Aug. 30, 1949. A. L. METTLER 2,480,415

MACHINE VISE HAVING GUIDE AND HOLDDOWN MEANS FOR SLIDING JAWS

Filed Sept. 8, 1947

Fig. 1.

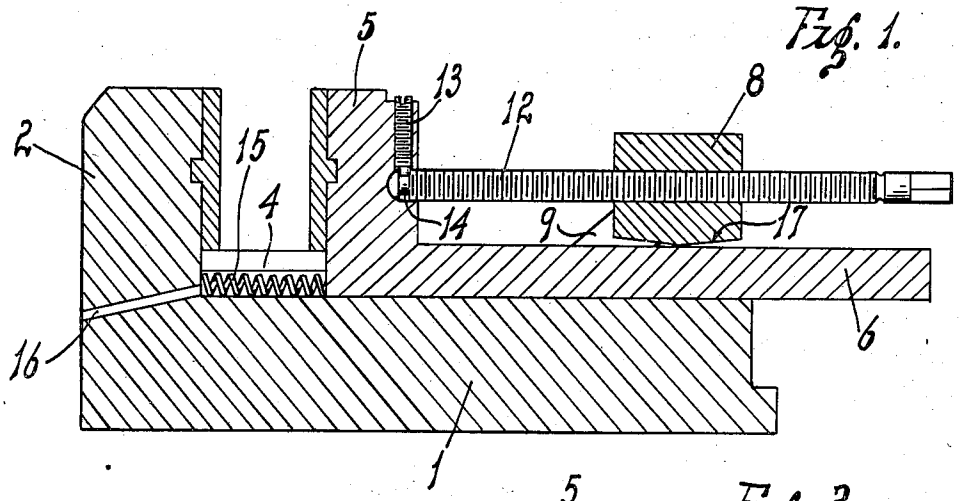


Fig. 2.

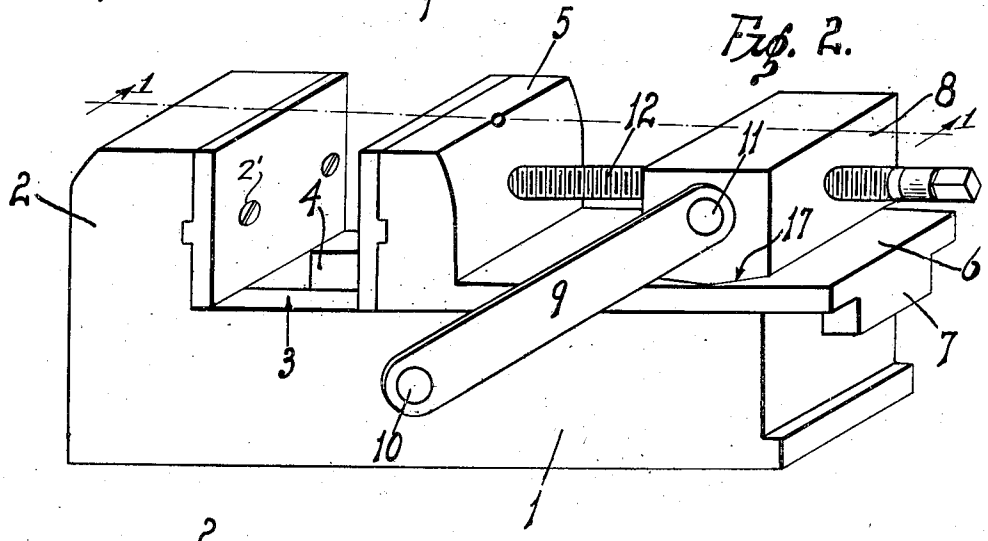
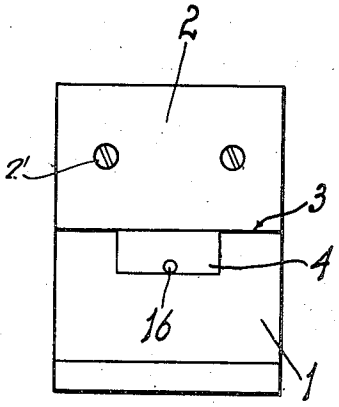


Fig. 3.



Inventor

Arthur L. Mettler.

By H. A. Duckman

Attorney

Patented Aug. 30, 1949

2,480,415

UNITED STATES PATENT OFFICE

2,480,415

MACHINE VISE HAVING GUIDE AND HOLD-DOWN MEANS FOR SLIDING JAWS

Arthur L. Mettler, Lomita, Calif.

Application September 8, 1947, Serial No. 772,681

1 Claim. (Cl. 81—33)

1

This invention relates to a machine vise whereby a piece of material is effectively held in proper position on a machine while it is being worked upon.

An object of my invention is to provide a novel machine vise which will effectively hold the work and prevent slipping of this work due to the mounting of the jaws, these jaws remaining parallel at all times so that the work is effectively gripped throughout the entire surface contacting the jaws.

