

(No Model.)

M. ALTMAYER.
FEED MECHANISM FOR NAIL MACHINES.

No. 470,149.

Patented Mar. 1, 1892.

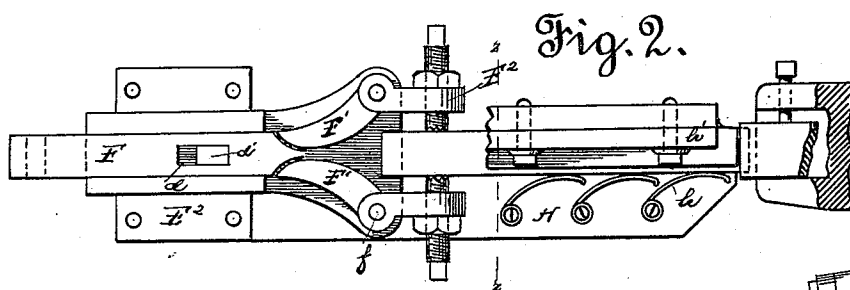
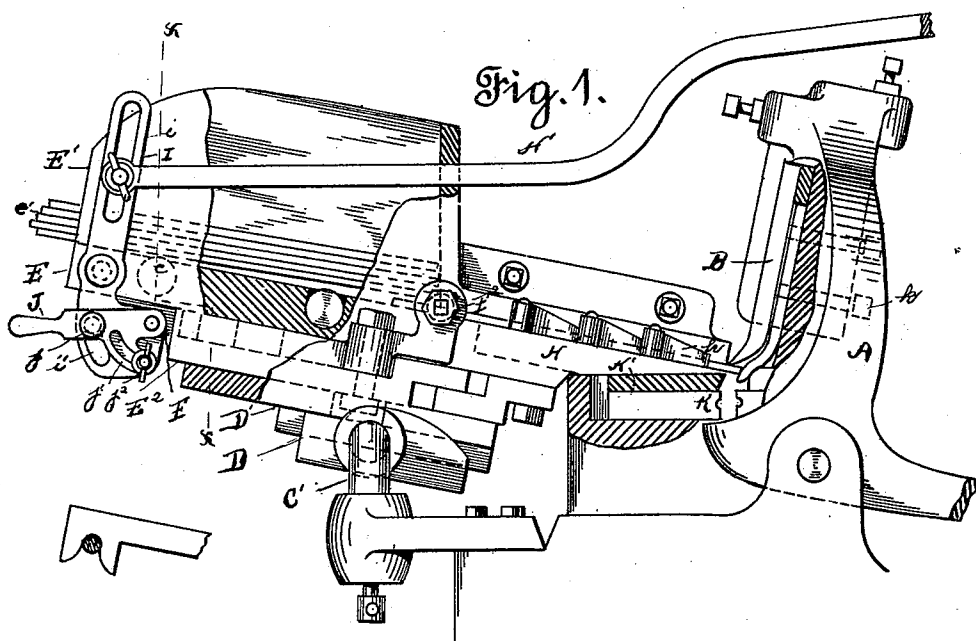


Fig. 3.

Witnesses.
W. J. Osborne.
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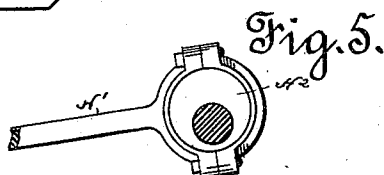
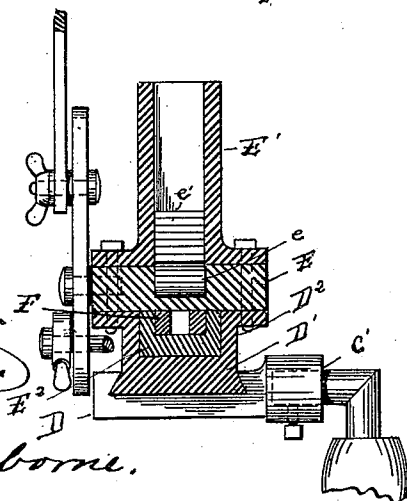


Fig. 4.
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att'y

UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR NAIL-MACHINES.

