Oct. 17, 1950 H. FUHR 2,526,020

ADJUSTABLE VISE-JAW UNIT REMOVABLY SUPPORTED BY BED OF FIXED JAW

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Fig. 1.

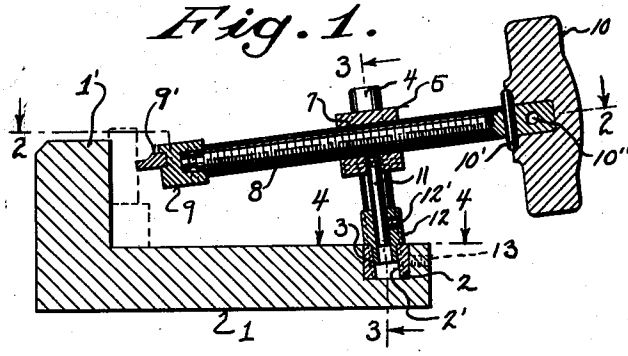


Fig. 3.

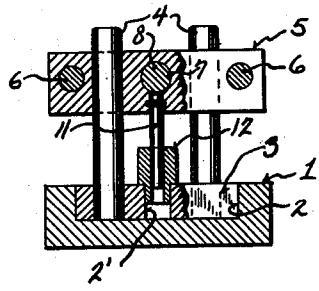


Fig. 2.

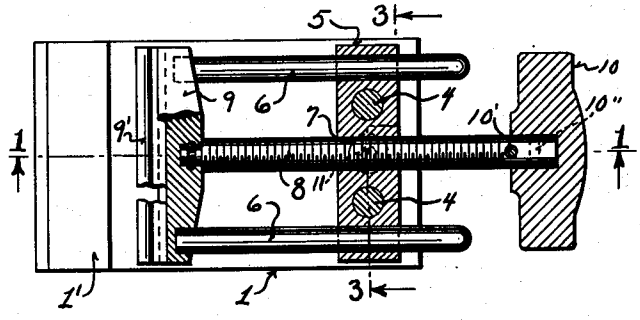


Fig. 4.

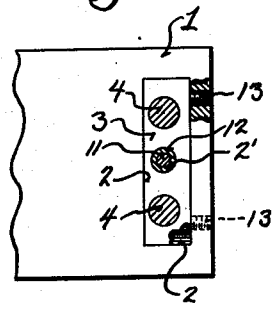


Fig. 5.

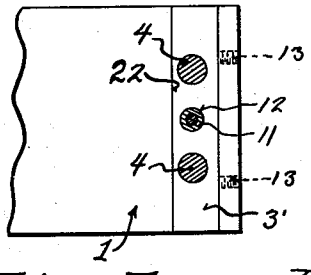


Fig. 6.

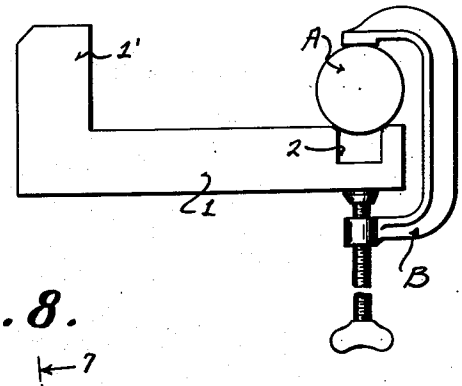


Fig. 7.

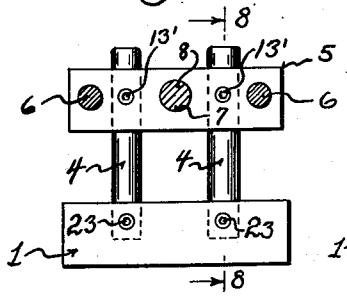
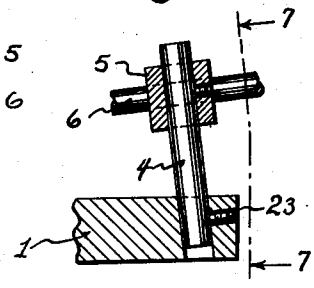


Fig. 8.



INVENTOR
HENRY FUHR

BY Young & Wright

ATTORNEYS

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ADJUSTABLE VISE-JAW UNIT REMOVABLY SUPPORTED BY BED OF FIXED JAW

Henry Fuhr, Milwaukee, Wis.

Application October 15, 1948, Serial No. 54,635

1 Claim. (Cl. 81—33)

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My invention refers to a hand actuated vise and the same is an improvement upon a vise as disclosed in my patent application, Vise, filed January 2, 1948, and bearing Serial Number 43, now Patent No. 2,484,339.

The object of my invention is to provide means for removing the adjustable vise unit assemblage from the bed of a fixed vise jaw, whereby the bed is cleared for use as a surface plate or a right angle measurement square, and said bed may also be used as a seat for pieces of work such as rods, tubes, or the like, to be secured by a hand clamp thereto, the same being nested in a transverse slot of said bed.

A further object of my invention is to provide a simple and effective anchor means for the adjustable vise jaw comprising a block and a pair of pins for vertically adjusting the movable jaw, relative to the fixed vise jaw unit, the pins being anchored in the bed, while the movable jaw is guided and in threaded connection with the block, whereby it is properly adjusted in position for all work.

A still further object of my invention is to provide a cross-head carrying vertical pins and arranged to be seated in a transverse slot formed in the bed and secured, whereby, upon release of the cross-head from the bed, the entire movable jaw of the vise is lifted from the bed to permit the same to be used for other work purposes.

A still further object of my invention is to provide the adjustable vise jaw unit permanently set at a slight angle to the fixed jaw, whereby work between the jaws is firmly held in place.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the novel construction, combination and arrangement of parts, substantially as hereinafter described, and more particularly defined by the appended claim, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claim.

