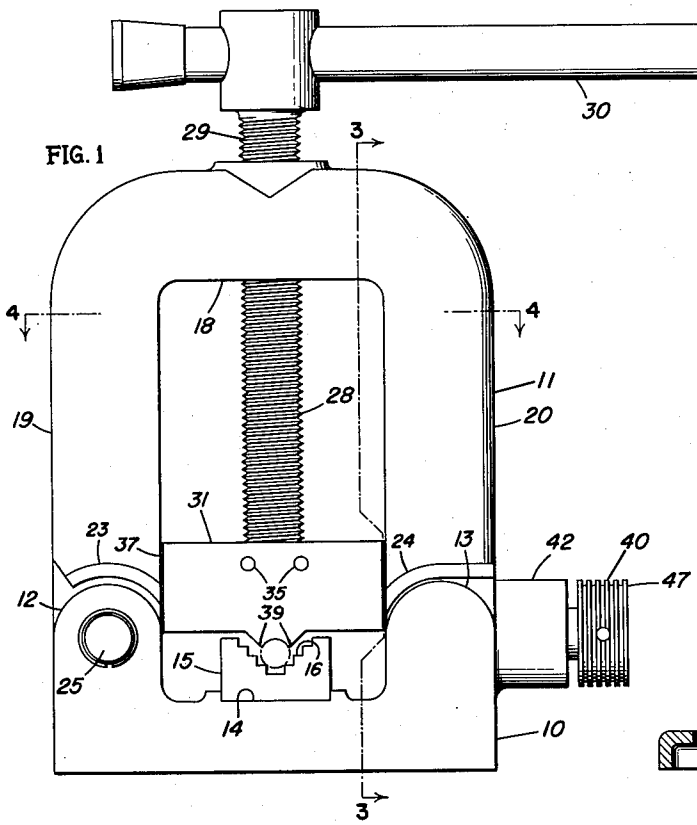
Nov. 4, 1952 R. W. VOSPER 2,616,320

PIVOTED YOKE PIPE VISE

Filed Aug. 13, 1947

FIG. 1



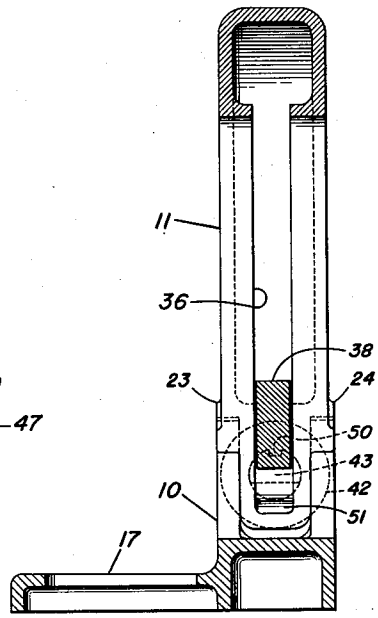
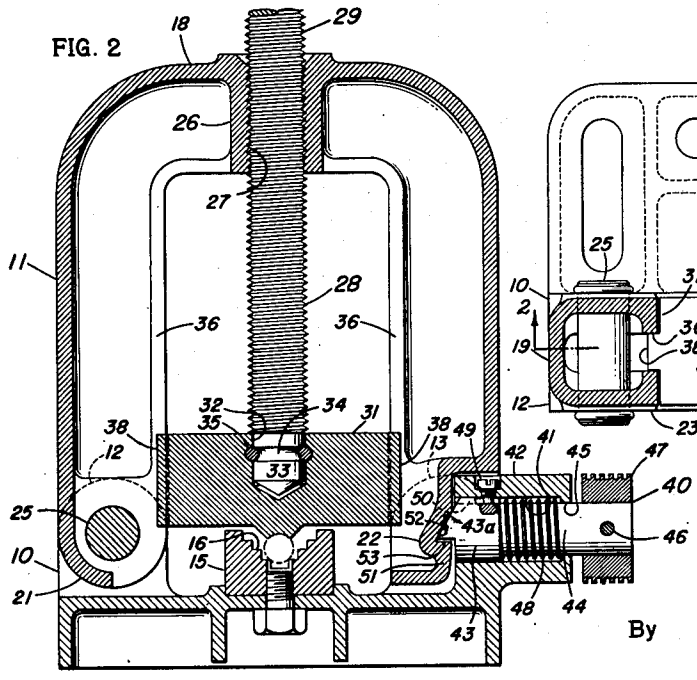


