

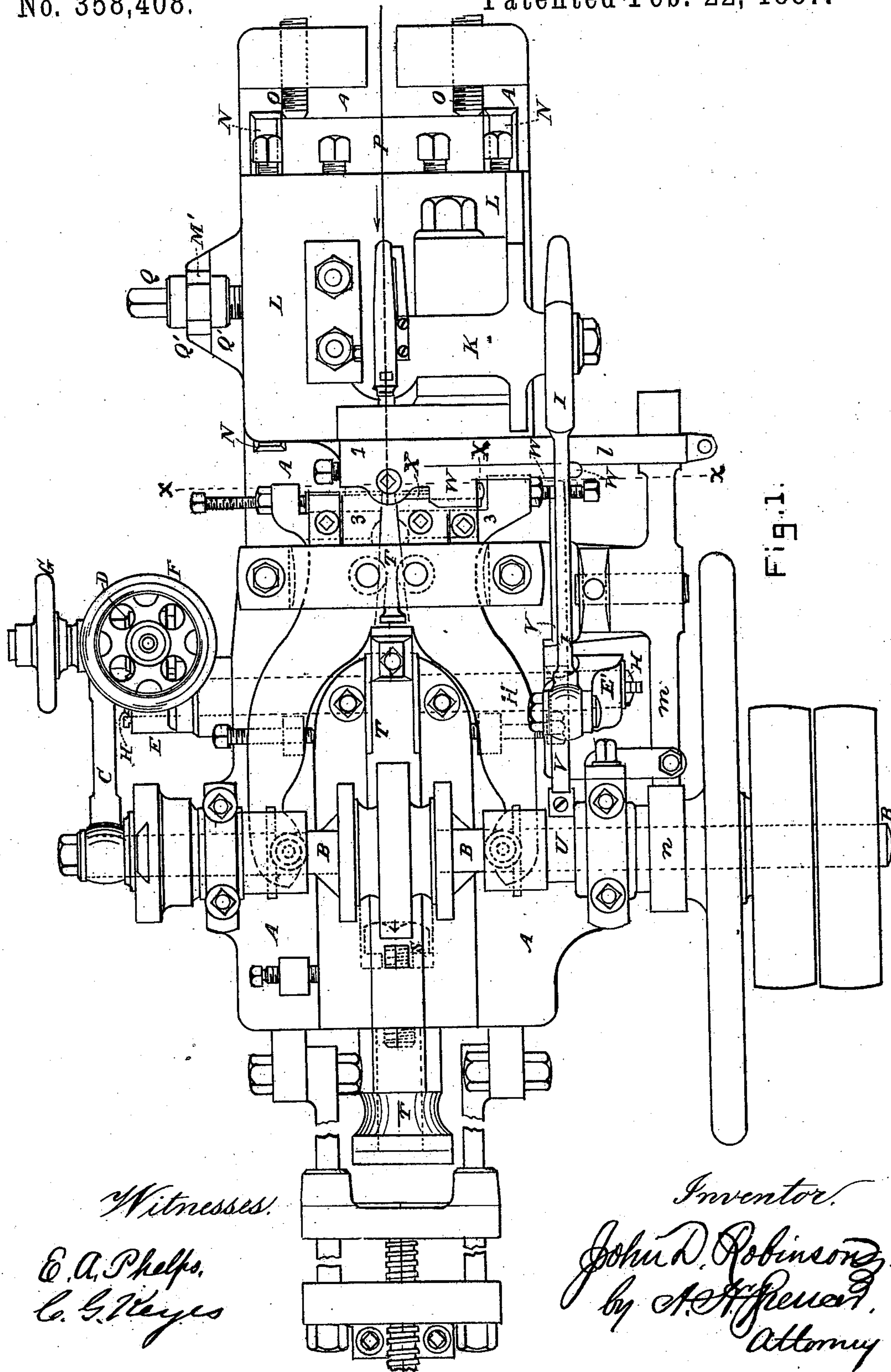
(No Model.)

5 Sheets—Sheet 1.

J. D. ROBINSON.  
WIRE NAIL MACHINE.

No. 358,408.

Patented Feb. 22, 1887.



