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2,764,047

SCREW-ACTUATED VISE HAVING REPLACEABLE FIXED AND MOVABLE JAWS

Filed Feb. 1, 1954

2 Sheets-Sheet 1

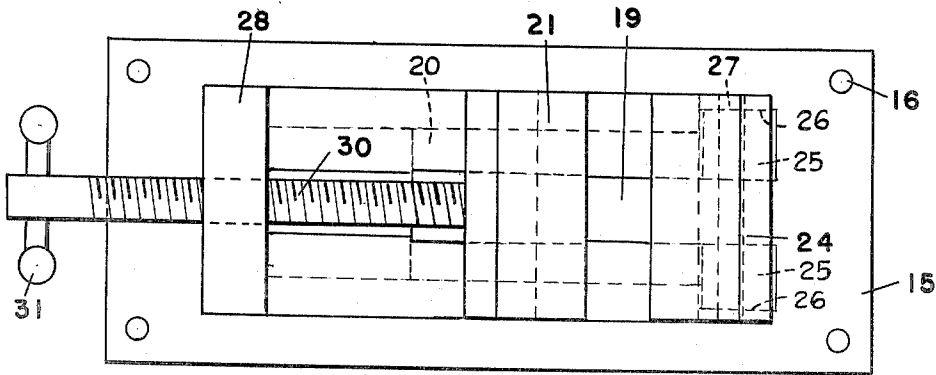


FIG 1

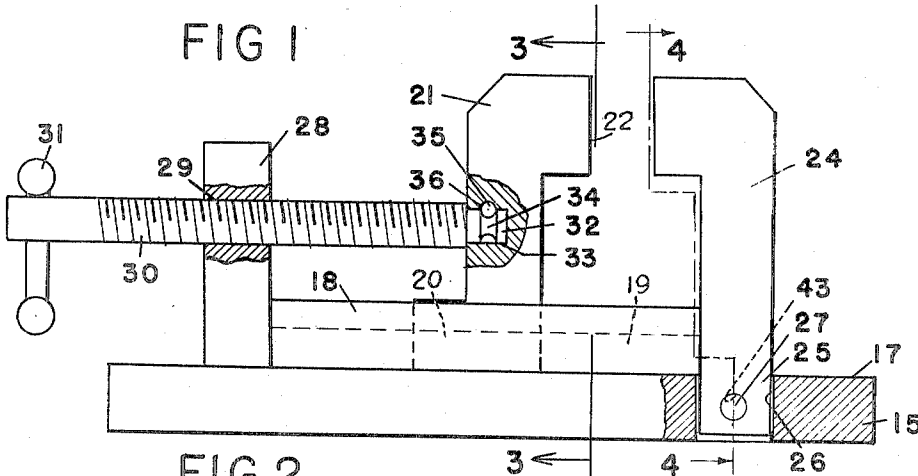


FIG 2

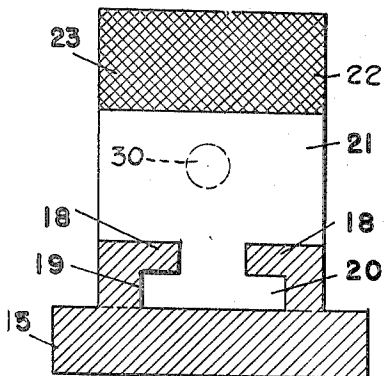


FIG 3

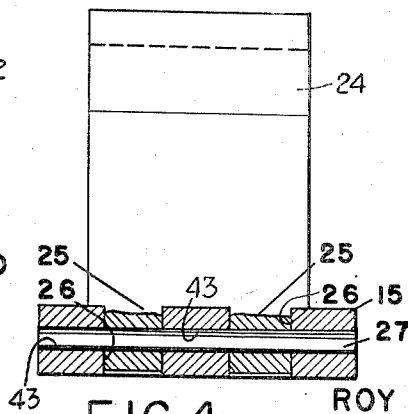


FIG 4

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2 Sheets-Sheet 2

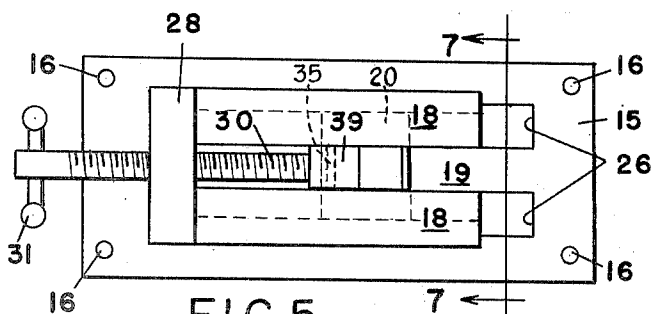


FIG 5

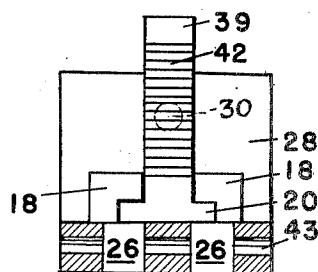


FIG 7

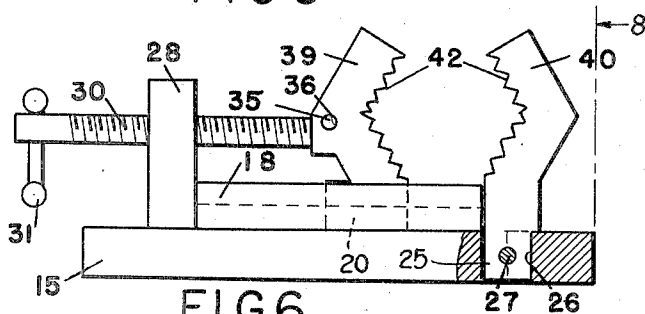


FIG 6

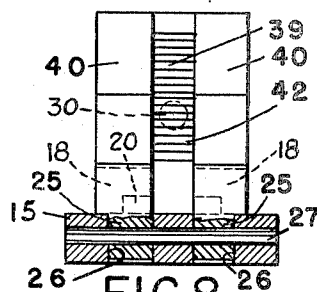


FIG 8

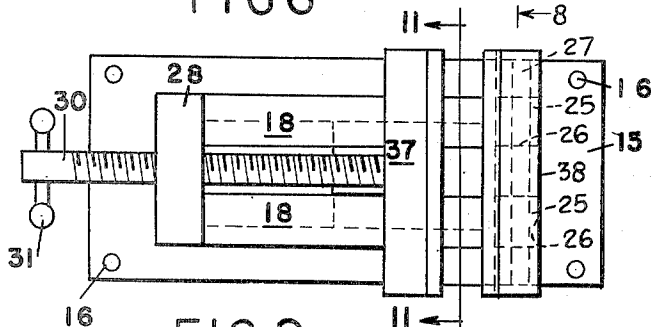


FIG 9

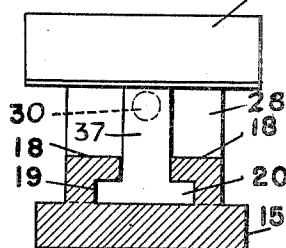


FIG 11

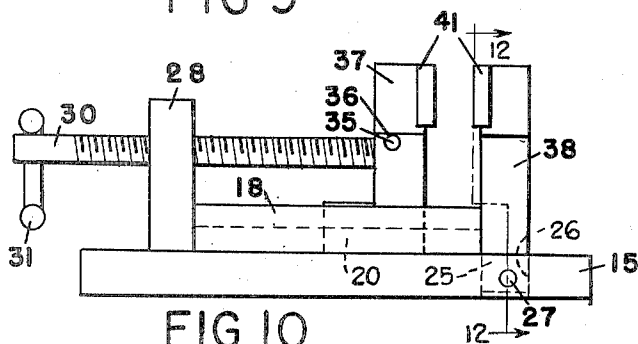


FIG 10

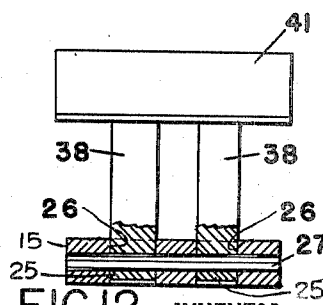


FIG 12

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2,764,047

SCREW-ACTUATED VISE HAVING REPLACEABLE FIXED AND MOVABLE JAWS

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Application February 1, 1954, Serial No. 407,298

2 Claims. (Cl. 81—33)

This invention relates to workshop equipment and more particularly to vises mounted on a work bench and used to hold various materials while they are being worked on.

The conventional vise is of the fixed jaw type, and requires one for machinist work, another for carpenter work and a third for holding pipe and other round objects, this arrangement is very costly, requires a lot of space for mounting them on top of a work bench, and is too costly and unsuitable for use by the home workshop mechanic. In this invention the unique combination of one base with interchangeable jaws makes it possible for the workman or mechanic to quickly change the vise jaws to suit the type of work to be performed, takes up less space on top of the work bench and is more economical to purchase and use.

