(No Model.)

J. W. CHENEY.

VISE.

No. 389,199. Patented Sept. 11, 1888.

Fig. 1.

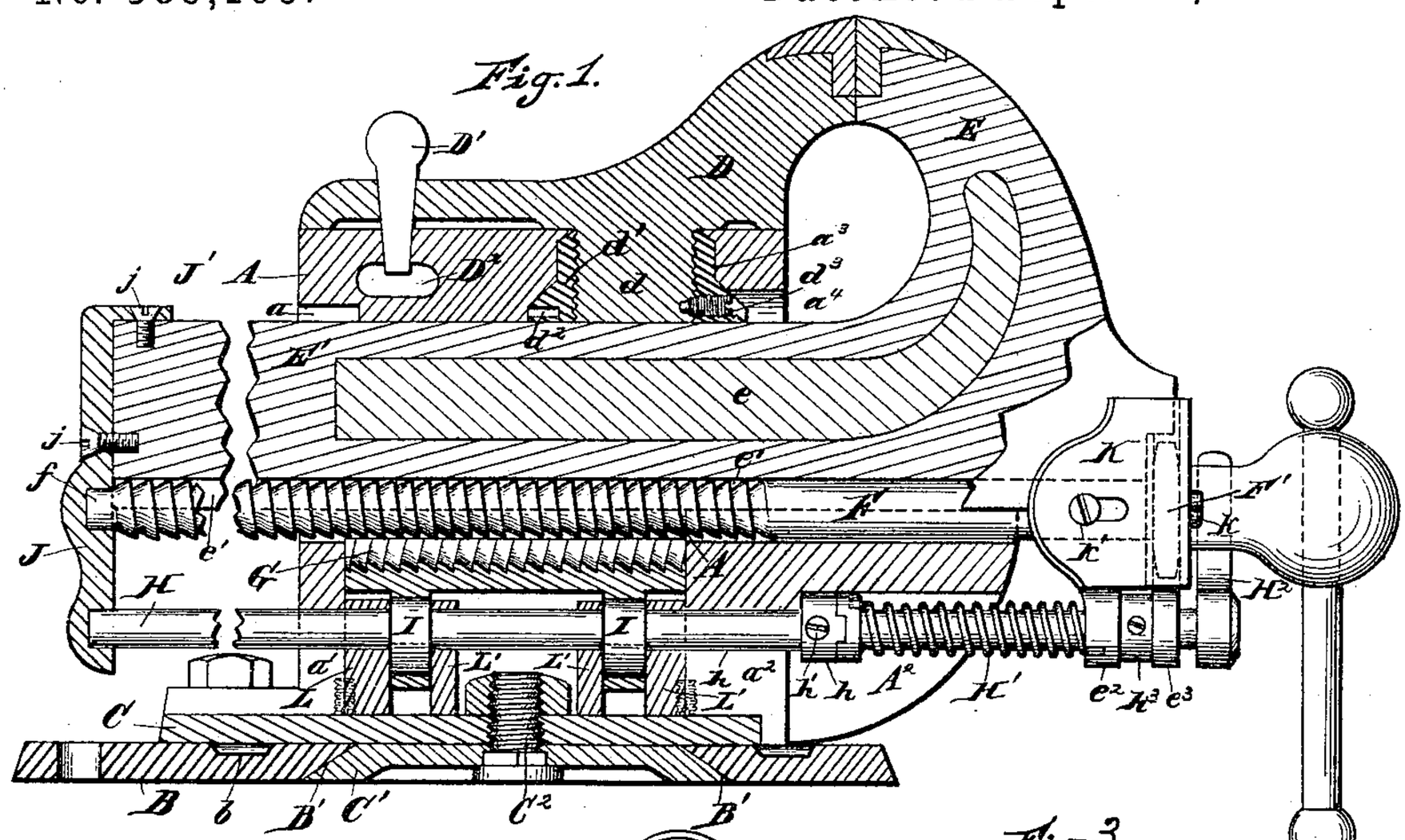


Fig. 2.

