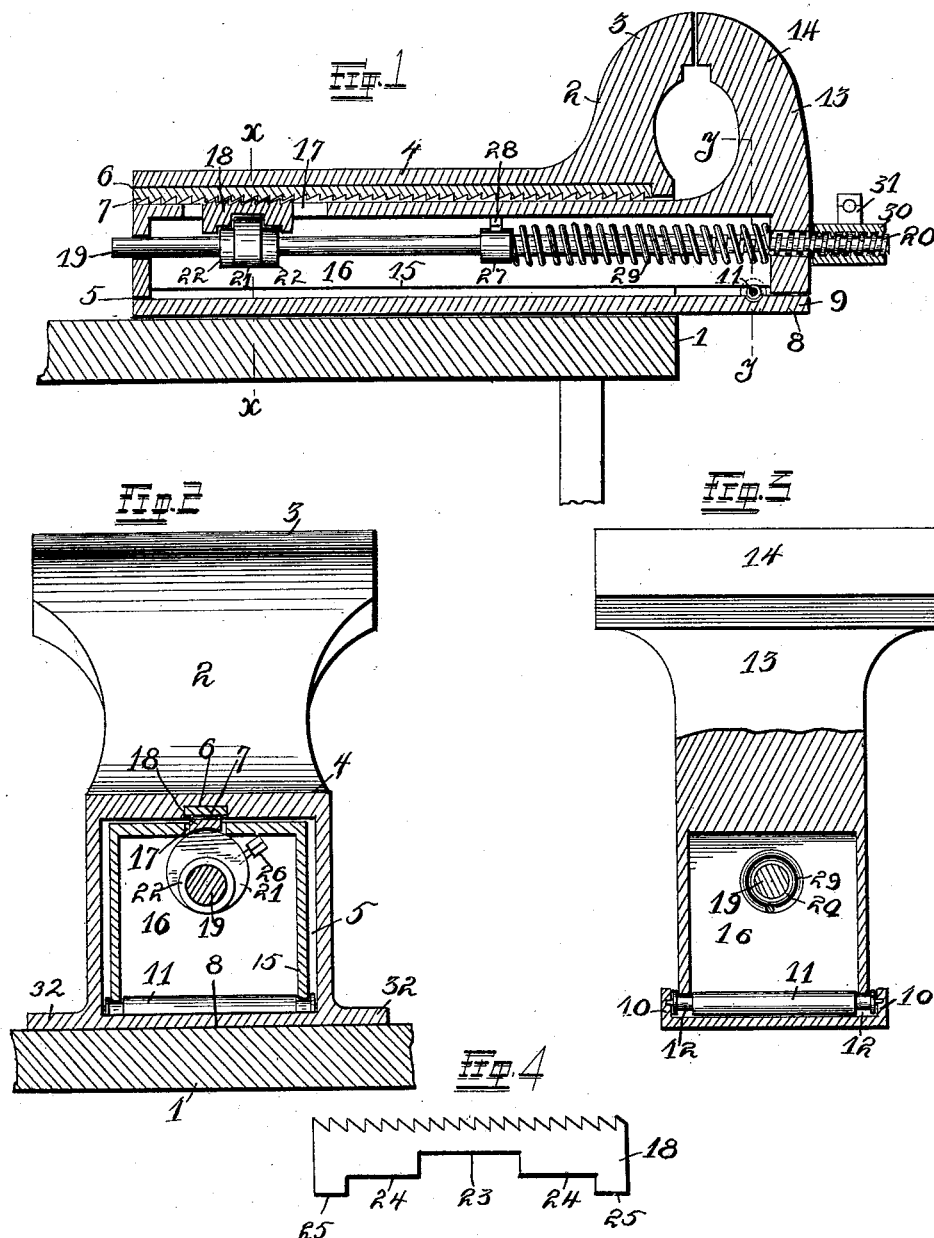


(No Model.)

W. RATHBONE.
VISE.

No. 489,327.

Patented Jan. 3, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM RATHBONE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
WILLIAM JAMES PRICE, OF SAME PLACE.

WISE.

SPECIFICATION forming part of Letters Patent No. 489,327, dated January 3, 1893.

Application filed April 6, 1892. Serial No. 428,030. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RATHBONE, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Vises, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in "vises" and consists in the novel arrangement and combination of parts, as will be more fully hereinafter described and designated in the claim.

In the drawings:—Figure 1, is a vertical longitudinal section of my complete invention as attached to a table or bench. Fig. 2, is a vertical transverse-section taken on the line *x x* of Fig. 1 looking to the right of said figure. Fig. 3, is also a transverse-section taken on the line *yy* of Fig. 1, and Fig 4 is a side elevation of the ratchet-tooth-block, which forms a part of my invention.

Referring to the drawings:—1, represents a table or bench to the top of which my invention is easily applied as best shown in Fig. 1.

The vise is composed of two members, one of which is attached rigidly to the stand or bench 1, forming the stationary member, and the other a movable member, and is adapted to be moved in a longitudinal direction within the said stationary member.

2, represents a stationary member, which is provided with a clamping jaw 3, and a rectangular box-shaped extension 4, having four sides but open at its ends forming a rectangular-shaped opening 5.

