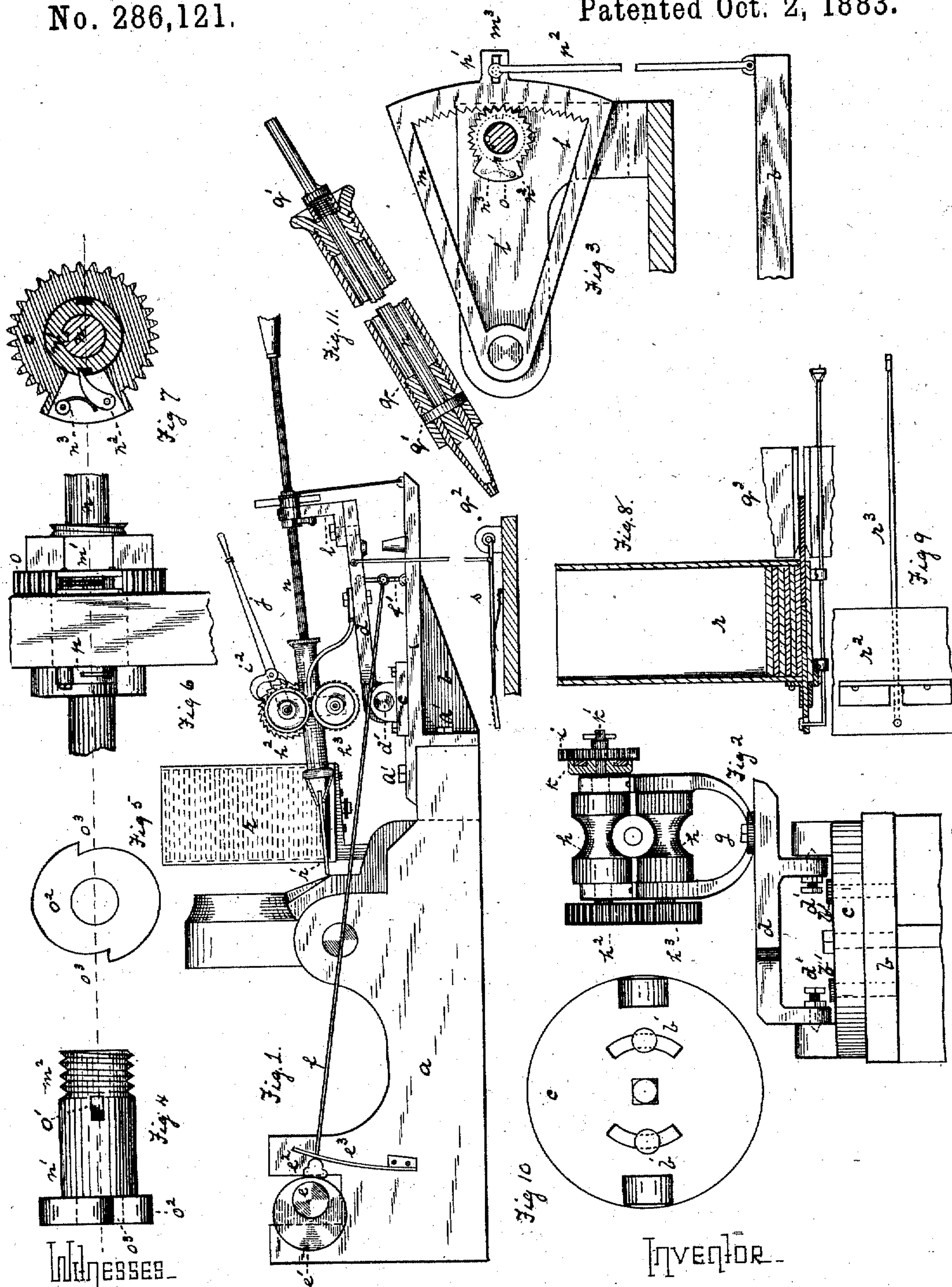


(No Model.)

J. H. DUNBAR.
NAIL PLATE FEEDER.

No. 286,121.

Patented Oct. 2, 1883.



Witnesses

Jno. H. Smith
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INVENTOR

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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. 286,121, dated October 2, 1883.

Application filed March 26, 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 Improvement in Nail-Plate Feeders; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a side elevation of a nail-machine, showing my improved feed devices. Fig. 2 is an end view of the frame, showing the feed-rolls. Fig. 3 is an enlarged view of the sectors by means of which a rotary motion is imparted to the feed-rod. Figs. 4, 5, 6, and 7 are enlarged views of portions of the mechanism by which the rotary motion is imparted to the feed-rod. Fig. 8 is a sectional view of the plate-magazine. Fig. 9 is a view of the plate and rod by means of which the plates are delivered from the magazine. Fig. 10 is a view of the bed-plate to which the rocking frame is secured. Fig. 11 is a sectional view of a portion of the feed-rod.

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

My invention relates to an improvement in apparatus for feeding nail-plates; and it consists in devices employed for feeding the plate forward into the nail-cutter, and devices for automatically turning the plate so that the nails are cut alternately from opposite sides thereof.

