

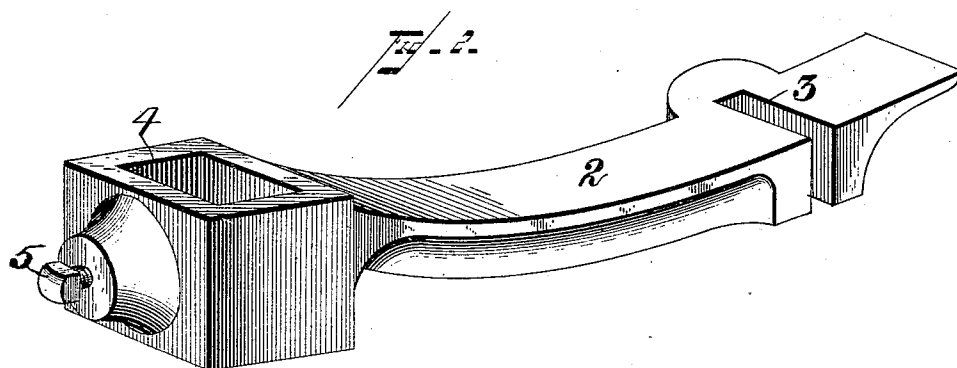
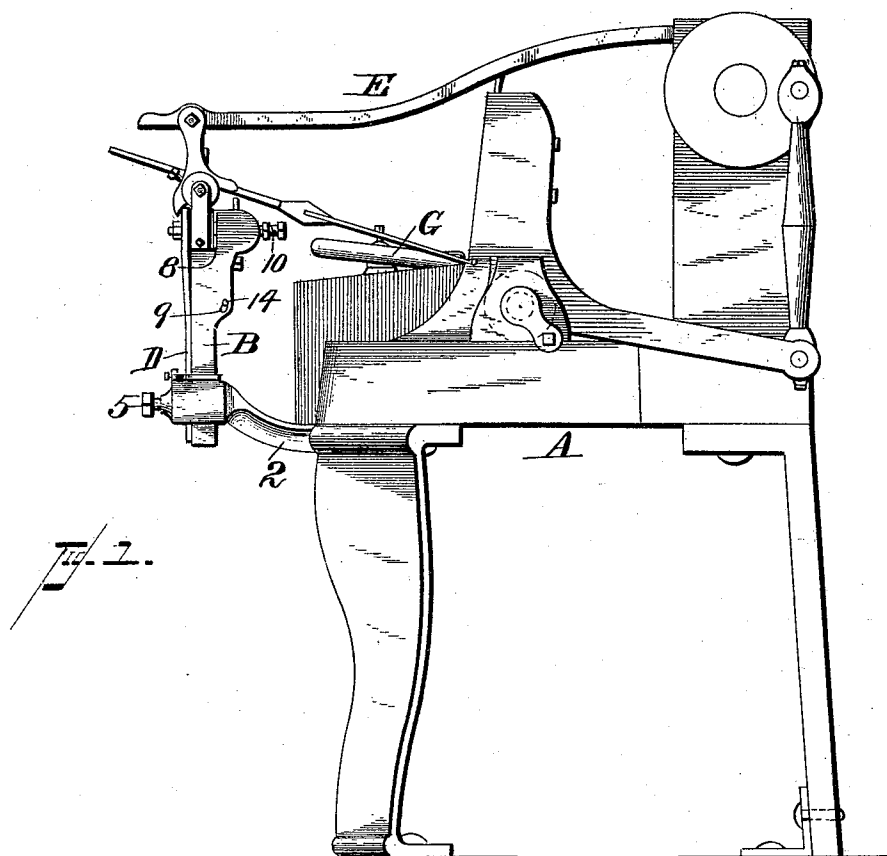
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5 Sheets—Sheet 1.

C. E. HOUGHTON.
NAIL PLATE FEEDER.

No. 459,546.

Patented Sept. 15, 1891.



