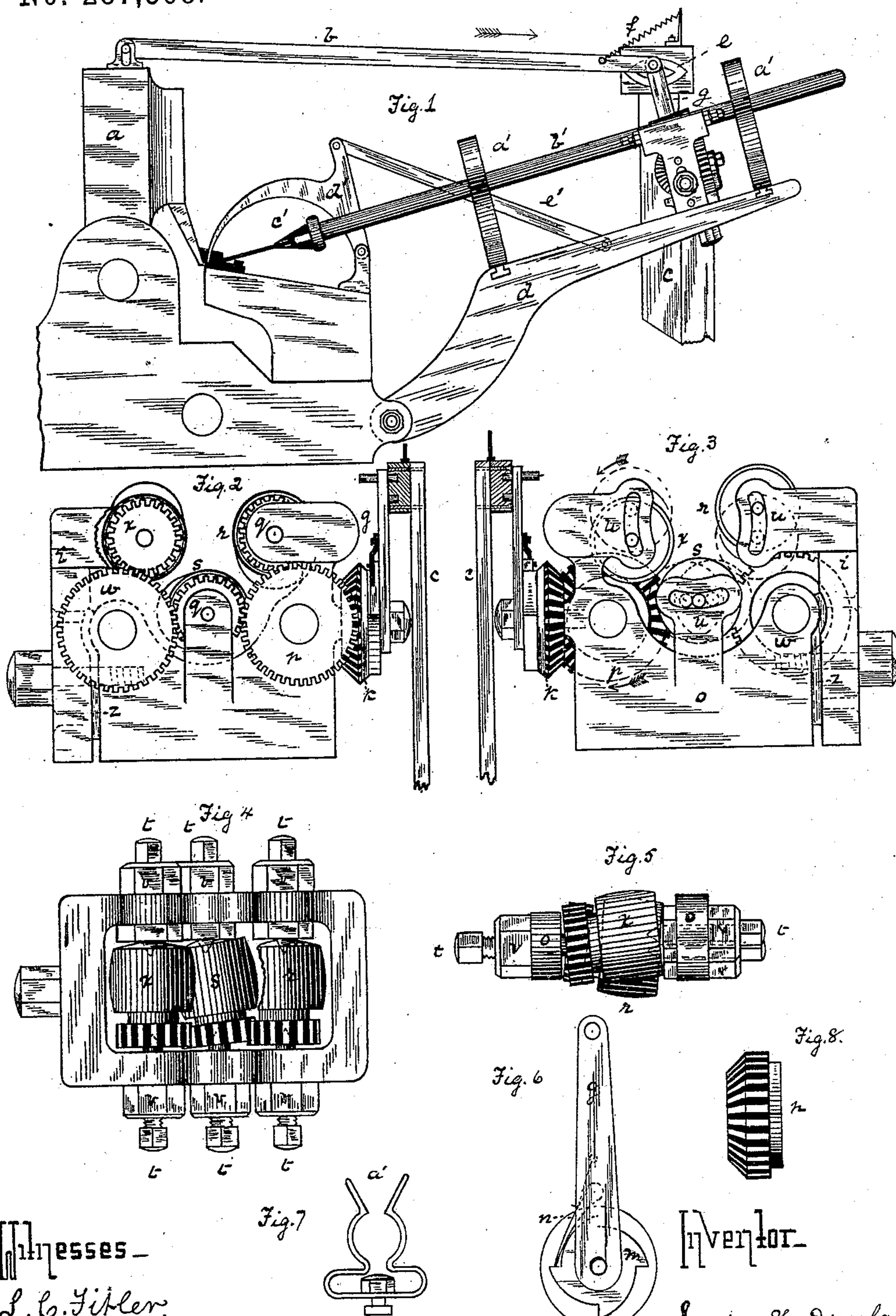


(No Model.)

J. H. DUNBAR.  
NAIL PLATE FEEDER.

No. 287,368.

Patented Oct. 23, 1883.



Witnesses—

L. C. Fidler.

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Inventor

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by his attorneys.

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# UNITED STATES PATENT OFFICE.

JUNIUS H. DUNBAR, OF YOUNGSTOWN, OHIO, ASSIGNOR TO HIMSELF  
AND FRANK BROWN, OF SAME PLACE.

## NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 287,368, dated October 23, 1883.

Application filed June 20, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JUNIUS H. DUNBAR, of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful  
5 Improvement in Nail-Plate Feeders; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in automatic nail-plate feeders; and it consists in  
10 the combination, with a nail-machine, of inclined rolls for imparting a longitudinal and rotary movement to the feed-rod, the rolls being mounted on a rocking frame, and devices for imparting motion from the cutter-  
15 head to the rolls and rocking frame, as will hereinafter more fully appear.

I will now describe my invention, so that others skilled in the art may manufacture and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved nail-plate feeder. Fig. 2 is a front elevation of the rotating mechanism. Fig. 3 is a rear  
25 elevation, partly broken away, of the rotating mechanism. Fig. 4 is a plan view, partly broken away, showing the position of the feed-rolls. Fig. 5 is a detached view of two of the feed-rolls, showing the position of their axes.  
30 Fig. 6 is a detached view of the ratchet and lever. Fig. 7 is a detached view of the spring-guide and rest, and Fig. 8 is an end view of the combined bevel and spur wheel.

Like letters of reference indicate like parts  
35 wherever they occur.

The essential parts of my improved feeder are the feed-rolls, three in number, having their axes inclined to each other, and being mounted on an oscillating or rocking frame;  
40 a rod and lever pivotally joined, the lever being guided by an elliptical cam, so as to impart an oscillating movement to the frame from the movement of the cutter-head, and also impart a rotary movement to the rolls by means of a pawl and ratchet and a crown or  
45 bevel wheel, which meshes into a gear-wheel, which in turn meshes into gear-wheels on the roller, and removable feed-rods, which are fed longitudinally between the rolls and deliver  
50 or feed the plate to the cutter.

In the drawings, *a* represents the cutter-head of the nail-machine, which is operated by suitable power. Hinged to the top of the cutter-head is a rod, *b*, which extends forward to the lever *g*, and is pivoted thereto. Along-  
55 side of the forward end of the frame *d* is a stationary standard, *c*.

In the side of the standard *c*, near the top thereof, is an elliptical groove, *e*, the purpose of which is to guide the end of the lever *g* 60 where it is toggled to the rod *b* by means of a friction-roller, *d*, secured to the side of the lever at the top thereof. Extending from the top of the standard *c* to the rod *b*, at a point in rear of the friction-roller, is a coiled spring, 65 *f*, which holds the lever and rod up and the friction-roller against the upper side of the elliptical groove during the forward movement of the lever and rod. The lower end of the lever *g* is pivoted to the housings in 70 which the rolls are set by a pin, which also passes through the bevel-wheel *k*, which is provided with bevel-gear on one face and a ratchet on the other. As the housings to which the end of the lever is pivoted are 75 bolted to the oscillating frame, the frame will therefore oscillate vertically the same distance as the width of the cam or groove *e*.

On the side of the lever *g* next to the wheel *k* a pawl, *n*, is so pivoted that it will engage 80 in the ratchet *m* on the upward movement of the cutter-head *a*, and will slip over the ratchet on the downward movement of the cutter-head and the forward movement of the rod *b*, and thereby give the wheel *k* a quarter-revo- 85 lution.

Mounted in suitable housings, *o*, which are bolted to the oscillating frame *d*, is the combined bevel and spur wheel *p*, on the edge of which are gear-teeth, the bevel-teeth meshing 90 with the bevel-wheel *k*, while the gear-teeth mesh into the gear-wheels *q*, which are keyed to the rolls *r s*. These rolls *r s* are journaled by means of pins or bolts *t*, passing through the curved slots *u* in the housings *o*, and secured by nuts *v*, the points of the pins enter- 95 ing holes in the ends of the rolls. On the other side of the roll *s* is a gear-wheel, *w*, which meshes into the gear-wheel on the roll *s*, and also into a similar gear-wheel on the roll *x*, 100



which roll is journaled or pivoted, similarly to the rolls *r s*, to arms extending from the housing *i*.

Between the housings *o* and housing *i* is a space in which is placed a spring or piece of rubber, *z*. The purpose of the curved slots *u* is to allow of the axes of the rolls to be inclined to each other, more or less, by changing the position of the pins *t* therein. These rolls are arranged, two above and one below, side by side, their axes extending longitudinally on the oscillating frame *d*. In front of and in rear of these rolls, bolted to the frame *d*, are spring yokes or rests *a'*. In these yokes and between the rolls *r*, *s*, and *x* is placed the feed-rod *b'*, which is a round wooden or metal rod provided at one end with spring-jaws *c'*. Owing to the roll *x* being journaled to the housing *i*, which is separate from the housings *o*, the rolls *x* and *r* may be sprung apart sufficiently to admit the feed-rod between the rolls and below their axes, so that the circumferences of the three rolls will bear on the feed-rod, the roll *x* returning to its position after the rod has passed its center, and the spring or piece of rubber *z*, acting as a cushion, regulating the pressure of the rolls on the feed-rod.

