Aug. 21, 1956 G. E. FRANCK 2,759,385

SAWING VISE

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Fig. 1.

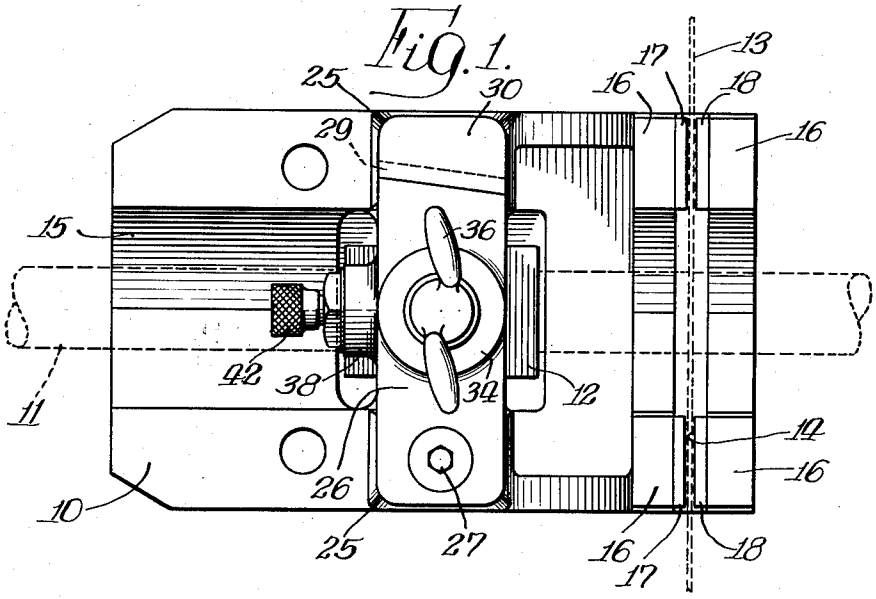
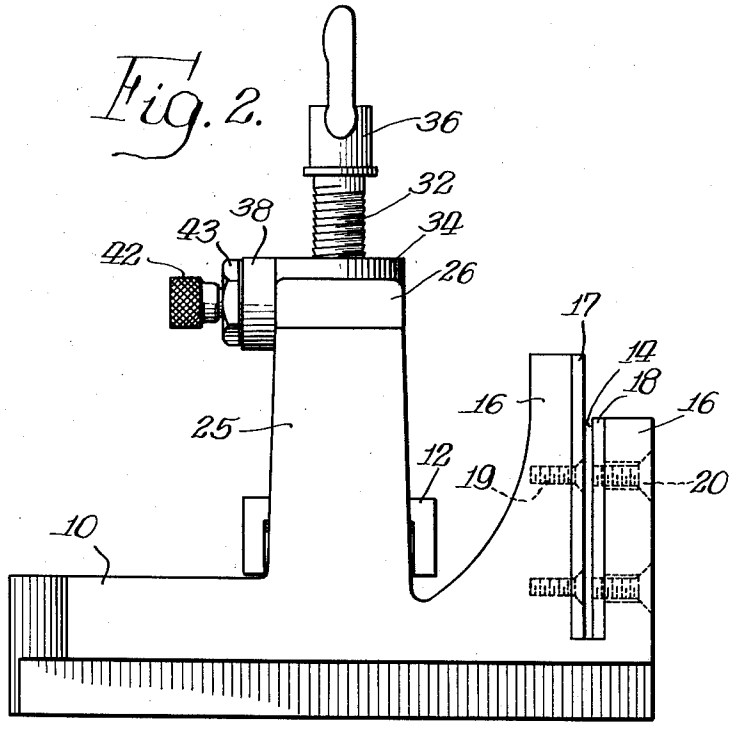


Fig. 2.

