

G. M. YOST.  
VISE.

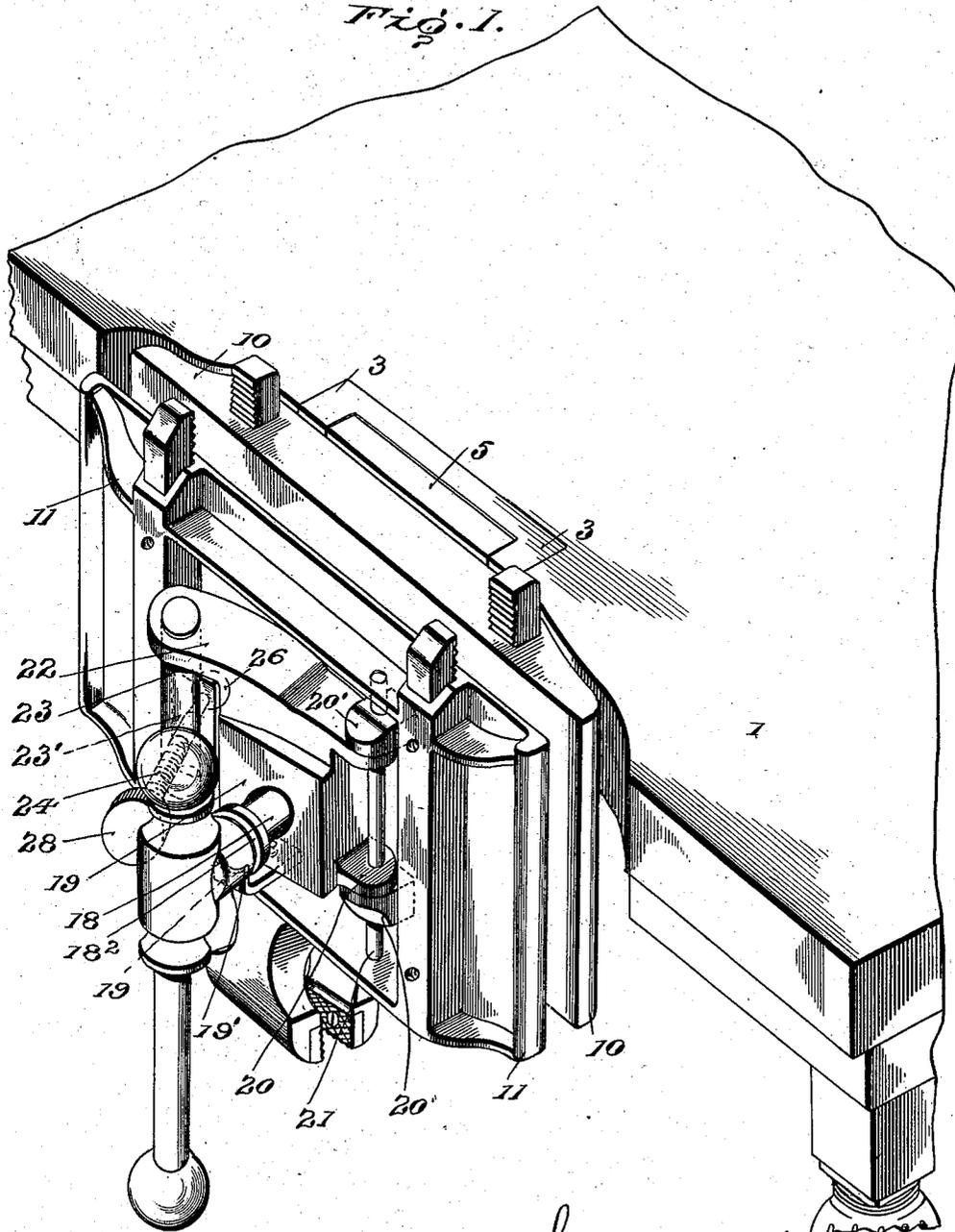
APPLICATION FILED AUG. 19, 1907.

899.779.

Patented Sept. 29, 1908.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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4 SHEETS—SHEET 2.

Fig. 2.

