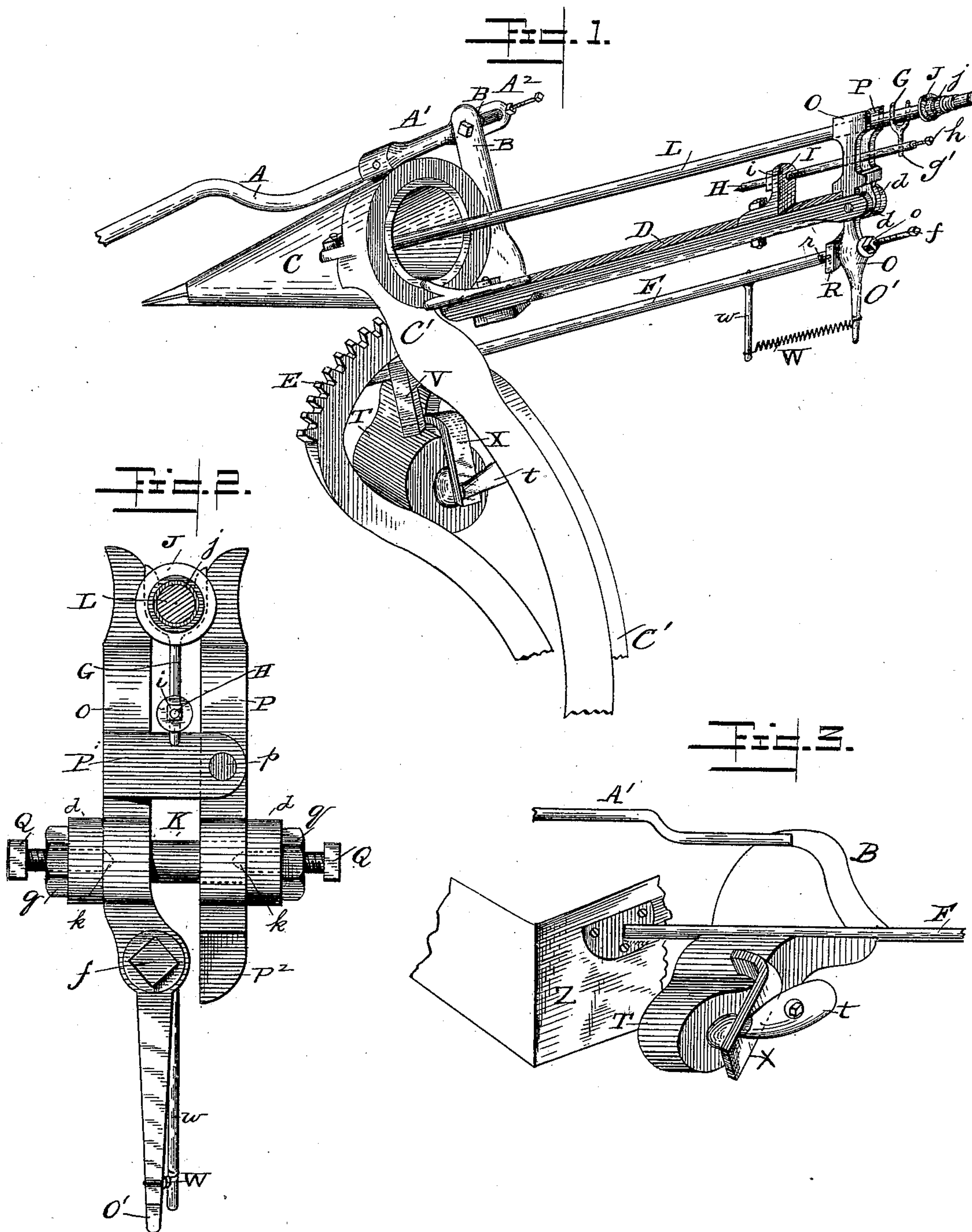


2 Sheets—Sheet 1.

No. 420,492.

Patented Feb. 4, 1890.



