No. 732,758. PATENTED JULY 7, 1903.

J. R. LONG.

PIPE VISE.

APPLICATION FILED OCT. 17, 1902.

NO MODEL.

FIG. 1.

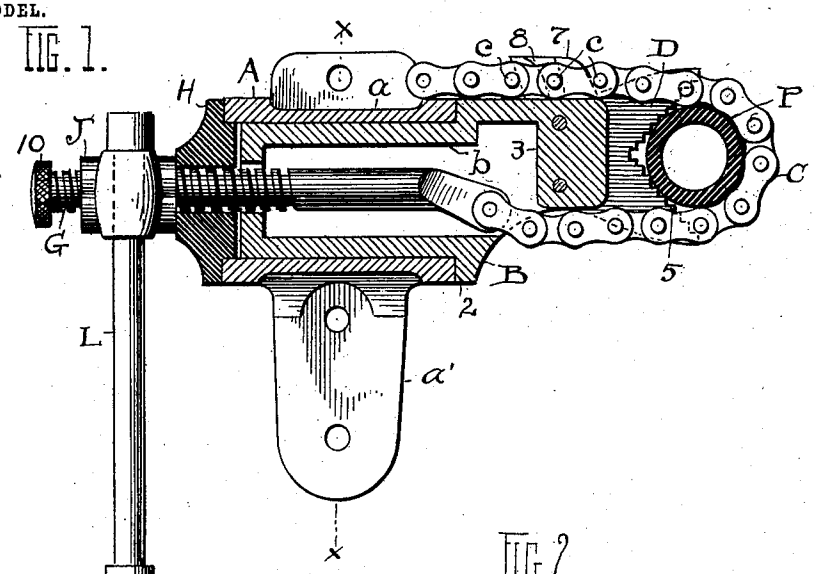


FIG. 2.

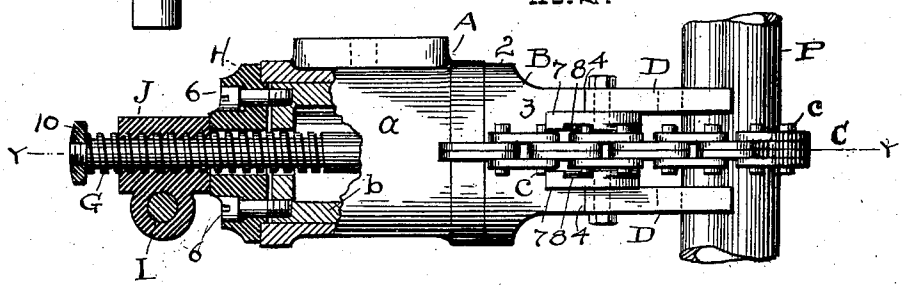
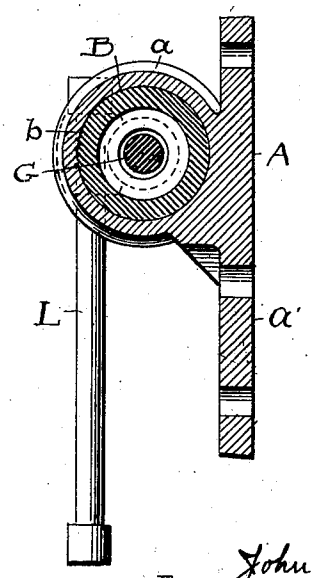


FIG. 3.



ATTEST.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 732,758. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

JOHN R. LONG, OF AKRON, OHIO.

PIPE-VISE.

SPECIFICATION forming part of Letters Patent No. 732,758, dated July 7, 1903.

Application filed October 17, 1902. Serial No. 127,623. (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 Pipe-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 relates to improvements in pipe-vises; and the invention consists in the construction and combination of parts substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of the vise on a line corresponding to Y Y, Fig. 2. Fig. 2 is a plan view of the vise with a portion at the left in section. Fig. 3 is a cross-section of the vise on a line corresponding to X X, Fig. 1, looking toward the left.