Witnesses.  
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C. S. Hayes

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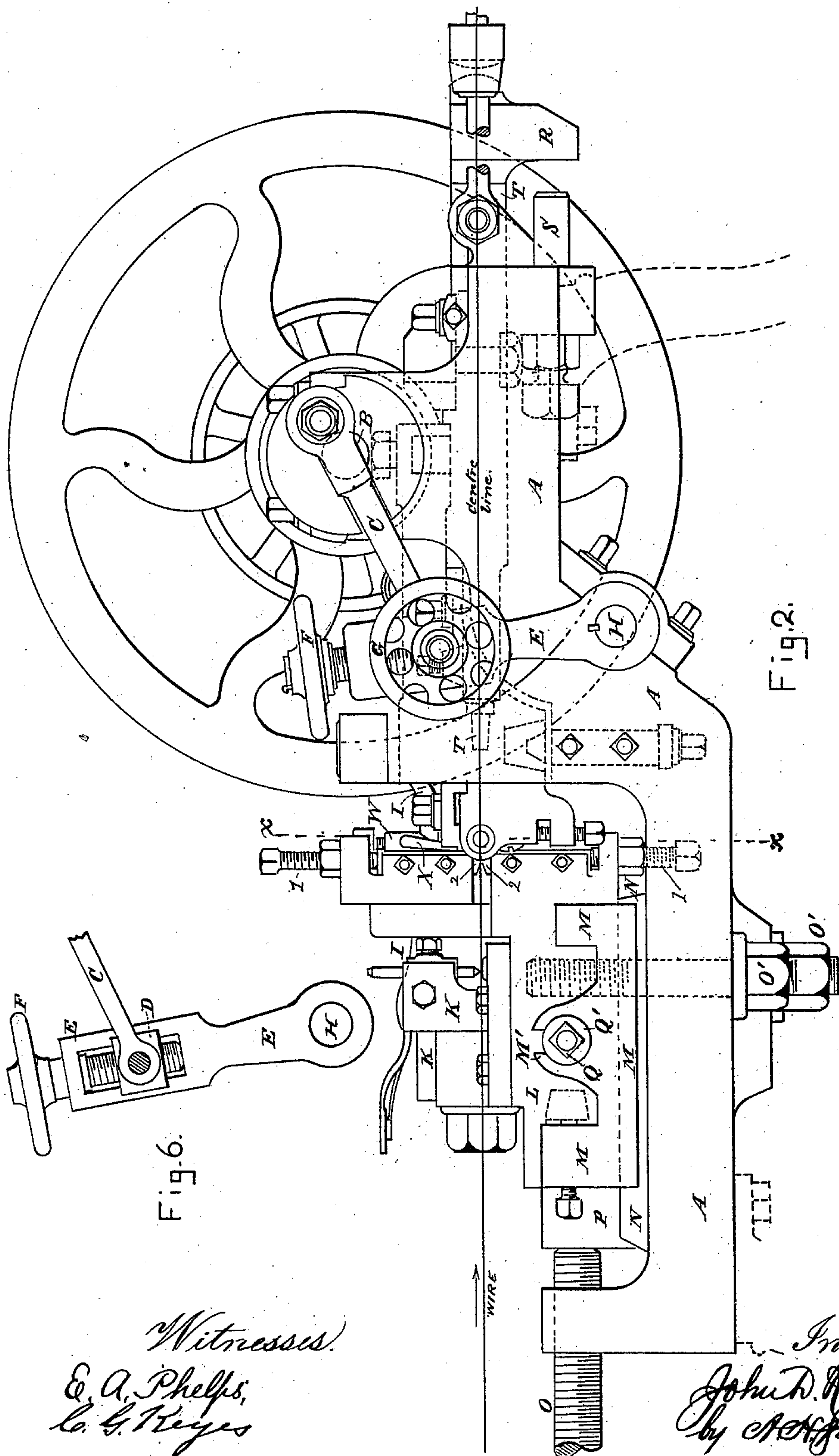
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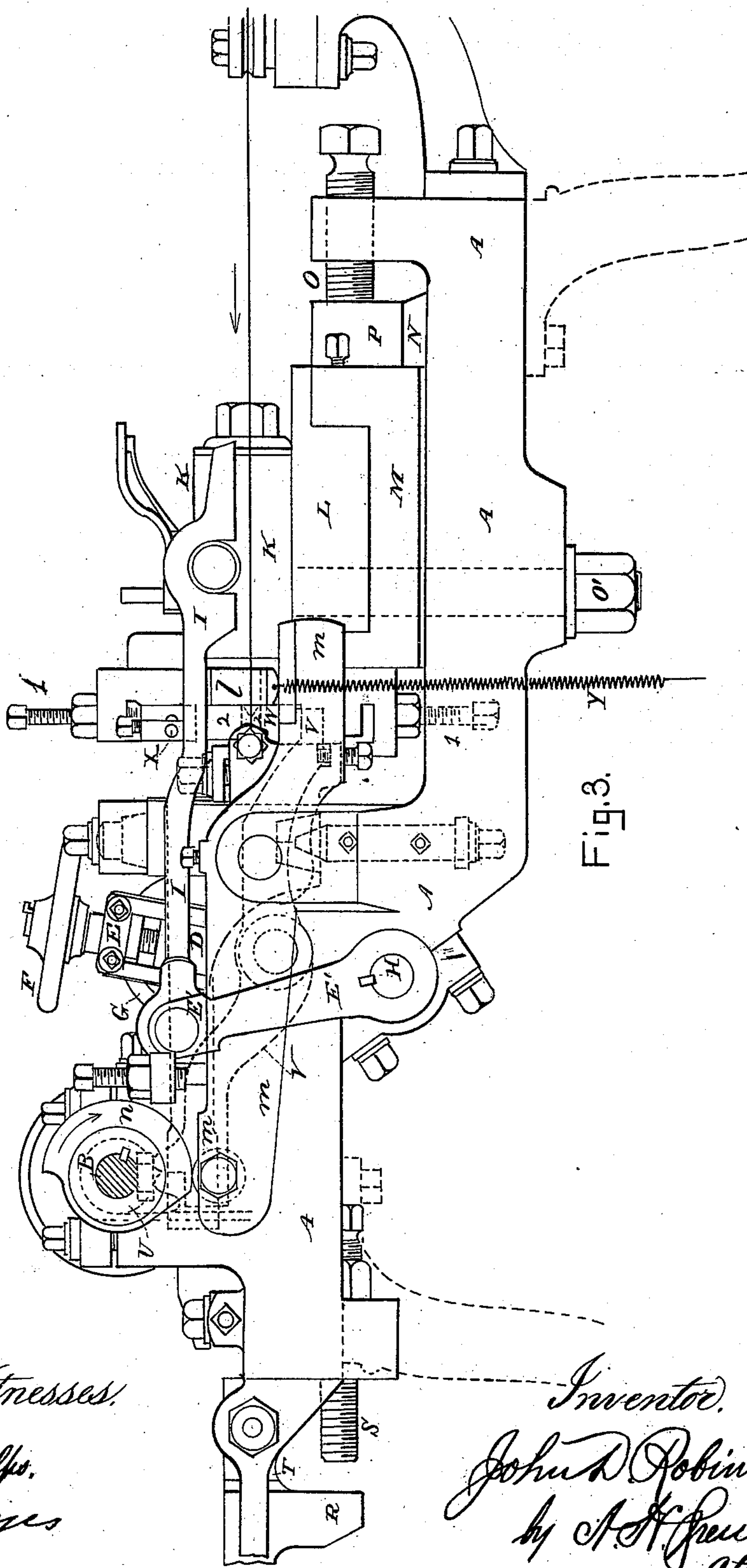
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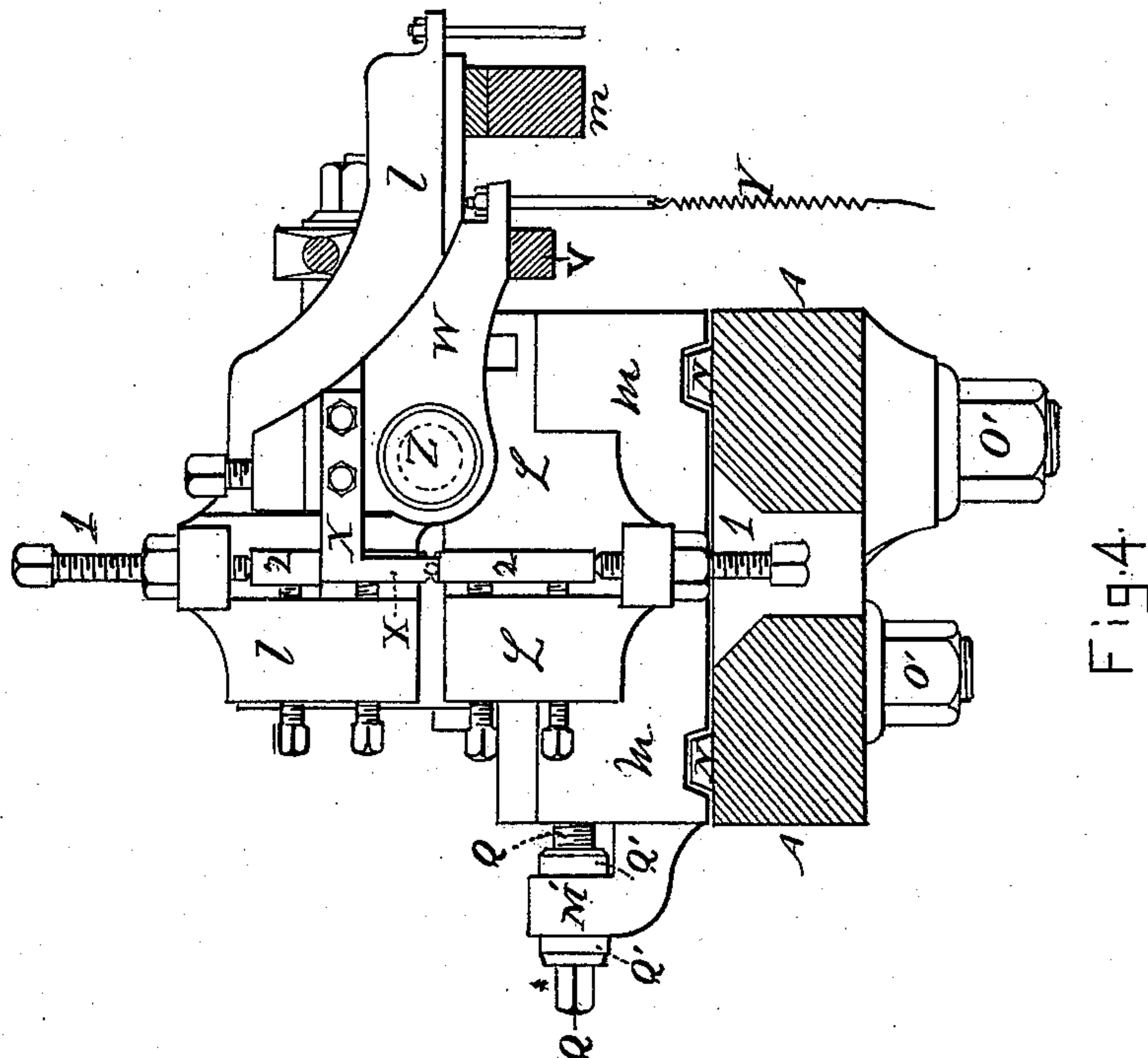


