No. 742,096. PATENTED OCT. 20, 1903.

J. R. LONG.

BENCH VISE.

APPLICATION FILED JAN. 9, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

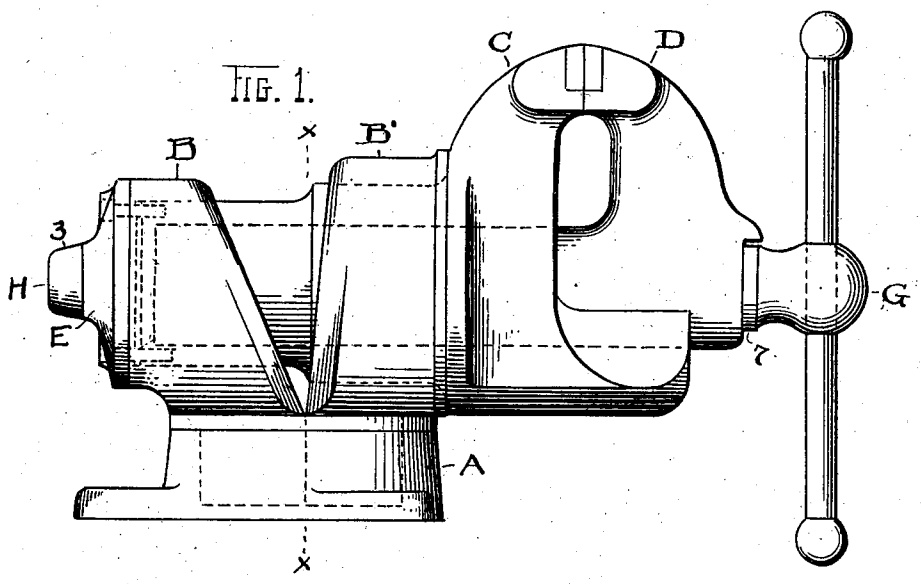
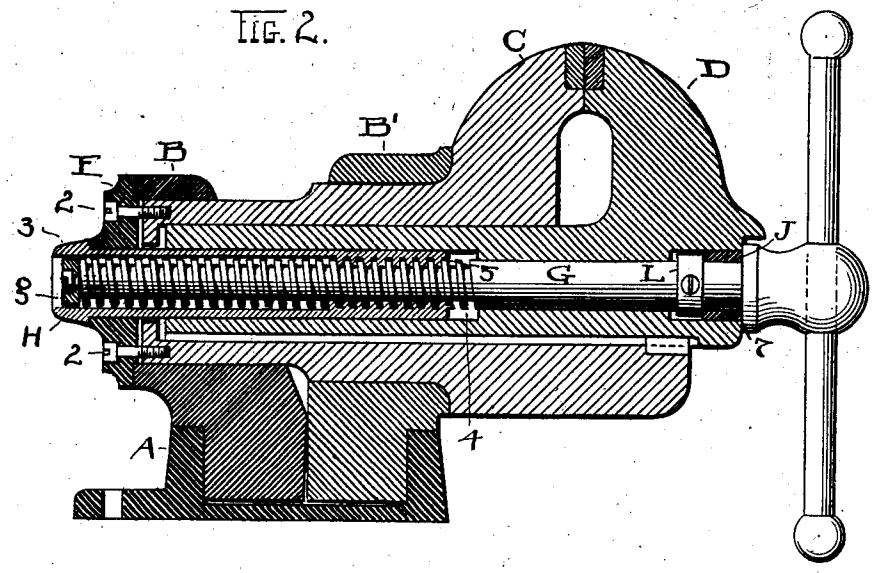


FIG. 2.



ATTEST.

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BENCH VISE.

APPLICATION FILED JAN. 8, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

FIG. 3.

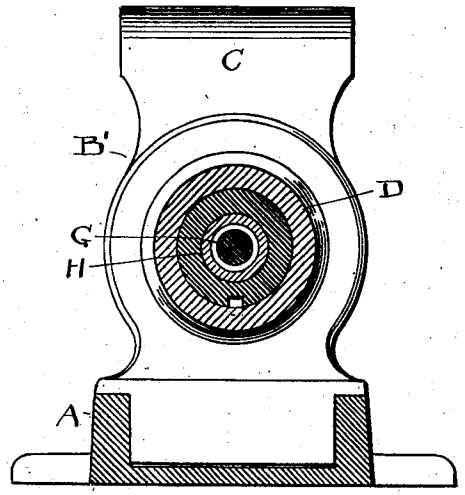


FIG. 4

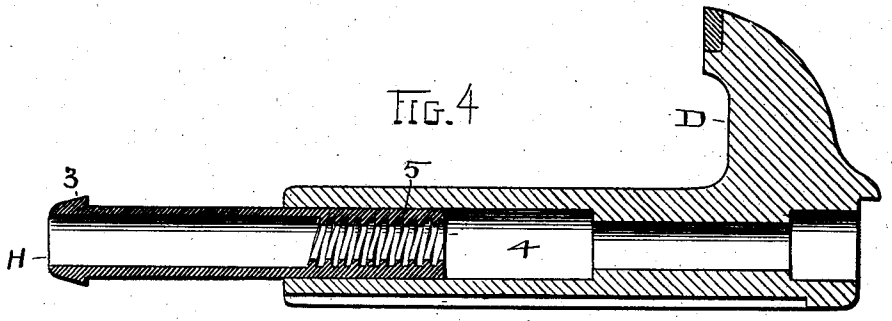
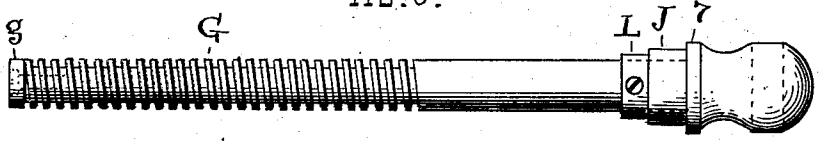


FIG. 5.



