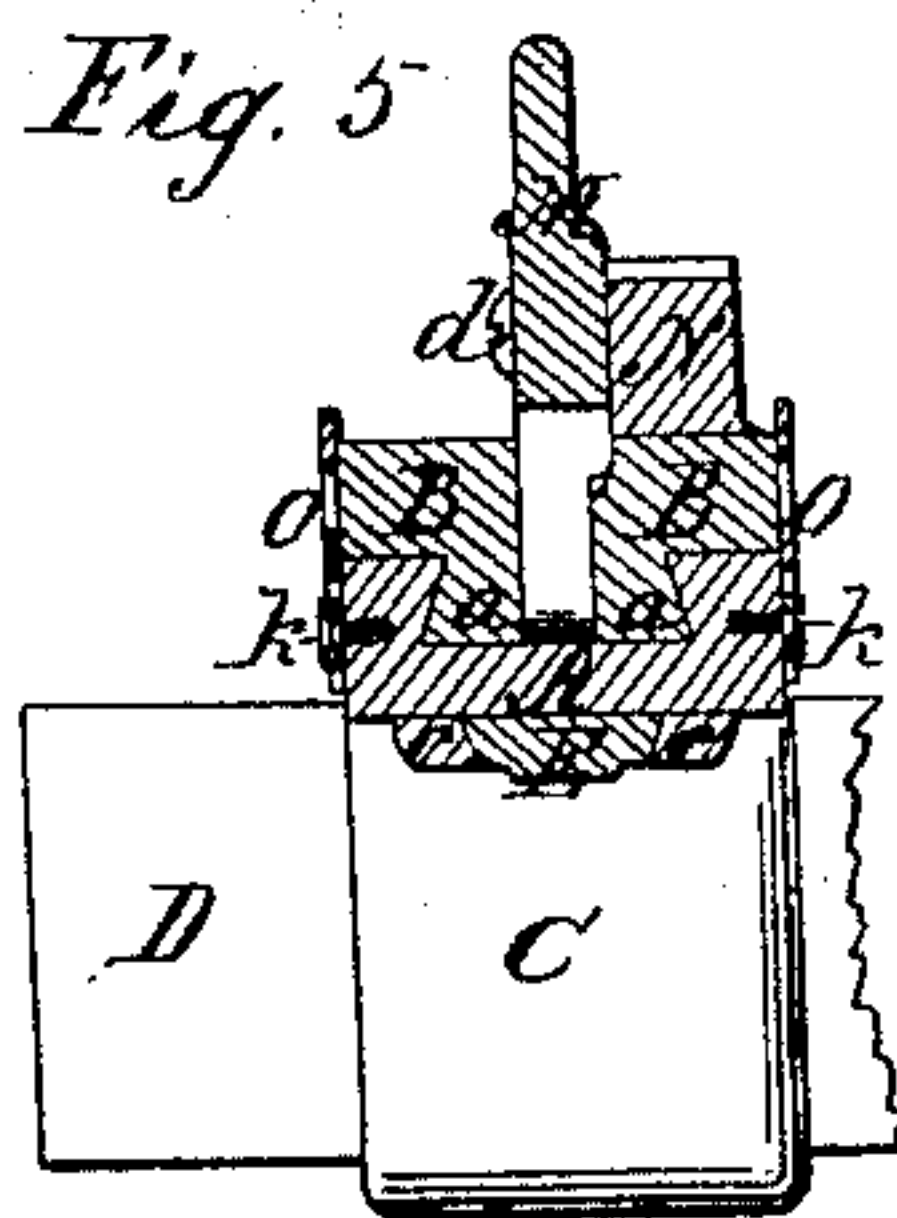
