

May 18, 1965

E. Z. CHENETTE ETAL

3,184,228

MILLING MACHINE VISES AND THE LIKE AND AUXILIARY JAWS THEREFOR

Filed Oct. 26, 1962

2 Sheets-Sheet 1

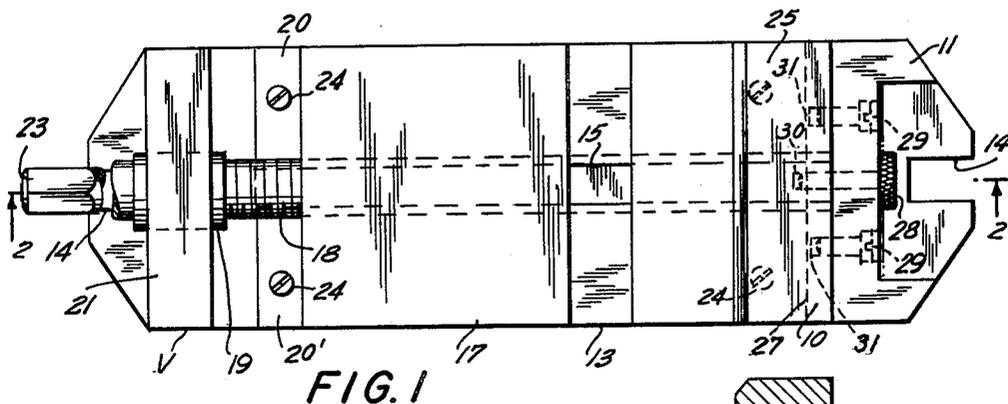


FIG. 1

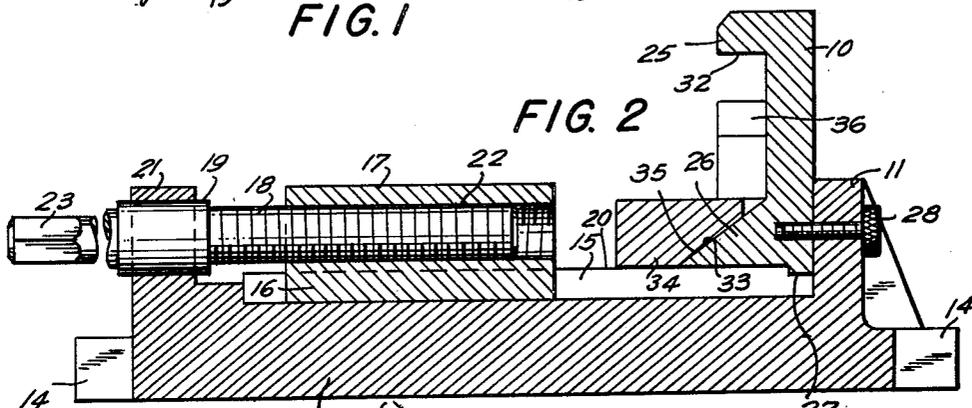


FIG. 2

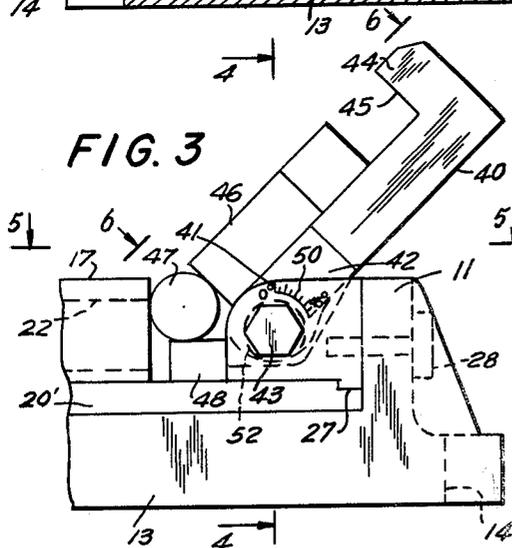


FIG. 3

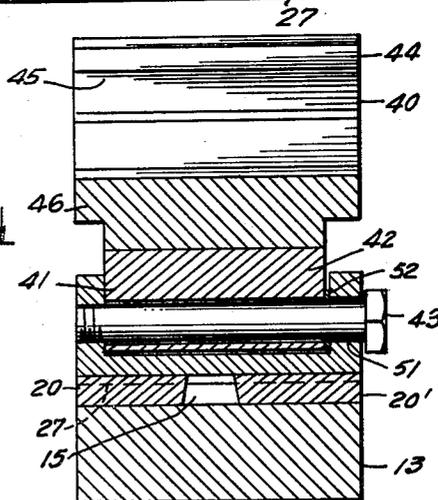


FIG. 4

INVENTORS
EDMOND Z. CHENETTE
BY LEO E. CHENETTE
Clark Att
ATTORNEYS

May 18, 1965

E. Z. CHENETTE ETAL

3,184,228

MILLING MACHINE VISES AND THE LIKE AND AUXILIARY JAWS THEREFOR

Filed Oct. 26, 1962

2 Sheets-Sheet 2

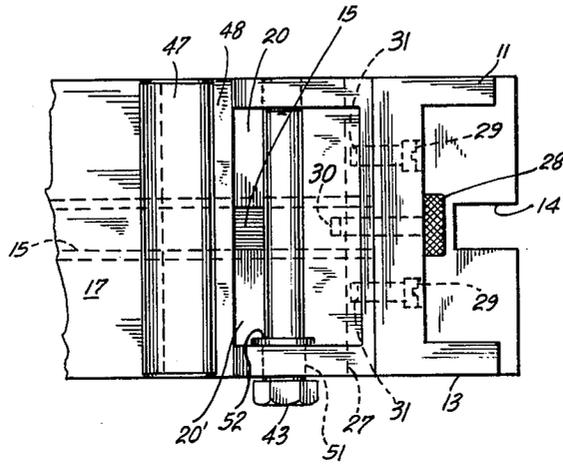


FIG. 5

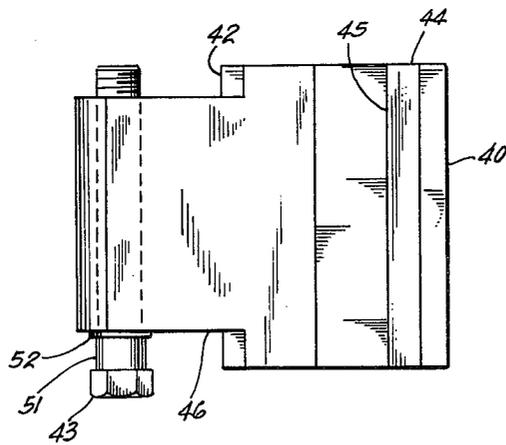


FIG. 6

INVENTORS
EDMOND Z. CHENETTE
LEO E. CHENETTE
BY *Clark & Ott*
ATTORNEYS

1

3,184,228

MILLING MACHINE VISES AND THE LIKE AND AUXILIARY JAWS THEREFOR

Edmond Z. Chenette, Scribner Ave., Norwalk, Conn., and
Leo E. Chenette, Clearwater, Fla.

Filed Oct. 26, 1962, Ser. No. 233,243

6 Claims. (Cl. 269—234)

This invention relates to vises for milling machines and the like and the invention has particular reference to auxiliary jaws therefor having relative movement toward closed relation by camming action.

The invention comprehends auxiliary jaws adapted for clamping articles above the plane of the vise so as to increase the usefulness thereof.

An object of the invention is to provide an auxiliary jaw member having relatively movable jaw parts engaged by a cam which is moved by the movable jaw of the vise for varying the spacing of the relatively movable jaw parts.

The usual milling machine vise and the like have fixed and movable jaws which do not provide much depth for holding articles therebetween whereby the vise is thereby limited to its usefulness. The present invention overcomes the limitations and disadvantages of the usual type of milling machine vise and the like by