April 10, 1928.

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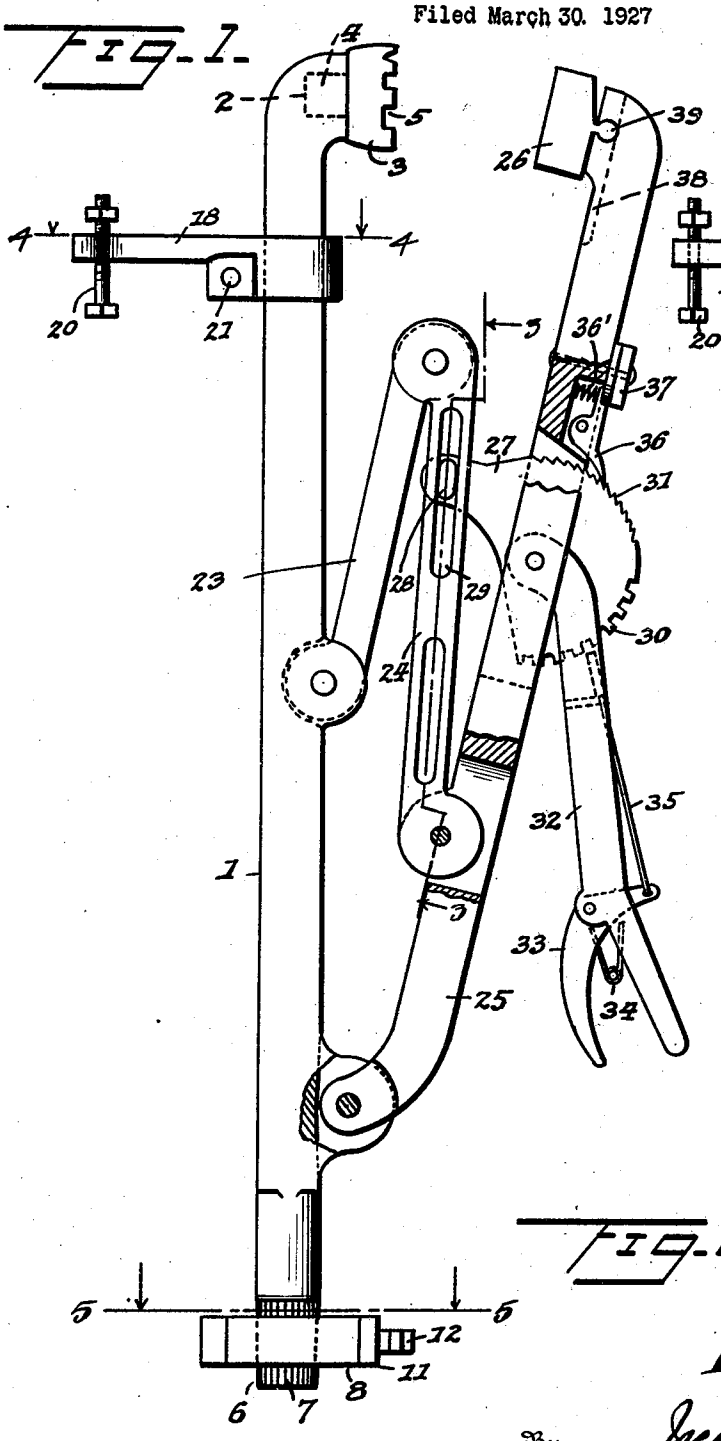
H. YOUNG

LEVERAGE VISE

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2 Sheets-Sheet 1

Fig. 1.



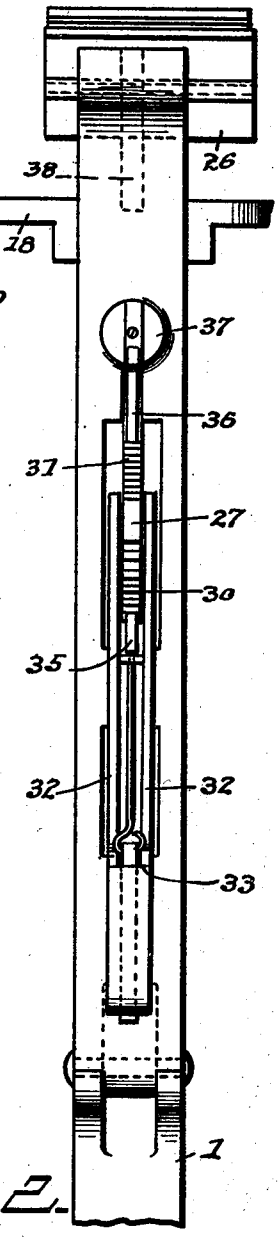


Fig. 2.