In the construction thus shown A represents the base or bracket-support by which the vise is adapted to be attached to a wall or post or such other supporting medium as may be found convenient at the place where the vise is to be used, and to this end the said base or support is provided with a perforated bottom extension adapted to be engaged by screws or bolts to fasten it in place. This renders this particular form of vise convenient for taking into buildings in course of construction and attaching here or there, as a plumber may find advantageous and as he may have occasion on different floors. Otherwise the said part a' might be constructed to rest down upon a work-bench or other rest in a stationary position; but this is not the idea of the present vise, which is further provided with a collar or casing a of tubular outline at right angles to the depending arm or flange a' and set off at one side thereof at the top, as clearly seen in Fig. 3, thus taking the working part of the vise away from its support.

B represents the single jaw member of the vise, which has a barrel-shaped portion b, adapted to enter into the collar or casing a from one end, as shown, and is provided with an annular shoulder 2, which engages against one end of collar a and limits the endwise movement of member B, as will hereinafter more clearly appear. The said jaw member is hollow or tubular in its barrel portion and has a solid head 3 at its front end and is provided with an opening into its interior at its bottom in the neck of said head for the entrance and operation of clamping-chain C. Affixed to the side of said head are steel jaws D, which are screwed or bolted to head 3 and abut against shoulders 4 at their rear edge. The engaging edges of the said jaws are substantially V-shaped and are provided with teeth or serrations 5, as seen in Fig. 1. The body of the jaw member itself is preferably made of cast metal and of such weight and size as its use may demand, and I build different sizes, according to use, because this vise, as already indicated, is a portable article and intended to be carried from place to place for job-work on the ground. To these ends this vise is provided also with a single adjustment rather than more, and the jaw member B can be rotated or turned round and round in the casing or support a, so that a pipe may be held in either a horizontal plane or in a perpendicular plane or at any angle, as may be found necessary.

G represents a screw which is threaded at one end and has the chain C pivotally connected with its opposite end within the jaw member B, relatively as seen in Fig. 1, and the said screw is supported in its working position by cap or head H, which is shouldered into and set against one end of casing or collar a and loosely bolted or screwed to the adjacent end of jaw member B, Fig. 2. It is not designed to have any considerable play or unnecessary freedom between the cap and barrel connected by screws 6, but there needs to be enough looseness to afford free rotation of the jaw member in its support, as well as to clamp against both ends of barrel b when it is otherwise disengaged, as hereinafter described; but there is no rectilinear movement of said member in the base. The said screws 6 serve the further purpose, also, of holding the cap H in its proper relation to the other parts, thereby giving a positive support to screw G; but the said cap is not threaded where the screw passes through, and the screw carries an actuating sleeve or nut J, which bears against cap H and is provided with a handle L for turning it. It follows

that screw G does not turn as in vises generally, but travels in a direct line without rotation when the parts are tightened or loosened, while nut J turns on the screw and bears against cap H.

Chain C is double-linked with pins *c* at the joints of its links, which extend laterally on both sides a sufficient distance to engage lugs 7 on the top of head 3 of the jaw member. These lugs are spaced apart to permit the chain to pass between them, and each lug has a vertical slot 8 on its inner side adapted to be engaged by the extremities of one set of pins *c*, while another set engages against the rear edges of the lugs, so that when the chain is held for work both sets of pins take the strain.

Now assuming that a pipe P is gripped in the vise, as shown in Figs. 1 and 2, and nut J is tightened it follows first of all that annular shoulder 2 on jaw member B will rest hard against the adjacent end of collar-casing *a* and frictionally lock and hold the said jaw member from further rotation while the locking continues. In this operation cap H is of course forced with equal firmness against the outer end of the said casing, and the tighter the parts are drawn up the firmer is this locking made. Thus also is the pipe P engaged in the jaw member by means of the chain C, and as the two jaw-plates D are spaced apart relatively, as shown, with the chain between, the pipe is very firmly gripped also from twisting or turning in the jaws. Chain C is supposed to have sufficient length to let it out for the largest pipes, and in engaging a pipe the chain is first drawn as closely as it can be conveniently by hand around the pipe and locked on lugs 7, and then further tightening of the parts is effected by screwing up the parts. A nut 10 on screw G prevents sleeve-nut J from running off the end of said screw.

