C. P. PERIOLAT.

VISE.

APPLICATION FILED JULY 11, 1912.

1,125,911.

Patented Jan. 19, 1915.

2 SHEETS—SHEET 1.

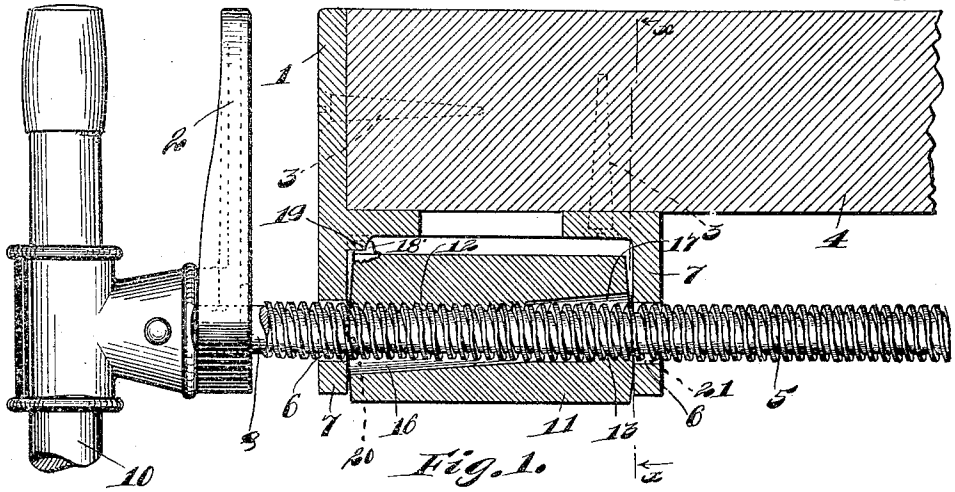


Fig. 1.

