Dec. 2, 1930. T. R. WOODS 1,783,594

VISE

Filed April 2, 1927

Fig. 1

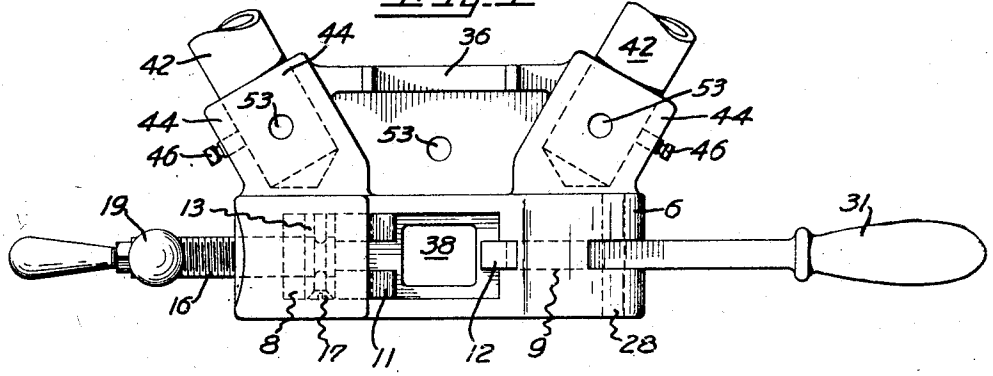


Fig. 2

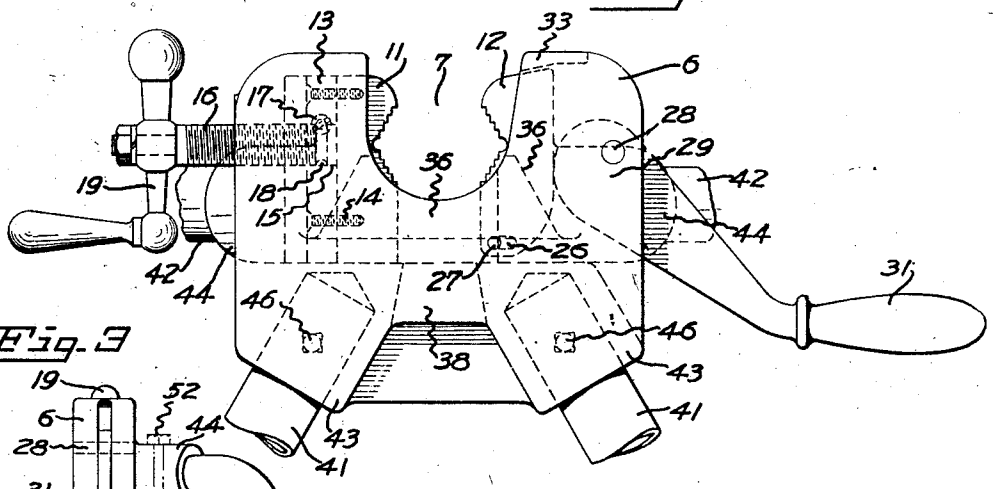
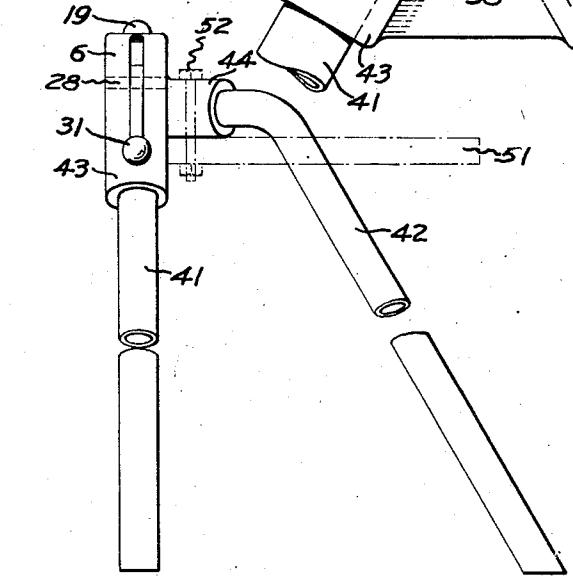


Fig. 3



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UNITED STATES PATENT OFFICE

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VISE

Application filed April 2, 1927. Serial No. 180,353.

