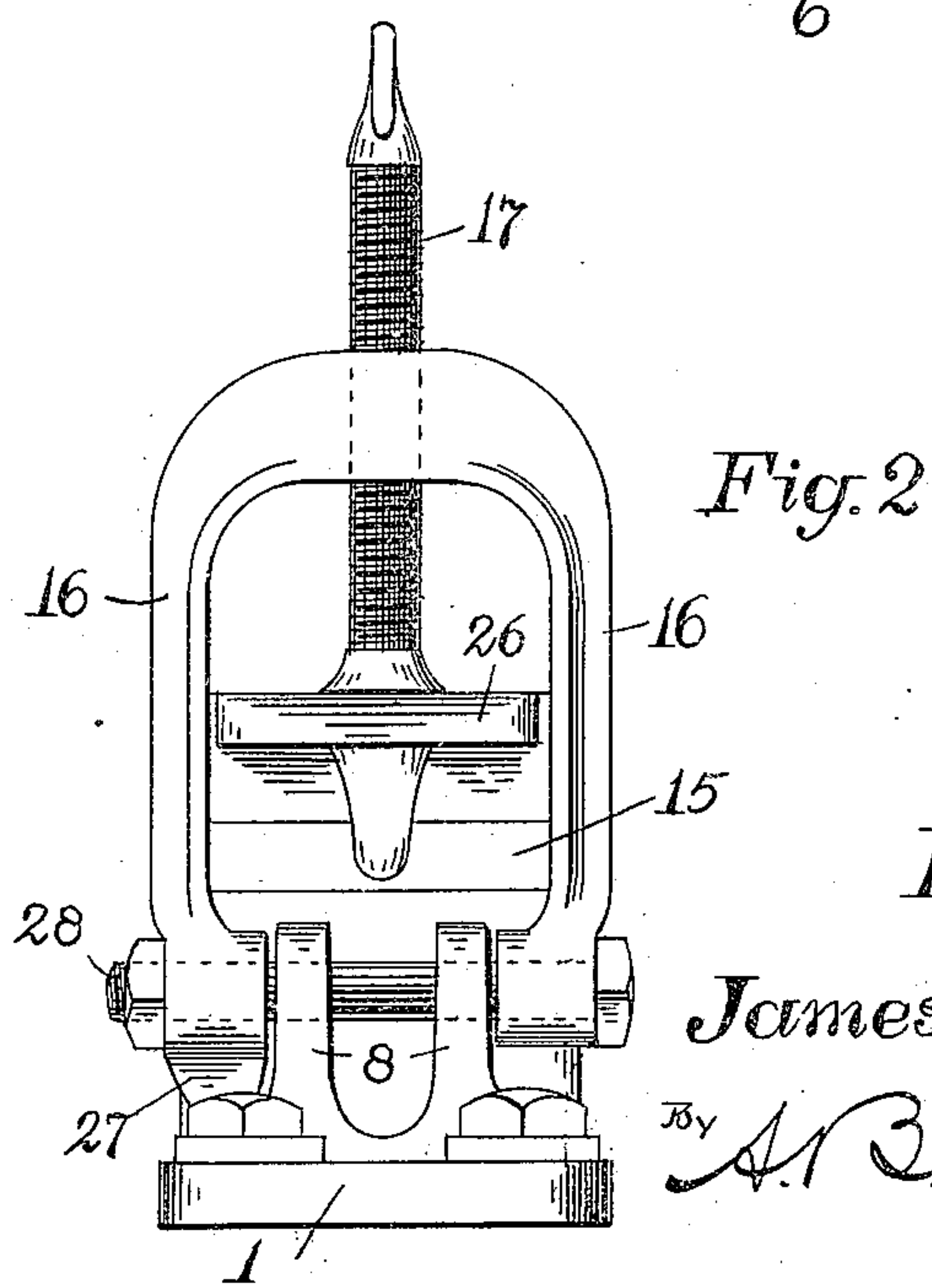
