

J. R. LONG.
BENCH VISE.

APPLICATION FILED AUG. 30, 1909.

958,658.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

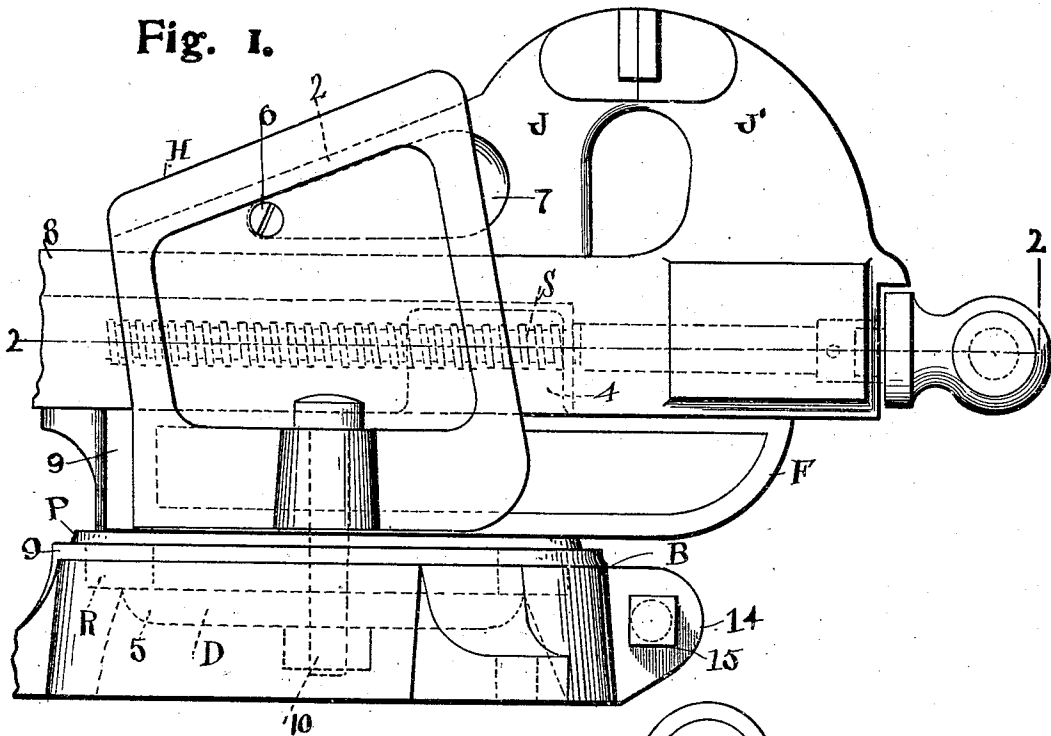
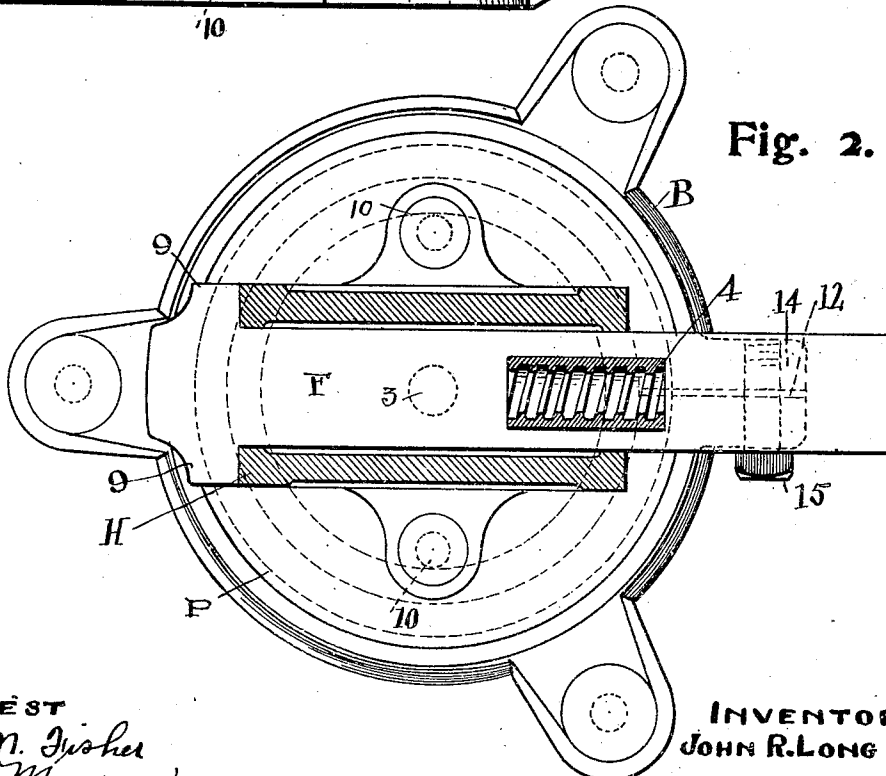


Fig. 2.