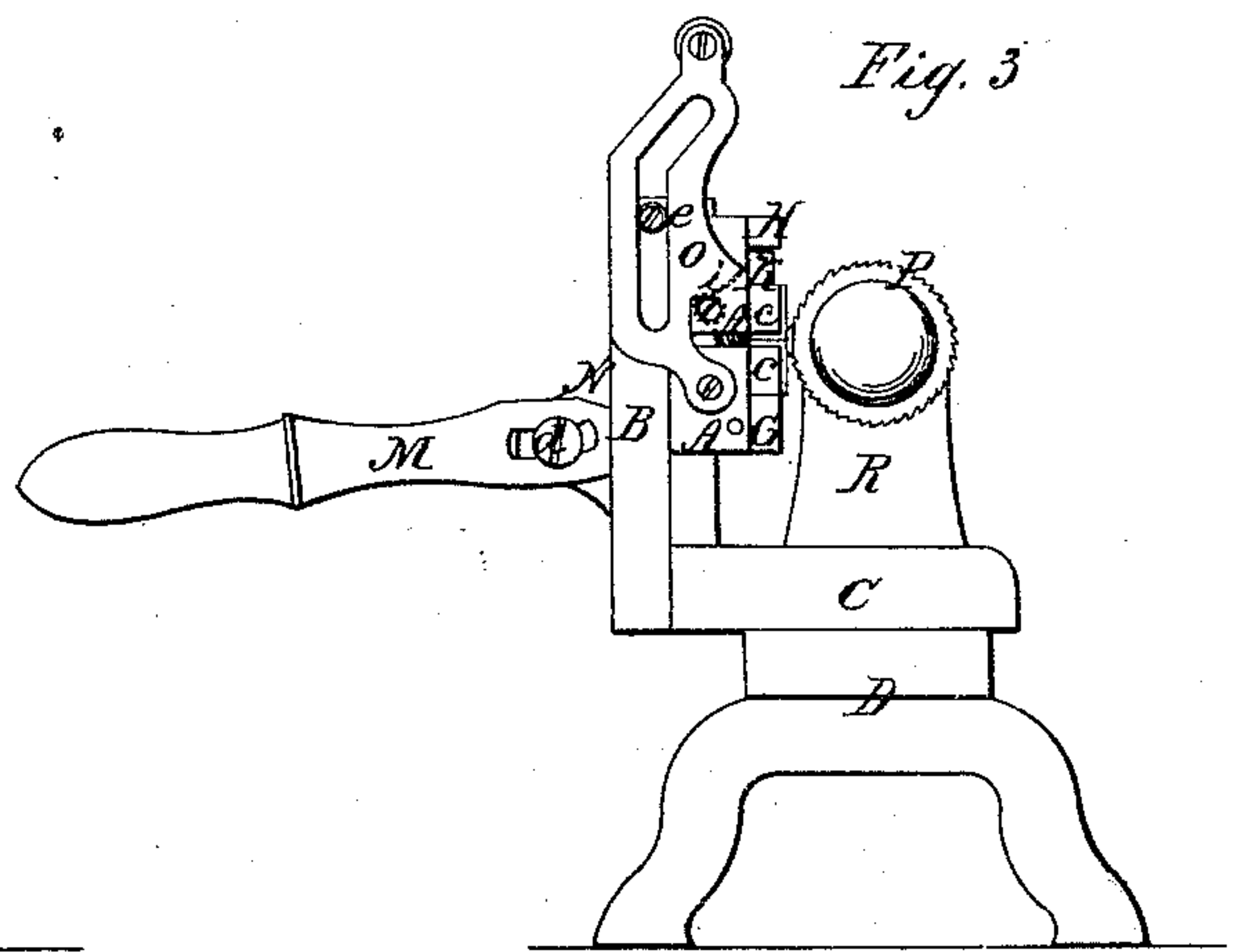
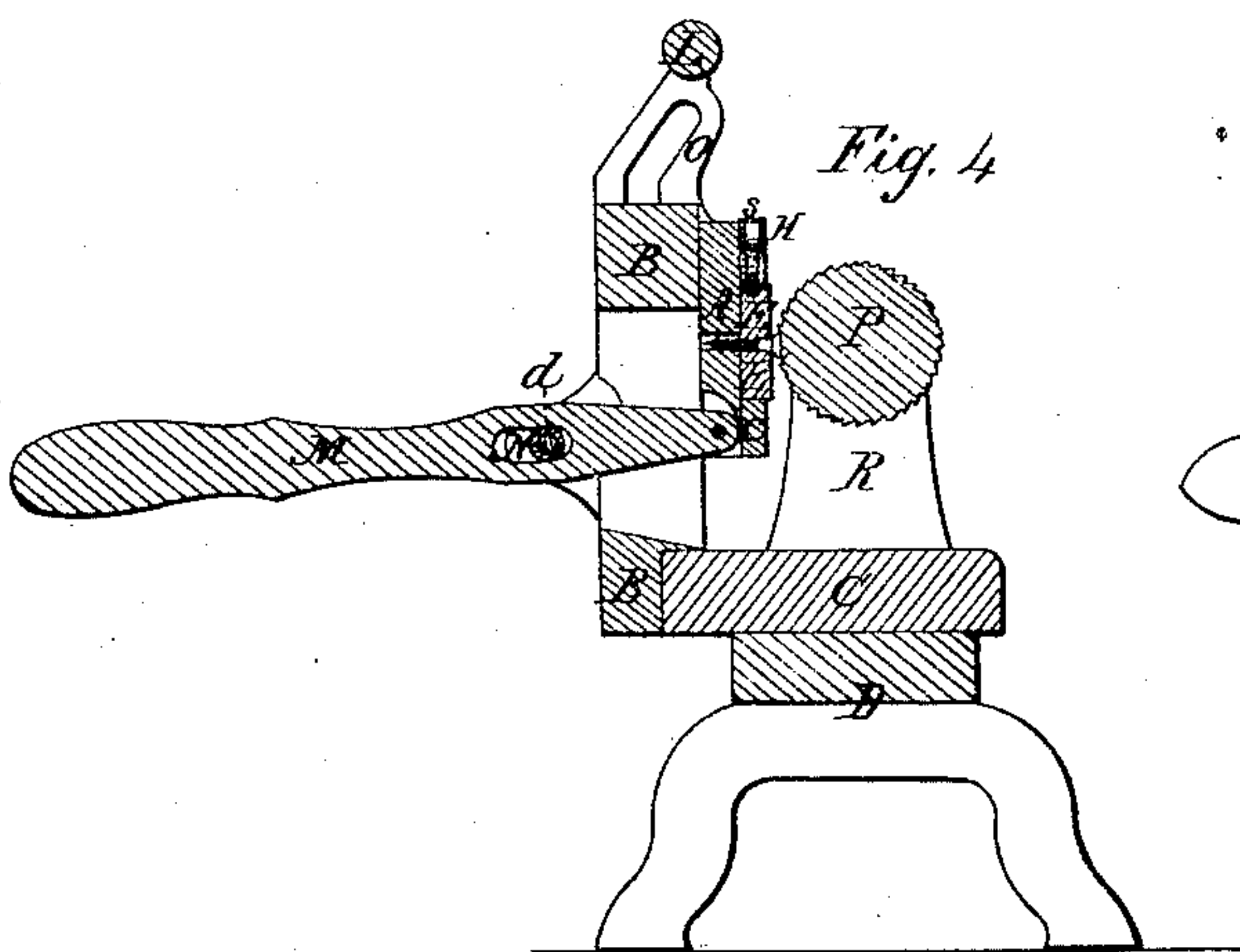
