E. NUGENT.

SCREW-THREADING MACHINE.

No. 171,037. Patented Dec. 14, 1875.

FIG. 1.

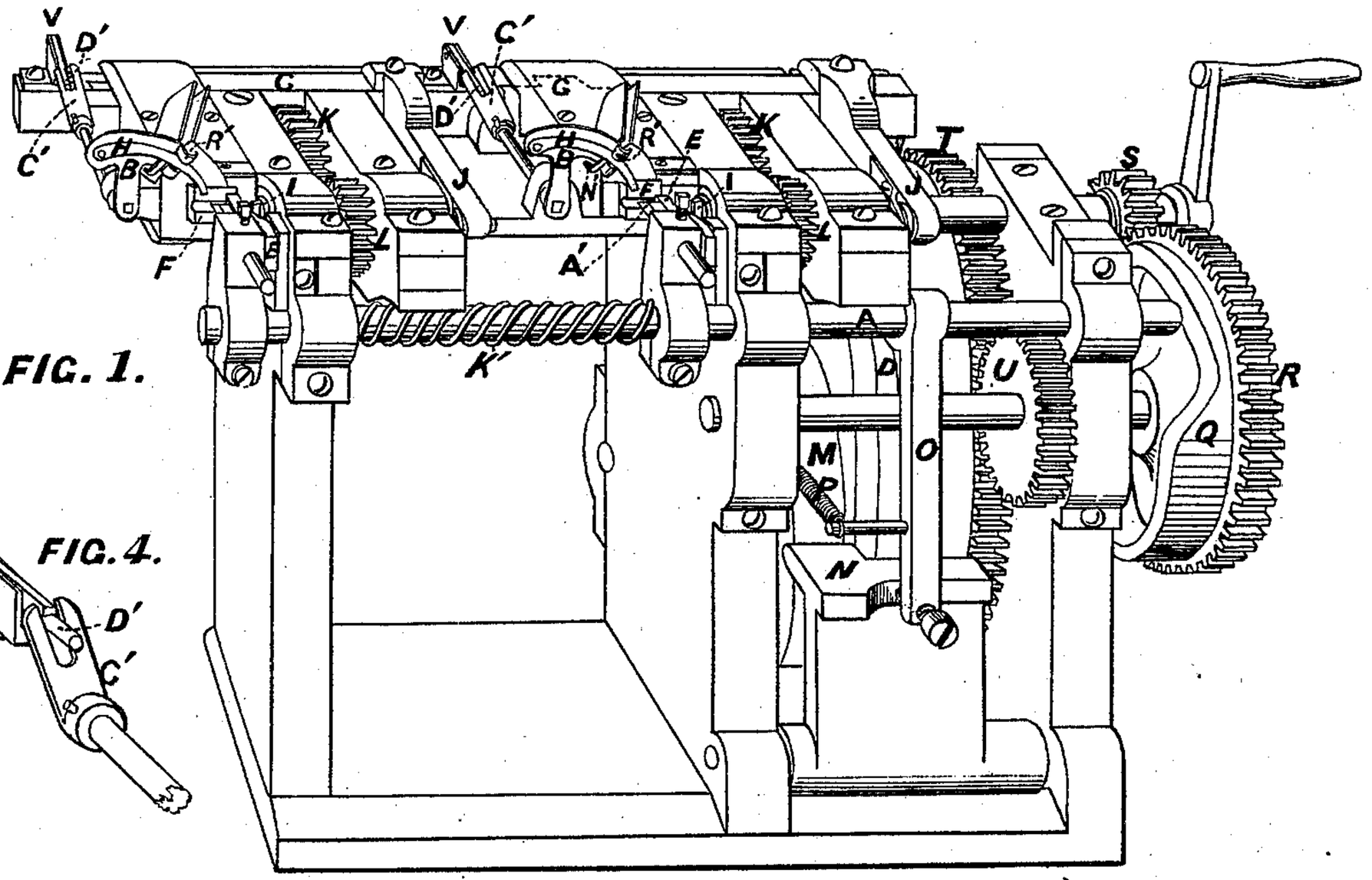


FIG. 4.

FIG. 2.