FIG. 3

FIG. 2



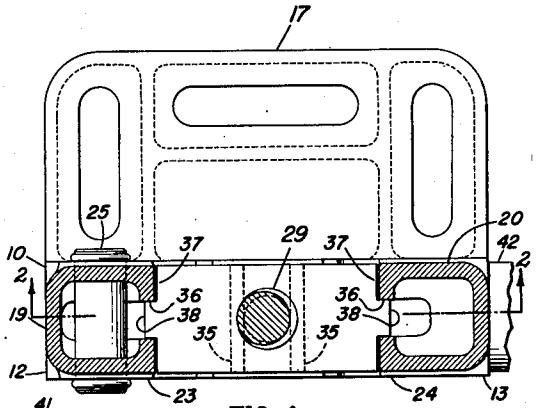


FIG. 4

Inventor:
Richard W. Vosper

By *Wilmer Mechlin*

his Attorney

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PIVOTED YOKE PIPE VISE

Richard W. Vosper, Guilford, Conn.

Application August 13, 1947, Serial No. 768,429

1 Claim. (Cl. 81—19)

1

This invention relates to vises and particularly to pivoted yoke pipe vises for clamping pipes and the like.

The object of the present invention is to provide an improved pivoted yoke type pipe vise which is automatically latched and which has protected full length guideways for a slidable jaw.

Other objects and advantages of the invention will appear hereinafter in the detailed description, be particularly pointed out in the appended claim and illustrated in the accompanying drawings, in which:

Figure 1 is a front elevational view of a vise embodying the invention.

Figure 2 is a vertical sectional view of the vise of Figure 1, taken along the lines 2—2 of Figure 4.

Figure 3 is a vertical sectional view taken along the line 3—3 of Figure 1, and

Figure 4 is a horizontal sectional view taken along the lines 4—4 of Figure 1.

Referring now in detail to the drawings, illustrating a preferred embodiment of the invention and in which like reference characters designate like parts, the improved pipe vise is provided with a base 10 and an upper part 11, the base being adapted to be mounted on a table or other suitable support (not shown).

On the base are a pair of transversely spaced upstanding bifurcated lugs or ears 12 and 13, respectively, the upper ends of which are preferably arcuately convex and adapted to engage correspondingly formed concave surfaces on the upper part of the vise. Intermediate the lugs is disposed a seat 14 for removably seating or receiving a lower clamping or gripping jaw 15, the latter having an upper or gripping face 16 of stepped, serrated or other suitable form. To ensure an adequate foundation for the vise, the base 10 is preferably provided with an integral projecting base plate or flange portion 17.

The upper part 11 of the vise is formed as a yoke, U-member or bridge, having an upper crossbar 18. Depending from the crossbar are transversely spaced substantially parallel legs, 19 and 20, respectively, the lower extremities, 21 and 22, of which are adapted to seat or be received within the corresponding bifurcated lugs, 12 and 13, and preferably be supported on the upper ends thereof through arcuately concave flanges or shoulders, 23 and 24. The yoke is intended to be pivotally or hingedly attached to the base and for this purpose the lower extremity of the leg 19 seating within the bifurcated lug 12 is connected thereto through a pin or other suitable means 25.