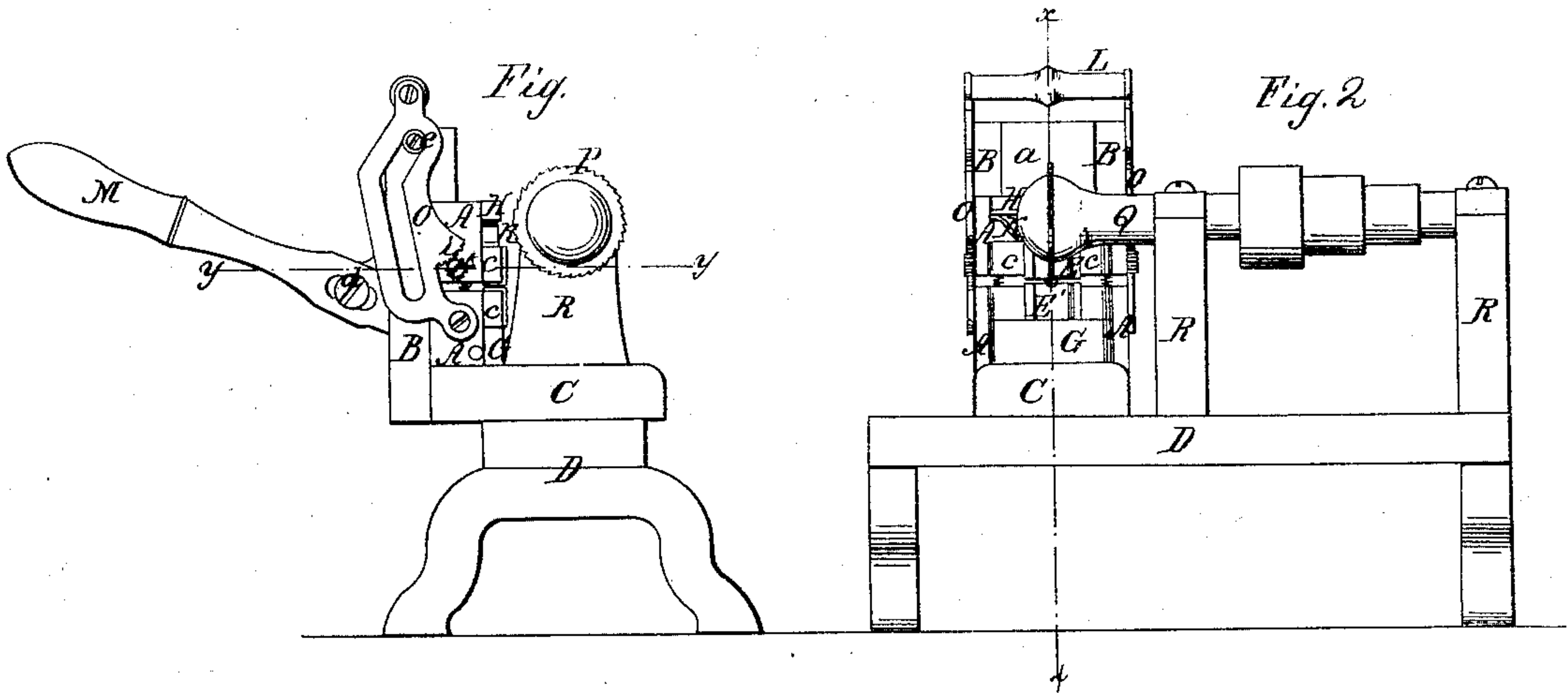