Fig. 4.

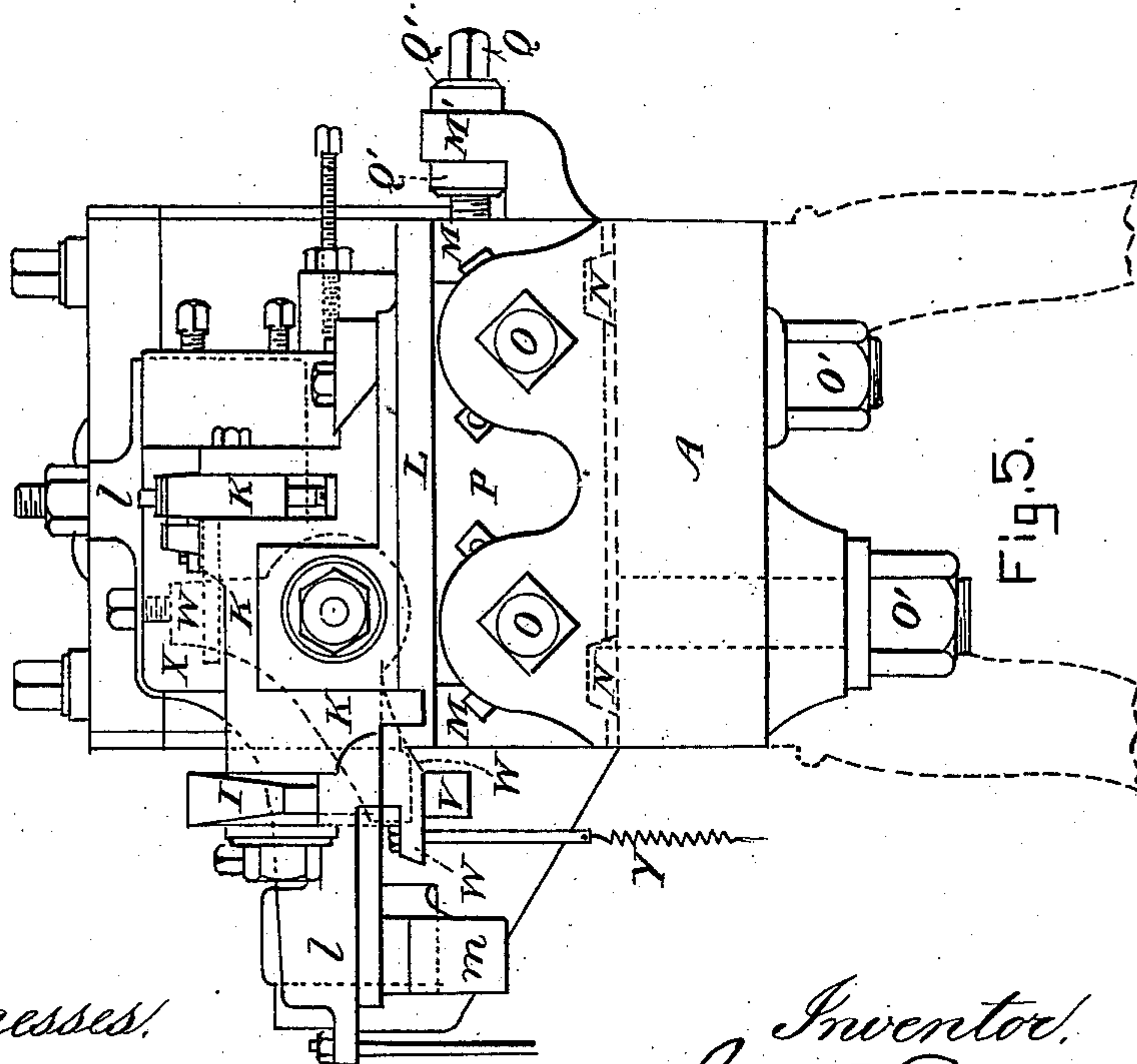


Fig. 5.

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(No Model.)

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Fig. 7.

