

W. T. LEACH & C. H. DEARBORN.

NAIL-PLATE FEEDER.

No. 172,860.

Patented Feb. 1. 1876.

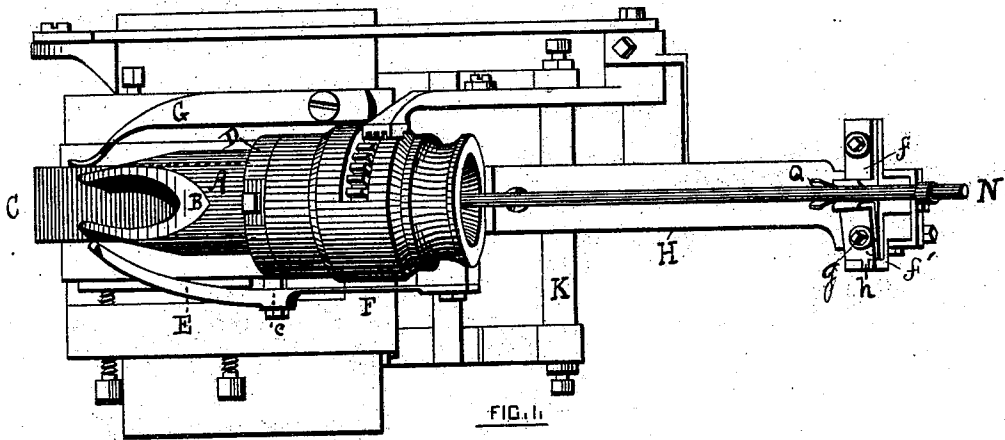


FIG. 1.

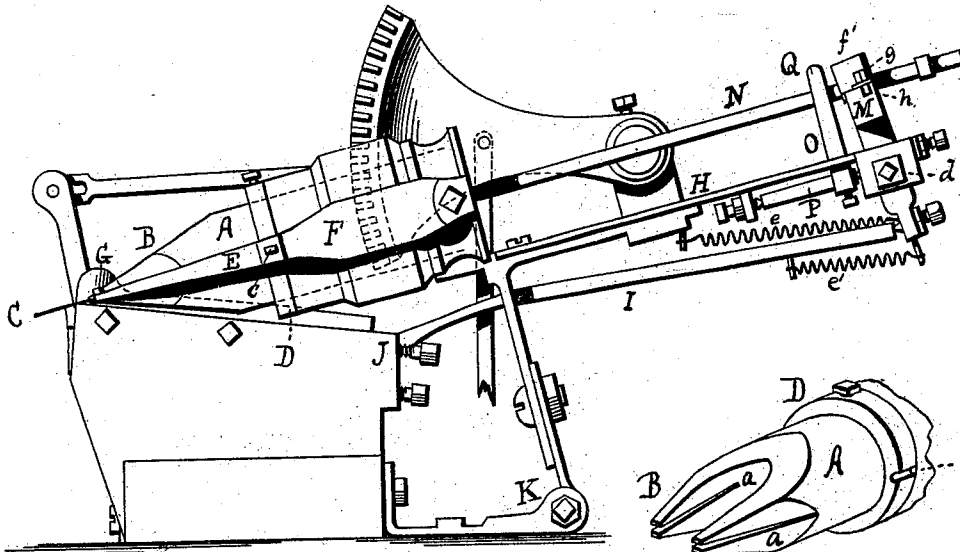


FIG. 2.

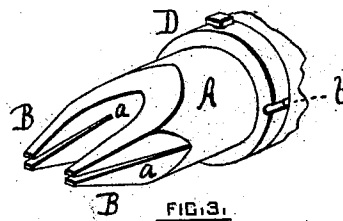


FIG. 3.

WITNESSES.

Wm. R. Price
Wm. B. W. Hallett

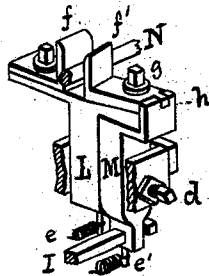


FIG. 4.

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IMPROVEMENT IN NAIL-PLATE FEEDERS.

Specification forming part of Letters Patent No. 172,860, dated February 1, 1876; application filed September 23, 1875.

To all whom it may concern:

Be it known that we, WILLIAM T. LEACH and CHARLES H. DEARBORN, of the city and county of Providence, in the State of Rhode Island, have invented a new Improvement in Nail-Cutting Machines, of which the following is a specification:

In the accompanying drawings like letters indicate like parts.

Figure 1 is a top view of a nail-cutting machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail view. Fig. 4 shows the feeding mechanism.

Our invention is designed to be used in connection with any nail-cutting machine to which it may be adapted. It consists of a springing finger, to crowd the nail-plate snugly against the guard, in order to secure the formation of a perfect head upon the nail, and also of a holding and feeding mechanism, herein particularly described, to feed the nail-plate automatically to the cutting-blade.