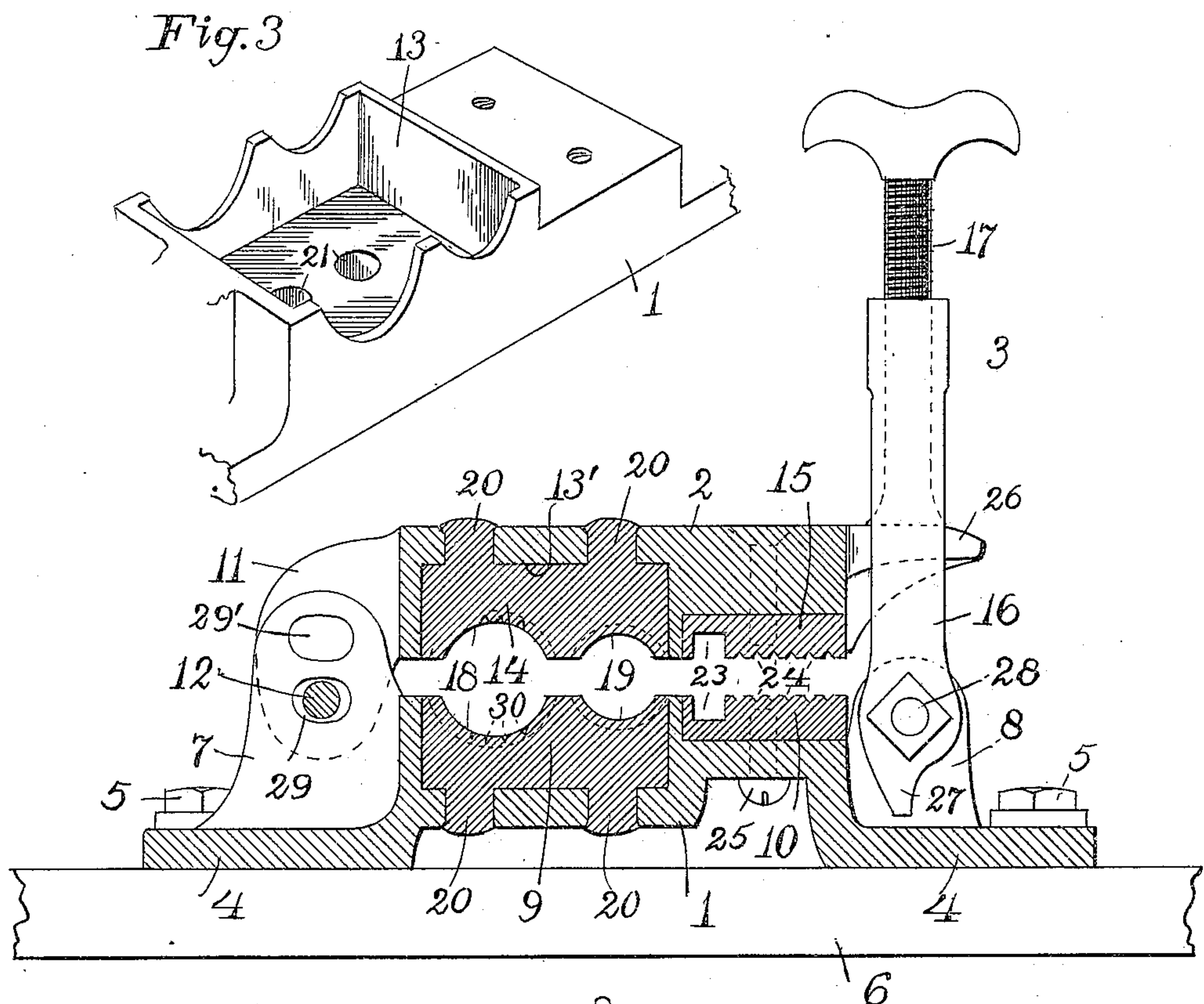


