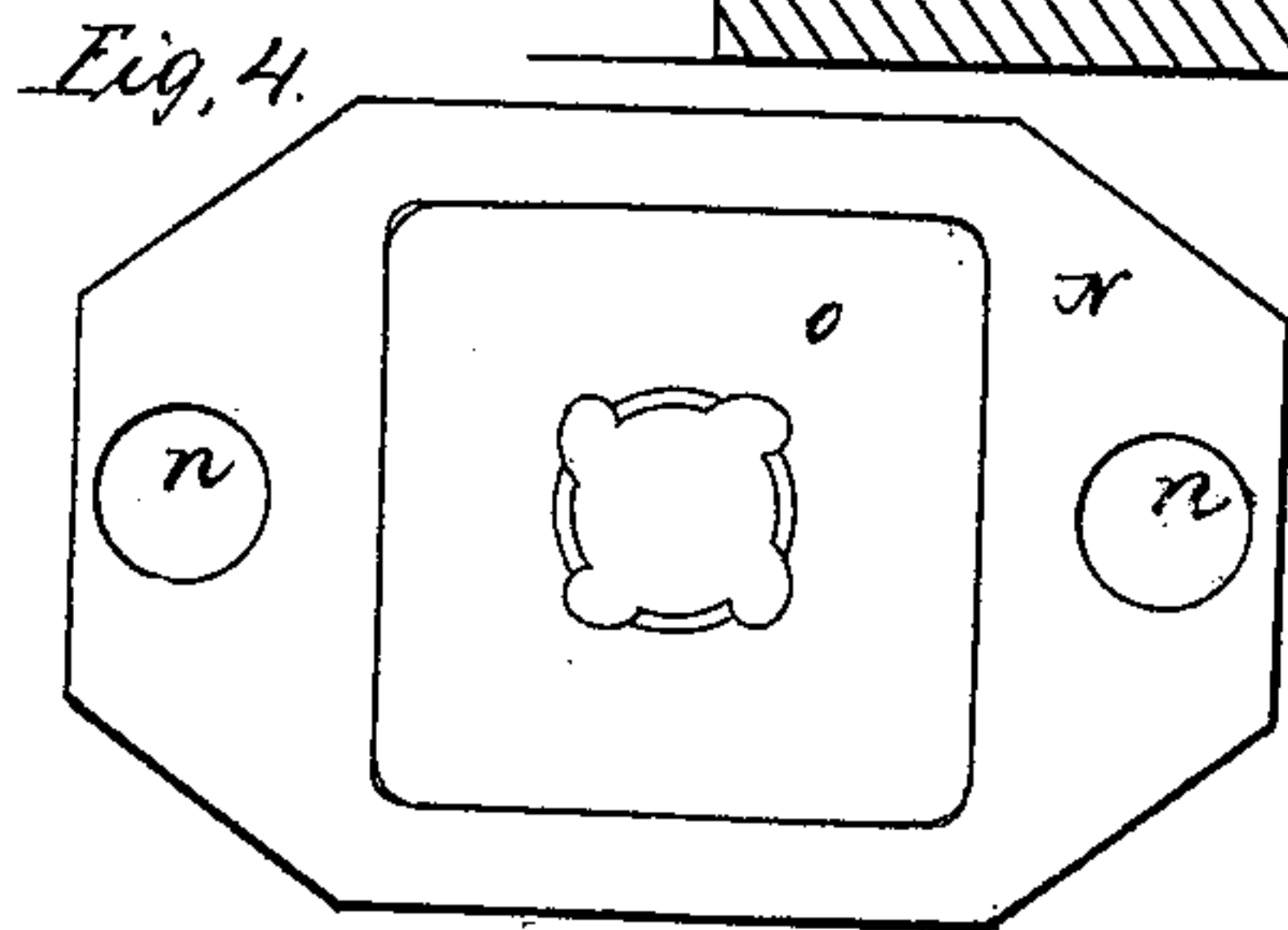
