

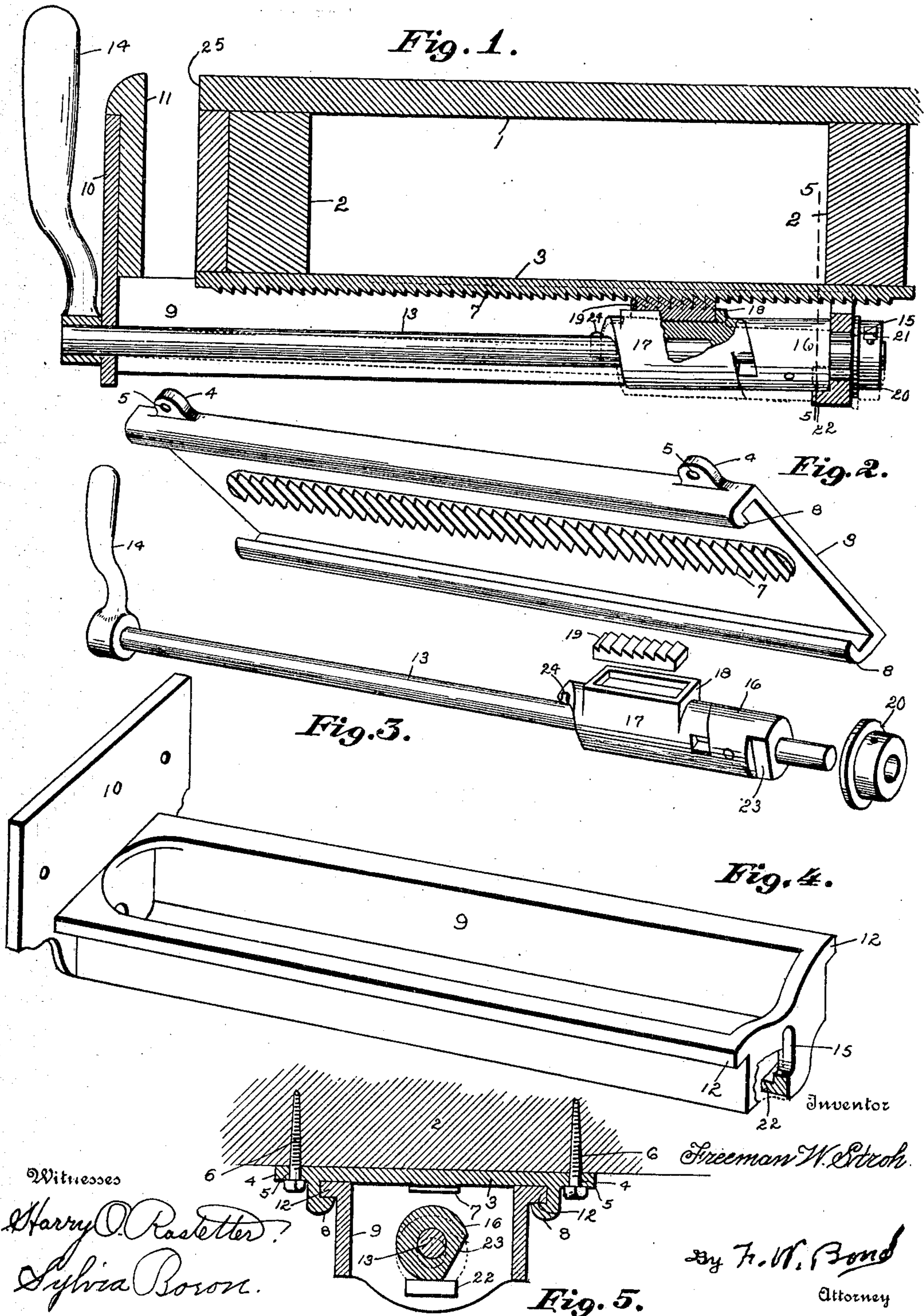
No. 872,310.

PATENTED NOV. 26, 1907.

F. W. STROH.

WISE.

APPLICATION FILED AUG. 3, 1907.



# UNITED STATES PATENT OFFICE.

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VICE.

No. 872,310.

Specification of Letters Patent.

Patented Nov. 26, 1907.

