Oct. 3, 1939. R. L. RAMSEY 2,174,947

VISE

Filed April 14, 1938

Fig. 1.

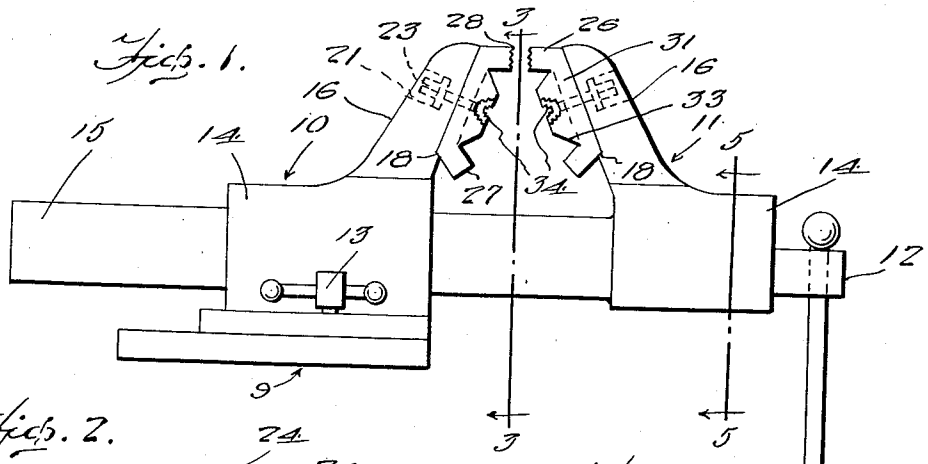


Fig. 2.

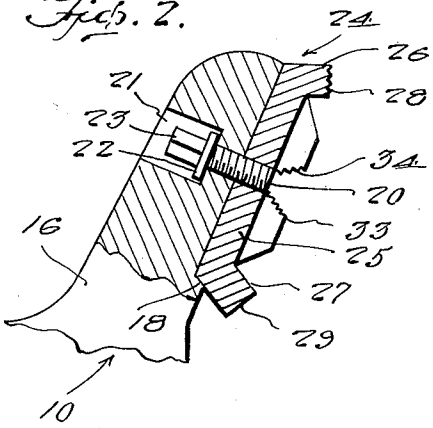


Fig. 3.

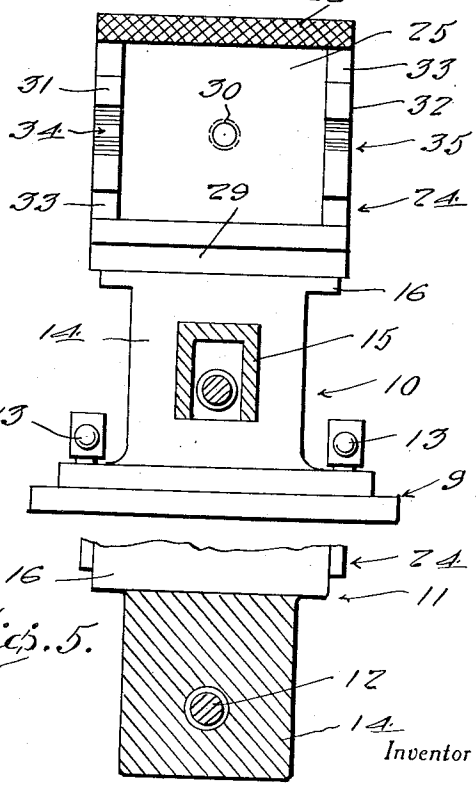


Fig. 4.

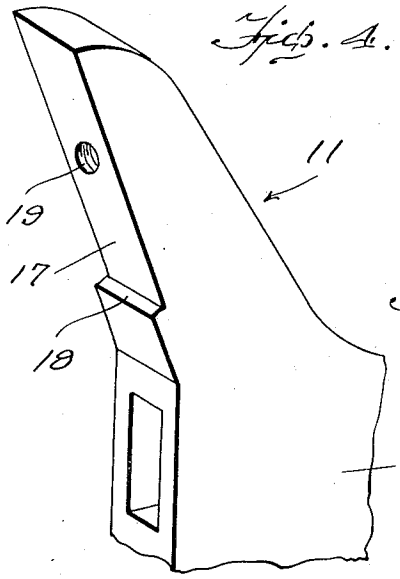


Fig. 5.

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VISE

Roy Lee Ramsey, Charleston, S. C.

Application April 14, 1938, Serial No. 202,073

1 Claim. (Cl. 81—38)

The present invention relates broadly to an improved work bench or similar vise and has reference in particular to the construction of the complemental or companion jaws, these being novel in that they are each formed with a rectangular shaped body having flanges at the four edges thereof, the flanges forming gripping parts of different types.

Admittedly, the broad proposition of interchangeable and multiple purpose work gripping jaws is in no sense broadly new in the art and trade. It follows, therefore, that my primary aim is to generally improve upon known, patented and marketed constructions, through the adoption and use of relatively adjustable clamping units, these having especially constructed shanks carrying manually regulated and adjustable work engaging plates or grips, the grips and shanks coacting to provide diversified utility so as to increase or multiply the range of functions in a comparatively simple vise construction.

Briefly then, my object is to adopt and utilize a vise structure whose range of utility is such as to permit effective and reliable clamping and holding of many different styles and classes of objects such as flat faced rods, circular and part-circular machine elements, tools of various cross-sectional shapes as well as soft surfaced elements of wood and the like.