WITNESSES

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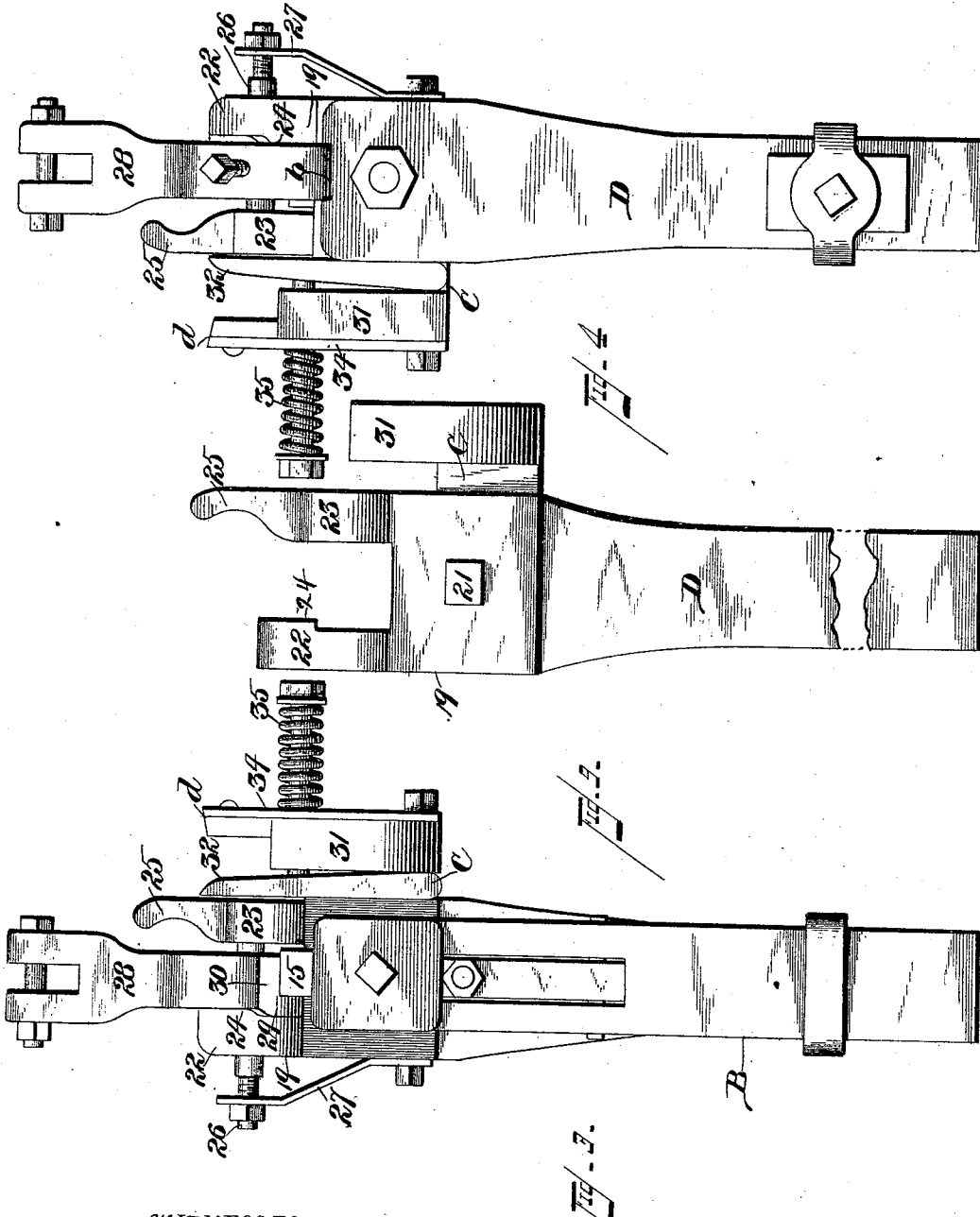
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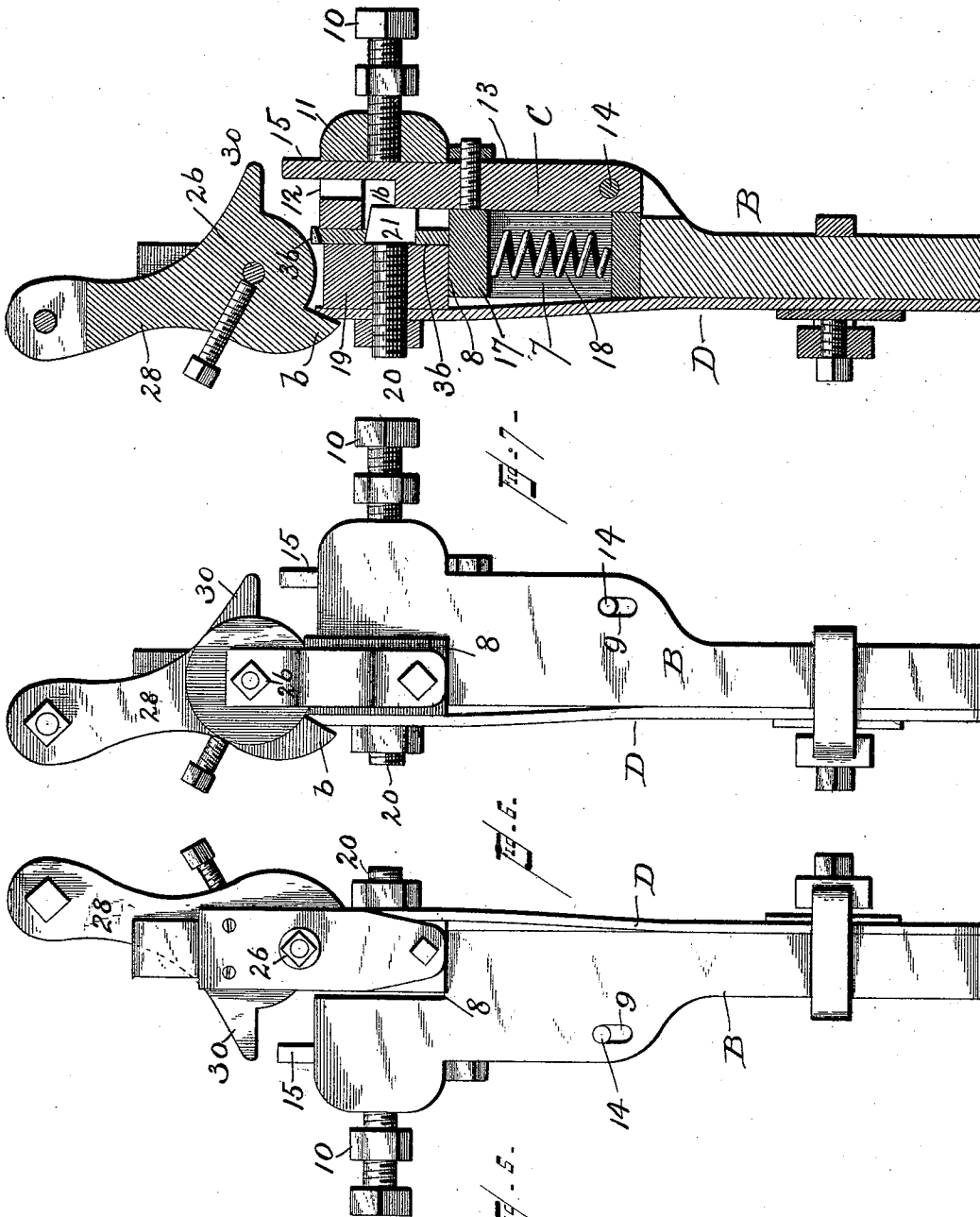
