(No Model.)

J. O. JOYCE.

VISE.

No. 349,280. Patented Sept. 14, 1886.

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Fig. 1

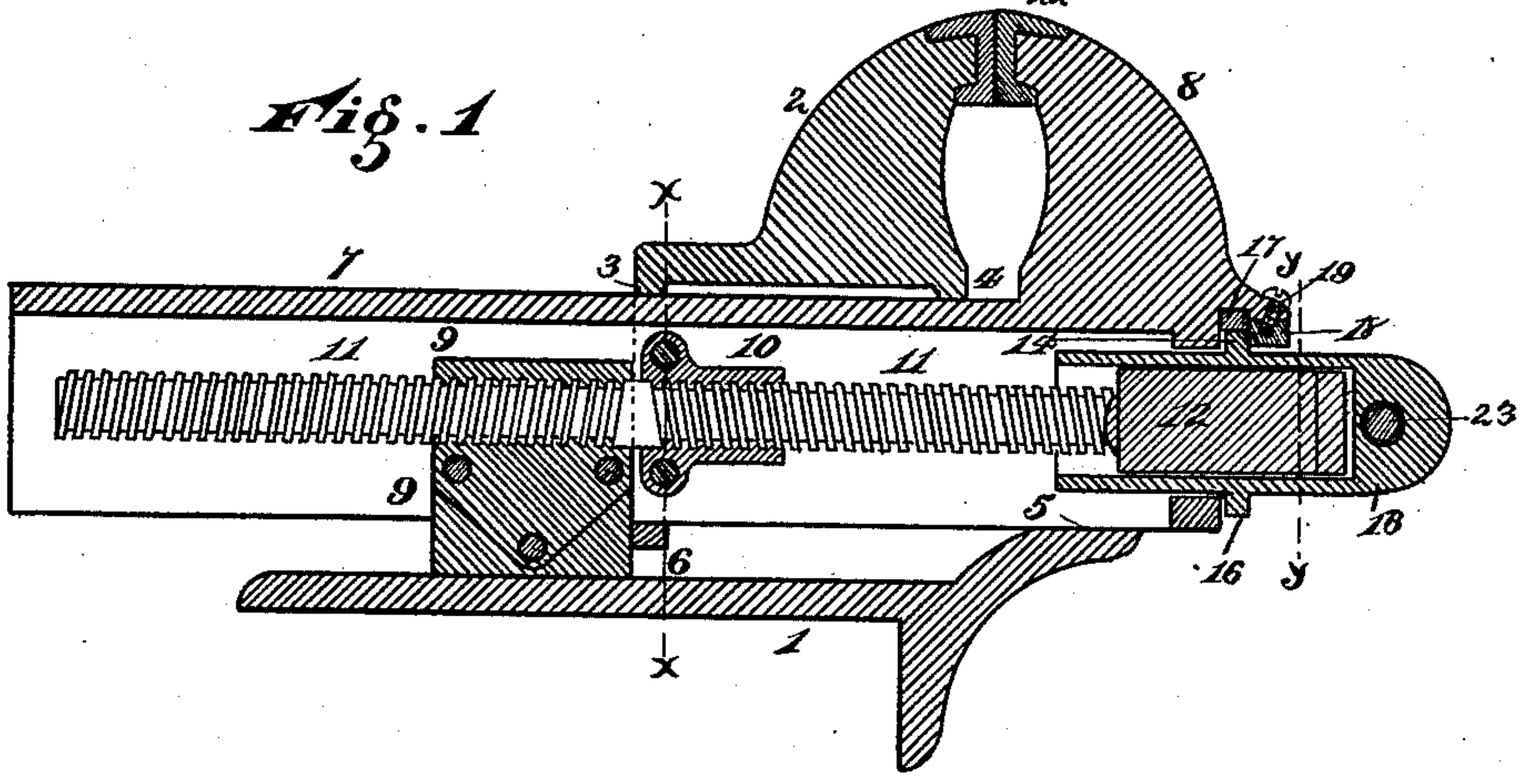


Fig. 2.