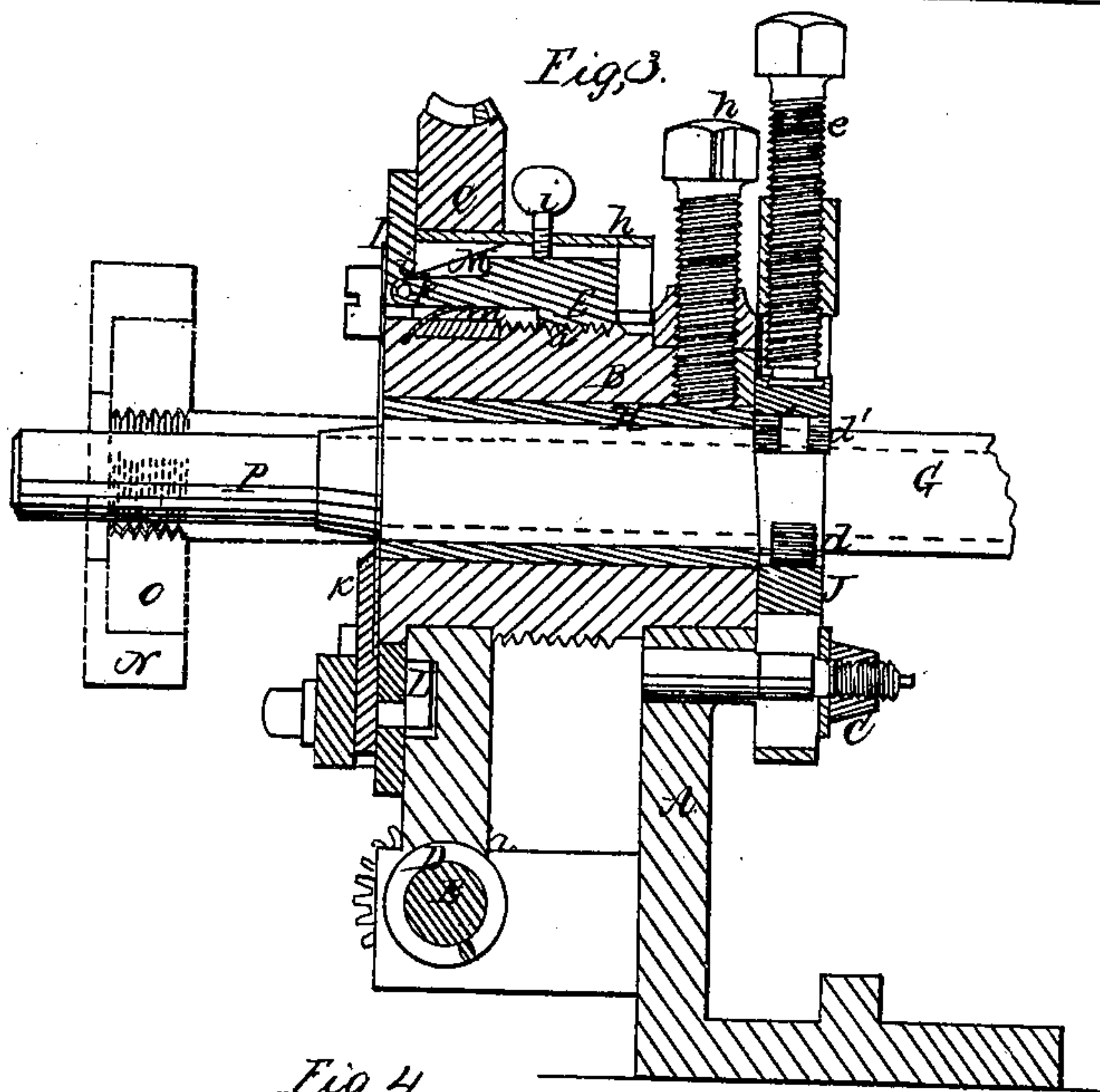