WITNESSES

Just Blackwood
W. G. Hoolittle

INVENTOR

John M. Edson
By Geo. V. Myer
Attorney

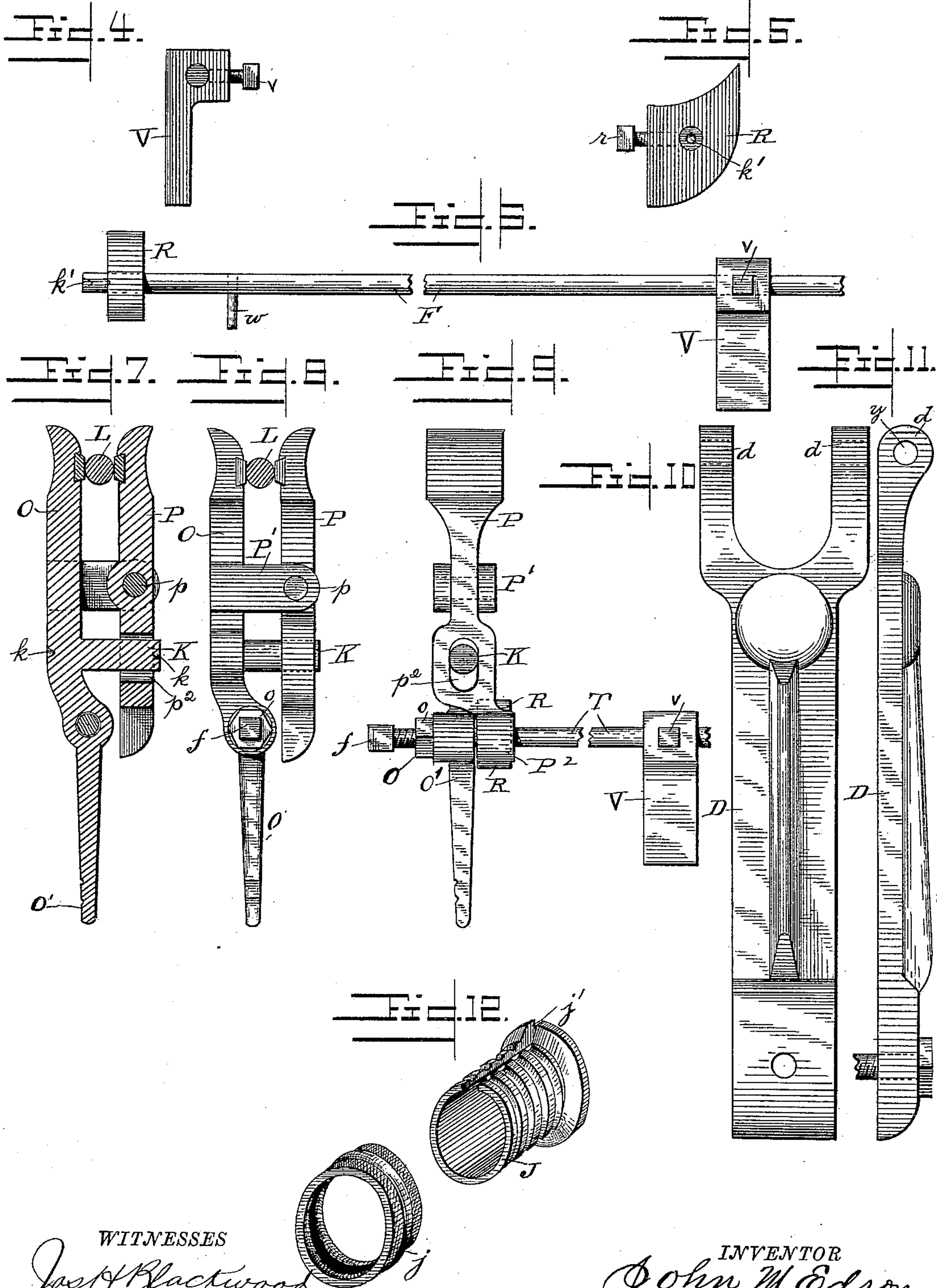
(No Model.)

2 Sheets—Sheet 2.

J. M. EDSON.
NAIL PLATE FEEDER.

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James Blackwood
Chas. H. Hoolittle

INVENTOR

John M. Edson
By Geo. V. Myer
Attorney

UNITED STATES PATENT OFFICE.

JOHN M. EDSON, OF TOWANDA, PENNSYLVANIA.

NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 420,492, dated February 4, 1890.

Application filed June 25, 1889. Serial No. 315,492. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. EDSON, a citizen of the United States, residing at Towanda, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Nail-Plate Feeders; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of devices which are attached to nail-making machines and act as a part thereof to intermittently seize upon the "nipper-rod" carrying the nail-plate and feed it to the machine.

The principal object of my invention is to dispense with much complicated mechanism usually employed in nail-plate-feeding machines for operating the grippers in throwing forward the nipper-rod, and this I accomplish by the arrangement of mechanism hereinafter described, whereby the grippers are operated directly from the heading-lever and by the same power that actuates said lever, and whereby the nail plate or blank is fed forward to the cutting-knife by the end of the shove-up rod striking the bed of the machine.