SPECIFICATION forming part of Letters Patent No. 470,149, dated March 1, 1892.

Application filed April 17, 1891. Serial No. 389,349. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW ALTMeyer, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Feed Mechanism for Nail-Machines; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention has relation to certain new and useful improvements in the feed mechanism for nail-making machinery, as will be hereinafter more fully set forth in the drawings, described and pointed out in the specification.

Heretofore in the making of nails the nail-plate has always been fed to the machine by boys employed for this purpose, who catch the plate by means of a suitable catch-rod and place the same within the oscillating feed-chute, so as to force the end under the cutting-tool. However, it has been found impossible to consume or clip the entire plate, inasmuch as a certain portion thereof, known to the trade as the "plate-butt," is held by the catch-rod. Consequently the plate can only be cut as far as the end of said rod, thus necessitating the waste of the entire butt, and inasmuch as the same contains sufficient material or metal to form three or four nails from it is obvious that in the course of a day's work considerable loss takes place, and in case many machines are employed the combined loss amounts to thousands of pounds. Further, the oscillating of the plate and feed-chute tends to form a ragged cut to the nail, instead of a smooth clean cut. Again, the rapid making of the nails depends largely upon the prompt and careful feeding of the plates into the feed-chute by the boys stationed for this purpose, inasmuch as the dropping of the plate or inaccurate feeding creates delay in the making of the nail, and by reason of the oscillating motion imparted to the chute the plate has a tendency to clog or catch and make imperfect nails. These are

few of the defects which are incident to the making of nails by the present machines and which it is my aim to obviate and effectually overcome by the hereinafter-described mechanism.

The present invention consists in providing a feeder adapted to be readily attached to any of the well-known nail-machines now in use which will dispense with the necessity of the employment of plate-feed boys, thereby forming an automatic feeder whereby the plates are thrown forward sufficiently far to allow for the requisite nail-cut, and at the same time a clean and perfect cut and at the same time consume the entire plate, thereby preventing loss of nail-plate butts and obviating the expense attendant upon the handling thereof and loss of nails resulting from such waste.

My invention further consists in providing a simpler, more effectual, less expensive, and more durable feeder than any heretofore known to me, and one which shall allow of the more rapid feeding of the nail-plates to the cutting-tool.

For a more comprehensive understanding of my invention reference must be had to the accompanying drawings, wherein similar letters of reference denote corresponding parts throughout the entire specification.

Figure 1 is a side view partly broken away showing my feeder applied to the front of an ordinary nail-machine; Fig. 2, a top plan with feed-box and plate-rolls removed; Fig. 3, a front vertical sectional view taken on line x x , Fig. 1; Fig. 4, a detail cross-sectional view taken on line z z , Fig. 2; and Fig. 5, detail of cam for attachment to the nail-machine and adapted to operate the feed mechanism.

The letter A is used to indicate the ordinary cutting-head of nail-machines, which is provided with the cutting-tool B. The cutting-head is secured to the machine and operated in the usual manner, and consequently need not be specifically set forth in this specification.

To the frame of the machine is swiveled or otherwise secured the arm C', to which is con-

needed the feed-support D. Said support is grooved, so as to receive the bed-plate D', which is provided with the upwardly-extending flanged sides D². To the bed-plate is bolted the roll-carrying plate E, which has journaled therein the nail-plate rolls *e*, and to said plate is bolted the feed-box E', within which are placed the nail-plates *e'*, one upon the other, the lower one resting upon the rolls *e*, as clearly shown in Figs. 1 and 3. Within the space existing between the roll and bed plate is secured the movable guide-plate E², which is provided with the upwardly-extending lug or stop-pin *d*, which works through the opening *d'*, formed in the operating-plate F. Said plate moves forward and backward within guide-plate E², and as the end walls of opening *d'* contact with lug or stop *d* the guide-plate is carried forward or backward. Upon the guide-plate are secured the cams F' by means of bolts *f*, and thereto are connected the gripper-jaws F², which are adapted to open or close with the opening or closing of cams F', so as to grip or release the nail-plate *e'*, as hereinafter set forth. To the front of the feed is secured the plate-guide H, within which the nail-plate is held, after being released from the grippers, by means of the springs *h*, bolted thereto. In order to hold the plate firmly within the guide, I bolt or otherwise secure to the side wall thereof the guard *k'*, preferably composed of an L-shaped plate. The inner end of the operating-plate is formed wedge shape, so that when moved forward it will serve to force open the cams F', thereby closing the grip-jaws upon the nail-plates.

