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R. HEINRICH

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VICE FOR SHAPERS

Filed Feb. 6, 1932

2 Sheets-Sheet 2

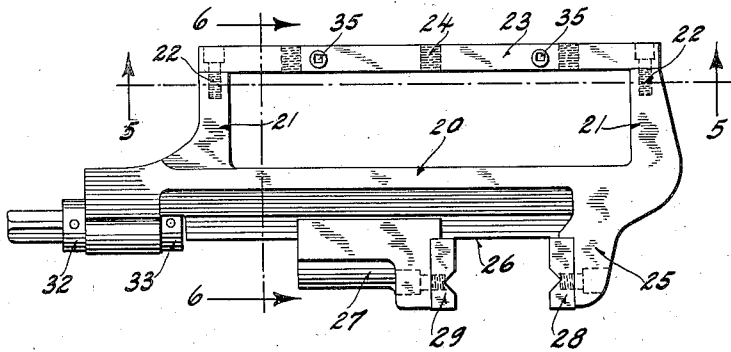


Fig. 2

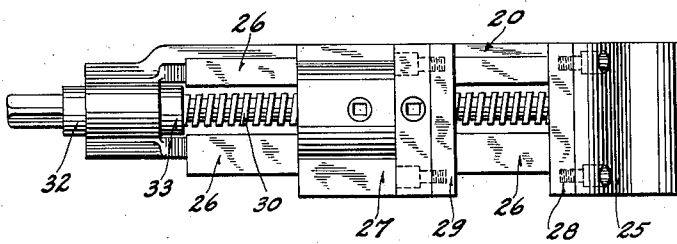


Fig. 3

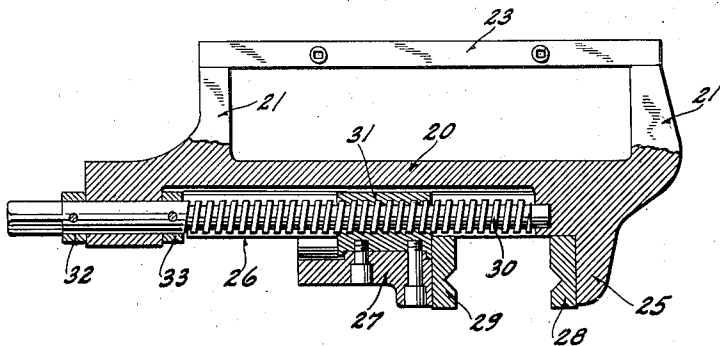


Fig. 4

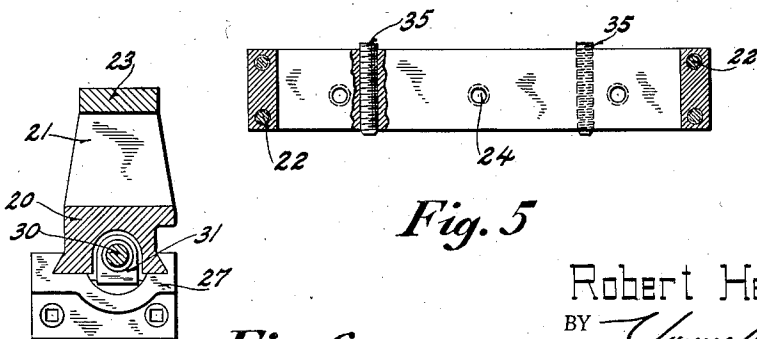


Fig. 5

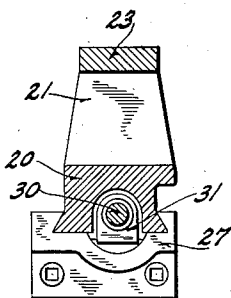
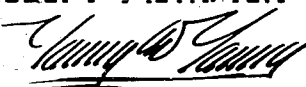


Fig. 6

INVENTOR.
Robert Heinrich
BY 
ATTORNEY.

UNITED STATES PATENT OFFICE

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WISE FOR SHAPERS

Robert Heinrich, Racine, Wis.

