A. H. TYRRELL & S. EVANS.

NAIL-PLATE FEEDER.

No. 193,577. Patented July 24, 1877.

Fig. 1.

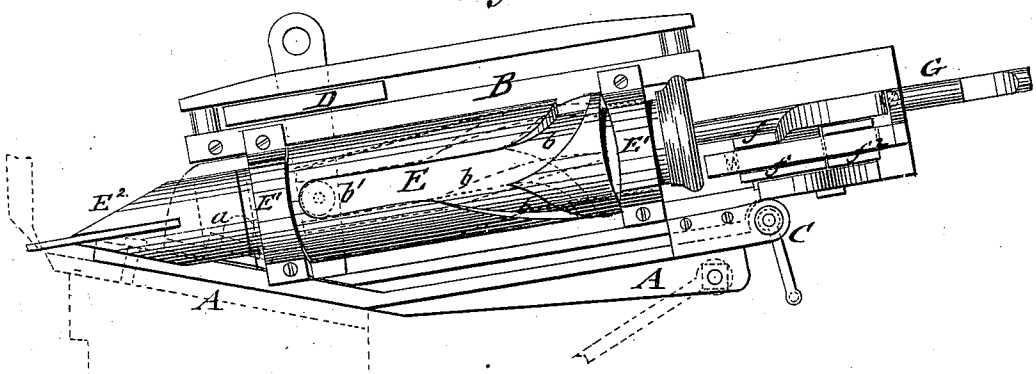


Fig. 2.

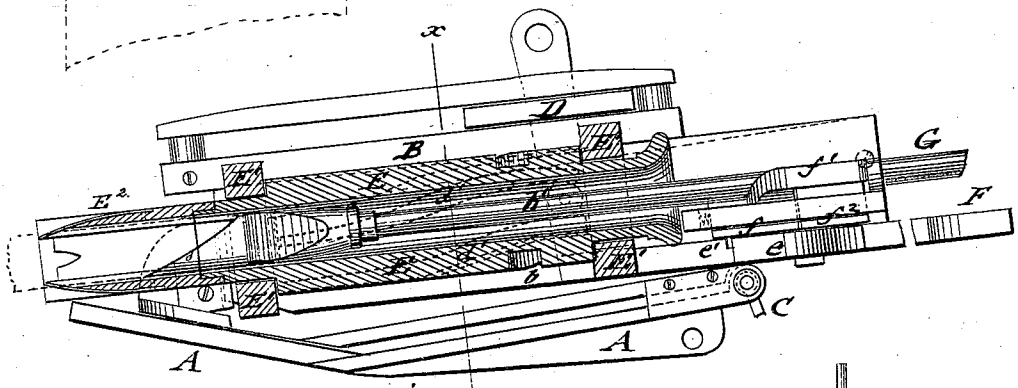


Fig. 3 x

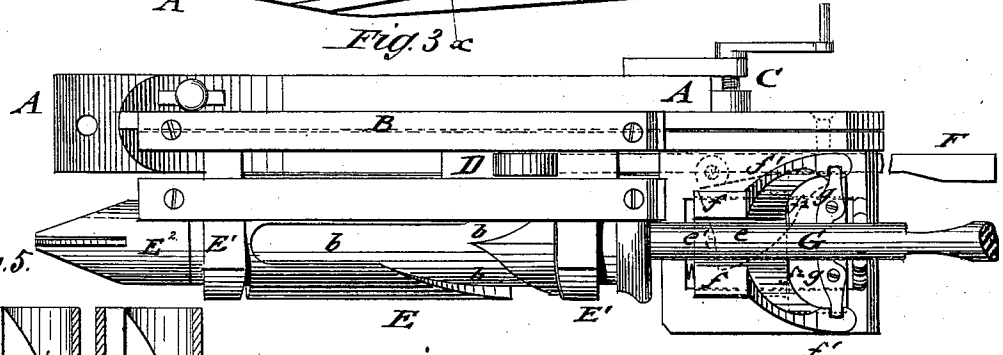
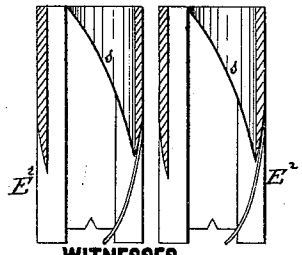
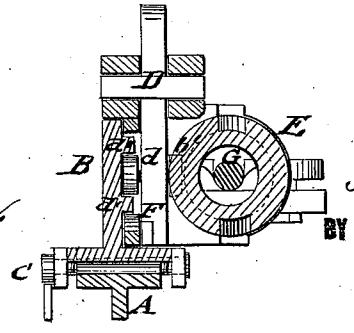


Fig. 5.

Fig. 4.





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UNITED STATES PATENT OFFICE.

ASAHEL H. TYRRELL, OF FOWLER, AND SAMUEL EVANS, OF NILES, OHIO.

IMPROVEMENT IN NAIL-PLATE FEEDERS.

Specification forming part of Letters Patent No. **193,577**, dated July 24, 1877; application filed May 28, 1877.

To all whom it may concern:

Be it known that we, ASAHEL H. TYRRELL, of Fowler, in the county of Trumbull and State of Ohio, and SAMUEL EVANS, of Niles, in the county of Trumbull and State of Ohio, have invented a new and Improved Nail-Plate-Feeding Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side view; Fig. 2, a vertical longitudinal section; Fig. 3, a top view; and Fig. 4, a vertical transverse section of our improved nail-plate feeding machine, on line *xx*, Fig. 2. Fig. 5 is a sectional view, representing the point of the working-barrel laid open longitudinally to show the spirally-inclined shoulders for turning the nail-plate when inserted in the barrel.