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*To all whom it may concern:*

Be it known that I, FREEMAN W. STROH, a citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Vises; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, and to the numerals and figures of reference marked thereon, in which—

Figure 1 is a vertical longitudinal section, showing the vise connected to a bench. Fig. 2 is a perspective view of the fixed rack plate and guide. Fig. 3 is a view of the actuating shaft showing the retaining collar and the toothed block removed. Fig. 4 is a detached view of the slide and its jaw. Fig. 5 is a transverse section on line 5—5, Fig. 1.

The present invention has relation to vises more especially designed to be attached to a work bench, but may be used without any specific reference to a work bench.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, 1 represents a portion of the top of the work bench. To its top is attached the usual cross bars 2. To the cross bars 2 or their equivalents is attached the combined rack and guide plate 3, which plate is preferably provided with the lateral flanges 4, which flanges are provided with the apertures 5, through which apertures the lug bolts 6 are passed and entered in the cross bars 2 or their equivalents. The rack plate 3 is provided with the rack bar 7, which may be formed integral with the plate 3 or made separate and attached in any convenient and well known manner. The plate 3 is provided with the guide flanges 8, which are substantially of the form shown and are for the purpose of guiding the movable frame 9, which movable frame is provided with the clamp-jaw 10, to which clamp jaw 10 may be attached a clamp plate 11 if desired. The movable frame 9 is provided with the flanges 12, which flanges are located in grooves formed by the guide flanges 8. In the movable frame 9 is journaled the shaft 13, to which shaft is securely attached the operating handle 14. One end of the shaft 13 is passed through the slot 15 and is so located that the shaft can move up and down as

hereinafter described. To the shaft 13 is securely attached the cam-head or block 16, against the cam end of which is located the cam end of the cylindrical block 17, which cylindrical block is provided with the upward extended recessed flange 18, which recessed flange is for the purpose of receiving the short toothed block 19, which teeth are for the purpose of engaging the rack or toothed bar 7 as best illustrated in Fig. 1.

To the outer and opposite end of the shaft from that to which the lever 14 is attached is attached the collar 20 by means of the set screw 21 or its equivalent. The collar 20 is located against the outer face of the end member of the movable frame and one end of the cam block 16 located against the inner face of the end member of the movable flange by which arrangement there can be no relative or endwise movement between the shaft 13 and the movable frame, but when the parts just above described are properly connected the shaft and all of the parts connected to said shaft move with the movable frames when endwise movement is imparted to said frame.

It will be understood that when the toothed block 19 is out of engagement with the rack bar 7 the movable frame is free to move in its guides and can be quickly brought to any desired adjustment within the limits of its movement, but when the toothed block 19 is brought into engagement with the rack bar 7, there can be no endwise movement of the frame 9 together with the different parts carried by the different parts thereby except as hereinafter described. The inner face of the end member of the frame 9 is provided with the flange 22, which flange is so located that the cylindrical portion of the cam head 16 will ride upon the flange 22, but when the cam head 16 is brought into such a position that the cut away portion of the cam head 16 will come directly above the flange said cam head 16 will drop or move downward until the straight faced shoulder 23 comes in contact with the top or upper side of the flange 22, and when said cam head 16 together with the shaft 13 and the cylindrical block 17 drops down the toothed block 19 will be disengaged from the rack bar 7. To the shaft 13 is attached the pin 24, which pin is for the purpose of holding the cylindrical block 17 in proper contact with the cam head or block 16 or in other words causes the cylin-

dricial block to follow or remain in contact at all times with the cam end of the block 16.

The operation of my improved vise in use is substantially as follows: Let it be supposed that the movable frame 9 is released so that it is free to slide back and forth or in other words, the toothed block 19 is disengaged from the rack bar 7, and it is desired to clamp a bar or anything else between the fixed end 25 of the work bench proper, or other fixed jaw, and the movable jaw carried by the slidable frame. Said slidable frame together with the jaw is moved toward the end or side of the work bench or fixed jaw or until the movable jaw comes in contact with the bar designed to be clamped after which the shaft is given a partial rotation by the handle 14, which partial rotation elevates the end of the shaft to which the cam head or block is attached and brings the toothed block into engagement with the rack bar 7, and by further rotation of the shaft 13 after the toothed block 19 has been brought into engagement the cam ends of the cam head 16 and the cylindrical block 17 will cause the frame 9 to move endwise, owing to the fact that there can be no relative movement as between the cylindrical block 17 and the toothed rack 7 thereby forcing the frame together with its jaw toward the fixed jaw. This result is accomplished by reason of the shaft 13 being held against end movement with reference to the frame 9. When it is desired to release the bar clamp, all that is necessary to do is to partially rotate the shaft 13, which partial rotation disengages the toothed bar from the rack bar 7, after which the movable frame is released and is free to be drawn away from the fixed jaw 25.