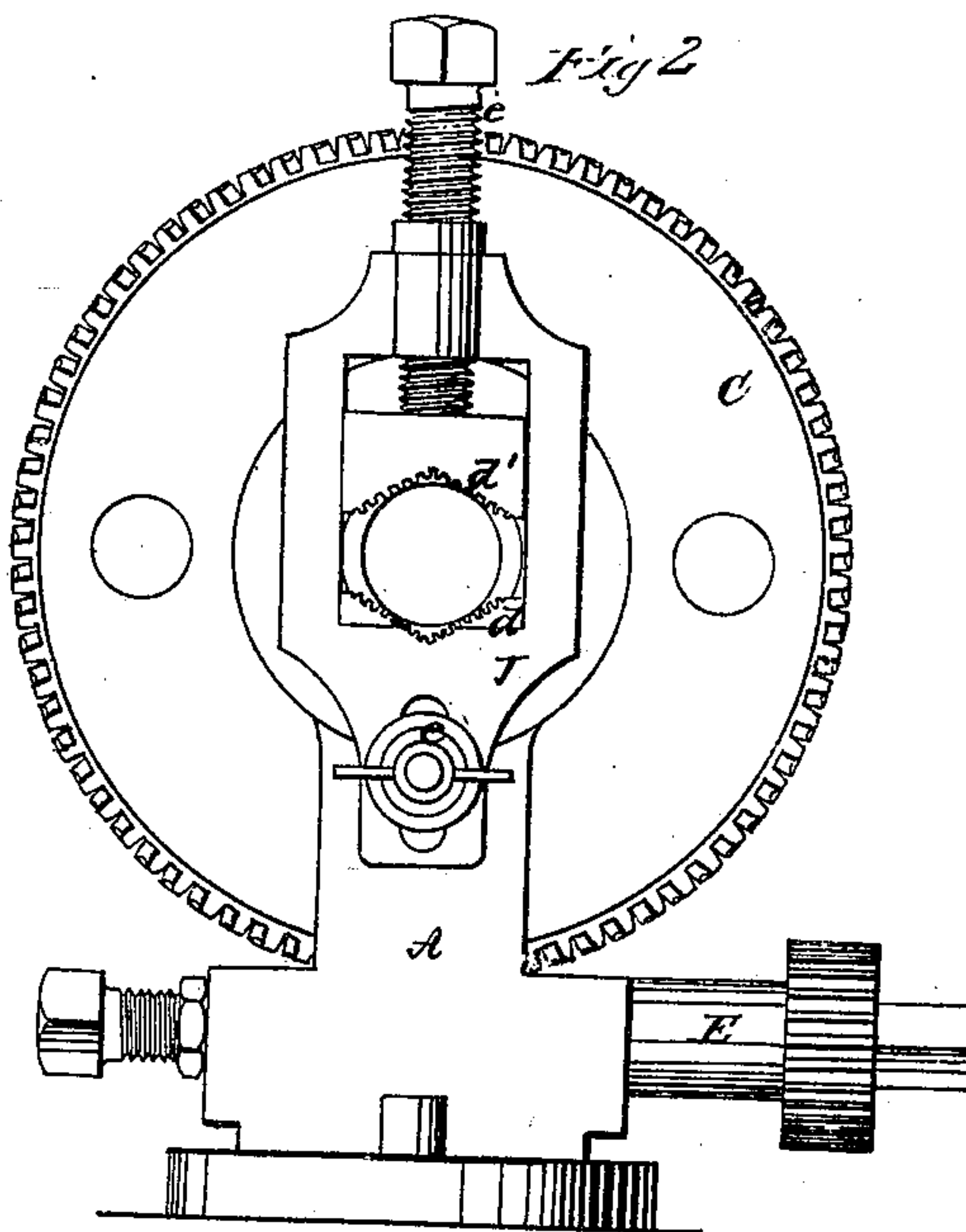