Approximately midway of the ends of the crossbar 18 is a collar portion 26 having an internally threaded bore 27 disposed longitudinally of the yoke which is adapted to threadedly receive the externally threaded shank 28 of an operating screw 29. The latter is moved axially in the usual manner through a handle 30 and carries or supports an upper or movable clamping jaw 31. The connection between the jaw and

2

screw is preferably such that the jaw can be readily removed. As shown, this may be accomplished by the provision of a substantially cylindrical socket 32 in the jaw in which the unthreaded lower portion 33 of the screw is adapted to seat. To obtain the desired removable connection while permitting the screw to rotate relative to the jaw, the unthreaded portion of the screw may be peripherally grooved as at 34 to interlock with pins 35 extending transversely through the jaw and intersecting the opposite sides of the socket.

An important feature of the invention is the configuration of the yoke 11. Beginning on either side of the collar portions 26 the yoke is of C-section. This section continues to the shoulders 23 and 24 adjacent the lower ends of the legs. Below the shoulders the lower or outer extremities 21 and 22 of the legs are of inwardly directed U-section and reduced thickness to enable them to seat in the bifurcated lugs in the base. So constructed, the yoke is not only rugged but the continuous opening or spacing provided in the inner face of each leg by its contiguous or connecting C and U sections, forms grooves, slots or guideways 36 extending longitudinally of the inner faces of the legs for substantially their entire length inwardly of their side walls. Intermediate the outer edges of the grooves and the edges of the adjacent side walls, the confronting walls of the legs are substantially flat, the longitudinal grooves and flat confronting faces so provided, cooperating in a manner to be hereinafter described.

As is customary in vises of the yoke type, the upper clamping jaw or sliding head 31 is adapted to slidably engage and be guided by the spaced legs of the yoke. Normally such engagement is obtained by the provision of flanged ends on either side of the jaw, adapting the latter to embrace the side walls or faces of the legs. However, in the vise of the present invention the desired engagement is obtained in a different manner. As shown in Figure 4, the opposite ends 37 of the jaw are substantially flat and adapted to slidably engage the corresponding flat inner faces of the legs. Intermediate the sides of the jaw the flat surfaces of the ends are interrupted by aligned laterally projecting tongues, arms or guides 38 which preferably extend substantially the entire depth of the ends. As shown, the tongues are substantially rectangular in cross section and adapted to ride or slide in the guideways or channels provided by the grooves 36. This tongue and groove connection between the upper jaw and the yoke not only serves to guide the jaw as it is moved longitudinally of the legs 19 and 20 by the screw 29, but, coacting with the sliding engagement between the confronting flat surfaces of the jaw and arms, also prevents lateral or horizontal displacement of the jaw relative to the yoke. Additionally, the extension of both the grooves and the adjoining jaw-engaging faces of the legs into their lower extremities and the projection of the grooves within their associated bifurcated lugs 12 and 13 permits the

jaw to slide or move substantially the length of the legs, enabling the lower face of the jaw to be brought below the shoulders 23 and 24 and thus within the confines of the lugs in proximity to the level of the jaw seat 14 on the base.

As illustrated in Figure 4, the upper jaw 31 and the legs 19 and 20 are of substantially the same width such that their engaging surfaces or faces are confined laterally within the side walls of the legs. So constructed, the leg-abutting ends 37 of the jaw are enclosed or covered by the confronting walls of the legs. Since there are thus no projecting or exposed portions of the engaging surfaces of the one sliding member on the vise, jamming of the vise or injury to the operator by reason of the accidental introduction of foreign matter between the surfaces is avoided.

In the lower face of the jaw opposite that seating the screw 29 is formed the upper clamping surface for engaging or clamping pipes or other work introduced into the vise. This surface may be of any configuration capable of the desired gripping action, that shown being a pair of depending spaced ribs 39 extending transversely across the face of the jaw.

