

(Model.)

2 Sheets—Sheet 1.

W. H. NORTHALL.

BENCH VISE.

No. 332,209.

Patented Dec. 8, 1885.

Fig. 1

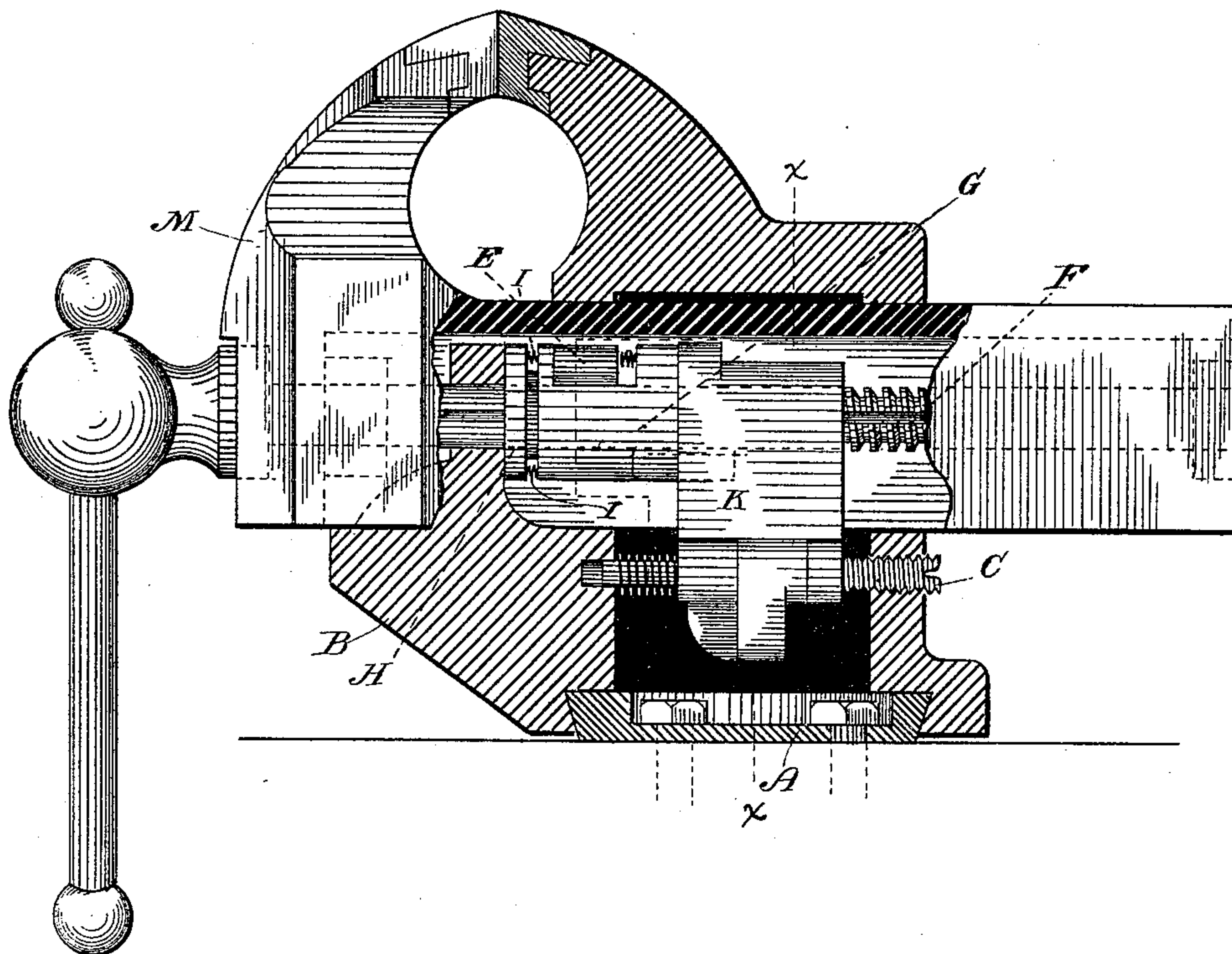
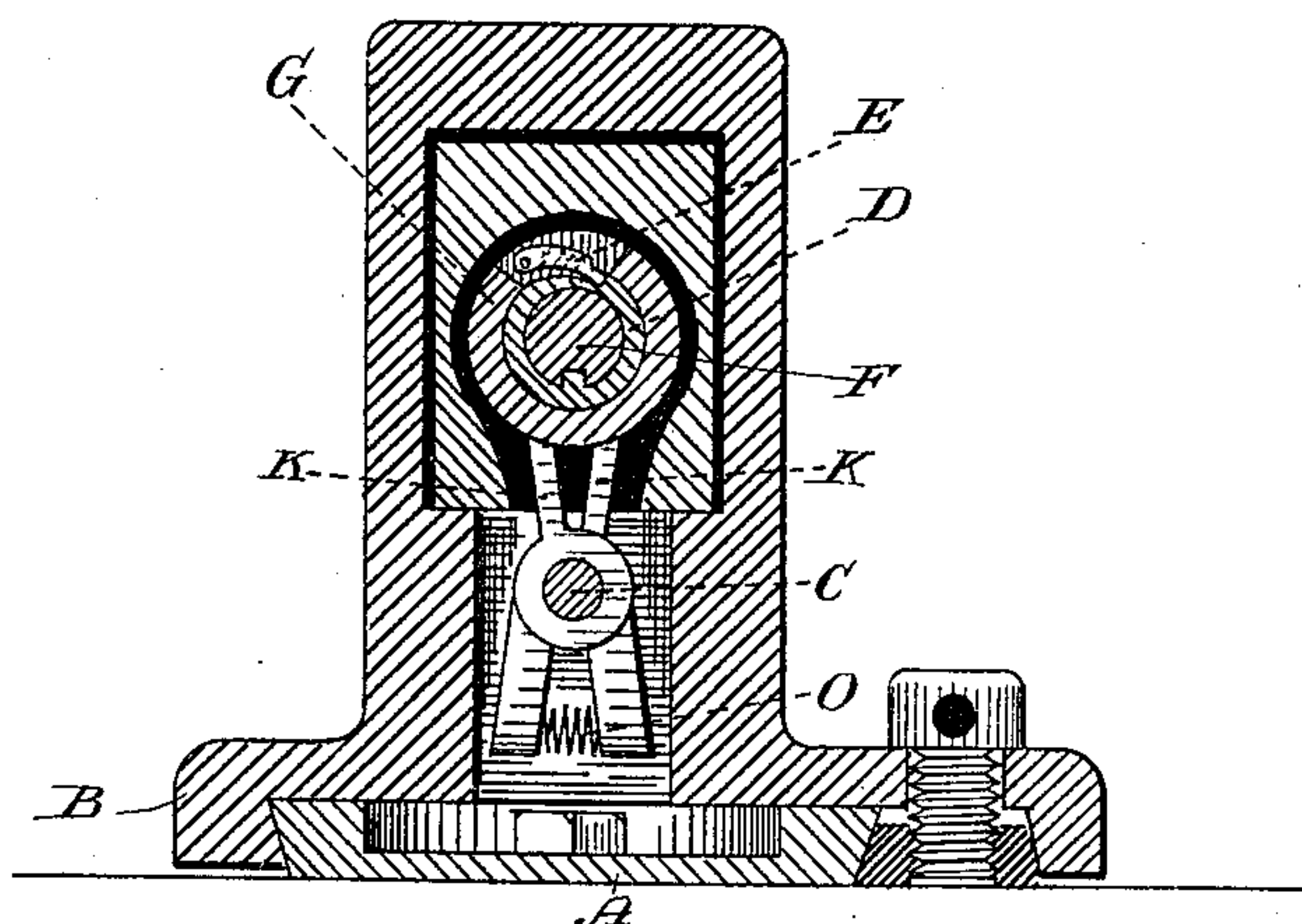


