C. ELLIS.

Nail-Plate Feeding-Mechanism.

No. 202,425. Patented April 16, 1878.

Fig. 1.

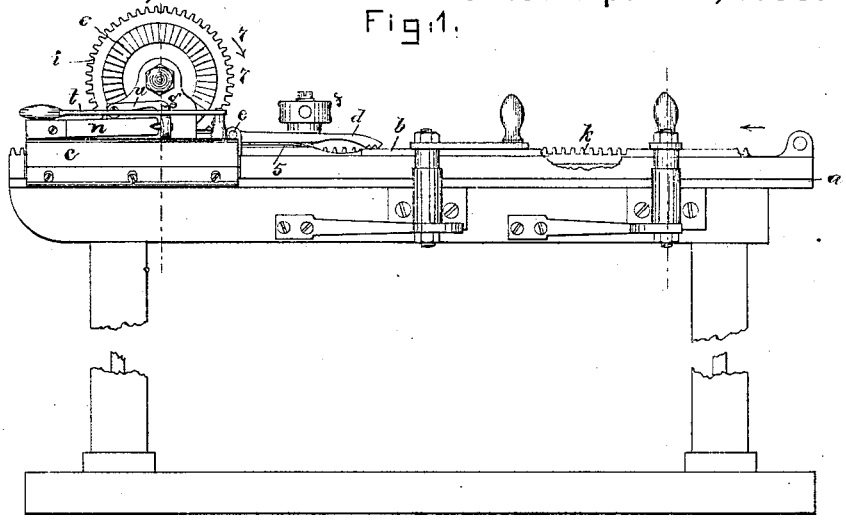


Fig. 2.

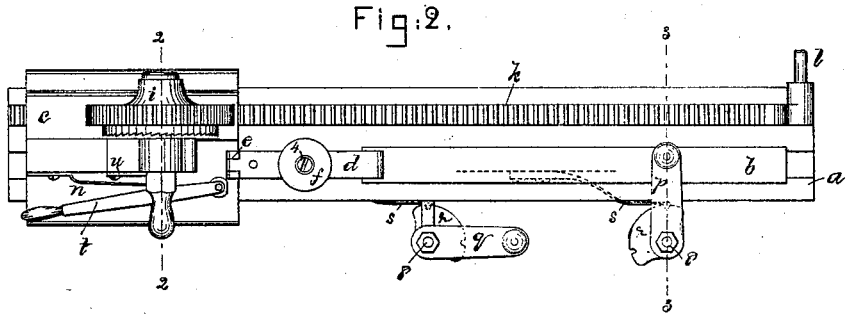


Fig. 3.

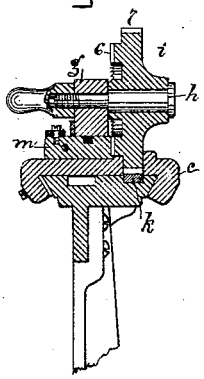
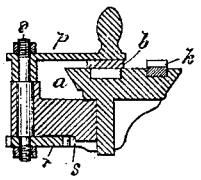


Fig. 4.



Witnesses.

W. J. Pratt.

Frederic Mills

Inventor.

Charles Ellis

by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

CHARLES ELLIS, OF BOSTON, MASS., ASSIGNOR TO GLOBE NAIL COMPANY.

IMPROVEMENT IN NAIL-PLATE-FEEDING MECHANISMS.

Specification forming part of Letters Patent No. **202,425**, dated April 16, 1878; application filed January 11, 1878.

To all whom it may concern:

Be it known that I, CHARLES ELLIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Nail-Plate-Feeding Mechanism, of which the following is a specification:

This invention relates to mechanism to hold and feed nail-plates for the manufacture of horse or other nails to the usual punches or cutters.