Another object of my invention is to overcome the difficulty existing in the automatic nail-plate feeders with which I am acquainted, whereby when the plate is cut to form the nail, the grippers still holding the nipper-rod, the movement of the cutting-knife often brings the side of the knife against the edge of the plate, or one portion of the edge, before the plate is turned, thus springing the forks holding the plate and giving the plate slight twist, resulting in giving the side of the next nail cut an imperfect shape, and thus spoiling it. I overcome this difficulty by the arrangement of mechanism hereinafter described, whereby at the moment before cutting the nail-blank the grippers release the nipper-rod, and, the rod and blank being free from the grippers while the knife falls and rises, any springing or twisting action of the forks by the action of the knife

upon the blank at the time of cutting is prevented.

Another object is to provide a more convenient nipper-rod stop than those generally in use, and, finally, by my arrangement to lessen the number of parts heretofore employed in nail-plate feeders to accomplish the same results, and to thereby simplify the machine and to lessen the cost of manufacture.

My improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective side view of my improvements; Fig. 2, an end view; and Figs. 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, details.

My improvements are designed to be attached to any well-known automatic nail-plate-cutting machine, and any convenient power is applied through intermediate shafting, so that such shafting and its connections with the machine are not here shown or particularly described.

Referring to the drawings, A is a rod receiving an intermittent reciprocating movement from a shaft and eccentric. (Not shown.) It is connected and imparts its motion to an arm A', provided with a jointed head A², connecting with a vertical standard B.

C is a barrel connected to a barrel-rest C', pivoted within a yoke extending rigidly from the bed of the machine in the usual manner.

E is a half-circular rack behind barrel-rest C' to engage with a cog (not shown) extending from the barrel through a slot therein, for turning the barrel.

D is the feed-rest, rigidly secured at one end to the vertical standard B and at the opposite end pivoted to and carrying the grippers and gripper attachments. At this end the rest D is forked, and the forked arms *d d* are secured to the gripper-head by means of screw-bolts Q. The arms *d* are internally screw-threaded to engage the bolts Q, and the ends of these bolts are smooth and conical-shaped and engage with correspondingly-shaped recesses *k* formed in each end of a pin K, connecting the grippers O P. The gripper O is rigid and has cast in one piece therewith the lugs P' and the pin K. The gripper P is pivoted at its center to the lugs P' by a pin *p*, and is provided near its lower

end with a slot p^2 , by which it is enabled to swing freely to and from gripper O on pin p .

L is a nipper-rod passing at one end through the barrel C and provided with the usual nipper jaws or forks and passing at the other end between the grippers O and P and resting on a yoke G. This yoke is connected to a rod H, supported in a standard I. The rod and standard are screw-threaded, and nuts i and h are employed to regulate the setting of rod H, and also the yoke G to properly hold the nipper-rod L. The yoke G passes through a slot g' in the rod H, and its position is regulated by the nut h , so as to vary the set of the yoke to conform to the inequalities of nipper-rods, (which being of wood are sometimes more or less warped,) and to thus hold the rod in line through the barrel.

F is a rod that is commonly designated as the "shove-up rod." It extends from the gripper O to or near the bed Z of the machine, passing loosely through an aperture in barrel-rest standard C', that supports the said rod F, which is provided with a lever-arm V, and near the opposite end with a cam R, secured thereto by a set-screw r , while the end of the rod passes into a recess in the gripper O. At that end the rod F is provided with a conically-shaped recess k' . A headed screw-bolt f is provided with a set-nut o , and the inner end of said bolt is conical to fit into the recess k' . The purpose of screw f is to regulate the distance of the reciprocating motion of the nipper-rod. The lever-arm V on the shove-up rod F is adapted to hang over the heading-lever T and receive strokes from the arm X, which is attached to the said heading-lever by a bolt and clasp t and adapted to strike lever-arm V when the heading-lever vibrates, and thus rotate the said shove-up rod, for the purpose hereinafter described. The cam R, near the other end of the shove-up rod F, is adapted to engage with the lug P² on lower end of gripper P.

W is a coiled spring attached at one end to a projecting lower end O' of gripper O and at the other end to a pendent rod w , connected to the shove-up rod F, the purpose of which arrangement is to bring the shove-up rod back to its normal position, so as to open the jaws of the grippers after the rod F has been rotated to close them.

In an automatic nail-feeder it is necessary to provide the nipper-rod with a stop, whereby the grippers are prevented from forcing the rod forward under the cutting-knife when the nail-plate has been cut up to the forks of the said nipper-rod. For this I provide the nipper-rod stop J, which consists of a cylinder slotted its whole length longitudinally. It has a flange on one end and its outer surface is screw-threaded. It tapers from the flange to its opposite end, and is provided with a band j , screw-threaded on its inner surface, adapted to screw on the tapering surface of the cylinder and lessen its diameter by compressing it and closing or partially closing the slot. The cylinder J is slipped on the outer end of the nipper-rod L and firmly secured to it at the proper place, so as to strike the support G and stop the forward movement of the said nipper-rod when the nail-plate is sufficiently cut up. The cylinder J is secured to the nipper-rod L by screwing the ring j along the tapering surface of said cylinder, thereby lessening its diameter as the slot j' closes. I provide the ring j with a milled or rough and raised outer surface around the middle part, so that it can be seized by the grasp of the operator and easily screwed or unscrewed.

