

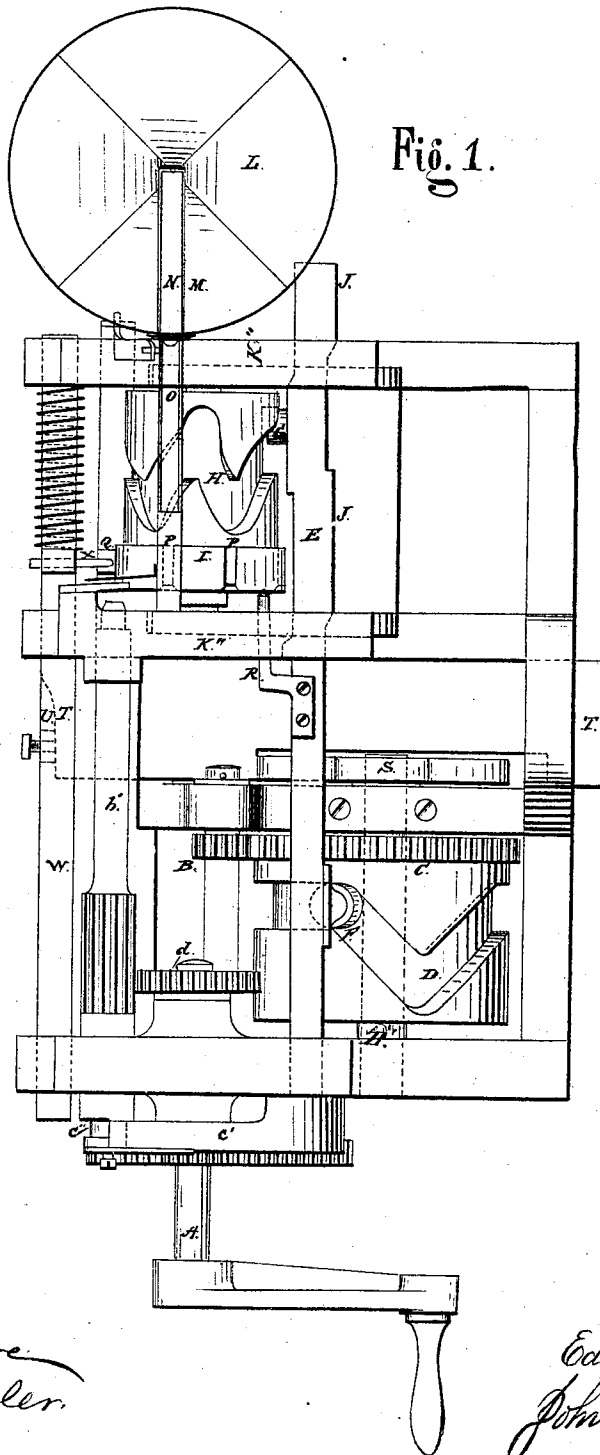
3 Sheets--Sheet 1.

E. NUGENT & J. FANNING.

Machines for Threading Screw-Blanks.

No. 145,121.

Patented Dec. 2, 1873.



WITNESSES:

A. Moore
H. S. Miller.

INVENTORS.

