Nov. 24, 1942. G. HASELWOOD 2,302,943

ATTACHMENT FOR VISES

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Fig. 1.

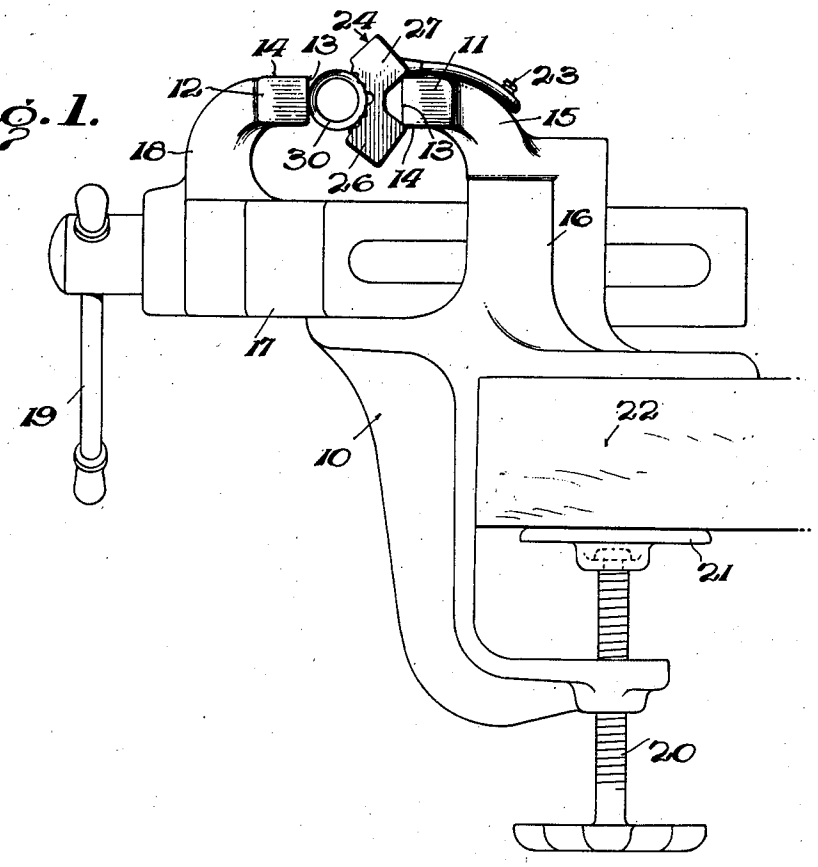


Fig. 2.

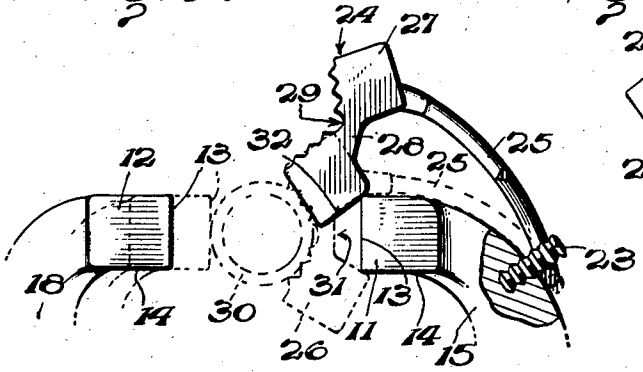
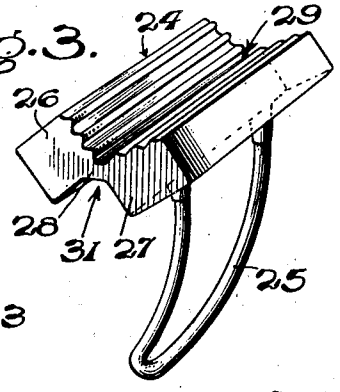


Fig. 3.



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ATTACHMENT FOR VISES

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5 Claims. (Cl. 81—39)

The present invention relates to jaw attachments for vises and refers particularly to an attachment adapted to accommodate round work, such as pipes and the like.

An object of the invention is the provision of a device which may be easily and quickly attached to, and removed from, the jaw of a vise.

Another object is to provide an attachment of this character which requires little or no alteration to the vise. In other words, the present attachment may be mounted on a standard type of vise, and the only requirement is the provision of a stud or pin projecting outwardly from the outer face of the stationary jaw of the vise. This stud is adapted to engage the base of a substantially V-shaped strap, the outer ends of the strap being secured to a work-receiving member. The work-receiving member is designed to straddle the stationary jaw of the vise and is held in operative position by the engagement of the strap with the stud. One of the features of the present invention is that the strap, while rigidly secured to the work-engaging member, nevertheless, has sufficient springiness to permit the member to be snapped on and off the jaw, as desired.