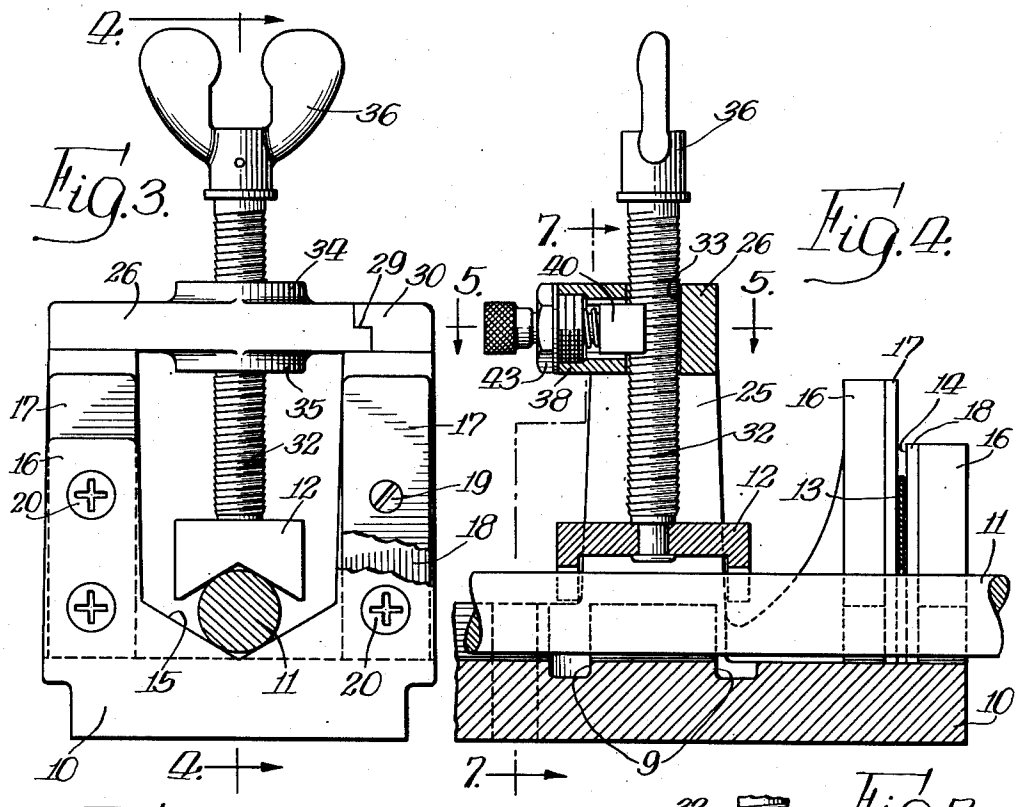


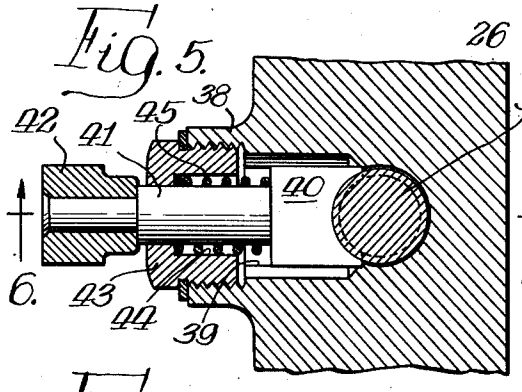
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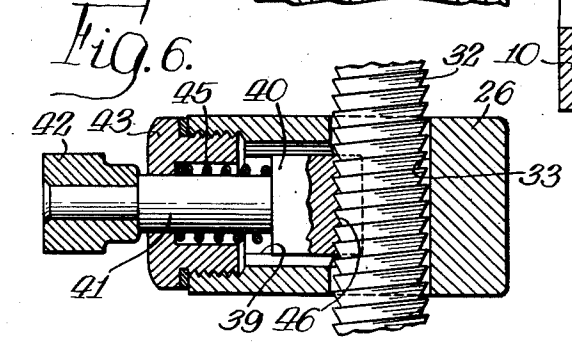
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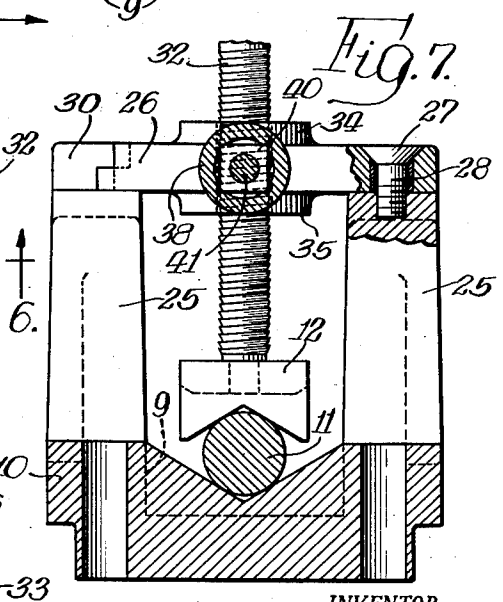
SAWING VISE