Edward Nugent
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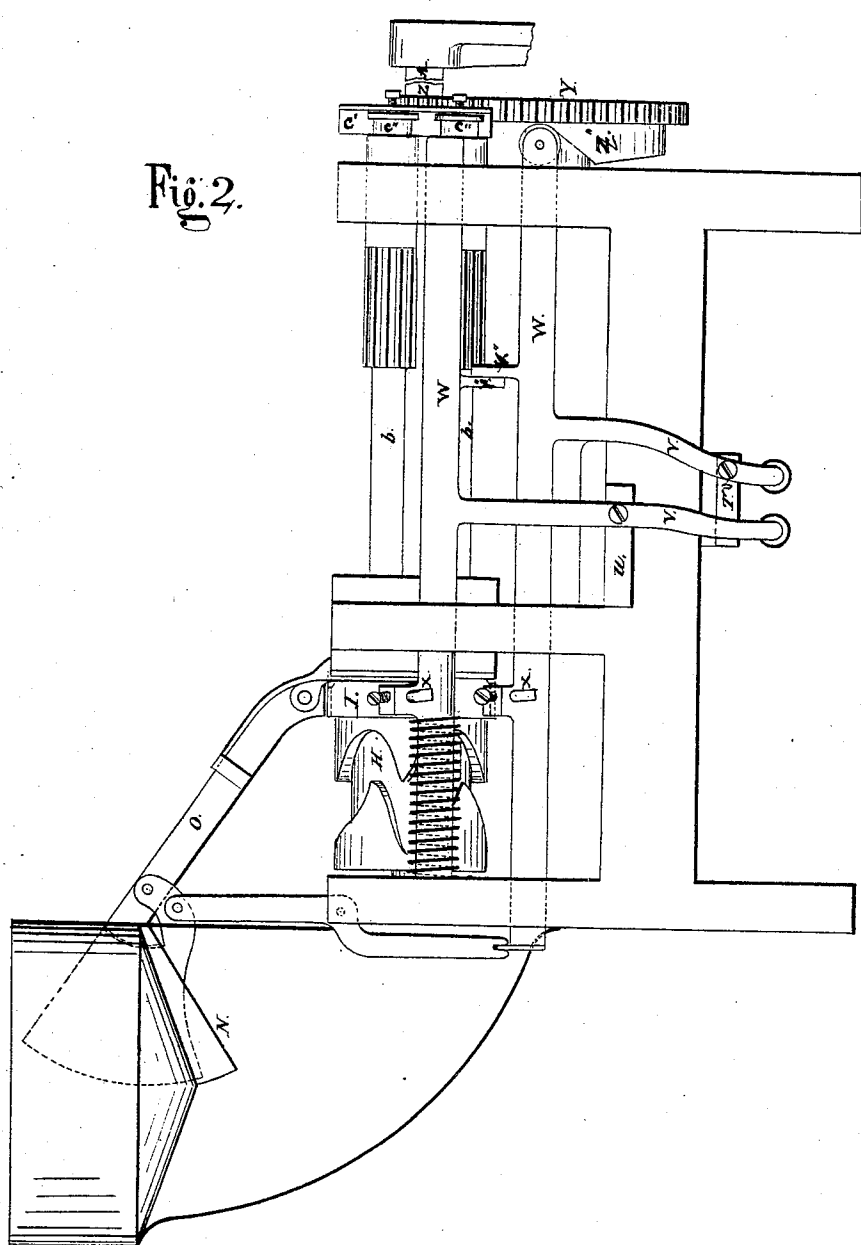
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Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD NUGENT AND JOHN FANNING, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR THREADING SCREW-BLANKS.

Specification forming part of Letters Patent No. **145,121**, dated December 2, 1873; application filed October 29, 1873.

To all whom it may concern:

Be it known that we, EDWARD NUGENT and JOHN FANNING, both of the city of Brooklyn, in Kings county, State of New York, have invented a Machine for Cutting Screws, of which the following is a specification:

The object of our invention is to furnish a machine for cutting threads on screw-blanks, which shall be capable of accomplishing much more work in a given time than any hitherto made, and to be much more simple and less liable to get out of order.

Our machine is so constructed that it will successfully cut and finish two or more screws at the same time.

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

Figure 1 is a plan or top view of our machine. Fig. 2 is a side view, and Figs. 3 and 4 are cross-sectional views, of our machine.

A is the main or driving shaft. B is a pinion, which operates a spur-wheel, C, thereby communicating motion to the cam D. E is a sliding bar, which takes its motion from the cam D by means of a projection, F, entering the cam-slot. The sliding bar E has a projection, G, that works in a cam, H, giving to said cam H intermittent rotary motion. The sliding bar E has cam-shaped sides J J, which pass through rectangular grooves in the sides of the frame K K. The cam H has its center bearings in the frame K K; consequently the cam H is moved sidewise with the frame. I is a disk attached to the end of the cam H, and moved with it. L is a hopper, into which the blanks are put. This hopper is deeper in its center than at its sides, so that the blanks have a tendency to fall toward the center. There is a slot, M, through the bottom of the hopper, through which an oscillating receiver, N, is made to move, and, by its motion, catch the blanks as they fall in position, and pass them forward to the race O. The heads of the blanks, being always the largest and heaviest, naturally fall to the center of the hopper, and, the slot M extending radially from the center toward the side of the race O, the blanks are always caught with their points or small ends downward, keeping the race O filled with blanks, which gravitate toward the disk I,

