

(No Model.)

2 Sheets—Sheet 1.

R. A. MAPP.

MACHINE FOR MAKING CUT NAILS.

No. 371,337.

Patented Oct. 11, 1887.

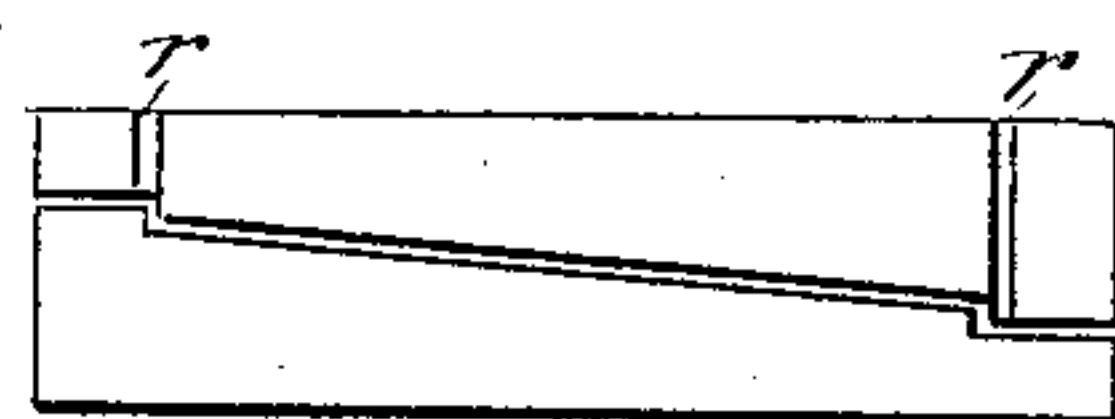
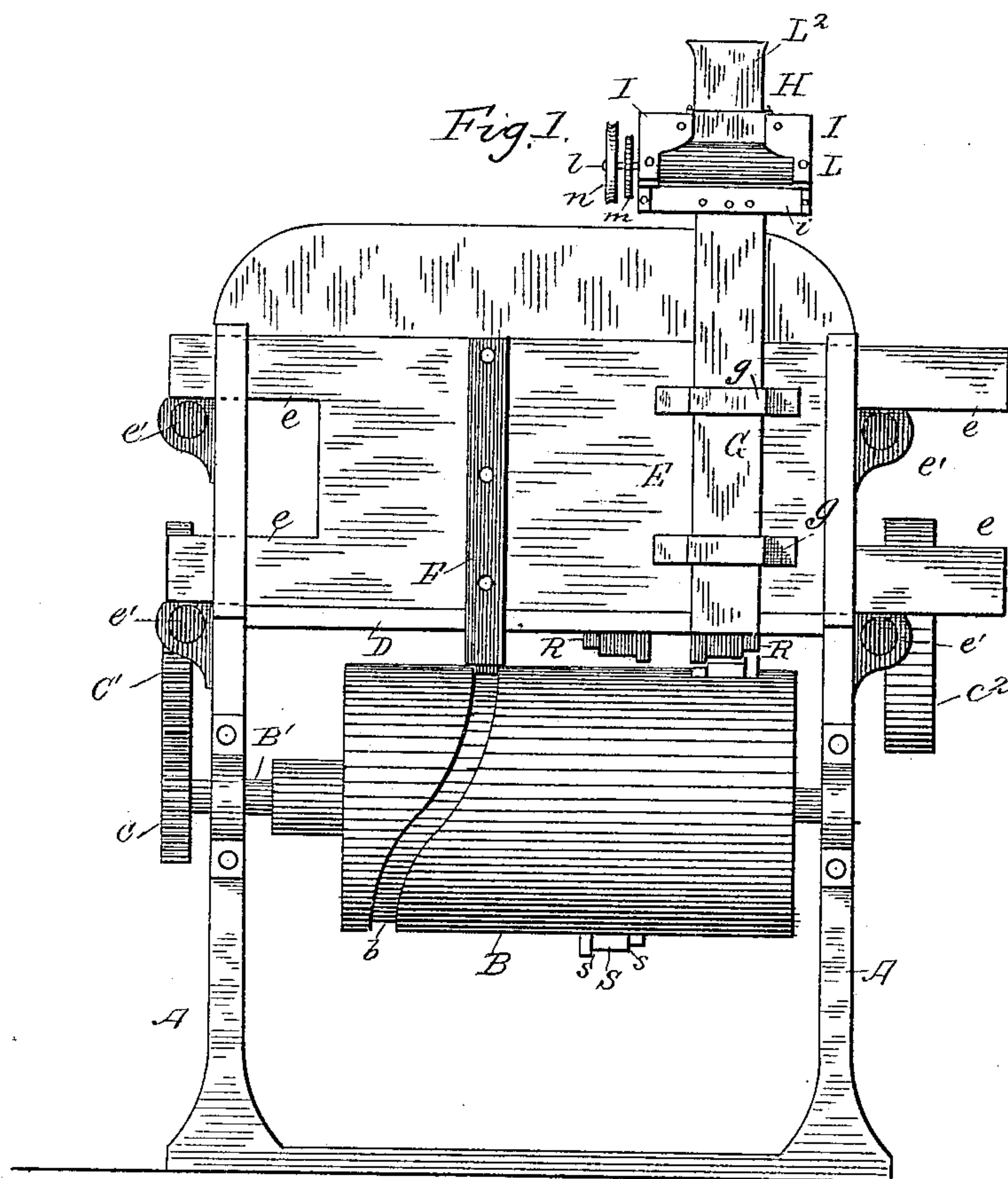
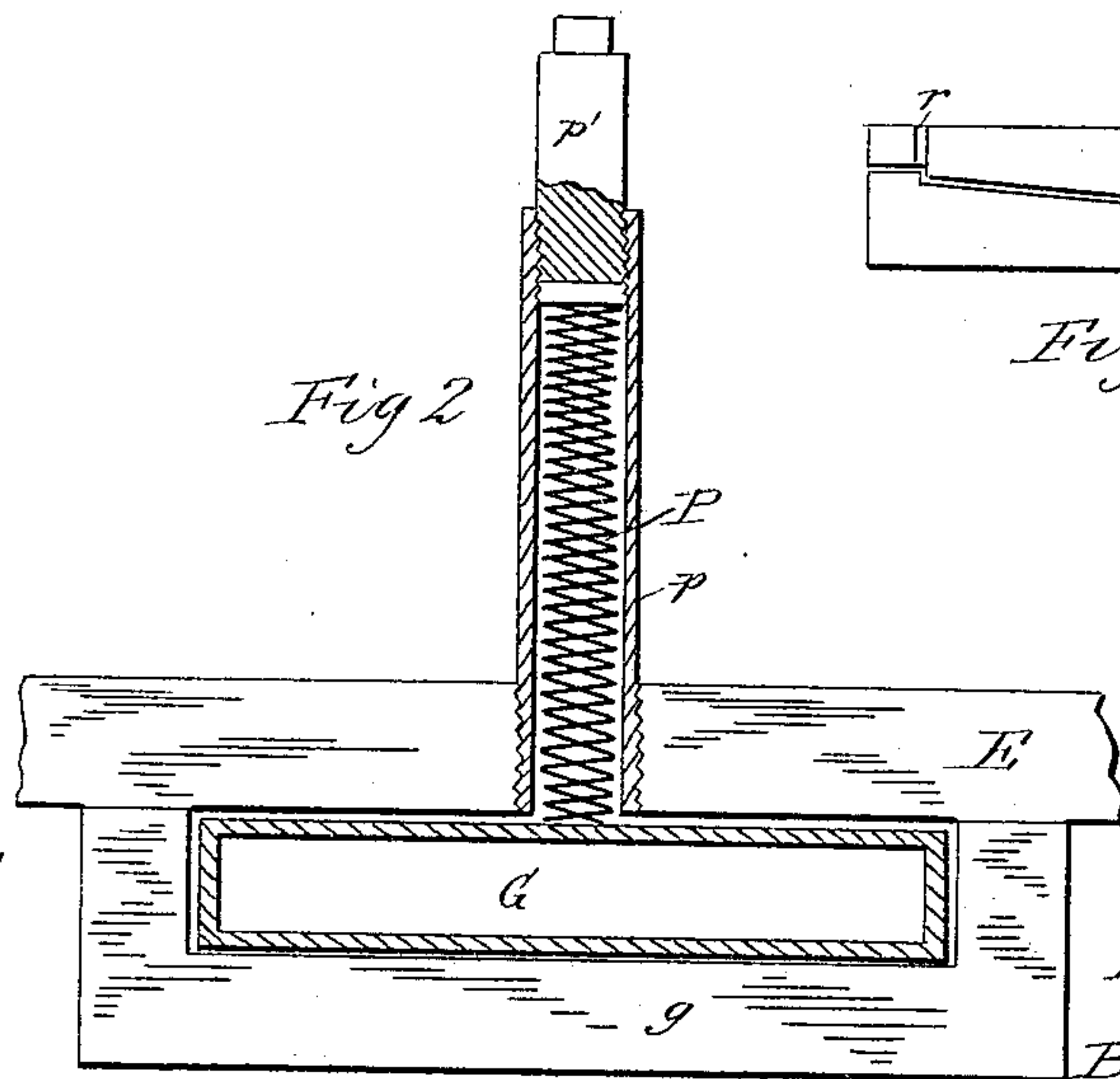