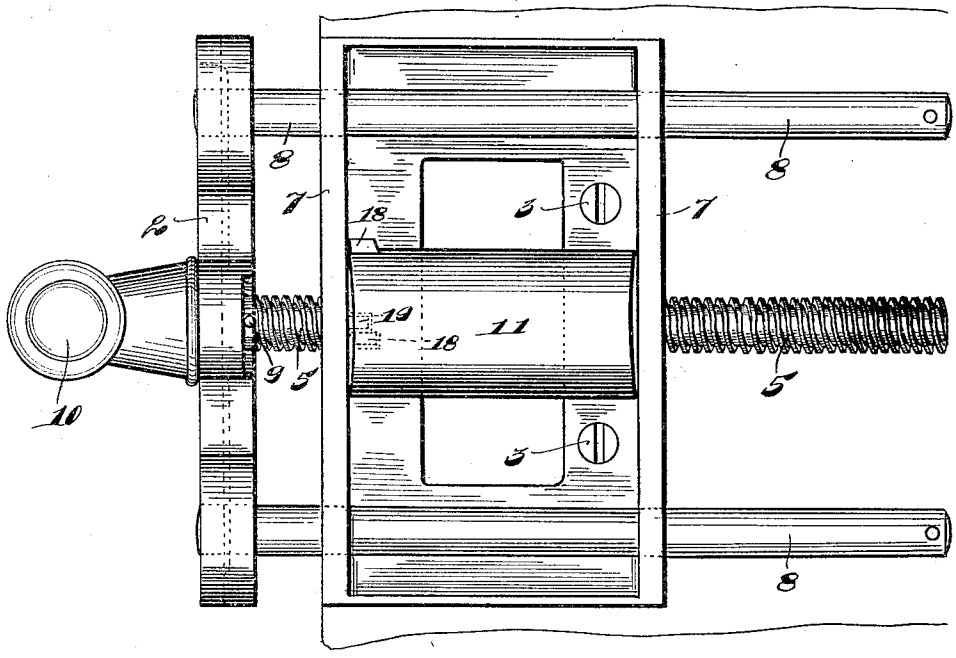


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

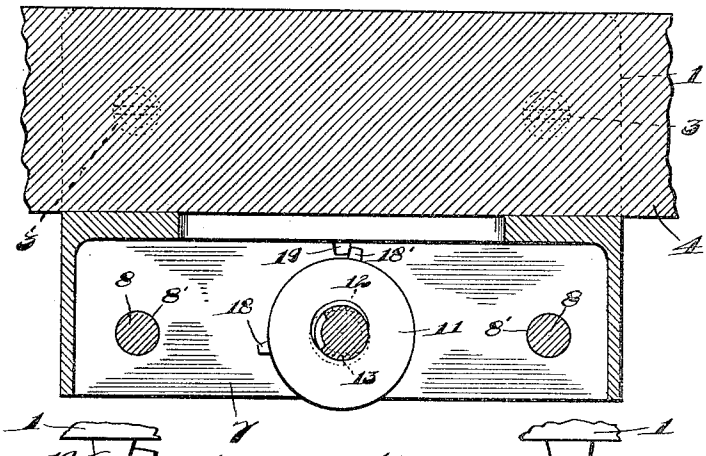


Fig. 4.

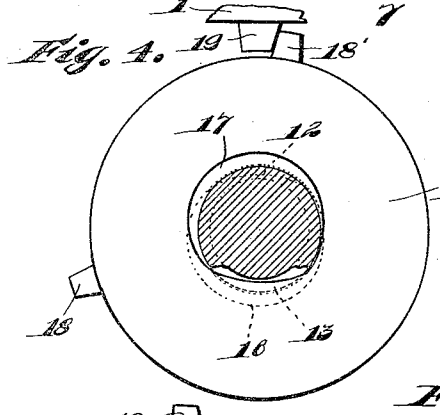


Fig. 5.

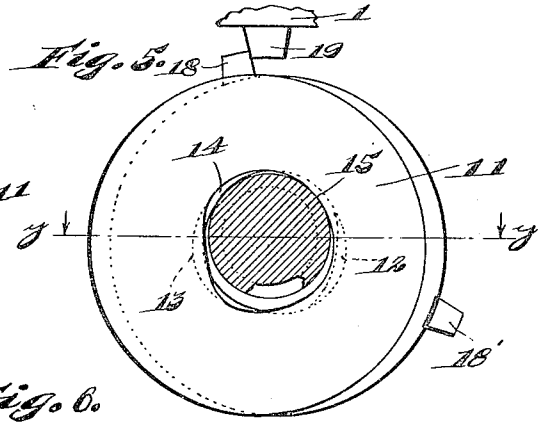
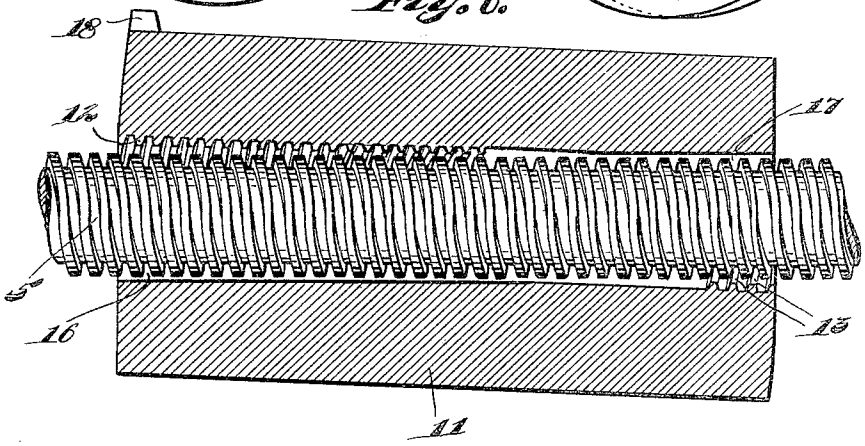


Fig. 6.



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UNITED STATES PATENT OFFICE.

CLARENCE P. PERIOLAT, OF CHICAGO, ILLINOIS.

VISE.

