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VICE FOR SUPPORTING A PIPE DURING CAULKING

2 Sheets-Sheet 1



FIG. 2.

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2 Sheets-Sheet 2

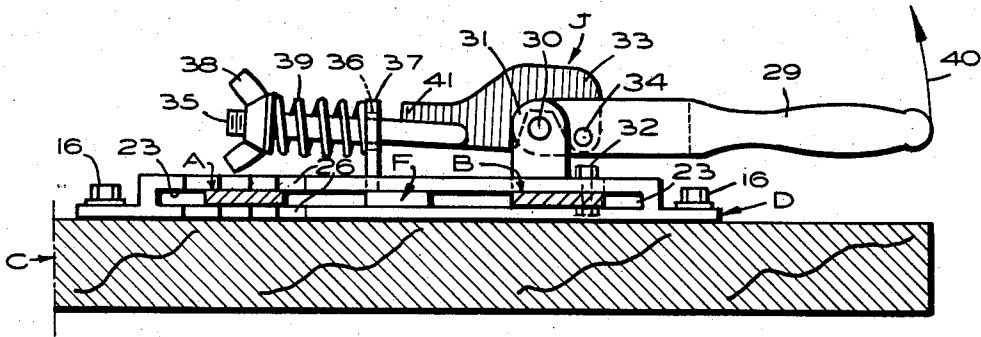


FIG. 3

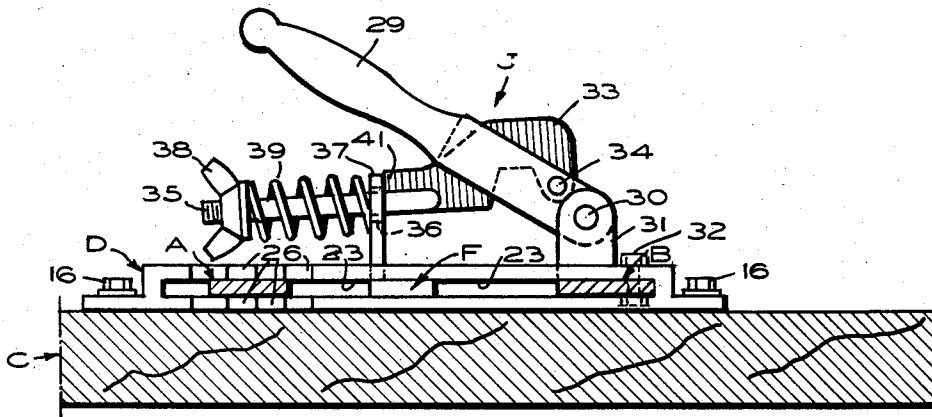


FIG. 4

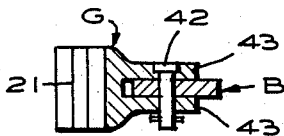


FIG. 5

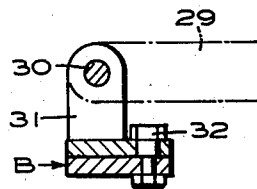


FIG. 6

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VISE FOR SUPPORTING A PIPE DURING
CAULKING

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2 Claims. (Cl. 81—19)

The present invention relates to improvements in a vise for supporting a pipe during caulking. It has particular reference to improvements over the vise shown in United States Letters Patent No. 2,772,588, which was issued to John H. Jones and Custer R. Benson (applicant herein) on December 4, 1956. It consists of the combinations, constructions and arrangement of parts, as hereinafter described and claimed.

In the above-entitled patent there is shown a vise which is adapted to support a section of sewer and soil pipe in upright position, while a second section is inserted into and caulked to the first. As shown in the patent, the vise defines a fixed jaw and a movable jaw, the latter being movable toward and away from the former by a jaw-actuating mechanism. These jaws are provided with coating saddles, which are arranged to grip and support such a pipe therebetween during the caulking operation.

As the cardinal objects of the present invention, it is proposed to provide a vise for supporting a pipe during caulking, which is subject to ready adjustment so as to accommodate a large variety of different sizes of pipes, and yet provide a firm foundation for the jaws that are used to grip the selected size of pipe.