which is provided with half-round receiving-slots P, into which the screw-blanks fall as the slots are, by the rotary motion of the disk I, alternately brought under the discharge end of the race O. The race O is connected or hung by an arm, q, having a fork that embraces a pin on one of the side frames, in such a manner that it moves with the side motion of the disk. A guard, N', is attached to the lower end of the race O, and rests against the side of the disk I, to hold the blanks in position while they are passed to the cutter as the disk I rotates, carrying the blanks forward opposite a stationary rest, Q. At this junction the inclines J J on the sliding bar E presses the frame K K forward, causing the disk I to move toward the stationary rest Q, and grasp the blank firmly against the rest. The same motion carries a steady-pin, R, forward against the side of the disk I, holding the disk firmly in position while the thread is being cut on the blank by cutters X X, made fast on the shafts W W. A cam, S, on the shaft D' acts against a transverse sliding bar, T, forcing it against levers V V, which are fast to and projecting from the shafts W W, to which is given a rocking motion, to force the point of the cutters X X against the blank. A gear-wheel, Z, on the main shaft gives motion to a gear-wheel, Y, on the side of which is a cam, Z', which gives longitudinal motion to the shafts W W, to which the cutters are fastened, one of the shafts being acted on and transmits motion to the other by the arms x x. A gear-wheel, d, on the main shaft meshes into gear-wheels on the screw-drivers b b, causing the screw-drivers to revolve. An arm, c', attached to the bar E, extends to and enters grooves around the ends of the screw-drivers, causing them to move longitudinally with the bar E. The longitudinal motion given to the screw-driver is to force their points into the nick in the heads of the blanks. The blanks are revolved by the screw-drivers against the action of the cutters X X. The longitudinal motion of the shafts W W is to traverse the cutters along the blanks, and give the proper size and pitch to the screw-thread.

As the disk I revolves, the blanks drop from the race O into the slots P, and are carried forward opposite the cutters X X. The sliding

bar E now moves forward, bringing the steady-pin in place to hold the disk I from revolving, and the inclines J J force the frame K K forward, carrying the disk I sidewise toward the cutters X X, and pressing the blanks against the stationary rest Q. The continued forward motion of the bar E moves the screw-drivers so far, longitudinally, as to force their points into the nicks in the heads of the blanks, causing the blanks to revolve against the action of the cutters X X. The cutter-points are forced against the blanks by means of the sliding bar T acting against the levers V V, projecting from the shafts W W, giving to said shafts a rocking motion. At this juncture the cam on the side of the gear-wheel Y acts against the ends of the shafts W W, causing them to move longitudinally, thus causing the cutters X X to traverse the length of the screw-blank four times, it being each time forced back by a coiled spring.

Formers U U are attached to the ends of the sliding bar T, which act against set-screws passing through the levers V V, and cause the cutters X X to move farther forward as they approach the end of the blank, by which means a gimlet-point is given to the screw.

When the screw is finished, the continued motion of the machine withdraws the disk I and releases the screw, which is dropped into a receptacle below.

Having thus described our machine, what we claim as new, and desire to secure by Letters Patent, is—

1. The double-acting cam H, in combination with the disk I, cutters X X, and revolving screw-drivers *b b*, constructed and operating as and for the purpose set forth.

2. The combination of the sliding bar E, provided with the projections F G, inclines J J, and steady-pin R, with the cams H D, disk I, and the sliding frame K K, operating substantially as and for the purpose set forth.

3. The carrying-disk I, having a transverse movement to clasp the screw-blank while being threaded, and an intermittent rotary movement to present more blanks for the action of the cutters, substantially as and for the purpose set forth.

4. The disk I, sliding frame K K, and bar E, operated as described, in combination with the screw-drivers *b b* and cutters X X, as and for the purpose set forth.

5. The combination and arrangement of the sliding bar T, having the formers U U, with the levers V V, carrying set-screws X' X', shafts W W, traversing arms X'' X'', and cutters X X, substantially as and for the purpose set forth.

6. In combination with the disk or carrier I in a screw-machine, the oscillating race O, arranged and operated as set forth.

EDWARD NUGENT.
JOHN FANNING.

Witnesses:

A. MOORE,
H. S. MILLER.