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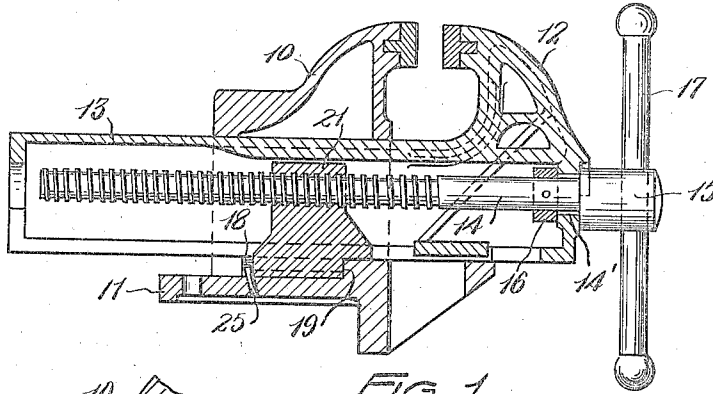


FIG. 1

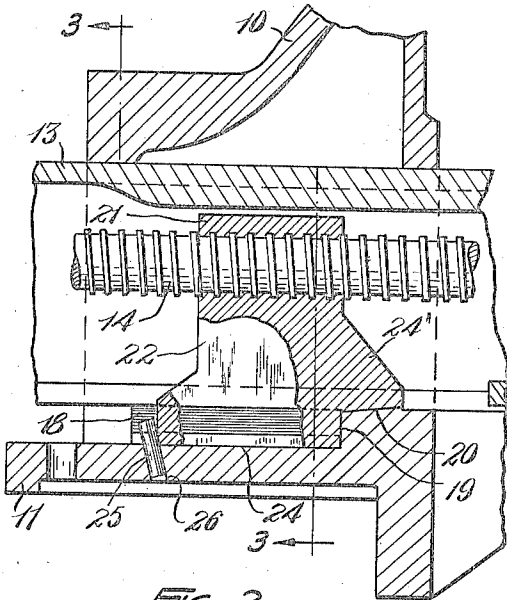


FIG. 2

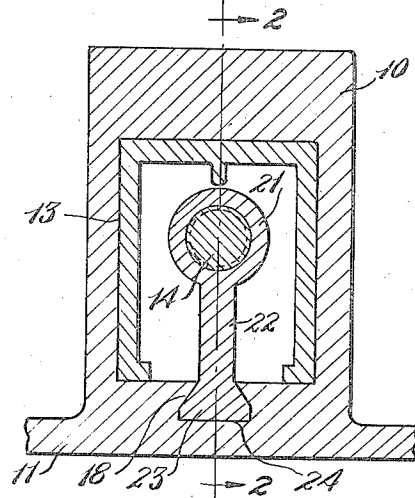


FIG. 3

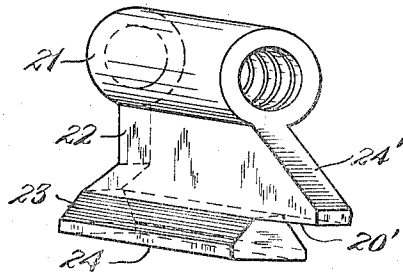


FIG. 4

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2 Claims. (Cl. 81—33)

This invention relates to vises and more particularly to what are commonly known as machinists' vises for attachment to a bench although the invention is not necessarily limited to this particular type of vise. It is common practice to make the jaws of vises from either malleable or cast iron and, for convenience in manufacture and as a means of reducing the cost, it has been common practice to make the nut, with which the screw of the vise cooperates as a separate element which has been attached to the base of the stationary jaw in various ways none of which have heretofore been entirely satisfactory because of the tendency of the fastening means to become worn and loose in service and permit the nut to get out of alignment with the screw, thereby subjecting the latter to excessive stresses and undue wear.

It is one of the objects of the present invention to provide a means of fastening the nut to the base of the stationary jaw that will insure the nut remaining permanently in the position in which it is installed and prevent it from becoming loose.

Another object of the invention is to provide a fastening means that will accomplish the above stated purposes without adding materially to the cost of the vise.

The above and other objects of the invention which will be apparent from the following description are accomplished by my invention, a preferred embodiment of which is illustrated in the accompanying drawing. In the drawing

Fig. 1 is a longitudinal section through a common form of bench vise.

Fig. 2 is an enlarged fragment of Fig. 1 and a section on the line 2—2 of Fig. 3.

