R. C. TURNER.

NAIL-PLATE FEEDER.

No. 176,384. Patented April 18, 1876.

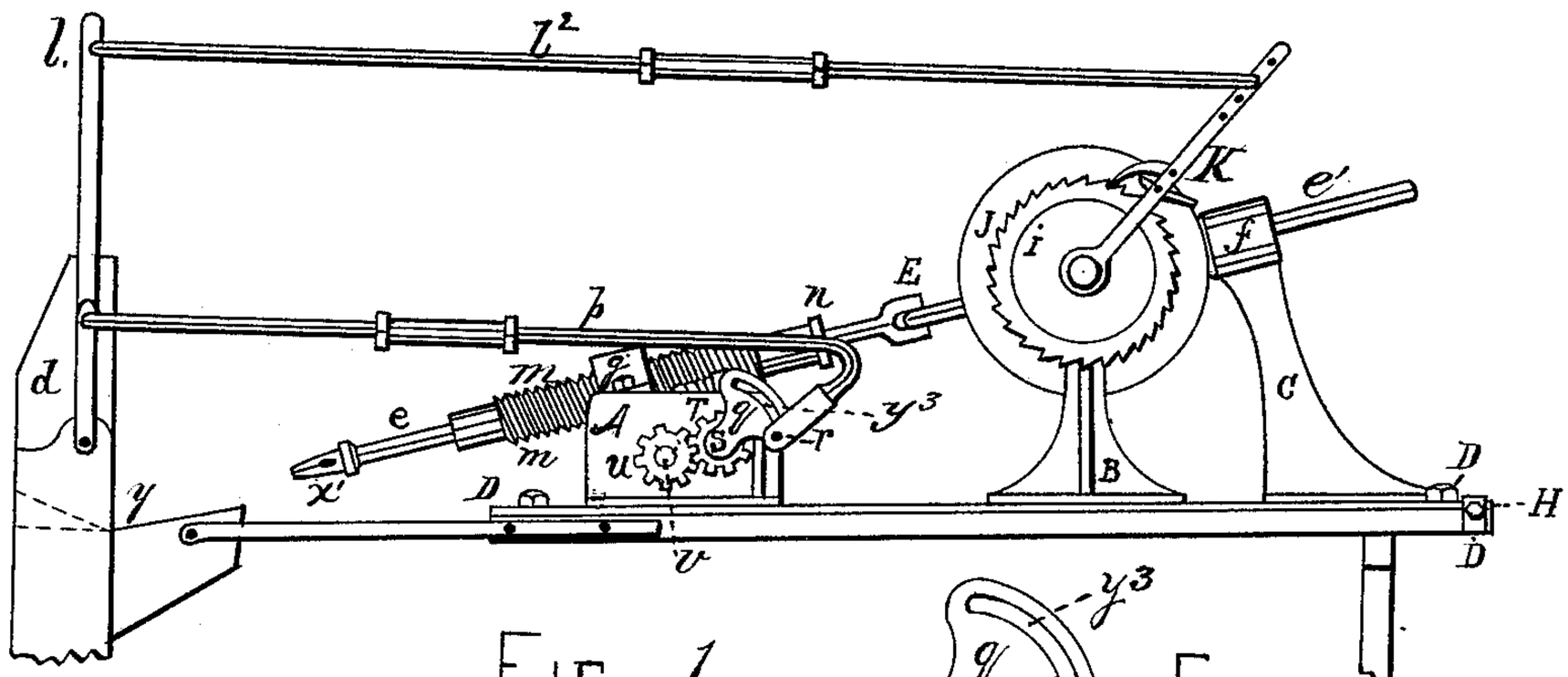


Fig. 1.

Fig. 4.

