in its preferred form. Fig. 2 is a front elevation of the same. Fig. 3 is a plan of the same. Fig. 4 shows the lever-handle and its eccentric hub in bottom plan and side elevation.

The vise-body is shown at X. It is provided at X′ with a tubular bearing to receive the cylindrical bar or stem A, which passes through said bearing and can slide lengthwise therein. A spline or pin x on the bearing X′ enters a longitudinal groove x' in the stem to prevent rotation and to govern the extent of longitudinal movement of the stem, which latter is determined by the length of the groove x'.

The two jaws of the vise are shown at H H′, having in their meeting faces semicircular grooves or recesses of varying diameters for receiving the work to be held in the vise, the corresponding grooves being kept opposite each other by means of dowel-pins y, as shown. The dowel-pins are fast to the one jaw, as H′, and enter sockets in the other jaw H, thus permitting the two jaws to move to and from each other without disturbing the register of their grooves or recesses. Both of these jaws are mounted and turn freely on the stem A. Between them is interposed a spiral spring F, which serves to open the jaws and also to hold the rear jaw H′ against the abutting face m of the vise-body with pressure enough to prevent the easy rotation of the jaws on the stem A. The spring encircles the stem, and its ends are received in pockets in the meeting faces of the jaws.

The outer end of the stem is threaded for reception of the thumb-nut G, (as well as the jam-nut g, which is interposed between the thumb-nut and the outer jaw H,) serving to hold the outer jaw in place on the stem and also as a means for adjusting the distance between the jaws. The outer jaw H may be termed the "movable" jaw, in that it is the one which by the stem A is forced or drawn up toward the other jaw H′. The longitudinal movement of the stem A for this purpose is effected as follows: Pivoted at n to the rear part of the vise-body is the lever-handle B, provided with an eccentric hub b, through which the pivot passes. Hung upon this eccentric hub so that it may freely turn thereon is

what I have hereinbefore termed the "latch" C. This latch at its front end is adapted to engage a notch *p* in the rear portion of the stem A and is pressed in a direction to engage said notch by a spiral or other suitable spring E. Under this arrangement it will be noted that when the lever-handle is turned on its pivot the latch, by the eccentric *b* on which it is mounted, will be caused to move lengthwise in one direction or the other according to the direction of movement of the lever-handle and consequently of the eccentric which moves with said lever-handle. In one direction it will pull forcibly upon the stem, and consequently will draw the jaw H up toward the other jaw H' against the stress of spring F. In the other direction it will relax its pull on the stem and consequently will permit the spring F to push the jaw H away from the other jaw. In other words, the jaws are caused to tighten or relax their grip on the work according to the direction of lengthwise movement of the latch.

In order to provide for the disengagement of the latch from the stem A after the jaws have released their grip, so as to permit them to move apart to their full extent, I so arrange things that disengagement shall take place automatically after the lever-handle has moved a certain distance in the direction for releasing the pull of the latch on the stem. To this end I place upon the latch a pin or boss D, which when the lever-handle is swung in releasing direction will at the proper time be met by that handle, after which, if the handle be moved farther in the same direction, it will, by bearing upon or against the pin, tilt the latch upon the eccentric hub *b* as a center outwardly or away from the stem A against the stress of spring E, thus disengaging the latch from the stem and permitting the spring F to open the jaws to the fullest extent.

In Figs. 1 and 3 the vise is shown as slightly open. To fully open it, the lever-handle is swung back on its pivot, thus moving the latch still farther forward and consequently allowing the jaws to be still farther opened by their spring F. This continues until the lever-handle meets the pin D, and then if its movement be continued it acts through the pin D to swing the latch C out of engagement with the stem A, thus allowing the jaws to be instantly opened to their full extent by spring F.

To close the jaws upon the work to be held, the work is first placed in its appropriate groove or recess in the vise. The stem A is then pushed back by hand until the jaws come in contact with the work and the latch C engages the stem A. To insure such engagement at the same time the jaws meet the work, the outer or movable jaw H can be adjusted upon the stem A by means of the thumb-nut G. The parts will then be in the position shown in Figs. 1 and 3. The contiguous ends of the latch and stem are chamfered or beveled, as shown, so that the one can ride over or by the other. Now upon swinging forward the lever-handle B toward the jaws its eccentric hub *b* forces latch C bodily back, thus drawing on stem A and forcing it in a direction to cause the jaws to close upon the work with a grip the force of which is proportionate to the eccentricity of the hub. In this way the work will be held most securely and firmly.

The jaws can be turned bodily upon the stem A as an axis, so as to adjust them to any desired position. The same force which acts to close them upon the work also clamps them as a whole immovably to and against the vise-body.

Having described my invention, what I claim herein as new, and desire to secure by Letters Patent, is as follows:

1. In a vise the combination with the movable jaw and the notched bar or stem carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, and a latch mounted freely upon said eccentric hub and adapted to engage and operate the notched stem, substantially as and for the purposes hereinbefore set forth.

2. In a vise the combination with the movable jaw and the notched bar or stem carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, and a latch mounted freely upon said eccentric hub and adapted to engage and operate the notched stem, and provided with a pin or projection arranged in the path of the lever-handle, for the purpose of swinging the latch upon the eccentric out of engagement with the stem.

3. In a vise the combination with the movable jaw and the notched stem or bar carrying the same, of a lever-handle pivoted to the vise-body and provided with an eccentric hub, a latch adapted to engage said stem mounted freely upon said eccentric hub, and provided with a pin or projection arranged in the path of the lever-handle, so as to meet and engage the latter for the purpose of swinging the latch out of engagement with the stem, and a spring by which the latch is pressed in a direction to engage the stem, substantially as and for the purposes hereinbefore set forth.

4. In a vise and in combination—the stationary jaw; the movable jaw and longitudinally-movable stem for carrying the same; the spring for forcing said jaws apart; the lever-handle provided with a hub eccentrically pivoted to the vise-body; and the latch-spring pressed toward and adapted to engage the stem, mounted upon the eccentric hub of the lever-handle, and provided with a pin or projection arranged in the path of movement of the lever-handle—substantially as and for the purposes hereinbefore set forth.

5. In a vise, the combination with the longitudinally-movable stem, the lever-handle provided with a hub eccentrically pivoted to the vise-body, and the latch adapted to engage said stem, of the movable jaw mounted on and carried by said stem and longitudinally adjustable thereon, whereby the parts may be so adjusted that by the time the jaws of the vise close upon the work the longitudinally-movable stem will be in position to be engaged by the latch, substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 25th day of March, 1897.

JOHN A. BLAKE.

Witnesses:

STUART D. LANSING,

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