

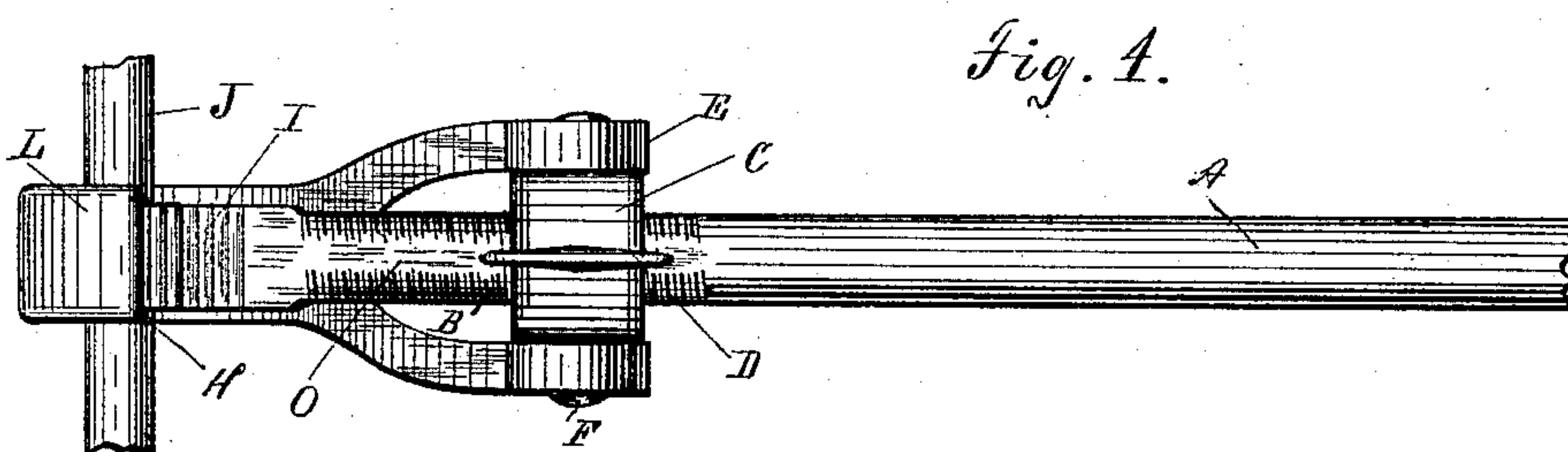
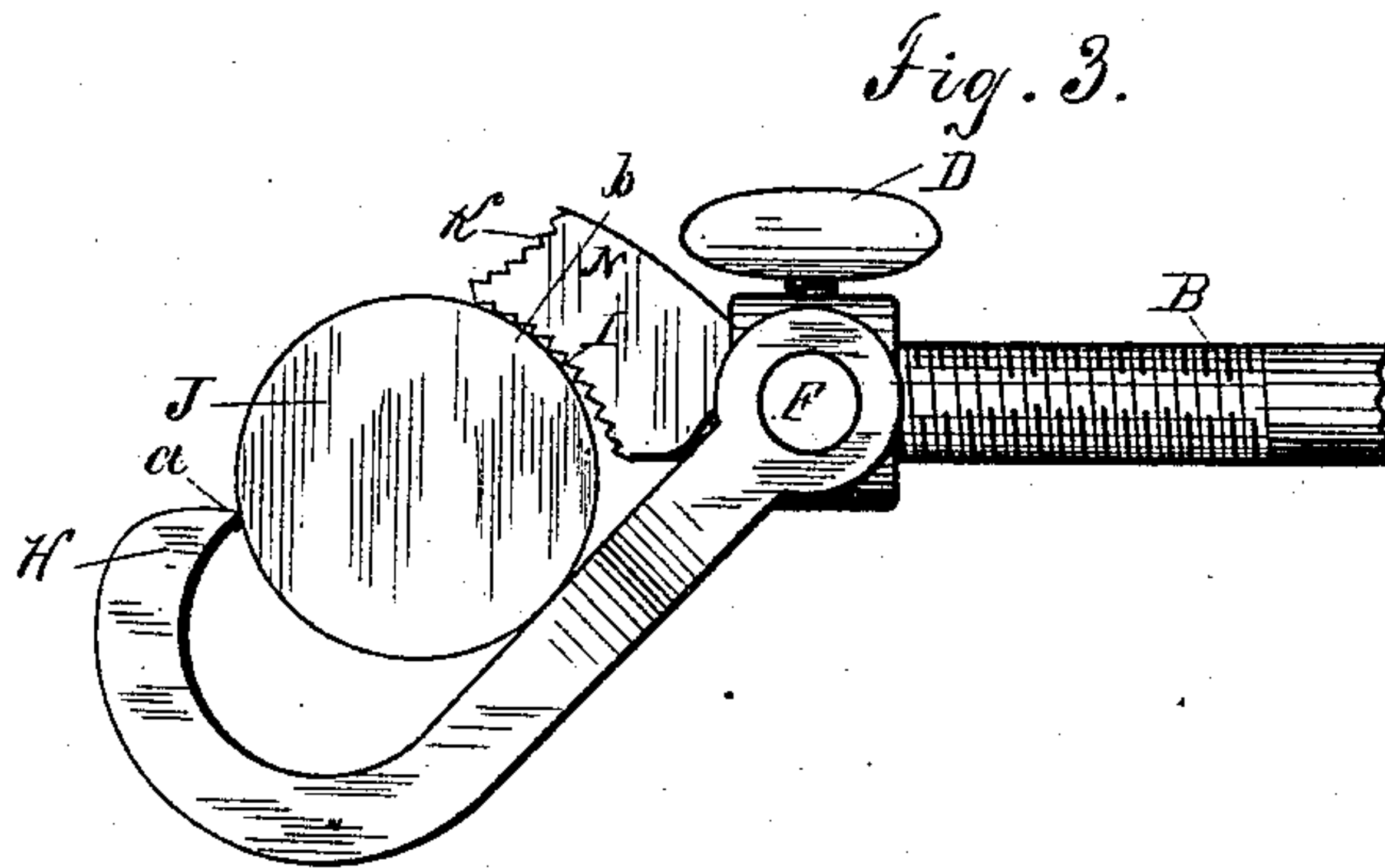
