Feb. 12, 1946. A. J. MATTER 2,394,709

VISE STRUCTURE

Original Filed July 17, 1941 3 Sheets-Sheet 1

Fig. 1.

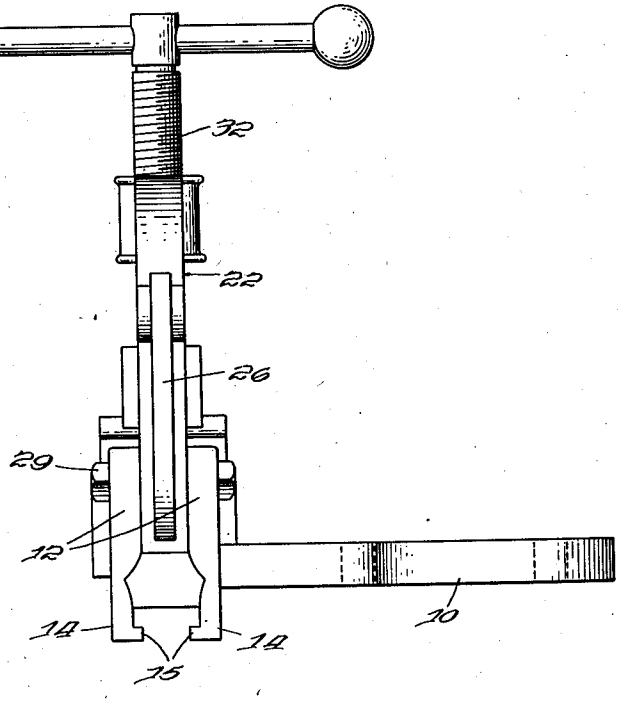
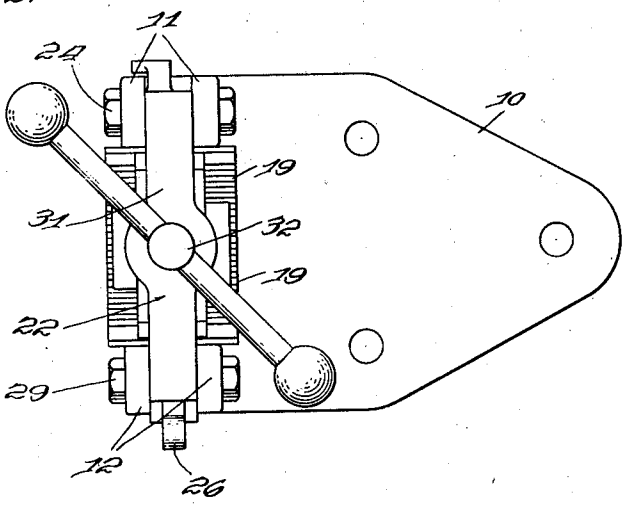


Fig. 2.



Inventor:
Albert J. Matter.
By Britton, Wiles, Davis & Hirschl.
Atty's.

Feb. 12, 1946. A. J. MATTER 2,394,709

VISE STRUCTURE

Original Filed July 17, 1941 3 Sheets-Sheet 2

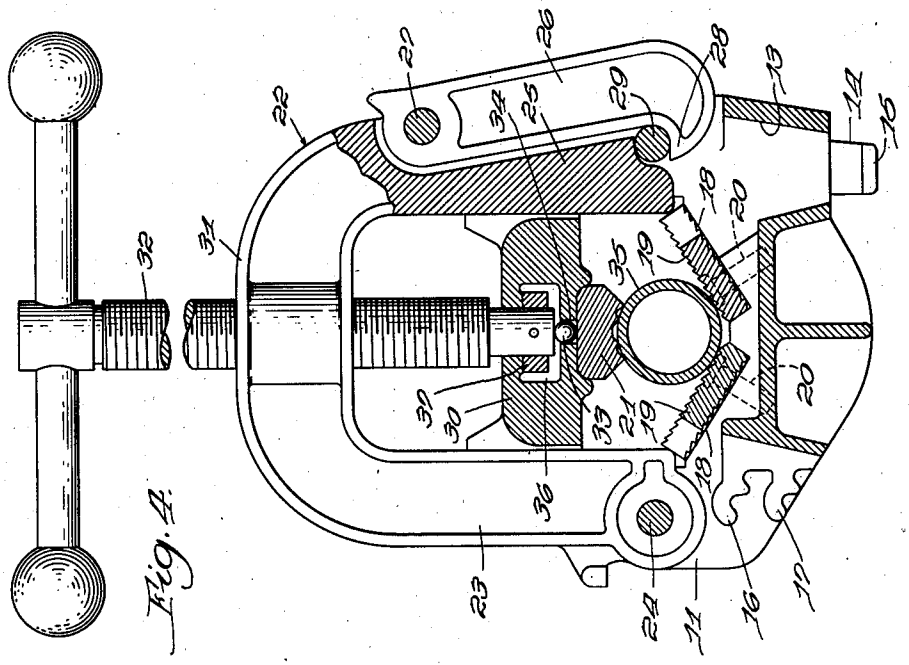


Fig. 4.