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2,759,385

SAWING VISE

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Application March 14, 1952, Serial No. 276,560

2 Claims. (Cl. 81—19)

This invention relates to a vise and more particularly to a vise having a quick release and catch mechanism for holding tubing and the like.

The principal object of this invention is to provide a new and improved vise of the character described.

Another object of the invention is to provide a vise of the character described having new and improved means for movably positioning a movable jaw.

Other advantages, features and objects of the present invention will be apparent in the following description taken with the drawings illustrating a preferred embodiment wherein:

Fig. 1 is a top plan view of a sawing vise embodying the features of this invention;

Fig. 2 is a side elevation of the vise shown in Fig. 1;

Fig. 3 is a front end view of the vise of Figs. 1 and 2 and is partially broken away;

Fig. 4 is a fragmentary vertical sectional view through the center of the vise and is taken substantially along line 4—4 in Fig. 3;

Fig. 5 is an enlarged fragmentary horizontal sectional view through the release and catch mechanism taken substantially along line 5—5 in Fig. 4;

Fig. 6 is a fragmentary sectional vertical view through the catch and release mechanism taken substantially along line 6—6 in Fig. 5; and

Fig. 7 is a fragmentary sectional view taken substantially along line 7—7 in Fig. 4, but certain parts that would appear in elevation are broken away and shown in section.

While my invention is susceptible of embodiment in many different forms, I have shown in the drawings and will herein describe in detail one specific embodiment, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Comparatively small size tubing such as used in refrigeration fuel lines, air-conditioning equipment and other devices is usually made of metal requiring a hack saw for purposes of cutting it. Steel rods as well as tubing are often required to be cut accurately with a squared end. These operations are usually performed in the field by a workman who must be provided with means for holding the tubing or rods while the sawing operation is being performed. The present vise is particularly useful for such sawing operations. The principal feature of the device is the means by which an operator or workman may quickly clamp the vise on a tube or rod without the necessity of a tedious protracted screw advancement of one vise jaw toward another. In the present vise, tubing in considerable size ranges may be placed in the vise and quickly clamped therein without the necessity of many turns of a screw member to position the vise jaws to the correct size opening.

The general structure of the specific embodiment illustrated is best shown in Figs. 1–3. A base block 10 provides means for holding a tubing or rod 11 by cooperation therewith of a movable vise jaw 12 so that a saw blade 13 in a guideway 14 may cut through the tubing or rod 11. The vise is relatively small in size permitting easy handling thereof with one hand and is conveniently portable in a workman's tool box.

The base block 10 is provided with a shallow V-shaped center channel 15 for receiving a tube or rod 11. Cross-channels 9 in the base block are provided for receiving the inverted V-shaped legs of the vise jaw 12. Near the front of the base block are a pair of posts 16 on either side of the channel 15, these posts being formed integrally with the base block 10. Face plates 17 and 18 are fastened as by means of screws 19 and 20 to the posts for purposes of forming the saw blade guideway 14. These plates are of hardened metal capable of resisting abrasion by a hack saw blade 13.

Near the center of the base block 10, means are provided for clamping material to be sawed against the channel 15. Herein this means includes a pair of standards 25 each integral with the base block 10 and extending generally upwardly from the base block on either side of the channel 15. Near the top of one standard a cross-member 26 is pivotally secured thereto by means of a screw 27 mounted in a sleeve 28 to permit swinging movement of the cross-member 26 about the screw 27 as a center. The other end of the cross-member is provided with a stepped surface 29 which is adapted to be swung into mating relation with a similar stepped portion 30 on the other standard 25. By this means the cross-member can be locked between the standards 25 so as to extend transversely of the channel 15.