1,125,911. Specification of Letters Patent. Patented Jan. 19, 1915.

Application filed July 11, 1912. Serial No. 708,788.

To all whom it may concern:

Be it known that I, CLARENCE P. PERIOLAT, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to improvements in vises and has for its object the production of a vise in which, when in operation, the movable jaw will be locked for clamping operation, when the threaded feeding shank thereof is rotated in one direction, and in which the movable jaw will be free to move toward or from the stationary jaw when said shank of said movable jaw is rotated in the opposite direction.

A further object is the production of a vise which will be extremely simple and economical in construction and efficient in operation.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

My invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which,

Figure 1 is a vertical longitudinal section of a vise embodying my invention, Fig. 2 is a bottom plan view thereof, Fig. 3 is a section taken on line *x*—*x* of Fig. 1, Figs. 4 and 5 are enlarged views of the oscillatory nut of the device showing the same positioned respectively in operative and inoperative relations to the threads of the shank upon which the same is mounted, and Fig. 6 is a section taken on line *y*—*y* of Fig. 5.

The preferred form of construction as illustrated in the drawings comprises a relatively stationary jaw 1 and a relatively movable jaw 2, the latter, when the vise is in use being adapted to be moved toward and from the former as will be readily understood. The jaw 1 is rigidly secured by means of screws 3 to the bench top 4 or other support upon which it is desired to mount the same.

The movable jaw 2 is carried at the outer extremity of a threaded shank or screw 5, which is slidably mounted in co-axial perforations 6 provided in parallel flanges or bearing portions 7 depending from the base of jaw 1. Connected with the jaw 2 are also rearwardly projecting rods or pins 8, which slidably engage perforations 8′ provided in flanges 7, the members 8 serving, as will be understood, to maintain the jaw 2 in operative relation with the jaw 1 preventing relative rotation thereof. The front end of shank 5 is rotatably mounted in jaw 2, the latter being locked to said shank against relative longitudinal movement by means of a pin 9, passing through said shank which engages against the inner side of said jaw. Provided at the outer extremity of shank 5 is a conventional slidable handle 10 for effecting manipulation of the former.

Rockingly mounted upon the shank 5 between the flanges or bearing portions 7 is a nut 11, the arrangement being such, as will be observed, that such flanges will lock said nut against londitudinal movement. The interior of said nut is provided at opposite sides with screw threaded portions 12 and 13 adapted, when said nut is in one position, to engage the threads of shank 5 and so that, when the latter is rotated, the same will be fed longitudinally by reason of the engagement thereof with the threads of said nut. The interior of nut 11 is of irregular formation, the arrangement being such that, when said nut is rotated from operative position, that is from the position in which the threads thereof engage with those of shank 5, portions 14 and 15 of the interior surface of said nut will engage with the adjacent portions of the shank 5 so that the opposite ends of said nut will rock by gravity outwardly from the axis of the shank about an imaginary pivotal point extending transversely of the axis of the said nut to effect disengagement with threads 12 and 13 from those of the shank as clearly shown in Figs. 5 and 6, the interior of the nut opposite threads 12 and 13 being cut away at 16 and 17 respectively to permit of this movement of the nut.

The amplitude of the oscillation of the nut is governed by lugs 18 and 18′ provided at the periphery of one end of said nut adapted to engage with a stationary lug 19 provided upon the base portion of jaw 1, the arrangement being such, that, when lug 18′ is in engagement with stop 19, the nut will be in operative position relative to the shank, that is the threads 12 and 13 will be in engagement with the threads of said shaft, and when the lug 18 is in engagement with the stop 19, said nut will be in inoperative position, that is, the threads 12 and 13 of said nut will be positioned out of engagement with those of said shank. The ar-

rangement is such that it requires the rotation of said nut through but ninety degrees to effect the movement thereof from operative to inoperative position or vice versa. Furthermore, the construction is such, that this rotation of the nut is effected by frictional contact thereof with the shank 5 so that in the operation of the vise, when the shank 5 is positively rotated, the nut will be carried thereby, if the latter is in inoperative position, to operative position and when said shank is reversely rotated, said nut will be carried by said shank, if said nut is in operative position, to inoperative position. Thus a vise is produced which will be automatic in its operation conducing to ease and expedition in using the same.