Other features and advantages will become more readily apparent from the following description and accompanying illustrative drawing.

In the drawing:

Figure 1 is an elevational view of a vise embodying the features and advantages of the present invention.

Figure 2 is a fragmentary detailed view showing one of the supporting shank members and a detachable jaw member cooperable therewith.

Figure 3 is a section, on an enlarged scale, taken approximately on the plane of the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is an enlarged fragmentary perspective view showing the special configuration of the jaw member supporting shank.

Figure 5 is an enlarged transverse or cross sectional view taken on the plane of the line 5—5 of Figure 1.

By way of introduction to the detailed description, it is to be pointed out that I am not especially concerned with the supporting bench, base or other relatively fixed supporting means in general. In the drawing, however, a part of the support is denoted by the numeral 9 and the respective relatively stationary and movable clamping or jaw units, associated therewith, are differentiated by the numerals 10 and 11 respectively. Any suitable adjusting means 12 is employed and appropriate clamping means 13 is also utilized. The sleeve members 14 of the units 10 and 11 coact with a complemental assembling bar or rod 15 which also is of no particular moment. Perhaps, however, novelty may be said to reside in the provision of the tubular bodies 14 in conjunction with the complemental converging shanks 16. That is to say, the shanks incline toward each other at approximate 25-degree angles, and each shank as shown in Figure 4, has a flat faced plate backing surface 17 and a retention shoulder 18 as well as a threaded bore or hole 19 to accommodate the shank 20 of the clamping and assembling bolt. It will also be observed in Figure 3 that the threaded bolt hole is formed with a counter-bore, this being enlarged in diameter as shown to advantage in Figure 3, and as indicated at the point 21. The counterbore serves to accommodate the abutment disk 22 carried by the clamping and assembling bolt 20. The tool-end 23 terminates within the confines of the shielding or protective socket 21 where it is nevertheless readily available to facilitate turning with a socket wrench or the like.

These especially inclined bored shanks 16 serve to accommodate the duplicate companion adapter grips or plate units 24. The parts 24 are the same in construction and a description of one will suffice for both.

As brought out to advantage in Figures 5 and 6 each part 24 comprises a substantially rectangular flat plate 25 and this is provided along opposed parallel edges with outwardly diverging flanges 26 and 27 respectively. The work or tool engaging face of the flange 26 is knurled or milled as indicated at 28. This provides an anti-slipping grip on the work (not shown). The corresponding face 29 of the other flange 27 is preferably plain whereby to render it sufficiently smooth to maintain a non-marring grip on wooden or equivalent compressible objects and bodies. That face of the plate resting against the backing surface 17 is perfectly smooth and flat and it will be observed that at the center of the plate there is a screw threaded bolt hole 30 to accommodate the shanks 20 and to permit the plate to be turned around this as an axis, that is, revolved through an orbital path to bring the various work engaging features into the most advantageous work gripping position. It will be observed that the plate also carries marginal laterally directed parallel flanges 31 and 32. The

end portions of the flanges 31 and 32 are beveled outwardly as indicated at the point 33 to provide what may be called auxiliary work engaging faces. Primarily however, the flanges 31 and 32 are provided with centrally disposed V-shaped notches 34 and 35 respectively, and these are roughened or milled to provide additional selectively usable jaws or grips. It follows, therefore, that the structure is characterized by a pair of jaw units movable toward and from each other and having converging shanks, the shanks being shouldered and made to accommodate the clamping bolts which in turn serve to maintain adjustably in place the adapter plates. These plates are provided with marginal flanges and the flanges have their edge portions so designed as to provide the desired selectively usable work engaging element to accommodate the various shaped tools and machine elements adapted to be held between the respective jaws. It will be observed in Figure 1 that while the plates assume diverging or converging angular relationship, as the case may be, this angularity of parts brings the respective flanges into planes parallel with each other, that is, at proper angles to satisfactorily grip the object or objects (not shown), adapted to be held therebetween.

Attention is also directed to the advantage derived from the adoption and use of the flat surfaced supporting shanks having shoulders coacting with the flanges on the adapter plate whereby the plates can be slightly loosened through the use of the clamping screws 26 just sufficiently to allow clearance between the plates and shoulders to facilitate revolvable adjustment whereby to bring the desired set of clamping flanges into play. Moreover, as before pointed out, the tool-end of the clamping screw is adequately housed within the limits of the socket 21 for protection and to avoid accidental loosening thereof. Furthermore, with jaw faces or plates of this type, pipes and rods and other parts can be satisfactorily clamped in position to be satisfactorily treated or worked on in both vertical and horizontal positions. Thus, it will be seen, that the novelty resides, structurally speaking, in the parts separately and collectively, and the claim is to be interpreted accordingly.

It is thought that the description taken in connection with the drawing will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

A vise of the class described comprising a pair of members each provided with a shank portion and said shank portions converging upwardly, the adjacent faces of said shank portions being flat and terminating in a sloping shoulder at its inner edge, a pair of jaw members each of rectangular shape, means for pivotally connecting the central portion of each jaw member to a shank with the inner face of the rectangular shaped part resting on the flat face of the shank and each rectangular part having flaring flanges extending from its edges, with one flange adapted to engage the shoulder of the shank, the outer edges of the flanges forming gripping parts, said gripping parts being of different types.

ROY L. RAMSEY.