

No. 632,381.

Patented Sept. 5, 1899.

P. THEADORE.
VISE.

(Application filed Aug. 15, 1898.)

(No Model.)

Fig. 3.

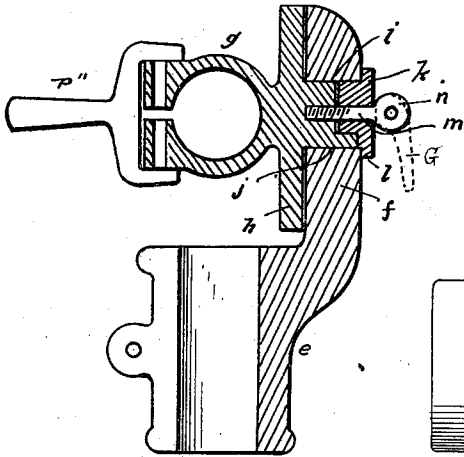


Fig. 1.

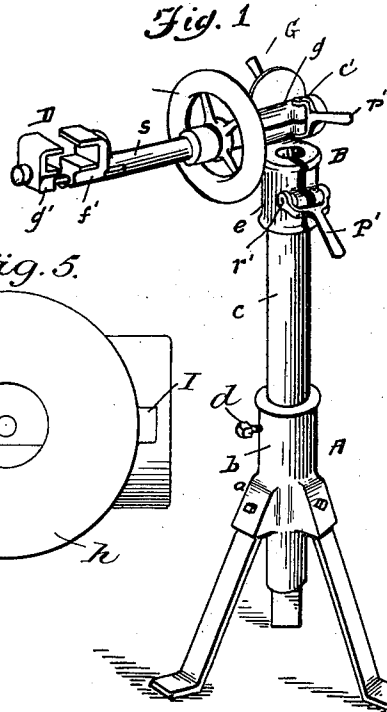


Fig. 5.

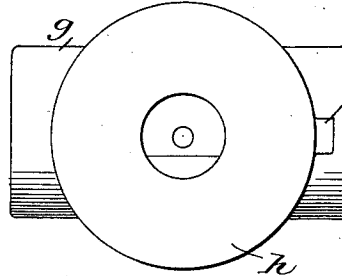


Fig. 2.

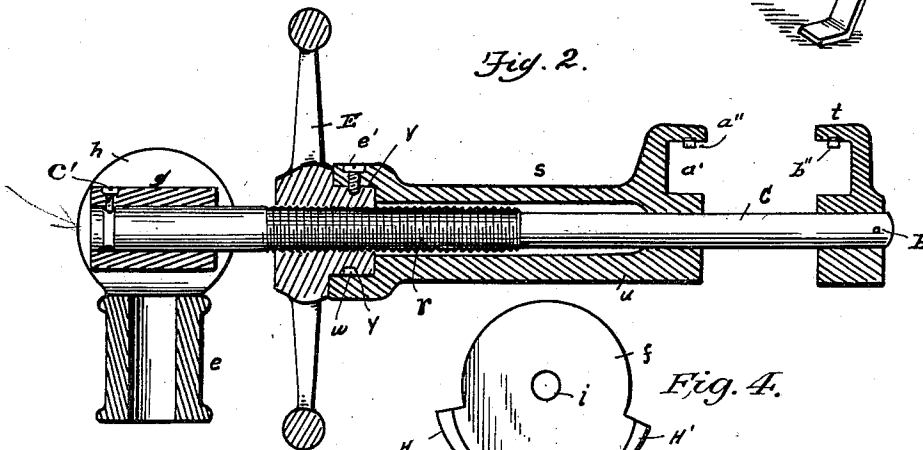
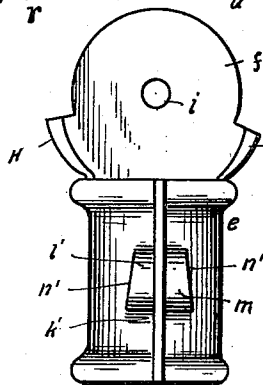


Fig. 4.