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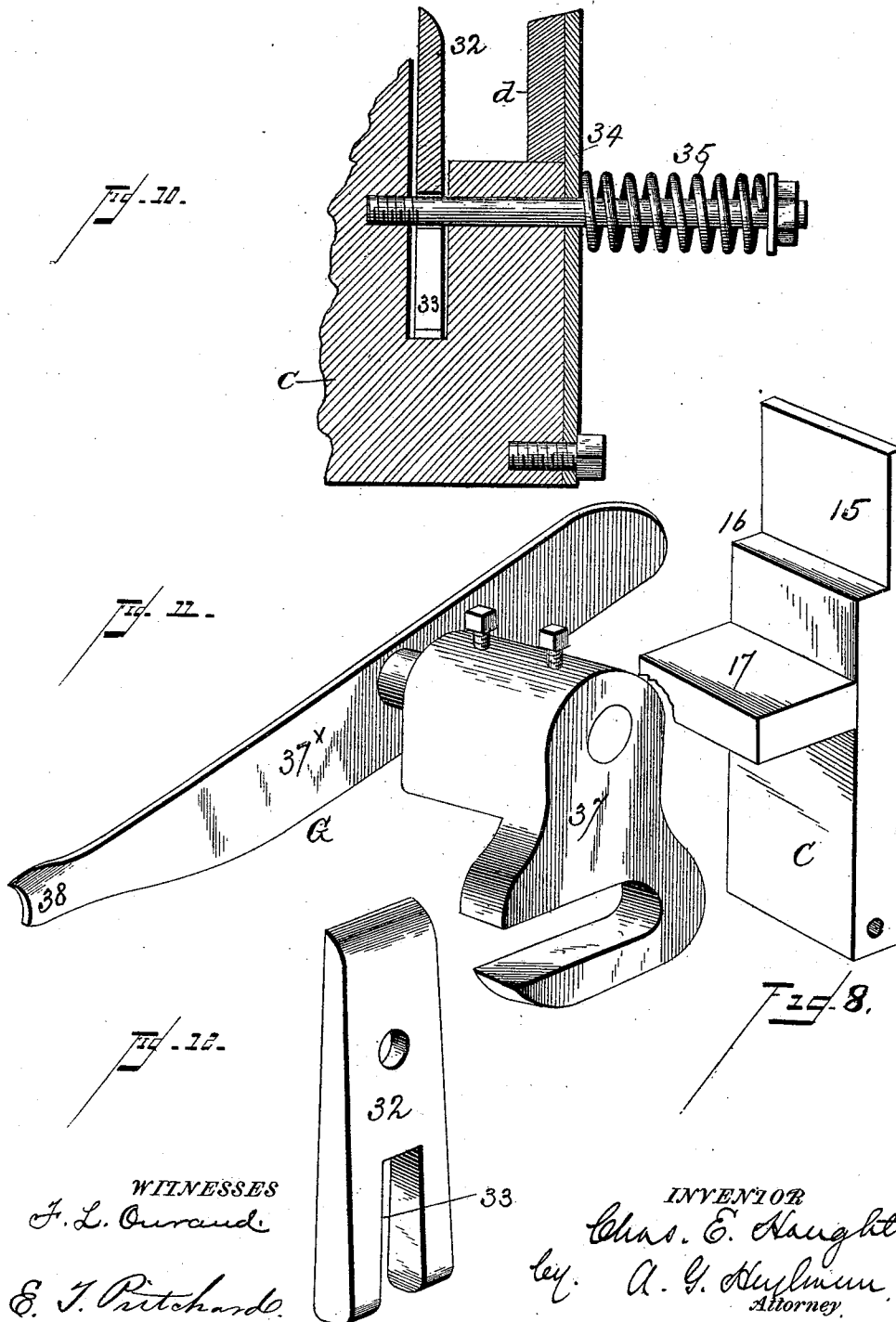
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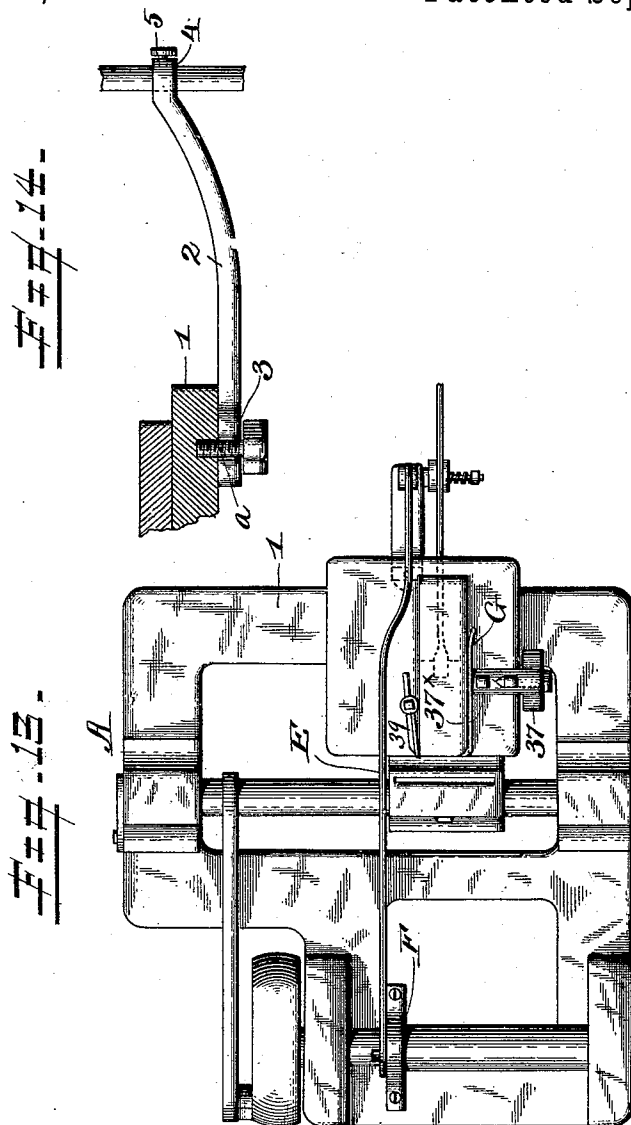
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Patented Sept. 15, 1891.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. HOUGHTON, OF NORTHUMBERLAND, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO HORACE RUFUS JOHNSON, OF SAME PLACE.

NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 459,546, dated September 15, 1891.

Application filed October 18, 1890. Serial No. 368,588. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. HOUGHTON, a citizen of the United States of America, residing at Northumberland, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Nail-Plate Feeder, of which the following is a specification.

My invention relates to mechanism for feeding the plate to the nail-machine; and the object is to provide a plate-feeder which will accurately feed a plate to the machine by direct intermitting movement without turning the plate.

My invention is designed to feed the plate straight to the machine without lateral motion, rotation, or reciprocating rotary movement.

My invention is specified in the description hereinafter given and is specially and particularly stated in the claims.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a view showing the mechanism connected to a nail-machine. Fig. 2 is a detail of the supporting-arm. Fig. 3 is a detail front view of the feeder. Fig. 4 is a reverse view of the same. Fig. 5 is a side view of the device. Fig. 6 is a reverse view of the same. Fig. 7 is a vertical section. Fig. 8 is a detail of the latch. Fig. 9 is a view of the main spring and bracket on the inner side removed from the other part. Fig. 10 is a transverse section of the nipper-rod clamping mechanism. Fig. 11 is a view of the plate or guide. Fig. 12 is a view of the movable clamping-jaw. Fig. 13 is a plan view of the bed of a nail-machine with my improved guard and guide arranged thereon, and Fig. 14 is a detail view showing the connection between the front cross-piece of the machine and the supporting-arm of the feeder.

A designates a nail-machine of the usual well-known construction, only such parts being shown as are essential to a proper understanding of my invention.

The front cross-piece 1 of the machine-bed is provided with a threaded bolt-hole about the middle thereof let in from below, and in this bolt-hole is fitted a clamping-screw *a* to

clamp in place a supporting-arm 2, which carries the feeder. This arm 2 consists of a strong piece of metal having in its rear end a transverse slot 3, through which the clamping-bolt passes into the bed of the machine. The arm is curved or directed upward to give the feeder the right height or position in front of the machine, and in the free end of the arm is an aperture 4 to take the stem of the feeder, a set-screw 5 being used to hold the stem adjustably in the arm. The arm may be adjusted laterally by means of the slot at the rear end, so as to admit of the feeder being applied to machines of different sizes, and also to adjust the feeder in changing from one sized nail to another on the same machine.