Similar letters of reference indicate corresponding parts.

The invention has reference to an improved nail-plate feeding machine, by which the proper taper of the nail is adjusted and the position of the nail-plate and the turning and feeding of the same to the cutters accomplished by a simple and effective mechanism.

The invention consists in the construction and arrangement of parts for hinging and adjusting the side plate to which the feed mechanism proper is attached, for imparting the desired movement to the working barrel or cylinder, for working the cam-rod, and for automatically turning the nail-plate when pushed into the barrel, and guiding it into the slot in the nose of the barrel, all as hereinafter described.

In the drawing, A represents the stationary bed-plate of our improved nail-plate feeder, which is supported on a suitable bed-frame and bracket-stays, in proper position to the cutting-knives.

The inclined front end or foot of the bed-plate A is provided with a fixed pivot-pin, *a*, to which the base of the upright side plate B is applied, and secured thereto by a suitable key.

The rear end of the base of the side plate is hinged to a crank-screw shaft, C, by means of perforated ears or bearings, through which the shaft passes, as shown in Fig. 4. The shaft also passes through an eye formed on the rear end of plate A, the same having a corresponding thread, and being made narrower than the space between the aforesaid ears or bearings, to permit lateral adjustment of the side plate and its attached mechanism. The same means, therefore, serve to hinge the side plate B to and support it upon the plate A, and also to provide for its adjustment.

The side plate B is provided at the top part with guides for the reciprocating cross-head D, that imparts the required rotary motion to the working-barrel E and the feed-motion to the nail-plate rod.

The barrel E turns in side supports or bearings E^1 of the side plate B, and is provided with longitudinal grooves *b*, that are curved or inclined at the rear ends to meet the curved parts of the adjoining grooves, and guide thereby the roller *b'* of the cross-head D, so as to impart intermittent rotary motion to the barrel E, and stop and hold the nail-plate at its proper place and length of time for the action of the cutters.

The ends of the barrel E, adjoining the bearers E^1, are inclined or concaved at opposite sides, so as to produce, with the correspondingly-concaved sides of the bearers, a forward and backward movement of the working-barrel E, and place the end of the nail-plate in exact position for the cutters, and admit the receding and clearing of the cutters when revolving for assuming the next position for cutting.

A second roller, *d*, of the cross-head D, slides along straight and inclined guides *d'* of the side plate B, and imparts simultaneously with the rotary motion a raising and lowering motion to the barrel, so as to bring the nail-plate into position for turning and cutting.

The threefold motion of the barrel, consisting of an axial, vertical, and horizontal motion, as imparted by the cross-head, side guides, and concaved bearers, admits the turning of the nail-plate clear of the cutters and the replacing of the same into position for cutting.

The cross-head D is also connected to a longitudinally-sliding cam-rod, F, which operates by its enlarged end a pivoted cam, *e*, that engages a pin, *e'*, of a longitudinally-sliding and spring-cushioned cross-head, *f*, that tight-

ens, by recessed arms f^1, the clamping-dogs g onto the nail-plate feed-rod G. The fulcrumed dogs g are set opposite to each other on a second independently-sliding cross-head, f^2, and work jointly on the feed-rod for carrying the same in forward direction, but releasing the same in backward direction.

A set-screw, acting on the end of the second cross-head f^2, adjusts the length of feed of the nail-plate to a nicety.

The slotted end of the feed-rod G carries the nail-plate in the customary manner through the slotted and spring-clamped point or head E^2 of the barrel to the outside of the same.

The inside of the point E^2 is provided with inclined shoulders s at opposite sides, for the purpose of guiding the nail-plate automatically along the shoulders into the guide-slot and to the side clamping-springs, which press on the edges of the nail-plate and hold it in position as the working-barrel revolves. The proper feed is thus given to the nail-plate, and the same readily guided to the point of the barrel, so as to be exposed to the cutting-action of the knives.

We do not broadly claim inclined shoulders within the working-barrel of a nail-plate feeder, since we are aware such have been employed as an aid in guiding the plate into the end slot of the tapered point or nose of a barrel; but in our invention the shoulders have a spiral inclination, and are so arranged one to the other that when the plate comes in contact with them, on being pushed forward in the barrel, they will automatically turn the plate, while the barrel remains stationary.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a nail-plate feeder, the stationary plate A, having a screw-threaded eye formed on its rear extremity, the crank-shaft, having a corresponding thread, the side plate B, having perforated ears, forming bearings for the shaft, and located at a distance apart greater than the width of the threaded eye, all combined and arranged as shown and described, whereby the shaft forms both the hinge-support and means for adjusting the rear end of plate B for giving proper taper to the nails, as specified.

2. The combination of the reciprocating cross-head with the grooved working-barrel, and with straight and inclined guides of the side plate, to impart simultaneously rotary and up-and-down motion to barrel, substantially as and for the purpose described.

3. The reciprocating cam-rod, laterally-swinging cam, sliding and spring-cushioned cross-head, having recessed arms, and clamping-dogs pivoted to second independently-sliding cross-head, all in combination with the nail-plate feed-rod, substantially as and for the purpose set forth.

4. In a nail-plate feeder, the working-barrel, having spirally-inclined and oppositely-located shoulders, each extending nearly half way round the interior of the cylinder, as shown and described, so that, in case the nail-plate is inserted in the cylinder with its transverse plane more or less inclined to the slot in the tapered point of the cylinder, it will, when pushed forward, be partially rotated to bring it into coincidence with the slot, as specified.

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