There are two motions essentially required in an automatic nail-plate feeder—one to cause the jaws of the grippers to close upon and grip the nipper-rod and then open and loosen it intermittently, the other motion to shove up the nipper-rod which carries the nail-plate under the cutting-knife at regular intervals and set distances, varying according to the size of nail being cut. Both of these motions I accomplish in a novel manner by providing the shove-up rod with the cam R and lever V, extending the rod to very near the bed of the nail-machine, and by rigidly attaching an arm to the center of the heading-lever adapted to extend to and strike the lever V.

My nail-plate feeder is operated as follows: When power is applied to the eccentric-rod A and the heading-lever T, through their connections with a main revolving shaft, the feed-rest D is forced forward and back and the heading-lever is vibrated on its center or axis at right angles to the motion of the feed-rest. The nail-machine being at rest with the nipper-rod in place, and the feed-rest back or outward, and the grippers open, power is applied, when the feed-rest is drawn forward or inward and the heading-lever is vibrated. The moment the heading-lever vibrates, the bar X strikes the lever V, causing the shove-up rod F to rotate the cam R, which, pressing against the lower end P² of loose gripper P, turns it on its pivot p , and the nipper-rod L is thus seized within the jaws of the grippers O and P. The moment after the heading-lever vibrates, the feed-rest is drawn forward or inward by the eccentric-rod A, causing the inner end of the shove-up rod F to strike the bed Z of the nail-machine and its outer end to force the lower end of the gripper O outward, and thereby the upper ends of both grippers O and P inward, thus shoving the nipper-rod forward and carrying the nail-plate under the cutting-knife.

What I claim is—

1. In a nail-plate feeder, in combination with a nail-machine, a shove-up rod provided with an arm or lever near its inner end adapted to receive strokes from a lug rigidly secured to the heading-lever, whereby the shove-up

rod is rotated back and forth by the direct action of the heading-lever, substantially as described.

2. In combination with a nail-machine and the grippers of a nail-plate feeder, a shove-up rod actuated by the motion of the heading-lever and provided with a cam near its outer end adapted to engage a lug extending from the lower end of the loose gripper, whereby the grippers are operated to grip the nipper-rod by the vibrations of the heading-lever, substantially as described.

3. The combination of the heading-lever provided with an arm, such as X, rigidly attached to its center, with a shove-up rod provided with a lever, such as V, whereby when the heading-lever is vibrated its said arm will strike the lever of the shove-up rod, as and for the purpose described.

4. In a nail-plate feeder, in combination with the actuating mechanism, an eccentric-shaft, barrel, barrel-rest, nipper-rod, feed-rest, and grippers, said feed-rest provided with a standard, an adjustable rod mounted on said standard, and an adjustable yoke secured to said rod to support the nipper-rod when the grasp of the grippers on the nipper-rod is released, and means to adjust the yoke up and down on said rod, substantially as described.

5. In a nail-plate feeder, a feed-rest provided with the standard I, in combination with the adjustable rod H and the supporting adjustable yoke G, substantially as and for the purpose described.

6. In combination with the shove-up rod

provided with the lever-arm V and with the cam R, the rigid gripper O, said cam being located on the side of said gripper, and the loose gripper P, the said gripper P pivoted centrally to the gripper O and provided at its lower end with an extension P², with which said cam on the shove-up rod engages, substantially as and for the purpose described.

7. In a nail-plate feeder, the rigid gripper O, having cast integral therewith the lugs P' and the pin K, in combination with the gripper P, pivoted to said lugs and provided with a slot to engage with said pin, substantially as described.

8. In combination with a nail-plate feeder, a nipper-rod stop consisting of a cylinder slit longitudinally and having a flange on one end and its outer surface tapering and screw-threaded from the said flange to its opposite end and provided with a ring screw-threaded on its inner surface adapted to screw on said cylinder and thereby diminish its diameter, for the purpose substantially as set forth.

9. In combination with the nipper-rod and the feed-rest provided with the supporting-yoke G, the slotted-rod stop J, provided with the band j, whereby the forward movement of the nipper-rod is controlled, substantially as described.

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

JOHN M. EDSON.

Witnesses:

SAMUEL W. BUCK,
JOHN G. CULVER.