ATTEST
E. M. Fisher
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BY Fisher & Moser ATTYS.

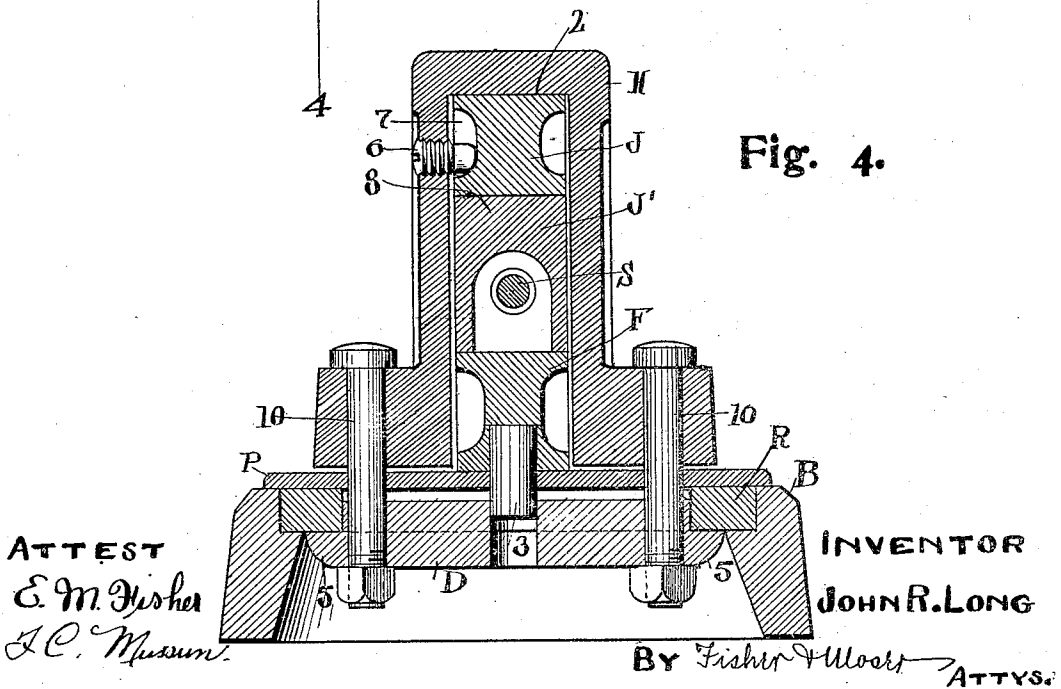
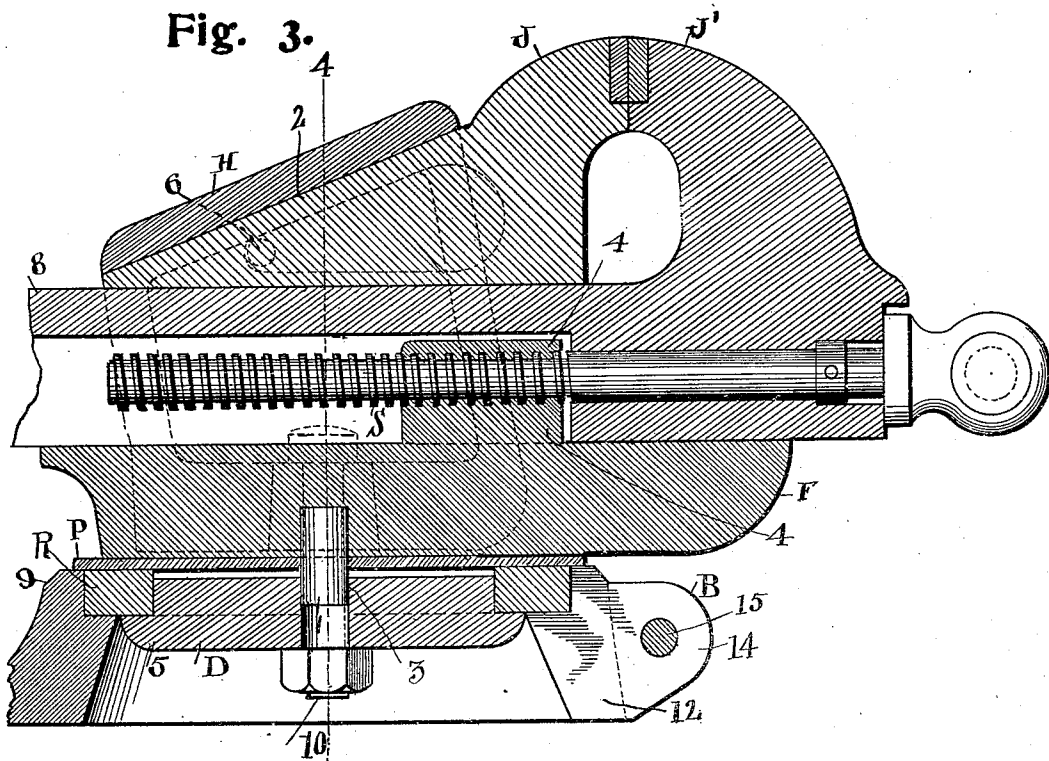
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UNITED STATES PATENT OFFICE.