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COMBINATION VISE.
APPLICATION FILED JAN. 7, 1909.

952,787.

Patented Mar. 22, 1910.



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UNITED STATES PATENT OFFICE.

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COMBINATION-VISE.

952,787.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed January 7, 1909. Serial No. 471,045.

To all whom it may concern:

Be it known that I, JAMES CRAWFORD, a citizen of the United States, and a resident of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Combination-Vises, of which the following is a specification.

This invention is in the line of clamps or vises by means of which polished or plated tubing or rods can be immovably held while being cut, threaded or otherwise manipulated, and is hence particularly adapted for the use of plumbers engaged in the putting up of modern exposed work.

My invention for such purpose is constructed as hereinafter set forth, and illustrated in the drawings forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of a vise embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a perspective view of one of the rest-holding cups.

Said vise consists mainly of three parts,—a fixed jaw 1, a pivoted jaw 2 and a locking device 3. The fixed jaw 1 comprises the flanges 4 through which suitable fastening bolts or lag screws 5 are inserted into any suitable board or support 6; a pivot lug 7 at one end for the movable jaw, and a pivot lug 8 for holding the locking and clamping device; a recess or cup 13 for receiving the soft-metal clamping seat 9, and a hard metal seat 10.

The movable jaw 2 comprises ears 11 pivoted by a pin or bolt 12 to the pivot lug 7; a recess or cup 13' receiving a soft-metal clamping seat 14 corresponding to said seat 9; a hard metal seat 15 corresponding to said seat 10, and a shelf 26 for receiving the pressure of the locking or clamping means.

The locking or clamping device consists of the rigidly united legs 16 terminally pivoted to the opposite sides of the pivot lug 8 by the bolt 28 and carrying between them the clamping screw 17.

The soft metal seats 9 and 14 are preferably exact duplicates, being each formed with two semi-circular grooves unequal in diameter; the larger grooves 18 being nearer the pivot 12 than the smaller groove 19. Each said seat is cast with one or more projections 20 adapted to enter the holes 21 in the respective cups. After insertion, the

outer ends of these projections are upset, and said seats thereby fixed in place.

Fig. 3 shows the construction of the cup or recess 13 of the fixed jaw; such cup or recess 13' in the movable jaw being identical therewith. The lateral sides of these cups are formed with depressions corresponding to the curvatures of the grooves 18, 19, but of larger diameter in order to bring their edges back from possible contact with the pipe or rod being clamped; as shown by the dotted lines in Fig. 1.

As shown in Fig. 1, the hard metal seats 10, 15 are each formed with an abrupt-sided groove 23 for engagement with ordinary gas-pipe or iron rods the marring of whose surface is not objectionable; and also with numerous small grooves or corrugations 24 to render the same sufficiently rough to hold flat objects securely. These seats are preferably held in place by screws 25 penetrating them from the under side of the fixed jaw in the case of the rest 10, and from the top of the movable jaw in the case of the rest 15.

The free end of the movable jaw 2 is formed with a shelf 26 curved downward somewhat at its termination in order that the clamping screw 17 need not have to be unscrewed so far in swinging the clamping device off therefrom; as shown in Fig. 1; and to keep the said device from swinging farther than necessary for releasing the said shelf and consequently the movable jaw, one or both the legs 16 are formed with a stop-lug 27, which by its contact with the end of the fixed jaw, holds the legs and screw at the point desired.

Although the variation in clamping position permitted by the screw 17, and the two sizes of grooves 18, 19, enable this vise to accommodate quite a wide range of tubes and rods, I considerably widen such range by providing the pivot lug 7 with two holes 29, 29' through either of which the pin 12 can be passed. If the upper hole 29' is used, the clamping capacity of the vise is largely increased.

As the movable jaw swings toward or from the fixed jaw to meet the particular sized tube to be gripped, the grooves 18 and 19 in one seat, as 9, lose their concentricity with respect to the grooves of the other seat. Consequently, a pipe or tube when seated snugly in one groove will only contact with one edge of the opposing groove. To pre-

vent this, the holes 29, 29' are elongated as shown in Fig. 1, in order that the movable jaw may adjust itself longitudinally and bring both opposing grooves into equal contact with the tube or pipe to be held.

Any suitable metal which will not scratch, dent or otherwise mar the polished surface of a nickel-plated tube, may be employed; but I prefer lead for the purpose; and to increase its gripping capacity, form one or more slight channels 30 along each groove 18, 19 and fill the same with resin, which greatly adds to the frictional resistance between the surfaces of the tube and grooves.

What I claim as my invention and for which I desire Letters Patent is as follows, to wit:—

A vise comprising a fixed jaw and a movable jaw pivotally secured together and

means for clamping them upon a cylindrical object introduced between them, each jaw being formed with a recess two opposing sides of which are made with one or more semi-circular notches, and each recess having fixed therein a soft metal seat wherein are one or more semi-cylindrical grooves concentric with said notches but of substantially less diameter than the latter; each said groove having therein a plurality of small grooves containing resin.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 31st day of December, 1908.

JAMES CRAWFORD. [L. S.]

Witnesses:

R. M. CRAWFORD,
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