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Fig. 3.

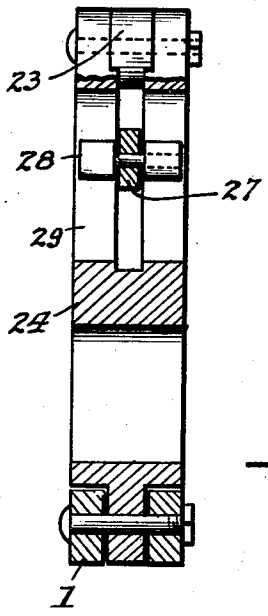


Fig. 4.

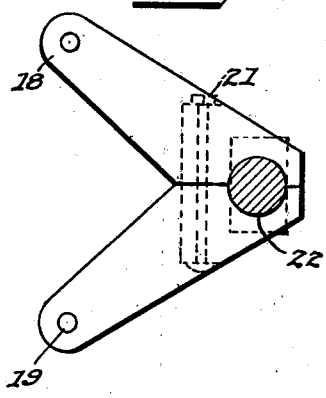


Fig. 6.

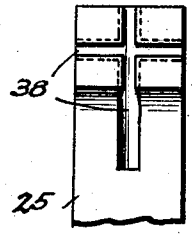


Fig. 7.

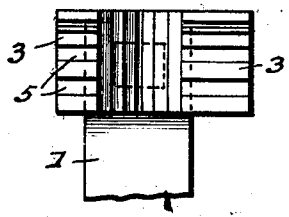


Fig. 8.

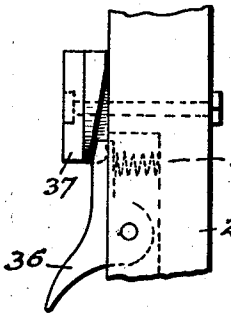


Fig. 5.

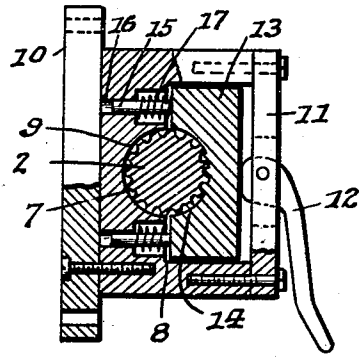
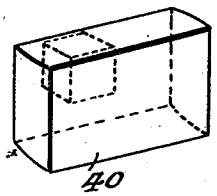


Fig. 9.



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UNITED STATES PATENT OFFICE.

HUGH YOUNG, OF MIRANDO CITY, TEXAS.

LEVERAGE VISE.

Application filed March 30, 1927. Serial No. 179,611.

This invention relates to a hand lever operated vise and it consists in the novel features hereinafter described and claimed.

An object of the invention is to provide a vise structure of the character stated which may be applied to a bench or other support and which may be easily and quickly operated by manipulating a lever mechanism whereby articles or materials may be securely held in position while they are being worked upon.

With this and other objects in view the structure includes a standard having means at its upper end for supporting a vise jaw and means provided at its lower end whereby the standard may be secured to or mounted upon a floor or other support. A bracket is connected with the intermediate portion of the standard and may be attached to a bench or other support. An arm is pivotally connected with the lower portion of the standard and carries at its free end a jaw member adapted to coact with the first mentioned jaw. Links are pivotally connected together at their inner ends and the outer ends of the links are pivotally connected with the intermediate portions of the standard and the arm, respectively. One of the links is provided with longitudinally disposed slots. A disk is pivoted upon the intermediate portion of the arm and carries a pin which is adapted to move along the slots of that link provided with the same. A lever is pivoted upon the axis of the disk and is provided with a pawl adapted to move between teeth provided at the periphery of the disk and which may be used as means for swinging the disk in order to move the links with relation to each other, whereby the arm is swung with relation to the standard. A spring actuated pawl is carried by the arm and is adapted to engage the teeth of the disk, whereby the disk may be held at an adjusted position.

