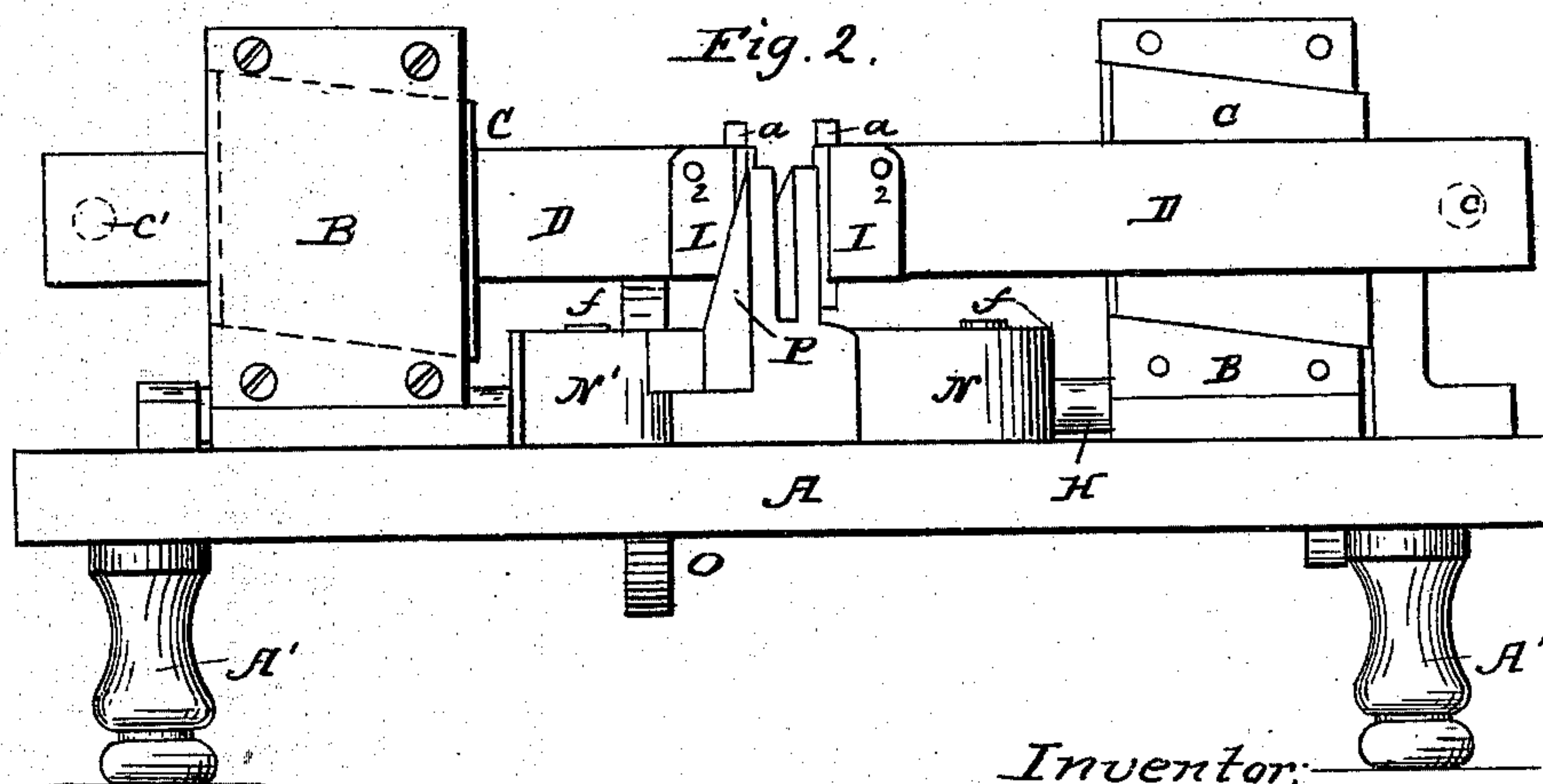
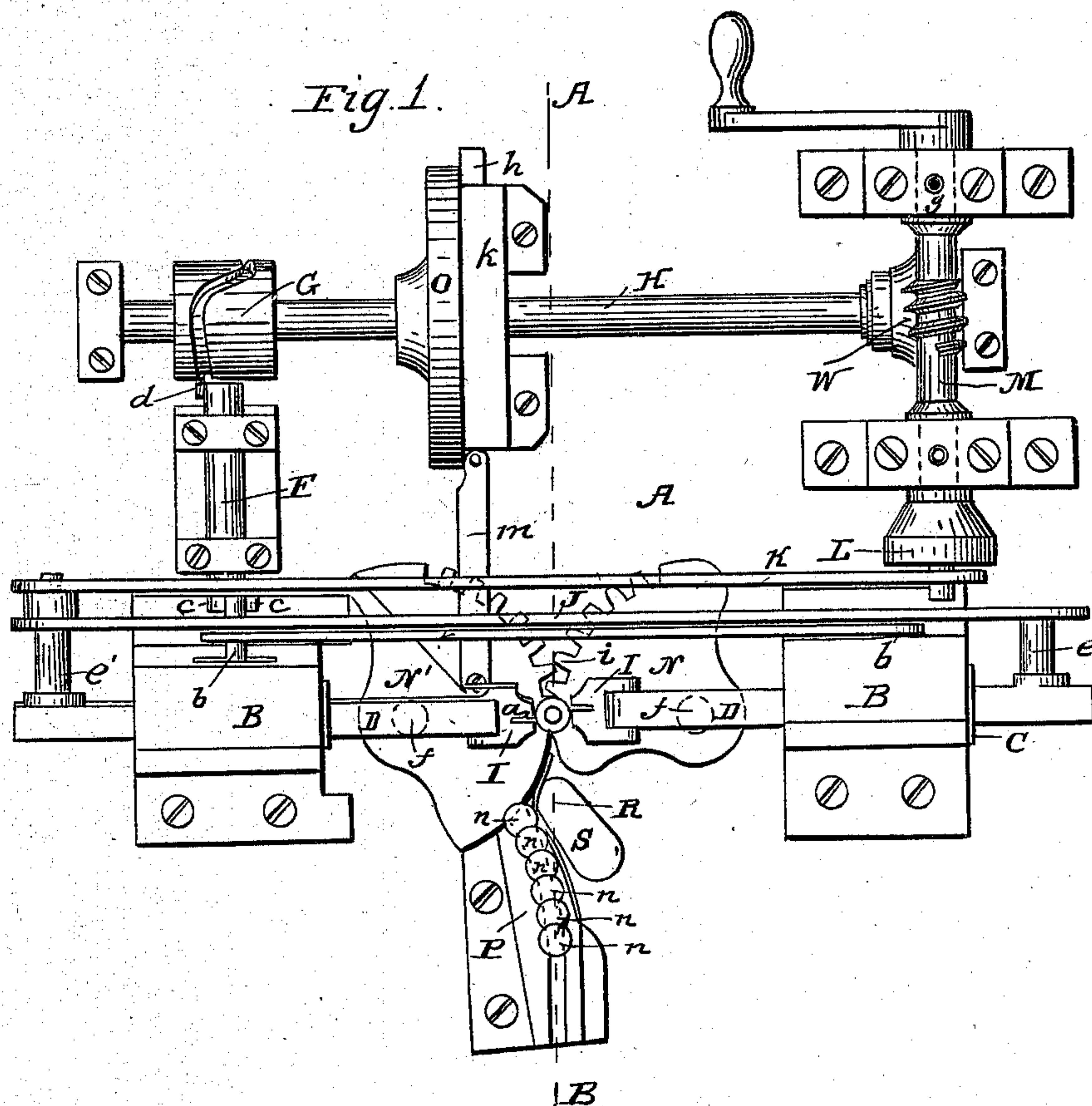