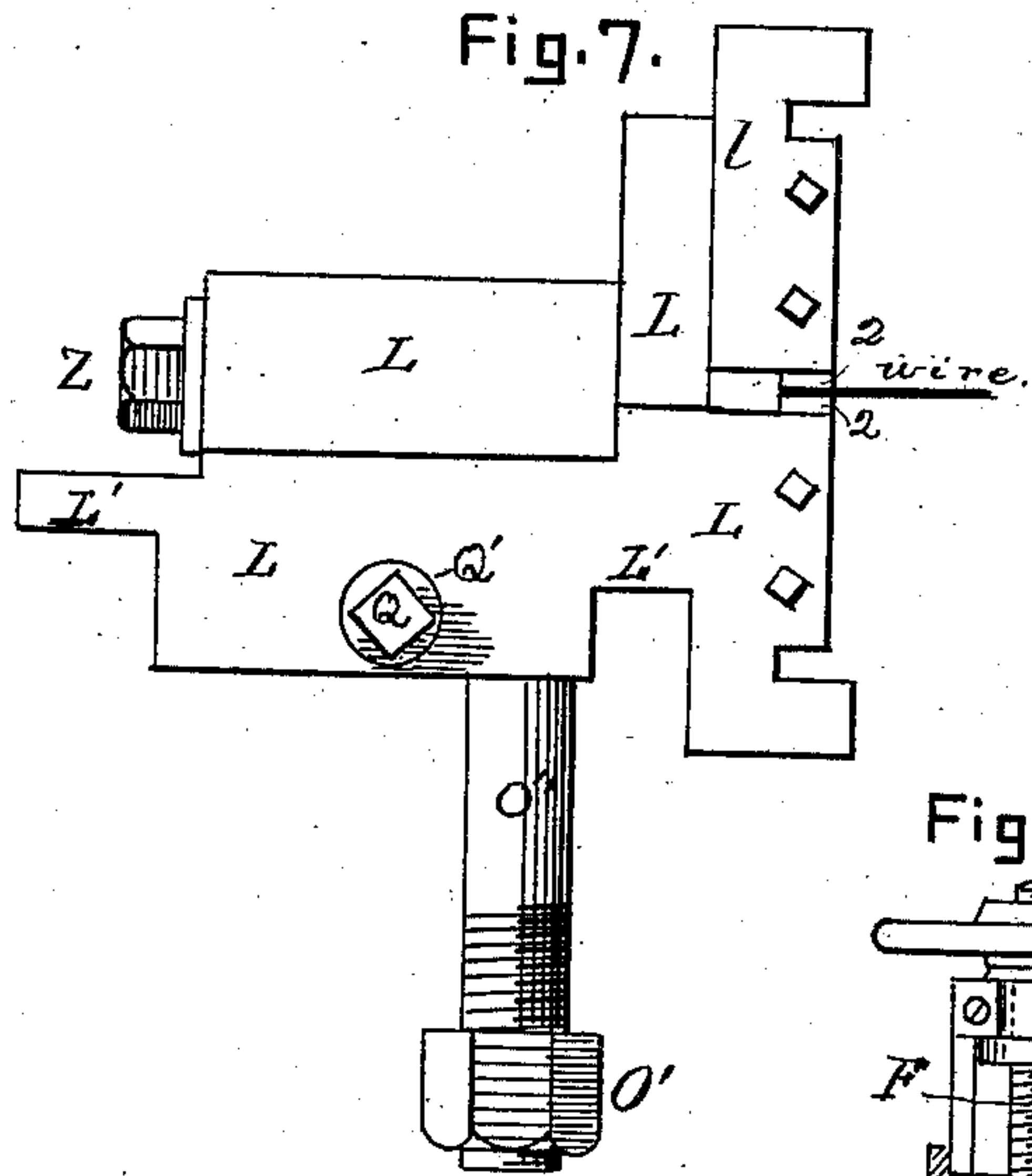


Fig. 10.