*Inverted Perspective.*

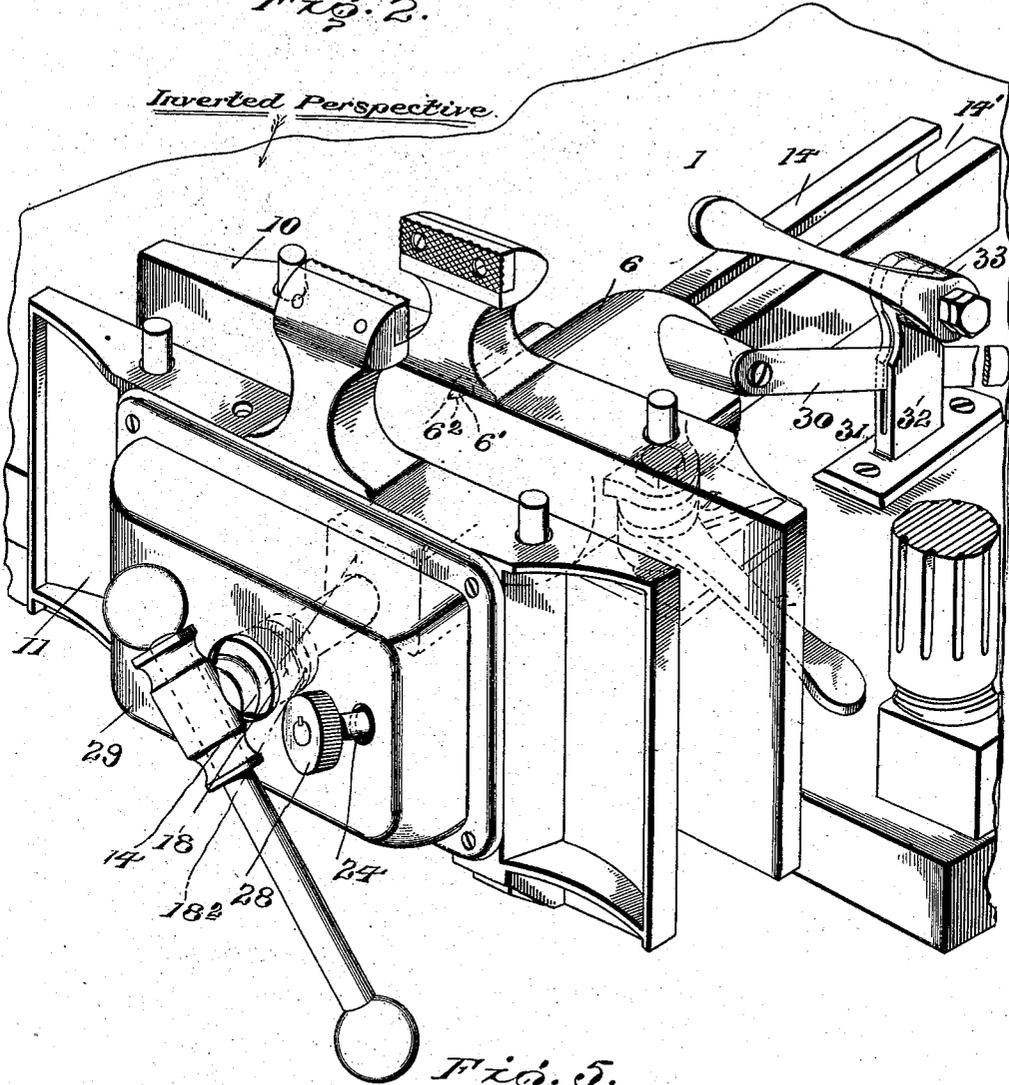
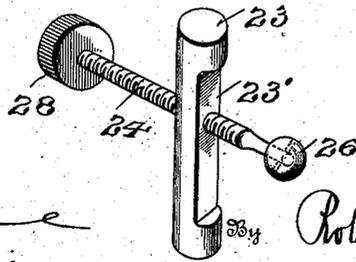


Fig. 5.



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# UNITED STATES PATENT OFFICE.

GILMORE M. YOST, OF MECHANICSBURG, PENNSYLVANIA.

## WISE.

No. 899,779.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed August 19, 1907. Serial No. 389,198.