The opposite ends of the nut 11 are beveled, as will be observed, forming vertices 20 and 21. The vertices are so arranged that, when the nut is in operative position, and the vise jaws in clamping relation, the incidental engagement of the forward end of the nut with the corresponding flange 7 will effect the pressing of the threads 12 into closer operative relation with the threads of the shank, this result being secured by reason of the position of the vertex 20 below the axis of the shank as will be readily understood. With this construction then, the greater the force applied to the handle 10 in effecting the clamping of an article between the edges of the clamp, the more positive and secure will be the engagement of the threads of the nut with those of the shank. Likewise, when the shank is reversely rotated to release the vise jaw 2, the incidental engagement of the opposite end of the nut with the adjacent flange 7 will cause the threads 13 to be moved out of engagement with those of the shank.

A vise of the construction set forth is durable and economical in construction, may be manufactured at a low cost and the same is of high efficiency in use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as fall within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a screw-adjusted device, a threaded shaft; a sleeve thereon tiltable about an axis transverse to the axis of the shaft, the said sleeve having a plurality of longitudinal bores crossing each other intermediate of the ends of the sleeve; one of said bores being threaded to match the thread upon the shaft, and the other of said bores being smooth and adapted to slide over the threads upon the shaft; a flange against which one end of the sleeve may angularly abut; and means for limiting the rotation of the sleeve.

2. In a screw-adjusted device, a threaded shaft, a sleeve thereon tiltable about an axis transverse to the axis of the shaft. the said sleeve having a plurality of longitudinal bores crossing each other intermediate of the ends of the sleeve, one of said bores being threaded to match the thread upon the shaft, and the other of said bores being smooth and adapted to slide over the threads upon the shaft; a flange against which one end of the sleeve may angularly abut, and a stop for limiting the rotation of the sleeve; the said stop serving to tilt the sleeve in one direction about its transverse axis when the sleeve impinges against the same.

3. In a screw-adjusted device, a threaded shaft; a sleeve thereon tiltable about an axis transverse to the axis of the shaft; the said sleeve having a plurality of longitudinal bores crossing each other intermediate of the ends of the sleeve, one of said bores being threaded to match the thread upon the shaft, and the other of said bores being smooth and adapted to slide over the threads upon the shaft; a flange against which one end of the sleeve man angularly abut, the angularity of the abutment between the sleeve and the flange serving to tilt the sleeve in one direction about its transverse axis when the sleeve is forcibly abutted against the flange.

4. In a screw-adjusted mechanism, a threaded shaft, a body member through which the shaft passes, a tiltable sleeve, upon said shaft, and a stop for limiting the rotation of the sleeve upon said shaft, the sleeve being adapted to impinge upon the said body member when moved in one direction; the sleeve being tilted in opposite directions by impinging respectively on the said body member and the said rotation-limiting stop.

5. In a screw-adjusted mechanism, a threaded shaft, a sleeve thereon tiltable about an axis transverse of the shaft, there being threads upon non-opposing sides of the bore of the sleeve, a member against which one end of the sleeve is adapted to abut, and means for resisting a motion of the shaft longitudinally with respect to the said member, the said threads being moved out of engagement with the shaft when the sleeve is tilted in one direction; the said resisting means coacting with the shaft and the said member to tilt the sleeve in the other direction, whereby the threads upon the sleeve will be intermeshingly engaged with the threads upon the shaft.

6. In a screw-actuated mechanism, a

threaded shaft, a sleeve thereon tiltable about an axis transverse of the shaft and adapted to be partially rotated by frictional engagement with the said shaft, there being threads upon the interior of the sleeve for intermeshing with the threads upon the shaft when the sleeve is tilted in one direction, and smooth interior portions permitting the shaft to slide longitudinally through the sleeve when the latter is tilted in the other direction; and a member against which the sleeve may abut, the said member coacting with the sleeve when thus abutted by the latter, to tilt the sleeve into thread-intermeshing engagement with the shaft.