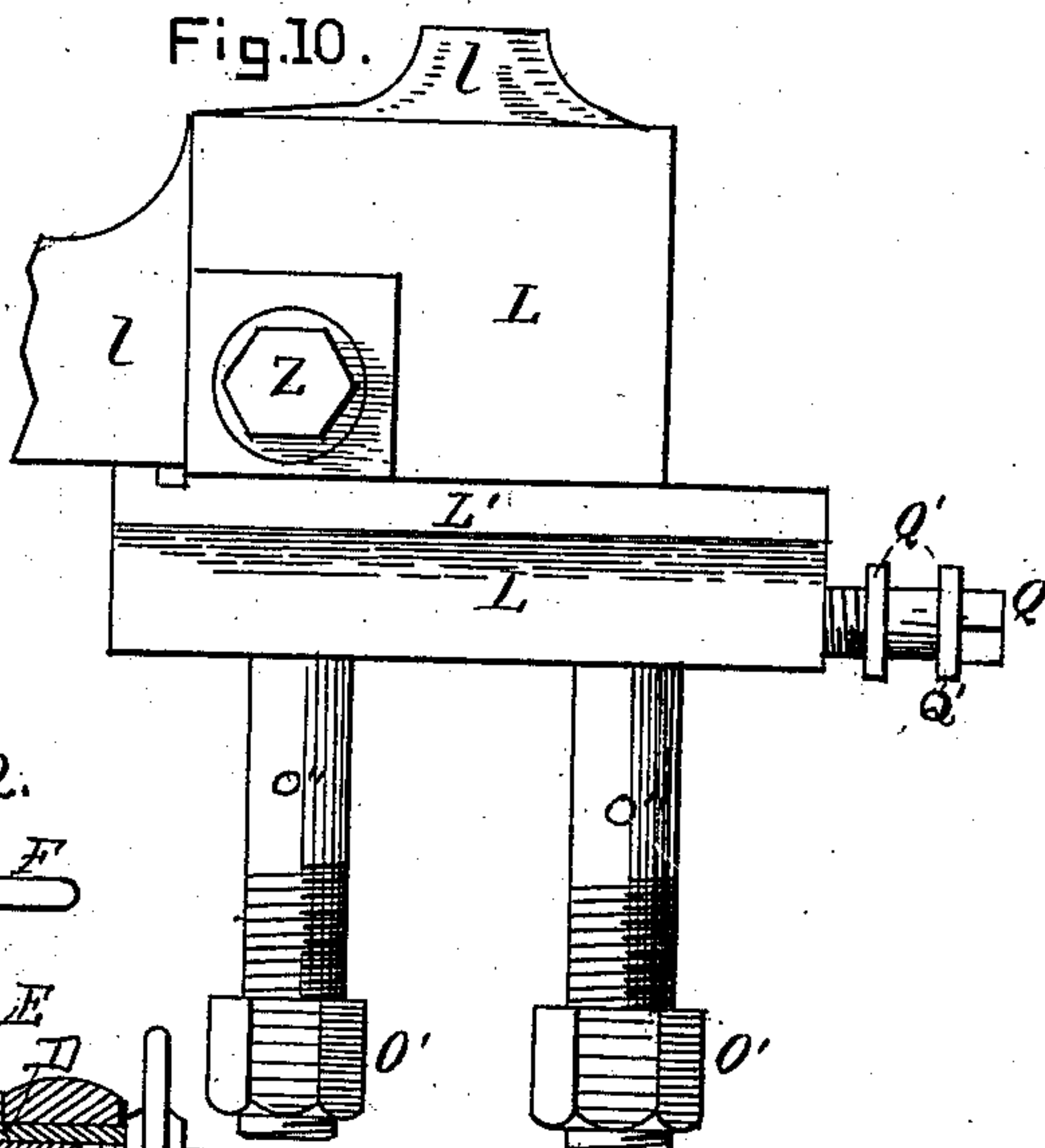


Fig. 12.

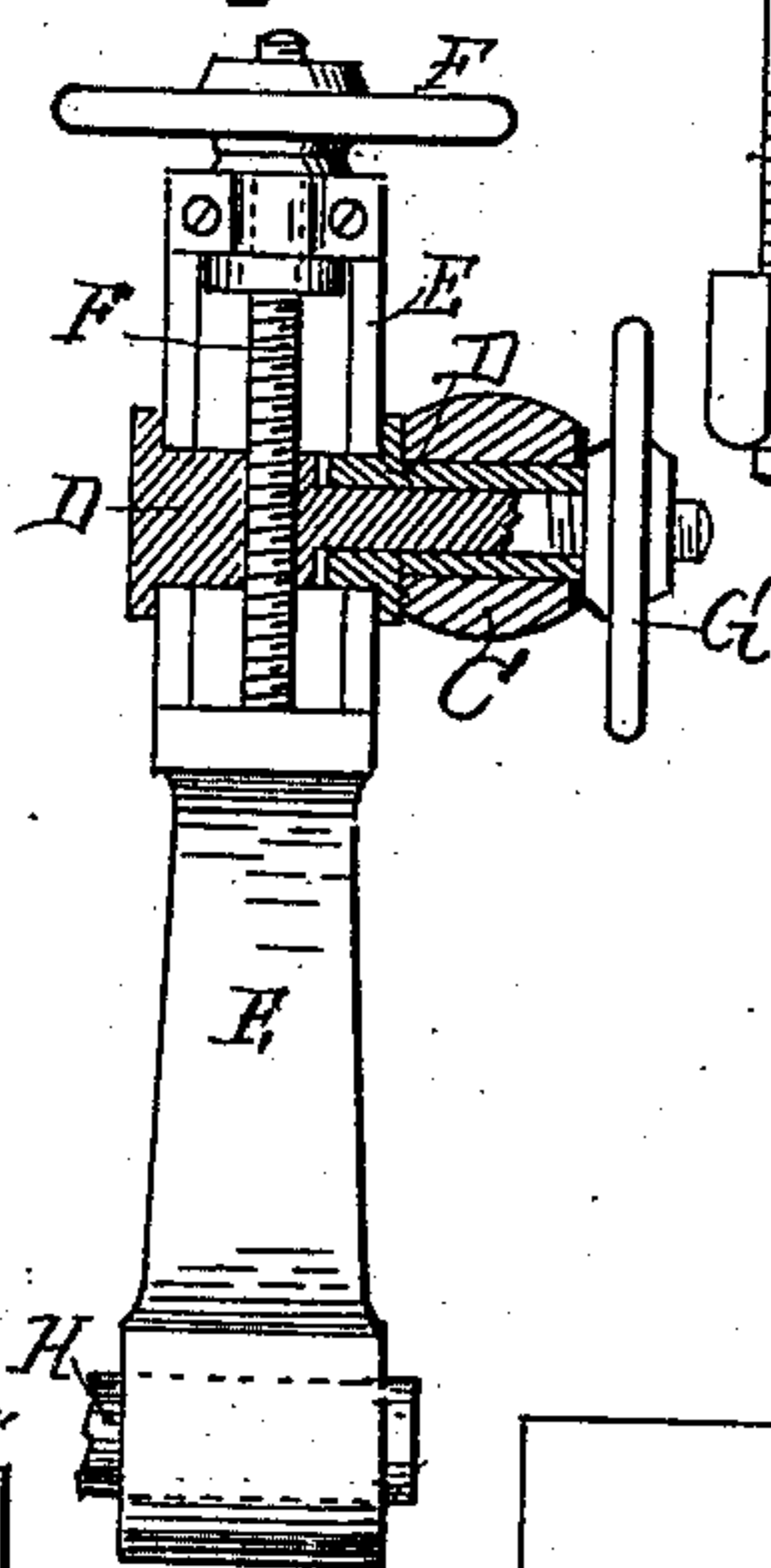


Fig. 8.