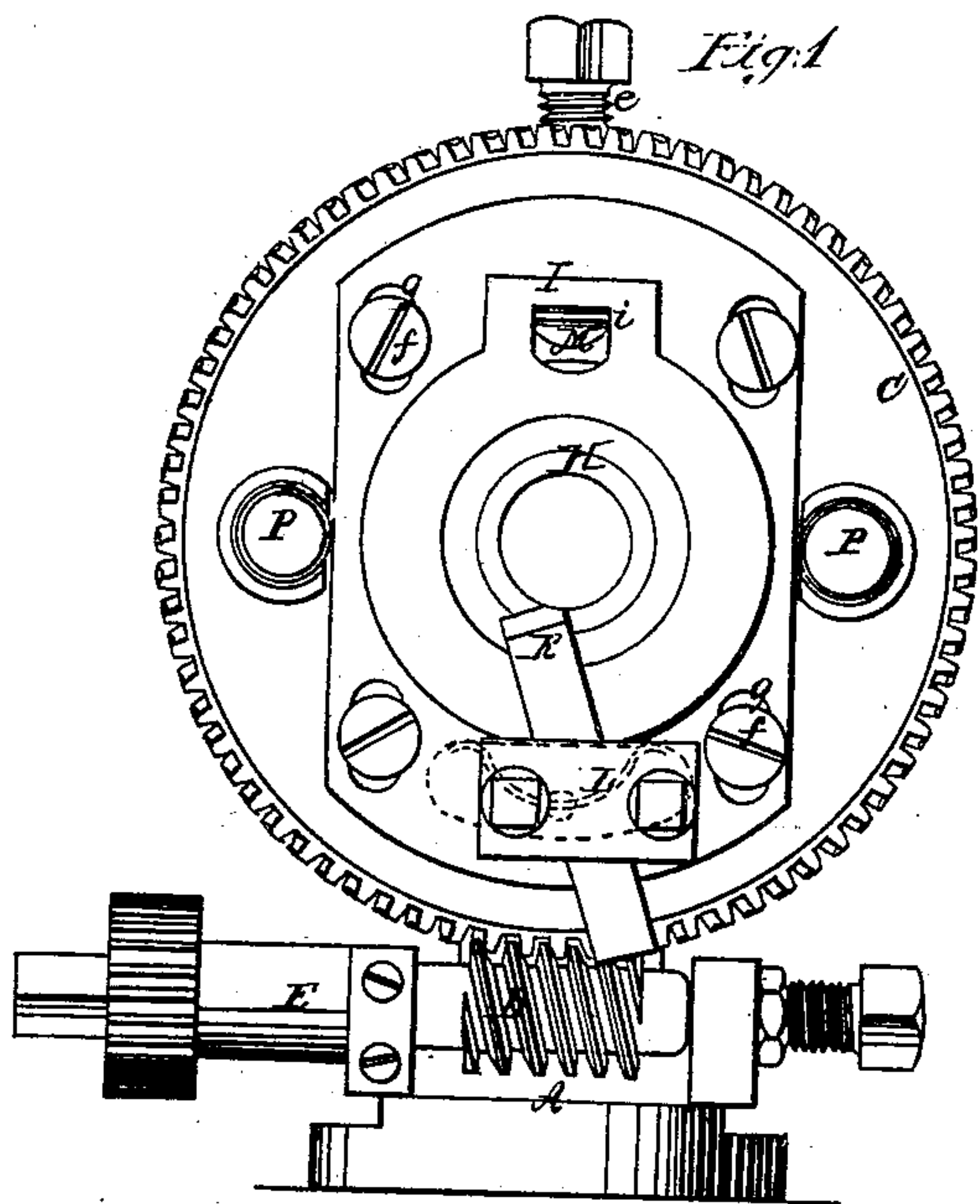