Another object of my invention is to provide a novel machine vise in which the moving jaw is mounted in a long slide thereby effectively guiding this jaw, and also the manner in which a pressure block is mounted on links pivoted to the body of the vise, this pressure block bearing against the movable jaw so as to press this jaw tightly into its guide slot.

Another feature is to provide a novel machine vise of the character stated which is more compact and also wherein the sliding jaw can be readily removed from the vise, and replaced or exchanged if necessary.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claim.

In the drawing:

Figure 1 is a longitudinal sectional view of my machine vise, as taken on line 1—1 of Figure 2.

Figure 2 is a perspective view of the same.

Figure 3 is an end view of the body portion of the vise, as seen from the right of Figure 2.

Referring more particularly to the drawing, the numeral 1 indicates the body of the vise which is bolted, clamped or otherwise fixedly attached to the bed of the machine on which it is to be used. A stationary jaw 2 is integrally formed on one end of the body 1, and this jaw extends at right angles to the slide surface 3 of the vise. The jaw plate is secured to the jaw by screws 2'. A groove 4 is formed in the upper face of the body 1.

A sliding jaw 5 includes an integrally formed plate 6, the plate 6 being formed with a tongue 7, which fits in the groove 4, and accordingly guides the jaw 5 in its horizontal movement. The plate 6 is of considerable length relative to the jaw 5, and therefore acts as an effective guide for the jaw and prevents tilting of the jaw when pressure is applied to the jaw.

A pressure block 8 rests on top of the plate 6, and extends transversly of the plate, substantially as shown. A pair of links 9—9 are mounted one

2

on each side of the block 8, and these links are each pivoted at one end to a stud 10 extending from the body 1, and at the other end to a pin 11, which projects from the block 8.

A screw 12 is threaded through the block 8, and bears against the moving or sliding jaw 5. If desired, a set screw 13 may project through the jaw 5 and engage an annular groove 14 in the end of the screw, so that the screw will not back out of the jaw 5. The pins 11 and the screw 12 are substantially in horizontal alignment in the block 8. Also, the screw 12 extends through the block 8 at a slight upward angle toward the jaw 5, so that when pressure is exerted against the jaw 5 the vertical component of force will be downward on the block 8, thus forcing this block downwardly against the plate 6, and thereby holding the jaw 5 against tilting movement.

A spring 15 is positioned in the groove 4 and bears against the moving jaw 5, thus urging this jaw away from the fixed jaw 2 whenever the screw 12 is backed off. This is advantageous in production work. A drain port 16 extends through the body 1, from the groove 4, thus draining this groove of any liquids which might accumulate there. The bottom of the block 8 is beveled as shown at 17 to form a transverse bearing ridge, so that the block can pivot slightly on the sliding jaw 5, as the angle of the screw 12 changes at different points of operation. The pivot point is in the center of the block so that there is no binding of the screw 12 in the block.

It will be noted that the sliding jaw 5 has a long bearing in the body of the vise 1, by reason of the plate 6. This long bearing, together with the pressure block 8, which presses the plate downwardly, will effectively prevent the jaws 2 and 5 from getting out of parallelism under stress, as when the work is being acted upon by the machine tool. Also, as previously described, the stresses applied to the sliding jaw 5 are transmitted through the adjusting screw 12, and thence to the pressure block 8, and these stresses are so transmitted that there is a definite downward component of force on the pressure block 8, tending to hold the sliding jaw 5 against the slide surfaces 3 of the vise.

To remove the jaw 5 it is only necessary to retract the screw 12, and then the screw and the block 8 can be swung upwardly, thus releasing the jaw 5 and permitting its removal. I have found in actual operation that the jaws 2 and 5 will engage the work squarely and will not distort or cock (that is, get out of parallel) when force is applied to the work gripped by the jaws.

Having described my invention, I claim:

A machine vise comprising a body, a fixed jaw integrally formed with the body, and extending upwardly from one end of the body, said body having a longitudinal groove in the top thereof, said groove extending from said fixed jaw to the opposite end of the body and forming laterally spaced horizontal bearing surfaces, a sliding jaw, a plate and depending tongue integrally formed with the jaw, said tongue being slidably mounted in said groove and said plate and jaw being slidable on said bearing surfaces, a pressure block transversely spanning said plate near said opposite end of said body and bearing against the top of said plate, a screw threaded through said block and bearing against the sliding jaw, a pair of links pivotally secured at one end to the outer side walls of the body, and pivotally secured at the other end to each lateral side of the pressure block, said links extending at an angle from said pressure block, said pressure block being beveled on its lower surface to form a transverse bearing ridge and said screw being in horizontal alignment with the pivotal axes of the pressure block ends of the links.

ARTHUR L. METTLER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
131,195	Traut	Sept. 10, 1872
1,114,970	Cumner	Oct. 27, 1914
1,145,199	Kobert	July 6, 1915

FOREIGN PATENTS

Number	Country	Date
8,898	Great Britain	Apr. 16, 1913