My invention relates to vises and particularly to a vise for holding round objects, such as pipe and rods.

One of the objects of the invention is the provision of a vise which is quickly and easily operated.

Another object of the invention is the provision of a vise which requires only one setting as long as one size of work is being handled, as the clamping and releasing of the work does not effect the setting.

Another object of the invention is the provision of a vise having a guide or rest for approximately positioning the work between the jaws of the vise before they are closed.

Another object of the invention is the provision of a vise which may be optionally secured to a work bench or provided with legs when a work bench is not available.

Another object of the invention is the provision of an inexpensive vise of simple and sturdy construction.

The invention possesses other objects and valuable features, some of which will be set forth in the following description of my invention which is illustrated in the drawings forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said description and drawings, as I may adopt varying forms of my invention within the scope of the claims.

Referring to the drawings:

Figure 1 is a plan view of the vise of my invention.

Figure 2 is a front elevation of the device.

Figure 3 is a side elevation showing the means of mounting the vise.

This application is a continuation-in-part of my co-pending application, Serial No. 158,981, filed January 4, 1927.

In terms of broad inclusion, the vise of my invention comprises a one-piece housing within which is mounted a pair of opposed jaws. One of these jaws is adjustably mounted to enable the vise to be set to receive the desired size of pipe within limits. The other jaw is operated by a cam so that the pipe or similar object is clamped by a single downward thrust of a lever. To increase the facility with which the device can be used a guide is preferably provided on the frame to position the pipe between the jaws before they are clamped. The vise is also adapted to be secured to a work-bench if desired or it may be provided with removable legs so that it can be used when a bench is not available.

In greater detail, the vise of my invention comprises a housing 6 preferably cast in one piece from a suitable metal. A longitudinally extending groove 7 is provided in the top of the housing to receive the pipe or other object which is to be held. Disposed on opposite sides of the groove 7 are alined recesses 8 and 9 in which the opposed jaws 11 and 12 respectively are suitably arranged. In order to insure a good gripping surface, the faces of the jaws are preferably V-shaped and are provided with a plurality of teeth. The jaw 11 comprises two like portions or jaw faces secured on opposite sides of the plate 13 by the screws 14. This assembled jaw is slidably mounted within the recess 8 and may be set at any desired point by turning the adjusting screw 16, one end of which is seated in the aperture 15 of the plate 13 and retained therein by the screw 17 which cooperates with the annular groove 18 adjacent the end of screw 16. The screw 16 is threaded thru the side of the housing 6 adjacent the recess 8 and is of sufficient length to permit the jaw 11 to be moved forwardly into the groove 7 a distance greater than the width of the plate 13 to give access to that portion of the plate 13 in which the screw 16 is seated. In this manner the vise may be assembled or taken down with a minimum of inconvenience. As a matter of convenience an operating handle

19 is preferably rigidly secured to the outer end of the adjusting screw.

Arranged in opposition to the jaw 11 and within the recess 9 of the housing is the jaw 12 which is provided adjacent its lower edge with an elongated slot 26. A pin 27, fixed in the housing, is provided to engage in the slot 26 to retain the jaw 12 in position and to provide a sliding pivotal motion which permits slight variations in adjustment of the jaw. By means of this sliding pivotal joint slight variations in the size of the pipe can be accommodated without resetting the jaw 11. The width of the face of the jaw 12 is slightly less than the width of the space between the two faces of the jaw 11, and is so positioned that when a small pipe is to be gripped the extremities of the jaw 12 slip between the two faces of the jaw 11 to permit the engagement of the pipe.