With the foregoing and other objects in view, the invention will now be more particularly described, reference being had to the accompanying drawing in which:

Figure 1 is a side elevation of a vise, with the present attachment in operative work-holding position;

Figure 2 is a fragmentary view of the vise, showing the attachment in partially-attached position in full lines, and in fully-attached position in dotted lines; and

Figure 3 is a perspective view of the attachment.

Referring to the drawing, Figure 1 illustrates the present invention applied to a standard type of vise 10, having an inner stationary jaw 11 and an outer movable jaw 12. As is usual with vises of this character, each jaw is formed with a flat, work-engaging face 13 which connects with flat side walls 14 to form a block-like, work-gripping portion.

The inner jaw 11 is rigidly connected to a curved, intermediate portion 15 which is rigid with the base 16 of the vise. This base is provided with a suitable opening for receiving the slide 17. This slide is connected to the outer jaw 12 by means of the curved portion 18. As is usual with this type of vise, the jaws 11 and 12 may be moved into and out of operative engagement by operating the handle 19. Any suitable means, such as the hand-operated screw bolt 20, having the head 21, may be utilized to detachably clamp the vise to a work table or other support 22.

While a vise of this character is quite efficient for flat work, it is not adapted to efficiently take care of round work, such as pipes and the like. The present invention is designed to eliminate this difficulty by the provision of an attachment particularly adapted to accommodate round or irregular work. This attachment is so constructed that it may be easily and quickly applied to, and removed from, the vise 10; furthermore, the only alteration necessary to place the vise in condition for receiving this attachment, is to secure a pin or stud 23 on the curved portion 15 (see Figs. 1 and 2). The stud 23 is preferably threaded so that it can be easily screwed into a threaded opening in the curved portion 15.

The present attachment comprises a work-engaging member 24 and a jaw-engaging or attaching element 25. The member 24 is preferably in the form of a pair of bars 26 and 27 which are substantially rectangular in cross-section, and are joined along adjacent longitudinal edges by a web 28. This construction forms an upper or outer longitudinally-extending, right-angled groove or recess 29 which is preferably serrated or roughened, and adapted to receive a piece of pipe 30 or other round work, as clearly shown in Figure 1 and 2.

This particular arrangement of the bars 26 and 27 also forms a lower or inner substantially right-angled groove or recess 31 which is adapted to straddle the flat face 13 of the inner jaw 11. As clearly shown in Figure 1, when the member 24 is in operative position, the sides of the groove 31 will not only straddle the inner jaw 11, but will be in substantially line contact with the upper and lower longitudinal edges of the flat face 13 of this jaw. Thus, when the outer jaw is moved inwardly into work-engaging position, the member 24 will be effectively clamped in operative position, and by reason of the line contact between the sides of the groove 31, and the longitudinal edges of the face 13 of the jaw 11, these edges will tend to bite into the sides of the bars 26 and 27 forming the groove 31, as pressure is applied by the outer jaw 12.

The attaching element 25 comprises a substantially V-shaped strap or yoke having the ends of its legs rigidly secured to one face of the block 27. While this strap is fairly rigid, nevertheless, it has sufficient springiness to permit slight relative movement between the strap and member 24 whereby the member may be snapped over the lower jaw 11.

It is to be understood that the present attachment is particularly proportioned to the dimensions of the vise 10, and that the attachment must necessarily be constructed of a size to accommodate a particular type of vise. In the present construction, the strap 25 is formed of a size which will permit its reduced lower end to be slipped or hooked over the stud 23, so that the lower face 32 of the block 26 will contact the

upper longitudinal edge of the inner jaw 11. As clearly shown in Figure 2 in full lines, the dimensions are such that the point of contact will be adjacent the inner edge of the face 32; that is, in close proximity to the lower or inner groove 31 so that only relatively slight pressure on the member 24 is necessary to snap it over the inner jaw 11 into operative position shown in dotted lines in Figure 2. As stated above, this action is facilitated and permitted by reason of the slight springiness of the strap or yoke 25. After the bar 26 has been moved past the upper longitudinal edge of the jaw 11, the rest of the attaching operation is very simple, since very little pressure is required to make the edge of the bar 26 clear the lower longitudinal edge of the jaw 11. In fact I have found in actual practice that the force necessary to move the bar 26 past the upper longitudinal edge of the jaw 11 will carry over and easily move the edge of bar 26 past the lower longitudinal edge of the jaw 11.