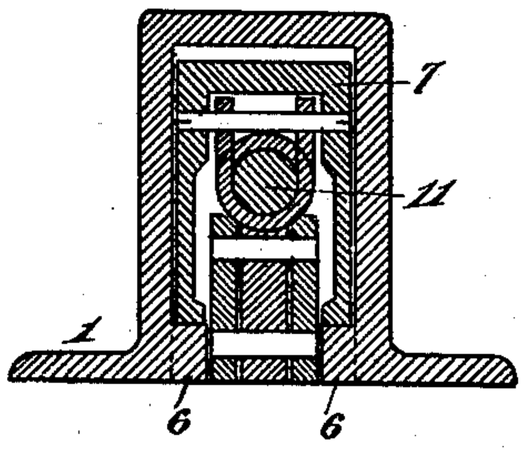
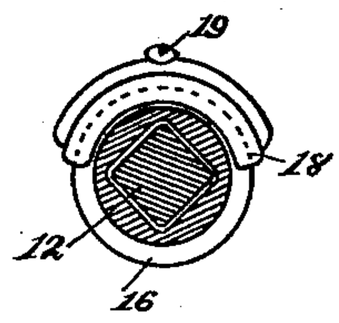


Fig. 3.



Attest

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UNITED STATES PATENT OFFICE.

JACOB O. JOYCE, OF DAYTON, OHIO.

VISE.

SPECIFICATION forming part of Letters Patent No. 349,280, dated September 14, 1886.

Application filed June 25, 1886. Serial No. 206,252. (No model.)

To all whom it may concern:

Be it known that I, JACOB O. JOYCE, a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to a vise which is adapted to be rigidly attached to a bench or support.

The object of my invention is to provide a rapid motion for moving the sliding jaw to open and close the device.

The invention also relates to a new method of constructing the parts, so as to cheapen the cost of construction and render them efficient and durable, all of which will be set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal central section of my improvement. Fig. 2 is a section on line *x x*, Fig. 1. Fig. 3 is a section on line *y y*, Fig. 1.

1 represents the base of the vise, which is rigidly attached to a bench or block.

2 represents the stationary jaw, which is rigidly attached to the base, so as to form a shell or opening, with bearings 3 4 5 6 at the front and rear end of the shell, to support the movable-jaw arm 7.

8 represents the movable jaw.

The arm 7 is preferably made of shell form, as shown in cross-section, Fig. 2.

It rests at the rear end upon bearing-lugs 6, and upon front bearing, 5. Within the shell is secured a stationary nut, 9, which is rigidly secured to the base 1, and provided with, say, left-hand screw-threads.

10 represents a nut rigidly attached to the movable-jaw arm 7, and provided with screw-threads running in the opposite direction from those in nut 9.

11 represents the screw-rod, provided with threads engaging with those in nuts 9 and 10. The forward end of screw-rod 11 is rigidly secured to a guide-head, 12.

13 represents a cylindrical socket journaling in bearing 14, pierced in the outer end of the jaw-arm. This socket is provided with a guideway or bore, 15, in which fits and slides the head 12.

16 represents an annular flange cast upon the barrel of the socket 13. It engages with a semicircular groove, 17, formed in the outer end of the jaw-arm, under the base of jaw 8.

In order that the guide 16 and the screw 12 may be readily removed and inserted, I provide a detachable segmental flange, 18, which fits in a bearing formed in the base of jaw 8, and is held in position by a set-screw, 19. By detaching the screw 19 segment 18 is removed, and the head 13 taken out without removing the jaw-arm.

22 represents lips for facing the jaws, which may be of any desired form and configuration.

23 represents a hole pierced through the cylindrical head, by means of which the screw-rod 11 is turned. As this rod is revolved, the movable jaw is driven outward or in, the nut 10 traveling with the jaw and multiplying and increasing the rapidity of the movement. The head 12 slides back and forth in its guideway, so as to permit action of the screw-rod.

The object of the collar 16 and the groove 14 in the journals is simply to pull the cylinder 13 out and in with the travel of the movable jaw. The friction and draft-strain is all borne by the nuts 9 and 10. This is an improvement over the form of vises in which the pressure is imparted to the movable jaw through a flange or collar, as the friction is lessened and the leverage increased by the use of screws in the manner herein specified.

Having described my invention, what I claim as new is—

1. The combination, in a vise, of the stationary jaw 2, having the rigidly-attached nut 9, the movable jaw 8, having its arm 7 provided with the rigidly-attached nut 10, the cylinder 13, having an angular socket and journaled to rotate in the outer end of the movable jaw, and loosely engaging the same to move therewith, and the right-and-left-hand screw-rods engaging the nuts, and having an angular head, 12, which slides in the cylinder as the movable jaw is adjusted, substantially as described.

2. The combination of the stationary and movable jaws, the nuts, the cylinder journaled to rotate in the outer end of the movable jaw and movable therewith, and provided with an angular socket, and the right-and-left-hand screw-rod having an angular head, 12, which slides longitudinally in the socket of the cylinder as the movable jaw is adjusted, substantially as described.

In testimony whereof I have hereunto set my hand.

JACOB O. JOYCE.

Witnesses:
JOHN L. H. FRANK,
F. I. JOYCE.