The movable vise jaw is mounted in the cross-member 26. Herein this is accomplished by swiveling the vise jaw 12 to a screw-threaded stud 32 which is adapted to be received in a center bore 33 extending through a pair of bosses 34 and 35 centrally formed on the cross-member. This bore 33 has no threads and is designed to loosely receive the threaded stud 32. Movement of the stud in the bore 33 advances and retracts the movable vise jaw 12 toward and away from the channel 15 in the base block. A thumbpiece 36 is pinned to the outer end of the stud to provide means for turning the stud 32 and also for manually advancing and retracting the movable vise jaw 12.

A quick release and catch mechanism is associated with the movable jaw in a manner to permit manual movement of the stud and jaw toward the channel 15 as a unit without turning the stud about its axis. In the specific embodiment, this mechanism is best seen in Figs. 4–6 wherein a lateral boss 38 on the cross-member 26 is provided with a lateral bore 39 intersecting the bore 33. A pawl or keeper 40 is mounted on a shank 41 having a knurled handle 42 on the outside. This keeper 40 is of polygonal shape and is shown herein as square. The bore 39 is provided with broached corner grooves for guiding the keeper 40 in the cylindrical bore 39. The outer end of bore 39 is internally threaded to receive a retaining nut 43 having a bore 44 larger than the shank 41 in order to accommodate a compression spring 45 bearing against the nut 43 and keeper 40. The keeper has an arcuate face 46 which is provided with a screw thread of the same size and pitch as the threads on stud 32. In the particular instance the thread shown is a saw tooth thread having one substantially square side and an opposite inclined side.

In operating the vise of this invention a tube or rod 11 may be placed between the channel 15 and jaw 12 after which the stud 32 which carries jaw 12 may be manually forced downwardly as a unit against the rod by pressure applied on the thumbpiece. The saw tooth thread is sloped toward the base block so that the threads

on stud **32** will slip past the retaining threads on the keeper **40**. After the jaw **12** has been thus bodily moved toward the material to be clamped in the vise, the thumb-piece **36** may be used to tighten the material in the vise by screw advancement of the jaw **12** toward the channel **15**. For quickly releasing the vise the operator may manually pull the keeper away from the stud by drawing outwardly on handle **42** connected with the keeper and thus leave the stud **32** free to move within the bore **33** in the cross-member. Since the jaw **12** is of generally U-shape with each leg of inverted V-shape adapted to extend into the cross-channels **9** in the base block, very small articles may be easily clamped in the vise. The clamping action grasps the tube or rod securely against the tendency of the sawing operation to turn the tube or rod.

I claim:

1. A vise comprising, a base block having an outwardly opening, tube-receiving channel, clamping means for holding a tube in said channel including a standard upstanding from said base block on each side of the channel, a cross-member swingably mounted on the upper end of one of the standards so as to extend transversely of the channel, a threaded stud pivotally carrying a tube-receiving vise jaw at one end and means for rotating said stud at the other end with the threaded intermediate portion being held in said cross-member, and a quick release and catch mechanism including a keeper mounted in said cross-member for movement radially only of the stud and having a portion threaded complementarily to said stud, and yielding means biasing said keeper to effect engagement of said keeper portion with the stud intermediate portion and allowing release of said keeper from contact with the stud whereby said stud and vise jaw may be moved toward the base block past said keeper without turning the stud about its axis.

2. A vise comprising, a base block having an upwardly open shallow V-shaped tube-receiving channel extending centrally of the upper portion of the block, clamping means for holding a tube in said channel including a standard integral with the base block on each side of the channel, a cross-member swingably mounted on the upper end of one of the standards so as to extend transversely of the channel, a threaded stud pivotally carrying a tube-receiving vise jaw at one end and a thumb-piece at the other end with the threaded intermediate portion being held in said cross-member, and a quick release and catch mechanism cooperating with said threads including a keeper of polygonal cross section mounted in said cross-member for movement radially of the stud, said cross-member having a polygonally shaped bore for slidingly supporting said keeper against turning, said stud having a saw tooth thread sloping toward said jaw, said keeper having a similar saw tooth thread adapted to mesh with the thread on the stud, and spring means allowing yielding release of said keeper from contact with the stud whereby said stud and vise jaw may be moved toward the base block past said keeper without turning the stud about its axis.

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