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HAND VISE

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Fig. 1

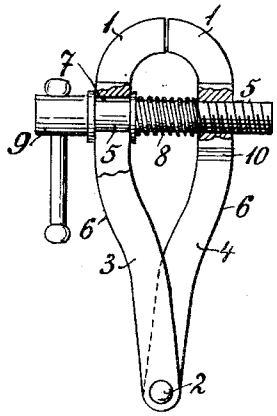


Fig. 2

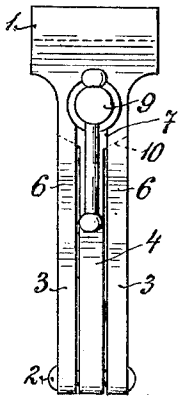


Fig. 3

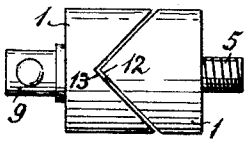
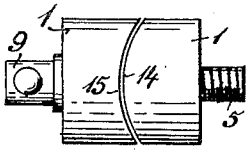


Fig. 4



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HAND-VISE

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2 Claims. (Cl. 81—18)

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For temporarily holding in the proper position workpieces, e. g., angle irons, that are to be joined, the usual hand vises are used, which, however, due to their hard grip, gradually loosen their hold when the work pieces are worked with a hammer or the like and, especially in the case of angle irons, gradually slip down and fall off due to their oblique inner flange surfaces.

It is difficult to locate constructional elements in corners, or curved parts, with hand vises having straight-edge jaws, such jaws in most cases contacting the workpiece at two narrow spots only, thus not affording sufficient grip.

The object of the invention is to overcome these drawbacks by providing a hand vise whose legs are somewhat curved outward between the pivot pin and the tightening screw and are made from steel so that an additional clamping force is afforded by the elasticity of the legs after the vise has been tightened, thus avoiding as far as possible a loosening of the vise under concussion.

For properly holding parts adjoining in a corner or curved structural parts, the jaw surfaces of the hand vise that are parallel to the axis of the pivot of the legs are bent at an angle or curved.

Other features of the invention relate to the special development of the legs and to the manner in which the tightening screw moving said legs is supported.

In the drawings, such an improved hand vise is illustrated by way of example in three embodiments.

Figures 1 and 2 show an embodiment in a side view, partially sectional, and in a front view, respectively.

Figures 3 and 4 are top views of hand vises having angular and curved jaws, respectively.

The hand vise consists in the usual manner of the two legs 3 and 4 carrying on top the jaws 1, 1, being pivotally connected at the bottom by a pin 2, and movable by a tightening screw 5. According to the invention, the two legs 3 and 4, are somewhat bent outward, at 6, between their pivot and the tightening screw, so that each leg has a certain curvature. Moreover, the legs 3 and 4 are made from steel so that they have a certain elasticity, as a result of which they exert, after the vise has been tightened, an additional clamping force, by which the loosening of the vise under concussion caused by the working of the clamped workpiece is prevented as far as possible.

The front leg 3 has two prongs, and the tightening screw 5 passes with a clearance at the bottom through the slot 7 between said prongs. The female thread for said screw is provided in the rear leg 4. By this arrangement, the bolt of the tightening screw can be made in a straight line, instead of being bent as in the usual hand vises, without obstructing the movement of the legs in any way.

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The spring adapted to open the legs 3 and 4 is passed over the tightening bolt as a coil spring 8. Said bolt carries at its front end a cross-bar handle 9, which permits turning the screw even when the space at the workpiece is restricted. This has often been impossible with the hitherto usual butterfly nut.

The leg 4 carrying the female thread for the tightening screw is provided laterally with shoulders at 10 and with parallel side surfaces so that it can move in the slot between the prongs of the other leg 3 and, if desired, can be clamped in a firmly mounted vise.

According to Fig. 3 the co-acting surfaces of the jaws 1, 1 are of angular shape. The pointed part 12 of said angle, provided on the one jaw, fits into a corresponding cut-out 13 in the other jaw. An angular slot is thus created between the two jaws so that rectangular corner joints can be fully contacted by the hand vise.

In Fig. 4, the coacting surfaces of the jaws are of curved shape, the convex surface 14 again fitting into the concave countersurface 15. Such hand vises are eminently suitable for use in connection with curve-shaped elements.

The surfaces of the jaws can also be bent at any other angle, and can be made with a rounded top, depending upon the individual corner joints and the most usual types of sectional iron. The jaws of firmly mounted vises can, of course, be made of angular or curved shape as well, if required.

The previous hand vises operate, as mentioned already, with a hard grip, because the completely rigid jaws do not permit of further tightening the butterfly nut once the jaws have contacted the workpiece. In the vise according to the invention, however, the somewhat elastic legs permit of some further tightening of the tightening screw after the jaws have contacted the workpiece. The workpiece, therefore, is not held in a hard grip and additional clamping force is exercised upon the jaws by reason of the elasticity of the legs.

What I claim is:

1. A hand-vise comprising a pair of steel leg members pivotally connected to each other at one end with a jaw at each of the other ends, the

leg members extending from the pivot slightly outwardly relative to each other and forming a sharp angle merging toward the pivot and each leg member being curved outwardly and back toward each other terminating into the jaws with a straight portion between the curved outwardly and back portions, and means secured to the straight portions of the leg members to adjust the jaws relative to each other, said leg members being elastic in their curved portions to prevent the means from loosening the jaws due to vibrations on the work clamped between the jaws and to prevent locking of the means in the straight portions of the leg members.

2. A hand-vise according to claim 1, in which one of the leg members is provided with two prongs extending from the jaw adjusting means to the pivot with the other leg member extending between the two prongs, and in which the means includes a tightening screw member secured between and at the base of the prongs.

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