JOHN R. LONG, OF WARREN, PENNSYLVANIA.

BENCH-VISE.

958,658.

Specification of Letters Patent. Patented May 17, 1910.

Application filed August 30, 1909. Serial No. 515,351.

To all whom it may concern:

Be it known that I, JOHN R. LONG, citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Bench-Vises, of which the following is a specification.

My invention relates to bench vises, and consists in an improvement in the vise shown and claimed in my application for Letters Patent, Ser. No. 505,954.

In the accompanying drawings, Figure 1 is a side elevation of the vise as improved, and Fig. 2 is a plan view on a line corresponding substantially to 2—2, Fig. 1, and with the jaw members removed. Fig. 3 is a central sectional elevation lengthwise on the line of the operating screw, and Fig. 4 is a cross section substantially on line 4—4, Fig. 3.

The invention herein is designed to remedy sundry imperfections which have been discovered in the vise as originally made and operated and which could only be found in practical every day operations therewith. For example, when an object was gripped in the jaws of the original vise and the operator wanted to swivel or turn the vise to a different position horizontally he could not change the position without first loosening the main screw, and thus release the grip upon the base and permit the necessary rotation. But when he did this the object gripped in the jaws would also be released, and if the object was a heavy one the operator was obliged to hold it up with one hand while he loosened the screw and changed the position of the vise with the other hand. In many cases the object was liable to be exceedingly heavy and would require an extra man to assist in holding it up until the position of the vise could be changed. This of course was very annoying to say the least and betrayed a material defect somewhere in the construction and as well as being calculated to prejudice the user against the vise. The present invention therefore is planned to remedy this defect in the old vise as well as to generally improve its construction as to other important particulars as will now appear.

Referring to the parts, the same reference characters are employed for like parts as in the original construction for convenience of comparison, and said parts consist in a base B adapted to be permanently fixed upon a suitable foundation, a hood H rotatably

mounted upon said base and adapted to be frictionally clamped thereon against rotation when the jaws of the vise are tightened on an object, as will hereinafter more clearly appear. The said hood, therefore, is provided with a flange or ears at its bottom and bolts 10 are engaged through this portion and through a disk D within the open portion of the base and has a recess about its upper and inner edge which engages a ring R set into an annular recess in the top of said base and which is overlapped at its bottom by what may be termed a flange 5 upon said disk to make engagement therewith. The bolts 10 pass through the said disk B and operatively unite the same with the hood, so that the hood and the said disk and the plate P will rotate together on the base and the ring R. A so-called friction bar F is located within the bottom of the hood, or within the side walls thereof at its bottom upon plate P, and a pivot pin 3 anchors said bar in or with the disk D, the said pin being fixed in said bar and passing through the plate P as shown. The said bar F is preferably made of forged steel and has shoulders 9 at its sides and end engaging the side walls of hood H, so as to sustain the said bar against the pressure that comes thereon through the operations of the controlling screw S of the vise.