The nail-plate to be cut transversely is usually from twelve to twenty feet in length, and somewhat wider than the length of the nails, there being at each edge of the plate a rib to form the heads of the nails. This long strip has to be fed automatically to the punches, be fed just so far at each step, and be kept down straight. In this invention the strip, held at its rear end, is fed forward by an intermittingly-operated carriage provided with a clamp, the former being actuated by a reciprocating rack or gear. Holding devices retain the plate down upon the bed, and during the forward movement of the carriage the holders turn from above the plate and permit the carriage and jaws to pass forward until the plate is cut up quite to the jaws.

Figure 1 represents in side elevation sufficient of a nail-plate-feeding device to illustrate my invention; Fig. 2, a top view thereof; Fig. 3, a section on the line 2 2; and Fig. 4 a section on the line 3 3.

The bed *a*, upon which rests the nail-plate *b*, is shaped preferably as shown in cross-section, Fig. 4, to receive and guide the carriage *c*, provided with the clamp *d*, shown, in this instance of my invention, as a pair of jaws, one of which is pivoted at *e* to the carriage. The jaws are closed upon the plate *b* by a nut, *f*, on a screw-stud, 4, connected with one and extended through the other jaw, and are opened by a spring, 5.

A bearing, *g*, on the carriage holds a stud, *h*, upon which is placed a ratchet and pinion, *i*, having ratchet-teeth 6 and gear-teeth 7. The gear-teeth are engaged by the teeth of a rack, *k*, which, connected at *l* with some reciprocating or moving part of the punch, (not shown,) is reciprocated longitudinally after each operation of the punch.

The ratchet-teeth 6 are engaged by a pawl, *m*, pressed into engagement therewith by a spring, *n*. As the rack moves in the direction of the arrow, Fig. 1, the ratchet and pinion *i* move, in the direction of the arrow 7, about the stud *h;* but when the rack moves in the opposite direction the pawl *m*, then engaging and holding the ratchet and pinion *i* fast, the carriage and clamp are moved forward with the rack a distance determined by the size of the ratchet-teeth 6, the ratchet-pinion being changed from time to time, according to the size of the nail being cut.

The carriage will be provided with a suitable friction device to prevent its moving on the bed except when actuated positively by the rack.

The holders *p q*, to keep the nail-plate down upon the bed *a*, are, in this instance, made as arms projecting from shafts 8, at the lower ends of which are notched plates *r*, against which bear springs *s*. When the carriage and nail-plate are in the position shown in Fig. 2, the arms of both holders *p q* should extend over the plate, as shown by arm *p*, to keep the plate from bending upward from the bed when being pushed forward; but when the carriage approaches each arm the end of the clamp *d* first strikes the end of the arm, swinging it away from above the nail-plate, and then the carriage pushes it farther away, into the position shown by holder *q*, leaving the carriage free to pass the holders one by one. The spring *s* is not sufficiently powerful to hold the shaft 8 and arm against the action of the jaw and carriage. After the carriage or clamp has presented the nail-plate to the punch quite up to the outer end of the plate, it is necessary to move the carriage backward to its original position, to again receive and feed forward another plate.

To do this the pawl *m* is drawn out by the hand-lever *t* until a latch, *u*, engages a notch in the pawl and holds it out of engagement with the ratchet-teeth 6, so that the carriage can be shoved backward by hand, the ratchet and pinion then turning freely.

In practice, the motion of the rack is automatically stopped just before the clamp reaches the punch, and the carriage is started by a lever back just far enough to insure that the punch shall not strike the clamp.

The short reciprocations of the rack move the carriage forward intermittingly. The groove a^2 in the bed receives and guides the clamp d, and permits the nail-plate to bear smoothly from end to end on the bed a.

I claim—

1. In a nail-plate-feeding mechanism, a carriage, a clamp to hold the nail-plate, a ratchet and connected pinion, a pawl to engage the ratchet, a device to withdraw the pawl, and a reciprocating rack to rotate the pinion intermittingly, they being combined to operate substantially as described.

2. The combination, with a carriage and clamp to move the nail-plate forward intermittingly, of holders to keep the nail-plate down upon the bed, the holders being constructed to be automatically turned aside from over the nail-plate for the passage of the carriage beyond them, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES ELLIS.

Witnesses:

G. W. GREGORY,

W. J. PRATT.