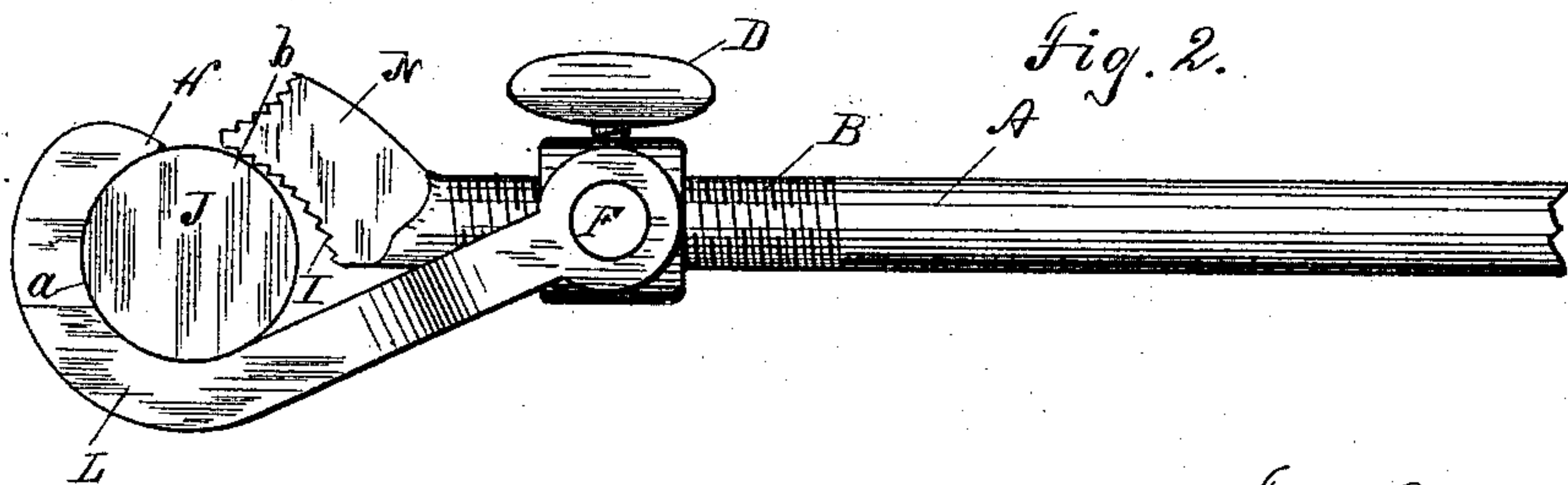
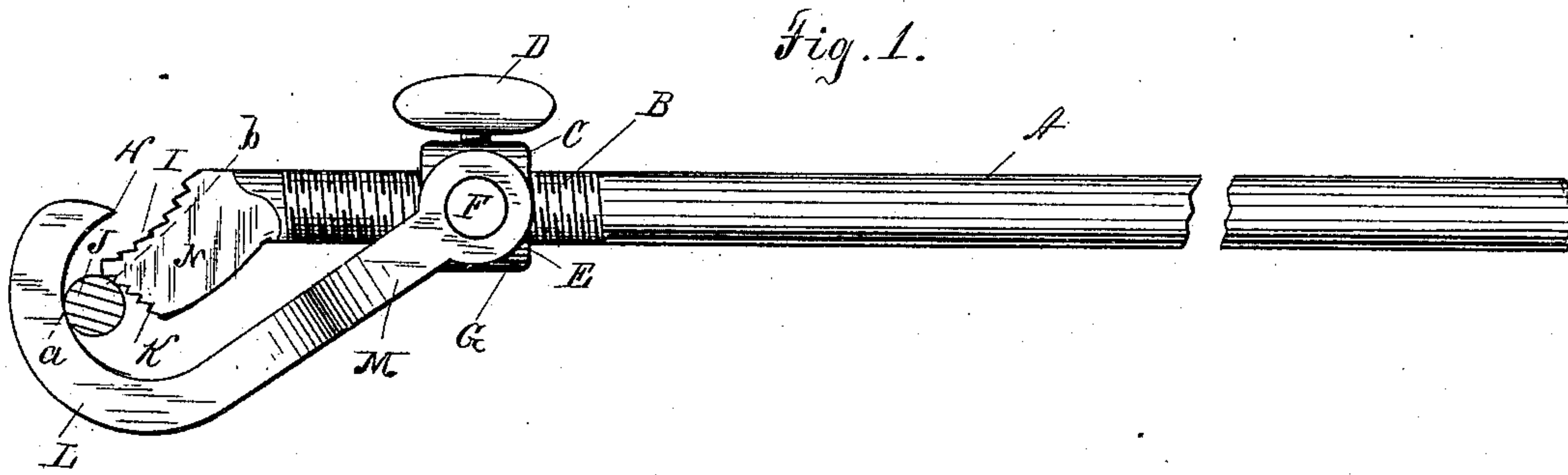
(No Model.)