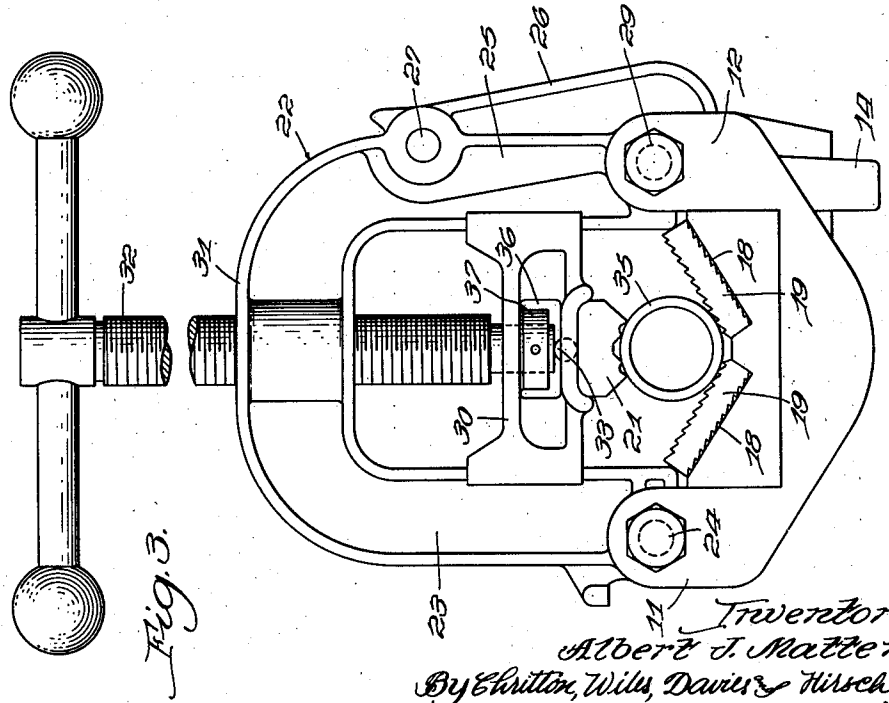


Fig. 3.

Inventor:
Albert J. Matter.
By Christie, Wills, Davies & Hirschl.
Attys.

Feb. 12, 1946. A. J. MATTER 2,394,709

VISE STRUCTURE

Original Filed July 17, 1941 3 Sheets-Sheet 3

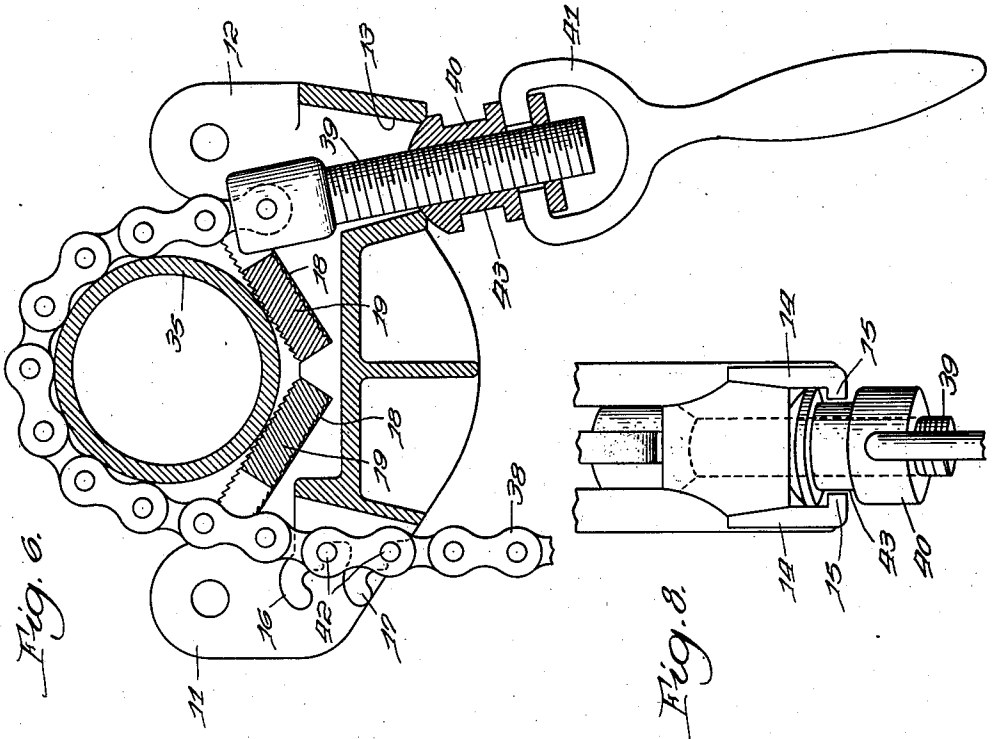


Fig. 6.