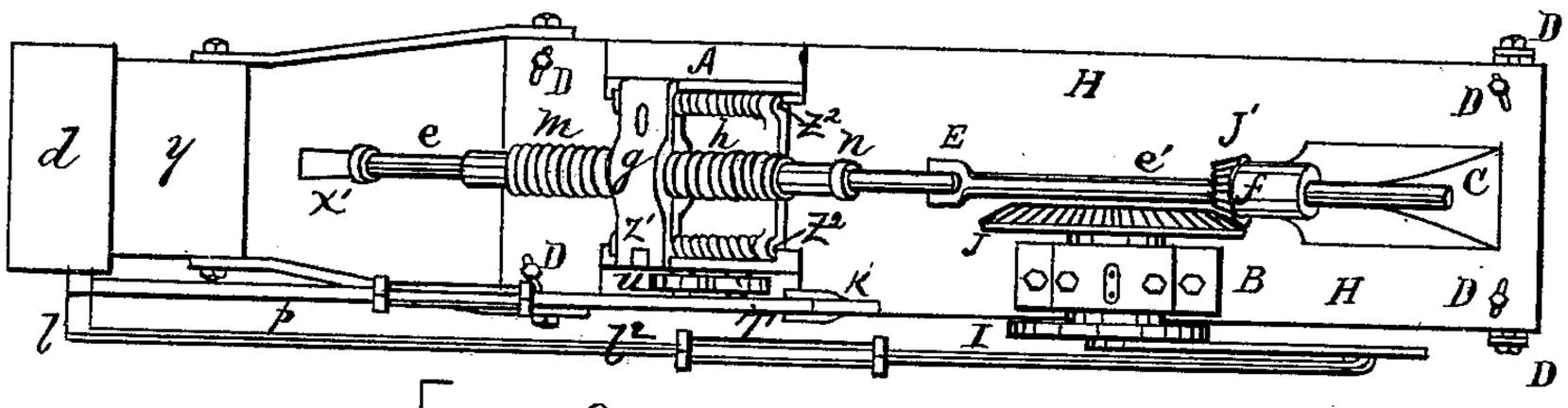


Fig. 2.