J. A. Bidwell.

Nicking Wood Screws.

N^o 45,946.

Patented Jan. 17, 1865.



Witnesses

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UNITED STATES PATENT OFFICE.

JASON A. BIDWELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
H. T. LITCHFIELD, DANIEL M. ROBERTSON, AND ASAPH CHURCHILL.

IMPROVED SCREW-NICKING MACHINE.

Specification forming part of Letters Patent No. 45,946, dated January 17, 1865.

To all whom it may concern:

Be it known that I, JASON A. BIDWELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Screw Slotting or "Nicking" Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and of which—

Figure 1 is a side elevation of the machine at rest; Fig. 2, a front view of the same; Fig. 3, a side elevation thereof, illustrating the operation of the machine; Fig. 4, a vertical section in the line *x x* of Fig. 2, illustrating the machine when its parts are placed as shown in Fig 3; and Fig. 5 is a horizontal section in the line *y y* of Fig. 1.

Similar letters indicate like parts in all of the drawings.

The nature of my invention consists in a novel device for holding screw-blanks and carrying them against a circular saw in such a position and direction as that the cut forming the slot or "nick" upon the head thereof shall be uniform in depth from end to end.

The improved machine embodying my invention is constructed of two cramping-blocks, which are closed upon each other and then carried upward in front of a circular saw by means of a simple lever combined with auxiliary cam-levers.

The cramping-blocks A A', Figs. 1 and 3, in the machine slide vertically upon a way or tongue, *a*, formed upon the front face of a strong upright, B, and so inwardly beveled as to dovetail within recesses cut in the said blocks A A' to receive it. This upright B is secured to a bed-plate, C, and supported therewith upon a suitable bench, D, as shown in Fig. 1.

The sliding blocks A A' are of the same width as the upright B, upon which they move. Upon the front face of these blocks A A' are placed the clamping-dies E E', whose opposite ends constitute the jaws of the machine, by which the screw-blanks are gripped and held while being nicked. These dies are retained against the blocks A A' by means of inwardly-beveled side strips, *c c*, Fig. 2, which are firmly secured to the blocks, so as to overlap the beveled edges of the dies. The dies have conse-

quently free play vertically between these strips, although a downward movement of the lower die or jaw, E', is prevented by means of a supporting-bar, G, Fig. 2, firmly secured against the block A', across the lower ends of said strips *c c*.

The movement or play of the upper die, E, between its retaining-strips is controlled by a small bolt or screw, *s*, Fig. 4, whose lower end is secured in the upper side of the die, but whose head passes loosely through a transverse bar, H, secured against the front of the upper block, A, and also by a powerful spring, K, inserted between this bar H and its upper side. This spring has a tendency to force down the die as far as the bolt or screw *s* will permit, and the length of this bolt is so proportioned as to allow the lower face of the die, forming one side of the jaws, to project somewhat below the lower face of the block A, upon which it is secured.