providing an upstanding auxiliary jaw member which is releasably secured to the fixed jaw of the vise and which is provided with a laterally extending fixed jaw and a movable jaw member adapted to be moved into clamping relation with an article by a wedging member which is moved to cam the movable member upwardly by the movement of the movable member of the vise.

Another object of the invention is to provide an auxiliary jaw member which is adjustable from upright relation with reference to the vise to an angular relation therewith.

Still another object of the invention is to provide an auxiliary jaw member which may be conveniently fixed to and removed from the fixed jaw vise.

The invention includes an auxiliary jaw member which is releasably secured to the fixed jaw of a vise and which extends upwardly therefrom providing a jaw face disposed substantially in parallel relation with the transverse plane of the vise and with one or more movable shims disposed therebelow and supported by a camming member for camming the shims toward the transversely laterally extending jaw face by movement of the movable jaw of the vise.

With the foregoing and other objects in view, reference is now made to the following specifications and accompanying drawings in which the preferred embodiments of the invention are illustrated.

In the drawings:

FIG. 1 is a plan of a milling machine vise having an auxiliary jaw member constructed in accordance with the invention.

FIG. 2 is a side view of the auxiliary jaw member and wedging member with the vise shown in section taken approximately on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary view in side elevation showing a portion of the vise and a modified form of auxiliary jaw member constructed in accordance with the invention.

FIG. 4 is a sectional view taken approximately on line 4—4 of FIG. 3.