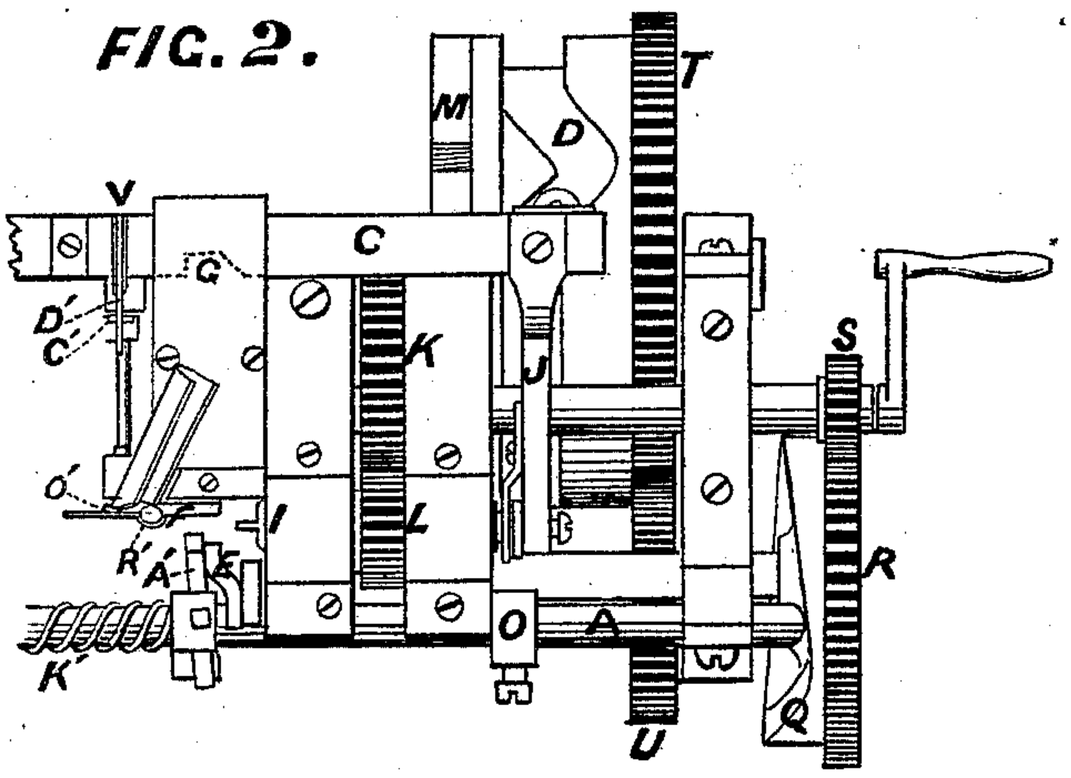
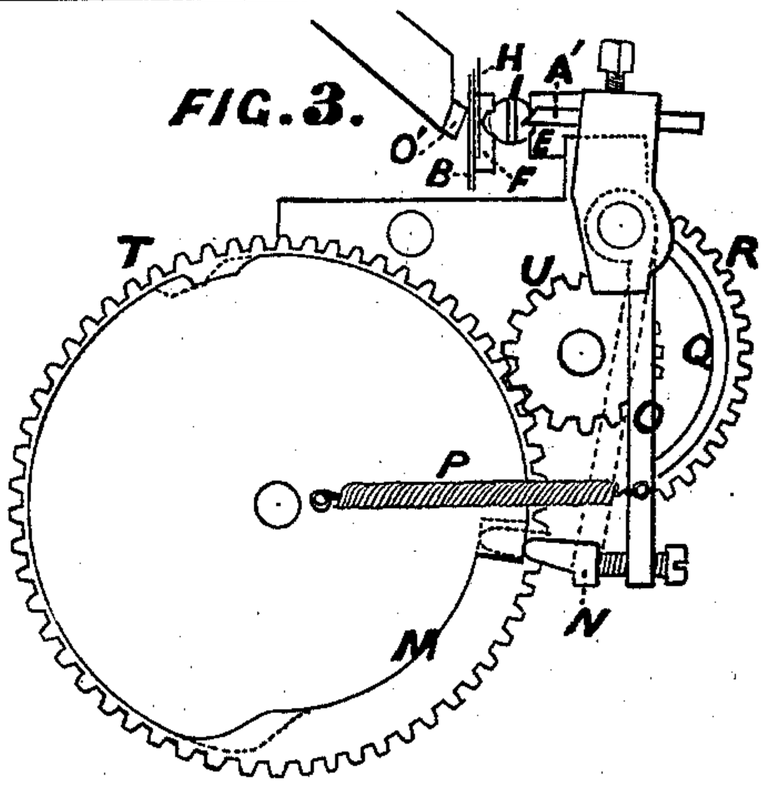


FIG. 3.



WITNESSES

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EDWARD NUGENT, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SCREW-THREADING MACHINES.

Specification forming part of Letters Patent No. **171,037**, dated December 14, 1875; application filed November 22, 1875.

To all whom it may concern:

Be it known that I, EDWARD NUGENT, of the city of Brooklyn, in Kings county and State of New York, have invented an Improvement in Screw-Threading Machines, of which the following is a specification:

My invention consists in the construction and arrangement of a feeding device, in combination with a series of cutters arranged on a single shaft for cutting the threads on one or more screw-blanks at the same time, so that each, although taking its motion from the same driving-shaft, shall be entirely independent of the other.