Fig 6



Witnesses:
J. R. Stuart.

L. W. Harris

Inventor:
R. A. Mapp.

By L. Seward Bacon

Attij.

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2 Sheets—Sheet 2.

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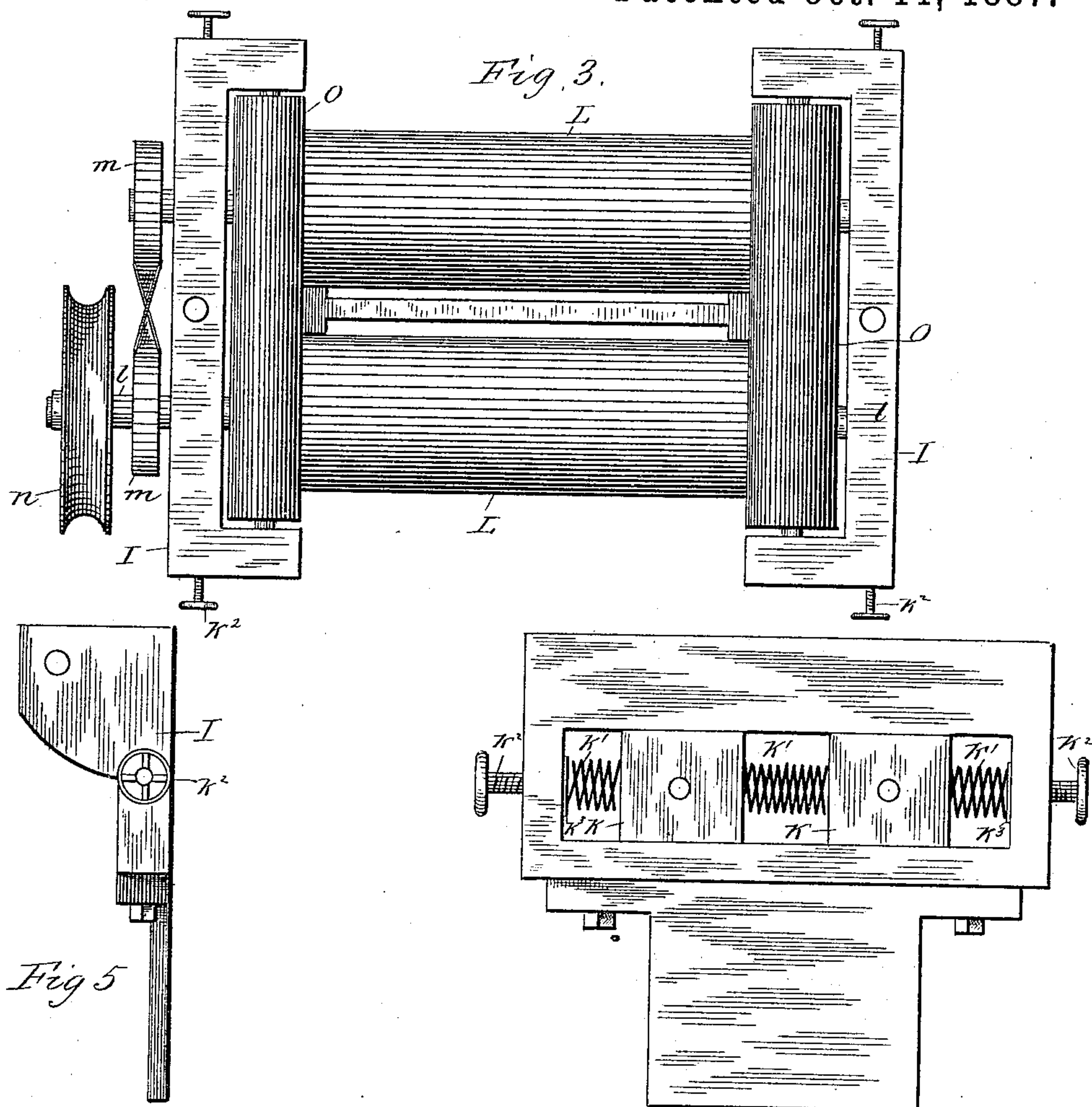
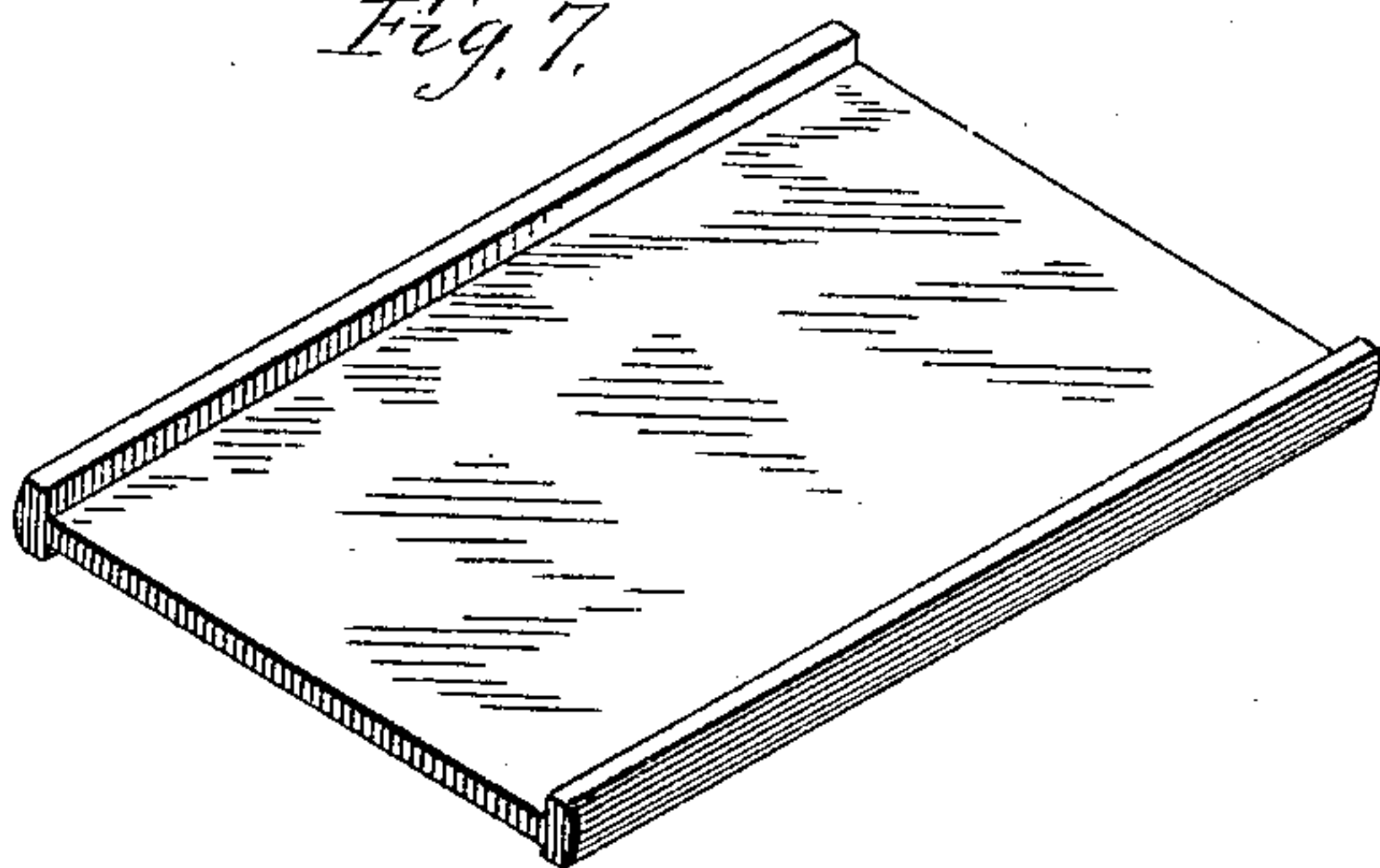


