

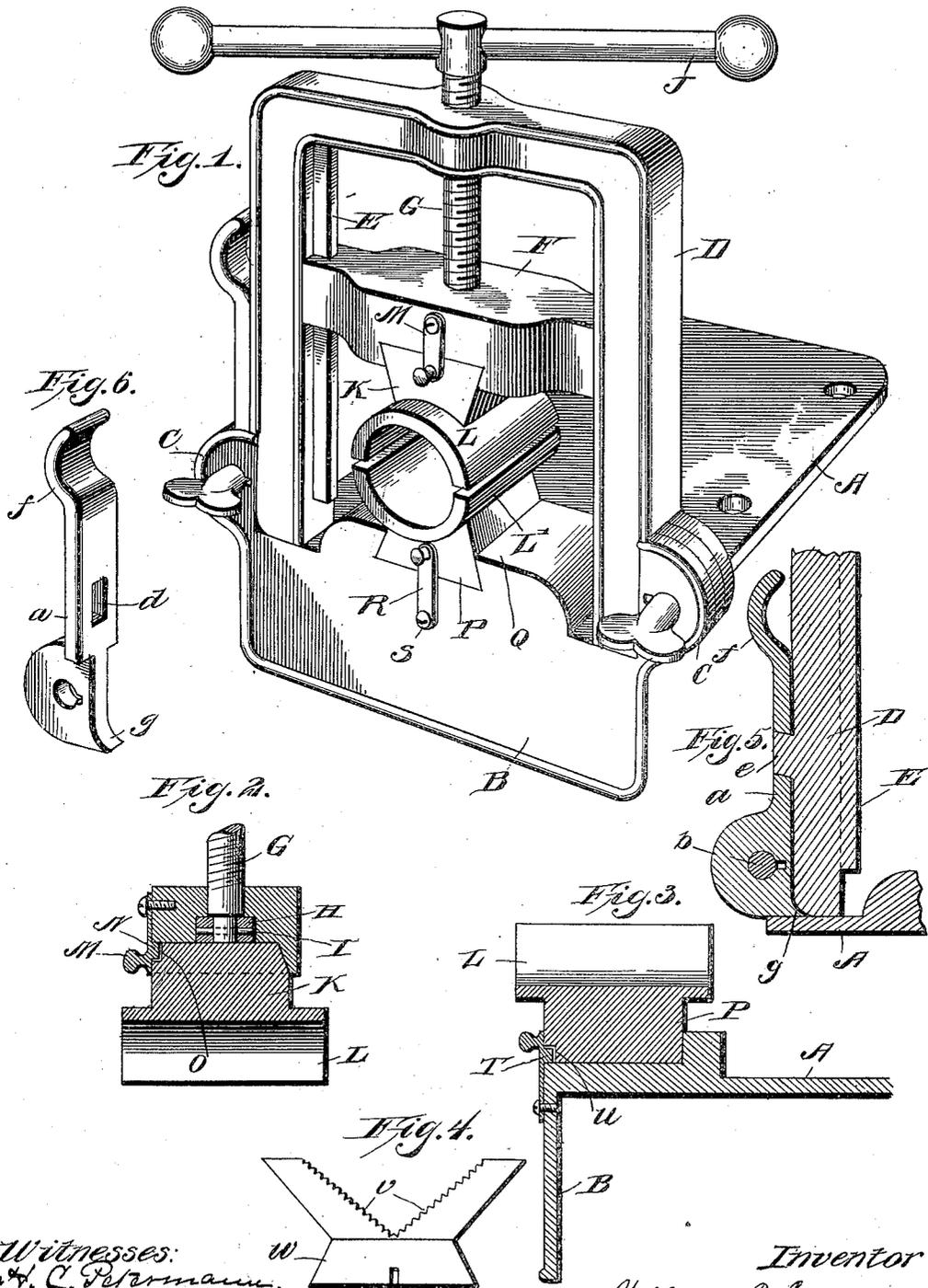
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Patented Dec. 10, 1901.

W. E. ECKARD.
PIPE VISE.

(Application filed May 22, 1901.)

(No Model.)



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PIPE-VISE.

SPECIFICATION forming part of Letters Patent No. 688,772, dated December 10, 1901.

Application filed May 22, 1901. Serial No. 61,337. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. ECKARD, a citizen of the United States, residing at Wheeling, county of Ohio, and State of West Virginia, have invented a certain new and useful Improvement in Pipe-Vises, of which the following is a specification.

My invention relates to a new and useful improvement in pipe-vises, and has for its object to so construct a vise of this description as to adapt it for holding brass and other soft-metal pipes so as to prevent them from being marred by the pressure necessary to rigidly secure them while being cut, threaded, or otherwise operated upon.

A further object of my invention is to retain the ordinary features of a pipe-vise while providing for the holding of soft-metal pipe.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective of a vise made in accordance with my improvement, showing the smooth circular jaws adapted for holding soft-metal pipe; Fig. 2, a detail section through the upper jaw and cross-head, showing the manner of swiveling the operating-screw to said cross-head and of securing the upper jaw in place within the head; Fig. 3, a similar view of the lower jaw and that portion of the base-plate in which the jaw is secured; Fig. 4, a detail front view of the lower jaw adapted for use upon iron or hard-metal pipes. Fig. 5 is a vertical sectional view of one side of the yoke, showing the manner of attaching the same to the base-plate; and Fig. 6 is a perspective view of the latch which serves to attach the yoke to the base-plate.