Fig 2



Witnesses.
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(Model.)

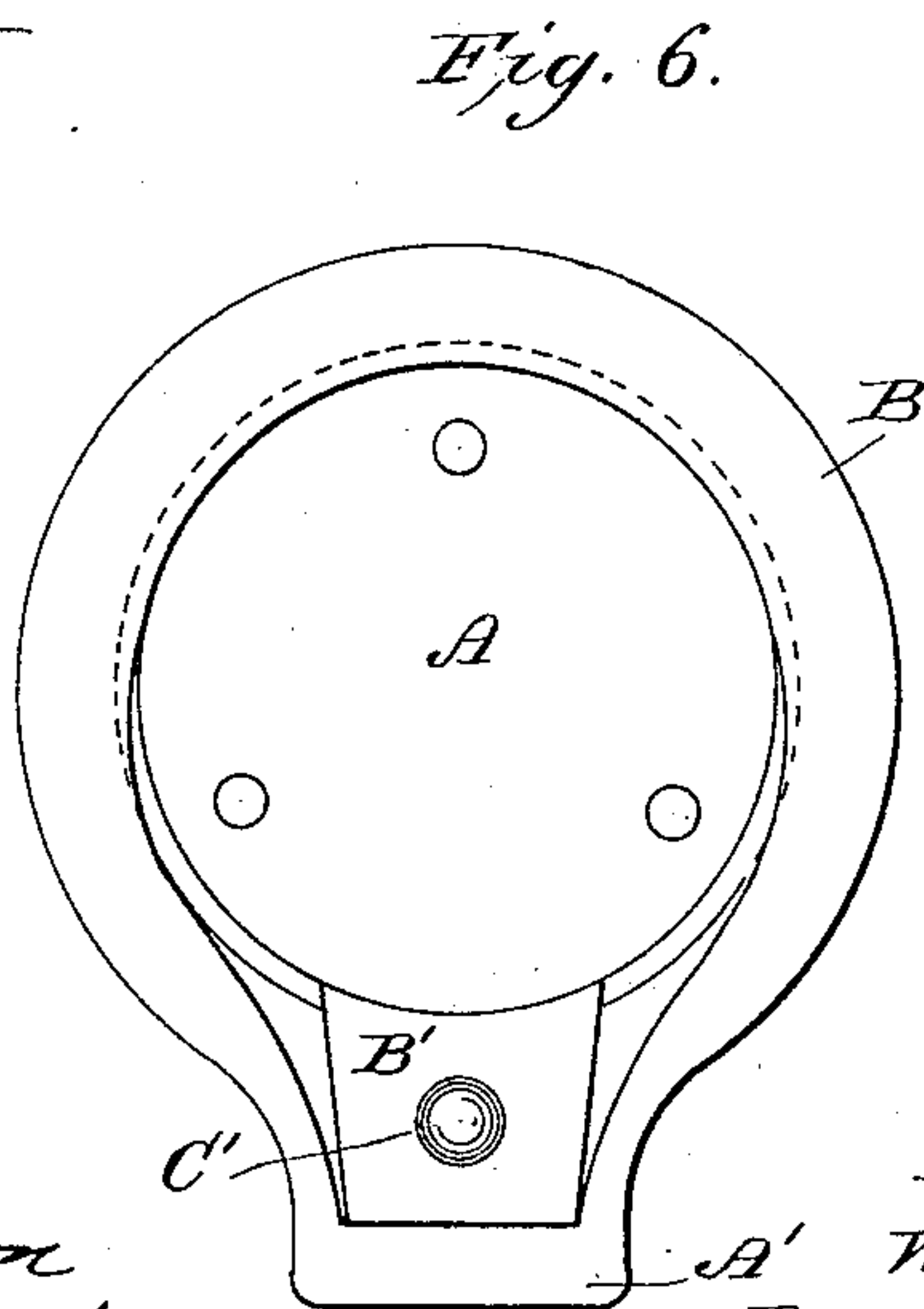