As previously mentioned, the yoke 11 is pivotally attached to the base 10 through the pin connection between the lower extremity 21 of the leg 19 and the associated bifurcated lug 12 on the base, thus to facilitate the introduction of work into the vise. To provide a rigid framework for the action of the clamping jaws the other leg 20 of the yoke must be adapted to be releasably secured to the base. Unlike the manually operated toggle type connection generally used for securing the free end of the yoke of such a vise to its base, there is employed in the vise of the present invention a connection by which the yoke will be automatically latched or secured on being seated in operative position. This is accomplished by the employment of a resilient or spring latch, the spring latch bolt, dog or catch 40 of which is adapted to seat within the horizontally disposed bore 41 of a housing or casing 42 and reciprocate crosswise or transversely of the yoke 11. For maximum strength, the bolt housing opens within and is attached to or forms a continuation of the opposite sides of the bifurcated lug 13. The bolt itself has a head 43 having a beveled upwardly facing inner or yoke-engaging edge 43a and a shank 44 of reduced section extending through a correspondingly restricted opening 45 in the rear or outer wall of the housing 42, and having attached to its outer end as by a pin or other suitable means 46, a knob or handle 47. The yieldable or resilient means for actuating the bolt may be in the form of a coil spring 48 interposed between the beveled head of the bolt and the inner end wall of the casing. When a cylindrical bolt is employed undesired rotation may be prevented by the use of a screw 49 extending radially through the side wall of the housing and adapted to ride in an axial slot 50 in the confronting surface of the head 43 of the bolt.

As shown, the lower extremity or end portion 22 of the free leg 20 is of reduced width. For this purpose the web 51 forming the outer wall of the leg is offset inwardly or in-turned toward the groove 36 over the lower end portion of the leg. For seating or interlocking with bolt 40, the inwardly offset portion of the web is indented to provide an outwardly facing notch or seat 52 having a lower or hoziontally disposed lip 53 which aligns with the preferably flat lower edge of the bolt when the leg is fully seated in the associated lug 13. Formed in the inwardly offset portion of the web 51 and thus of the lower extremity of the leg, the notch is confined within the horizontal or lateral limits of the legs as defined by its C-shaped main or upper portion and is fully enclosed by the bolt housing 42 and the sides of the bifurcated lug 13 when the yoke is in operative position. By this construction, the yoke and base are automatically locked or latched by the interlock between the notch and bolt when the yoke is swung into operative position. To release the yoke, when desired, it is only necessary to manually withdraw the dog from the notch by means of the knob.

While only one set of jaws has been illustrated, both the fixed and movable jaws, 15 and 31, respectively, are readily detachable. Since the upper jaw is enabled to move downwardly within the confines of the lugs approximately to the seat 14 and when the jaw is withdrawn, the opening between the legs of the yoke is unrestricted, the vise may be adapted to handle work of any size within these maximum and minimum limits by the substitution of suitable jaws. The particular configuration of the principal members of the vise, the yoke and base, not only provides a structure of exceptional ruggedness but enables each of the members to be cast in one piece, thus reducing the cost of production to a minimum.

It will be apparent from the above detailed description of the invention that there has been provided an improved vise of rugged and novel construction for clamping pipe and similar stock. It should be understood that the described and disclosed embodiment is merely exemplary of the invention and that all modifications are intended to be included that do not depart either from the spirit of the invention or the scope of the appended claim.

Having described my invention, I claim:

A pipe vise comprising a base, spaced bifurcated lugs upstanding from said base, a yoke having spaced substantially parallel legs, said legs each having a lower extremity seatable in the bifurcation in one of said lugs, said legs being hollow and having slots formed in their confronting faces for guidably receiving a movable clamping jaw carried by said yoke, said slots extending substantially the length of said legs and projecting within the bifurcations in said lugs, one of said legs being hingedly attached to its associated lug, said other leg having a portion of its lower extremity inwardly offset, a seat formed in said offset portion and receivable within the bifurcation in said other lug, and a yieldable latch connected to said other lug and engaging said seat for locking said yoke in operative position.

RICHARD W. VOSPER.

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