WITNESSES.

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SPECIFICATION forming part of Letters Patent No. 632,381, dated September 5, 1899.

Application filed August 15, 1898. Serial No. 688,590. (No model.)

To all whom it may concern:

Be it known that I, PAUL THEADORE, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Vises; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to vises, and especially that class employed for holding bicycles while they are being operated upon; and it has for its object to provide a simple and durable means whereby the article held within said vise may be adjusted to any desired position without disturbing the clamping-jaws.

A further object is to furnish a construction that will enable the operator to shift the holding-jaws easily and quickly.

The invention consists in the general construction and arrangement of the various parts to be hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of the device in its assembled form. Fig. 2 is a vertical section of the jaws and horizontal arm. Fig. 3 is a vertical section of the universal joint which unites the standard and horizontal arm. Fig. 4 is an elevation of one of the clamps, showing the form of the ears. Fig. 5 is an elevation of the disk, showing the lug thereon by means of which the arm is held from dropping.

Like letters of reference refer to corresponding parts throughout the various figures.

A represents the standard, which may be constructed in any suitable form to rest upon the floor. It comprises the base portion *a*, having the sleeve *b* formed at the top, and a telescoping vertical leg *c*, held in the sleeve by means of the set-screw *d*.

B represents the universal joint, which unites the standard with the horizontal arm C and is composed of the clamping-block *e*, having the plate *f* rising from and formed integral with the upper end thereof, as shown in Figs. 3 and 4, and the horizontal clamping-block *g*, upon the rear side of which is formed a disk *h*. These two clamping-blocks are united, as shown in Fig. 3. The opening *i* is

formed through the center of the plate *f* and the short boss *j*, formed integral with the disk *h* and adapted to fit within the said opening, so that it will turn freely therein. The rear end of the boss is half checked and receives the plug *k*, which also engages within the opening *i* and is provided with the flange *l* to rest against the rear face of the plate. There is an opening provided through the plug to receive the bolt *m*, which is threaded to engage within the boss upon the disk and upon its outer end provided with an ear to receive the cam-lever *G*. The half-checked portions of the boss and plug which register with each other compel the parts to rotate together, and as the adjacent faces of the disk and plate are furnished with suitable friction material it will be readily seen that a downward movement of the cam-lever would cause the two faces to be held firmly together. Thus the horizontal arm, which is held within the block *g*, may be swung to any desired angle in a vertical plane and securely locked in its adjusted position.

In order that the arm may not drop below the horizontal plane, the plate *f* has formed on the opposite edges thereof the shoulders *H H'*, and upon the disk there is provided the lug *I*, adapted to rest upon either one or the other of said shoulders, so that the downward movement upon either side will be checked. This arrangement furnishes a substantial support for articles of heavy weight at the outer end of the arm and avoids the possibility of the accidental dropping of that end while the operator is working upon the article secured therein.

Referring to Fig. 2, it will be seen that the end of the arm C engaged within the block *g* is grooved to receive the end of the small pin or screw *c'*, so that it may rotate freely, but is held from longitudinal movement. At the opposite end of this arm the jaws D are carried, consisting of the fixed jaw *t* and the movable jaw *s*. The said movable jaw is formed integral with the sleeve *u*, which fits freely over the arm C, upon which it is guided, and the opposite end is slightly enlarged to receive the grooved hub *v* of the hand-wheel E. The hub of the wheel is threaded internally to engage with the threaded portion *r* of the arm, and as the pin *e'*, which passes through the shell of the sleeve, engages within

the groove *y* a rotation of the hand-wheel will cause it to travel upon the threaded portion of the arm, carrying the sleeve and movable jaw with it. The fixed jaw *t* is secured to the outer end of the arm by means of the pin *b'* and remains permanently adjusted with respect to the arm. As a means of compelling the movable jaw to operate in the same plane with the fixed jaw I provide the perforated extension *f'* upon the movable jaw to receive and move freely upon the rod *h'* and the extension *g'* upon the fixed jaw, within which one end of said rod is firmly fixed.