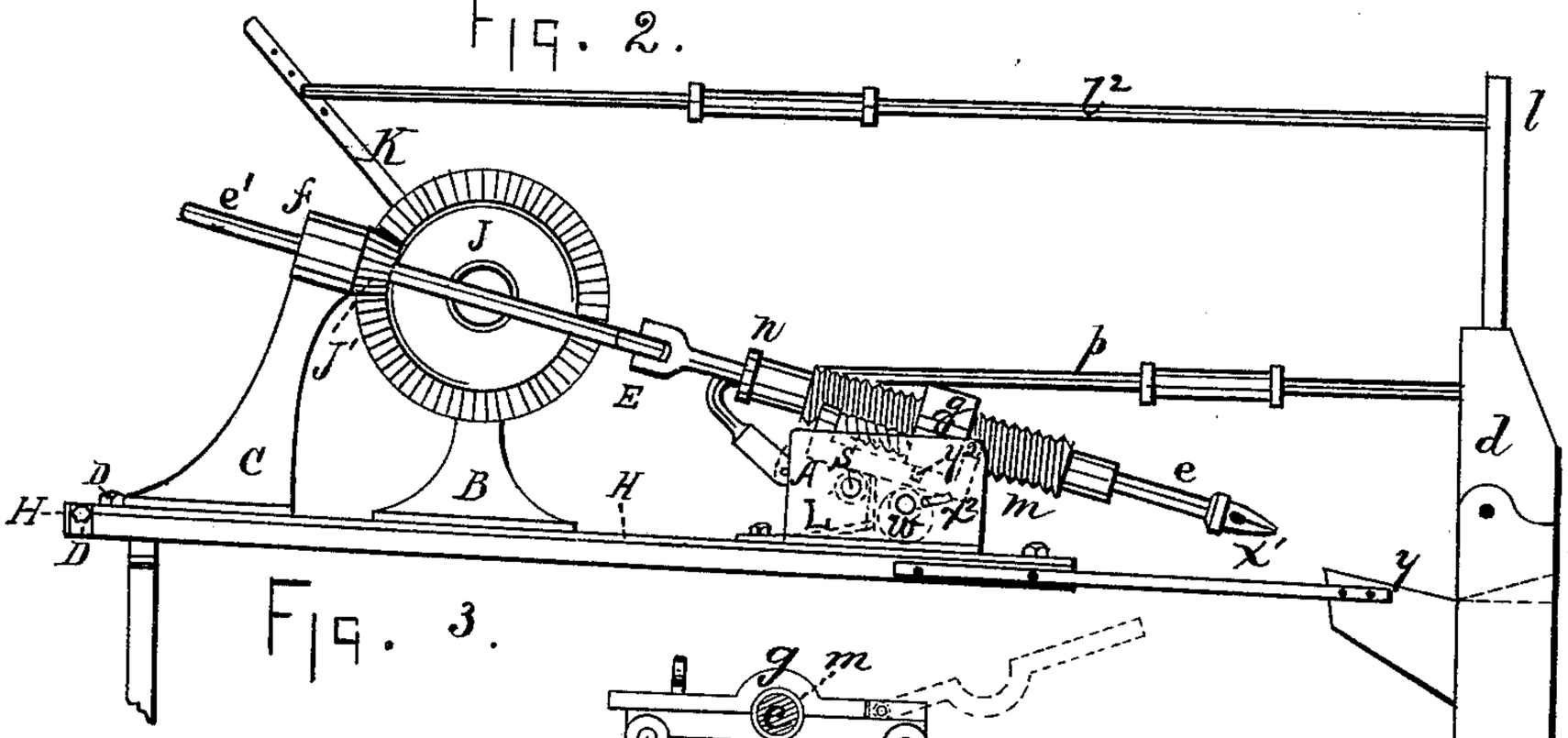
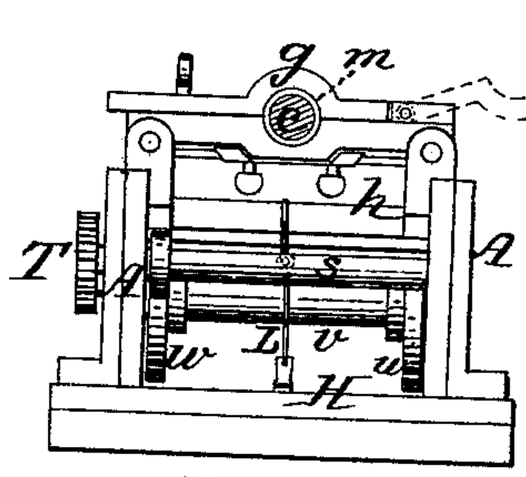


Fig. 3.



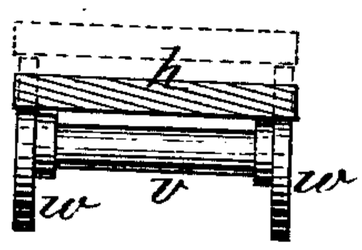


Fig. 5.

WITNESSES

L. W. Evans.

Jas. E. Myers.

INVENTOR

R. C. Turner

UNITED STATES PATENT OFFICE.

ROBERT C. TURNER, OF STEUBENVILLE, OHIO, ASSIGNOR OF ONE-THIRD HIS RIGHT TO C. H. SPAULDING, AND ONE-THIRD TO JAMES KENYON, OF SAME PLACE.

IMPROVEMENT IN NAIL-PLATE FEEDERS.

Specification forming part of Letters Patent No. **176,384**, dated April 18, 1876; application filed January 7, 1876.

To all whom it may concern:

Be it known that I, ROBERT C. TURNER, of Steubenville, in the county of Jefferson and State of Ohio, have invented a new and useful Improvement in Nail-Plate Feeders for machines for making nails, of which the following is a specification:

My invention is designed to turn and feed the nail-plate for the action of the cutter; and the particular features of my improvement will be specifically and fully set forth and pointed out in the following description and claims.

