

F. E. BOYD.

Feeder for Nail Cutting Machines.

No. 75,620.

Patented March 17, 1868.

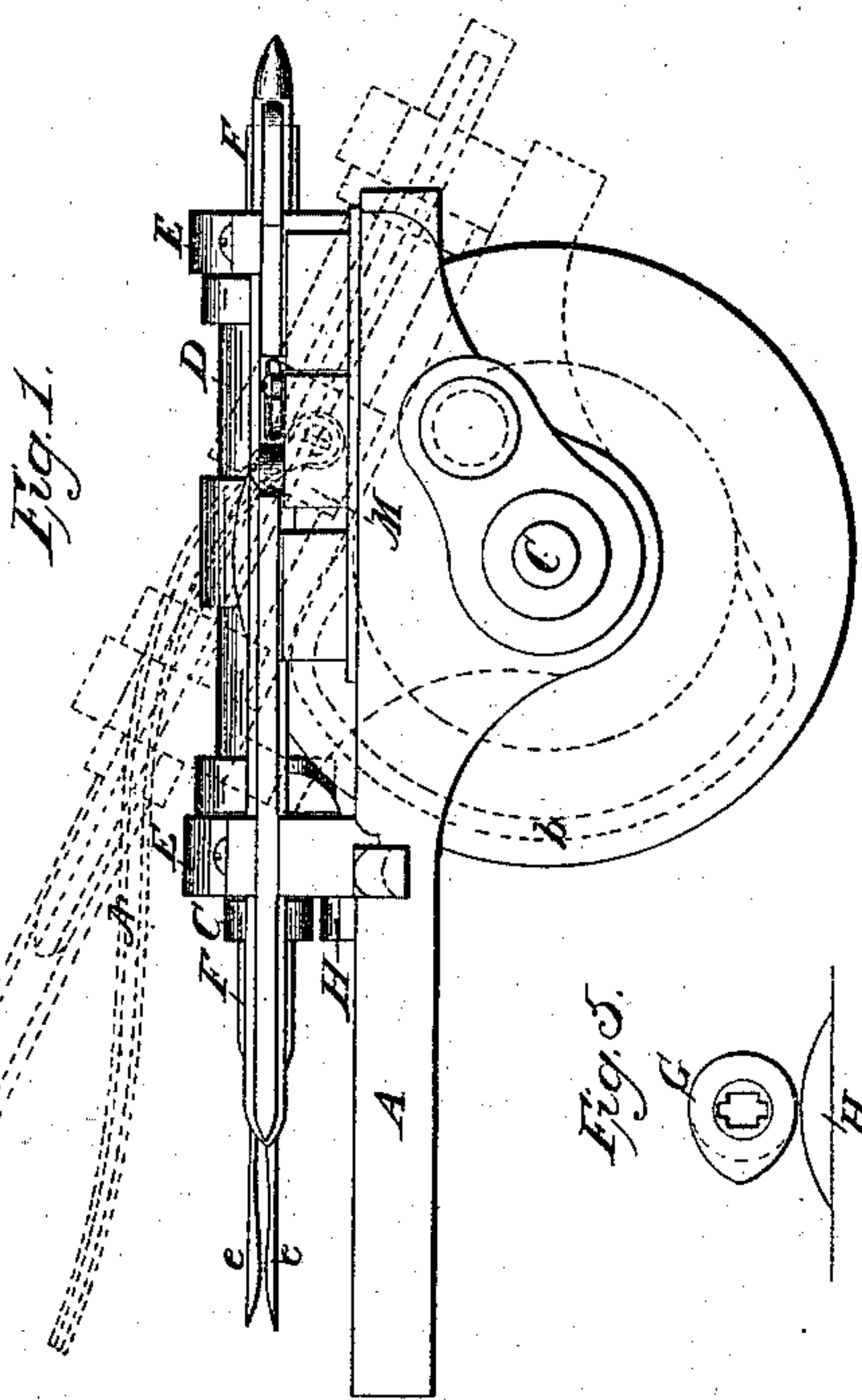