In the accompanying drawings is illustrated one complete example of the physical embodiment of the present invention constructed according to the best mode so far devised for the practical application of the principles thereof.

In the drawings:

Fig. 1 represents a longitudinal sectional elevation of a vise embodying the features of my invention, the section being indicated by line 1—1 of Fig. 2.

Fig. 2 is a top plan view of the same, partly in section as indicated by line 2—2 of Fig. 1.

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Fig. 3 is a cross sectional view of the vise, the section being indicated by line 3—3 of Fig. 1.

Fig. 4 is a fragmentary sectional plan view of the movable jaw vise anchor means, the same being indicated by line 4—4 of Fig. 1.

Fig. 5 is a fragmentary plan sectional view of the rear end of the vise illustrating a modified form of a slot therein carrying a removable cross-head.

Fig. 6 is a side elevation of the bed having a right angle extended vise jaw and showing the cross-head slot therein fitted with a circular rod clamped into the empty slot for work purposes.

Fig. 7 is a detail rear end view of a pair of pins extending from the bed, upon which is mounted the movable vise unit and its carrying block, the same being partly in section as indicated by line 7—7 of Fig. 8; and

Fig. 8 is a longitudinal sectional view through one of the block carrying pins, the section being indicated by line 8—8 of Fig. 7.

Referring by characters to the drawings, 1 indicates a base bed, having extended upwardly, at a right angle thereto, a fixed vise jaw 1'. The rear end of the bed 1 is provided with a transversely disposed slot 2, the ends of which slot terminate a predetermined distance from the longitudinal edges of the bed, whereby the rear end of said bed is strengthened.

As best shown in Figs. 1 to 4, inclusive, of the drawings, the slot 2 has fitted therein a cross-head 3, which cross-head carries a pair of pins 4 that are slightly tilted forwardly, as shown, said pins being permanently shrunk into the cross-head.

Slidably mounted upon the pins 4 is a block 5. A pair of guide pins 6, are slidable in apertures formed in the ends of said block and are disposed in a plane perpendicular to a plane containing the inclined pins 4. The center of the block is provided with a screw threaded aperture 7 for the reception of a corresponding threaded spindle 8, the forward end of which spindle is provided with a vise jaw 9, carrying a work biting bar 9', whereby the work, as indicated in dotted lines of Fig. 1, is pinched between the bar and the fixed vise jaw 1'.

It will be noted, owing to the forward inclination of the pins 4, that the vise jaw and associated parts are positioned at a slight angle, from a horizontal, to thus insure firm gripping of the work between the jaws. The movable vise jaw 9, as best indicated in Fig. 2 of the drawings, is firmly secured to the guide pins 6, whereby, upon movement of the threaded spindle, the said jaw

is moved towards or away from the fixed jaw 1'.

The inner end of the spindle 8 has mounted thereon an actuating wheel 10, which is held against rotation, with reference to the spindle, by a key pin 10'. Hence, under certain work conditions, the hand wheel may readily be removed from the shank of the spindle so as to eliminate the obstruction of said handle. In the event the handle is removed, for convenience in working, the shank of the spindle is provided with an aperture 10'', whereby a key rod may be inserted therein for rotating the spindle.

For the purpose of raising or lowering the elevation of the biting bar 9 and its associated parts, the block 5 has centrally secured thereto a rod 11, the bottom end of which rod is slidably mounted in a sleeve 12, and the bottom end of the sleeve is shouldered and seated in a socket 2' extending through the cross-head.

By the use of the above sleeve and rod connection, the block may be manually adjusted at various elevations and thereafter said block is locked by a set screw 12' carried by the sleeve and engaging said rod. It should be noted that the cross-head 3 is also secured within the slot 2 by set screws 13.

As best shown in Fig. 5 of the drawings, in some instances the transversely disposed bed slot 22 may extend entirely through the bed 1, in which instance a cross-head 3' is seated in the slot and also extended flush with the side faces of the bed. The anchor pins 4 and associated sleeve and rod connections between the cross-head and block, in this instance, are similar to that previously described.

In this form of slot, it is extended entirely through the bed for the purpose of forming a jawed cavity, upon which is seated a piece of work A, in either rod or tubular form, and when so seated, it is secured by a standard clamp B.

Hence, it will be noted that after the bed is stripped of the movable vise unit, it may not only be used as a clamp for tubes or rods, but also as a surface plate and angle square, which is convenient for various types of work.

As shown in Figs. 7 and 8 of the drawings, another modified form is illustrated, wherein the pins 4 are simply socketed into the rear end of the bed plate 1 and secured by set screws 23, it being noted that said pins are positioned at a slight forward angle, similar to that previously described, whereby the movable vise unit will properly grip work, in conjunction with the fixed vise head.

In this modified form, a block 5, which is slidable on the pins, is similar to that previously described, with the exception that in this instance said block is locked in its adjusted position upon the pins 4 by set screws 13' which are in threaded union with apertures in the blocks and impinge against the pins 4.

While I have minutely described all structural features, it is understood that I may vary the same within the scope of the claim.

I claim:

A vise comprising a bed having a transversely disposed slot at one end and a fixed vise jaw at the other end, the same being at a right angle to the bed; a movable vise jaw unit including a block, a spindle in threaded union with the block, guide rods carried by the movable vise jaw in slidable union with the block, a cross-head seated in the bed slot, vertically disposed pins extending from the cross-head in slidable engagement with said block, a centrally disposed socket formed in the cross-head, a sleeve seated in the cross-head socket, a rod carried by the block adjustably fitted in the sleeve, and a set screw carried by the sleeve for locking the rod, the adjustable vise jaw unit as a whole being removable from the bed.

HENRY FUHR.

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