I have shown in the accompanying drawings only so much of a complete machine as is deemed necessary to illustrate the features of my invention in connection with a nail-plate feeder, and in which—

Figure 1 represents a side elevation of the nail-plate holding and feeding mechanism; Fig. 2, a top view of the same; Fig. 3, an elevation of the opposite side from that shown in Fig. 1; Fig. 4, an enlarged view of a slotted arm in Fig. 1; and Fig. 5, a cross-section of the box which carries the feeding-screw.

The several operating devices are supported by pillars A B C, and the nail-plate is held and carried by the nipper x' on the end of the feeding-rod *e*, said feeding-rod being supported and operated by means of the several devices hereinafter described.

The movements of the several devices are produced by and from the motion of the pivoted cutting-lever *d* of a nail-machine. The feeding-rod *e* is supported and carried at two points, the outer one, *f*, being a bearing in the standard C, and the inner one being a jaw screw-nut, *g*, carried by a box, *h*, Fig. 2, having a compound movement, for a purpose to be presently described. This box *h* is supported upon the pillars A, and between the pillars A and C is the pillar B, which supports the ratchet and gear wheels I and J. The ratchet-wheel I receives its motion by means of a pawl-connection, K, with the cutting-lever *d*, being pivoted thereto at *l* by an adjustable rod, l^2, in such manner and by such means that the vibrations of the cutting-lever *d* will feed the pawl K to turn the bevel-gear J, which meshes with a bevel-pinion, J′, through which pinion the feeding-rod *e* passes. The ascent of the cutting lever *d* moves the pawl K back over the ratchet I, and the descent of the said cutting-lever turns the ratchet I and bevel-gear J J′, and by this movement the feeding-rod *e* is turned half a revolution to give the nail-plate held in the nipper x^1 the proper position for the action of the cutter. The feeding-rod *e* has a screw-thread, *m*, formed upon it, which works in the jaw screw-nut *g*, and by this screw the feeding of the nail-plate is both effected and regulated. There are, however, several important peculiarities about this screw feed device. The screw is of a greater diameter than the rod *e*. Its length must be equal to that of the nail-plate. The object of these two features is to prevent the feed of the rod *e* after the nail-plate is used up, except that portion of the said nail-plate which is held in the nippers, and to render the feeding-screw inoperative until it is again set back into the jaw screw-nut *g*. The pitch of the threads of the screw and jaw screw-nut must always be double the width of the nail required to be cut, so that a half revolution of the rod *e* and, consequently, of the screw *m* will present for the operation of the cutter just a sufficient quantity of iron to make a nail of the width required. This feeding-rod *e* is provided with a collar, *n*, at a sufficient distance from the inner end of the screw *m* to allow said screw to pass through the jaw-nut *g*, the object and purpose of which are to prevent the nipper x^1 from sliding forward into the nail-machine after the operation of cutting up the plate is completed.

As it is necessary to move the feeding-rod *e* back after each nail is cut, and as it is also necessary to raise the nail-plate to turn it after each nail is cut, I have combined with the box *h*, which carries the jaw-nut *g*, devices for effecting these combined movements. The devices by which I carry into effect these movements consist of a connecting-rod, *p*, pivoted to and receiving a vibratory motion from the cutting-lever *d*, the other end of said rod *p* being connected by a pin, *r*, to a slotted arm, *q*, on the end of a rock-rod, *s*, fitted in suitable bearing in the pillar A and carrying a pinion, T, which meshes with a pinion, *u*, on the end of a rock-rod, *v*, Fig. 1, which carries eccentrics *w*, (shown in Figs. 3 and 5,) which bear