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No. 742,096. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

JOHN R. LONG, OF AKRON, OHIO.

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 742,096, dated October 20, 1903.

Application filed January 9, 1903. Serial No. 138,405. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. LONG, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Bench-Vises; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to a bench-vise; and the object of the invention is to provide a vise in which the adjusting-screw is constructed to operate substantially within the limits of the fixed jaw member, and the several parts are adapted to operate substantially as shown and described, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of the vise complete and in readiness for use. Fig. 2 is a longitudinal sectional elevation thereof with the parts as in Fig. 1. Fig. 3 is a cross-section on a line corresponding to *x x*, Fig. 1. Fig. 4 is a longitudinal sectional elevation of the movable jaw member and the sleeve-nut therein. Fig. 5 is a plain elevation of the screw.

As shown, A represents the base of the vise, which is adapted to be secured to any suitable support and is formed with an annular seat for the body of the vise. The said body consists of two members or halves B and B', provided each with a section or half of a so-called "trunnion" or "hub" seated in base A, and the said sections are adapted to be slightly tilted in respect to each other and their seat, so that when they are drawn toward each other at their top they will be pressed outward below, and thus lock frictionally in the said seat. This likewise is shown in the foregoing application.

C and D are the respective jaw members, and C is referred to as a "fixed" member, because it remains stationary when the movable member D is adjusted to open or close the vise. However, this so-called "fixed" member is adapted to be rotated about its axis within the body of the vise, and it is shown in this instance as having two diameters, the larger diameter working in section B' of the body and the smaller diameter is section B, and a securing and bearing cap E is affixed to the outer extremity of jaw member C by means of screws 2. This cap bears against the outer edge of body member B, and serves as a support and bearing for screw sleeve or nut H.

G is the screw, and H the threaded sleeve-nut therefor. This nut or sleeve has a head 3, which bears against the outside of cap E and extends thence through the same into the internal bore 4 of the jaw member D, and has threads 5 in its inner portion or end, as plainly seen in Fig. 4. The other portion of said sleeve is plain or not threaded, and a cap *g* on the rear end of the screw is adapted to engage against thread 5 in the sleeve and prevent the screw from running entirely out of the sleeve in extreme adjustments.

A special bearing-sleeve J is placed on the screw G between its head 7 and fixed collar L thereon. Sleeve J is loose as to the screw to afford freedom of turning; but it is designed to be driven or forced tightly upon its seat in member D, so as to serve as a reliable backing for collar L when the screw is rotated to open jaw D. This also gives head 7 of the screw a solid bearing against the full stock of jaw D, and there is nothing to break or give way or become weakened under severe strain or pressure through the action of the screw. By this construction also I can run screw G entirely out of the sleeve-nut H after having first removed cap *g* from its end, and then by a little extra exertion I can pull the screw bodily out of member D and bring sleeve J with it. This also liberates sleeve or nut H, which can be withdrawn in the opposite direction. Said nut should be secured by some means against rotation when the screw is turned, and I find that a close fit in cap E provides frictional engagement about its outside which is sufficient therefor; but it can have some special fastening, if desired.

By making the inner portion of the hub of jaw member C heavier than the outer portion I get greater strength where it is needed, and it will be understood that when the screw is tightened it tilts the body sections toward each other and locks them against rotation in base A.

It will be seen that the collar L and sleeve

J occupy an annular recess in jaw member D about screw G, while head 7 of the screw bears against said member just outside said sleeve.

The inner jaw member has a splined connection with the outer member, so as to prevent its rotation in respect thereto.

What I claim is—

1. The combination of the base, the body consisting of two separate members supported in the base and adapted to be tilted toward each other and thereby lock in the base, the jaw members, a cap resting against the outer portion of the said body and screws supporting the cap on the outer jaw member, a sleeve-nut supported by said cap and projecting into the inner of said jaw members, and a locking-screw for the jaw engaging said nut, substantially as set forth.

2. The base, and the body consisting of two independent tilting members rotatable and adapted to be frictionally locked therein, in combination with the jaw members rotatable together in said body, a cap mechanically connected with the outer of said jaw members and bearing against said body, a sleeve-nut having a head engaged against said cap and projecting into the bore of the inner of said jaw members, and a tightening-screw for the jaw members engaged with said nut, substantially as set forth.

3. In bench-vises, a body for the vise consisting of two separate parts and a base in which said parts are seated and adapted to be rotated, said parts constructed to frictionally lock against rotation when tilted in said base, a pair of jaw members one within the other and rotatable together in said body, and means to confine and operate said jaws comprising a cap removably fixed to the outer extremity of the outer jaw member and bearing against the outer part of the said body, a sleeve-nut having a head engaged with said cap and extending into the inner jaw member, and an operating-screw engaged within said sleeve, whereby when the said screw is tightened it locks the body of the vise and the jaw members against rotation, and means on the outer end of said operating-screw to prevent the same from being run out of the said sleeve-nut when the vise is opened, substantially as described.

Witness my hand to the foregoing specification this 22d day of December, 1902.

JOHN R. LONG.

Witnesses:
W. H. INDOE,
W. E. SNYDER.