The purpose of our invention is to overcome the following difficulties experienced in the use of these machines as heretofore made: To form a perfect head upon the nail, the plate must be brought in close contact with the guard, as it is on that side the head is made; otherwise a thin head is the result, or the nail has no head, in either case being of little or no use or value. Again, in these machines, heretofore the plate has been held by springing nose-pieces, clutching the plate itself, and the plate, being often bent or irregular in shape, must be forcibly crowded between these springs, thus endangering the gage, against which the plate strikes in the rear of the cutting-blade, while in our invention the holding device clutches only the smooth cylindrical surface of the feeding rod, and the friction thereby is reduced and is uniform.

The drawings show a rotary nail-feeder, with its reciprocating gearing, such as is in common use, whereby the barrel A is rotated alternately from side to side. The nose-pieces B are not springs or clutches, as was formerly the case, but are rigid, and serve merely to guide the nail-plate C as it advances between the slots *a*. A collar, D, surrounds, and is firmly connected with, the barrel A. On each side of the collar, and on a line with the slots

a, is a semi-oval groove or depression, *b*, (see Fig. 3,) which, as the barrel A revolves, receives the button or knob *c* of the finger E. We prefer to make this knob of brass, so as to reduce the friction between it and the collar. The finger E is furnished with any suitable spring, F, (the simplest being that shown in the drawings,) which acts to press the end of the finger inwardly toward the nose-pieces. The finger is permanently attached to the barrel-case or other portion of the machine.

When the knob rests within the groove, the end of the finger is in contact with the nail-plate, and crowds it against the guard G, and so insures the formation of a full, perfect bead at each cutting. As the barrel continues to revolve, the knob is forced out of its groove and rides upon the collar D, and thus withdraws the end of the finger from the nail-plate, and allows the latter to be freely fed to the blade for another operation, until the barrel revolves so far as to bring the other groove opposite the button, when, by the action of the spring, the knob sinks into the groove, and thus brings the finger once more in forcible contact with the nail-plate, for the purpose stated.

The automatic feeding mechanism is attached to the end of the rest H. It is operated by the buffer-rod I, the head of which strikes against the bed of the machine, as shown at J, as the whole barrel and its connected parts oscillate upon the rocker-bar K.

We do not claim as our invention, independently, this rod I, or this method of obtaining motion, but only in combination with the parts shown in Fig. 4.

The feeding mechanism, which is actuated on its under side by the rod I, has a limited motion, longitudinally, turning upon its axle *d*, and, when relieved of the pressure of the rod I, is brought to its normal position by the spiral springs *ee'*. It consists of a T-shaped piece, L, to which is firmly fixed a dog, *f*, of the shape shown in Fig. 4. At the side of the upright part of the piece L, and also turning on the axle *d*, is the piece M, of the peculiar form shown in the drawings, and carrying a separate and movable dog, *f'*. The dog *f'* has a slight independent motion, turning on its pivot *g*, which passes into the arm of the T-shaped

piece L, and receiving its motion by means of a tenon-like projection, *h*, which enters the piece M.

It is important that the pivot *g* shall be placed not on the central line of the dog *f'*, but in the rear of the central line, and the projecting part *h* must, of course, be in line with the pivot *g*. The feeding-rod N, which, by its nippers, carries the nail-plate, is held between the dogs *f f'*.

The operation is as follows: The rod I, striking against the bed J of the machine, communicates motion to the lower arm of the piece M, pressing it back, and carrying the upper arm forward. This operates the dog *f'*, and gives it a backward motion, and as it does not turn on its center, but on a point back of its center, the sharp corner of the dog-piece *f'* bites or grips firmly the feeding-rod N, and presses it hard against the opposite dog *f*. The pressure of the rod I still continuing, both dogs *f f'* are then carried forward, advancing the nail-plate to the cutter to the proper degree. When the pressure of the rod I ceases, as the machine oscillates back again, the springs *e e'* draw back into their former position the respective pieces L and M, and their connected parts; but as the feeding mechanism draws back it does not return the rod N to its former position. To prevent such a result a holding device becomes necessary. It consists of an upright post, O, which lies in front of the feeding device, as shown in the drawings, and passing through a slot in the rest H, oscillates to a small extent, laterally, upon the rocker-bar P, to which it is affixed, and which is hung on center points beneath

the rest H, as shown in Fig. 2. It is provided with flaring springs Q, to clutch the rod N, the pressure of which springs is sufficient to prevent the feeding mechanism from drawing back the rod N, though they yield readily to the great power by which the feeding mechanism advances the rod. The small lateral oscillation is for the purpose of accommodating the rod N whenever it may not accurately hold the nail-plate.

We claim as a novel and useful invention, and desire to secure by Letters Patent—

1. The presser-finger E, with its spring F and knob *e*, affixed to a nail-cutting machine, and acting in combination with the grooves *b b*, cut in the collar D or barrel A, to force the nail-plate snugly against the guard G, substantially as and for the purpose specified.

2. The automatic feeding device, herein particularly described, and arranged as shown in Fig. 4, actuated by the rod I and springs *e e'*, substantially as and for the purpose specified.

3. In the feeding mechanism of a nail-cutting machine, a movable dog, *f'*, turning on a pivot, *g*, back of its central line, and acting in combination with a stationary dog, *f*, to advance the finger-rod N, substantially as specified.

4. The holding device, substantially as described, in combination with the said feeding mechanism, as and for the purpose specified.

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Witnesses:

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JAMES A. WARREN.