Fig. 7.



Witnesses:
T. R. Stuart.

L. W. Harris

Inventor:

R. A. Mapp.

By *L. Seward Bacon*

Atty.

UNITED STATES PATENT OFFICE.

RICHARD A. MAPP, OF LYNNHAVEN, VIRGINIA, ASSIGNOR OF ONE-THIRD
TO HARRY ROBINSON MAPP, OF SAME PLACE.

MACHINE FOR MAKING CUT NAILS.

SPECIFICATION forming part of Letters Patent No. 371,337, dated October 11, 1887.

Application filed May 4, 1887. Serial No. 237,141. (No model.)

To all whom it may concern:

Be it known that I, RICHARD AMES MAPP, a citizen of the United States, residing at Lynnhaven, in the county of Princess Anne and State of Virginia, have invented certain new and useful Improvements in Nail-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in nail-cutting machines; and it consists in the construction and combination of the parts, which will be more fully hereinafter described, and pointed out in the claims.

The object of my invention is to provide a simple and effective machine for cutting nails from a blank or strip of metal, and to arrange and construct the same in such a manner that it will produce a perfectly-formed nail at each cut; also to so adjust the several parts as to insure a perfect and positive operation of the machine at all times. I attain this object by the machine illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is a detail view, partly in section, showing the spring-actuated portion of the feeding-tube. Fig. 3 is a top plan view of the feeder. Fig. 4 is a front elevation of one of the feeder-brackets. Fig. 5 is a side view of the same. Fig. 6 is a detail view of the cutting-dies. Fig. 7 is a view of the nail-blank.

In the drawings, A represents the bed or frame-work of the machine, preferably constructed of metal.

B is a cylinder mounted on a shaft, B', journaled in the bed of the machine. On the end of shaft B' which extends to the outer side of the bed A is secured a pinion, C, which meshes with a large gear, C', situated somewhat above and in the rear of the same. The gear-wheel C' is mounted upon a counter-shaft extending across and journaled in suitable bearings on the back of the machine, having on its opposite end a pulley-wheel, C², upon which is adapted to be placed a belt, whereby motion is

transmitted to the machine from any suitable power.

Situated directly above the cylinder B, and running longitudinally to the bed, is a rigidly-secured cross-bar, D, having its ends secured to or made integral with the bed.

Directly above the cross-bar D is a slide or plate, E, having arms *e e* extending out from its ends, which are placed in grooves cut in the side of the bed A, their protruding ends being placed on rollers *e' e'*, mounted on brackets attached to the sides of the bed of the machine. The slide E is constructed so as to allow of its being actuated back and forth a distance equal to the length of the arms *e e*. To retain the slide in position a series of cleats are placed over the grooves containing the arms *e e*.

Rigidly secured to the side of slide E is a metal strip or arm, F, which extends down past the cross-bar D, and has its lower end placed in a camway, *b*, made in the periphery of the cylinder B, of an incline equal to the extent of the movement of the slide E.