My object is to so construct a machine for threading screw-blanks that any number of blanks may be threaded at the same time without the chips from one cutter clogging the others, and so that either may be taken out for repairs without stopping the machine or in any way interfering with the working of the others, and at the same time so to construct the parts that the movements necessary to thread a single blank may communicate motion requisite to operate any number of devices to cut any number of screws at once. In order to do this I arrange several cutters in a straight line on a single shaft, with a feeding device and other parts necessary to thread as many blanks, each cutter and set of devices necessary to the cutting the thread on a screw-blank being entirely independent of the other, the driving-shaft extending in a line with the cutter-shaft, and a bar extending the same distance and parallel with the cutter-shaft, to give motion to the feeding device and to give longitudinal motion to the screw-drivers. The several feeding devices are so arranged that they may all be fed from a single hopper, and each set of devices are so constructed that either may be worked entirely independent of the other by means of a simple arrangement for throwing them out of gear.

My invention will be readily understood by reference to the accompanying drawings, which form a part of this specification.

Figure 1 is a perspective view of my improved machine for threading screw-blanks. Fig. 2 is a top view of a section of the same, and Fig. 3 is a cross-section thereof. Fig. 4 is an enlarged view of a clutch device, which connects the feeding arrangement with the bar that gives it motion.

A is the cutter-shaft. B is the feeding device, which carries the blank forward to the cutter. C is the bar, which gives motion to the feeding device. This bar has a longitudinal motion, which it takes from a cam, D. E is a rest, against which the blank is held while being threaded. F is the die, which receives the blank from the feeding device and forces it against the rest E, holding it there while it is being threaded. The die F is forced forward at the proper time by means of an incline or cam, G, on the side of the bar C, and is forced back to place again by a spring, not shown in the drawing. A spring, H, on the feeding device holds the blank in place against the face of the die until it is caught between the die and rest. A projection, N′, on the spring H, as the feeding device moves back is brought in contact with an incline, O′, pressing the spring H back to allow a blank to drop into the socket R′. I is a screw-driver, and has a longitudinal and a rotary motion. It takes its longitudinal motion from the bar C by means of an arm, J, by which they are connected. Its rotary motion is derived from the main shaft by means of a gear, K, on the same, meshing into a gear, L, on the screw-driver shaft. A cam, M, gives motion to a former, N, and, through the latter, communicates a rocking motion to the cutter-shaft A by means of a connecting-arm, O. A′ is the cutter. A spring, P, holds the lower end of the arm O in place against the former N. A cam, Q, comes in contact with the end of the cutter-shaft A and forces it forward, causing the cutter A′ to traverse the blank the distance required to cut the thread, a spring, K′, forcing it back each time. The cam Q gets its motion by means of a gear, R, attached to it and meshing into a gear, S, on the main shaft. The cams D and M get their motion by means of a gear, T, on their own shaft, meshing into a gear, U, on the shaft with the gear Q. A clutch device, V, is attached to the bar C, its hinged latch falling into the forked or slotted arm C′ on the shaft of the feeding device, so that, by means of the latch D′ the feeding device may be connected with the bar C to give it motion, or may be disconnected, at will.

The cutter A′, feeding device B, die F, rest E, and screw-driver I are the parts necessary, when in motion, to thread a screw-blank. These parts may be increased to any number without duplicating the other parts, as each separate set of devices would take their motions from the same machinery necessary to thread a single blank.

The operation of threading a screw-blank on my machine is as follows: The blank is taken from the hopper by the feeding device B and conveyed forward in front of the die F, its head toward the screw-driver I, and, as the feeding device recedes, the die F is forced forward against the blank, grasping it between itself and the rest E. At this point the screw-driver's point enters the slot in the head of the blank and revolves it against the cutter A′. The cam M forces the former N forward, thus giving the rocking motion to the shaft A and forcing the cutter-points against the blank. The cam Q moves against the end of the shaft A, forcing it forward longitudinally, causing the cutter to traverse the blank, the spring K′ forcing it back. A sufficient number of movements are thus given to the shaft A, to cut the required thread on the blank, when the parts of the device, each in its turn, release their hold, move back to their places to receive another blank, while the finished screw drops into a receptacle below, and the same motions are repeated on another blank.

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

1. The shaft A, carrying two or more cutters, A′, in combination with the arm O, spring P, and cams Q and M, substantially as and for the purpose set forth.

2. The feeding device B, having the spring H, in combination with the bar C, cam D, and clutch V, substantially as and for the purpose set forth.

3. The feeding device B, clutch V, and bar C, in combination with the arm J and screw-driver I, substantially as and for the purpose set forth.

4. Two or more cutters, A′, arranged on a straight line on a single shaft, in combination with two or more feeding devices, B, and two or more screw-drivers, I, all arranged and operating substantially as and for the purpose set forth.

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Witnesses:
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