To the top of the rectangular-shaped opening 5, and located within a suitable groove 6, formed therein is rigidly attached a ratchet tooth-plate 7, the teeth of which project in a downward direction and are flush or in the same plane with the top of the said rectangular opening 5, allowing the movable member of the vise to be easily moved therein. 8, represents the bottom of the said rectangular opening, the forward portion of which extends a suitable distance as shown at 9, which acts as a support or rest for the forward end of the movable jaw when the same is in a closed position, as shown in Fig. 1, and also for supporting the same when moved almost out of the

rectangular opening 5. The extension 9 of the said bottom is provided upon its opposite edges with extensions 10, which not only guide the movable jaw but also form bearings for the roller 11, upon which the said movable jaw normally rests. The said roller 11 is provided with two peripheral grooves 12, which are adapted to receive the depending edges of said movable jaw, as best shown in Fig. 3.

13, represents a movable member, which is provided with a clamping jaw 14, between which jaw and the stationary jaw 3 the work desired to be operated upon is clamped. 15, represents the extension of said jaw 13, which is of such a size as to freely move within the rectangular-shaped opening 5 of the stationary member and is provided with a hollowed out portion 16, having an open bottom but closed top, sides and ends, as best shown in Fig. 2. The top of the said extension 15 is provided with an elongated opening 17, near the rear end thereof which is adapted to receive the movable ratchet tooth-block 18, allowing the same to be elevated and also moved in a longitudinal direction.

19, represents a longitudinal operating shaft, which has its bearings in the ends of the movable member 13 of the vise the forward end of which is provided with screw-threads 20, and said end normally projecting beyond the said movable member 13 of the vise.

21, represents a cam, which is removably attached to the longitudinal operating shaft 19, and is provided with rounded extensions 22, which are formed integrally with the said cam, and is adapted not only to elevate the said block for locking the members against movement independent of one another, but also allows the same to fall by gravity when turned from under the same. The under surface or bottom of the movable ratchet tooth-block 18 is provided with a central depression 23, the surface of which rests upon the cam 21, and also with two side depressions 24, which are adapted to normally rest upon the rounded extensions 22 of the said cam, the extensions 25, providing means for holding the said block in its proper position in relation to the cam. 26, represents a screw

or bolt, which is passed through one of the rounded extensions of said cam, and into the longitudinal shaft 19, for locking said cam rigidly to the said shaft, and further limiting the movement of the same by coming in contact with the top of the extension 15 of the movable member of the vise. 27, represents a collar, which encircles said operating shaft 19, and is located within the hollowed out portion 16 of the movable member of the vise, and is held on said shaft by means of a screw or bolt 28. Encircling said operating shaft, and interposed between the said collar 27, and one end of the movable member 13 of the vise is a coiled spring 29, which operates to hold the several parts in frictional contact.

Upon the screw-threaded projecting end of the operating shaft 19 is an internal screw-threaded collar 30, one end of which is normally in frictional contact with the solid portion of the movable member 13. 31, represents a perforated extension, which is attached to one side or to the peripheral surface of the said collar, into which a sliding bar is adapted to be inserted, for turning the said collar in either direction.

When it is desired to adjust the movable member 13 of the vise, the collar 30 is turned in the proper direction, operating in turn the longitudinal shaft 19, causing the enlarged portion of the cam 21 to be moved from under the movable block 18, allowing the same to fall by gravity, the teeth of which will be freed from the teeth of the ratchet tooth-plate 7, in which position the said member may be moved in a longitudinal direction. In order to clamp the work to be operated upon, the movable member 13 is first adjusted in a longitudinal direction by sliding the same, but not operating the collar 30 in any manner. After the proper adjustment is had, the collar 13 is turned which operates the shaft 19, causing the enlarged portion of the cam 21 to be brought in contact with the movable lock 18, elevating the same, the teeth of which will engage with the teeth of the ratchet tooth-plate 7 and by further movement of

said collar in the same direction, the same will turn upon the screw-threaded end of the said shaft, and operate to move the member 13 against the work, and thoroughly clamp the same between the jaws 3 and 14 of the stationary and movable members of the vise respectively. The rectangular-shaped extension 4 of the stationary member is provided with laterally perforated ears 32, through which screws, bolts or other similar devices are adapted to be inserted for securing the stationary member 2 of the vise to the stand or table 1.

Having fully described my invention, what I claim is,

A vise consisting of a stationary member 2, having a rectangular extension 4, ears 32 formed integrally with the said extension for securing the said member to a stand or bench, an opening 5 formed in the said extension, a depression 6 formed in the top of said opening, a ratchet-tooth-plate located within the said depression, an extension 9 formed with the bottom of the said extension 5, having projecting edges 10, a roller 11 journaled in said extension, two peripheral grooves 12 formed in the said roller, a movable member 13, having an extension 15, adapted to be received by the said opening 5, a hollowed out portion 16 formed therein, the lower edges of the sides thereof adapted to be received by the said grooves 12, an operating shaft 19 having screw-threads formed on one of its ends, a cam fixed to the said shaft and provided with rounded extensions 22, a movable ratchet tooth-block 18 adapted to be moved by said cam, and a screw-threaded collar adapted to be screwed upon the projecting end of said shaft for partially rotating said shaft, and moving said jaw 13 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM RATHBONE.

Witnesses:

C. F. KELLER,
ALFRED A. EICKS.