W. D. Chase.

Pipe Cutting Mach.

N^o 89,466.

Patented Apr. 27, 1869.



*Witnesses,
M. Coombs
Fred. Haynes*

*Inventor
W. D. Chase*

United States Patent Office.

WILLIAM D. CHASE, OF NEW YORK, N. Y.

Letters Patent No. 89,466, dated April 27, 1869.

IMPROVED MACHINE FOR CUTTING AND THREADING PIPES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM D. CHASE, of the city, county, and State of New York, have invented a new and useful Pipe-Cutter and Threader, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a front view of a pipe-cutting and threading machine, constructed in accordance with my improvement;

Figure 2, a rear view thereof;

Figure 3, a vertical section of the same; and,

Figure 4, a face view of a die, and die-holder, used for cutting a screw-thread on a pipe.

Similar letters of reference indicate corresponding parts.

My invention consists in a novel combination of mechanism for severing pipes, and cutting screw-threads thereon, in and by one and the same machine, whereby great facility is attained in performing such work, the pipe readily adjusted and held to its place, and the cutter, as it is revolved around the pipe, automatically fed up to its work, and thrown, or worked back after the pipe has been severed, while to thread the pipe, no detachment of parts is absolutely necessary, and the holder, carrying the threading-die, is made to rotate and feed the latter along the pipe.

Referring to the accompanying drawing—

A represents the frame, which serves to carry the working parts of the machine that may be clamped, or otherwise secured to a bench, or other stand, for operation, either by hand, steam, or other power, as deemed advisable.

Projecting, horizontally, from an upright portion of the frame, is a tubular fixed socket, B, on the front portion of which, a worm-wheel, or face-plate, C, is arranged to turn, secure from axial play.

Rotary motion is communicated to this wheel by means of a screw D, on a cross-revolving shaft E, that may either be the main driver, or that may have the necessary motion communicated to it, from any suitable prime-moving shaft, through gear, operating to increase the power, or speed of the machine, as may be required.

The fixed socket B, has an outside screw-thread, *a*, cut upon it, immediately in rear of the worm-wheel C, with which screw-thread, a threaded longitudinally-sliding leader, E, is arranged to gear, for operating the pipe-cutter, as hereinafter described.

The pipe G, to be cut, is projected from the rear of the machine, through a bush, H, fitted in, or through the tubular centre of the fixed socket, and held from turning therein by a set-screw, *b*, said bush being of an internal diameter corresponding with the external diameter of the pipe to be cut, so as to form a steady-

ing, or bearing surface for the pipe, which is arranged to project a given distance in front of the wheel, C, or cutter-carrier, I, attached thereto, according to the distance of the cut required, from the end, or ends of the pipe.

This bush H may be withdrawn, and another, of different internal diameter, substituted, when a different-sized pipe is required to be cut.

Fitted, so as to be capable of a vertical-sliding adjustment, under control of a thumb-nut *c*, in the rear of an upright portion of the frame, is a stock, J, provided with a fixed lower jagged gripper *d*, and vertically-adjustable jagged upper gripper *d'*, under the control of a screw, *e*, for holding the pipe from turning after it has been projected to the necessary distance through the bush H.

The cutter-carrier I, is made up of a plate, or plates, secured to the face of the worm-wheel C, by screws *f f*, fitting through slots *g g*, in the carrier, in such manner as to allow of a radially-sliding motion, or play of it across the face of the wheel C, for the purpose of working the cutter K up to, or from the work. Said carrier is, of course, cut away at its centre, to admit of the pipe projecting through it, and the cutter K suitably clamped, or held to the carrier.

A spring, L, is arranged within a cavity in the worm-wheel C, and, acting against suitable pins in, or projections from, the carrier, serves to throw the cutter away from the work by sliding the carrier in one radial direction across the face of the wheel C.

The cutter K, and its carrier I, it will be seen, rotate, together with the worm-wheel C, while the pipe G remains stationary, to effect the cut.

To cut the pipe, the carrier I, and cutter K, require to be slid in an opposite radial direction to that given them by the spring L.

This is effected, automatically, and in a gradually advancing manner, so far as the action of the cutter is concerned, while the wheel C, with the cutter-carrier and its cutter, rotates around the pipe, by or through the threaded leader E, substantially as follows.