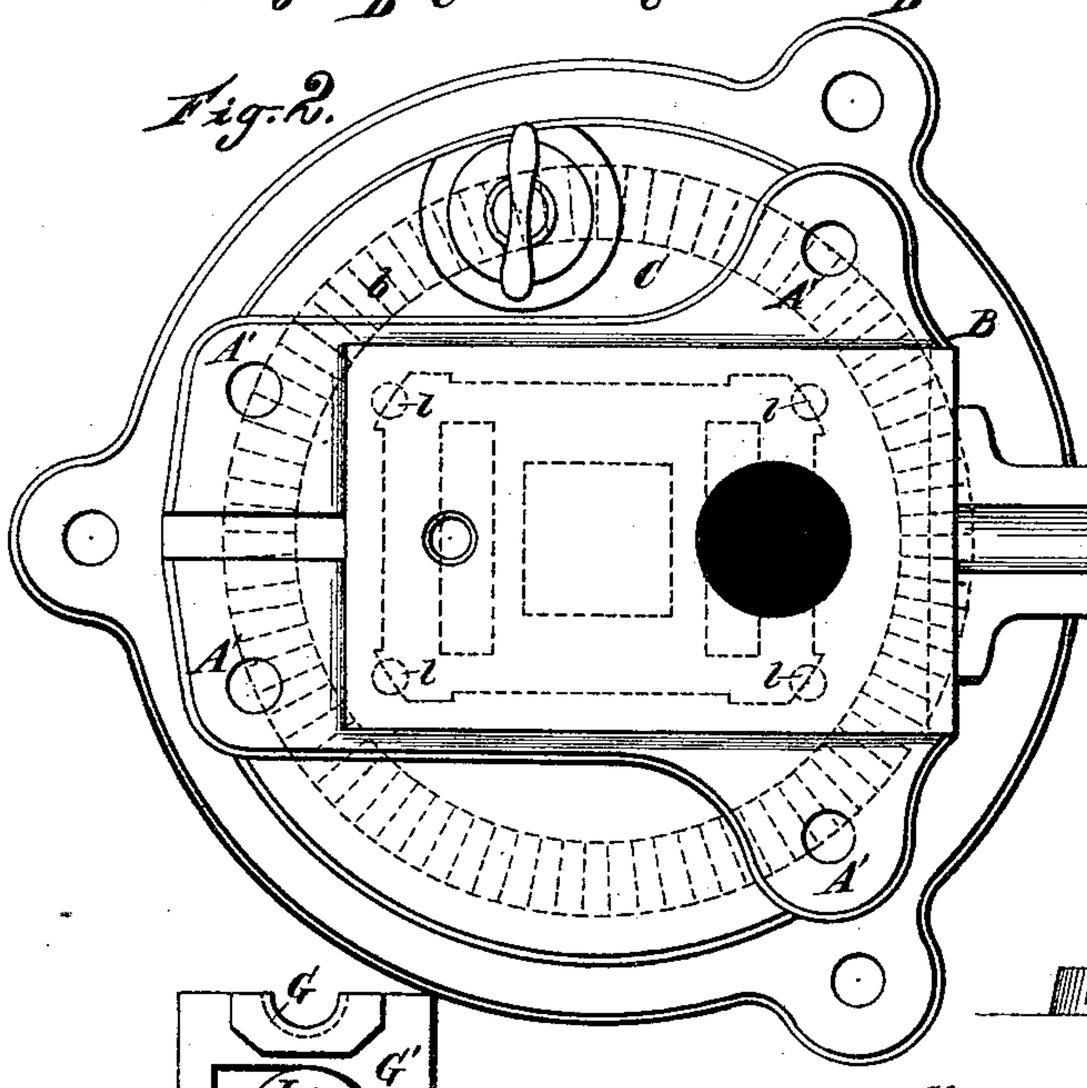


Fig. 3.

