



PATENT SPECIFICATION

DRAWINGS ATTACHED

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Inventor : William Alexander Armitstead.*Date of filing Complete Specification* December 16, 1965.*Application Date* March 17, 1965.*No.* 11282/65.*Complete Specification Published* April 12, 1967.

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Improvements in or relating to vises.**COMPLETE SPECIFICATION**

We, J. PARKINSON & SON (SHIPLEY) LIMITED, of P.O. Box No. 28, Shipley, in the County of York, a British Company, do hereby declare the invention, for which we
 5 pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to engineers and
 10 woodworkers bench vises, adjustable clamps or the like (hereinafter termed "vises"), having a screw operated jaw movable in relation to a stationary jaw.

Vises usually have a so-called fixed jaw
 15 with a movable jaw furnished with a slide to work in guide means provided by the body of the fixed jaw. Operation of the movable jaw is by means of a long screw mounted in bearings provided by the slide of the movable jaw. In some cases operation of the
 20 jaw is entirely by means of a screw passing through a fixed nut, but it is known to provide a quick release action so that the movable jaw can be pushed or pulled in
 25 relation to the fixed jaw.

The main object of the present invention is to provide an improved form of quick action vise.

Accordingly there is provided a vise
 30 having a fixed jaw and a movable jaw operable by a screw carried by the movable jaw in engagement with a half-nut capable of downward displacement from its screw engaged position, and an operating element
 35 extending along the screw for causing said displacement to free the jaw and operable by a part rotary movement, characterised in said operating element comprising an inverted channel shaped bar pivotally mounted
 40 at its ends on the screw, and a half-nut forming part of, or being carried by, a vertically movable slide block which is spring loaded to its raised position by an underneath leaf spring, and means for rocking the bar about
 45 the screw axis to depress the half-nut and its

spring loaded carrier block.

The invention will now be more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 is a front view of an engineers vise; 50

Fig. 2 is a longitudinal sectional elevation of the vise;

Fig. 3 is a detail plan view showing the vise operating screw and half-nut;

Fig. 4 is a plan view of a woodworkers 55 vise; and

Fig. 5 is a sectional elevation on line A-A of Fig. 4.

In a particular embodiment of this invention, shown in Figs. 1 to 3, a bench vise is
 60 constructed comprising a fixed jaw 1 upstanding from a body 2 by means of which the vise can be mounted on a bench or other structure. A movable jaw 3 is associated with the fixed jaw and is provided with an
 65 extension slide 4 to be movable in guides 5 provided by the said body. The slide 4 is of inverted channel formation and provides a bearing 6 in its front wall and a bearing
 70 7 in its rear wall for the mounting of an operating screw 8. This screw has plain ends 9, 10 for the bearings and is constrained by a shoulder 11 externally of the front slide
 75 wall and by a pin and washer 12 or the like on the rear end of the screw. The external shoulder 11 is the inner face of a screw operating collar 13 through which the usual
 80 slidable tommy bar handle 14 is mounted. The lower part of the fixed jaw body is internally built-up at least forwardly at 15
 85 of a vertical opening 16 in which is mounted a slidable cylindrical (or other shaped) carrier block 17. This block is normally held in its raised position by a leaf spring 18 pressing
 90 against its bottom face. The top of this block either forms a half-nut 19 (or has such a half-nut secured thereto) to engage under the operating screw 8 of the movable jaw 3. Thus rotation of the screw will cause the movable jaw to move in relation to the fixed

jaw and the aforesaid built-up body part 15 provides a forwardly disposed reaction face for the carrier block 17. The block 17 may be solid or hollow with the bottom face partly tapered-off rearwardly at 20 to clear the leaf spring 18 when the block is depressed. Also the block has two side flats 21 for clearance purposes.

To make the vise capable of quick action, 10 a channel shaped operating bar 22 is mounted inverted over the operating screw 8 and supported thereon. The bar has end collars 23, 24 mounted on the forward and rear plain ends 9, 10 of the screw adjacent its bearings 6, 7 and the front collar 23 has 15 a forwardly projecting lever 25 lying adjacent the screw operating bar 14. This lever passes under (or through an opening in) the slidable jaw 3.

20 For a woodworkers vise, Figs. 4 and 5, this can be of generally known form using two parallel guide rods 26 projecting rearwardly from the movable jaw 27 and slidable in bearings in the body 28 of the fixed jaw.