Fig. 8.

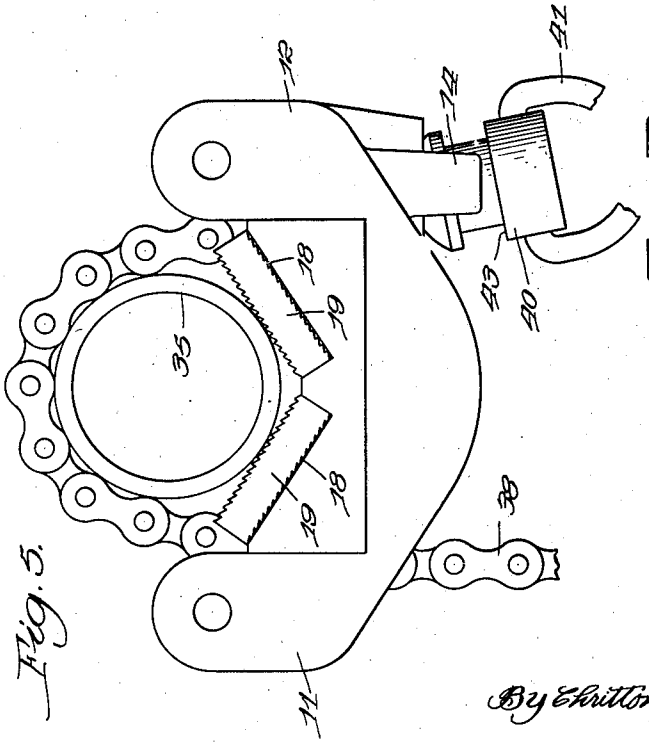


Fig. 5.

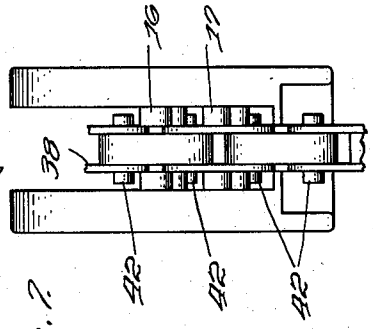


Fig. 7.

Inventor:
Albert J. Matter.
By Ehritton, Wiles, Davis & Hirschl.
Atty's.

Patented Feb. 12, 1946 2,394,709

UNITED STATES PATENT OFFICE

2,394,709

VISE STRUCTURE

Albert J. Matter, Park Ridge, Ill., assignor to The Nye Tool & Machine Works, a corporation of Illinois

Original application July 17, 1941, Serial No. 402,864. Divided and this application May 8, 1942, Serial No. 442,140

2 Claims. (Cl. 81—19)

This application is a division of my United States application for Letters Patent, Serial No. 402,864, filed July 17, 1941, for Vise stands, and now abandoned.

One of my objects is to provide a vise structure adapted for use interchangeably as a yoke type of vise or a chain type of vise.

Another object is to provide a simple and economical construction of vise of the yoke type wherein the yoke may be reversed; and other objects as will be understood from the following description.

Referring to the accompanying drawings:

Figure 1 is a view in side elevation of a vise structure embodying my invention, the vise being shown of the yoke type.

Figure 2 is a plan view of the structure of Fig. 1.

Figure 3 is an enlarged sectional view of the structure of Fig. 1 viewing it from the left in this figure.

Figure 4 is an enlarged elevational view, partly sectional, of the structure of Fig. 3.

Figure 5 is a fragmentary view in elevation showing a view of the chain type vise substituted for the yoke type vise.

Figure 6 is a view in sectional elevation of the structure shown in Fig. 5.

Figure 7 is an elevational view of the structure of Figs. 5 and 6, viewing it from the left in these figures; and

Figure 8, a similar view viewing the structure from the right in Figs. 5 and 6.

The illustrated structure comprises in general a support 10 shown as in the form of a plate which may be secured to a bench or be provided, as desired, with legs (not shown) to form a stand.

The plate support 10 is provided with two pairs 11 and 12 of upwardly extending spaced apart lugs located at opposite sides of the medial line of the structure. The support 10 between the lugs 12, has a vertical downwardly tapering opening 13, at opposite sides of which lugs 14 having inturned lips 15, are disposed, and between the lugs 11 is provided with upper and lower pairs 16 and 17 of double hooks.