A. WOOD.

Machine for Nicking Screw Blanks.

No. 105,873.

Patented July 26, 1870.



Witnesses:
Thos. H. Dodge
Albert C. Fauce.

Inventor:
Auria Wood.

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Fig. 3.

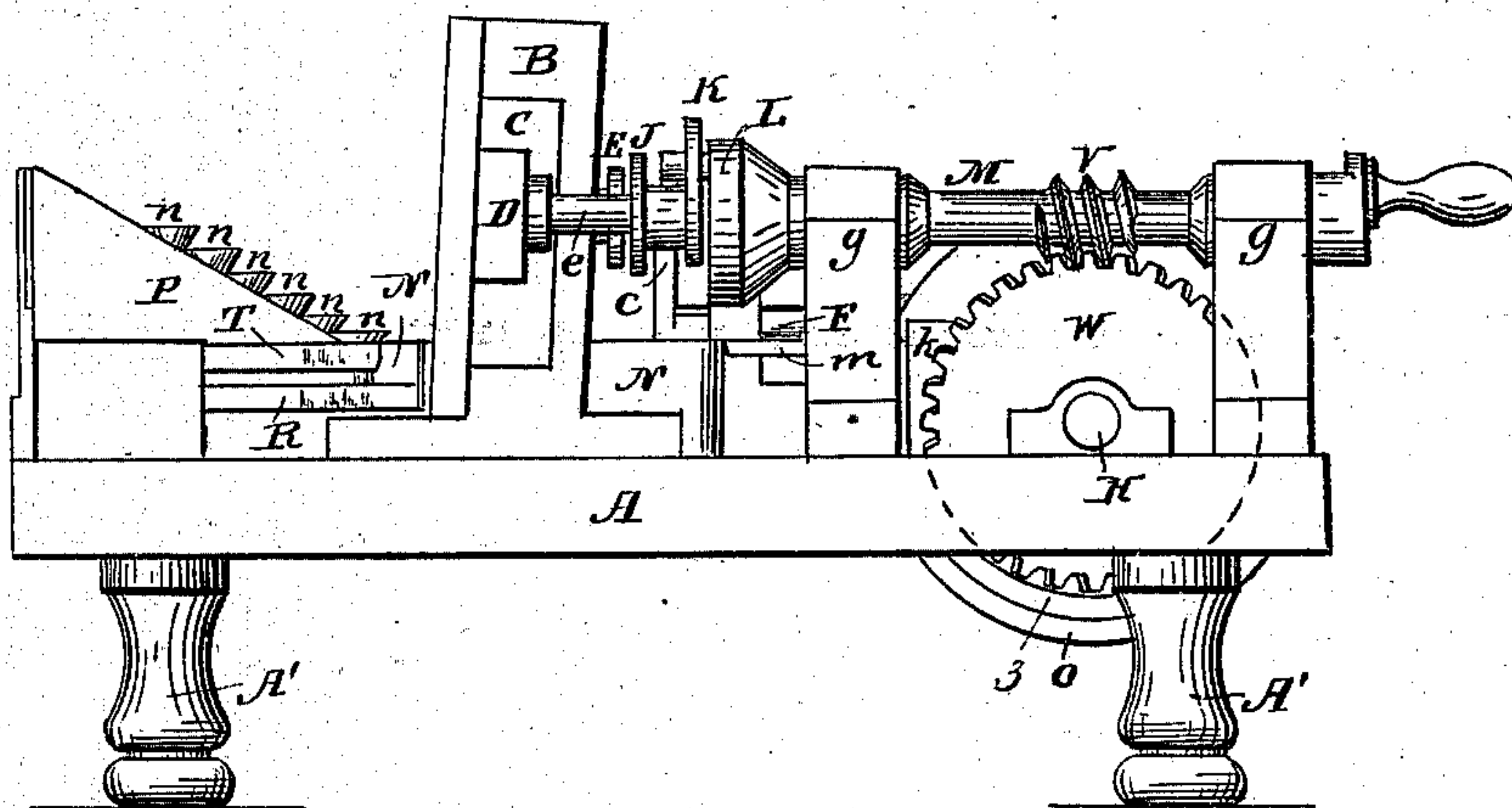
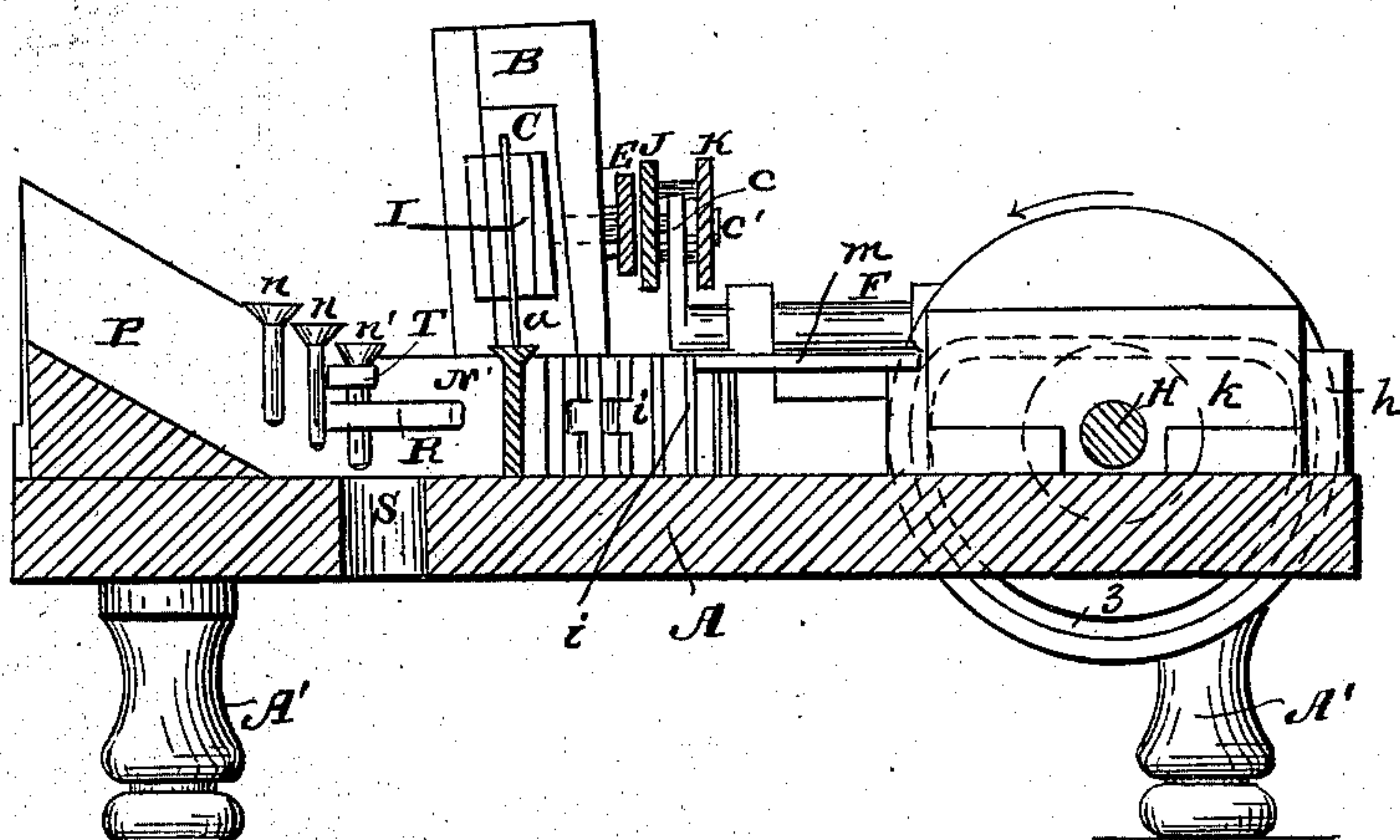


