Nov. 13, 1956 H. J. BRETTRAGER 2,770,156

AUXILIARY JAWS SELECTIVELY ATTACHABLE TO CONFRONTING AND UPPER SURFACES OF VISE JAWS

Filed July 18, 1955

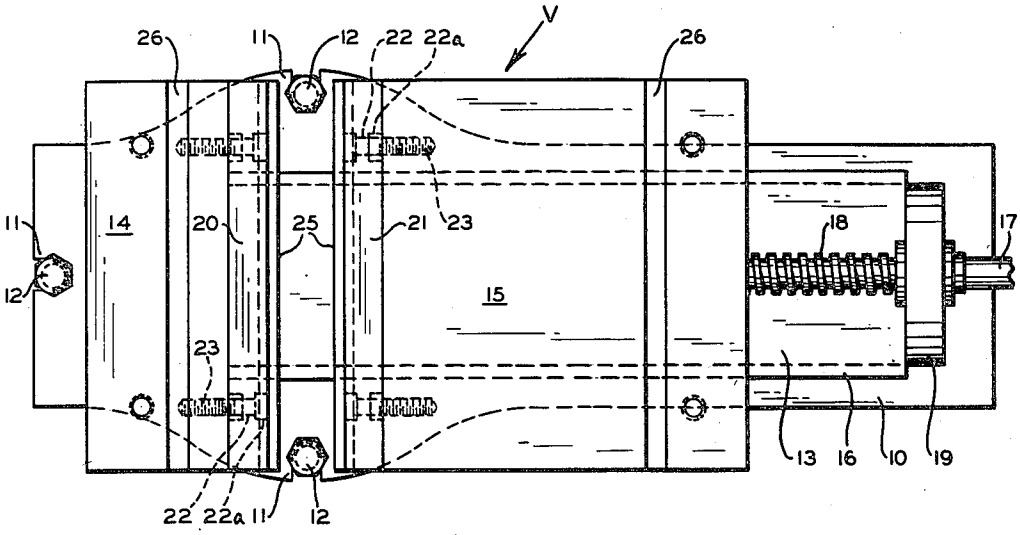

FIG. 2

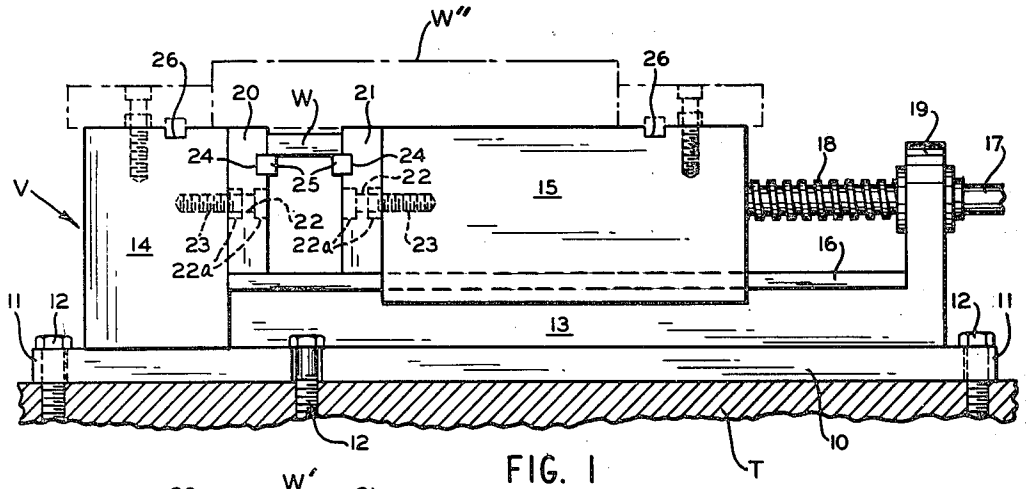

FIG. 1

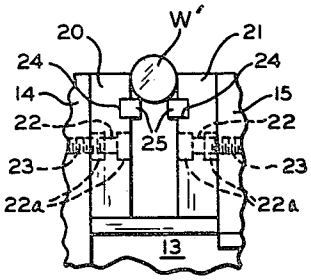

FIG. 3

INVENTOR.

HENRY J. BRETTRAGER

BY

Fearnant Fearnan

ATTORNEYS

United States Patent Office 2,770,156 Patented Nov. 13, 1956

2,770,156

AUXILIARY JAWS SELECTIVELY ATTACHABLE TO CONFRONTING AND UPPER SURFACES OF VISE JAWS

Henry J. Brettrager, Saginaw, Mich.

Application July 18, 1955, Serial No. 522,761

4 Claims. (Cl. 81—38)

This invention relates to vises which can clamp workpieces of widely varying size.

While vises are known which support an auxiliary jaw on an upper face thereof for clamping larger size workpieces, no one has to my knowledge provided jaws for a vise which may be interchangeably supported on the inner ends of the jaw blocks or on the upper faces thereof, and when fixed on the ends of the blocks are very useful for supporting workpieces which are of considerably less depth than the height of the jaws.

Accordingly, one of the prime objects of my invention is to design a machine vise of simplified construction which has jaws of the character described.

A further object of the invention is to provide a vise of this design which is reliable and efficient in operation and permits the clamping of a wide range of workpieces of varying size.

Another object of the invention is to design a vise whose jaws can be very rapidly moved to the desired position with only the simplest of tools and in a minimum of time.

