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VISE HAVING FLOATING-TYPE CAM-OPERATED JAW

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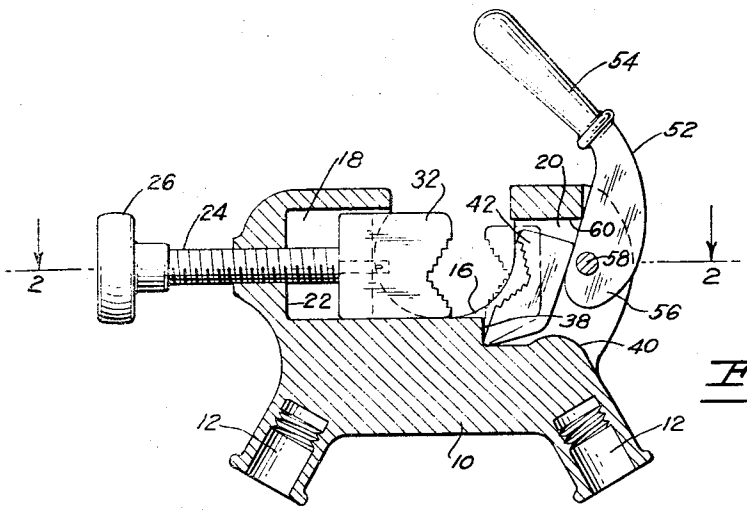


Fig. 1.

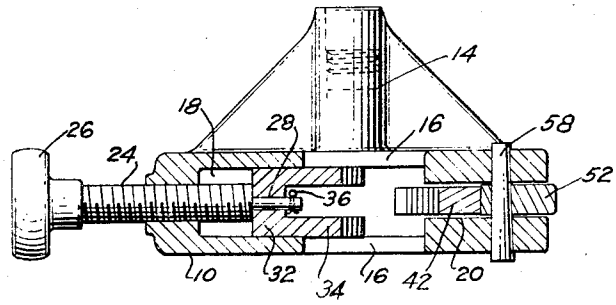


Fig. 2.

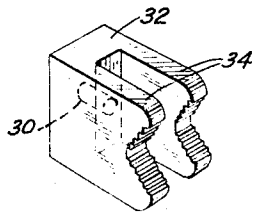


Fig. 3.

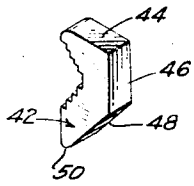


Fig. 4.

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VISE HAVING FLOATING-TYPE CAM-OPERATED JAW

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1 Claim. (Cl. 81—25)

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This invention relates to vises, and more particularly to a vise adapted for holding pipe and the like.

Vises of the type having oppositely disposed movable jaws with a work positioning guide therebetween are well-known in the art, but even with the vises of this type where the jaws are separately movable, it is difficult to obtain a true centering of varied sized work with respect to the gripping portions of the jaws. As a consequence, some of the known vise structures have embodied a screw-fed linearly movable jaw while the complementary jaw has been so mounted that it may have a combined sliding and pivotal action as it is moved towards the closed or work-gripping position. However, it has been found that this type of mounting is not satisfactory in all cases to obtain a true centering of the jaw on the work.

The primary object of this invention is to provide a movable jaw type of vise embodying a mounting for one of the jaws adapted to allow a three way movement of said jaw, i. e., a sliding movement, a pivotal movement, and a vertical or lifting movement; thus ensuring that the work will be truly centered, regardless of size, between the gripping portions of the jaws.

To achieve this object, I freely mount the three-way movable jaw in a slot or recess having a floor portion terminating at a vertical shoulder adjacent the centrally disposed work-positioning guide. A lever having a cam portion within the recess is pivotable so that the cam portion effects an inward sliding of the jaw to abut the vertical shoulder and a pivoting of the jaw towards a vertical position to engage the work. The vertical shoulder is of such depth in comparison with the lesser distance between the upper surface of the jaw and the roof of the recess that the jaw may move vertically due to contact with the work to center on said work without losing its pivotal point engagement with the shoulder.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawing forming part of this specification, and in which:

Fig. 1 is a view in elevation of the vise embodied in the invention, with the forward end of the vise housing being broken away in section to disclose the operable elements of the vise;

Fig. 2 is a view in section taken along lines 2—2 of Fig. 1;

Fig. 3 is a view in perspective of one of the jaws of the vise of Figs. 1 and 2; and

Fig. 4 is a view in perspective of the other of the jaws of the vise of Figs. 1 and 2.

