

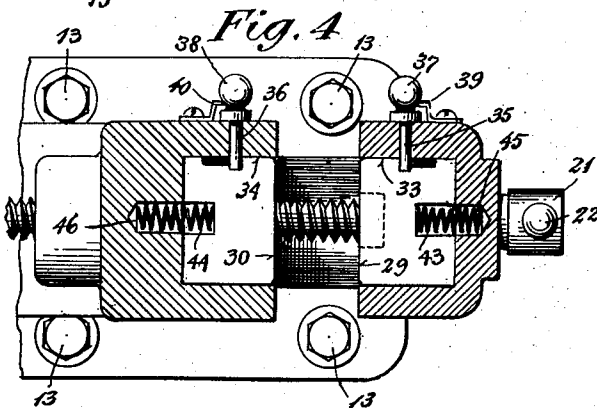
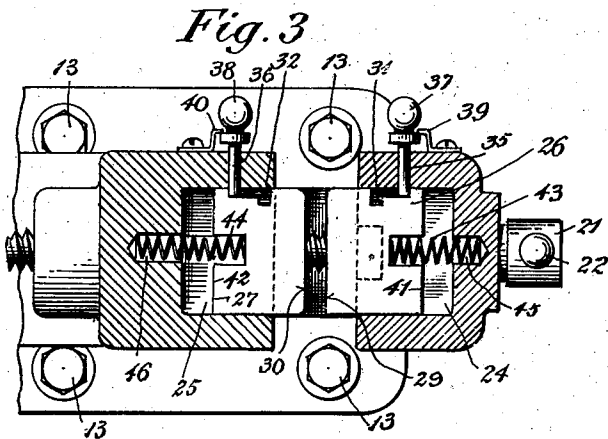
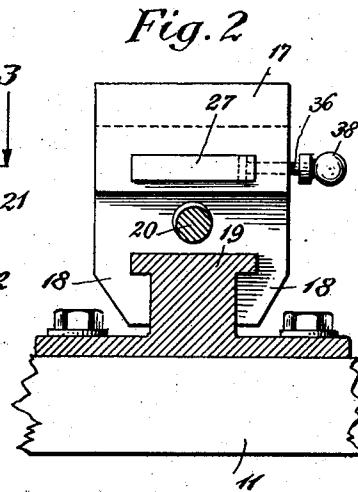
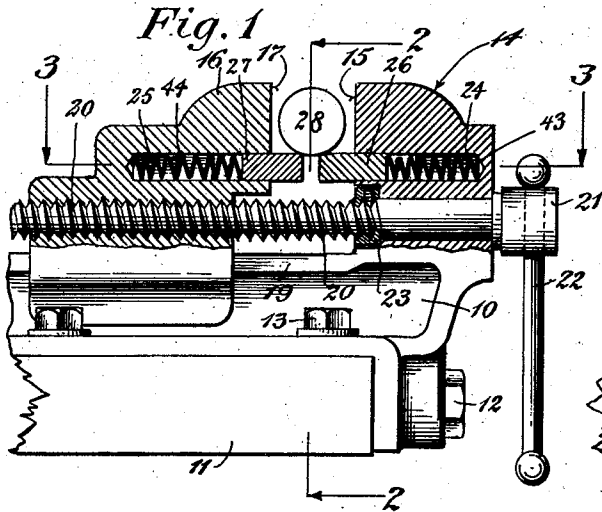
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WISE WITH AUXILIARY SUPPORT

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VISE WITH AUXILIARY SUPPORT

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This invention relates to work vises, and more particularly to means for assisting in the placing of work between the jaws of these vises.

An object of the invention is to provide an improved work vise wherein when the jaws are open a heavy piece of work may be conveniently and quickly inserted and positioned between same for clamping by one man only without danger of injury, and without damage to the vise.

This is accomplished in the embodiment shown by providing each jaw of the vise with a strongly made shelf which may be projected a substantial distance from the clamping surface of the jaw. When the vise jaws are separated, the shelves function like a table between same, and a heavy piece of work may be set down on the shelves by one man, held with only one hand, and the vise tightened with the other hand. With vises made prior to this invention, it required one man, using both hands, to hold and position a heavy workpiece between the vise jaws, and another man to tighten the vise.

A feature of the invention is that the shelves carried by the jaws are located over the clamping screw of the vise, and act as a shield protecting the screw from abrasion and damage. The shelves are retractable and extendible in the jaws, and are yieldably held in their extended supporting and shielding position by springs, and the latter automatically return the shelves to this position if they are dislodged from same by an opposing force, upon removal of the force.