The opposite faces of the dies E E', which constitute the jaws of the machine, have a slight groove cut upon them to embrace the screw-blank which they are to hold, and thus prevent it from slipping when gripped.

The upright B, which serves to guide and retain in position the sliding blocks A A', has a long slot cut vertically through its center to receive the short end of a lever, M, which is pivoted to a lug or projection, N, secured for the purpose against its rear face on one side of the slot, as shown in Figs. 1 and 4. The short end of this lever passes through the slot in the upright B, and is hinged to the center of the lower block, A', within a recess formed therein to receive it. The pivot *d*, which constitutes the fulcrum of this lever M, is received into a slotted aperture in the lever, as illustrated in Figs. 1, 3, and 4, so that its bearing changes as the blocks A A' play vertically upon the beveled way *a*.

A small circular saw, P, Figs. 1 and 4, secured to the end of a suitable pulley-shaft, Q, Fig. 2, supported in journals upon the standards R R, is made to revolve immediately in front of the dies E E' of the blocks A A', and at such a distance above them as that they will barely pass above its axis when elevated by the action of the lever M.

The blocks A A' are drawn together and their dies or jaws E E' are firmly closed upon

each other by the operation of slotted cam-levers O O, placed upon each side of the blocks A A' and upright B, and shaped as clearly illustrated in Figs. 1 and 3 of the drawings. The lower ends of these levers O O are hinged to the sides of the lower block, A', and projecting cams *i i* upon their front edges pass over studs *k k* in the upper block, A. Their upper ends project above the upright B and are united by a cross-bar, L, Fig. 2, pivoted thereto, which serves to retain the levers against the side faces of the upright B. Slots are cut in these side levers, O O, so as to extend from the lower ends thereof, first longitudinally in a direction parallel to their rear edges, and then in an incline at an acute angle with these edges, and these slots embrace studs *e e*, which project from either side of the upright B, at the upper end thereof. (See Figs. 1 and 3.) When these levers O O are drawn down by the weight of the blocks A and A', resting upon their lower ends, the studs *e e*, bearing against the upper inclined portions of the slots, force out the levers and draw back the cams *i i* from the studs *k k* on the upper block, A.

Springs are placed between the upper and lower blocks, A and A', which, when their resistance is not overcome by the cams *i i*, force the blocks apart, and consequently open the jaws E E'.

When the operating-lever M is forced down the so as to carry up the block A', together with side levers, O O, pivoted thereto, the inclined slots in said levers, working against the studs *e e*, immediately throw these levers forward, and by forcing their cams *i i* over the studs *k k* in the upper block, A, draw the two blocks closely together and close the jaws of the machine. As the blocks continue to pass up, however, in front of the saw, the longitudinal portions of the slots in the side levers reach the upper studs, *e e*, and the levers are no longer thrown forward but are simply retained in an upright position, which serves to retain the cams *i i* upon the studs *k k*, and thus keep the blocks A and A' and the jaws E and E' locked together.

As the die forming the upper jaw, E, plays upward against its controlling-spring K, it is evident that the pressure exerted upon any object placed between the jaws when they are closed is that of the spring alone; but this spring is made of such power as to firmly grip a screw-blank placed between the jaws.

The operation of the machine is very simple: The lever M being thrown up, the blocks A and A' are thereby allowed to drop down below the axis of the slotting-saw, and at the same time, being relieved from the action of the cams *i i*, will spring apart and open the jaws E E'. The screw-blank to be nicked being placed between these jaws, a downward movement of the lever M will at once close the jaws so as to securely hold the blank, and at the same time carry the jaws, with the blank, up against the saw. The saw will first strike the upper edge of the blank and gradually cut the nick across its head as it is carried up by the lever.

It is evident that an angular rod passing between rollers might be substituted for the slotted end of the side levers, O O, and I contemplate such equivalents of this or other portions of my machine.

Now, having fully described the same, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The jaws E E', sliding blocks A A', and controlling-spring K, when combined with each other and with a circular saw, P, substantially in the manner and for the purpose herein set forth.

2. The arrangement and combination of the sliding blocks A A' with the upright B, slotted side levers, O O, and operating-lever M, or their equivalents, substantially in the manner and for the purposes herein set forth.

The foregoing specification of my improved screw-nicking machine signed by me this 18th day of October, A. D. 1864.

JASON A. BIDWELL.

In presence of—

DANIEL M. ROBERTSON,
NATHANIEL SEAVER.