7. In a screw actuated mechanism, a threaded shaft; a sleeve thereon tiltable about an axis transverse of the shaft and adapted to be partially rotated by frictional engagement with the said shaft, there being threads upon the interior of the sleeve for intermeshing with the threads upon the shaft when the sleeve is tilted in one direction, and smooth interior portions permitting the shaft to slide longitudinally through the sleeve when the latter is tilted in the other direction, and a stop against which the sleeve may impinge when partially rotated in one direction, the said stop coacting with the sleeve, when thus impinged by the latter, to tilt the sleeve into the position permitting the shaft to slide freely through the same.

8. In a screw-actuated mechanism, a threaded shaft, a sleeve thereon tiltable about an axis transverse of the shaft and adapted to be partially rotated by frictional engagement with the said shaft, there being threads upon the interior of the sleeve for intermeshing with the threads upon the shaft when the sleeve is tilted in one direction, and smooth interior portions permitting the shaft to slide longitudinally through the sleeve when the latter is tilted in the other direction, and a member against which the sleeve may abut, the said member coacting with the sleeve when thus abutted by the latter, to tilt the sleeve into thread-intermeshing engagement with the shaft, and a stop against which the sleeve may impinge when partially rotated in one direction; the said stop coacting with the sleeve, when thus impinged by the latter, to tilt the sleeve into the position permitting the shaft to slide freely through the same.

9. In a screw-actuated mechanism, a threaded shaft; a sleeve thereon tiltable about an axis transverse of the shaft and adapted to be partially rotated by frictional engagement with the said shaft, there being threads upon the interior of the sleeve for intermeshing with the threads upon the shaft when the sleeve is tilted in one direction, and smooth interior portions permitting the shaft to slide longitudinally through the sleeve when the latter is tilted in the other direction, and a member against which an end of the sleeve may angularly abut, the said parts coacting when thus abutted to tilt the sleeve into thread-intermeshing engagement with the shaft, the angularity of the said abutment serving to make the said thread-intermeshing more forcible as the sleeve is moved toward the said member by a partial rotation of the shaft.

10. In a screw-adjusted mehcanism, a threaded shaft, a sleeve thereon tiltable about an axis transverse of the shaft and having threads adapted to intermesh with the threads on the shaft when the sleeve is tilted in one direction, and a pair of stops for limiting the motion of the sleeve logitudinally of the shaft, one of the said stops being adapted to coact with the sleeve for tilting, the latter into thread-intermeshing engagement with the shaft.

11. In a screw-adjusted mechanism, a threaded shaft, a sleeve thereon tiltable about an axis transverse of the shaft and having threads adapted to intermesh with the threads on the shaft when the sleeve is tilted in one direction, and a pair of stops for respectively limiting the motion of the sleeve longitudinally and circumferentially of the shaft; said stops being adapted to coact with the sleeve for tilting the latter respectively into and out of thread-intermeshing engagement with the shaft.

12. In a vise or the like, a fixed and a movable member, a screw-shaft for moving the latter relatively to the former, a sleeve upon the shaft tiltable about an axis transverse of the shaft and having threads adapted to intermesh with the threads on the shaft when the sleeve is tilted in one direction, the sleeve being adapted to abut at one end against the said fixed member, the said sleeve and fixed member coacting, when thus abutted, to tilt the sleeve into thread-intermeshing engagement with the shaft.

13. A screw-shaft, a sleeve thereon adapted to be oscillated relatively thereto on an axis perpendicular to the axis of said shaft, the bore of said sleeve laterally enlarged at its ends and equipped with threads at opposite sides and ends adapted to be thrown into and out of mesh with the threads of the screw-shaft, a part through which the shaft passes, and against which one end of said sleeve is adapted to abut, the latter and said part arranged to coactively turn said sleeve on its axis of oscillation to throw the threads into mesh with the threads of said shaft.

