T. R. TAYLOR.

Nut Machine.

No. 36,737. Patented Oct. 21, 1862.

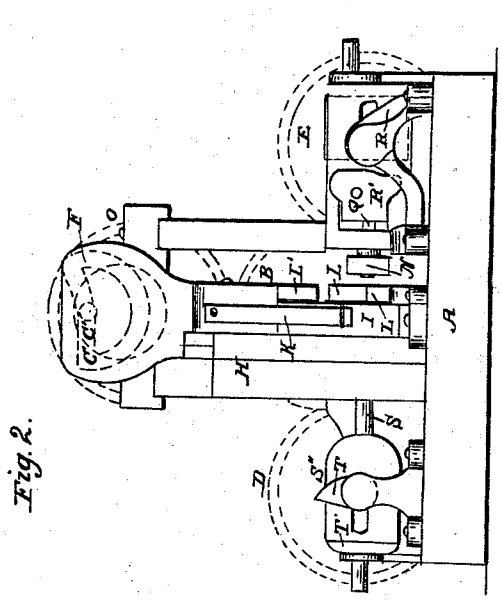

Fig. 2.

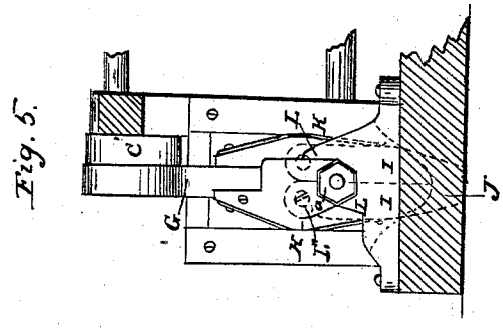

Fig. 5.

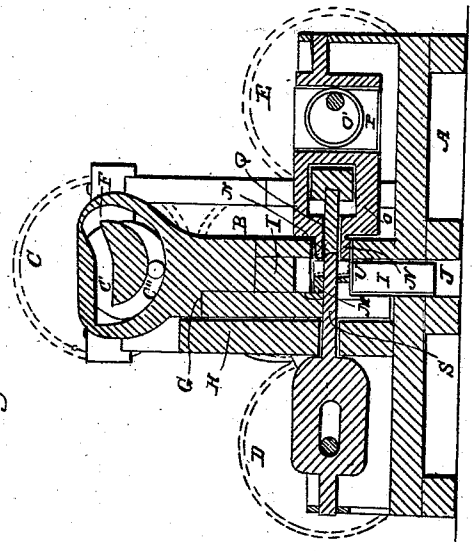

Fig. 4.

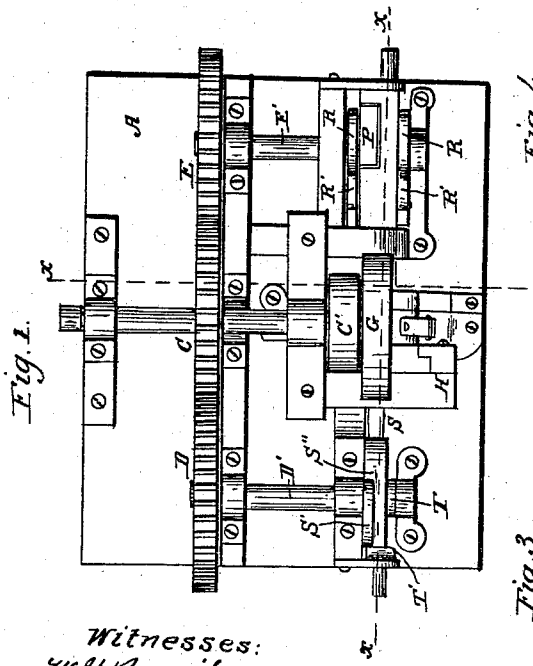

Fig. 1.

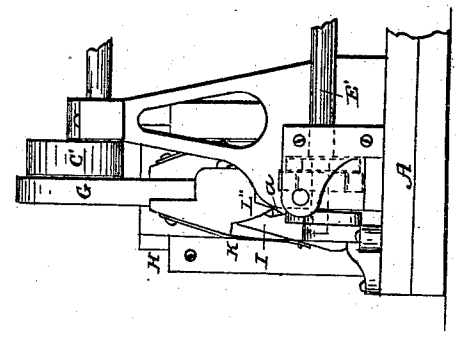

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS R. TAYLOR, OF CLEVELAND, OHIO.

IMPROVEMENT IN MACHINES FOR MAKING NUTS.