In the accompanying drawings:—

Figure 1 is a side elevational view of the vise with parts thereof broken away and parts shown in section.

Figure 2 is an edge elevational view, of the upper portion of the vise.

Figure 3 is a fragmentary longitudinal sectional view thereof, cut on the line 3—3 of Figure 1.

Figure 4 is a detail transverse sectional view thereof, cut on the line 4—4 of Figure 1.

Figure 5 is a similar view cut on the line 5—5 of Figure 1.

Figure 6 is an inner side elevational view of the upper portion of the arm of the vise structure.

Figure 7 is a face view of a jaw which may be used upon the vise.

Figure 8 is a detailed view of the pawl mechanism used in the vise.

Figure 9 is a perspective view of a modified form of jaw which may be used in the vise.

The vise structure includes a standard 1 which is provided at its upper end with a socket 2 leading in from the side thereof. A jaw 3 is provided with a shank 4 which fits snugly in the socket 2 whereby the said jaw is held at the side of the standard 1. The face of the jaw 3 is provided with grooves or serrations 5 adapted to hold the work or material, such as pipe, plank, or other articles which are to be cut or worked upon.

The lower end of the standard 1 is tapered as at 6 and the exterior surface thereof is provided with ridges 7. A block 8 is provided at its side edge with a recess 9 which receives the side portion of the tapered end 6 of the standard 1. The block 8 is adapted to rest upon the upper surface of a floor or other support (not shown). A bar 10 is attached to the edge of the block 8 and may be secured to a wall or bench as may be desired.

A plate 11 is mounted at the outer edge of the block 8 and a cam lever 12 is pivoted upon the said plate 11. The cam end of the lever 12 bears against a block 13 which is slidably mounted between the plate 11 and the body portion of the block 8. The block 13 is provided with a recess 14 which bears against the ridges 7 of the standard 1. The block 13 is provided with pins 15 which are received in bores 16 provided in the block 8 and springs 17 are interposed between the blocks 8 and 13 and serve as means, having a tendency, to move the block 13 in a position away from the block 8 whereby the standard 1 may be released from between the blocks when the lever 12 is moved to a position so that the narrower portion of its cam end is interposed between the fulcrum of the lever to the block 13.

Bracket sections 18 are provided with openings 19 adapted to receive bolts 20 whereby the said sections may be secured to a bench or other support (not shown). The

sections 18 are secured together by a bolt 21 which passes transversely through the said sections. The said sections are provided with recesses 22 which receives the intermediate portion of the standard 1 and by tightening the nut upon the bolt 21, the said standard 1 is clamped between the bracket sections 18 and such means are provided to securely hold the standard 1 in a fixed position with relation to its supporting means.

Links 23 and 24 are pivotally connected together at their inner ends. The link 24 is longer than the link 23. The other ends of the links 23 and 24 are pivotally connected with the standard 1 and an arm 25 which in turn is pivotally connected with the lower portion of the standard 1. A jaw 26 is carried at the upper free end of the arm 25 and is adapted to co-operate with the jaw member hereinbefore explained and referred to. A disk member 27 is pivoted upon the arm 25 and carries a pin 28 which is slidably received in slots 29 provided in the intermediate portion of the link 24. The disk 27 is provided at its edge with teeth 30 and 31. A lever 32 is fulcrumed upon the axis of the disk 27 and a hand grip member 33 is pivoted upon the lever. A spring 34 is interposed between the free end portion of the lever 32 and grip 33 and serves as means for normally holding the grip in a spread position with relation to the lever. A pawl run 35 is connected at one end with the grip 33 and its other end is adapted to engage in the spaces between the teeth 30 whereby the lever 32 may be held and secured in a fixed position with relation to the disk 27. A pawl 36 is pivoted upon the arm 25 and its free end is adapted to engage the teeth 31 of the disk 27 whereby the said disk may be held at a fixed position with relation to the arm 25. A spring 36′ is interposed between the arm 25 and the pawl 36 and serves as means for holding the free end of the pawl in engagement with the teeth 31 as best shown in Figure 1 of the drawing. A cam faced disk 37 is pivoted upon the arm 25 and the cam face of the said disk 37 lies against the edge of the pawl 36.