A still further object of the invention is to design a vise of rugged and durable construction which can be very economically manufactured and sold.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims, it being understood that equivalent changes may be made in the various elements which comprise the invention without departing from the function thereof or the scope of the appended claims.

In the drawings:

Fig. 1 is a side elevation of the vise showing a workpiece of relatively small size clamped therein, the diagrammatic lines indicating alternate positions of the jaws and a larger size workpiece which is clamped therebetween.

Fig. 2 is a top plan view.

Fig. 3 is a fragmentary side elevation corresponding to Fig. 1, but showing a cylindrical workpiece supported by the jaw projections.

Referring now more particularly to the accompanying drawing in which I have shown a preferred embodiment of the invention, a letter V generally indicates my vise which includes a base **10** having flanges **11** secured by bolts **12** to the table T of any machine or bench as desired. Integral with the base **10** is a vise body **13** having a fixed jaw block **14** and a reciprocable jaw block **15**. The block **15** moves, of course, on ways **16** which are provided on the body **13** of the vise.

Any suitable means may be employed to adjust the position of the block **15** on the ways **16**, however for simplicity I have shown a shaft **17** having a threaded portion **18** that engages a complementarily threaded internal bore in the block **15** in the usual manner. The shaft **17** is supported at its outer end by an upright flange **19** on the end of the ways **16** and is journaled in

an opening through the flange **19** so that it can rotate but not move axially. Accordingly, when the shaft **17** is turned by any suitable tool or handle the slidable block **15** will be moved on its ways **16**.

Jaws **20** and **21** have smooth bores **22** disposed centrally therein so that they may be fixed to the inner ends of the jaw blocks **14** and **15** by screws **23**. Both ends of the openings **22** are countersunk as at **22***a*, and plainly the jaws will thus be reversible. Provided off center in each of the jaws **20** and **21** is a keyway **24** of rectangular section in which a generally rectangular key **25** may be mounted as in Fig. 1 for supporting a workpiece W as shown. Plainly, since the openings **22** are centrally disposed, the jaws **20** and **21** could be turned around so that the keys **25** were on the opposite side of the screws **23** and would support larger workpieces in the same manner. The keys not only facilitate drilling operations and the like by supporting the workpiece in true horizontal disposition, but also support it near the top of the vise so that there is no danger or running a drill or similar tool into the bottom of the vise. Fig. 3 illustrates the manner in which the keys **25** will very capably support cylindrical workpieces W′ which are otherwise very difficult to clamp between the jaws.

It will be noted that the jaws **20** and **21** are flush with the upper faces of the blocks **14** and **15** which are absolutely flat as shown. Provided in the upper faces of the blocks **14** and **15** are keyways **26** of rectangular section which are adapted to receive the keys **25** when larger size workpieces, such as shown at W″, are to be clamped. In Fig. 1 diagrammatic lines indicate the position of the jaws **20** and **21** which have been removed from the ends of the blocks **14** and **15** and secured to the upper faces thereof by the screws **23**.

It should be obvious that I have perfected a very versatile vise which is capable of clamping workpieces of widely varying size and shape, and it is to be understood that I do not wish to limit the application of the novel principles involved in any way. Accordingly, the drawing and descriptive matter in all cases are to be interpreted as illustrative of the invention rather than as limiting the scope thereof and it is to be understood that various equivalent changes may be made without departing from the scope of the appended claims.

I claim:

1. In a vise, a fixed jaw block, a movable block movable toward and away from said first-mentioned jaw block, the jaw blocks having flat adjacent end faces and upper surfaces, jaws having transversely disposed substantially rectangular shaped keyways therein, and the upper faces of said jaw blocks having corresponding keyways therein, and means for interchangeably securing said jaws to the end faces or upper surfaces of said jaw blocks so that a workpiece may be gripped therebetween.

2. In a vise, a fixed jaw block, a movable jaw block reciprocable toward and away from said fixed jaw block, the jaw blocks being provided with upper faces which include relatively flat surfaces, the flat surfaces having generally rectangular shaped keyways extending in a direction transverse to the path of reciprocation of said movable jaw block, jaws for said jaw blocks having generally rectangular shaped keys projecting therefrom and receivable in said keyways, and means interchangeably securing said jaws on the upper faces of said blocks with the keys in said keyways or on the inner ends of said blocks with the keys supporting a workpiece which is gripped therebetween.

3. The combination defined in claim 2 in which said keys are off center in said jaws.

4. In a vise, a stationary jaw block, a movable jaw block movable toward and away from said first mentioned jaw block, the jaw blocks having flat adjacent end

faces and upper surfaces, jaws mountable on the opposing end faces of said blocks, the jaws having slots and the upper surfaces of said blocks outwardly of said end faces thereof having like slots, means for interchangeably securing said jaws to the end faces or upper surfaces of said jaw blocks so that a workpiece may be gripped therebetween, and members functioning as keys to brace the jaws accommodated in said slots in the jaws and slots in the upper surfaces of said blocks when the jaws are mounted on the upper surfaces of said blocks to brace the jaws against the clamping force in the plane of movement of the movable block.

References Cited in the file of this patent

UNITED STATES PATENTS

1,823,537	Gaudreau	Sept. 15, 1931
2,490,843	Sordi	Dec. 13, 1949

FOREIGN PATENTS

584,685	Great Britain	Jan. 21, 1947
585,051	Great Britain	Jan. 29, 1947
170,934	Austria	Apr. 10, 1952