Another feature of the invention is the provision of shelves in a vise as above outlined wherein each shelf may be retracted in its supporting jaw so that the shelf edge is flush with the clamping surface of the jaw, and when in this position the shelf bottoms so that it moves with the jaw to clamp a workpiece simultaneously with the clamping surface of the jaw. Means are provided for holding the shelves in their retracted positions at will, and thus the vise may be arranged to operate in the ordinary manner when desired.

Other features and advantages will hereinafter appear.

In the accompanying drawings, showing one form of the invention—

Figure 1 is a side view, partly in elevation and partly in section, of a vise made according to the invention.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 1.

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Fig. 4 is a section similar to that of Fig. 3 but showing the work-supporting shelves being held in their retracted positions.

Referring to Fig. 1, the vise has a body 10 shaped to fit at the edge of a work bench 11 and fastened thereto by bolts 12 and 13. Integral with the body 10 is a stationary jaw 14 having a clamping surface 15, and for cooperating with the jaw 14 to clamp a workpiece there is a movable jaw 16 having a clamping surface 17 facing the surface 15.

The movable jaw 16 has a pair of cheeks 18 slidable on a T-section (base rail) 19 to define the advancing and retracting movement of the jaw, and for the purpose of driving the latter a clamping screw 20 is provided, passing through both jaw bodies and being threaded into the movable jaw 16. The screw 20 has a head 21 apertured to receive a slidable bar 22 which enables a user to operate the screw for opening or closing the vise, and axial movement of the screw 20 is prevented by a collar 23 fastened thereto which engages the inner or back surface of the jaw 14, and by engagement of the head 21 with the front surface of the jaw.

According to the present invention there are provided means associated with each of the jaws 14 and 16 to enable one man to conveniently insert workpieces of substantial weight between them, and to steady such workpieces safely with one hand while tightening the vise with the other hand. These means comprise flat wide shelves which are carried by the jaws to extend a substantial distance into the space between the clamping surfaces 15 and 17 when the jaws are widely separated. The shelves function as a table surface, and are sturdy and so supported that they may support considerable weight and impact, and usage.

As shown in the drawings, the lower portions of the jaws 14 and 16 are provided with rectangular recesses 24 and 25 respectively, which are bounded by the clamping surfaces 15 and 17 and extend into the jaws perpendicularly to said surfaces and in alignment with each other. A shelf 26 is carried in the recess 24, and a shelf 27 in the recess 25, each of the shelves being movable from a retracted position as shown in Fig. 4 to an extended or projecting position as shown in Figs. 1 and 3.

When the jaws 14 and 16 are separated considerably and the shelves are in extended position as in Fig. 1, each projects toward the other into the space between the clamping surfaces 15 and 17 a substantial distance, and each is made

preferably to extend almost the full width of the jaws. As thus arranged the shelves constitute a flat table surface, and in Fig. 1 a rod-like workpiece 28 is shown being supported thereon.

When the shelves 26 and 27 are in their retracted positions (as in Fig. 4), the edges 29 and 30 respectively thereof are flush with the clamping surfaces 15 and 17 of the jaws, this being accomplished by matching the depth of the recesses 24 and 25 to the depth of the shelves, and preferably the latter are fitted closely to the recesses. Thus when the shelves are retracted, the vise may be used as if it had no shelves whatever, since the clamping surfaces 15 and 17 will each present substantially a flat unbroken face. Also, since the shelves when in retracted position cannot yield further due to their being backed by the bottoms of the recesses (Fig. 4), the edges 29 and 30 will align and cooperate with the clamping surfaces 15 and 17 to securely hold a workpiece.

For the purpose of setting the extended positions of the shelves 26 and 27, and also in order to be able to lock these in their retracted positions, stepped grooves 31 and 32 are provided respectively in the shelf edges 33 and 34. A pair of pins 35 and 36 having knobs 37 and 38 are slidably mounted in the side walls of the jaws 14 and 16 respectively, to extend into the grooves 31 and 32. When the pins 35 and 36 are in the positions shown in Fig. 3, the shelves 26 and 27 may be moved from their extended positions to their retracted positions, and vice versa. Should it be desired to lock the shelves 26 and 27 after they have been moved to their retracted positions, the pins 35 and 36 are inserted into the deep parts of the grooves, as shown in Fig. 4.

The extent of outward movement of the pins 35 and 36 is governed by stops 39 and 40 fastened to the jaw bodies 14 and 15 respectively, and which engage the heads 37 and 38. Thus the pins are movable from the non-locking but stopping positions of Fig. 3 to the locking positions of Fig. 4 and vice versa.