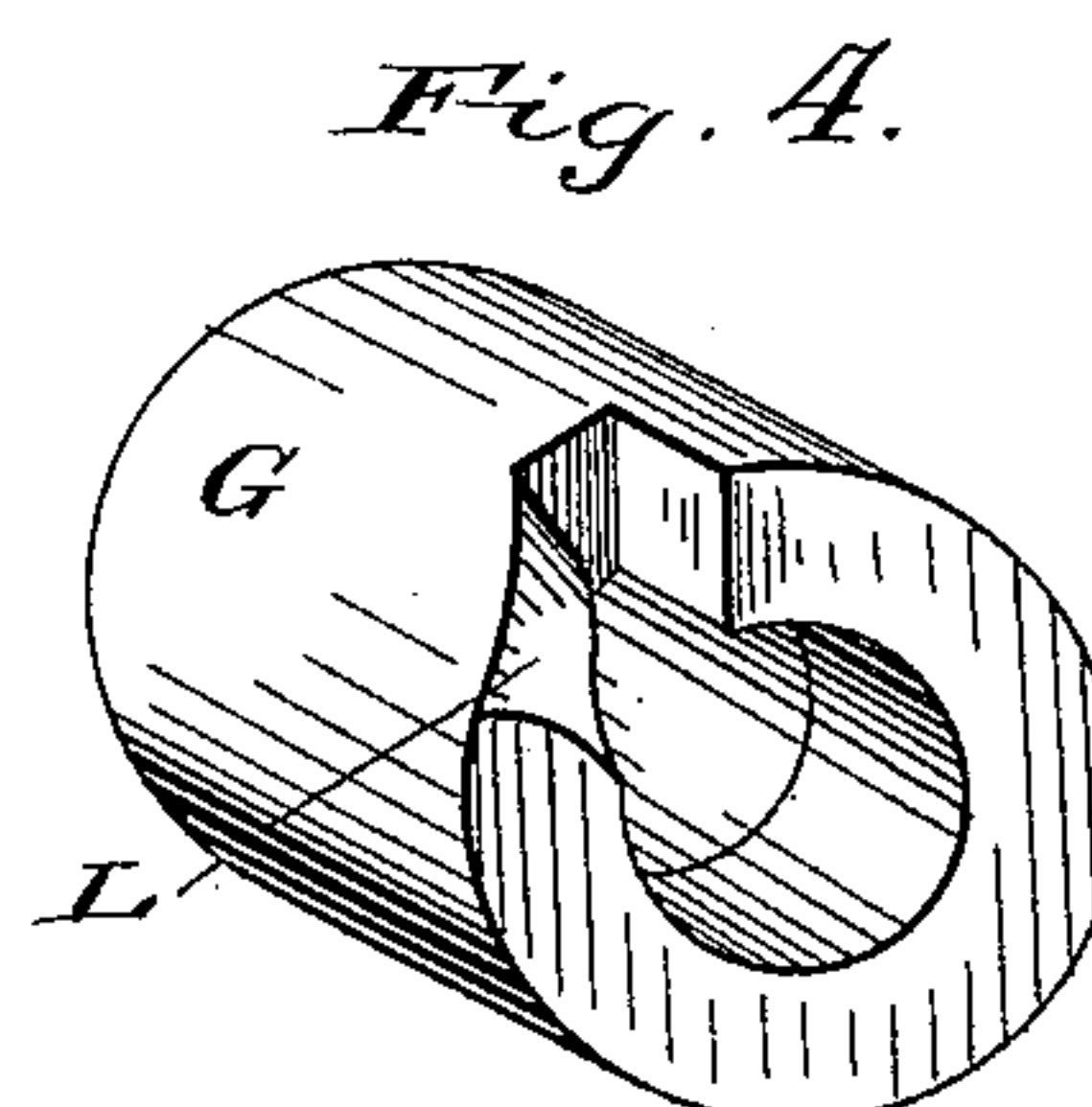
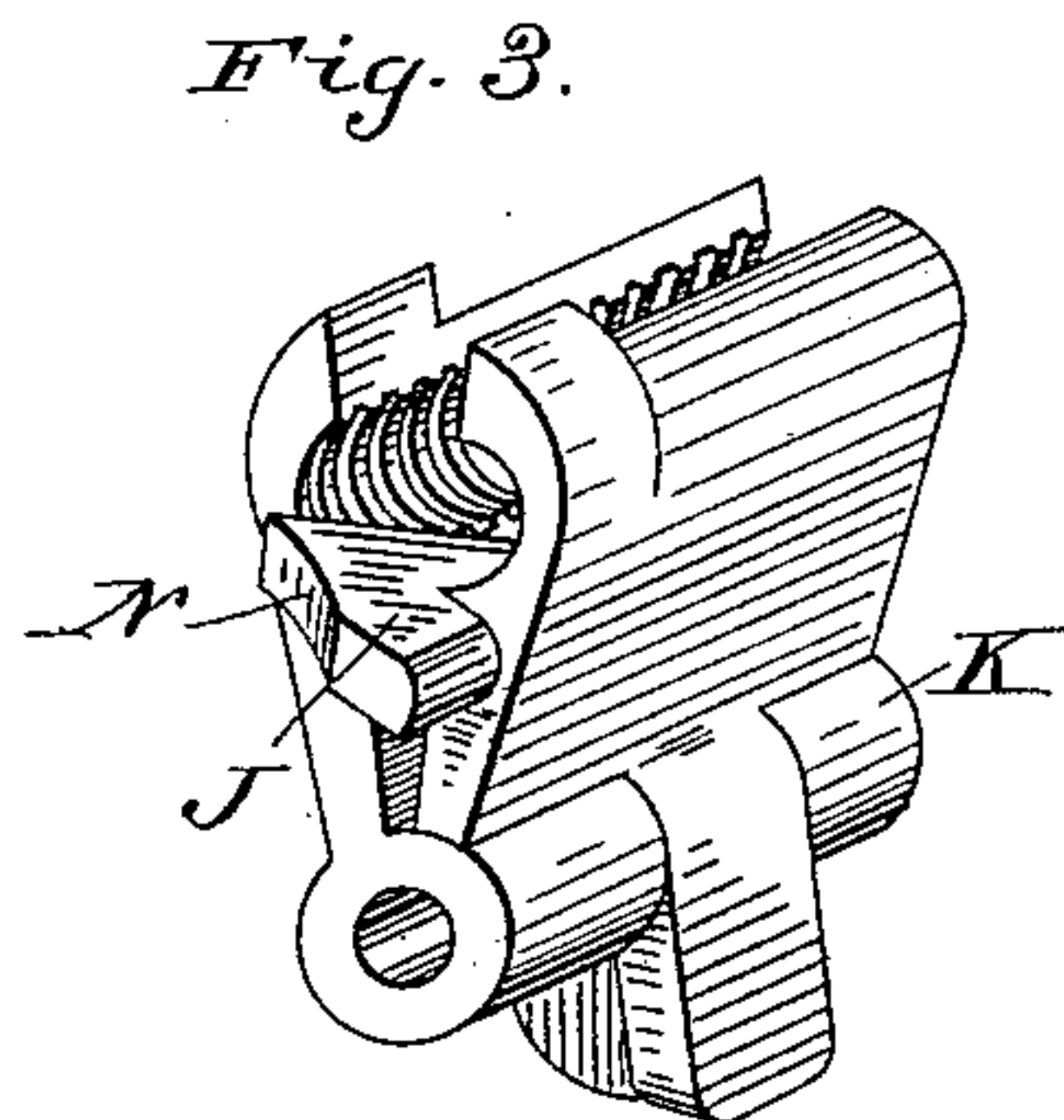