In a sense cap H is incorporated with barrel *b* of the jaw or jaw member, but is separable therefrom, and whatever pressure comes upon said cap from nut J bears against the end of sleeve or bearing *a* on base A, while at the other end shoulder 2 bears against the said sleeve. Clearly this calls for a measure of looseness or freedom between cap H and barrel *b*, or they could not both lock against the ends of the sleeve *b* at the same time and by reason of the same pressure.

Screw G has been described as being itself non-rotatable, and so it is in tightening or loosening a pipe; but when jaw B is bodily rotated in the base or casing the said screw and the parts thereon, with cap H, rotate also in like manner and degree. The lugs 7 for engaging the chain are therefore necessarily on the jaw or on a part to rotate therewith and cannot be on base A if rotation of the jaw is to be had bodily about its axis therein, as shown. For this reason also the lugs 7 for engaging the chain are inclined rearward somewhat, and thus the jaw may be turned with said lugs below and still hold the chain. The portion *b* is referred to also as being "tubular," and by this I mean that it has a cylindrical exterior and is open axially for the introduction of screw G and making connection therein of chain C. If the bearing *b* were shorter than here shown and otherwise substantially the same, it would still be regarded as tubular.

Part J is generally referred to herein as a "nut," and it may have the form of a sleeve, spool, collar, or any other form or shape, and it may have a sliding or a rigid handle, as may be preferred. As here shown, the handle is set at one side of the nut and adapted to slide, as is common in bench-vises.

Part H is shown and referred to as a "cap," and so it preferably is; but it might not cover the entire end of bearing *b* and yet serve my purpose and serve practically as a cap or closing part, and for this reason this term is retained and is understood as being as broad as this interpretation.

What I claim is—

1. In a pipe-vise, a suitable base having a substantially tubular bearing, and a jaw provided with a barrel rotatably supported in said base, a screw and a chain connected therewith and to said jaw, and means to tighten the screw and chain, substantially as described.

2. In pipe-vises, a suitable base, a jaw having a tubular portion rotatably supported in said base and provided with a shoulder bearing against the base to limit its endwise movement therein, in combination with a screw, a chain connected with the inner end thereof and adapted to be engaged upon said jaw, and a nut to tighten the screw, substantially as described.

3. The base, the jaw rotatably supported therein and open internally, a screw projecting into the jaw, a chain connected with one end of the screw in the said jaw and having its other end free to be engaged with the exterior of the jaw, and means to tighten the screw and chain, substantially as shown.

4. The base or the jaw therein, in combination with a cap bearing against the base and secured to the jaw, a screw through said cap into the jaw and a nut bearing against the cap, and a chain engaged with the inner end of the screw and to the jaw at its other end, substantially as described.

5. The base having a substantially tubular bearing and the jaw having a tubular supporting portion in said bearing provided with a shoulder against one end of said bearing, in combination with a cap secured to the outer end of said jaw and resting against the outer end of said tubular bearing, a locking-screw and a nut thereon outside said cap, and a chain engaged with said screw at one end and with the jaw at its other end, substantially as described.

6. In a pipe-vise, a base having a flanged portion constructed to be secured to a suit-

able support and provided with a tubular bearing on a plane outside of said flanged portion, in combination with a jaw member having a shouldered barrel extending into said tubular bearing and provided with a set of toothed jaws, a chain detachably engaged at one end with said member and adapted to work with said jaws, a screw projecting into said member and having the other end of said chain connected therewith, and means to tighten said screw and thereby tighten the chain and grip a pipe, substantially as described.

7. The base having a tubular bearing and the jaw having a barreled portion in said bearing and provided with shoulders resting against one end of said bearing, in combination with a cap loosely secured to the outer end of said jaw and overlapping the edge of said tubular bearing, and a tightening-screw supported by said cap, substantially as described.

Witness my hand to the foregoing specification this 6th day of October, 1902.

JOHN R. LONG.

Witnesses:
R. B. MOSER,
A. N. MOSER.