25 A guide rod retaining plate 29 is mounted on the rear ends of the rods and provides a central bearing for the rear end 10 of the operating screw 8 which is held by a pin and washer 12 or other means. Here again, a half-nut 19 and carrier block 17 is provided 30 with an inverted channel shaped operating bar 22 mounted on the screw 8. The operating lever 25 passes under the movable jaw 27.

35 With both of the above vises, when it is desired to make a quick adjustment of jaw opening, the lever 25 of the operating bar 22 is moved in a clockwise or anti-clockwise direction to rock the bar about the screw 40 axis. The edge of the bar engages the half-nut 19 (or its carrier block) and depresses it to free the half-nut from the screw 8 so that the movable jaw can be pulled out or pushed in.

45 WHAT WE CLAIM IS:—

1. A vise having a fixed jaw and a movable jaw operable by a screw carried by the movable jaw in engagement with a half-nut capable of downward displacement from its 50 screw engaged position, and an operating element extending along the screw for causing said displacement to free the jaw and operable by a part rotary movement, characterised in said operating element com-

prising an inverted channel shaped bar 55 pivotally mounted at its ends on the screw, and a half-nut forming part of, or being carried by, a vertically movable slide block which is spring loaded to its raised position by an underneath leaf spring, and means for 60 rocking the bar about the screw axis to depress the half-nut and its spring loaded carrier block.

2. Vise according to claim 1, wherein the half-nut carrier slide block is at least substantially of cylindrical shape with a substantially flat bottom face engaged by the free end of a leaf spring.

3. Vise according to claim 1 or 2, wherein the carrier slide block is hollow. 70

4. Vise according to claim 1 or 2, wherein the carrier slide block has two side flats for clearance purposes.

5. Vise according to claim 1, wherein the fixed jaw body is built-up at least in advance 75 of the vertical opening in which the carrier slide block is mounted to provide a reaction face.

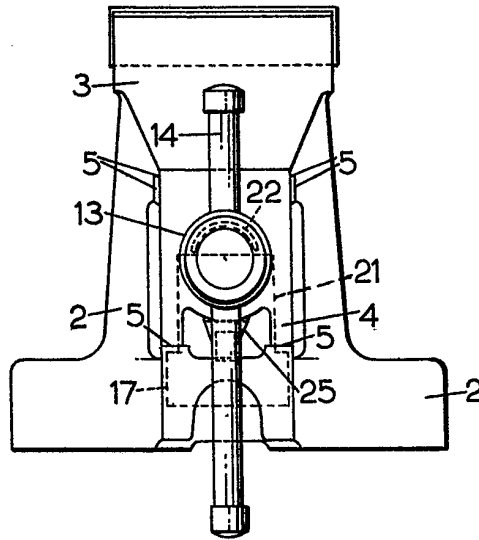
6. Vise according to claim 1, wherein the operating bar has a forward projecting finger 80 for passing under or through the front movable jaw to lie adjacent the screw operating tommy bar.

7. An engineers vise constructed and adapted to operate substantially as described 85 with reference to Figs. 1 to 3 of the accompanying drawing.

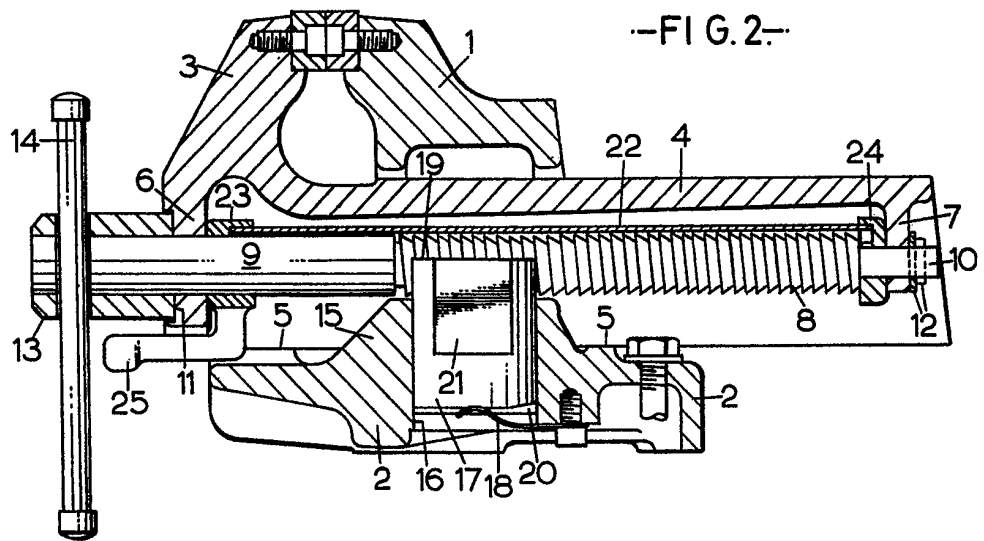
8. A woodworkers vise constructed and adapted to operate substantially as described 90 with reference to Figs. 4 and 5 of the accompanying drawings.