35 The object of my invention is to obtain a uniform action of the different parts, and to produce a simple and accurate nail-plate feeder.

I will now describe my invention, so that others skilled in the art may manufacture and use the same.

In the drawings, *a* indicates the nail-cutting machine, secured to the front end of which by bolts *a'* is the frame or bed *b* of the nail-plate feeder.

45 On the frame *b* is the swivel-plate *c*, secured by bolts *b'*, passing through curved slots in the plate. Pivotally secured at one of its ends to the plate *c* by the bolts or trunnions *d'* is the rocking frame *d*, which frame carries the feed-

ing mechanism and the devices for turning 50 the feed-rod, which devices are operated by the rocking motion of the frame. This rocking motion is imparted to the frame *d* from the shaft *e* by means of the cam *e'*, secured on the end of the shaft, the shoulder *e''*, which 55 bears against the cam, being kept in position by a suitable spring, *e'''*, and the shaft or rod *f*, which extends to the joint of the toggle-lever *f'*, the outer ends of the bars of which are hinged to the frame *b* and the rocking frame *d*. 60 Mounted on the bent arms or yoke *g*, which yoke is bolted on the rocking frame *d*, are the feed-rolls *h h'*, which rolls are journaled, one above the other, between the arms of the yoke *g*, and are grooved so as to form a circular 65 opening between the rolls for the passage of the feed-rod and inclosing-cylinder.

Keyed on the necks of the rolls, outside of the yoke *g*, are pinion-wheels *h'' h'''*, the teeth of which mesh within each other, and fitting 70 loosely on the neck of the roll *h*, on the other side of the yoke *g*, is a ratchet-wheel, *i*, which ratchet-wheel is operated by a pawl, *i''*, attached to a lever, *j*, which is pivotally hinged on the end of the neck of the roll *h*, so that 75 the ratchet-wheel is turned by the pawl *i''* on the downward stroke of the lever, but remains stationary during the upward stroke, the pawl slipping over the ratchet-teeth.

Keyed on the neck of the roll *h* is a circular disk, *k*, one face of which fits against the face of the ratchet-wheel *i*, and fitting in a recess in the face of the disk next to the ratchet-wheel is a gasket of rubber or leather. The ratchet-wheel *i* is caused to press more or less 85 tightly against the face of the disk *k* by a nut, *k'*, fitting on a screw-thread on the neck of the roll *h*, so that when the ratchet-wheel is caused to revolve by means of the pawl and lever the disk *k* moves with the ratchet-wheel, owing 90 to the friction between the ratchet-wheel and the gasket, and motion is thereby imparted to the rolls.

At the rear end of the rocking frame *d*, and bolted thereto, is a standard, *l*, having a laterally-projecting arm, *l'*, to which is pivoted 95 an internally-toothed sector, *m*.

Passing through the standard *l* is the feed-

rod n , around which, at this point, is a sleeve, n' , keyed thereto by a feather and spline.

Fitting loosely on the sleeve n' , on the rear side of the standard l , is an externally-toothed pinion, o , which meshes into the sector m . This pinion is held in its place on the sleeve n' by the nut m' , which is secured by a screw-thread, m^2 , on the sleeve.

Pivoted in the blank portion of the pinion o is a pawl, n^2 , which engages with two slots or notches, o' , in the sleeve n' . A spring, n^3 , holds the pawl in position. At the other end of the sleeve n' , on the forward side of the standard l , is a collar, o^2 , which is part of the sleeve, or keyed thereto, in the circumference of which collar are two notches, o^3 , in which notches a pawl, p , engages, which pawl is pivoted to the standard.

In the free end of the sector m is a lateral slot, m^3 , through which a bolt, p' , passes, which bolt is pivotally attached to a rod, p^2 , the other end of which is secured to the stationary frame b . The purpose of these devices is to give the feed-rod a half turn or rotation at each downward stroke of the rocking frame d .

Passing through the standard m , the feed-rod n extends forward between the rolls $h h'$.

At this point, over that portion of the rod which travels between the rolls, is a cylindrical casing or sleeve, q , which fits loosely around the rod, and is held in position by the collars q' . This sleeve is of sufficient diameter to fill the opening formed by the grooves in the rolls $h h'$, so that the rod is fed forward when motion is imparted to the rolls. At the end of the feed-rod is a pair of nippers, q^2 , for holding the nail-plates. On a line with the nippers, at one side of the nail-plate feeder, is placed a nail-plate magazine, r , which is a rectangular box adapted to hold the plates in a horizontal position, so that they may be fed from out the magazine, one by one, into the nippers through a slot, r' , in the side of the magazine, at the bottom thereof, by a sliding plate, r^2 , which is operated by means of the rod r^3 , attached to the rear end of the sliding plate, and extending therefrom to a point within easy access of the workman; or it may be connected by levers to a treadle, if desired. The edges of the jaws of the nippers may be flared, so as to guide the plate as it is forced into the nippers.