The anvil-bed is indicated by the letter K, and secured thereon is the still die K'.

The cutting-tool is made adjustable through the medium of bolts *k*.

Within the feed-box I place a number of nail-plates, as shown, the ends of which rest against the incline end of the box. The end of the lower or bottom plate bears against the gripping-jaws, so as to be in position to be grasped thereby or fall therebetween immediately upon the opening thereof.

Motion is derived, when imparted to the feed mechanism, through the medium of the connecting-rod H', which derives motion, when it is operated, from cam H², secured upon the operating-shaft of the nail-machine in the ordinary manner. The location and position of the driving-shaft is immaterial, inasmuch as the connecting-rod may be shaped so as to conform thereto—that is to say, if it is located below the cutting-head of the machine the connecting-rod may be curved downwardly, so as to bring the operating-cam thereon. The outer end of the connecting-rod works in the elongated slot *i* of the guide I, secured to the roll-plate of the feed-box. The lower portion of said guide arm or plate is somewhat enlarged and is provided with the elongated slot *i'*, within which the bolt or lug *j* operates and works. Said lug projects or extends from the operating-handle J, pivoted to the roll-

plate or bed of the feed-box, and is provided with a downwardly-extending arm *j'*, which has an elongated opening or slot formed therein, through which projects or works the set-nut *j*². By raising or lowering the outer end of the connecting-shaft within the elongated slot or guide-arm I am enabled to regulate the throw of the feed mechanism, so as to impart an increased or decreased cut to the nail-plate. When lowered to its full extent, a quick movement of the feed is imparted to the machine, while when the connecting-rod is thrown upward said movement or motion is decreased. Should it be desired at any time during the working of the feed mechanism or nail-machine to create a cessation of the feed-plates moving toward the cutting-head for the purpose of repairing machine or otherwise, the same is obtained by unscrewing or loosening screw-nut *j* and allowing the arm J to drop within the elongated opening or slot formed in the guide-arm, thereby throwing out of operation the connecting-rod, but still allowing for perfect working of the machine, with the exception that the feed or travel of the nail-plates is stopped.

The operation of my machine is as follows: With the rotation of the drive-shaft of the ordinary nail-machine the connecting-rod imparts a forward-and-back stroke to the guide-arm, within which the outer end of the connecting-rod works, which arm being connected through the medium of the pin *j* to the operating plate or wedge F the latter is moved forward until contact is made with the lug *d*, projecting from the guide-plate E², and when such contact is made said guide-plate is moved forward in a manner similar to the operating rod or plate, carrying therewith the cams and nail-plate secured therebetween. It will thus be observed that with the first movement of the feed mechanism the plate is carried or moved forward a sufficient distance to allow for the regulated cut of the nail, and with the second movement—or, that is, when the the operating-plate contacts with the pin or lug *d*—the entire feed mechanism is moved forward, so as to throw the nail-plate beneath the cutting-tool of the cutting-head. The foregoing operation or movement of the feed mechanism takes place on the upstroke or throw of the cutting-head, while with its down movement, or after it has made the cut of the nail-plate, the operating plate or wedge is thrown backward, carrying therewith the guide-plate, and at the same time, by moving from within the frames F', the grip-guides are released from their hold upon the nail-plate and carried backward, so as to make a regrasp thereon for the purpose with the next upstroke of the cutting-head of carrying the nail-plate forward sufficiently far to give a perfect cut thereof, and as the operating plate or rod moves from between the operating-cams, which, closing by gravity, opens the grip-jaws, so as to release the nail-plate, which is then held by the guide H until the rear

wall of opening *d'* contacts with pin *d*, when the guide-plate *E*² is moved backward, carrying therewith the cams and gripping-jaws. When the operating-plate again moves forward with the upward movement of the cutting-head, the cams are opened, gripping-jaws closed, and the whole moved forward, as before described, carrying therewith the nail-plate. As the plate is cut sufficient to be carried from beyond the grip-jaws, the next plate contained within the feed-box is caught therebetween and carried forward in a like manner. The plates as moved within the feed-box slide upon the rolls *e*.