It is therefore an object of this invention to provide a vise having one supporting base and a predetermined number of interchangeable jaws.

It is a further object of this invention to provide a new and improved device for holding various types of material while being worked on and having interchangeable jaws made to suit the various materials to be held therein.

A further object of this invention is to provide a new and improved mechanic's vise having a base with interchangeable fixed jaw members removably attached to said base, and a sliding jaw member slidably attached to said base and having a screw member for moving said sliding jaw member towards, and away, from said fixed jaw member.

Other objects will become apparent as the invention is more fully set forth.

For a better understanding of the invention and its objects reference is made to the accompanying drawings, which in conjunction with the following description outline a particular form of the invention by way of example, while the claims emphasize the scope thereof.

In the drawings:

Figure 1 is a plan view of a vise with the interchangeable machinist jaws embodying this invention;

Figure 2 is a side elevation of Figure 1, certain parts being shown in section;

Figure 3 is a sectional view taken along line 3—3 of Figure 2;

Figure 4 is a sectional view taken along line 4—4 of Figure 2;

Figure 5 is a plan view similar to Figure 1, but is drawn on a smaller scale, and shows the sliding pipe-jaw member in place and the fixed pipe-jaw members removed;

Figure 6 is a side elevation of Figure 5, certain parts being shown in section;

Figure 7 is a sectional view taken along line 7—7 of Figure 5;

Figure 8 is a sectional elevation along line 8—8 in Fig. 6, and shows the fixed and movable jaws;

Figure 9 is a plan view similar to Figure 5, but shows

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the sliding and fixed jaw members positioned for use as a carpenter's vise;

Figure 10 is a side elevation of Figure 9;

Figure 11 is a sectional view taken along line 11—11 of Figure 9; and

Figure 12 is a sectional view taken along line 12—12 of Figure 10.

Similar reference characters refer to similar parts throughout the drawings.

In the construction shown in the drawings a base 15 is preferably of rectangular form and is provided at its ends with counter-sunk holes 16 to receive screws or vacuum cups to be used in fastening it to a table or the like, an upper face 17 of the base 15 being provided with a projection 18 having a T slot 19 formed therein to receive a T head 20 forming the lower part of a machinist's sliding vise jaw 21 which slides in and is guided in its travel by said T slot 19, a gripping face 22 of the sliding jaw being provided with knurling 23 to assist the vise in holding a piece of metal placed therein. A fixed jaw 24 is provided with two ears 25 to be inserted in holes 26 located in the base as shown in the drawings, and is interchangeably locked therein by a pin or bolt 27 extending through a transverse passage 43. A support 28 is provided with a threaded hole to receive an adjusting screw 30 having a conventional handle 31 slidably attached thereto for turning the screw 30, one end of the screw 30 being turned down at 32 to fit into a hole 33 in the slidable jaw 21, the screw 30 being also provided with an annular groove 34 to receive a pin 35 passing through a hole 36 in the slidable jaw 21 to allow the screw 30 to be rotated in, but not pulled out, of the hole 33. As substitutes for the slidable jaw 21 and the fixed jaw 24, there is provided a slidable jaw 37 and fixed jaw 38 (see Figs. 9—12) to complete the carpenter's vise, and a sliding jaw 39 and a pair of fixed jaws 40 (see Figs. 5—8) to make up the pipe vise. Work-engaging portions of the jaws 37 and 38 are provided with soft inserts 41 to prevent scoring, the method of attaching the inserts 41 not being important, since they may be attached either by screws or through the use of an adhesive. The jaws 40 and 39 are provided with teeth 42 to hold a pipe placed therein from turning. All of the sliding jaws are provided with a hole 33 and pin 35 for rotatable attachment to screw 30, and all the fixed jaws are provided with means 25 for insertion in slots 26 in the base 15, such means having a transverse hole aligned with the passage 43 to receive a pin 27 for holding the jaws in the base. To change the jaws pin 27 is pulled out and the fixed jaws removed. Then the pin 35 is removed from the sliding jaw and the sliding jaw is removed from the T slot 19, the new selected sliding jaw then being entered into the now exposed end of the T slot 19 and slid along until the turned down end 32 of screw 30 enters the hole 33 in the jaw, the pin 35 then being reinserted in the hole 36. Afterwards, the fixed jaws are inserted in slots 26, and pin 27 is inserted in the aligned holes in the fixed jaw (or jaws) and the transverse passage 43 in the base to hold them together.