Rigidly secured within, and so as to project in rear of the worm-wheel C, is a partial ferrule, or sleeve *h*, arranged to establish a tubular passage through said wheel, and carrying within it a longitudinally-sliding wedge, or wedge-shaped block M, that, in its operation on the cutter-carrier I, fits through a slot, or opening *i*, therein, so that when said wedge is projected, or worked through said slot, it gives to the carrier a radial-sliding motion, or action, which causes the cutter K, as it is rotated in common with the wheel C, to gradually dig, or cut into the pipe, till the same is severed.

This forward feed of the wedge M, to effect the cut, is produced by the connection of the wedge with the threaded leader E, which gears with the screw-thread

a, of the fixed socket B, so that as said leader, in common with the wheel C, rotates around the socket, it is worked along the latter. Said leader is pivoted, as at *k*, to or within the wedge, and is held down to its gear with the screw-thread *a*, by a set-screw *l*, while on slackening said set-screw, such leader is thrown up, or out of gear with the screw-thread *a*, by the action of a spring, *m*.

This facilitates the working back of the wedge M, in a rapid manner, by simply pressing, or pushing it out of gear with the carrier, when the spring L will act upon the carrier to draw, or throw back the cutter K, after it has severed the pipe.

Such unshipping, or ungearing, too, of the leader E, keeps the cutter idle, while the spring L holds it out of the way when using the machine for threading pipes, so that in performing the latter work, no detachment of parts becomes necessary.

The surface of the leader E, upon which the set-screw *l*, is made to bear, to hold said leader in gear with the screw-thread *a*, on the fixed socket, should be of such a length, as that when, by the repeated rotation of the leader around the socket, said leader has been worked by the screw-thread *a*, to the required extent of its throw, whether the same be forward or backward, such surface will pass beyond, or from under the point of the screw *l*, when the spring *m* will throw the leader out of gear with the screw-thread *a*, and thus automatically prevent any injury to the machine, or breakage by the continued rotation of the wheel C.

To cut a screw-thread on the pipe, or end of it protruding through the wheel C, or bush H, and carrier I, (said pipe being held from turning by the stock J, as described, or otherwise,) it is simply necessary to fit a freely-sliding die-holder, N, carrying a die, O, within it, on to guide-rods P P, arranged to project from the face of the wheel C, the die-holder having suitable holes *n n* through it, to provide for such fit of it on the rods.

This arrangement, or attachment of the die-holder, is represented by red lines in fig. 3. The rotation of the wheel C, and die-holder N along with it, together with the freedom of the die-holder, and die in it, to move along the guide-rods P P, in direction of the length of the pipe, causes a screw-thread to be cut on the pipe, the die and die-holder feeding themselves forwards, with the work, or thread on the pipe, as it is being cut by the die. The die O is only loosely fitted in the holder N, so that it may be substituted for another of like, or different size, as required.

A machine thus constructed, and operating, while applicable to other work, will be found of great advantage in cutting and threading gas-pipes, and as a substitute for the ordinary mode of cutting them, and afterwards forming the screw-thread thereon, by hand-stocks and dies, will prove much more convenient and expeditious, as well as less laborious.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The fixed socket B, having a screw-thread, *a*, around it, the rotating wheel C, carrying the threaded leader E, wedge M, sliding cutter-holder I, and spring L, all constructed and arranged substantially as shown and described.

2. The combination with the above, of the sliding stock J, with its adjustable gripper, or grippers *d d'*, and the removable bush H, substantially as shown and described.

3. The arrangement of the die-holder N, with its die O, supported on guide-rods P P, attached to the revolving wheel C, for operation, in combination with the fixed socket B, and sliding gripping-stock J, with its adjustable gripper, or grippers, substantially as set forth, for the purpose specified.

W. D. CHASE.

Witnesses:

JOHN D. ROSSET,
HENRY PALMER.