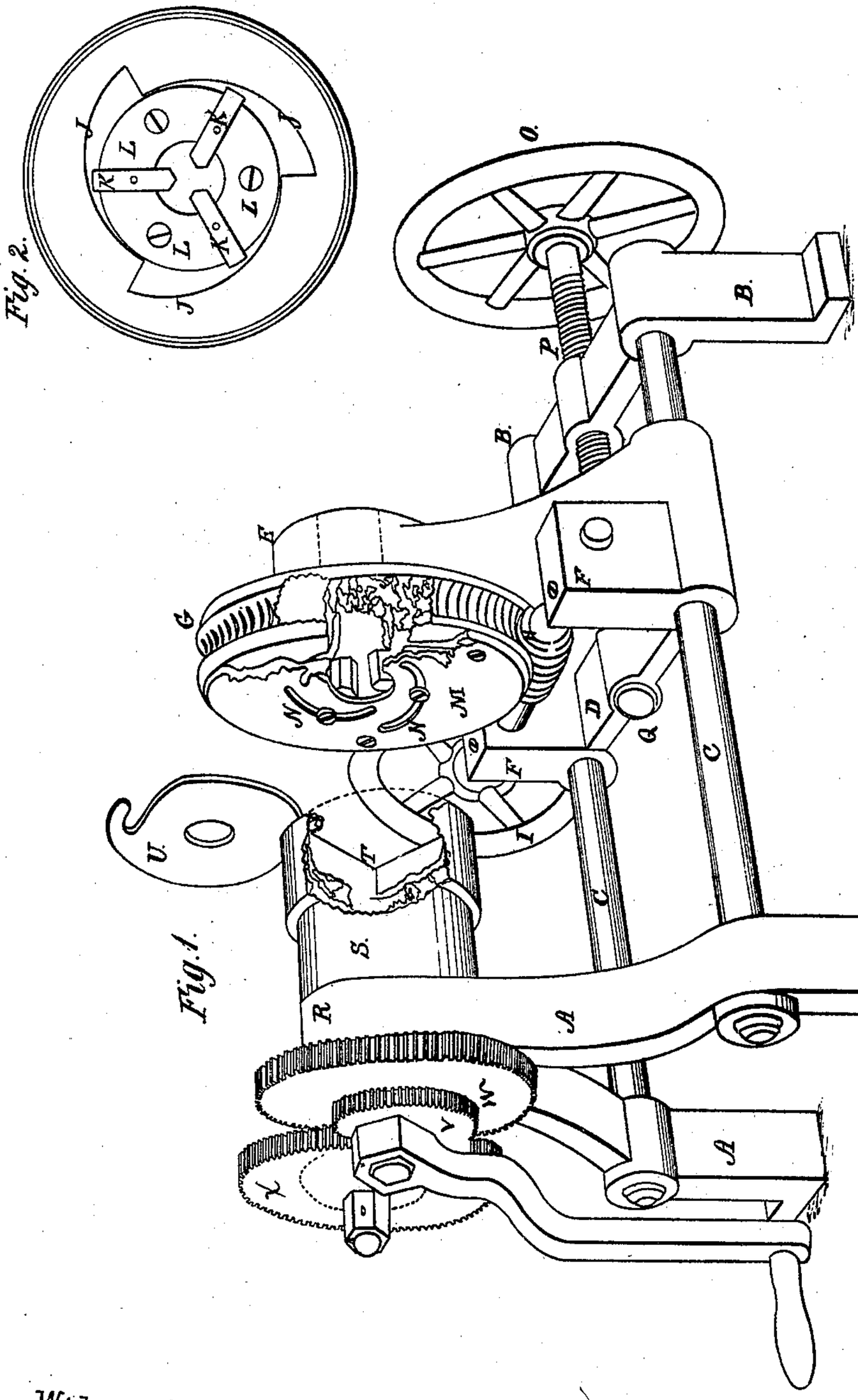
J. Dougherty.

Screw Cutting Mach.

No. 88,460. Patented Mar. 30, 1869.



Witnesses,
E. F. Bowdery
Alfred Rix

Inventor.
John Dougherty

United States Patent Office.

JOHN DOUGHERTY, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 88,460, *dated March* 30, 1869.