It will be understood that the pitch of the cam designed to come in contact with the pin 24 should be the same as the pitch of the cam coming in contact with the cylindrical block 17, by which arrangement the adjacent cam ends of the cam head 16 and the cylindrical block 17 are in contact with each other at all times. The toothed block 19 is preferably detachably connected to the cam block or head 17 and is so connected for the purpose of easily removing said toothed block for any purpose designed and especially for the purpose of replacing new blocks for worn ones.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. In a vise, the combination of a fixed guide-plate provided with a toothed bar, a movable frame carried by the guide-plate, a shaft journaled in the movable frame and provided with a fixed cam-head, a cam-block loosely mounted upon the shaft and provided with cam ends, a toothed-bar carried by the loosely mounted cam block, means for

holding the shaft against endwise movement, relative to the movable frame, and an operating handle secured to the shaft, and a jaw carried by the movable frame, substantially as and for the purpose specified. 70

2. In a vise of the class described, a guide plate, a movable frame carried by the guide plate, a shaft journaled in the movable frame, a cam-head fixed to the shaft and rotatable therewith, said cam-head provided with a cut out portion, a flange located below the cut out portion of the cam-head and carried by the movable frame, a cam-block loosely mounted upon the shaft, said loosely mounted cam-block provided with a toothed block and a rack-bar adapted for engagement with the toothed bar carried by the cam-head loosely mounted upon the shaft, means for holding the shaft against endwise movement, relative to the frame, and an operating handle, and fixed and movable jaws, the movable jaw carried by the movable frame, substantially as and for the purpose specified. 85

3. In a vise of the class described, a fixed guide plate, a movable frame carried by the guide plate, a shaft journaled in the movable frame, cam blocks mounted upon the shaft, one of the cam blocks loosely mounted and the other fixed upon the shaft, a loosely mounted cam block provided with a toothed block, and a rack bar adapted to engage the toothed block carried by the loosely mounted cam block, means for holding the shaft against endwise movement relative to the movable frame, and means for dropping the end of the shaft carrying the cam blocks, and fixed and movable jaws, said movable jaws carried by the movable frame, substantially as and for the purpose specified. 100

4. In a vise of the class described, a fixed guide plate and a rack bar, a movable frame carried by the fixed guide plate, a shaft journaled at one of its ends in an elongated slot, cam blocks mounted upon the shaft, one of said blocks fixed to the shaft, and the other loosely mounted thereon, a removable toothed block adapted for engagement with the rack bar, said toothed block carried by the loosely mounted cam block, said fixed cam-block provided with a cut out portion and a flange adapted to engage the shoulder of the cut out portion, means for holding the shaft against endwise movement, relative to the frame, clamp jaws, one fixed and the other movable, and an operating handle connected to the shaft, substantially as and for the purpose specified. 105

5. In a vise of the class described, a fixed guide plate, a movable frame carried by the guide plate, a clamp jaw carried by the movable frame, a fixed jaw, a shaft journaled in the movable frame, said shaft provided with an operating handle, cam blocks located upon the shaft, one of said cam blocks fixed

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to the shaft, means for elevating and lowering the end of the shaft provided with the cam blocks, means for holding the shaft against endwise movement relative to the movable frame, a fixed rack bar and a toothed block carried by the loosely mounted cam block, substantially as and for the purpose specified.

6. In a vise of the class described, a fixed guide plate, a movable frame carried by the guide plate, a clamp jaw carried by the movable frame, a fixed jaw, a shaft journaled in the movable frame, said shaft provided with an operating handle, cam blocks located upon the shaft, one of said cam blocks fixed to the shaft, means for elevating and lower-

ing the end of the shaft provided with the cam blocks, means for holding the shaft against endwise movement relative to the movable frame, a fixed rack bar and a toothed block carried by the loosely mounted cam block, and means for holding the cam ends of the cam blocks against each other, substantially as and for the purpose specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

FREEMAN W. STROH.

Witnesses:

T. AMMERMAN,  
CHAS. J. ALPETER.