B designates the feeder-post, constituting a standard which contains the latch and supports the feed-spring and feeder. In the upper part of the standard is formed an opening or chamber 7, the standard being wider at this part than the stem. At the upper part of the standard is a seat or step 8, over which the base of the feeder-bracket moves. At the lower portion of the chambered part of the standard are vertically-arranged bearing-slots 9, and at the top portion a set-screw 10 is let through the wall of the standard, by which the latch may be adjusted, so that the feeder will deliver the plate to the machine to cut different-sized nails or nails of any desired weight. In the top part 11 of the standard is a vertical slot 12, in which the nose of the latch is disposed and reciprocates.

C designates the latch, consisting of a bar 13, having an aperture at its lower end, in which is detachably fitted a bearing-pin 14, having its ends arranged in the slots 9 of the standard. The latch is thus guided at its lower end, and also has a limited reciprocating movement to the extent of the slots. The stem 15 of the latch is made about one-half the thickness of the lower portion and is arranged in the slot 11 of the standard, with its end projecting upward to be engaged by the lug or projection of the rocking arm. The latch has a shoulder or stop 16, with which the dog or catch on the feeder-bracket engages to hold the latch down, and which holds the bracket back the width of the nail, as hereinafter specified. On the latch is a

lug 17, against which a spring 18, arranged in the chamber, as shown, pushes and serves to force the latch upward.

D designates a spring, constituting the means for throwing the feeder forward when pressed back by the reciprocating mechanism. To the upper end of the spring D is strongly secured the feeder-bracket 19, a bolt 20 being projected through the parts. The head 21 of this bolt is square and constitutes a dog to engage the shoulder of the latch when the latch is depressed by the rocking arm and holds it until released by the backward movement of the spring. The feed-bracket has projected from it two bearing-pieces 22 23. The inner face of the bearing-piece 22 is provided with cam-sections 24, on which the opposing surfaces of the rocking arm engage to push the bearing of the rocking arm lengthwise against the moving jaw of the nipper-clamp. The bearing-piece 23 is extended vertically, terminating in a beveled or curved part 25, as shown, to serve as a guard and guide to the nipper-rod when being placed in the clamp.

In the bearing-pieces 22 23 is disposed a bearing-pin 26, having a limited horizontal or endwise play to push the movable jaw of the nipper-clamp. To return the bearing-pin 26 to normal position a spring 27 is used, one end being fastened to the pin and the other end anchored to the bracket, substantially as shown. A rocking arm 28 is mounted on the bearing-pin 26 and fixed in position by a set-screw. On the face of the rocking arm adjacent to the bearing-piece 22 cam-surface 29 is formed to oppose that on the contacting bearing-piece. On the rocking arm is a projecting piece 30, which, in the reciprocations of the arms, bears on the projecting upper end of the latch and pushes it down. On the lower end of the rocking arm is a lug b, which lodges against the bracket and serves to hold the rocking arm rigid with the spring to throw it out and withdraw the dog from the latch.

E designates a pitman or connecting-rod connecting the top of the rocking arm to the eccentric F on the driving shaft of the machine.

Projecting from the bracket 19 is a bridge-piece or support c, carrying a vertical standard 31. On the support c is loosely arranged the movable jaw 32 of the nipper-rod clamp having an open-end slot 33 to straddle the support. The other jaw 34 of the clamp consists of a plate having a thickened upper part d. This jaw 34 is secured at its lower end by a screw and is made slightly yielding through the agency of a spring 35, mounted on a bolt which is projected through the jaw, the support, and the moving jaw of the nipper-rod clamp.

On the inner impacting face of the bracket 19 is secured a cushion or packing 36, to lessen the noise and relieve the jar of the parts.

G designates the plate guard and guide.

This consists of a slotted bracket 37, disposed on a clamping-screw, as shown, and having a sleeve provided with set-screws. (See Figs. 11 and 13.) The guard or guide proper is made of a flat bar 37^x, beveled at the inner end, as at 38, to sit on the bed of the machine in alignment with edge of the plate, and the end is curved crosswise inwardly to prevent the plate from jumping up at the edge when being fed to the knives. This guard is fixed on the left side of the bed-knife opposite to the usual guard 39 on the right.