Fig. 3 is a transverse section on the line 3—3 of Fig. 2, and

Fig. 4 is a perspective view of the nut.

Referring to the drawing, 10 indicates the stationary jaw of a vise which is provided with an integral base 11 adapted to be attached to a bench. The movable jaw 12 has a beam 13 that is slidable through the stationary jaw 10, according to common practice, and an actuating screw 14 extends longitudinally through the jaw 12 and beam 13, being mounted in a bearing 14' and secured against endwise movement relative to the jaw 12 by means of the head 15 and the collar 16. The head 15 is provided with the usual handle 17 for actuating the screw 14. In the upper side of the base 11, of the stationary jaw, I provide a dovetail slot 18 directly beneath the axis of the screw 14 and this slot 18 may be

accurately formed in the casting by means of a suitable core that is accurately made and so positioned that no machine work is required. The slot 18 terminates at the wall 19 and forwardly of the wall 19 and the upper surface of the base is slightly inclined upwardly toward the front of the vise as indicated at 20. The nut 21, which cooperates with the screw 14, has a downward extension or foot 22, the lower end of which is substantially wedge-shaped as shown at 23 to accurately fit the slot 18, and it will be noted that the bottom 24, as well as the sloping sides, fit the surfaces of the slot.

While I have illustrated the foot of the nut as having a wedge-shaped lower end, it will be apparent that changes may be made in the cross section of the slot and of the foot in accordance with individual preferences as to design. The important factor to be considered, in this connection, is that the cross section of the foot of the nut and of the slot must be complementary so that they will accurately fit.

The construction thus far described, with the exception of the inclined surface 20, has been well known and it has been customary to drive the nut into its position on the base 11, the parts being proportioned to permit this driving fit. However, it has been found that, in vises made in this way, the nut eventually becomes loose in the slot 18 because of the excessive stresses to which the nut is subjected and, when the nut does so loosen it becomes cocked relative to the screw 14 and subjects the screw as well as the threaded opening in the nut to excessive wear which results in a highly objectionable looseness in the vise and ultimate destruction of the nut and screw. I overcome these difficulties by providing a forward projection 24' on the foot of the nut, the bottom surface 20' of this projection being slightly inclined upwardly so as to fit against the surface 20. In Fig. 2 the inclination of the surface 20 is somewhat exaggerated for the sake of clearness. When the nut is driven into the slot 18 the forward end of the projection 24' first engages the surface 20 and the upward inclination of the surface 20 causes the forward end of the nut to be wedged upwardly to a slight extent and this increases the wedging action between the foot 23 and the slot 18, and it has been found that by this improvement the nut is so tightly secured to the base 11 that it does not become loose in service. Another advantage of the projection 24' is that the engagement with the surface 20 greatly increases the resistance of the nut to forward tipping under the stresses that

are applied thereto by the screw. After the nut has been driven into its position in the slot 18 a pin 25 may be driven into an opening 26 to prevent the nut from being backed out of the slot.

5 While I have illustrated and described what I now consider to be the preferred form of my invention, it will be evident to those skilled in the art that various changes may be made in the details of construction that are described and illustrated without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim is:

15 1. In a vise the combination of a stationary jaw having a base for attachment to a support, a movable jaw having a beam slidably mounted in said stationary jaw, a screw carried by said movable jaw, and a nut, with which said screw cooperates, provided with a dove-tailed foot and a projection extending forwardly from said foot, said base having a dove-tailed slot which is complementary to and adapted to receive said foot and a surface with which the bottom surface of said projection engages the relative heights of said engaging surfaces above the bottom of

said slot being such that said foot is forced upwardly into tight engagement with the walls of said slot by the engagement of said surfaces when said nut is driven into its fixed position on said base.

5 2. In a vise the combination of a stationary jaw having a base for attachment to a support, a movable jaw having a beam slidably mounted in said stationary jaw, a screw carried by said movable jaw, and a nut with which said screw cooperates provided with a dove-tailed foot adapted for interlocking engagement with said base, said base having a longitudinal dove-tailed slot into which said foot is adapted to fit with the bottom of said foot in engagement with the bottom of said slot, and said nut having a projection extending forwardly from said foot, the bottom surface of said projection engaging a surface on said base at the forward end of said slot, and said surfaces being slightly inclined upwardly toward the front of the vise whereby the forward end of said nut will be forced upwardly and said foot caused to tightly engage the walls of said slot when the nut is driven into its fixed position on said base.

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