Specification forming part of Letters Patent No. **36,737**, dated October 21, 1862.

To all whom it may concern:

Be it known that I, THOMAS RANDOLPH TAYLOR, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Nut-Machines; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan view. Fig. 2 is a front view. Fig. 3 is an end view. Fig. 4 is a sectional view in the direction of the line *x x*, and Fig. 5 is a section in the direction of the line *x' x'*.

Like letters refer to like parts in the several views.

The nature of my invention relates to such an arrangement of devices that machine-nuts, of various sizes and forms, can be made wholly by pressure from the heated bar and punched ready for cutting the screw-thread, the metal being much condensed in the process of formation.

A in the several figures represents the bed-plate. This is from two to three inches thick, from twenty inches to two feet wide, and about three feet long. To this plate is secured the several devices which constitute the machine.

B C D E represent a series of gear-wheels having the same diameter and the same number of teeth, B being the driving-wheel. The wheel C is placed immediately above the wheel B and the wheels D and E on either side, but a little below the level of the wheel B. They are all supported by boxes attached to the plate A, or to standards rising therefrom.

C' is a crank-wheel upon the inner end of the shaft of the wheel C. This crank-wheel has a wrist, C'', which works in the cam-slot F in the top of the sliding frame G. This sliding frame G works in ways or guides H, and by means of the crescent-shaped cam F the sliding frame G remains stationary for more than half the revolution of the wheel C. To this sliding frame G is attached, by means of articulating-joints, a pair of jaws, I I, indicated by the dotted lines in Fig. 5. The lower ends of these are wedge-shaped, and as they are forced downward by the action of the wrist C'' in the cam-slot F the wedge-shaped jaws enter a slot, J, in the bed-plate A, as indicated by the dotted lines in Fig. 5. When the jaws rise, they are opened by the springs K, attached to the outside of the jaws.

L is a stationary cutter secured to the bed-plate and placed exactly in front of the jaws. L' shows a more elevated portion of the same piece, and forms a stop which regulates the amount of iron cut off for one nut.

L'' shows a cutter, which is attached to the sliding frame G, and in its descent meets the cutter L and cuts off from the heated bar a sufficient quantity of iron for a nut.

The jaws are so formed upon their inside faces, by means of a cavity, *a*, as to give the external form to the nut, which, in the drawings, is represented as of the hexagonal form; but the square or any other form may be used.

M represents the inner die, against which the nut is pressed in the process of formation. This die is attached to and moves up and down with the sliding frame G, and lies immediately behind the forming-cavity *a* of the jaws.

N represents a moving die attached to the horizontal sliding frame O. This sliding frame O is moved forward and backward by the eccentric O', which is placed upon the shaft of the wheel E. The eccentric O' works in a sliding block, P, which has a vertical motion, and which allows the slider O to have an intermittent motion, the state of rest being the passage of the eccentric over the dead-center in every half-revolution.

In the center of the sliding frame O is a punch, Q, which works through the center of the die N. This punch is moved forward with the die N, but with an accelerated motion, by means of the cam on the shaft of the wheel E, which cam, R, presses against the cross-head R', which carries the punch Q.

S represents a counter-punch that works through the die M. It is moved forward toward the punch Q by the cam S', working against the shoulder S''. The punch S is drawn back by the cam T, working against the shoulder T'.

The operation of this machine is as follows: The several parts being so adjusted as that the several parts shall be in the position shown in Figs. 1 and 2, a heated bar of iron is introduced between the cutters L and L'' and pushed forward till the end of the bar meets the stop L'. The sliding frame G descends to the posi-

tion seen in Fig. 5, the cutters L L″ cutting off a sufficient quantity of the heated bar for a nut, which is pushed at the instant between the closing jaws by the punch Q and die N, and is thus pressed into the matrix formed by the recess in the jaws and the stationary die M and the moving die N. The punch Q, moving in advance of the die N, passes nearly halfway through the nut, and while the nut remains thus firmly pressed between the dies and jaws the punch S advances from the opposite side and passes through the nut until it reaches the punch Q, which it drives back to the position seen in Fig. 4, when the cam T suddenly withdraws the punch S from the nut U, Fig. 4, the jaws rise, carrying the formed nut away from the dies, and by the opening of the jaws the nut is dropped to the ground; and thus every entire revolution of the machine is capable of producing a nut.

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

The sliding frame G, in combination with the jaws I I and dies M and N, when constructed and operating substantially as and for the purpose specified.

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Witnesses:
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