IMPROVED MACHINE FOR CUTTING SCREWS.

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, JOHN DOUGHERTY, of the city and county of San Francisco, and State of California, have invented a new and improved Screw-Cutter; and I do hereby declare that the following is a full and exact description of the said invention, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view, and

Figure 2, a face view of the worm-wheel with the cap removed.

The body of the machine consists of the two solid pieces, A A and B B, united rigidly by the guide-bars C C.

Mounted, and sliding upon the guide-bars, is the chair D, having a head, E, and projections, F F, as shown in fig. 1.

The worm-wheel G is revolved upon a boss on the head E, by the worm H, having its bearings in the projections F F, and driven by the hand-wheel I.

Through the head E, and its boss, and the worm-wheel, is a round hole, large enough to receive the largest-sized rod, or pipe, on which a screw is to be cut.

Within the worm-wheel, at the end of the boss, is the universal chuck, shown in fig. 2.

J J J are ratchet, or eccentric surfaces in the rim of the wheel, against which run the exterior ends of the clamp-slides K K K, which slides are held in place partly by the sector-blocks L L L, screwed to the end of the boss, on the head E, and partly by the cap M, fig. 1, fastened to the worm-wheel.

Through the cap M, and across the clamp-slides L L L, are the eccentric slots N N N, (one not shown,) corresponding with the eccentric surfaces in the worm-wheel. In these slots run pins, secured to the slides, for the purpose of carrying the slides backward during the process of unclamping.

The chair D is moved to and fro on the guide-bars by the feed-screw P and hand-wheel O, the end of the screw-rod turning freely in the chair, and playing longitudinally therein for a distance equal to the length of the screw to be cut.

Through the head R, of the body-piece A A, and the boss S, is a shaft, carrying on its inner end the die-socket T.

The die is held in the socket by the circular cap U, swung on a pin, and fastened by a thumb-screw, as shown in fig. 1.

On the outer end of the shaft are the two spur-wheels V and W, one large and the other small, playing into which are corresponding wheels, (only one of which, X, is shown,) on a counter-shaft, supported by an arm from the body of the machine.

The wheel nearest to the end of each shaft runs loose on the shaft, but is so arranged as to be made fast, at pleasure, by a pin through its hub and the shaft, or otherwise. The other two wheels are fast, each to its shaft.

This gear admits of convenient adjustment with reference to power and speed, the power being arranged to be applied to either shaft by a crank for the hand, or by pulleys for other power.

It admits of three different speeds:

First, by making fast the loose pinion on the main shaft, and applying the power thereto.

Second, by making fast the loose pinion on the counter-shaft, and applying the power thereto.

Third, by making fast the loose pinion on the counter-shaft, and applying the power to the loose pinion on the main shaft.

Care should be taken not to apply the power in any other way, or the machinery may be broken.

The operation is as follows:

The pipe or rod on which the screw is to be cut, is passed through the head and worm-wheel E and G. Then, by turning the hand-wheel I in the proper direction, the rod will be clamped firmly at the centre of the worm-wheel, by the inner ends of the clamp-slides K K K, which are driven against it, by the eccentric surfaces J J J, wedging over their outer ends, as in other like devices.

A die of the proper size is now placed in the die-socket, and the power applied, and the die revolved.

By turning the hand-wheel O, the carriage D is now moved forward, till the end of the pipe reaches the die, and the cutting of the thread has fairly commenced, after which the machine will feed itself, the slide at the end of the screw-rod P allowing the chair to be drawn forward, while the screw remains stationary.

When sufficient thread has been cut, the motion is reversed, and the rod withdrawn, in the ordinary manner.

The peculiar advantages of my arrangement are, the extent and facility of adjustability as to speed and power, and the revolving of the die instead of the chuck, by which rods or pipes of any length or form can be easily worked, and the worm-wheel chuck used.

Having thus described my invention,

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

1. Arranging together, in a screw-threading machine, in the manner described, the feed-screw P, carriage D, worm-wheel H, and worm-chuck G, each being constructed as shown and described.

2. The arrangement, on the two rotating shafts, of the loose gears X V, fast gears W, and head-stock S, as and for the purpose specified.

JOHN DOUGHERTY.

Witnesses:

J. F. COWDERY,

ALFRED RIX.