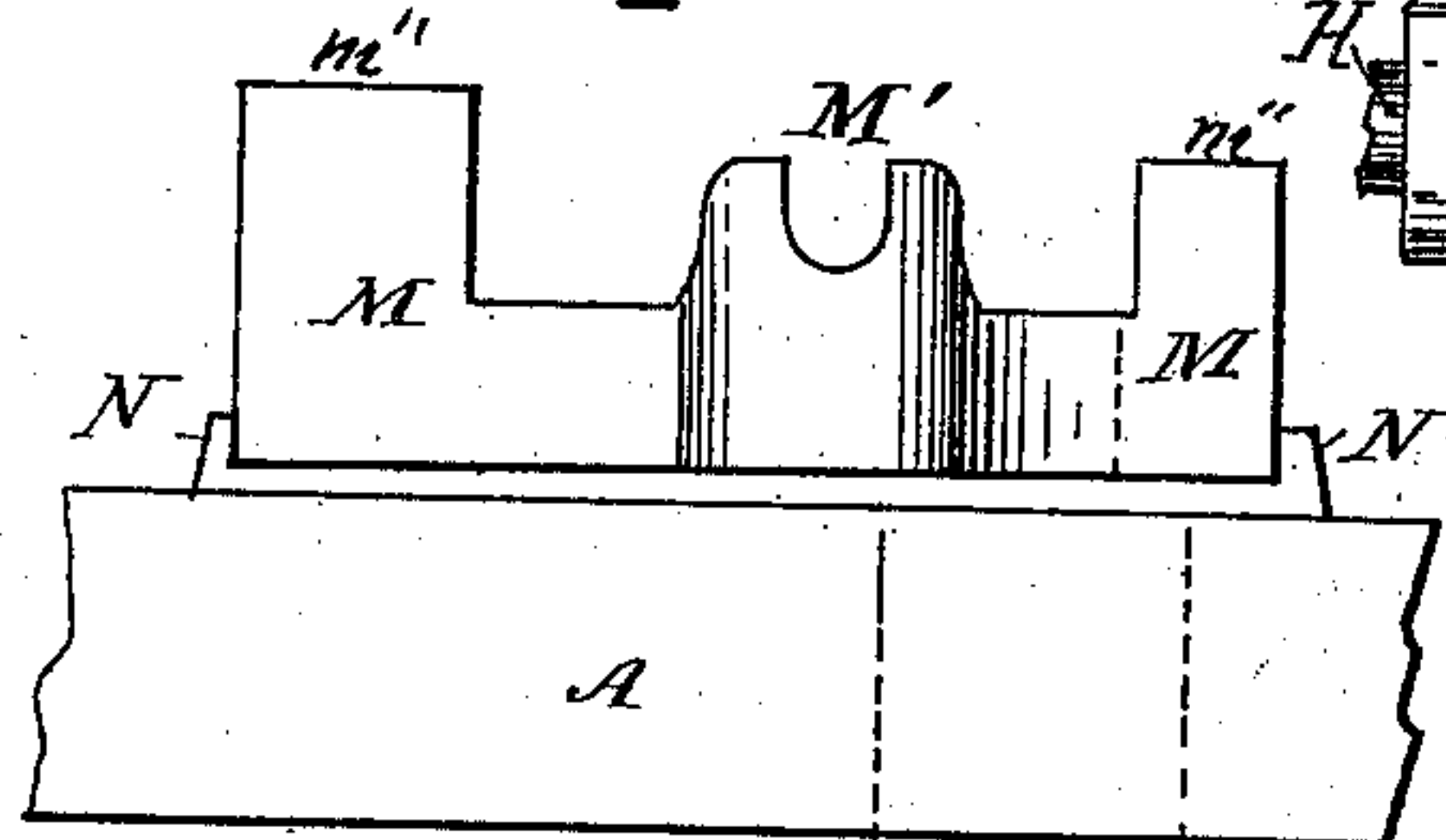


Fig. 11.

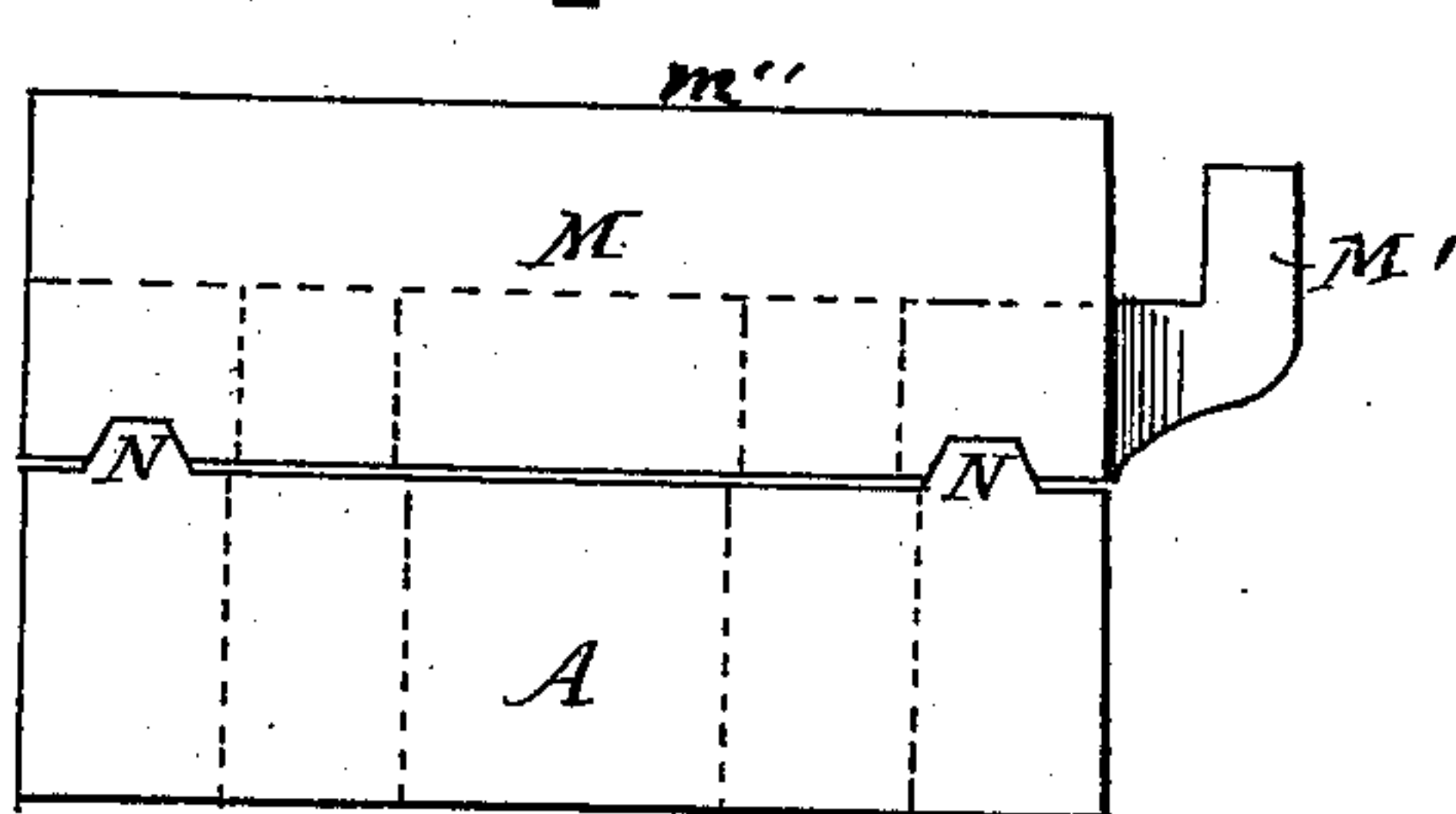
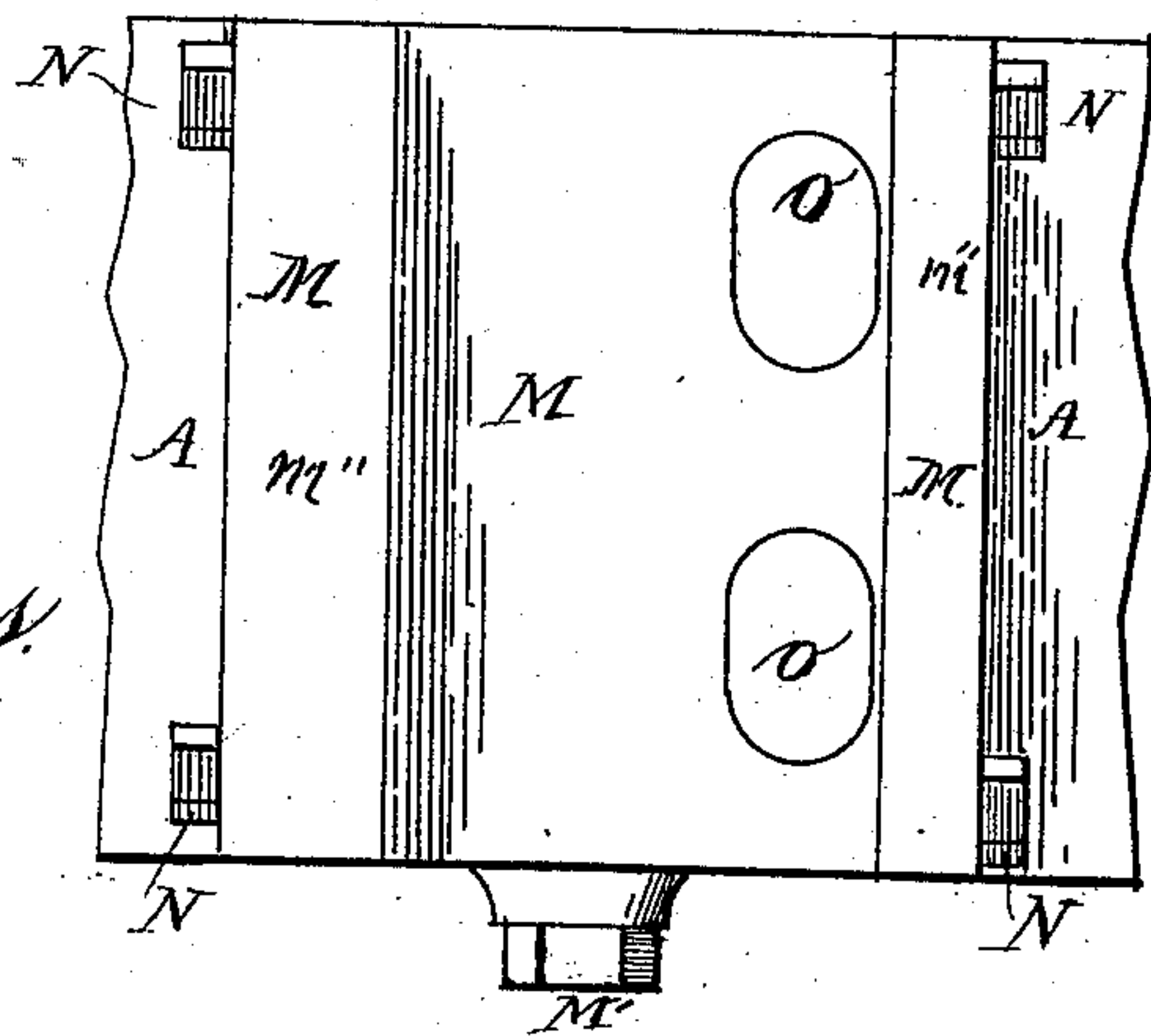