In carrying out my invention as here embodied, A represents the base-plate, having formed therewith the flange or apron B, and also formed with this base-plate are the lugs

C on each side thereof, by means of which the yoke D is secured and pivoted to the base; the arrangement being of ordinary construction and forming no special part of my invention. The yoke has formed upon its vertical members guideways E, on which run the cross-head F, as clearly shown in Fig. 1, and in this cross-head is swiveled the lower end of the operating-screw G by the collar H, being secured upon a reduced portion of said screw by means of the pin I, as will be readily understood. The operating-screw, as is usual, is threaded through the horizontal portion of the yoke and carries the lever J for its manipulation.

The cross-head F has a dovetail groove formed in its lower face for the reception of the corresponding-shaped shank K of the upper jaw L, and when this shank is in position it is held against accidental displacement by the spring-latch M, which is pivoted upon the cross-head and adapted to swing down in front of the shank and bear thereagainst. This spring-latch has a small lug or detent N formed upon its lower end, adapted to snap into the recess O, formed in the shank, and thus hold the latch against a sidewise swinging movement until this detent has been sprung outward, after which the latch may be turned sidewise out of the path of the shank, so that the latter may be withdrawn from the cross-head. This arrangement provides for the ready removal of one jaw and the substitution of another therefor, the object of which will be hereinafter set forth.

The jaw L is semicircular in shape, as clearly shown in Fig. 1, the internal contour thereof being such as to fit the pipe to be held, and the lower jaw L' corresponds with the upper jaw L, so that these two jaws when in their closed position would form a circle of the same diameter as the outside diameter of the pipe being clamped.

P represents the shank of the lower jaw, and is wedge-shaped in the same manner as the shank K, and thereby adapted to fit within the corresponding dovetail groove in the base-block Q, formed upon the base-plate. This shank is likewise secured in place against accidental displacement by the spring-latch R, which is pivoted at S to the flange B, said

latch carrying a detent *T*, adapted to snap into the notch *U*, formed in the shank *P*.

From this description it will be seen that when a pipe of any given diameter is to be operated upon the upper and lower jaws of a corresponding internal diameter are utilized and secured in the base-block and cross-head, as above set forth, and when a pipe of another diameter is to be operated upon a corresponding set of jaws are substituted for the ones last used. The fact that the jaws are smooth upon their inner surfaces will prevent them from marring the pipe, however soft the metal of which it is composed, and yet permits sufficient pressure and friction to be brought to bear thereon to hold it rigid while being operated upon. These jaws should be of sufficient length to spread the pressure over a considerable surface of the pipe, and therefore further insure said pipe being rigidly held without being marred. Should the pipe be forced to turn within the jaws, no injury will be occasioned thereby, since no rough or cutting surface is in contact with the pipe.

When it is desired to use the pipe for ordinary purposes, such as the clamping of iron or steel pipes, the jaws *L* and *L'* may be removed, as before set forth, and jaws of the construction shown in Fig. 4 be substituted therefor, which are *V* shape and have serrations or teeth *V* formed upon their clamping-surfaces, and being provided with the wedge-shaped shanks *W*, which correspond with the shanks *K* and *P*, they are adapted to fit within the dovetail slots in which the last-named shanks are adapted to fit and held in the same manner as the latter. The base-plate, yoke, and cross-head are perfectly made of malleable iron, while the jaws and operating-screw are made of steel.

In Figs. 5 and 6 I have shown the means I employ for fastening the free end of the yoke to the base-plate. *a* is a latch which is pivoted at the point *b* to the base-plate. This latch has an opening *d* formed therethrough, through which is adapted to protrude a lug *e*, formed with and extending out from the yoke *D*. This opening *d* is slightly undercut, so that when the latch is in the position shown in Fig. 5 the strain upward upon the yoke *D* will tend to rather hold the latch in place than to displace the same. *f* is a finger-hold formed upon the upper end of the latch for the purpose of swinging the latch outward and releasing the yoke. *g* is a toe formed upon the inner and lower edge of the latch and extending underneath a cut-away portion of the lower free end of the yoke *D*. This toe is for the purpose of raising the yoke *D* as the latch is swung outward, and thus release the pressure upon the object which the jaws

are gripping. Another purpose of this toe is that when the free end of the yoke *D* is forced downward it will strike this toe *g* and close the latch automatically. This latch is of great advantage in devices of this description, for the yoke can be secured or released almost instantly.

Having thus fully described my invention, what I claim as new and useful is—

1. In combination with a vise of the character described, the cross-head and base-block of which have dovetail grooves formed therein, shanks adapted to fit said grooves, semi-circular jaws formed with the shanks, said jaws being adapted to hold a pipe without marring its surface, a spring-latch pivoted to the cross-head and carrying a detent adapted to snap within a notch formed in the upper shank, and a spring-latch pivoted to the body of the vise and carrying a detent adapted to snap within a notch formed in the lower shank, all arranged substantially as and for the purpose specified.

2. In combination with a vise of the character described, a base-block having a dovetail groove formed therein for the reception of various forms of jaws, a spring-latch pivoted to the body of the vise and adapted to hold the jaws in position against accidental displacement, a cross-head having a dovetail groove formed therein adapted to receive various forms of jaws, and a spring-latch pivoted to said cross-head and adapted to prevent the accidental displacement of jaws engaging the last-named dovetail groove, as and for the purpose set forth.

3. In combination with a device of the character described, a yoke pivoted to the base-plate upon one side, a fastening device adapted to secure the free end of the yoke in place upon the other side, said fastening device consisting of a latch *a* pivoted to the base-plate at the point *b*, an opening *d* formed through the latch, a lug formed with or secured to the free end of the yoke and adapted to protrude through the opening in the latch when the latch is closed, a toe *g* formed with the latch and adapted to extend underneath the free end of the yoke when the latch is in its closed position, a finger-hold carried by the latch for the purpose of manipulating the same, substantially as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

WILLIAM E. ECKARD.

Witnesses:

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