FIG. 5 is a fragmentary plan view of the base taken on line 5—5 of FIG. 3 with the auxiliary jaw member removed.

FIG. 6 is a plan view of the auxiliary jaw member taken on line 6—6 of FIG. 3.

2

Referring to the drawings and more particularly to the form of the invention illustrated in FIGS. 1 and 2 thereof, an upwardly extending member constituting an auxiliary jaw member 10 is provided which is adapted to be releasably secured to the fixed jaw 11 of a vise V of the type used in conjunction with milling machines and the like.

The vise V includes a base 13 having recesses 14 at the ends thereof for receiving bolts adapted for attaching the vise to the table of a milling machine and the like. The base is also provided with an under-cut slot 15 extending longitudinally of the upper face thereof in which is slidably received a corresponding shaped tongue 16 depending from the underside of the movable jaw 17 of the vise for guided movement of the movable jaw toward and away from the fixed jaw 11. The movable jaw 17 is moved by the turning of a screw 18 swivelly mounted in a sleeve 19 secured in the upstanding flange 21 of the base with the inner end of the screw 18 threadedly engaging the threaded bore 22 extending longitudinally of the movable jaw 17. The screw is adapted to be turned by a handle member (not shown) engaging the outer end 23 thereof and is swivelly mounted in the sleeve 19 for rotation in either direction to permit of movement of the movable jaw 17 toward and away from the fixed jaw 11. The base 13 includes two top plates 20 and 20' which are secured thereto by screws 24 and are spaced apart longitudinally to form the slot 15 therebetween.

The auxiliary jaw member 10 is generally of U-shaped formation in vertical section including an inwardly directed head 25 at its upper end and an inwardly directed foot 26 at the lower end thereof. The jaw member 10 is mounted on the plates 20 and 20' of the base 13 of the vise and snugly fits a recess 27 extending transversely thereof adjacent the fixed jaw 11. The auxiliary jaw member 10 is affixed to the forward face of the fixed jaw 11 by a headed pin 28 and one or more screws 29 having their inner ends engaging in openings 30 and 31 in the auxiliary jaw member. The inwardly directed head 25 provides a jaw face 32 on the underside thereof which extends laterally of the vise and is disposed in spaced relation above the foot 26 and in substantially parallel relation with the plane of the vise. The inwardly directed foot 26 is formed with a rearwardly inclined cam face 33 which is located below the jaw face 32.

A cam follower or wedging member 34 is disposed between the movable jaw 17 and the foot 26 of the auxiliary jaw member 10 and is formed with a face 35 complementary to the cam face 33 and which is arranged in camming engagement therewith. One or more blocks or shims 36 are mounted upon the wedging member which are moved upwardly toward the jaw face 32 by the upward camming of the wedging member on the inclined face 33 with the movement of the movable jaw 17 toward the fixed jaw 11. The shims may be of any desired number and as illustrated in FIG. 2 of the drawings, two such shims are provided for gripping articles between the uppermost shim and the jaw face 32.

Construction in this manner the head 25 forms the fixed auxiliary jaw and the uppermost shim or block 36 forms the movable auxiliary jaw which provide means for holding an article in position for milling, facing, drilling and other work thereon which may be too large for holding in the usual vise.

Instead of the auxiliary jaw member 10 which is adapted to be secured in upright relation on the base, an auxiliary jaw member 40 may be provided which is adapted to be disposed in acute angular relation with the longitudinal plane of the base as illustrated in FIGS. 3 and 4 of the drawings. In this form of the invention the auxiliary jaw member 40 is adjustably connected with a

foot 41 which is recessed to receive the reduced portion 42 of the jaw and with a bolt 43 extending through aligned openings in the foot and jaw member for securing the jaw member in adjusted set position with reference to the base. The foot 41 is mounted on the upper face of the plates 20 and 20' of the base 13 of the vise and snugly fits the recess 27 therein adjacent the fixed jaw 11 as in the previous form of the invention. The foot 41 is adapted to be releasably affixed to the forward face of the fixed jaw 11 by a headed pin 28 and one or more screws 29 having their inner ends engaging in openings in the foot similar to the manner in which the auxiliary jaw member 10 is releasably secured against the forward face of the fixed jaw 11.

The auxiliary jaw member 40 is provided with a head 44 having a jaw face 45 on the under side thereof and blocks or shims 46 are provided as in the previous form of the invention which are slidable on the auxiliary jaw member 40 towards and away from the jaw face 45. A wedging member 47 in the form of a cylinder is freely supported on a block 48 disposed against the foot 41 in supported relation on the base 13. The wedging member is arranged between the lowermost shim and the movable jaw 17 of the vise for movement thereof toward the fixed jaw 11 of the vise to thereby cam the shims toward the jaw face 45 for gripping articles therebetween.