Fig. 9.



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# UNITED STATES PATENT OFFICE.

JOHN D. ROBINSON, OF TAUNTON, MASSACHUSETTS.

## WIRE-NAIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 358,408, dated February 22, 1887.

Application filed April 21, 1884. Serial No. 128,685. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. ROBINSON, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Wire-Nail Machines; and I do hereby declare that the same are fully described in the following specification, and illustrated in the accompanying drawings.

10 The object of my invention is to improve in various respects upon that class of nail-making machines by which a continuous wire fed automatically, is converted into nails.

My improvements relate to the feeding 15 mechanism, to adjustable die-blocks, to the heading apparatus, and to an auxiliary cutter and clearer. These features will be considered successively and be claimed separately, or in combination with suitable nail-forming 20 mechanism, as well as in combination with each other, since either improvement may be applied to existing machines, or all co-operating in the formation of a nail may be embodied in a single machine.

25 I do not deem it necessary to describe in detail the construction and operation of the ordinary nail-machines, except so far as will serve to make clear the improvements I have devised.

My invention consists in the devices and combinations of devices set forth in the appended 30 claims.

In the drawings, Figure 1 is a plan or top view of a nail-machine provided with my improvements, the direction of the wire entering the machine being indicated by the arrow. 35 Figs. 2 and 3 are elevations representing opposite sides of the machine; and Fig. 4 is a transverse section taken about on the line  $x x$  of Figs. 1 and 2, looking at the face of the dies and toward the entering wire. Fig. 5 is a partial view of the front end of the machine. Fig. 6 is a detail. Figs. 7 to 11 are details of the frame, bed, and die-blocks; Fig. 12, a section of adjustable block on arm E.

45 The wire is uncoiled before entering the machine, and is straightened by any suitable mechanism preparatory to conversion into nails by the apparatus shown in the drawings.

My improvements do not relate to the 50 straightening devices, but to the nail-machine proper, which has a substantial frame-work,

A, and a transverse main shaft, B, mounted in suitable bearings, with the usual pulleys and fly-wheel.

The feeding of the wire forward is effected 55 by the ordinary means, except as to a device for adjusting the length of each feed movement and as to a hook by which the feed mechanism may be disengaged when desired. This adjusting is or may be effected while the 60 machine is in operation, and I accomplish it by extending the pitman C from the crank-pin of the driving-shaft B to a sliding or adjustable block, D, mounted in or on a pivoted arm, E, so as to be placed at a greater or less distance 65 from the pivot of said arm, as best shown in Figs. 1 and 2 and the detail, Figs. 6 and 12.

Adjustment of the block D is best effected, as shown, by a screw with hand-wheel F, by which the block is moved lengthwise of the 70 pivoted arm. I provide a lock-nut, G, or equivalent device, to secure the adjustable block in place when the desired position is determined. (See Fig. 12, where the block D is shown in two parts, one part having a 75 threaded stem, the other being a sleeve on said stem.) Both parts are flanged to bear against the sides of the arm E, which is slotted to receive them. The lock-nut G screws on the threaded stem of one of said parts, while the 80 pitman is connected to the other.