Between the pairs of lugs 11 and 12 are downwardly converging seats 18 for jaw blocks 19 shown as of the reversible type, detachably secured to these seats by screws 20.

Referring now to the yoke type vise means shown in Figs. 1, 2, 3 and 4, and used in operating on the smaller diameters of pipes, the lower fixed jaw of the vise comprises the stationarily supported jaw-plates 19, and an upper movable jaw 21 carried by a yoke 22. The yoke 22 is positioned between the lugs of each pair 11 and 12, one leg 23 of the yoke 22 being shown as pivoted to the lugs 11 by a removable and replaceable bolt 24 extending through the lugs 11 and the yoke-leg 23. The other leg 25 of the yoke 22 is provided with a latch bar 26 pivoted at its upper end to the leg 25 at 27 and adapted at its lower hook end 28 to engage beneath a removable and replaceable bolt 29 secured to the lugs 12.

Slidable vertically in the yoke 22 is a cross head 30 to which the upper jaw 21 is rigidly secured. Threaded in the cross bar 31 of the yoke 22 is a vertically disposed screw 32 between the lower end of which and the jaw 21 a hardened steel ball 33 located in an opening 34 in the cross head 30 for taking the thrust exerted by the screw 32 in clamping a pipe, such as that illustrated at 35 in the vise, is interposed. The lower end of the screw 32 is journaled in the cross head 30 and projects into a space 36 within the cross head where it is provided with a collar 37 rigidly secured to the screw and serving as a means for lifting the cross head 30 and with it the upper jaw 21, when the screw 32 is retracted.

As will be understood by providing for the interlocking of the latch 26 with one of the bolts the necessity for providing a lug or lugs on the base portion of the vise for interlocking with the latch, is eliminated.

Furthermore, the provision of the vise as shown and described permits the yoke to be pivoted on either one of the bolts 24 and 29 as desired thereby rendering the yoke reversible, the bolt which in the particular positioning of the yoke does not form a pivot, affording a surface with which to latch the lever 26.

Referring now to the chain type of vise shown in Figs. 5–8 and usable more particularly in operating on pipes of the larger diameters, the lower fixed jaw of the vise comprises the stationarily supported jaw plates 19 and a chain 38 for looping over the pipe 35, one end of the chain being connected with a screw 39 extending through the opening 13 in the supporting member 10, the screw 39 being threaded in a nut 40 which bears upwardly against the wall of the opening 13 and is provided with a handle 41 for rotating it. The other, free end of the chain 38 extends between the hooks of the pairs 16 and 17 thereof and is adapted at extensions 42 of its link-connecting pins to be engaged with the appropriate pairs of the hooks as is customary with chain type vises. The nut 40 has a peripheral groove 43 into which the lips 15 of the lugs 14 loosely extend prevent-

ing accidental dropping of the screw and nut assembly from the supporting structure 10.

It will thus be understood that the vise means provided may be converted from one of the types above referred to to the other thereof, at will and with facility, as conditions may require, and with the minimum requirement of parts as the lower permanent jaw of the structure serves as the lower jaw of both types.

Where the vise structure is provided of the maximum compactness, as desired, the bolts 24 and 29 would be so positioned that, if retained in place, they would interfere with the desired ease of converting the vise structure from one of the yoke type to one of the chain type, a condition which is overcome in the illustrated construction by providing the bolts as parts which may be readily removed in converting the structure into a chain vise and replaced in converting it into a yoke type of vise.

What I claim as new and desire to secure by Letters Patent is:

1. In a vise structure, a supporting member having a jaw portion adapted to form the lower jaw of either a yoke vise or a chain vise, and pins on said supporting member one for pivotally supporting a jaw-carrying yoke having a latch device and the other for the latching therewith of said latch device, said supporting member adapted for application thereto of a chain and tautening means to form a chain type vise, such of said pins as would present obstruction to the assembling of said chain and tautening means with said supporting member, being removable, said pins being substantially coincident with the planes, respectively, in which the ends of the chain and chain-tautening assembly extend in the applied position of said assembly.

2. In a vise structure: a supporting member having a fixed jaw portion and apertures on opposite sides of said jaw portion to receive removable interchangeable fastening pins, one pin forming a pivotal support for a jaw-carrying yoke having a latch device, a second pin to be engaged by said latch, a hook on the supporting member beneath one of said apertures adapted to engage a chain of a chain type vise, and a bearing on said supporting member beneath the aperture at the other side of the fixed jaw adapted to be engaged by the tautening portion of the chain type vise when the chain is looped over said fixed jaw.

ALBERT J. MATTER.