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2 Claims. (Cl. 90-60)

This invention appertains to metal-working machines, and more particularly to a novel shaping machine.

One of the primary objects of my invention is the provision of a novel device mounted upon the table of the shaper, whereby different kinds of work can be readily held, so as to permit the tool to effectively act thereon.

In shaping machines, a vise is mounted upon the table for clamping the work in front of the tool head. The character of this vise is such, that where work of an elongated character is being acted upon, the work cannot be firmly grasped when the same is turned upon its ends for shaping the terminals thereof. As the tool strikes the work, the work has a tendency to slip in the vise, in that the work can only be held by the vise at its lower end.

Further, when the elongated work is disposed vertically in the vise, the same is held in such a manner, that a micrometer gauge cannot be easily applied thereto, which renders the accurate shaping of the ends difficult. Also squaring of the work is rendered practically impossible.

It is, therefore, another salient object of my invention to provide an additional vise carried by one of the jaws of the main vise, with the jaws of the second vise arranged at right angles to the jaws of the first vise and laterally thereof, whereby the jaws of the second vise can readily grasp an intermediate portion of an elongated piece of work, so as to prevent the twisting of the work in the vise and thereby permit the accurate shaping, squaring and gauging of the terminals thereof.

A further important object of my invention is the provision of a supplemental vise for shapers, which can be applied to one jaw of the usual vise of a conventional shaper as an attachment, thereby rendering the invention susceptible for use with shapers now in use in machine shops.

A further object of my invention is the provision of an attachment for a shaper including a body portion carrying the vise jaws, the body being adapted to receive one jaw of the usual jaws, the body being adapted to receive one jaw vise of the shaper table and having connected therewith one jaw face of the usual vise which is to be utilized instead of the ordinary jaw face.

A further object of my invention is the provision of means carried by the jaw face of the attachment for the usual vise, whereby the attachment can be accurately trued relative to the table, so as to facilitate and insure the proper squaring of the work carried by the jaws of the vise attachment.

A still further object of my invention is to provide a novel work-holder for shapers of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary perspective view of a shaper, showing my improved vise attachment incorporated therewith;

Figure 2 is a top plan view of the attachment removed from the table of the shaper;

Figure 3 is a side elevation of the supplemental vise;

Figure 4 is a horizontal section through the supplemental vise;

Figure 5 is a longitudinal section through the supplemental vise taken on the line 5-5 of Figure 2, looking in the direction of the arrows and illustrating the means carried by the attachment for truing the same;

Figure 6 is a transverse section through the attachment taken on the line 6-6 of Figure 2, looking in the direction of the arrows; and,

Figure 7 is a fragmentary top plan view showing the supplemental vise forming an integral part of the shaper.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates my supplemental vise for the shaping machine S.

The shaping machine S includes the column 10 supporting the tool head 11. The table 12 is mounted in front of the column and is reciprocated back and forth in front of the tool head by the usual feed mechanism, (not shown). Mounted upon the table 12 is the rotatable turret carrying the usual work holder or vise 13. This vise 13 includes the vise body or frame 14 having the stationary jaw 15 rigidly secured thereto and the movable jaw 16 slidably mounted thereon. The movable jaw 16 is adjusted toward and away from the rigid jaw 15 for holding the work in any preferred manner.

In Figures 1 to 6 inclusive, I have illustrated my supplemental vise A as an attachment for the shaper, so that the same can be associated with shapers now on the market, but it is to be understood that the supplemental vise can be

made a part of the rigid jaw 15 as will be later described.

Referring more particularly to Figures 1 to 6 inclusive, it will be noted that the supplemental vise A comprises a flat elongated supporting body 20 normally disposed in a vertical plane. One face of the supporting body 20 is provided with the laterally extending spaced parallel end walls 21. These walls have connected thereto, in any preferred manner, such as by the use of cap screws 22, the longitudinally extending plate or work jaw face 23. This jaw face 23 takes the place of the conventional jaw face normally carried by the rigid jaw 15.

The conventional jaw face carried by the jaw 15 is removed, when my supplemental vise is associated with the shaper, by simply removing the cap screws utilized for holding this face in position.