J. J. LOONEY.

## PIPE WRENCH.

No. 343,668.

Patented June 15, 1886.



WITNESSES:

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ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOHN J. LOONEY, OF HAZEL GREEN, WISCONSIN, ASSIGNOR TO HIMSELF  
AND WILLIAM T. ANDREWS, OF SAME PLACE, AND ARKANSAS WEST,  
OF GALENA, ILLINOIS.

## PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 343,668, dated June 15, 1886.

Application filed October 12, 1885. Serial No. 179,648. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. LOONEY, a resident of Hazel Green, in the county of Grant and State of Wisconsin, have invented certain new and useful Improvements in Pipe-Wrenches; 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 pertains to make and use the same.

In the accompanying drawings, to which reference is had in this specification, Figure 1 is a side elevation of the wrench as applied to a small rod or cylinder; Fig. 2, a similar view when the diameter of the cylinder to be grasped by the jaws is equal to the diameter of the inner partial circle of the jaw L. Fig. 3 shows the application of the wrench to a pipe or cylinder too large to fall into the curved jaw L, and Fig. 4 is a plan of the device as shown in Fig. 1.

In all the figures, A is a bar, preferably of steel, forming the body and handle of my wrench; N, a jaw or head formed integrally therewith, its general direction making an obtuse angle with the bar A. A portion, B, of the bar A is screw-threaded, the thread extending nearly or quite to the jaw N. Upon this threaded portion of the handle an internally-threaded short sleeve or nut, C, is placed, and upon diametrically-opposite sides of this nut are trunnions or pins F. A second jaw or retaining-hook, L, of the wrench is bifurcated, its branches M enlarged, forming perforated cheek-pieces E, fitting the trunnions F, whereby the jaw swings freely upon F as a pivot. The screw-threads upon the handle are cut away upon the top and bottom of said handle, leaving a plane surface, O, Fig. 4, upon which the set-screw D may be made to press, whereby the handle A may be locked at intervals of one hundred and eighty degrees in its rotation.