The operation of these devices is as follows: The nippers being brought to their proper position, a nail-plate is inserted therein from the magazine, and the feed-rod is then fed forward by means of the lever j , which being moved up and down by the hand of the workman, the pawl i^2 , engaging with the ratchet-wheel i on the downward stroke of the lever, operates the rolls $h h'$ through the disk k . When the nail-plate is in the proper position against the stop, the nail-machine is put in motion, a nail is cut by the cutter, and at the same time motion is applied, through the rod

f and toggle-jointed lever f' , to the rocking frame d . The outer end of the sector m being secured to the stationary frame b , the sector or pinion o is given a half-turn by means of the teeth of the sector m on each upward and downward movement of the rocking frame d . At the upward stroke of the frame d , the pawl n^2 engaging in the slots o' in the sleeve n' , which sleeve is keyed by a feather and spline to the feed-rod n , the feed-rod is given a half turn or revolution, which turns the plate in the cutter, so that the next nail is cut tapering from the other edge of the plate. At the downward movement of the frame the pawl p engages in one of the notches o^3 in the collar o^2 and prevents the sleeve from turning. The pawl n^2 is disengaged from the notch in the sleeve, and is carried around to the notch on the other side of the sleeve n' , ready to repeat the revolving motion of the feed-rod in the same direction on the next upward stroke of the frame. By these means the plate is gradually fed forward and the nails cut therefrom, alternately tapering from opposite edges of the plate. When the plate is consumed, the feed-rod is withdrawn, a new plate is inserted between the jaws of the nippers, and the operation is repeated. When the nail-plate is fed forward against the stop, should power continue to be applied by the lever j , owing to the resistance, the ratchet-wheel i slips on the face of the gasket and disk k until a nail is cut, and, the resistance being removed, the plate is again fed forward the proper distance against the stop. The purpose of the slotted bed-plate c is to allow the feeder to be set at a proper angle with the cutter to form the taper on the nails as they are cut, and to allow of this taper being varied at pleasure.

Instead of operating the rocking frame by power from the nail-machine, it may be worked by means of a rod, s , and foot-treadle t .

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

1. In a nail-plate feeder, the combination, with a longitudinally-traversing feed-rod provided with nippers for holding the nail-plate, of feed-rolls for causing the traverse motion of the feed-rod, substantially as and for the purposes specified.

2. In a nail-plate feeder, the combination, with a longitudinally-traversing feed-rod, of feed-rolls for causing the traverse motion of the feed-rod, and a ratchet-wheel and pawl for imparting motion to the feed-rolls, substantially as and for the purpose specified.

3. In a nail-plate feeder, the combination, with a longitudinally-traversing feed-rod, of a pair of feed-rolls for causing the traverse motion of the feed-rod, a ratchet-wheel mounted loosely on the shaft of one of the feed-rolls, a friction-clutch keyed to the shaft of said roll, and a pawl for actuating the ratchet-wheel and rolls, substantially as and for the purposes specified.

4. In a nail-plate-feeding machine, the combination of a rocking frame, a longitudinally-traversing feed-rod mounted thereon, a loose pinion provided with a pawl and arranged on the feed-rod so as to permit of the longitudinal traverse and rotation of the feed-rod, and mechanism for actuating the pinion, substantially as and for the purposes specified.

5. In a nail-plate-feeding machine, a feed-rod mounted on a rocking frame, in combination with a sector, pinion, and pawl, and a sleeve secured on the feed-rod by a feather and spline, substantially as and for the purpose specified.

6. In a nail-plate-feeding machine, a feed-rod mounted on a rocking frame, in combination with an internally-toothed sector, an externally-toothed pinion, and a pawl, a sleeve secured on the feed-rod by a feather and spline, and a pawl for preventing the feed-rod from turning on the return movement of the frame, substantially as and for the purpose specified.

7. In a nail-plate feeder, the combination, with a longitudinally-traversing feed-rod, of a pair of rolls for causing the travel of the feed-rod, and a friction-clutch for actuating the feed-rolls, substantially as and for the purpose specified.

8. In a nail-plate feeder, the combination of

a rocking frame, a longitudinally-traversing feed-rod mounted thereon, a pinion mounted loosely on the feed-rod and provided with a pawl or clutch for seizing the rod, and a sector having internal gearing for actuating the pinion, substantially as and for the purposes specified.

9. In a nail-plate feeder, the combination, with a rocking frame, of a longitudinally-traversing feed-rod mounted on the rocking frame, feed-rolls for causing the traverse motion of the feed-rod, a pinion loosely journaled on the feed-rod and provided with a pawl or clutch for seizing the rod, and a sector having gear which actuates the pinion during the movement of the rocking frame, substantially as and for the purposes specified.

10. A nail-plate-feeding machine having a feed-rod mounted on a rod mounted on a rocking frame, in combination with a swivel bed-plate, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 3d day of March, A. D. 1883.

JUNIUS H. DUNBAR.

Witnesses:

W. B. CORWIN,
FRANK BROWN.

It is hereby certified that in Letters Patent No. 286,121, granted October 2, 1883, upon the application of Junius H. Dunbar, of Youngstown, Ohio, for an improvement in "Nail-Plate Feeders," an error appears in the printed specification requiring correction as follows: In line 48, page 3, the words "mounted on a rod" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 3d day of November, A. D. 1885.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.