15 In order to keep the machine fed, it is only necessary that the feed-box be continually supplied with plates. Any number may be placed in the box. Consequently one boy is enabled to feed about ten or twelve machines. 20 As the first plate leaves the jaws entirely it is held by means of the springs contained in the guide, and the forward end of the next plate abuts against the rear end thereof and serves with its movement to force the first 25 plate forward. It will thus be seen that no material is wasted in the cutting and that the feed is perfectly automatic. It will also be noticed that I obtain two positive movements, first the movement of the operating-plate in order to open the cams and close the 30 grip-jaws upon the plate, and, secondly, the forward movement of the guide-plate.

I am aware that minor changes may be made in the arrangement of parts and details of construction herein shown and described 35 without necessitating or creating a departure from the nature and scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent of the United States, 40 is—

1. In a nail-machine feeder, the combination of a frame, laterally-working grippers to engage the nail-plate, cam-arms pivoted to 45 extended ends of said grippers, and a longitudinally-moving operating wedge-plate adapted to act upon the cam-surfaces and operate the grippers, substantially as set forth.

2. In a nail-machine feeder, the combination of a frame, an L-shaped nail-plate, guide 50 secured thereto, and a supplemental plate or guard secured to the side of the nail-plate guide, with a space between the bottom of the latter and the lower edge of the supplemental 55 plate or guard, forming a passage for the nail-plate, substantially as set forth.

3. In a nail-machine feeder, the combination, with the operating-plate, of the guide 60 plate, lug, or pin secured thereto, cams adapted to be operated by the movement of the operating-plate, nail-plate grippers opened or closed by the movement of the cams, and mechanism for imparting motion to the oper-

ating plate and guide, as and for the purpose set forth.

4. In a nail-machine feeder, the combination of a frame, an L-shaped nail-plate guide secured thereto, provided with a passage for the nail-plates, and springs secured to the nail-plate guide, their free ends being adapted 70 to bear laterally against the nail-plates, substantially as set forth.

5. In an automatic nail-feeder for nail-machines, the combination of an operating-plate, grippers operated by the movement of said 75 plate, a guide-arm pivoted to the frame of the machine and provided with elongated slots at opposite extremities, a pin passing through the slot at the lower extremity and engaging the operating-plate, and an actu- 80 ated connecting-rod having one end adjustably secured within the upper slot of the guide-arm, substantially as set forth.

6. In an automatic nail-feeder, the combination of an operating-plate, grippers oper- 85 ated by the movement of said plate, a guide-arm pivoted to the frame of the machine, provided with an elongated slot at its upper end and having its lower end enlarged, and provided also with an elongated slot, an oper- 90 ating-handle provided with an inwardly-extending pin passing through the slot of the guide-arm and engaging the operating-plate, and also provided with a depending slotted extension, a set-nut working through 95 said extension, and an actuated connecting-rod having one end adjustably secured within the upper slot of the guide-arm, substantially as set forth.

7. In an automatic nail-feeder, the combination of a grooved feed-support provided 100 with laterally-extending flanges, a roll-carrying plate secured to the flanges of the bed-plate, a feed-box secured to the roll-carrying plate, a grooved guide-plate within the bed- 105 plate, provided with an upwardly-extending lug, an operating-plate within the guide-plate, provided with an opening for the reception of the lug of the guide-plate, gripper-jaws operated by the movement of the operating- 110 plate, and mechanism for imparting motion to the operating-plate, substantially as set forth.

8. In a nail-machine feeder, the combination, with the operating-plate, of guide-plate 115 operated thereby, operating-cams secured thereto, grip-jaws operated by the movement of the cams, and mechanism for imparting motion to the operating-plate, so as to open and close the grip-jaws and feed the nail-plate to the cutter, as and for the purpose set forth. 120

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

MATTHEW ALTMAYER.

Witnesses:

LEE D. CRAIG,

THOS. B. TAYLOR.