The jaw N is provided with two curved surfaces for impinging upon rods or pipes to be turned or held. These faces I and K are preferably curved as to general direction (the radii of curvature not being the same for the

two faces) and serrated. The teeth are broad, extending across their respective faces, as shown in Fig. 4, are sharp-edged, and inclined slightly in the direction of their motion when turning a pipe. The curved surfaces I K are formed on opposite sides of the jaw N, and intersect at the extreme end thereof, and while they are substantially symmetrical with reference to a plane parallel to the axis of the shank B, they are non-symmetrical with reference to the axis itself, since their intersection is at one side of said axis. From the intersection of the two surfaces the face I extends inward toward the axis of the shank, while the face K extends outward away from the axis. The face I may therefore be said to be nearer the axis than the face K, and the object and result of this difference in position of the two faces are to adapt them to operate on different sizes of rods or pipes. It is evident that the movable jaw L, when in position to co-operate with the face I, is adapted to grasp a larger rod than when rotated one hundred and eighty degrees into a position to co-operate with the face K. The jaw L is also provided with a sharp edge, H, at its extremity, and may, if desired, be internally serrated, although in practice I do not find this necessary.

The handle A may be of any desired length and size, according to the power to be employed and the rigidity deemed desirable.

In operation the relative position of the jaws with reference to the line of the handle depends upon the size of the cylinder upon which the wrench is used. If the rod or pipe be small, as in Fig. 1, the handle A is advanced in the nut C, by rotation, until its jaw N comes well forward into the hook E and its lower short face, K, meets the rod J. If the rod J be larger, the handle is rotated in the nut C, and thus drawn backward, and if the rod be not larger than the inner circle of the jaw L, either the face I or the face K may be made the working face, though the former is shown in the drawings, Fig. 2, as engaging. If the rod J be still larger, the handle is still farther withdrawn in the nut C and the longer face, I, made



to engage. In this case the point or edge of the jaw L presses sharply into the rod J, which is supported by the tangent plane-surface of the jaw-arm M. A rod still larger than the rod J shown in Fig. 3 may be held or turned with equal facility, the limit being the size where the axis of the rod or pipe falls at a material distance outside the straight line joining the points of the respective jaws L and N. Now, in either of the Figs. 1, 2, 3, if the handle be raised, the jaw N is prevented from sliding upon the cylinder J by its serrated face, and the tendency is to carry the pivot F about the line of contact *b* as an axis of rotation; but as this can be done, the pipe J being stationary, only by compressing said pipe, it follows that the pipe is grasped with great firmness. In other words, the different parts form a kind of toggle-joint, the pipe J, between its lines of contact *a* and *b* with the respective jaws, forming one toggle-bar, and the jaw N, between its line of contact *b* and the trunnions F, acting as the other toggle-bar. Raising the handle A tends to force the three points *a*, *b*, and F into the same straight line, and since the points *a* and F cannot separate, a great force of compression is exerted upon the pipe J and all sliding of the jaws thereon is thus prevented, and the pipe itself must rotate if the handle be raised.

Instead of the threaded portion of the bar A being flattened the threads may be heavy and the set-screw broader at its base, when it can without injury act on the outer surface of the threads themselves, or the bar A may be longitudinally grooved and carry in this groove a spring to engage with the nut C by means of depressions therein.

Other modifications may be made in various parts of my device—*e. g.*, the jaw N may be connected with the bar A by a joint, allowing a certain amount of adjustment by its rotation through a small angle.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a pipe-wrench, the combination of a

double-faced jaw formed integrally with the handle of the wrench, its faces which engage the pipe making different angles with said handle, and a second co-operating jaw pivoted upon a revoluble support upon the handle-bar of the wrench.

2. In a pipe-wrench, the combination, with the shank thereof, of a jaw formed integrally with the shank, but at an angle thereto, and having two working faces non-symmetrical with reference to the axis of the shank, a sleeve rotating on the shank, and a jaw pivoted to the sleeve and adapted to be brought into co-operative position with either of said working faces through the rotation of said sleeve.

3. In a pipe-wrench, the combination, with the screw-threaded shank thereof, of a jaw integral with the shank, but at an angle thereto, and having two working faces non-symmetrical with reference to the axis of the shank, an internally-screw-threaded sleeve rotating on the shank, and a jaw pivoted to the sleeve, the rotation of the sleeve being adapted to move the pivoted jaw longitudinally with reference to the shank, and also to bring said jaw into co-operative position with either working face of the stationary jaw as desired.

4. The combination, with the screw-threaded and flattened shank B, of the jaw N at an angle to the shank and having the two working faces I K, the internally-screw-threaded sleeve C, engaging the shank B, and the set-screw D, passing through said sleeve and adapted to fasten it in any desired position on the shank, and the jaw L pivoted to the sleeve and adapted to co-operate with either of the faces I K, substantially as shown and described, and for the purpose set forth.

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

JOHN J. LOONEY.

Witnesses:

JOHN BIRKETT,  
GEO. K. MILLS.