More specifically stated, I provide a unitary structure that is made up of a base member, an anchor bar and a central bar, all being secured together. An adjustable jaw and a swingable jaw are carried by the unitary structure. The adjustable jaw may be readily moved into a predetermined position of adjustment and then held there against movement away from the central bar, so as to thus accommodate the vise to a certain size of pipe. The swingable jaw may be actuated for moving it into gripping relation with a pipe interposed between the two jaws.

Another object of this invention is to provide saddles that are attached to the jaws for limited swinging movement about vertical axes, thus allowing the saddles to swing freely into final positions to embrace the interposed pipe, as the saddles are moved into clamping relation with the pipe.

Other objects and advantages will appear as the specification continues. The novel features will be set forth in the claims appended hereunto.

Drawings

For a better understanding of the invention, reference should be had to the accompanying drawings, forming part of this specification, in which:

Figure 1 is a top plan view of my vise, illustrating it as being mounted on a fragmentary portion of a work bench;

Figure 2 is a longitudinal, multiplane sectional view taken along the line 2—2 of Figure 1;

Figure 3 is a transverse sectional view taken along the line 3—3 of Figure 1, disclosing the jaw-actuating mechanism in a position for holding the jaws in gripping relation with the pipe shown in Figures 1 and 2;

Figure 4 is a view similar to Figure 3, but illustrating

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the jaw-actuating mechanism moved into a position to free the pipe from the jaws of the vise;

Figure 5 is a horizontal sectional view taken along the line 5—5 of Figure 1, and showing a saddle mounted on one of the jaws for limited swinging movement relative thereto; and

Figure 6 is a fragmentary sectional view taken along the line 6—6 of Figure 1, and disclosing a swivel bracket.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the function thereof.

Detailed description

Referring now to the drawings in detail, it will be noted that I have provided a vise having an adjustable jaw A and a swingable jaw B, which are mounted on a work bench C so as to project horizontally beyond an edge of the latter. For the purpose of mounting these jaws, a base member D is fastened to the edge portion of the bench, and an anchor bar E is fixed to the bench inwardly from the edge 10 (see Figures 1 and 2).

In order to provide a firm foundation for the jaws A and B, a central bar F has its front end 11 fixed to the base member D by any suitable means, such as welding 12; while its rear end 14 is welded at 15, or otherwise secured, to the anchor bar E (see Figure 1). Thus the base member D, the anchor bar E and the central bar F are joined together into a unitary structure. It will be apparent that the adjustable jaw A is disposed on one side of the central bar E, while the swingable jaw B is arranged on the opposite side of the central bar.

Lag screws or bolts 16 are used for securing the base member D and the anchor bar E to the bench C. It will be seen that each of the jaws A and B has an inner end 17 pivotally attached by a rivet 18 to the anchor bar E, an intermediate portion 19 slidably guided by the base member D, and an outer end 20 projecting beyond the edge 10 of the bench. The projecting ends of the jaws have coating saddles thereon, which have gripping surfaces 21 disposed in confronting relation with one another so as to be positioned on opposite sides of a vertically arranged sewer or soil pipe H interposed between these saddles. The surfaces 21 are designed to engage with pipes of different diameters.

As shown in Figures 1 and 2, the inner ends 17 of the jaws A and B are accommodated in slots 22 which are formed in the anchor bar E to thus permit lateral swinging of these jaws. In Figures 1 to 4, inclusive, the base member D has been illustrated as having slots 23 fashioned therein through which the intermediate portions 19 of the jaws A and B extend so as to allow lateral movement of the jaws. The slots 23 serve as guides for the jaws as the latter move toward and away from one another.

With particular reference to Figure 1, it will be noted that I provide a pawl 24 which is pivotally secured by a journal pin 25 to the adjustable jaw A. Moreover, the base member D has a series of ratchet teeth 26 fashioned therein along the length of the base member (see Figures 1, 3 and 4). The detent 27 of the pawl may be selectively engaged with any one of the ratchet teeth so as to hold the adjustable jaw A in a predetermined position of adjustment against movement of this jaw away from the central bar F. As disclosed in Figure 1, a compression spring 28 is provided for yieldingly urging the detent 27 into engagement with the ratchet teeth.