The pivoted arm E is duplicated on the other side of the machine for convenience in arrangement of the parts, the pivotal shaft H 85 connecting them for simultaneous oscillation. This shaft and the duplicate arm E' are clearly shown in Fig. 3.

The arm E' is connected by a rod or hook, I, with the feeder K, which is thereby reciprocated in ways to carry the wire forward 90 during a part of each revolution, and the length of nail to be formed is thus determined by the adjustment of the sliding block D toward or from the pivot of the arm on which it is mounted. The action of the feeder itself 95 upon the wire is the same as in ordinary machines.

The connecting-rod I is preferably a hook, as shown, in order to permit its ready disengagement when desired by simply lifting it 100 from contact with the feeder.

The next feature of my invention relates to



means of varying the amount of stock in the head of the nail, which result I effect by adjusting the two gripping-dies toward or from the cutters. It also relates to a lateral adjustment of such dies with relation to the header, more especially important in the manufacture of round-headed nails. The preferred means of adjustment are shown in the drawings.

10 I mount the die-blocks L upon a bed, M, moving on ways N of the frame. The gripping-dies 2 2 are held firmly within recesses in these die-blocks by screws 1 1, as best shown in Fig. 4, so that the adjustment of said blocks  
15 serves to adjust the dies. The longitudinal adjustment of the dies is effected by screws O, extending through lugs on the frame and bearing against the bed M or against a detachable block, P, to move the bed on its ways and to  
20 hold it firm. The die-blocks move with said bed toward and from the cutters 3 3 to regulate the quantity of stock in the head, and when the desired position is obtained the bed and the dies upon it may be secured by  
25 bolts and nuts O', extending down from the die-blocks through slots in the bed and frame. The lateral adjustment referred to is of the die-blocks with relation to the bed, and, being very slight but very important, is best effected by a screw, Q, at one side of the dies,  
30 arranged as shown in Figs. 1, 2, 4, and 5. This screw, threaded to engage with a female screw in the die-blocks L, has two fast collars, Q', fitting snugly each side of a vertical projection, M', on the bed, so that the screw itself  
35 does not advance or recede, but imparts lateral movement to the dies or secures them against such movement.

The detail Figs. 7 to 11 will make the entire adjustment plain. Figs. 8, 9, and 11 show the  
40 bed M in position to be moved longitudinally on the ways N of the frame A. The die-blocks L (shown in Figs. 7 and 10) rest by their parts L' upon the ways m'' of the bed M, and may  
45 be moved transversely thereon or held fast by the screw Q, having its collar Q' on each side of the projection M' of the bed. The apertures o of Fig. 9 receive the bolts O'', which project  
50 downwardly from the die-blocks and permit lateral adjustment.

By longitudinal adjustment of the bed upon the frame and lateral adjustment of the die-blocks upon the bed I am able to alter and fix the position of the dies in a manner much  
55 more perfect than has heretofore been possible and to vary the size and shape of the heads without altering the header.

The novel feature of the heading mechanism proper consists in a projection, R, formed on  
60 the hammer T, and an adjusting-screw, S, or their equivalents, as a stop to limit the forward movement of the hammer. This limitation adjusts the distance of movement of the header, and thereby affects also the thickness of the  
65 head formed, or enables me to regulate it while the machine is in operation. This feature is particularly valuable in the manufac-

ture of nails having small thick heads, and it permits modifying the kind of nail produced without change of the heading-tool.

The projection and stop are best shown in Figs. 2 and 3, while the header or point of the hammer is indicated in dotted lines in Figs. 1 and 2. The projection and stop may both be of annular form, and the adjustability may  
75 be of the projection rather than of the stop.

The reciprocating stroke of the hammer is automatically effected in the usual manner.

While the head is being formed, the wire is gripped, as usual, by the gripping-lever l, (seen  
80 in Fig. 4,) actuated by the pivoted lever m and cam n. (Seen in Fig. 3.)

The remaining feature of my improvements is the auxiliary cutter or clearer. This device is designed as a trimmer of the cut end of the  
85 wire in the manufacture of headless or flush-head nails, where a smooth cut of the end or head is desirable. It may otherwise serve as a clearer to insure the removal of the formed  
90 nails.

The preferred construction is best shown in Figs. 3 and 4. The driving-shaft B has a cam, U, actuating a pivoted lever, V, (both shown in dotted lines in Fig. 3,) which in turn operates the pivoted bar W, placed transversely  
95 thereto, and shown clearly in Fig. 4, to which this cutter or clearer X is attached, a spring, Y, giving the reverse movement. The pivot Z, upon which this bar moves, is placed at one side of the longitudinal center of the ma-  
100 chine, and the movement described gives a quick downward stroke to the cutter close to the face of the dies, or at a limited distance therefrom when used as a clearer only.

The main cutters serve to point the nail, as  
105 well as to cut it off, while it is held by gripping-dies 2 2 in a manner common to machines of this class.

I claim as my invention—

1. In a wire-nail machine, the pivoted arm  
110 E, carrying an adjustable block, D, the screw by which the same is adjusted, and its locking-screw, the block D being connected to the driving-shaft by the pitman, in combination with feeding mechanism actuated thereby and  
115 adjustable as to length of stroke by the movement of said block D, substantially as set forth.

2. In a wire-nail machine, the pivoted arm E, the block D, adjustable thereon, and the pitman connection, as described, in combination with the transverse shaft H and duplicate arm E', and the hook I, pivoted to said arm and detachably connected to the feeder, substantially as set forth.

3. In a wire-nail machine, the bed M, adjustable longitudinally on ways N, in combination with the die-blocks L, adjustable laterally on said bed, substantially as set forth.

4. In a wire-nail machine, the driving-shaft B, the main cutters 3 3, actuated thereby, the  
130 gripping-dies 2 2, the cam-actuated lever V, and pivoted bar W, with its return-spring, in combination with the auxiliary cutter and clearer X, secured to said bar and adapted to

trim the head end of the nail after the cutters have acted, or to insure the removal of the nail, as set forth.

5 5. An automatic wire-nail machine embodying, with other suitable mechanism, the adjustable feed apparatus, the doubly-adjustable die-blocks, the hammer with adjustable stop, and the auxiliary cutter or clearer, all

combined and relatively arranged to operate substantially as and for the purposes set forth. 10

In testimony whereof I hereto affix my signature in presence of two witnesses.

JOHN D. ROBINSON.

Witnesses:

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