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--FIG. 1--



--FIG. 2--



--FIG. 3--

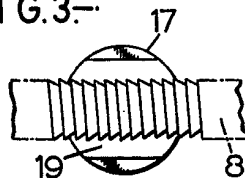
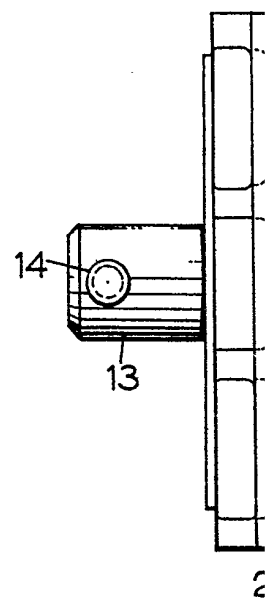
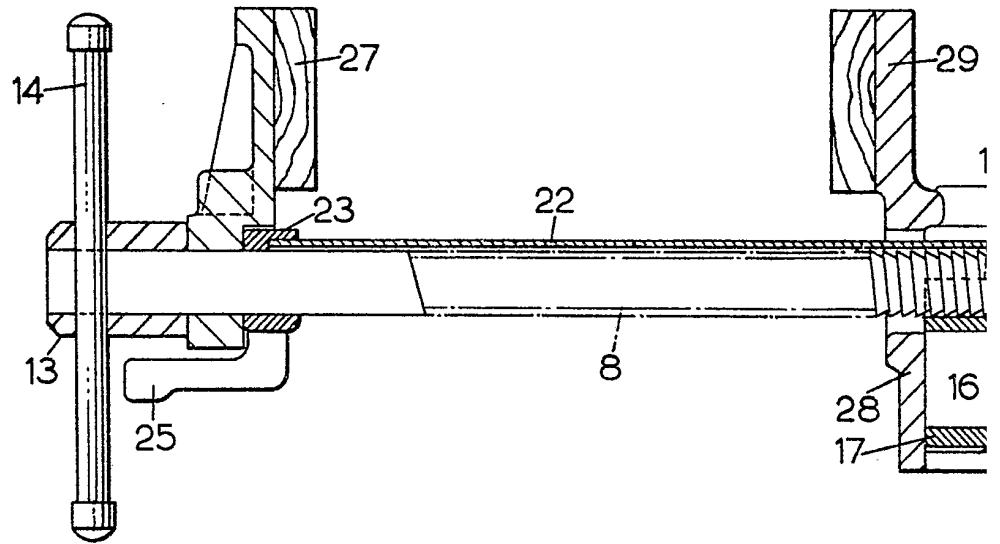
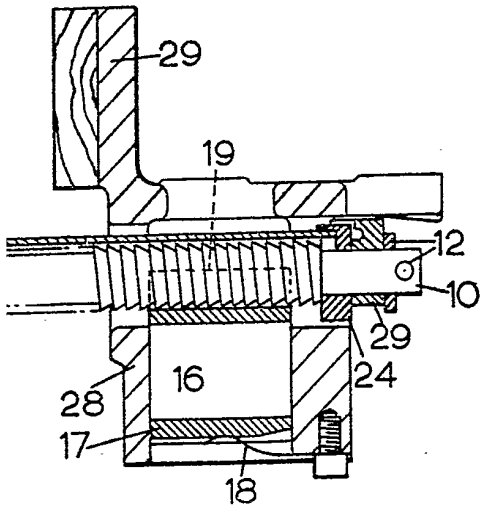


FIG. 5.





--FIG. 4--