Fig. 4.



Witnesses:

Thos. H. Dodge
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UNITED STATES PATENT OFFICE.

AURIN WOOD, OF WORCESTER, MASSACHUSETTS.

IMPROVED MACHINE FOR NICKING SCREW-BLANKS.

Specification forming part of Letters Patent No. 105,873, dated July 26, 1870.

To all whom it may concern:

Be it known that I, AURIN WOOD, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Nicking Screws, and for other purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 represents a plan view of my improved machine for nicking screws. Fig. 2 represents a front view, with the face-plate removed from one of the guide-blocks to more fully show the construction. Fig. 3 represents a view of the right-hand side; and Fig. 4 represents a central section on line A B, Fig. 1.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawing, the part marked A is the bed or frame of the machine, and is supported upon suitable standards A'. Upon the top of the bed A are arranged guide-blocks B, that support the adjustable bearings C, wherein work the sliding bars D, which carry the cutting-tools *a*. The upper and lower edges of the bearing-pieces C are inclined, as are also the bearing-seats in the guide-blocks B, while the grooves for the sliding bars D are formed straight across the bearings C, so that by moving the bearing-pieces C from right to left the sliding bars D and cutting-tools will be raised or depressed, as the case may be, without changing the directions of their motion. The two bearings C are joined for operation by means of the connecting-rod E, to the ends of which said bearings are attached by means of pins *b b'*, which pass through slots formed in the rear side of the guide-blocks B, as indicated in the drawing. One of the pins, *b'*, is prolonged, and works between the forks *c*, attached to the end of a rock-shaft, F; and the bearings C are adjusted automatically by means of a grooved cam, G, on the back shaft, H, and which cam actuates the rock-shaft F, the latter being provided with a crank, *d*, the pin of which travels in the groove of the cam G.