As shown, the work jaw face is provided with openings 24, whereby fastening elements can be utilized for connecting this jaw face 23 with the rigid jaw 15 of the usual vise.

Projecting laterally from the outer face of the supporting body 20 is the rigid jaw 25 of the supplemental vise and this body has formed longitudinally thereof, the dovetailed shaped groove 26. The groove 26 has slidably mounted therein, the movable jaw 27 of my supplemental vise.

The adjacent faces of the rigid jaw 25 and the movable jaw 27 can be provided with work jaw faces 28 and 29, respectively. It is to be noted that these jaws are arranged in a vertical plane and at right angles to the jaws 15 and 16 of the usual vise. Any desired means can be provided for adjusting the movable jaw 27 and as illustrated, I have provided a longitudinally extending feed screw 30, which engages a feed nut 31, carried by the movable jaw 27. This feed screw

26 can be rotatably mounted in suitable bearings carried by the supporting body and collars 32 and 33 can be keyed to the feed screw for engaging the opposite faces of one of these bearings to prevent end play of the feed screw. The outer end of the feed screw can be made polygonal shaped in cross section for receiving a suitable crank or the like to permit the ready turning thereof.

As heretofore brought out, when my supplemental vise is to be applied to the shaper, the jaw face of the jaw 15 is removed and the supplemental vise is slipped over this jaw 15, as is clearly shown in Figure 1 of the drawings. The plate or jaw 23 then takes the place of the conventional jaw face, for the jaw 15 and is connected therewith by means of the screws heretofore referred to.

In order to correctly true the supplemental vise, the jaw face 23 can be provided with spaced adjusting screws 35. The lower faces of these adjusting screws 35 bear against the supporting body 13 for the usual vise. By using a level and by adjusting the screws 35, the supplemental vise can be readily trued. Any slight adjustment of the screws 35 is allowed by the slight play

in the holding screws utilized for connecting the supplemental vise in position.

By referring to Figure 7 of the drawings, it can be seen that where the supplemental vise is to form a permanent part of new shapers, the supporting body 20 of the supplemental vise can be casted directly on the jaw 15.

In the use of my supplemental vise, it is obvious that elongated work can be readily held by the jaw faces 28 and 29, intermediate the ends thereof, when the work is held in a vertical plane. This will prevent the twisting of the work as the tool engages the ends of the work for shaping the same.

Further, in view of the fact that both of the ends of the elongated piece of work are exposed, a micrometer gauge can be readily placed on the work to permit the quick and accurate measuring thereof. Further, the work can be clamped and easily squared with the use of my supplemental vise.

Changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

1. As a new article of manufacture, a supplemental vise for use in connection with the standard vise of a shaping machine comprising a body plate for engagement with the outer surface of one jaw of the standard vise, laterally projecting ears on the body plate engaging the ends of said jaw, a jaw face for said jaw secured to the ears and engaging the inner surface of said jaw, and an adjustable jaw and a stationary jaw on said body plate arranged transversely thereof and in a vertical plane.

2. In a shaping machine, a work table, an elongated jaw member extending across the face of the table rigidly connected thereto and disposed adjacent to the path of movement of the cutter and forming a support, the inner face of said member having a jaw face and the outer face of said member having a longitudinal, horizontally disposed laterally projecting guide co-extensive therewith, a rigid jaw carried by the member disposed at right angles to the jaw face of said member and projecting laterally beyond the guide, a jaw slidable longitudinally on the guide disposed at right angles to the jaw face, and means for moving the slidable jaw into and out of work gripping position, the confronting faces of the rigid jaw and the sliding jaw and the outer face of the guide being each disposed in a vertical plane with the outer face of the guide disposed beyond the work table, whereby the outer face of the guide may co-act with the jaws to afford the three-point holding means for elongated work to support the work with its longitudinal axis in a vertical plane, the two jaws also extending beyond the adjacent outer edge of the table, so that such elongated vertically disposed work may extend beyond said edge of the table and below the upper face thereof.

ROBERT HEINRICH.