The clamping-blocks by means of which the arm is controlled both in its rotation around the axis of the vertical leg and also upon its own axis are both identical in construction and operation, and it is believed that the description of one will suffice.

In Fig. 4 I have shown the block *e* in elevation, and in its construction it is preferably made of a single casting, with the slot *k'* in one side thereof. Upon this slotted side and extending therefrom are the ears *l' n'*, both of which are inclined upon their outer faces, as shown at *n'*. The lever *p'* is constructed in a Y form, so that it will engage upon both inclined faces of the ears, and the inner engaging faces of the lever are also inclined, so that the adjacent surfaces will lie in the same plane when the clamping-block is in its open condition. By this means it will be seen that as the outer end of the lever is depressed—assuming it to occupy an elevated position when the adjacent faces are in the same plane—the ears will be forced toward each other, causing the slot to be partially closed and firmly clamping the member within the block. The elasticity of the metal permits sufficient springing action to allow the arm or leg to move freely when the levers have been swung to the proper position, relieving the clamping action, and will readily permit of the binding or clamping force brought to bear thereon by the means above described.

In the operation of my invention assuming that it is desired to secure a bicycle within the jaws for the purpose of cleaning or otherwise operating upon it that portion of the frame which it is desired to secure in the vise is placed between the jaws, which are previously fitted with wood bushings to properly embrace the frame, whereupon the hand-wheel *E* is turned until the part is firmly secured. Should it become necessary to shift the wheel around the axis of the leg *c*, the lever *p'* is raised, releasing the clamping-block, which turns freely to any desired position, where it may be secured by drawing the lever down. To invert the frame of the bicycle without removing it from the jaws, the lever *p* is raised to relieve the friction contact between the plate and disk, whereupon the arm may be swung over to the opposite side, where it may again be fixed by means of the lever. Similar results in the

adjustment around the axis of the arm may be accomplished by manipulating the lever *p''* upon the clamping-block *g*, which is adapted to secure the arm in its adjusted position.

From the foregoing it will be obvious that the essential novelty of my invention lies in the general construction and arrangement of the parts, whereby I am enabled to secure an object within a vise, in which secured condition it may be shifted or adjusted to any desired position to suit the convenience of the workman, and although I prefer the particular form herein shown and described I desire to have it understood that some slight modifications may be made without materially affecting the results or departing from the spirit and scope of my invention.

As the blocks (not shown) which are placed in the jaws to prevent injury to the parts held therein are apt to drop out when the vise is being adjusted from side to side, I provide the springs *a'' b''* in the upper jaws of flat steel, so they will press against the blocks and hold them in position.

Having thus described my invention, what I claim is—

1. In a vise, the combination of a standard, comprising a base portion and a vertically-adjustable leg, a universal joint mounted upon the outer end of said leg, an arm adjustably secured to said universal joint, jaws mounted upon the outer end of said arm, one of which is fixed and the other movable, and means for manipulating said movable jaw, substantially as described.

2. In a vise, the combination of a standard, a clamping-block mounted upon said standard adapted to turn therein, means for securing said clamping-block, whereby it, may be fixed with respect to said standard, a second clamping-block, adjustably connected to said first-named block, whereby said second clamping-block may be adjusted at any angle in a vertical plane, means for securing said second clamping-block in its adjusted position, an arm loosely held within said second block, means whereby said arm is permitted to rotate, and is held from longitudinal movement within said block, clamping-jaws mounted upon the outer end of said arm, one of which is fixed and the other movable therein, means for guiding said movable jaw, whereby it is held in the same horizontal plane with respect to said fixed jaw, a hand-wheel having its hub internally threaded to engage a threaded portion of said arm, and means for uniting the hub of said wheel and said movable jaw, whereby the rotation of said hand-wheel compels a longitudinal movement of said jaw, substantially as described.

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

PAUL THEADORE.

Witnesses:

S. L. KILBOURN,
F. J. WISE.