After the pipe or other round work has been clamped in the vise, it will be observed that the pressure of the outer jaw will tend to move the base portion of the strap 25 out of direct engagement with the stud 23. However, the relative dimensions of the stud and the strap are such that any outward or upward movement of the strap would move it into contact with the stud before it could clear the same. In other words, the stud 23 not only acts as a pivot about which the attachment is swung when it is moved to operative position, but also constitutes means for preventing accidental removal or displacement of the attachment. The fact that the stud 23 is threaded, provides a substantially roughened surface which further prevents accidental removal of the stud from the strap.

When it is desired to remove the attachment from the vise, this may be accomplished by a reverse action; that is, by exerting an upward pressure on the member 24, the inner face of the bar 26 will readily snap, first past the lower longitudinal edge of the jaw 11, and then over the upper longitudinal edge of the jaw, after which the strap may be disengaged from the stud 23.

The member 24 has been described as constituting a pair of blocks or bars 26, 27, which are joined together by a web 28 connecting adjacent longitudinal edges of the bars. This member may be constructed out of two separate bars which are welded together to form the web 28 or, if desired, the member constituting the two bars and the web may be fashioned as a single unit by any desired metal-shaping operation.

It is to be further understood that the form of the invention shown and described is illustrative of the preferred embodiment, and that such changes may be made which do not depart from the scope of the claims.

I claim:

1. A work-gripping attachment for vises comprising a work-engaging member consisting of a pair of bars substantially rectangular in cross-section having adjacent longitudinal edges rigidly joined together to form a pair of longitudinally-extending right-angled grooves, one of said grooves being adapted to receive the work, the other groove being adapted to engage opposite longitudinal edges of the vise jaw in substantially line contact, and an attaching element secured to said member to removably mount the member on a vise jaw.

2. A work-gripping attachment for vises comprising a work-engaging member consisting of a pair of bars substantially rectangular in cross-section having adjacent longitudinal edges rigidly joined together to form a pair of longitudinally-extending right-angled grooves, one of said grooves being adapted to receive the work, the other groove being adapted to engage opposite longitudinal edges of the vise jaws in substantially line contact, and an attaching element rigidly secured to a side of said member and adapted to hook over a projection on the jaw, said element having sufficient springiness to permit the jaw-engaging portion to be snapped over the jaw into operative position while said element is in contact with the projection.

3. A work-gripping attachment for vises comprising a work-engaging member consisting of a pair of bars substantially rectangular in cross-section having adjacent longitudinal edges rigidly joined together to form a pair of longitudinally-extending right-angled grooves, one of said grooves being adapted to receive the work, the other groove being adapted to engage opposite longitudinal edges of the vise jaw in substantially line contact, and an attaching element consisting of a substantially V-shaped strap having its ends rigidly secured to a side of one of the bars and adapted to lie close to the outer side of the vise jaw and hook over a projection on the jaw, said strap having sufficient springiness to permit the jaw-engaging portion to be snapped over the jaw into operative position while the strap is in contact with the projection.

4. In combination, a vise having a pair of jaws, each with a flat work-engaging face, an anchoring stud projecting outwardly from the side of one of the jaws below its flat face, and a work-gripping attachment detachably connected to said last-mentioned jaw, said attachment consisting of a pair of bars substantially rectangular in cross-section and having adjacent longitudinal edges rigidly joined together to form a pair of longitudinally-extending right-angled grooves, one of said grooves being adapted to receive the work, the other groove engaging opposite longitudinal edges of the last-mentioned jaw in substantially line contact, and an attaching element consisting of a substantially V-shaped strap rigidly secured to a side of one of the bars and engageable over the stud on the jaw, said strap having sufficient springiness to permit the bars to be snapped on and off the jaw while the strap is hooked over and in contact with the stud.

5. A work-gripping attachment for vises comprising a work-engaging member having a longitudinally extending recess adapted to receive a jaw of a vise, and an attaching element overlapping the top of the jaw, said attaching element comprising a substantially V-shaped strap having its ends secured to a side of said member above said recess, the closed end of said strap being relatively rigid and arranged to hook over a projection on the jaw, said strap having sufficient springiness to permit the recess of the work-engaging member to be snapped over the jaw into operative position when the closed end of said strap is in contact with the projection in order to firmly hold the attachment rigidly on the vise.

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