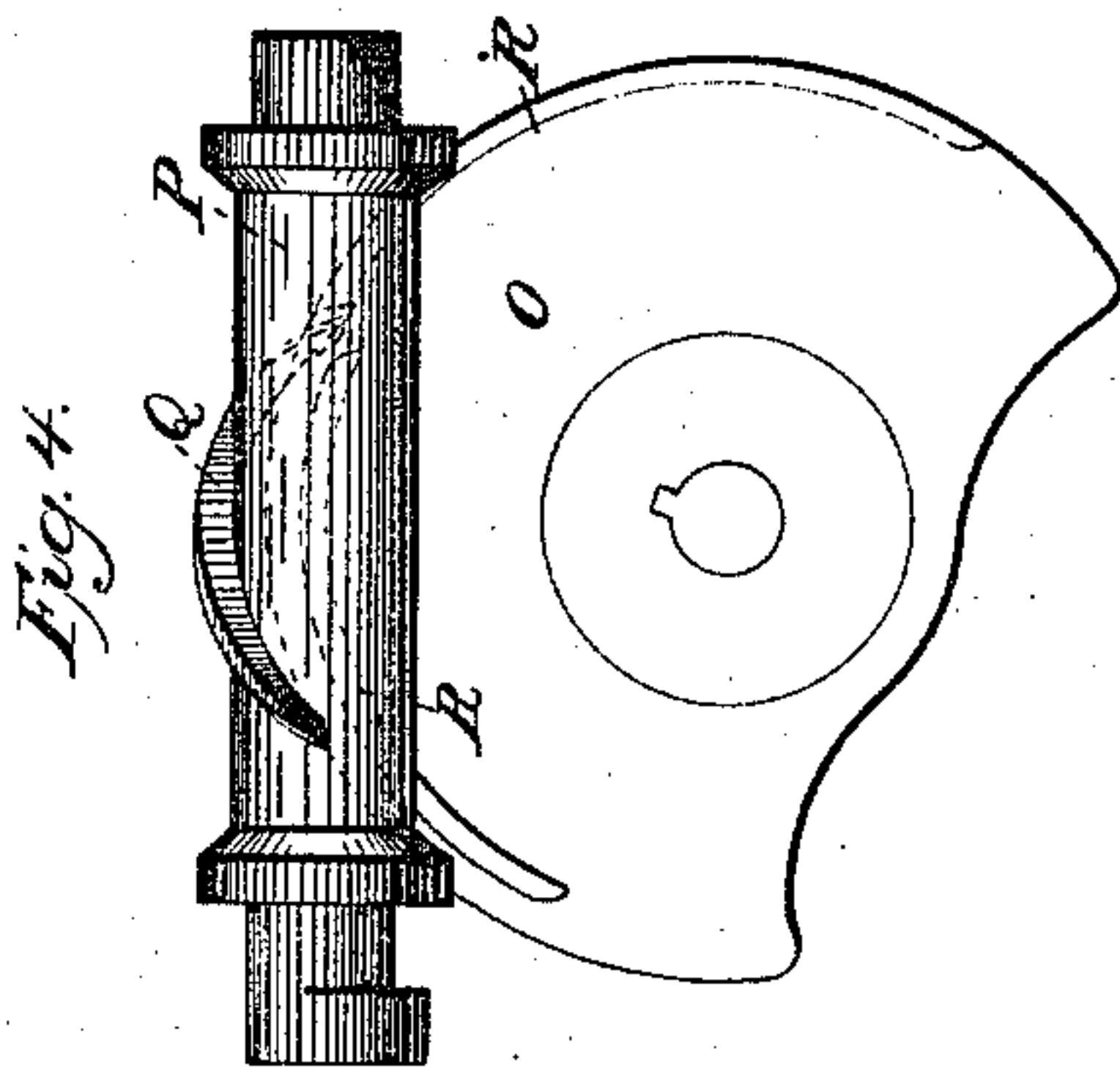
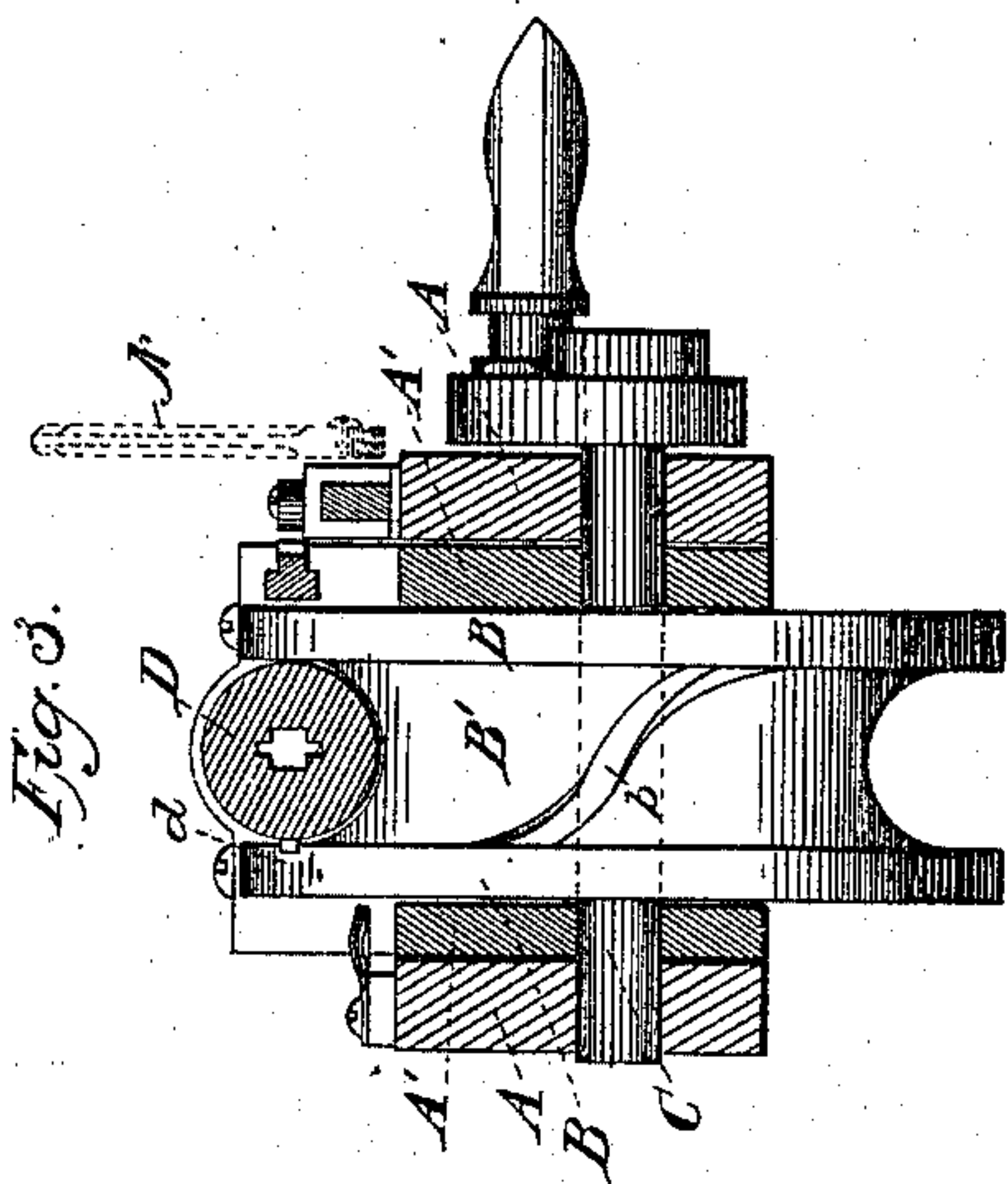