The auxiliary jaw member 40 is adapted to be disposed in various angular positions with reference to the base 13 from upright relation to inclined relation through an arc of approximately 45 degrees. The foot 41 is provided with a dial 50 on a side face thereof for setting the jaw to the desired angular relation. In order to cam the blocks 46 upwardly for the various angular positions different sizes of rollers 47 and blocks 48 may be employed and when in the desired angular position the bolt 43 is tightened for securing the jaw in set relation. It will be understood that the head 44 forms the fixed auxiliary jaw while the uppermost shim or block 46 forms the movable auxiliary jaw. The shoulder 51 of the bolt 43 bears against an annulus 52 whereby tightening of the bolt tightens the reduced portion 42 of the jaw member 40 against one side of the foot 41 to thereby hold the jaw members in a desired set position. The dial 50 on the side face of the foot 41 serves as a guide for manually setting the jaw member 40 at any point between the vertical and angle of 45 degrees.

While the preferred forms of the invention have been shown and described herein, it is to be understood that the invention is not so limited but shall cover and include any and all modifications of the invention which fall within the purview thereof.

What is claimed is:

1. A vise having auxiliary jaws in which the vise includes a base, a fixed jaw located at one end of the base, a movable jaw guidedly mounted on the base and a screw engaging said base and the movable jaw for moving said movable jaw toward and away from the fixed jaw by turning of said screw, said auxiliary jaws including an upwardly extending member having a laterally extending head at the upper end thereof constituting a fixed auxiliary jaw, a foot mounted on said base and affixed to said fixed jaw of the vise and supporting said member in upwardly extending relation, at least one shim constituting a movable auxiliary jaw disposed against said upwardly extending member and in alignment with said fixed auxiliary jaw, and a cam follower member carried by said base for movement longitudinally thereof and disposed between said foot and the movable jaw of the vise

for camming said shim upwardly with the movement of the movable jaw of the vise toward the fixed jaw thereof for holding articles between said head and shim.

2. A vise having auxiliary jaws as set forth in claim 1 in which the foot is releasably affixed to the fixed jaw of the vise and in an integral part of the upwardly extending member.

3. A vise having auxiliary jaws as set forth in claim 1 in which the cam follower member and the foot are provided with complementary faces arranged in engagement and disposed in angular relation to the longitudinal plane of the vise for camming the cam follower member and the shim upwardly toward the fixed auxiliary jaw with the movement of the movable jaw of the vise for holding articles between said head and shim.

4. A vise having auxiliary jaws in which the vise includes a base, a fixed jaw located at one end of the base, a movable jaw guidedly mounted on the base and a screw engaging said base and the movable jaw for moving said movable jaw toward and away from the fixed jaw by turning of said screw, said auxiliary jaws including an upwardly extending member having a laterally extending head at the upper end thereof and a foot mounted on said base and affixed to the fixed jaw of the vise, said laterally extending head constituting a fixed auxiliary jaw, at least one shim disposed against said upwardly extending member in alignment with said fixed auxiliary jaw and constituting a movable auxiliary jaw, and cam follower means carried by said base and engaging said movable jaw of the vise and said shim for camming said shim upwardly with the movement of the movable jaw of the vise toward the fixed jaw thereof.

5. A vise having auxiliary jaws in which the vise includes a base, a fixed jaw located at one end of the base, a movable jaw guidedly mounted on the base and a screw engaging said base and the movable jaw for moving said movable jaw toward and away from the fixed jaw by turning of said screw, said auxiliary jaws including an upwardly extending member having a laterally extending head at the upper end thereof constituting a fixed auxiliary jaw, a foot mounted on said base and affixed to said fixed jaw of the vise, means pivotally connecting said upwardly extending member to said foot for swinging movement of said upwardly extending member for disposing the same in a plurality of angular positions with reference to the base, means carried by said foot for securing said upwardly extending member in set angular position, at least one shim constituting a movable auxiliary jaw disposed against said upwardly extending member and in alignment with said fixed auxiliary jaw, and a cam follower member carried by said base and disposed between said foot and the movable jaw of the vise for camming said shim upwardly with the movement of the movable jaw of the vise toward the fixed jaw thereof for holding articles between said head and shim.

6. A vise having auxiliary jaws as set forth in claim 5 in which the cam follower member is a cylindrical roller extending transversely of the base and is disposed against the shim for camming the same upwardly.

References Cited by the Examiner

UNITED STATES PATENTS

2,174,947	10/39	Ramsey	-----	269—268
2,302,943	11/42	Hazelwood	-----	269—271 XR
2,553,802	5/51	Woods	-----	269—229 XR

ROBERT C. RIORDON, *Primary Examiner.*