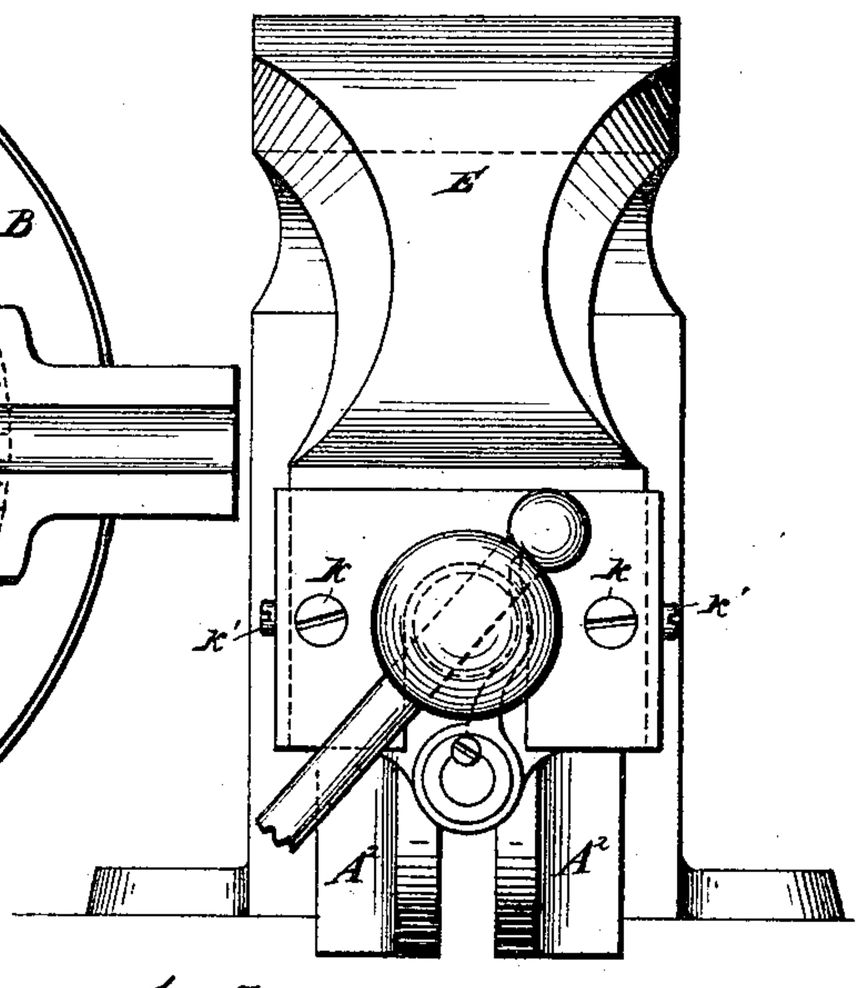


Fig. 4.

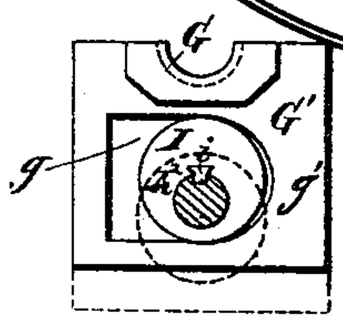


Fig. 6.

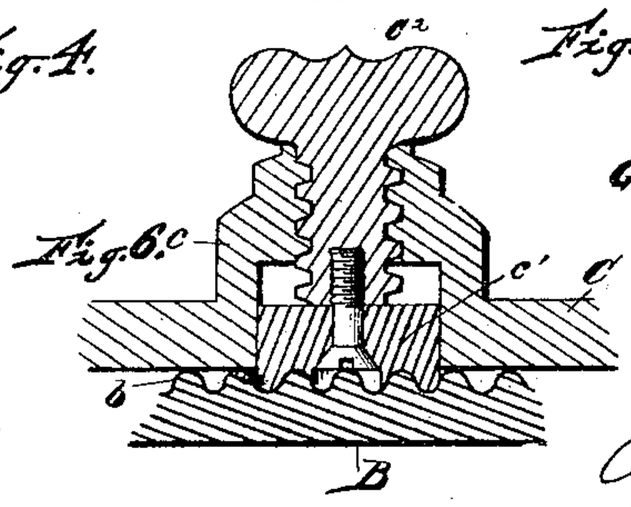
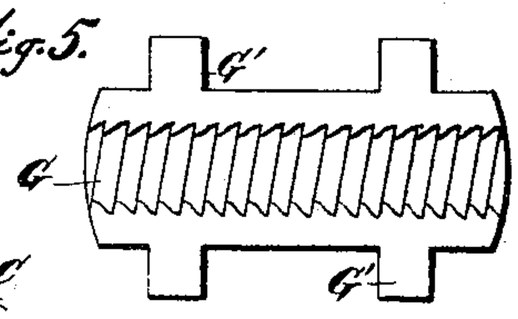


Fig. 5.