For the purpose of operating the jaw B, I have provided a jaw-actuating mechanism designated generally at J in Figures 1 to 4, inclusive. In its structural features,

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this mechanism includes a lever handle 29 which has one end thereof swingably attached by a pivot pin 30 to a swivel bracket 31; and, as disclosed in Figures 2 and 6, it will be clear that this bracket is secured by a bolt 32 to the jaw B, with the bracket being free to swing about the vertical axis of this bolt. Also, a yoke 33 has one of its ends pivotally secured by a journal pin 34 to the lever handle 29 intermediate the ends of the handle. A rod 35 is connected to the other end of the yoke, and slidably extends through an aperture 36 fashioned in a fixed bracket 37. The latter is rigidly attached to the central bar F so as to extend upwardly from this bar (see Figures 1, 3 and 4).

It will be apparent that the rod 35 has its outer end projecting beyond the fixed bracket 37, and a wing nut 38 is adjustably threaded onto the outer end of this rod. Moreover, a spring 39 of the compression type encircles the rod 35 and is interposed between the bracket 37 and the nut 38. When the lever handle 29 is swung in a clockwise direction in Figure 4 for clamping the pipe H between the saddles G (see Figure 1), the swivel bracket 31 will force the swingable jaw B toward the central bar F, until the lever handle occupies the position shown in Figure 3. At this time, the handle 29 and the yoke 33 will constitute a self-locking toggle. However, when the handle 29 is swung in the opposite direction, as suggested by arrow 40 in Figure 3, the toggle will be unlocked. At the same time, an abutment 41 on the yoke 33 will bear against the fixed bracket 37. As the plumber continues to move the lever handle in the direction of the arrow 40, the swingable jaw B will be moved away from the adjustable jaw A, thus releasing the grip of the jaws on the pipe H.

It will be appreciated, of course, that the exterior diameters of the pipe F will vary from standard; and that often the sewer or soil pipes are not perfectly round in cross-section. Accordingly, the saddles G have been mounted on the jaws A and B for limited swinging movement relative thereto. As illustrated in Figures 1, 2 and 5, each of the saddles is secured to its respective jaw by a vertically-extending journal pin 42, which projects through a pair of ears 43 provided on each saddle. These ears straddle the jaw to which they are attached. Thus the saddles are free to swing into final positions to embrace the interposed pipe H as the saddles move into clamping relation with the pipe. After the saddles G have firmly embraced the pipe H, the spring 39 will yield so that the lever handle 29 may be moved into the position shown in Figure 3, at which time the handle and the yoke 33 will form a locked toggle.

The pawl 24 is operable to adjust the jaw A toward

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and away from the central bar F to thus permit pipes H of various sizes to be gripped and supported by the saddles G. Assuming that the pipe H has been gripped between the jaws, the plumber may insert a second section H² into a bell-shaped portion 44 of the first section H (see Figure 2). In following the usual practice of caulking joints, an annular layer of oakum 45, or other caulking material, should be inserted into the bell-shaped portion 44 so as to surround the lower end 46 of the second pipe section H². When this has been accomplished, a layer of molten lead 47 should be added above the oakum, thus completing the caulked joint when the lead hardens.

I claim:

1. In a vise for supporting a pipe during caulking: a base member fastened to an edge portion of a work bench; an anchor bar fastened to the bench inwardly from said edge portion; a central bar having one end thereof fixed to the base member and its other end fixed to the anchor bar to thus join the base member, anchor bar and central bar into a unitary structure; an adjustable jaw disposed on one side of the central bar and a swingable jaw arranged on the opposite side of the central bar; each jaw having an inner end pivotally attached to the anchor bar, an intermediate portion slidably guided by the base member, and an outer end projecting beyond said edge portion of the bench; the projecting ends of the jaws having coacting saddles thereon, which have gripping surfaces disposed in confronting relation with one another so as to be positioned on opposite sides of a vertically arranged sewer pipe interposed between the saddles; means operable to hold the adjustable jaw in a predetermined position of adjustment against movement away from the central bar; and a jaw-actuating mechanism operable for moving the swingable jaw toward the adjustable jaw to grip and support such a pipe therebetween.
2. The vise for supporting a pipe during caulking, as defined in claim 1; and in which the jaw-actuating mechanism is anchored to the swingable jaw and to the central bar, and is operable for shifting the former toward and away from the latter.

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