Fig. 2.

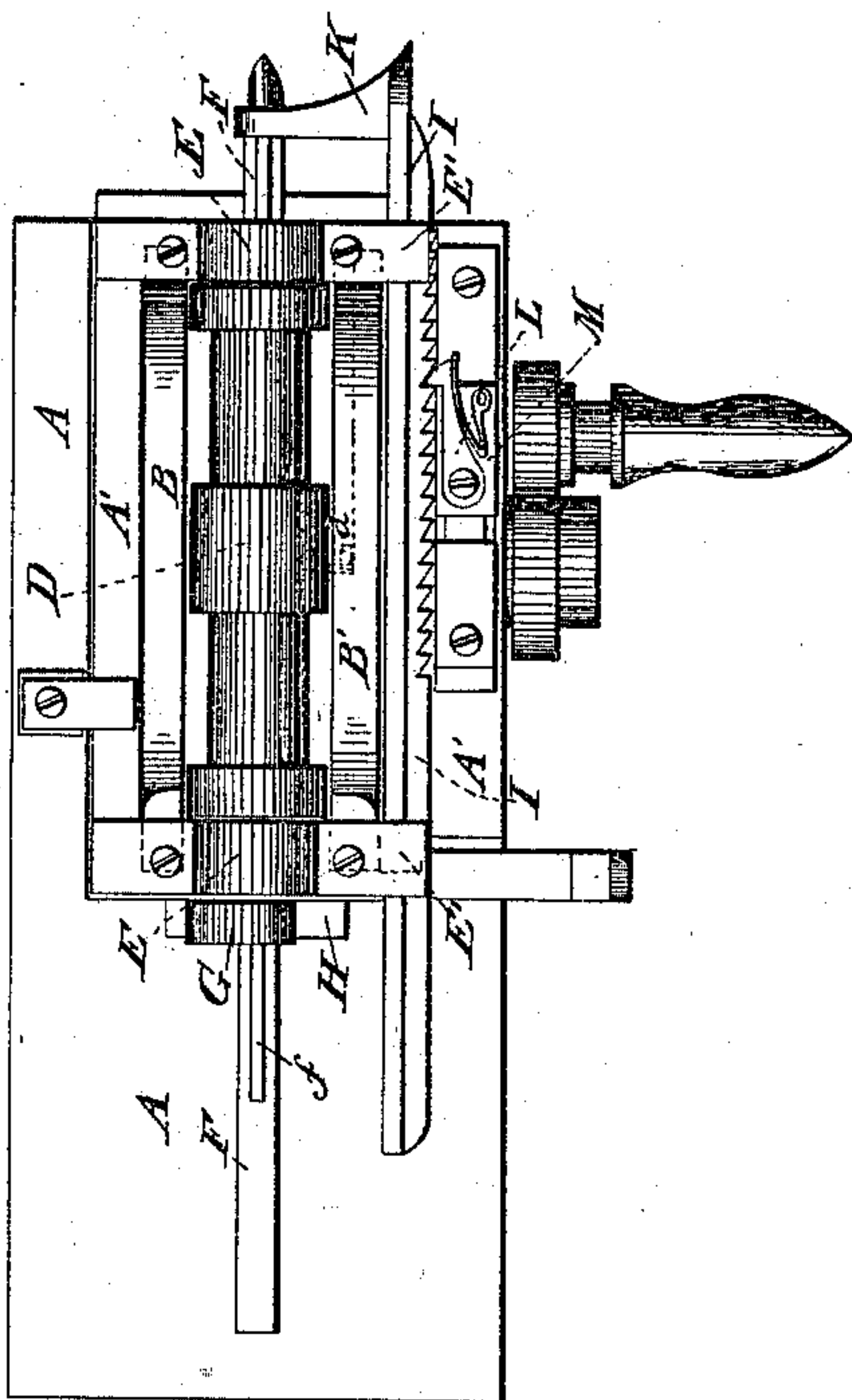
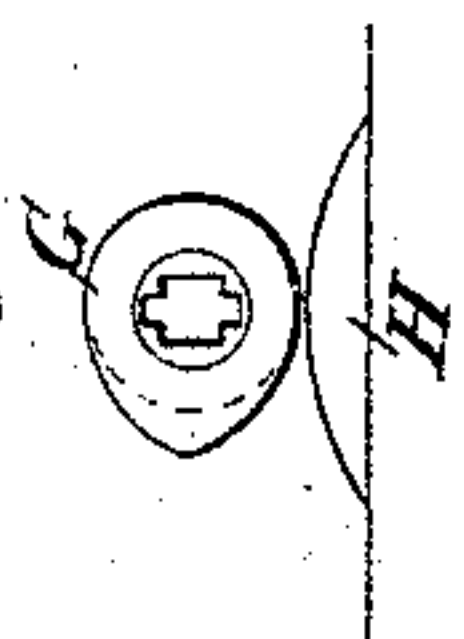


Fig. 5.



Witnesses:

P. S. Tyler.
H. E. Boyd.

Inventor:

Francis E. Boyd.

United States Patent Office.

FRANCIS E. BOYD, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 75,620, dated March 17, 1868.

IMPROVEMENT IN FEEDING NAIL-PLATES.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, FRANCIS E. BOYD, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Machines for Feeding the Plate from which the Nails are Cut to the Nail-Cutter, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side elevation of a machine embodying my invention.

Figure 2 is a plan view of the same.

Figure 3 is partly a transverse sectional view, and partly a rear elevation.

Figure 4 is a modification of the concave cam-wheel; and

Figure 5 is an end view of the cam attached to the barrel or holder, which carries the nipper-rod.

Similar letters indicate like parts in the several figures.

Various attempts have been made to provide an automatic feed-movement to the nail-plate in nail-cutting machines, but, in consequence of the uncertain operation of the devices employed, they have failed to answer the purpose, and feeding by hand is still mainly resorted to.