While but one general form of the invention is shown in the drawings and described in the specification, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the same principles and come within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. A vise of the class described comprising a base, a support rigid with the base and extending upwardly therefrom near one end thereof, a pair of projections rigid with the base and forming therewith a slot of uniform, inverted T-shaped cross section extending from said support and opening at one end near the opposite end of

the sliding and fixed jaw members positioned for use as a carpenter's vise;

Figure 10 is a side elevation of Figure 9;

Figure 11 is a sectional view taken along line 11—11 of Figure 9; and

Figure 12 is a sectional view taken along line 12—12 of Figure 10.

Similar reference characters refer to similar parts throughout the drawings.

In the construction shown in the drawings a base 15 is preferably of rectangular form and is provided at its ends with counter-sunk holes 16 to receive screws or vacuum cups to be used in fastening it to a table or the like, an upper face 17 of the base 15 being provided with a projection 18 having a T slot 19 formed therein to receive a T head 20 forming the lower part of a machinist's sliding vise jaw 21 which slides in and is guided in its travel by said T slot 19, a gripping face 22 of the sliding jaw being provided with knurling 23 to assist the vise in holding a piece of metal placed therein. A fixed jaw 24 is provided with two ears 25 to be inserted in holes 26 located in the base as shown in the drawings, and is interchangeably locked therein by a pin or bolt 27 extending through a transverse passage 43. A support 28 is provided with a threaded hole to receive an adjusting screw 30 having a conventional handle 31 slidably attached thereto for turning the screw 30, one end of the screw 30 being turned down at 32 to fit into a hole 33 in the slidable jaw 21, the screw 30 being also provided with an annular groove 34 to receive a pin 35 passing through a hole 36 in the slidable jaw 21 to allow the screw 30 to be rotated in, but not pulled out, of the hole 33. As substitutes for the slidable jaw 21 and the fixed jaw 24, there is provided a slidable jaw 37 and fixed jaw 38 (see Figs. 9—12) to complete the carpenter's vise, and a sliding jaw 39 and a pair of fixed jaws 40 (see Figs. 5—8) to make up the pipe vise. Work-engaging portions of the jaws 37 and 38 are provided with soft inserts 41 to prevent scoring, the method of attaching the inserts 41 not being important, since they may be attached either by screws or through the use of an adhesive. The jaws 40 and 39 are provided with teeth 42 to hold a pipe placed therein from turning. All of the sliding jaws are provided with a hole 33 and pin 35 for rotatable attachment to screw 30, and all the fixed jaws are provided with means 25 for insertion in slots 26 in the base 15, such means having a transverse hole aligned with the passage 43 to receive a pin 27 for holding the jaws in the base. To change the jaws pin 27 is pulled out and the fixed jaws removed. Then the pin 35 is removed from the sliding jaw and the sliding jaw is removed from the T slot 19, the new selected sliding jaw then being entered into the now exposed end of the T slot 19 and slid along until the turned down end 32 of screw 30 enters the hole 33 in the jaw, the pin 35 then being reinserted in the hole 36. Afterwards, the fixed jaws are inserted in slots 26, and pin 27 is inserted in the aligned holes in the fixed jaw (or jaws) and the transverse passage 43 in the base to hold them together.

While but one general form of the invention is shown in the drawings and described in the specification, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the same principles and come within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. A vise of the class described comprising a base, a support rigid with the base and extending upwardly therefrom near one end thereof, a pair of projections rigid with the base and forming therewith a slot of uniform, inverted T-shaped cross section extending from said support and opening at one end near the opposite end of

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said base, a movable jaw having a formation at its lower end slidably and removably fitting in said slot, jaw means having a set of ears projecting from the lower end thereof, a set of openings extending through said base and positioned to hold said jaw means projecting upwardly from the base at said one end of said slot, means removably passing through said ears and said set of openings to retain said jaw means on said base, an adjusting screw having a portion threaded through an opening in said support and having also a reduced end rotatably received in said movable jaw, and means for detachably securing said reduced end in said movable jaw.

2. A vise of the type recited in claim 1, in which the movable jaw is formed to present a recess opening toward said jaw means and the jaw means comprising a

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pair of members each having a recess opening toward the recess in said movable jaw, said recesses being roughened to prevent the turning of a pipe or rod gripped in said recesses,

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