Pivotally mounted within the recess 9 on the pin 28 is a cam 29 which bears against the jaw 12 to force it into engagement with the object to be clamped. The cam preferably terminates in a handle or lever 31 and when this lever is in its highest position, the jaw 12 lies in the recess 9 so that the jaws are open. As the handle 31 is pushed downwardly the jaw 12 is forced forwardly into the groove 7 and into engagement with the object to be clamped. In this forward movement the jaw 12 may pivot at one point on the pin 27 or it may slide over a portion of the length of the slot 26 before seating against the pipe. In this manner a sliding, pivotal joint is provided. A web 33 is preferably provided across the top of the recess 9 to provide a stop to limit the inward movement of the jaw 12; the cam 29 being arranged so that it bears against the jaw 12 between the pivot pin 28 and the web 33, as is shown in Figure 2. It is to be noted that the inward limited movement of the jaw 12 does not interfere with the gripping of small pipes, because jaw 11 may be moved forward to engage the pipe.

In order to facilitate the positioning of the work between the jaws of the vise, a rest or guide channel 36, preferably formed integral with the housing is provided. This guide is spaced from the jaws and is in alinement with the groove 7, so that when the work is laid across the guide, it is approximately positioned between the jaws. Pipe so positioned is readily clamped by the jaws and forced into the exact position desired by the closing of the jaws.

In devices of this character considerable difficulty is experienced because of the accumulation of dirt and waste between the jaws. To overcome this I provide an opening 38 in the bottom of the groove 7 thru which chips and dirt may fall, thus preventing fouling the jaws.

When it is desired to use the vise of my invention, the pipe is laid across the guide or rest to approximately position it between the jaws. The jaw 11 is then advanced by turning the adjusting screw 16 until it bears against the pipe. The lever 31 is then dropped, turning the cam on its pivot to advance the jaw 12 into its clamping position. When the pipe is to be released the user has only to raise the lever 31 which permits the jaw 12 to fall back away from the pipe which is released without disturbing the setting of the jaw 11. It will be apparent that the jaw 11 need not be moved as long as the same size pipe or rod is being worked upon, resetting being required only when a different sized pipe is introduced into the vise.

The vise of my invention is adapted to be optionally mounted on removable legs or on a work bench. When a bench is not available, front legs 41 and rear legs 42 are provided to support the device. The legs are preferably formed of pieces of pipe of any desired length, depending entirely on the use to which the vise is to be put. Suitable sockets 43 are provided in the lower side of the housing to receive the legs 41, and similar sockets 44 disposed at an angle to the sockets 43 form the seats for the legs 42. The legs are preferably secured in their respective sockets by the set screws 46 threaded thru the walls of the sockets. It will be obvious that the legs can be quickly put on or taken off so that a readily portable vise is always available. If the vise is to be used in a shop where a work bench can be utilized as a mounting, the legs are removed and the device set on the bench 51 in the usual manner. In Figure 3, I have shown in dotted lines this method of mounting the vise. A suitable bolt 52 is passed thru each of the apertures 53 arranged in the rear of the housing, and secured in the bench 51. It will be noted that the extended portion of the housing forming the sockets 41, bears against the edge of the bench increasing the stability of the vise.

I claim:

1. A pipe and rod vise comprising a frame, a housing mounted on the frame and having a groove in the top thereof adapted to receive and position a pipe, a jaw mounted in one side of said housing and slidable therein to project into said groove, means for adjustably positioning said jaw, an opposing jaw slidably and pivotally mounted in the other side of the housing, and a cam lever for operating said second jaw mounted in said housing and bearing against said second jaw, said housing being vertically apertured between said jaws to form an unobstructed passage.

2. A pipe and rod vise comprising a frame, a housing mounted on the frame and having a groove in the top thereof adapted to receive and position a pipe, a jaw mounted in one side of said housing and slidable therein to

project into said groove, means for adjustably positioning said jaw, an opposing jaw slidably and pivotally mounted in the other side of the housing, a cam lever for operating said second jaw mounted in said housing and bearing against said second jaw, and a stop in the housing for limiting the motion of the cam operated jaw, said cam lever being arranged to bear against the cam operated jaw between its pivotal mounting and the stop.

In testimony whereof, I have hereunto set my hand.

THOMAS R. WOODS.