I have found it desirable to yieldably hold the shelves 26 and 27 in their extended positions, and to provide for automatic return to these positions if the shelves should be forcibly retracted, upon removal of the retracting force. In accomplishing this, the rear edges 41 and 42 of the shelves are cut out to receive coil compression springs 43 and 44 respectively, the other ends of the springs extending into wells 45 and 46 in the recesses 24 and 25.

The springs 43 and 44 are under compression at all times, and when the shelves 26 and 27 are in extended position, as in Fig. 1, and a workpiece is set down between the jaws for clamping, any tendency for the shelves to separate and retract is opposed. Even when a comparatively heavy workpiece of round cross section, as the piece 28 (Fig. 1) is set down heavily on the shelves 26 and 27, they will not separate but will resist the impact and support the weight. Thus a man may, by using both hands, place one end of a heavy bar on the shelves 26 and 27 between the jaws 14 and 16, then support the other end of the bar with one hand and close the vise by operating the handle 22 with the other hand. The substantial strength of the shelves 26 and 27, and their resistance to separation will prevent abrasion of and damage to the screw 20, yet the shelves may be retracted and locked in this position quickly and conveniently if this should be desired.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

I claim:

1. A vise having a pair of relatively movable jaw bodies having clamping surfaces facing each other; a shelf mounted in one of the jaw bodies to extend through the clamping surface thereof, said shelf being movable from a non-projecting position wherein the shelf edge is flush with the clamping surface to a position wherein the shelf projects from said surface to support a workpiece; and means including a sliding catch for locking the shelf in non-projecting position flush with the clamping surfaces.
2. The invention as defined in claim 1, in which there are means for yieldably holding the shelf in projected position for supporting a workpiece when the shelf is not locked flush with the clamping surface.
3. The invention as defined in claim 1, in which the shelf is carried in a recess in the jaw body, in which the means for locking the shelf includes a stepped groove therein which opens at a side wall of the jaw recess, and in which the sliding catch is a pin carried by the jaw body in the said side wall thereof and extending into the groove of the shelf.
4. A vise having a pair of relatively movable jaw bodies having clamping surfaces facing each other, one of said bodies having a recess with an opening at the clamping surface thereof; a shelf carried in the recess of the jaw and movable from a position wherein it projects from the clamping surface for supporting a workpiece to a non-projecting position wherein the shelf edge is flush with said surface, said shelf having a stepped groove which opens on a side wall of the jaw recess; a pin slidably carried in the said side wall of the recessed jaw body to be movable between two predetermined positions, said pin extending into the groove of the shelf to lock same in a non-projecting position or to limit the projecting movement thereof according to whether the pin is in one or the other of its positions respectively; and means for limiting the movement of the pin between the said predetermined positions.
5. A vise having a pair of relatively movable jaw bodies having clamping surfaces facing each other; a pair of shelves, one shelf being mounted in each jaw body to extend through the clamping surface thereof in alignment with the other shelf, and each being movable from a position wherein it projects from said surface to support a workpiece to a nonprojecting position wherein the shelf edge is flush with the clamping surface, and each shelf being connected when in the latter position to move positively with the jaw body for clamping a workpiece in conjunction with said clamping surfaces; and means, including a pair of sliding catches, one associated with each of the shelves, for locking the latter in nonprojecting position flush with the clamping surfaces.
6. A vise having a pair of relatively movable jaw bodies having clamping surfaces facing each other; and a pair of shelves extending for substantially the full length of the jaw body, one shelf being mounted in each jaw body to extend through the clamping surface thereof in alignment with the other shelf, and each being movable from a position wherein it projects from said surface to support a workpiece to a nonprojecting position wherein the shelf edge is flush with the clamping surface, and each shelf being connected when in the latter position to move

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positively with the jaw body for clamping a work-piece in conjunction with said clamping surfaces, each jaw body having a shelf-receiving recess which is spaced from all of the boundaries of the clamping surface of the body, each shelf fitting its supporting recess closely so that each jaw body presents a substantially unbroken non-yielding clamping surface when the shelves are in non-projecting position.

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REFERENCES CITED

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

UNITED STATES PATENTS

	Number	Name	Date
5	416,959	Sheppard -----	Dec. 10, 1889
	1,499,989	Lehmann -----	July 1, 1924
	1,630,993	West -----	May 31, 1927
10	2,195,277	Kleinman -----	Mar. 26, 1940
	1,387,936	Page -----	Aug. 16, 1921