The cutting-tools *a a* are secured in head-

blocks I I, which latter are pivoted to the ends of the sliding bars D, as indicated at 22; and the bars D are connected to each other for operation by means of a connecting-rod, J, that extends across the machine in rear of the guide-blocks B, and is secured to studs *e e'*, fixed in the outer ends of the slide-bars D. One of the studs, *e'*, is connected by means of a pitman, K, to a crank, L, on the end of a driving-shaft, M, which shaft is arranged transversely at the right-hand end of the machine and supported in the bearings *g*, as indicated in the drawing. As the shaft M revolves, the slide-bars D are reciprocated, carrying the cutting-tools right and left across the work, one tool cutting while the other is returning, and thereby losing no time.

The guide-blocks B are, in this instance, set somewhat inclined from a vertical position, the right-hand block being inclined to the rear and the left-hand block to the front, whereby the cutting-tools are brought in such position that they will cut a dovetailed nick in the screw-head, said nick being wider at the bottom than at the top. If preferred, however, the guide-blocks may be set in a vertical position.

The groove of the cam G is so formed that the cutting-tools *a* will be gradually depressed until the nick in the screw-head is formed of sufficient depth, and will then be quickly raised to clear them from the nick while the screw is being discharged and replaced.

The screw-blanks are carried beneath the cutters, and there held during the operation of nicking, and afterward discharged by means of a pair of segmental clamps, N N', which are pivoted upon vertical studs *f f*, projecting from the bed A.

The faces of the clamps N N' are each provided with a semi-cylindrical vertical groove, of the proper size and form to fit the screw-blank, and in which the blank is firmly held by the pressure of the clamps N N'.

The faces of the clamps N N', at the rear of the groove, are furnished with cogs or teeth *i*, to insure uniform action between the two, and they are caused to roll back and forward by the action of a cam, O, arranged upon the back shaft, H, which shaft receives its motion from the driving-shaft M through the worm V and worm-gear W.

The cam O has a groove, 3, in its side, in

which travels an operating-pin that projects from the slide *h*, which latter is arranged in the bearings *h* in such a manner that it will move back and forth horizontally with an intermittent motion as the cam revolves.

One of the clamps, *N'*, is connected to the front end of the slide *h* by means of a hinged connection-piece, *m*, so that when the slide moves forward, the clamps will swing to the front far enough to bring the semi-cylindrical groove in the clamp *N'* in conjunction with the end of the chute in the inclined hopper *P*, wherein are fed the screw-blanks *n*.

The blanks *n n'* are caused by their own weight to slide down the inclines, and the first blank, *n'*, drops into the groove in the face of the clamp *N'*, and as said clamp swings back the blank *n'* is carried with it, the blank being meanwhile held against the clamp by the yielding guide-spring *R* until the clamp has swung far enough back to admit of the blank being caught by the grooves in the opposite clamp, when it is pressed firmly between the two clamps, and stops directly beneath the cutters *a*, where it is held until properly nicked; and as the clamps *N N'* again move forward, the blank passes outside of the spring *R*, and being thereby separated from the grooves of the clamps, it is free to drop down through the opening *S* into any suitable receptacle placed beneath to receive it.

A recess is formed through the first two cogs of the clamps *N'*, so as not to interfere with the spring *R* as the clamp swings forward.

A spring, *T*, is, in this instance, arranged at the side of the hopper, to keep the blanks in a perpendicular position, and to prevent more than one blank from being drawn out at a time; but, if preferred, the spring *R* may be made of such forms as to supersede use of the spring.

Instead of using two slide-bars, *D D*, a single bar may be used, in which case I should prefer to have it extend through the bearing *C*.

Having described my improved machine for nicking screws, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the bed or frame *A*, of the sliding bars *D D* and reciprocating inclined bearings *C C*, which automatically raise and depress the cutters, substantially as and for the purposes set forth.

2. The combination, with the cutters and sliding bars *D* and segmental-gear clamps, of the inclined hopper *P* and separating-spring *R*, substantially as described.

3. The combination, with the segmental-gear clamps *N N'*, of the separating-spring *R*, which also guides the screw from the hopper to the segmental-gear clamps, substantially as described.

4. The combination, with the sliding bars *D* and driving-shaft *M*, of the crank *L*, pitman *K*, and connection *J*, substantially as shown and described.

5. The combination, with the segmental-gear clamps, constructed as described, and cam *O*, of the connecting-bar *m* and slide *h*, arranged in relation to each other as shown and described.

6. The combination, with the inclined bearings *C*, connecting-rod *E*, and pins *b b'*, of the rock-shaft *F* and cam *G*, substantially as shown and described.

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Witnesses:

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