By turning the disk 37 upon the arm 25 the pawl 36 may be swung to a position, against the tension of the spring 36′ whereby the free end of the pawl is held beyond the path of movement of the teeth 31 and when in such position the disk 27 is released and is ready to be swung by manipulating the lever 32 and with relation to the arm 25. The free end of the arm 25 is provided with grooves 38 which are adapted to receive the shank 39 of the jaw member 26.

As shown in Figure 9, a jaw member 40 having a plane surface may be provided, and used in lieu of the jaw member 3.

When in use the vise structure is applied to a support as hereinbefore indicated and the material to be held in the vise is placed against the vise jaw member 3 in a usual manner. The lever 32 is then swung whereby the disk 27 is turned and the pin 28 is moved along the slot 29 thus swinging the links 23 and 24 with relation to each other. While the other ends of the said links come toward each other, the arm 25 is swung toward the standard 1 and the jaw member 26, clamps against the outer surface of the article which has been placed against the jaw member 3. By manipulating the grip 33 and moving the pawl rod 35 the parts are moved so that the article may be held tightly between the jaws of the vise. When the article is clamped the disk member 37 is turned so that the free end of the pawl 36, under the influence of the spring 36′ engages the teeth 31 and thus the article is secured in position between the jaws. In order to remove the article from between the jaws of the device, the operation, above described, is reversed.

Therefore, it will be seen that a vise structure of simple and durable arrangement of parts is provided and that the same may be easily and quickly manipulated for securing and holding an article in a stationary position and that the parts may be easily and quickly manipulated for releasing and removing the article from the vise structure.

Having described the invention, what is claimed is:—

1. A vise comprising a standard, an arm pivoted thereto, links pivotally connected together at their inner ends and pivotally connected at their outer ends with the standard and the arm respectively, and a lever mechanism mounted upon the arm and operatively engaging the links to swing the same with relation to each other.

2. A vise comprising a standard, an arm pivoted thereto, links pivotally connected together at their inner ends and pivotally connected at their outer ends with the standard and the arm respectively, one of the links being provided with longitudinally disposed slots, and a lever mechanism mounted upon the arm and including a pin which is received within the said slot.

3. A vise structure comprising a standard, an arm pivoted thereto, links pivotally connected together and pivotally connected at their ends with the standard and the arm respectively, a disk pivoted upon the arm and having a pin which engages one of the links, and a lever pivoted upon the arm and having a pawl engageable with the disk.

4. A vise structure comprising a standard, an arm pivoted thereto, links pivotally connected together and pivotally connected at their ends with the standard and the arm respectively, a disk pivoted upon the arm

and slidably engaging one of the links, being carried by the arm for holding the disk in a position with relation to the arm, and a lever pivoted upon the arm and having means detachably engaging the disk.

5. A vise comprising a standard, an arm pivoted thereto, links pivotally connected together and pivotally connected at their ends with the standard and the arm respectively, a disk pivoted upon the arm and slidably engaging one of the links, a pawl pivoted upon the arm and engageable with the disk, a cam-faced disk pivoted upon the arm and engageable with the pawl to hold the same out of engagement with the disk, and a lever pivoted upon the arm and engageable with the disk.

6. A vise conprising a standard, means for securing the lower portion of the standard to a support, means for connecting the intermediate portion of the standard with a support, an arm pivoted to the standard between said means, links pivotally connected together and pivotally connected at their ends with the standard and the arm respectively, at points between said supporting means, and a lever mechanism mounted upon the arm and engageable with one of the links.

7. A vise comprising a standard, said standard being tapered at its end and provided with longitudinal ridges, a block having a free end adapted to receive a portion of the tapered end of the standard, a second block movable with relation to the first-mentioned block and adapted to receive a portion of the tapered end of the standard, means for holding the second-mentioned block at a fixed position with relation to the standard and the first-mentioned block, an arm pivoted to the standard, links pivotally connected together and pivotally connected with the standard and the arm respectively, and a lever mechanism carried by the arm and engageable with one of the links.

8. A vise comprising a standard, bracket members applied to the sides thereof, means for drawing the bracket members toward each other whereby the standard is clamped between the bracket members, means for securing the bracket members to a support, an arm pivoted to the standard, links pivotally connected together at one end and pivotally connected with the standard and the arm respectively at their other ends, and a lever mechanism carried by the arm and engageable with one of the links.

In testimony whereof I affix my signature.

HUGH YOUNG.