The operation is as follows: The feeder being mounted, as seen in Fig. 1 of the drawings, and the rocking arm being connected to the eccentric on the driving-shaft of the machine, the mechanism is ready for operation, a plate being first stuck in the nipper for use. The nipper-rod is then laid in the opening between the jaws of the clamp and arranged with the plate adjacent to the knives and between the guards 37^x and 39. The rocking arm is now moved outward and away from the standard, the latch being in upward limit. Now when the rocking arm is drawn inward as it moves in that direction the cam-surfaces of the arm and the bearing engage and push the bearing-pin of the rocking arm against the movable jaw of the nipper-rod clamp, which holds or grips the rod until the projection on the rocking arm strikes the end of the latch and depresses it, so as to move it down until the shoulder passes the lower edge of the dog 21, the feeder-spring, and thus affords space for the dog to enter and permit the spring to move the rod forward and of course feed the plate carried by it to the machine. These continued and successive movements of the rocking arm, caused by its connection with the operating-shaft of the machine, carry the feeder-bracket outward and permit the latch to spring up, in which position the dog on the feeder-bracket sets against the face of the latch below the shoulder, holding the spring back, in which position it is held until the latch is depressed, when room is made for the reception of the lug, and when this is made the spring flies inward and feeds the plate.

Having thus described my invention, stated its principles, and explained its functions, so as to distinguish it from other inventions in the art, I now proceed to particularly point out and distinctly claim the part, improvement, and combination I claim as my invention, as follows:

1. In a nail-plate-feeding machine, the combination of a vertical standard, a spring-actuated latch arranged in the standard, a spring-actuated feeder-bracket provided with a dog to engage and hold the latch depressed, a rocking arm to depress the latch and having a lateral movement to close the nipper-rod clamp, a nipper-rod clamp, and means, substantially as described, for moving the rocking arm, as specified.

2. In a nail-plate feeder, the combination

of a vertical supporting-standard, a spring-actuated latch arranged in the standard, an adjusting-screw to set the latch and cause the feeder to feed a determined-sized nail-blank, 5 a spring-actuated feeder-bracket provided with a lug or dog to engage and hold the latch depressed, a rocking arm journaled in the bracket to depress the latch and draw back the feeding-spring and having lateral movement to close and open the nipper-clamp, a nipper-rod clamp actuated by the lateral movement of the rocking arm, and means for moving the rocking arm, all as specified. 10

3. In a nail-plate feeder, the combination 15 of a vertical supporting-standard having a latch-seat in its upper end, a vertically-arranged spring-actuated latch in the latch-seat, a spring-actuated feeder-bracket secured to the standard and having a lug to engage the latch, a bearing-pin in the bracket having a horizontal movement in its bearings, a spring to hold and return the bearing-pin in normal position, a nipper-rod clamp at the side of the bracket having a stationary jaw and a movable jaw actuated by the endwise movement 20 of the bearing-pin, a rocking arm fixed on the bearing-pin in the bracket to move the bracket back, depress the latch, and close the nipper-rod clamp, a set-screw to adjust the latch, and 25

means to rock the rocking arm and move its bearing endwise, substantially as described. 30

4. In a nail-plate feeder, the combination of a supporting-standard, a vertically-arranged spring-actuated latch in the standard, a spring-actuated feeder secured to the standard 35 provided with a lug to engage the latch and bearing-ears one of which is formed with cam-surfaces on its inner face, a rocking arm mounted on a bearing-pin having an endwise movement and formed on the face with cam-surfaces to engage the cam-surface on the bearing-ear, and a nipper-rod clamp actuated by the endwise movement of the bearing-pin, all substantially as described. 40

5. The combination, with a nail-plate feeder, of a plate-guard and guide secured to the bed of the machine adjacent to the bed-knife, consisting of a flat bar having a beveled under portion and curved crosswise at the inner end, substantially as described, and for the 50 purposes set forth.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

CHARLES E. HOUGHTON.

Attest:

EML. WILVERT,
REUBEN JOHNSON.