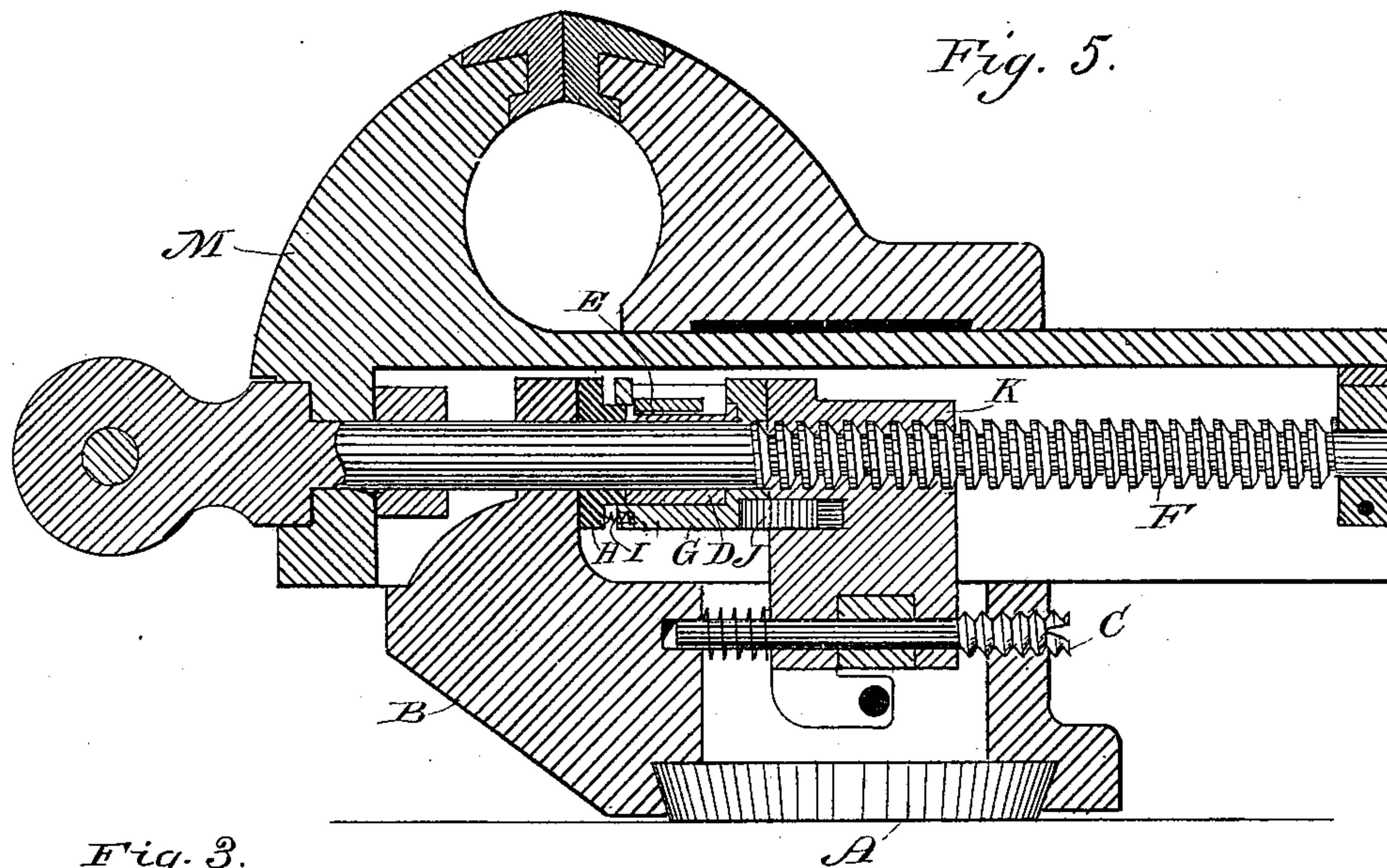
2 Sheets—Sheet 2.