Situated on the slide E, to the right of the arm F, is a metallic vertical feeding-tube, G, of rectangular shape, loosely secured to said slide by clasps *g g*, the tube being loosely held in place, so as to allow a slight vibration of the same, for purposes more fully hereinafter described. It is prevented from sliding through the clasps by having ridges or lugs made on its sides, which are placed in grooves made on the inner face of the clasps.

Mounted upon the top portion of the tube G is a feeder, H, having brackets I I, which are secured at their lower ends to cross-pieces *i i*, which are in turn secured to the sides of the tube. Sliding bearing-blocks *k k* are placed in the brackets I I, being cushioned by springs *k' k'*, placed between the same and between their end portions and the sides of the bracket, and adapted to be tightened or released, so as to increase or diminish the pressure on the bearing-blocks, by screws *k² k²*, extending through the sides of the bracket, having their inner ends capped by caps *k³ k³*, against which the ends of the springs rest, as shown in Fig. 5.

Journaled in the bearing-blocks *k k* are shafts *l l*, having rollers L L mounted thereon, which are preferably constructed of wood.

These rollers are placed longitudinally with the tube G, directly over the mouth of the same and parallel with each other. The roller-shafts *l l* are extended through the bearing-blocks on one side of the feed, and have mounted on their outer portions sprocket or pulley wheels *m m*, which are connected by a suitable drive chain or belt, twisted so as to rotate the wheels in an opposite direction and allow the rollers a slight lateral movement. The end of one of the shafts *l l* is extended beyond the sprocket-wheel *m*, and has a pulley, *n*, mounted thereon, having a grooved periphery adapted to receive a belt, whereby motion is imparted to the feed-rollers from any suitable power, the groove preventing the belt from slipping off from the pulley when the slide is moved.

Directly above the rollers *L L* are rollers *O O*, also constructed of wood, being mounted on suitable shafts having bearings in the brackets *I I*. These rollers are placed at right angles to rollers *L L*, and so arranged as to come directly over the edges of the tube. Secured to the top of the brackets *I I*, directly over the feed-tube, is a hopper, *L²*, into which the blanks are fed. The feed is preferably constructed of small dimensions, and, by reason of the rollers being constructed of wood, is comparatively light in weight, so as not to strain the feed-tube which supports it.

To prevent the nail strips or blanks from adhering to the stationary dies, and thereby preventing its immediate descent, a spiral spring, *P*, is placed back of and in contact with the lower end of the feed-tube *G*. The spring *P* passes through an aperture made in the slide *E*, and is incased in a tube, *p*, which is secured to said slide, the outer end of which is provided with a stopper, *p'*, by which the spring is adjusted. The end of spring *P* being placed against the feed-tube forces it slightly forward, it being loosely held to the slide *E*.

Rigidly secured to the under side of the cross-bar *D*, so as to be directly under the tube *G* when at the end of its longitudinal movement, are stationary dies *R R*, extending downward a short distance, their outer ends being separated a distance equal to the incline of the camway *b*. These dies have profiles to correspond with the shape and style of nail to be cut, and are placed in a reverse position on said cross-bar. A series of dies, *S S*, are secured to the cylinder *B* in a direct alignment with the stationary dies, and extend out from said cylinder a distance equal to the space between the same and the said stationary dies, leaving space enough to allow the dies to pass each other. The movable dies *S S* have profiles corresponding to those of the stationary dies on the cross-bar, and are placed in a reverse position to each other and to the corresponding stationary dies. As shown in Fig. 6, grooves *s r* are made in the sides or faces of the dies, of a depth equal to the flanges on the edge of the nail-strip, which are adapted to fit

therein when the cut is made, thereby allowing an instantaneous cut to be made on all parts of the strip at the same time.

In Fig. 7 is shown the nail-blank having flanges made on its edges to form the sides of the head of the nail, although the plain blank may be used, if desired.