The object of my invention is to provide a simple and efficient means for automatically feeding the plate or blank from which the nails are cut to the nail-cutting machine, and at the same time presenting the sides of the plate alternately to the action of the cutters, so that the wrist-movement of the nipper-rod will be certain, and its feed positive; and

The invention consists in so arranging and connecting the nipper-rod and barrel with the frame as to enable the nipper-rod to be readily removed from the machine when the nail-plate is used up, and another nipper-rod, with a fresh plate, to be substituted during the operation of the machine. The invention also consists in the mode of imparting a semi-rotating movement to the barrel which contains the nipper-rod. It further consists of a tilting-frame, in which is mounted a barrel or holder containing a sliding nipper-rod and rack.

Referring to the drawings, A represents the frame or bed of the machine, which may form a part of the nail-cutting machine, or be attached to the same in any suitable manner. In the frame A is hung, in suitable bearings, a shaft, C, to which motion may be imparted by any first-moving power. Within the frame A is a secondary frame, A' A', which is supported on the shaft C, and arranged to tilt upon the same, as shown in red lines in fig. 1. Within the frame A' A', and upon the shaft C, is firmly secured a wheel, B B B', formed with a concave central surface, B', and two projecting sides, B B, in which latter are two cam-paths or grooves, b, of the form shown in dotted lines in fig. 1 and in fig. 3, the same extending each partially around the inner sides of the projecting portions, B B, and crossing the concave portion, B', as shown in fig. 3.

Mounted in suitable bearings, E E, in the movable frame A' A', is a barrel or holder, D, on the central portion of which is a pin or projection, d, which travels in the cam-grooves formed in the wheel B B B', so that, as the latter is rotated either wholly or only half way round, the barrel D will remain in one position during a portion of the movement of the said wheel. It will then be turned half way round, in which position it will remain until the projection d, on the barrel, again crosses the concave portion, when it will be turned back again to its first position, the action upon the barrel being the same whether the wheel be rotated entirely or only half way round. Passing longitudinally through the centre of the barrel D is a nipper-rod, F, provided with a spline, or otherwise constructed, so as to prevent its turning within the barrel, and yet allow it to slide freely in the same, and turn with it. It is provided with jaws, e e, for holding the nail-plate, and, conforming to the motions of the barrel D, is made to present alternately the two faces of the nail-plate to the action of the cutters.

On a projecting-end of the barrel D is secured a cam, G, which bears upon a curved block, H, as shown in fig. 5, the object of which is to elevate the nipper-rod, so as to allow the nail-plate to be raised free from the bed as it is turned from one side to the other. A friction-roller may be substituted for the block H, if desirable.

The forward feed-movement of the nipper-rod is accomplished by means of a rack-bar, I, fitted to slide freely in the bearings or guides E' E', and engaging with a pawl, L, attached to a sliding block, M, to which motion is imparted from a bar, N, attached to any moving portion of the machine, and the motion being such as to cause the pawl to engage successively with the teeth of the rack. The rack and pawl may be adjusted to adapt the motion of the nipper-rod to the required width of the nail to be cut. To the outer end of the rack-bar

It is attached a head, K, extending at right angles from the said bar, and provided with an opening that slips over the end of the nipper, and fits against a shoulder on the same, so as to enable the nipper-rod to be easily slipped out at the end of its movement when the plate is entirely cut up.

Fig. 4 shows a modification of the wheel B B', consisting of a disk, O, of the shape shown, and provided with projections, R R, in connection with a curved rib or cam, Q, on the barrel P, the said cam passing through an opening between the projections R, and imparting to the barrel a movement similar to that of the wheel B B', above described.

When the machine is to be operated, the nail-plate is placed between the jaws *e e*, and, by the motion of the barrel D, the nail-plate is presented alternately on each side to the action of the cutters, the plate being fed up at each time by means of the rack and pawl I L. When the nail-plate is entirely cut up, the frame A A' is tilted upwards, as shown in the red lines in fig. 1, which throws the rack I out of connection with the pawl L, the wheel B B' and barrel D at the same time being stopped. The nipper-rod may then be at once withdrawn from the barrel, and another nipper-rod, provided with a fresh plate, is immediately inserted in the barrel. The frame A A' is then brought down, and the parts all thrown into connection, and the operation proceeds as before.

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

1. The movable nipper-rod F, in combination with the rack-bar I, head K, sliding block M, and pawl L, substantially as and for the purpose specified.
2. I claim the combination of the holder or barrel D, provided with the projection or pin *d* and the wheel B B', substantially as and for the purpose set forth.
3. I claim the tilting-frame A' A', in combination with the holder or barrel D, rack-bar I, and wheel B B', as and for the purpose specified.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS E. BOYD.

Witnesses:

J. H. ADAMS,

P. S. TYLER.