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BENCH VISE.

No. 332,209.

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UNITED STATES PATENT OFFICE.

WILLIAM H. NORTHALL, OF BRIDGEPORT, CONNECTICUT.

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 332,209, dated December 8, 1885.

Application filed February 29, 1884. Serial No. 122,434. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM H. NORTHALL, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Bench-Vises; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in bench-vises; and it has for its object to improve on the construction and operation of the vise shown and described in my Patent No. 293,225, dated May 6, 1884.

My invention consists in the details of construction and combination of elements herein after fully and in detail explained, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand its construction and operation, I will proceed to describe the same in detail, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central longitudinal section taken through the stationary jaw and body, and showing the internal mechanism in side elevation; Fig. 2, a section taken at the line $x x$; Fig. 3, a detail perspective of the nut, showing the jaws of the same distended by the wedge. Fig. 4 is a detail perspective view of the outside collar, showing the inclined recess. Fig. 5 is a central longitudinal section of the jaw and internal mechanism, and Fig. 6 is a bottom view illustrating the manner in which the vise-body is secured to the plate.

Similar letters denote like parts in the several figures.

It is not deemed necessary to enter into any detail description of the general construction and peculiar method of operation of my improved vise, as they are fully described in my former application above referred to, and form no part of my present invention.

A is a plate which is bolted securely to the bench, and B the body of the vise, adapted to be placed over and upon said plate in such

manner as to inclose the same laterally, and having thereon a free rotary or swivel movement. The body is extended laterally, as seen at A', Figs. 2 and 6, and is adapted to fit over and inclose an independent block, B'. The periphery of the plate is beveled downward and inward, as shown, and the periphery of the block is beveled at the same angle, but in the opposite direction.

C' is a set-screw, which is passed through the extension A' into the block, as shown at Fig. 2. When it is desired to secure the vise-body rigidly to the plate, the screw C' is set up, which draws the block upward, so that it binds tightly against said plate by reason of the peculiar bevel of these parts, as above set forth. In my previous invention the swivel-connection between said body and plate is such that the plate extends upward and around the body of the vise, which construction has been found disadvantageous, in that particles of dust, grime, or filings work themselves down between the plate and body, and render the swivel practically useless until cleaned.

In my former patent, when the screw C was forced inward the splined collar D was thrown underneath the pawl E, so that the latter rode upon said collar when the main screw F was operated. I have found by practical experiment that the friction between said pawl and collar has caused both of these parts to become so worn as to prevent their engagement at the proper time. In my present application I overcome this difficulty by arranging on the main screw F, at the inner end of the outside collar, G, an independent collar, H, adapted to enter the collar G, in the manner presently explained.

I am coil-springs placed between these two collars, in order to keep them apart in their normal position.

When the screw C is set inward, the outside collar will be forced against the collar H, and the pawl E will rest upon the latter, and of course be out of engagement with the splined collar D. The several parts of the vise are now in such a relative position that the jaws are brought together or spread by the rotative action of the main screw, as in any ordinary vise. As said screw is turned the splined collar will also turn; but there will be no friction

between said collar and the pawl, because the latter is supported in an elevated position by the independent collar H, as before explained.

J is a wedge which is placed between the collar G and nut K, the jaws of the latter being grooved and adapted to be spread by the action of the wedge, as will be presently explained. The outer end of the collar G is recessed, so as to support the wedge, and is constructed with an inclined portion, L.

When the several parts of the vise are in the relative position shown at Figs. 1 and 2 of the drawings, the jaw M of the vise is made to operate after the manner of the ordinary sliding jaw by simply giving the screw F about a quarter of a turn to the left, thereby forcing the collar G around and throwing the incline L against the incline N onto the wedge, and causing the latter to be forced between the jaws of the nut K, so as to distend them, as shown at Fig. 3. By turning the main screw to the right the incline L is thrown out of engagement with the incline N, and the action of the spring O between the lower ends of the jaws of the nut will bring the said jaws together, thereby forcing the wedge out, and the thread on the main screw will now engage with the nut.

In my previous patent I have shown and described a different way of spreading the jaws of the nut; but by my present construction I am enabled to operate the same by the positive action of inclined surfaces without the use of any pawl, and, moreover, this particular part of the vise is thereby less liable to break at any violent turning of the main screw.

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

1. In a vise, as described, the plate secured to the bench, and beveled downward and inward, as shown, in combination with the in-

dependent block having its inner edge conformed to the beveled edge of the plate, the vise-body having a lateral extension and adapted to fit over and inclose said plate and block, and the set-screw passed through said extension into the block, substantially as shown and set forth.

2. In a vise, as described, the combination, with the outside collar, G, splined collar D, and pawl E, of the independent collar H, arranged on the main screw F, and adapted to support said pawl in an elevated position and out of contact with said splined collar, substantially as described.

3. In a vise, as described, the outside collar, G, recessed and inclined as set forth, and means for rotating the collar G, in combination with the wedge and nut, substantially as shown and specified.

4. In a vise, as described, the jaws of the nut having grooves interior thereof, in combination with the wedge adapted to be forced between said jaws by the action of the outside collar, and means for operating the wedge, substantially as set forth.

5. The combination of the nut K, wedge J, having incline N, outside collar, G, recessed and having incline L, pawl E, splined collar D, and main screw F, substantially as shown and described.

6. In a vise, as described, the jaws of the nut having spring O between the lower extremities thereof, in combination with the wedge J, outside collar, G, and means for operating the same, substantially as set forth.

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

WILLIAM H. NORTHALL.

Witnesses:

S. S. WILLIAMSON,
W. T. HAVILAND.