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JAMES W. CHENEY, OF DETROIT, MICHIGAN.

VISE.

SPECIFICATION forming part of Letters Patent No. 389,199, dated September 11, 1888.

Application filed August 30, 1887. Serial No. 248,297. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. CHENEY, of Detroit, county of Wayne, and State of Michigan, have invented a new and useful Improvement in Vises; and I declare the following to be a full, clear, and exact description thereof, such as will enable others skilled in the art to which my invention pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a longitudinal sectional view of a vise, illustrating my invention. Fig. 2 is a plan view of the same with the reciprocating jaw removed. Fig. 3 is an end elevation of my improved vise. Fig. 4 is an end elevation of the segmental nut, showing the relation of the operating-cams thereto. Fig. 5 is a plan view of the segmental nut. Fig. 6 shows the thumb screw mechanism for setting the body of the vise at any angle the operator may desire.

This invention relates more particularly to that class of vises known as "quick-action" vises, in which the jaw may be instantly moved forward and back by a sliding motion and then set upon its work between the jaws by the vise screw.

The invention consists in the construction and combination of parts hereinafter claimed.

In carrying out my invention, A represents the vise-body; B, a base, which may or may not be employed for the body. A may, if desired, be fastened, by bolts passing through the projections A′, directly to a bench. If the base B is employed, I provide an intermediate plate, C, to which the vise-body is attached, and I connect this plate with the base B by a circular beveled disk, C′, and a pivot-screw, C^2. This construction admits of the vise-body being turned upon the base B to any desired angle. The base is provided with corrugations *b* and a thumb-screw, c^2, passing down through the plate C, serves to fix the vise-body at any desired position to which it may be adjusted. Instead of setting the screw directly into the corrugations, I prefer, as shown in Fig. 6, to swivel the screw to a corrugated block, *c′*, which rises within the housing *c*. This block has corresponding serrations on its lower surface, and may be set into very firm engagement with the serrations *b* on the base-plate.

D is the jaw upon the vise-body, which I term the "stationary" jaw, in contradistinction to the sliding jaw E. The stationary jaw may be rigid with the vise-body, or it may be provided with a vertical pivot, *d*, about which it may be rotated to conform to beveled or uneven work between the jaws. The lower end of this pivot is provided with a conical bearing nut or ring, *d′*, which is seated within a corresponding opening, a^3, in the vise-body. The said conical nut is provided with notches d^2, and a^4 is a passage from the exterior, through which a suitable tool may be inserted into the notches for tightening up the said conical nut to take up any lost motion.

d^3 is a screw for setting the same in place when once adjusted. The stationary jaw has a rearwardly-projecting portion, and is provided with a tapered orifice corresponding with a continuation beneath in the vise-body, into which a tapered pin, D′, may be inserted to hold the stationary jaw in its normal position parallel with the face of the sliding jaw. A lateral passage, D^2, is provided in the vise-body, through which a wedge may be introduced beneath the end of this pin to force it out should it become fastened by rust or otherwise.

The sliding jaw E is constructed to bear along its upper edge firmly against the vise-body throughout the entire length of the vise-body.

F is the vise screw. A semicircular groove is provided along the lower surface of the sliding jaw for the reception of this screw. It comes down nearly midway upon the sides of the screw, so as to give to the segmental nut a full semicircular engagement with the screw-threads of the vise-screw, and yet the resistance of the nut against the vise-screw is sustained by the bearing which the said screw has along the bottom of the sliding jaw.

G is the segmental nut. It has yokes *g* projecting downward therefrom, as shown in Figs. 4 and 5.

H is an operating-rod, upon which are cams I loosely engaged therewith by a spline and groove or similar engagement, whereby they must needs turn with the rod; but the rod may

slide freely in a longitudinal direction through the cams.