*To all whom it may concern:*

Be it known that I, GILMORE M. YOST, of Mechanicsburg, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to a universal vise and is designed to provide a construction whereby the vise may be attached by a hinge to the edge of the top of a work bench without reducing the thickness of the top of the bench, and to provide a very simple and strong construction and one which will permit the turning of the jaws in a plane at right angles to the normal travel of the movable jaw without disturbing the work.

It also relates particularly to simple and efficient means for adjusting the angular relation between the faces of the jaws of the vise.

My invention consists of the matters illustrated in the drawings, described in the specification, and more particularly pointed out in the appended claims.

Referring to the drawings: Figure 1 is a perspective view of the vise in position on the bench. Fig. 2 is an inverted perspective view of the same. Fig. 3 is a transverse section on the line 3—3 Fig. 6. Fig. 4 is a horizontal section in the plane of the feed screw, the screw being shown in full. Fig. 5 is a detail perspective view of parts of the adjusting mechanism. Fig. 6 is a vertical longitudinal section, in the plane of the feed screw, the screw being shown in full. Fig. 7 is a perspective view of the longitudinally stationary jaw.

The vise is supported from the work bench 1 by means of a hinge 2 having the leaf which is attached to the work bench provided with a vertical portion 3, and a horizontal portion 4, which is attached to the underside of the bench. The other leaf of the hinge 5 carries a split sleeve 6 provided with lugs 7, one of which has a cam surface with which a cam lever 8 working on a bolt 9 cooperates to clamp and unclamp the sleeve. The vise is provided with a jaw 10 not longitudinally movable and with a traveling jaw 11. The jaw 10 is provided with a hub 12 which I make integral with the jaw and the axis of which is located to one side of the longitudi-

nal median line of the jaw. This construction supports the vise so that it does not interfere with the work bench nor require the weakening of the top of the bench by cutting away a part of its thickness as is commonly necessary. The parts are so proportioned that the sleeve 6, when the vise is in normal position, rests firmly against the underside of the horizontal portion 4 of the hinge. The hub 12 forms a large bearing surface in the sleeve so that the jaw 10 may be rotated in a plane at right angles to the line of travel of the other jaw and firmly supported in any position. The split sleeve 6 and the cam locking arrangement above described make it possible to secure any adjustment desired, the adjustment not being limited to a series of adjustments at fixed distances. The sleeve 6 is, however, provided with a spring pressed pin 6' which cooperates with corresponding depressions 6<sup>2</sup> in the back of the jaw 10 adjacent the hub 12 to locate the jaw in the desired position—as with its longitudinal median line horizontal—so that by the use of the cam lever 8 the precise adjustment thus indicated and temporarily secured may be made permanent. This, of course, does not limit the range of adjustment in any way.

The hub 12 is provided with a square hole 13 in which fits slidably the supporting bar 14. The hub 12 is also provided with a screw-threaded nut 15 which as shown is held firmly in an under cut groove 17. This may be accomplished by driving the projection 15' of the nut into the groove, the cooperating parts being, if desired, wedge shaped to sustain the pressure developed in the use of the vise. Usually, and as here shown, a pin 16 is also employed.

The bar 14 is provided with a slot 14' to permit its longitudinal movement. This bar is hollow to accommodate the feed screw 18 and is provided with a head 19, having a removable finger 19' cooperating with a groove 18<sup>2</sup> in an enlarged portion 18' of the feed screw 18 to prevent it from moving longitudinally with respect to the bar 14. This bar has a head 19 which serves as a support for the traveling jaw 11, the latter having an enlarged hole through which the bar passes and being pivoted to forked projections 20 of the said head by a pin 21 passing through said projections and through lugs 20' on said jaw

working outside of and against said projections 20. The other end of the head is provided with forked projections 22 in which is mounted rotatably a bearing block or pin 23 through which works a screw-threaded adjusting pin 24. A ball and socket joint is provided between the end of this pin and the rear face of the jaw 11. As shown, this is made up of a socket 25 in the jaw and a ball 26 which is fastened on the end of the pin in any suitable manner. A detachable cap 27 permits the parts to be assembled and holds the joint in position. For convenience the head 28 of the adjusting pin 24 is made removable so that the plate 29 which covers the parts just referred to may be readily removed.