The operation of the machine is as follows: When the nail-blanks are placed in the hopper *L'*, they fall through its bottom onto the rollers *L L*, which immediately grasp the same, the springs *k k* pressing the rollers tightly against the strip, and, owing to their oppositely-rotating movement, force the strip down the feed-tube *G* onto the cylinder *B*, the rollers *O O* preventing the strip from moving sidewise and holding it in a vertical position. By this arrangement the strips immediately descend onto the cylinder and are prevented from clogging or, if bent, from binding in the tube. When the power is applied to the pulley *C²*, movement is transmitted to the gear-wheel *C'*, meshing with the pinion *C* on the end of shaft *B'*, upon which the cylinder *B* is mounted, thereby rotating said cylinder. By reason of the arrangement of said gearing a much more steady movement is obtained, making the cylinder less sensitive and less liable to fly back when the cut is made, as would be the result if the power were transmitted directly to shaft *B'*. As the cylinder is rotated, the slide is actuated by the camway, carrying the arm *F* back and forth, thus bringing the feed-tube *G* over the stationary dies as the slide reaches the ends of its reciprocating movement. As the feed-tube arrives at these points, the strips are forced onto the cylinder, the feed-rollers being rotated at such a speed as to force the strip down by the time the tube arrives above the die, thus bringing the strip directly in front of the same. The dies on the cylinder are so arranged that at the moment the strip is forced in front of the stationary die they come in contact with the same, forcing the strip against the said die and cutting the nail therefrom, the tube immediately transferring the strip to the next die, which has a reverse profile, where the same operation is performed, thus utilizing the entire strip and forming a perfect nail.

By the arrangement of the feed as described I am enabled to secure the same result with short strips as well as with long ones, the tube being filled throughout the operation, the pressure being placed on the uppermost strip.

In arranging the tube as above it is evident that the addition of two or more may be used with but slight alterations in the construction of the machine.

By the vertical position of the tubes I am enabled to utilize all of the last strip fed into the same, it being carried down by gravity.

I am aware that nail-cutting machines have been made with feed-tubes and with feed-rollers, and this I do not broadly claim.

I am also aware that many minor changes in the construction and arrangement of the parts

of my improved machine can be made and substituted for those shown and described without in the least departing from the nature and principle of my invention.

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

10 1. In a nail-cutting machine, the combination, with the bed, of a revolving cylinder having dies secured thereon, a slide situated above said cylinder, a vertical feed-tube secured to said slide, and the stationary dies, substantially as described.

15 2. In a nail-cutting machine, the combination, with the bed, of a revolving cylinder having dies secured thereon, a slide actuated by the rotation of said cylinder, a feed-tube secured to said slide, having feed-rollers mounted thereon, and the stationary dies, substantially as described.

20 3. In a nail-cutting machine, the combination, with the bed, of a revolving cylinder having dies mounted thereon, a slide situated above said cylinder and adapted to be actuated by the movement of the same, a vertical spring-pressed feed-tube, and the stationary dies, substantially as described.

25 4. In a nail-cutting machine, the combination, with the bed, of a revolving cylinder having a camway cut therein, a slide mounted in said bed, an arm secured to said slide, having its lower end placed in said camway, a vertical feed-tube having feed-rollers attached thereto, stationary dies secured to a rigidly-

secured cross-piece, and dies secured on said cylinder, substantially as described. 35

5. In a nail-cutting machine, the combination, with the bed, of a revolving cylinder having dies secured thereon, a slide, E, having arms *e e*, mounted on rollers, a spring-pressed vertical feed-tube, G, secured to said slide, and the stationary dies, substantially as described. 40

6. In a nail-cutting machine, a feeder consisting of the combination of a pair of rollers mounted on shafts journaled in movable bearing-blocks, said bearing-blocks, and a pair of guide-rolls mounted above said first-named rollers, substantially as described. 45

7. In a nail-cutting machine, a feeder consisting of the combination of rollers L L, movable bearing-blocks *k k*, rollers O O, mounted above said rollers L and transversely to the same, and the cushion-springs *k' k'*, substantially as described. 50

8. In a nail-cutting machine, a feeder consisting of brackets I I, rollers L and O, pulley-wheels *m m*, grooved pulley *n*, movable bearing-blocks *k k*, cushioned by springs *k' k'*, and the screws *k² k²*, arranged as set forth, substantially as described. 55

In testimony whereof I affix my signature in presence of two witnesses. 60

R. A. MAPP.

Witnesses:

H. R. MAPP,
W. C. COBB.