against the under side of the box *h* to give it the upward movement, thus raising the nail-plate a sufficient distance to allow it to be turned before it comes in contact with the bed-knife *y* of the nail-machine. The cam-rod *v* also carries forked arms x^2, Fig. 3, which, by the motion of said rod, are pressed against an extension, y^2, in the bottom of the box *h*, or may be connected with or fitted into openings which may be made in the bottom of the box *h*, so that the rocking or turning of the cam-rod *v* will cause the said arms to move the box *h* and the feeding-rod *e* back to take the nail-plate held by the nipper x^1 back from the cutter, to clear the latter in turning the plate. In this operation the slot y^3, Fig. 4, serves an important function, viz: Its lower end has a notch, *z*, into which the pin *r*, Fig. 1, takes and forms a dog, or hold, to raise the slotted arm *q*, Fig. 4, and turn the pinion T, Fig. 1, and with it the pinion *u*, thus giving the upward motion to the movable box *h*, Fig. 2, by the eccentrics or cams *w;* while the backward movement of the movable screw-nut *g* is effected by the pressure of the arms x^2, and the forward movement, upon the pressure of said arms being withdrawn, is effected by the coil-springs on the horizontal rods z^2, and to allow of this movement of the nut *g* it is secured to a horizontal bar, which is mounted upon two horizontal rods, z^2, provided with coil-springs to throw forward the box and feeding-rod as aforesaid, and upon these rods z^2 the nut *g* and bar have their movements. The feeding-rod *e* has a slot fitted with a key fastened in the small bevel-wheel J^1, to allow the rod to move lengthwise while being turned by the bevel-gearing, and it is of course understood that this turning movement of the feeding-rod is intermittent. It must be observed, however, that the action of the rod *p*, by means of the pin *r* in the notch *z*, is to raise the arm *q* a suitable distance to give the required movements to the box *h* and the nut *g*, and then the pin *r* will automatically release itself from the said notch, and thus allow the arm *q* to fall by its own weight, and thereby put all the parts of this connection in the position they occupy when the nail is being cut, and therefore in readiness to repeat the operation above described.

I have placed the entire machine, as above described, on a movable plate, H, the position of which may be changed to the right or left, or raised or lowered, by means of screws or other devices D, Figs. 1, 2, 3. This movable plate H rests upon a permanent plate or foundation, and it is provided with segmental slots, through which the fastenings pass, and by which its adjustment is effected, as may be necessary to secure the proper angles for the nail-plate, with regard to the knife in the cutting-lever *d*.

In order to prevent any strain or binding on the feeding-rod *e*, it is jointed to that portion, *e'*, which passes through the bevel-pinion J', by a universal joint, E, between the bearing *f* and the collar *n*, so that by this means the rising and falling movement of the box *h* and feeding screw is accommodated without disturbing the connection of the latter with its operating gearing.

The carriage *h* has a spring, L, connecting its lower end with the plate H, by which its descent is insured after being elevated.

The jaw-nut *g* is opened upon its hinge for adjusting the screw *m* to its proper position for work.

I claim—

1. The combination, with the pivoted cutting-lever *d*, the holding and feeding screw-rod *e*, and the pawl-connection K l^2, of the rod *p*, connecting the screw raising and lowering devices, so that these devices and the feeding-screw rod are controlled by direct connections with the nail-cutting lever.

2. The combination, with the pivoted cutting-lever *d*, of the connecting-rod *p*, slotted arm *q*, and the devices for both raising and lowering the nail-plate, and moving it backward and forward, substantially as hereinbefore set forth.

3. In a nail-plate holding and feeding machine, the arm *q*, having the slot y^3 and the notch *z* for operation, in connection with the pivoted cutting-lever *d* and feeding-screw, in raising the feeding-screw, and releasing automatically the arm by which such elevation was effected.

4. The combination, with the pivoted lever *d*, the connecting-rod *p*, and the slotted holding-arm *q*, of the eccentrics *w* and the feed-screw box *h*, as and for the purpose herein set forth.

5. The combination, with the feeding-screw rod *e* and the jaw-nut *g*, of the movable box *h*, the eccentrics *w*, and the arms *x*, as and for the purpose herein set forth.

6. The bed-plate H, provided with slots and set-screws D at both ends thereof, whereby either or both its ends may be adjusted with regard to the pivoted cutting-lever, as described.

In testimony whereof I have affixed my signature in the presence of witnesses.

ROBERT C. TURNER.

Witnesses:

JNO. W. EVANS,

JAS. E. MYERS,

W. V. B. CROSKEY.