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Referring to the drawing for more specific details of the invention, the vise comprises a housing 10 having preferably a pair of substantially vertical internally threaded sockets 12 and a horizontal internally threaded socket 14 for the reception of legs, not shown, for the tripodal support of the vise. A longitudinally extending rounded groove 16 is provided in the top of the housing 10 to receive a pipe or other object to be held, and aligned recesses 18 and 20 in the housing are provided at opposite sides of the groove 16, the recess 18 terminating at a rear wall 22 and the recess 20 extending completely through the housing. An adjustment screw 24 having a handle 26 is threadably engaged in the housing and extends into the recess 18, said screw 26 having a reduced end portion 28 extending through a drill-hole 30 in a movable jaw 32 into the space between a pair of jaw faces 34 of said jaw. A cotter pin 36, or the like, secures the jaw 32 to the adjustment screw 24.

The floor of the recess 20 is contoured to provide a shoulder 38 and a rounded abutment 40, and in said recess there is disposed a movable jaw 42, which, together with the jaw 32, is preferably provided with a V-shaped face having a plurality of gripping teeth. The jaw 42 is further provided with straight upper and rear surfaces 44 and 46, and an angularly inclined surface 48 extending from the surface 46 to a rounded toe portion 50. The jaw 42 is normally disposed in the recess 20 so that the toe portion 50 is in engagement with the floor of the recess between the shoulder 38 and the abutment 40, or, in engagement with the shoulder 38, said jaw being supported in a canted position by a resting engagement of the surface 46 of the jaw against a lever 52.

The lever 52, having a handle portion 54 and a cam 56, is pivotally mounted within the recess 20 by a tapered pin 58 which preferably extends beyond the faces of the housing so that it may be readily removed. The lever 52 is so arranged with respect to the jaw 42 that a clockwise movement of said lever, as viewed in Fig. 1, is effective to bring the cam 56 into engagement with the surface 46 of the jaw to slidably move said jaw to the left and to rotate it in a counterclockwise direction about the toe portion 50 and into a substantially vertical position, as shown in dotted outline. The abutment 40 serves as a stop member for the cam lever 52 in its lowermost position.

Whatever the size of the work to be handled by the vise, it is preferable to use the jaw 32

to pre-set the work, and then to bring the jaw **42** into action to firmly clamp the work in place. Thus, the handle **26** of the adjustment screw is rotated to move the jaw a sufficient distance inwardly of the groove **16** to support the work between said jaw and the edges of the housing forming the opposite boundary of said groove, whereupon a rotation of the lever **52** urges said jaw in a sliding pivotal movement to engage the work. It will be noted that the jaw **42** may have a vertical movement upwardly so that the V-shaped portion of the jaw will center on the work, said vertical movement being possible until the upper surface **44** of the jaw abuts the surface **60** defining the roof of the recess **20**. Thus the free mounting of the jaw **42** in the recess **20** in conjunction with the shoulder **38** provides for three way movement of the jaw by allowing a sliding action, a pivoting action, and a vertical movement.

When the lever is pivoted in a counter-clockwise direction to the position of Fig. 1, the jaw **42** moves to the solid line position of Fig. 1, thus releasing the work without disturbing the jaw **32**.

While the preferred embodiment of the invention has been shown and described, it is to be understood that the embodiment is subject to modification within the spirit of the invention and the scope of the appended claim.

What I claim as new and desire to secure by Letters Patent is:

A vise comprising a housing having a groove in the upper portion thereof to receive and position a pipe, or the like, oppositely disposed recesses in said housing communicating with said groove, a jaw mounted in one recess and slidable therein to project into said groove, means for adjustably positioning said jaw, a second jaw freely carried in the other recess, a shoulder in said other recess adjacent said groove, and a lever means carried by said housing engageable with said second jaw and operable to slide said jaw toward said shoulder and to pivot said jaw to project into said groove, said second recess being of sufficient height in relation to the height of said jaw to allow a vertical rising movement of said jaw to center said jaw on a pipe, or the like, within said groove, and said shoulder being of sufficient height to serve as a stop member for the lower portion of said jaw upon a maximum rising movement of said jaw.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
595,309	Johnson	Dec. 14, 1897
1,327,595	Fulton	Jan. 6, 1920
1,783,594	Woods	Dec. 2, 1930