As the feed-rod *b'* is not provided with a barrel or nose-piece, (these parts not being required,) in order to more effectually control the plate when small nails are to be cut from a long crooked plate a finger, *d'*, may be employed. This finger is hinged at its lower end to the bed of the cutter, and is connected with the oscillating frame *d* by the arm *e'*, one end of which is hinged to the upper part of the finger, while the other end is hinged to the oscillating frame *d*, so that when the frame *d* rises the point of the finger is lowered and holds the plate while the nail is cut therefrom.

The operation is as follows: A nail-plate having been secured to the end of the feed-rod, the feed-rod is placed in the yokes *a'* and between the rolls *r*, *s*, and *x*, the plate resting in front of the cutter. The cutter-head moving forward brings the cutter down on the plate and cuts a nail therefrom. At the same time and by the same movement the rod *b'* moves forward, and the friction-roller moves along the upper edge of the elliptical groove *e*, being held up by the spring *f*. When the friction-roller reaches the end of the groove, the spring *f* being shortened, the weight of the oscillating frame overcoming the tension of the spring, the friction-roller moves down onto the lower edge of the groove *e*. At the same time the cutter-head *a* moves back and draws the friction-roller along the lower edge of the groove, the end of the oscillating frame being gradually lowered, which raises the plate from the cutter. At the same time, the lever *g* being drawn back, the pawl *n* engages in the ratchet *m* and gives to the wheel *k* a quarter-revolution, which causes the rollers *r*, *s*, and *x* to turn on their axes, and there-

by give the feed-roll a half revolution or turn, and at the same time, owing to the inclination or angle of the rolls, feed the rod *b'* and plate forward to the required position. When the friction-roller reaches the rear end of the groove *e*, the tension of the spring again overcomes the weight of the oscillating frame *d*, which is drawn up, and the plate is lowered, the cutter-head again descends, and another nail is cut. On this forward movement of the rod *b* and lever *g*, the pawl slips back until it is ready to engage again with the ratchet *m*. As the oscillating frame *d* rises and the cutter-head descends the finger *d'* is brought down on the plate, so as to hold it firmly in position. When the rod has been fed forward to the point of the nippers, it is removed from between the rolls *r*, *s*, and *x* and the yokes *a'*, and another rod to which a plate has been secured is put in its place. By altering the inclination of the rolls to each other the forward feed of the rod will be increased or diminished, and the size of the nails cut will be varied accordingly.

The advantages of my invention are the simplicity and durability of the devices employed, the certain, regular, and rapid action of the feed, and the ease with which the apparatus may be adjusted to cut nails of different sizes.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a nail-plate feeder, the combination of three or more rolls having their axes inclined to each other, and a feed-rod, substantially as and for the purpose specified.

2. In a nail-plate feeder, the combination of three or more rolls having their axes inclined to each other, a feed-rod, and a rocking frame, substantially as and for the purpose specified.

3. In a nail-plate feeder, the combination of three or more rolls, having their axes inclined to each other and mounted on a rocking frame, a feed-rod, and mechanism for imparting motion from the cutter-head to the rolls and frame, substantially as and for the purpose specified.

4. In a nail-plate feeder, the combination of a removable feed-rod and three or more separable rolls having their axes inclined to each other, substantially as and for the purpose specified.

5. In a nail-plate feeder, the combination of a rocking frame, a feed-rod, a lever extending from the rocking frame, which lever is pivotally connected with a rod extending to the cutter-head, the lever being guided by a fixed elliptical groove or cam, substantially as and for the purpose specified.

6. In a nail-plate feeder, the combination of a rocking frame on which are mounted three or more feed-rolls having their axes inclined to each other, a feed-rod, a lever extending from the rocking frame, which lever



is pivotally connected with a rod extending to the cutter-head, the lever being guided by a fixed elliptical cam, a pawl and ratchet, and gear-wheels for operating the rolls, substantially as and for the purpose specified.

5 7. In a nail-plate feeder, the combination of a feed-rod and feed-rolls, the rolls having their axes inclined to each other, and spring

yokes or rests, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 11th day of June, A. D. 1883.

JUNIUS H. DUNBAR.

Witnesses:

OWEN EVANS,  
FRANK JACOBS.