J and J' represent the respective jaws of the vise, J is the inner or permanent jaw, and J' is the outer or movable jaw or member. The jaw J' has a shank or extension 8 which runs back through the hood H with length enough to obtain the desired adjustment or open space between the jaws and carries the operating screw S. Operatively the said screw passes through the so-called nut 4 which in this instance is an integral portion on the top of friction bar F. The inner jaw J has a tapered or approximately wedge shaped shank 2, the lower edge of which is straight with the top of shank 8 of jaw J', while the upper edge runs at an inclination to the outer pointed extremity of the shank, and hood H is flared in its upper portion to conform to the shape of this shank and within which it is inclosed and fixed by a removable screw 6. When the jaws are in clamping position the inner jaw J wedges firmly within the hood 8 and this tends to lift the said hood in respect to all the other parts and produce an upward pull upon the bolts 10 which engage the

friction disk D at the bottom and cause a frictional engagement to be made between said disk and the ring R and thus hold the parts rigidly so far as further rotation is concerned. But when the object is released from the jaws all the parts become loose and normal except ring R, and are easily turned upon the base to any desired position. When the jaws are tightened and the shank 2 of jaw J locks within the hood there is also a forward pull upon friction bar F by reason of the engagement of screw S therein, and it is at this time that the ears 9 serve the purpose of holding the said friction bar firmly in working position. A very slight play is provided for in the shank 2 of jaw J in respect to the screw 6, but there is no sliding of the said jaw J back and forth in respect to the hood except such as is implied by sufficient looseness to make the parts work easily. Now, returning to the special improvement herein, it will be seen in Figs. 2 and 3, especially, that the base B has a saw cut or split 12 across its body or side with two clamping ears 14 outside thereof and a clamping screw 15 through said ears, and when the ring R is placed in the annular recess in the top and inner portion of the base as shown, the said bolt 15 is tightened and the said ring is thereby firmly locked in place, the same practically as if it were an integral part of the base. When this has been done all the other parts mounted upon the base are adapted to rotate horizontally as formerly. However, as already indicated, there come times when it is desirable to rotate the vise with the object gripped in the jaws, and under the old construction rotation could not occur without releasing the jaws and the object, which was objectionable as pointed out above. Now when an object is gripped in the jaws of the vise and rotation is desired, I relax or loosen the clamp of the base through or by means of screw 15, which in turn sufficiently releases the collar or ring R to permit the same to be rotated upon the base with the other parts, and thereby I am enabled to obtain all the horizontal rotation I may want with the object firmly clamped in the jaws. This being done, screw 15 can be tightened again and all the parts will be normal. Finally, I have found it advantageous to place a plate P over the base and collar R in such relations as to cover the same perfectly and prevent filings, oil and the like from dropping down into the joints.

It will also be observed that friction disk D is kept out of contact with plate P while said plate rests on collar R, so as to best promote the frictional engagements provided for herein. Collar or ring R is accurately machined so that a very slight movement of screw 15 will release the collar for rotation. If preferred a small wrench or other means may be attached to screw 15 to easily turn the same by hand.

What I claim is:

1. A bench vise having a base and a collar rotatably mounted therein, a set of jaws and supports therefor frictionally engaging said collar and adapted to be clamped against rotation upon said base.

2. A bench vise having a set of jaws and a hood carrying the same, a split base and a collar adapted to be clamped and rotated therein and mechanism frictionally clamping the hood on said collar.

3. A bench vise having a split base and a friction collar rotatably mounted therein and adapted to be locked therewith, a set of gripping jaws and a hood in which said jaws are engaged, and means adapted to clamp the hood upon said ring.

4. A bench vise having a split base, a friction collar and means on the base to frictionally engage the collar thereon, in combination with a hood and jaws and means operatively supporting the jaws in said hood and a disk engaging beneath said friction collar and clamped to the bottom of said base and to said hood.

5. A split base and a collar rotatably clamped therein, a hood and jaws therein, a part engaging the bottom of said collar and screws connecting the same with said hood, said hood and one of said jaws constructed to produce a clamping effect and tighten the parts against rotation when an object is gripped in said jaws.

6. A bench vise having a suitable base, a hood rotatably mounted thereon, a set of jaws supported in said hood, and clamping mechanism connecting the hood with the base and comprising a rotatable collar and a guard plate between said collar and said hood.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. LONG.

Witnesses:

T. O. HAZEN,
C. JEPSON.