14. In a device of the class described, a fixed member, another member slidably mounted thereon and a screw-shaft therebetween, a tiltable nut upon said shaft, non-continuous portions of the thread of said

nut being cut away to form portions of a smooth bore angularly disposed to the axis of the thread of the nut; the said screw-shaft being adapted when partially rotated in one direction to impart a limited rotary motion to the nut, the said nut coacting with the said fixed member when thus partially rotated, to tilt the threaded portions of the nut out of engagement with the screw-shaft, the screw-shaft being adapted when rotated in the other direction to impart a limited longitudinal motion to the nut, the nut coacting with the fixed member when thus longitudinally moved, to tilt the threaded portions of the nut into intermeshing engagement with the threads on the screw-shaft.

15. In a bench-vise or the like, the combination with a rigid part, a movable part, a screw-shaft for imparting movement to the latter relatively to the former, there being an opening in said rigid part through which said shaft is freely longitudinally movable, of a sleeve on said shaft having internal threads at opposite sides and ends disposed about a common axis, and having its openings laterally enlarged opposite each set of threads, said sleeve adapted to be oscillated on an axis perpendicular to the axis of said threads to throw the latter into and out of mesh with the threads of said screw-shaft, the latter freely longitudinally movable through said sleeve when said threads are out of mesh with the threads of said shaft, said sleeve and said movable member disposed on opposite sides of said rigid member and said sleeve adapted when moved to engage the latter to be turned on its axis of oscillation to throw its threads into mesh with the threads of said shaft.

16. A vise comprising a stationary jaw; a movable jaw; a slidably mounted threaded shank carrying said movable jaw; a nut rotatably mounted on said shank but locked against relative longitudinal movement, said nut having threads at opposite sides of the interior thereof adapted when said nut is in one position to engage the threads of said shank to effect longitudinal feeding of said shank when rotated, and adapted, when said nut is in another position, to disengage said threads of said shank to permit of free longitudinal sliding of the latter, said nut being rotated into and out of operative relation with said shank threads through frictional contact with said shank, substantially as described.

17. A vise comprising a stationary jaw; a movable jaw; a slidably mounted threaded shank carrying said movable jaw; and a nut mounted on said shank, locked against longitudinal movement and having threads adapted when said nut is in one position to engage the threads of said shank to effect longitudinal feeding of said shank when rotated, and adapted, when said nut is rotated from this position, to rock by gravity about an imaginary pivot extending transversely of the longitudinal axis of the said nut to effect disengagement of said threads of said nut from those of said shank, substantially as described.

18. A vise comprising a stationary jaw; a movable jaw; a slidably mounted threaded shank carrying said movable jaw; and a nut mounted upon said shank, locked against longitudinal movement and having threads at opposite sides of the interior thereof adapted, when said nut is in one position to engage the threads of said shank to effect longitudinal feeding of said shank when rotated, and adapted, when said nut is rotated from this position, to rock by gravity about an imaginary pivot extending transversely of the axis of said nut, to effect disengagement of said threads of said nut from those of said shank, substantially as described.

19. A vise comprising a stationary jaw; a movable jaw; two stationary spaced depending bearing portions; a threaded shank carrying said movable jaw slidably mounted in openings provided in said bearing portions; and a nut rotatably mounted upon said shank arranged between said bearing portions and held thereby against relative longitudinal movement, said nut having threads adapted, when said nut is in one position to engage the threads of said shank to effect longitudinal feeding of said shank when rotated, and adapted, when said nut is in another position, to disengage said threads of said shank to permit of free longitudinal sliding of the latter, said nut being rotated into and out of operative relation with said shank threads through frictional contact with said shank, engagement of one extremity of said nut with one of said bearing portions, when said nut is in operative position, serving to press said threads of said nut into engagement with those of said shank, when the vise jaws are in clamping operation, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE P. PERIOLAT.

Witnesses:
JOSHUA R. H. POTTS,
ARTHUR A. OLSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."