L is a block. It is adapted to receive and sustain the operating cam-rod H. It also serves to retain the cams I in position within the yokes *g* of the segmental nut. It is therefore apparent that the segmental nut, with its yokes and their cams, having been placed within the said block L, the cam-rod H may be passed longitudinally through the bearing in the said block and the said cams, thus fixing the cams, the segmental nut, the block, and the cam-rod all in their proper relation to each other before introducing them into the vise-body.

The vise-body is cored out to receive the block L, and there are cored channels a' a^2, which likewise open out beneath the vise-body, so that when the segmental nut, the bearing-block, cams, and rod are put together they may be lifted up bodily into their proper place within the vise-body, after which the ends of the cam-rod and the vise-screw may be properly engaged with the end plate, J, at one end of the sliding jaw and their housings at the other end of the sliding jaw. It is apparent, however, that when these parts are thus brought up into the vise-body the threads on the segmental nut may bind more or less upon the threads of the vise-screw. I therefore make the bearing-block L so that it may be slightly rotated in a horizontal plane. This enables the same to be slightly adjusted, so as to cause the threads of the segmental nut and the threads of the vise-screw to engage each other easily and properly without binding. This adjustment is effected as follows: The block L and its seat within the vise-body are rounded at their corners, as shown by the dotted lines in Fig. 2. This rounding is upon the arc of a circle, so that the block may be turned slightly about a vertical axis corresponding with the center of the said circle. When this slight adjustment is effected, suitable openings are drilled and tapped and set-screws *l* are run in, which hold the said block and vise-body in proper relation with each other.

K is a yoke on the front end of the sliding jaw. It is passed over the front end of the jaw and engages with the flange F′ on the vise-screw. This yoke is provided with apertures for the passage of adjusting-screws *k*, which are tapped into the front end of the vise-jaw E and serve to adjust the yoke in close engagement with the flange F′, and so compensate for any wear thereon and lost motion that may thereby arise between the jaw and the screw. This causes the jaw to answer readily to the slightest turn of the vise-screw. The cam-rod H is provided with a spring, H′, arranged to hold the segmental nut into engagement with the vise-screw. It is also provided with a handle, H^2, closely adjacent to the handle of the vise-screw. By this means the operator wishing to use the vise may by turning the handle H^2 release the segmental nut from engagement with the vise-screw. He may then while he holds it thus engaged freely move the sliding jaw in or out to accommodate the work in hand, and when the jaws are properly adjusted upon the work he releases the handle H^2. The spring H′, by turning the cam-rod back to its normal position, forces the segmental nut again into engagement with the vise-screw, and he then sets the jaws against the work in the usual way by turning the handle of the vise-jaw.

The cams I are so adjusted upon the rod that when the handle H^2 is in its normal position with the nut engaged with the vise-screw then rotated past the center, so that the resistance of the vise-screw against the segmental nut will have no tendency to turn the said cams backward.

A^2 represents brackets cast on the vise-body to assist in sustaining the sliding jaw. The yokes upon the segmental nut are formed by removing or coring away at *g′* from the projections G′.

What I claim is—

1. The combination, with a long segmental nut and a cam-rod, H, of two cams, I, one adjacent to each end of the nut, and a bearing-block, L, constructed to form a bearing for said rod closely adjacent to both sides of both said cams, substantially as described.

2. The vise-body cored out beneath for the reception of the bearing-block L, and having cored channels a' a^2 opening downward for the reception of the cam-rod, and in combination therewith the segmental nut, the operating-cams, the bearing-block, and the cam-rod, the construction being such that said nut, cams, block, and rod may be put together and subsequently raised into place in the body of the vise, substantially as and for the purposes described.

3. The combination, with the vise-screw, of a segmental nut-operating-cams, cam-rod, and bearing-block, said bearing-block formed with respect to the vise-body to admit of a slight horizontal rotation, whereby the threads of the segmental nut may be adjusted into free and easy engagement with the vise-screw without binding, substantially as described.

4. In a vise, the combination, with the sliding jaw, of a non-reciprocating jaw provided with a downward-projecting pin or stud threaded to engage a nut or ring, said nut or ring fitted within a recess in the body of the vise, and means for adjusting and retaining said nut and ring in position upon the said pin or stud, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JAMES W. CHENEY.

Witnesses:
M. B. O'DOGHERTY,
JOHN E. WILES.