The pin 23 has a flattened portion 23' parallel with its own axis and at right angles to the axis of the pin 24. This portion 23' constitutes one member of a stop, the other member of which is the cap 27 on the jaw. This stop mechanism supports the jaw against the head of the bar, relieving the adjusting means and especially the pin 24 of strain, when the jaw faces are in normal relation. These parts as illustrated are arranged to support the traveling jaw with its face in parallelism with that of the other jaw without imposing any strain on the adjusting pin 24, which at the time specified is not in action.

To the sleeve 6 is attached a bar 30 which passes through a clamp 31. This clamp comprises a split standard 32 controlled by cam locking mechanism 33 such as already described in connection with the split sleeve. By these means the vise may be held firmly in any position of the hinge.

What I claim as new is:

1. In a vise, a supporting bar, a jaw pivoted thereto, a block rotatably mounted in one of said parts, and a pin screw threaded through said block and having a ball and socket connection with the other part.

2. In a vise, a supporting bar, a jaw pivoted thereto, a block rotatably mounted in said bar, and a pin screw-threaded through said block and having a ball and socket connection with the jaw.

3. In a vise, a supporting bar, a jaw pivoted thereto, a block rotatably mounted in said bar, and a pin screw-threaded through said block and having at its end a ball and socket connection with the jaw.

4. In a vise, a supporting bar, a jaw pivoted thereto, a socket in said jaw, a block rotatably mounted in said bar, a pin screw-threaded through said block, and a ball on the end of said pin working in said socket.

5. In a vise, a supporting bar, a jaw pivoted thereto, a pin rotatably supported at its ends in said bar, and a pin at right angles to

said first pin screw-threaded therethrough intermediate its ends and having at its inner end a bearing in the jaw.

6. In a vise, a supporting bar, a jaw pivoted thereto, a block rotatable on its axis in said bar, but bodily stationary, and a pin screw-threaded therethrough and bodily movable and having a pivotal bearing in the jaw.

7. In a vise, a supporting bar, a pair of jaws one of which is pivoted to said bar, a block rotatably mounted in said bar and having a flattened portion adapted to be brought into contact with the pivoted jaw when the jaw faces are in normal relation, and means cooperating with said block and pivoted jaw to adjust the latter.

8. In a vise, a supporting bar, a pair of jaws one of which is pivoted thereto, and adjusting means pivotally mounted with respect both to said pivoted jaw and to said supporting bar and provided with a stop cooperating with the pivoted jaw for relieving said adjusting means of strain when the jaw faces are in normal relation.

9. In a vise, a supporting bar, a jaw pivoted thereto, a pin rotatably mounted in said bar with its axis parallel with the face of the jaw, and a pin at right angles to the first pin screw-threaded therethrough and having a bearing in the jaw, said first pin being provided with a flattened portion adjacent the screw-threaded pin, and said jaw having a portion adjacent said bearing which contacts with the flattened portion of the first pin, when the adjusting device is not in action.

10. In a vise, a supporting bar, a pair of jaws one of which is pivoted thereto, a block rotatably mounted in said bar and having a flat face, a pin screw-threaded through said block and working against the jaw, the axes of the jaw pivot and of the block being parallel to each other and to the face of the jaw, and a stop on said jaw cooperating with the flat face of the block to relieve the adjusting pin of strain when the jaw faces are in normal relation.

11. In a vise, a hinge, a sleeve carried thereby wholly below the under side of the bench, a jaw having a hub integral therewith rotatable within said sleeve, means for indicating particular adjustments of said jaw, and means for clamping the sleeve against the hub to secure any desired adjustment.

12. In a vise, a hinge, a sleeve carried thereby, a jaw having a hub integral therewith rotatable within said sleeve, means for automatically indicating, temporarily retaining, and automatically releasing particular adjustments of said jaw, and means for clamping the sleeve against the hub to secure the indicated adjustment or any other.

13. In a vise, a hinge, a sleeve carried

thereby, a jaw having a hub integral there-  
with rotatable within said sleeve, a spring-  
pressed pin and depressions cooperating  
therewith carried one by said sleeve and the  
5 other by said jaw, and means for clamping  
the sleeve against the hub to secure the indi-  
cated adjustment or any other.

Signed by me at Mechanicsburg, Cumber-  
land Co., Pa., this 16th day of August, 1907.

GILMORE M. YOST.

Witnesses:

JAS. L. YOUNG,  
J. JAY FITZ GERALD.