UNITED STATES PATENT OFFICE

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VISE TYPE FIXTURE HAVING TWO PAIRS OF JAWS

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5 Claims. (Cl. 81—33)

This invention relates to a vise type fixture and has for one of its objects the provision of a fixture which is capable of positioning and clamping two or more pieces of material of the same or different shapes, or a single irregularly shaped piece of material, in a position for doing work thereon. The fixture is useful, for example, for drilling, reaming or tapping two or more pieces in one operation when an aligned hole or tap in the two pieces is desired. The fixture, however, has many other uses, as will be apparent to those skilled in the art.

Hereinbefore, when two or more pieces of similarly or dissimilarly shaped material were to be drilled, reamed or tapped, it was necessary to use two or more hand clamps. It is difficult to handle the hand clamps and the fittings to assemble the pieces, and the hand clamps oftentimes do not hold the pieces in proper position when the tool is applied to the work.

It is, therefore, an object of the invention to provide an improved vise type fixture to retain two or more pieces of material together, of the same or different shape and to dispense with the use of common hand clamps for this purpose.

It is also an object of the invention to provide a fixture of the type described, wherein in one or more of the pieces to be worked upon may be clamped and held in position independently of one or more other pieces which are to be simultaneously worked upon.

It is an additional object of the invention to provide a vise type fixture in which the pieces to be worked upon may be readily positioned or aligned, if alignment is required.

It is a further object of the invention to provide a fixture which has three movable or adjustable plates or jaws and one fixed plate or jaw, which cooperates with one of the movable jaws.

It is also an object of the invention to provide a fixture having two jaws or plates extending at substantially right angles to two other jaws or plates; and specifically to provide for movement of three of the jaws.

It is an additional object of the invention to provide a vise type fixture which may be disposed in two positions 90° removed on the bed of a machine or on stilts.

With these and other objects in view, the inven-
to slide on the rails 14 and 15, and is slidably secured thereto by means of a plate 31 secured to the jaw 24 by screws (not shown).

A third movable plate or jaw 26 is vertically disposed, as shown in Figure 1, and is shouldered as shown at 27. The plate 26 is adapted to slide along the rails 14 and 15 and is slidably retained thereon by means of a plate 28 positioned within the body 11 and secured to the jaw or plate 26 by means of screws 29.

A relatively heavy screw threaded member 32 is provided for moving the plate or jaw 21. The threaded member 32 has a knurled knob 33 secured at one end thereof and the other end is rotatably secured to the jaw 21, in a manner hereinafter described. A threaded block 34, through which the threaded member 32 extends, is secured to the body 11 by means of screws 35. Rotation of the knob 33 rotates the threaded member 32 in the threaded block 34 and effects movement of the jaw 21.

A similar threaded member 36 is secured at one end to jaw 26 and has a knurled knob 37 at its opposite end. A similar threaded block 38 is secured to the body 11 by screws 39, and rotation of the knob 31 will obviously move jaw 26.

The same kind of a threaded member 40 is rotatably secured at one end to the movable jaw 24 and has a knurled knob 41 at the other end. It cooperates with a similar threaded block 42 secured to the body 11 by screws 43 to move the jaw 24 when the knob 41 is rotated.

The manner of rotatably attaching the threaded members 32, 35 and 40 to the jaws 21, 24, 25 and 26, respectively, will now be described. Each of the movable jaws is provided with a recess 44, into which one end of the threaded members extends. Each of the threaded members is provided with a flat unthreaded portion 45 at each end. Likewise, each of the threaded members is provided with a reduced portion 46. A recess 48 is provided in each movable jaw and a pin 47 is driven therein and enters the recess 44 at the reduced portion 46 of the threaded members. This construction, rotatably securing each of the threaded members in the respective jaws and prevents the threaded members from pulling out of the jaws. It also provides a simple means for assembling the parts.

In Figure 2, I have shown the head 49 of a drill press, which head has secured thereto a drill or bit 50. I have also shown two pieces of material which are to be simultaneously drilled with an aligned hole, and these pieces of material have been given numerals 51 and 52. For the sake of illustration, I have shown the upper piece of material 51 as being of less width than the lower piece 52 and the drilling as off center in the piece 51 and substantially centered in the piece 52.

In using the fixture, one of the pieces of material to be worked on is first secured, preferably between jaws 21 and 26, and is clamped thereto by the jaw 21. After it has been properly positioned and clamped, it need not be again moved. The second piece of material is then positioned where desired between the clamps 23 and 25. Since both of these clamps are movable, obviously, the pieces may be positioned at any desired position. If the pieces are to have their edges aligned, it is a simple matter to take a straight edge and align them. After the second piece has been clamped securely between edges 24 and 26, whatever work is desired may be performed.
at an angle of ninety degrees to each other, a pair of movable jaws cooperable to clamp a work piece, each of said jaws having a non-clamping side surface slidably supported on said first guide surface and extending beyond said second guide surface, a single movable jaw slidably supported on said second guide surface, said single jaw having a non-clamping side surface coplanar with said first guide surface, and a fixed jaw having a non-clamping side surface coplanar with said first guide surface and being cooperable with said single movable jaw to clamp a work piece, whereby the side surface of one of the pair of movable jaws and the side surface of said single movable jaw are slidable in adjacent parallel planes so as to be movable across each other, and the side surface of the other of the pair of movable jaws is slidable in a plane parallel to an adjacent plane containing the side surface of the fixed jaw so as to be movable across the latter surface.

3. A vise type fixture as set forth in claim 2 wherein threaded members cooperate with the movable jaws to effect movement thereof.

4. A vise type fixture as set forth in claim 2 wherein threaded members cooperate with the movable jaws to effect movement thereof and means are provided for rotatably securing the threaded members in the respective movable jaws.

5. A vise type fixture as set forth in claim 2 wherein guide plates are secured to the movable jaws and cooperate with the rail means to slidably secure the movable jaws thereto.

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