R. VAN AMBURGH.

NAIL-PLATE FEEDER.

No. 183,085. Patented Oct. 10, 1876.

Fig. 1.

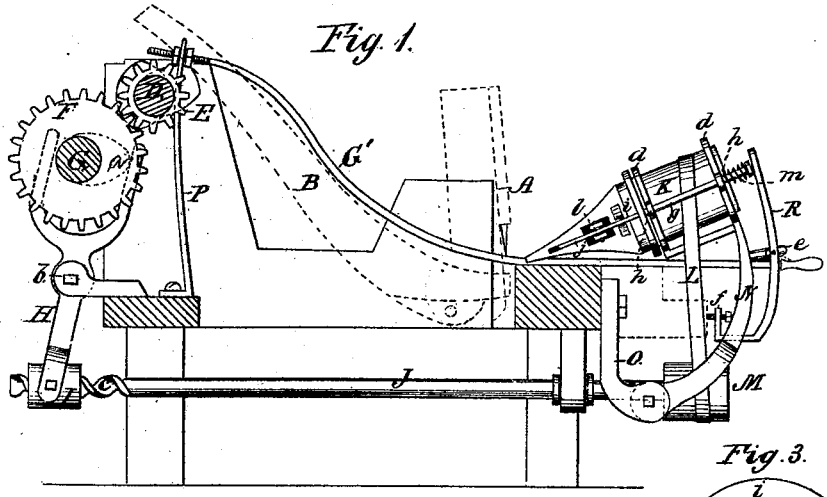


Fig. 3.

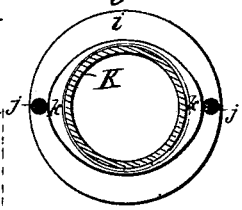
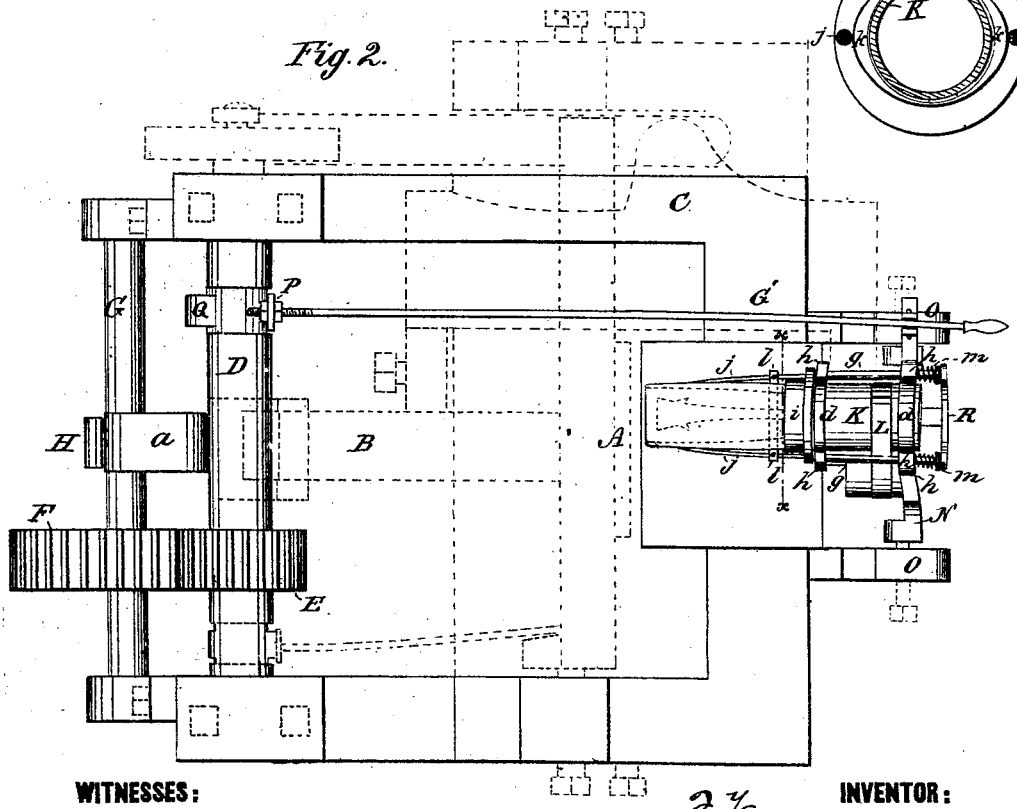


Fig. 2.



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ROLLIN VAN AMBURGH, OF WETMORE, KANSAS.

IMPROVEMENT IN NAIL-PLATE FEEDERS.

Specification forming part of Letters Patent No. **183,085**, dated October 10, 1876; application filed March 21, 1876.

To all whom it may concern:

Be it known that I, ROLLIN VAN AMBURGH, of Wetmore, in the county of Nemaha and State of Kansas, have invented a new and Improved Nail-Plate Feeder; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section; Fig. 2, a plan view; Fig. 3, a transverse section of the barrel through line *x x*.

My invention relates to certain improvements in nail-plate feeders; and it consists in the construction and arrangement of the feeding devices attached to the barrel carrying the nail-plate, and in the construction and arrangement of the devices for reversing the barrel and applying its tapered mouth to the knife, as hereinafter more fully described.

In the dotted lines of the drawing, A represents the oscillating knife which cuts off the nail; B, the clamping-lever for the cut-off nail, which lever is operated by a cam on the main shaft; and C, the mechanism for forming a head on the nail while it is clamped by lever B. All of these parts are of the ordinary construction, such as are employed in most nail-machines, and need not be particularly described. D is the main shaft of the machine, which carries a small cog-wheel, E, which meshes with and imparts motion to a larger cog-wheel, F, upon a second shaft, G. This shaft has a cam, *a*, which, rotating in the upper forked end of a lever, H, imparts to the latter an intermittent reciprocating movement. The said lever is pivoted to the frame-work at *b*, and is forked also at its lower end, so as to receive a pivoted block, I. This block is perforated longitudinally with an opening, which fits upon and corresponds to the spiral end *c* of an oscillating shaft, J. As the forked lever is operated back and forth by the cam on the shaft G, the block I passes back and forth upon the spiral flanges *c*, which are constructed after the manner of an auger. This converts the reciprocating movement of the lever into an alternately reversed rotary movement of the shaft, which shaft, being connected with the barrel K by means of the belt L, serves to reverse the barrel in feeding the nail-plate to the knife. The belt L passes around a pulley, M, on the shaft J, and the rounded portion of the barrel, and may be crossed, if desired, so as to impart a more positive motion, or give more room for the operation of the devices hereinafter described. The barrel K is made hollow to receive the nail-plate, and has a flattened or tapered mouth. It is supported upon a frame, N, which is pivoted below to supports O, the said barrel being located in collars *d d*, which, while supporting the barrel, permit its rotation in opposite directions. The frame N is moved back and forth upon its pivots by means of a connecting-rod, G′, which is attached to the frame at one end and to a stiff spring, P, at the other. This spring bears against a cam, Q, on the main shaft, so that when the cam strikes it it forces back the frame carrying the barrel, and, when the cam has passed by, the natural elasticity of the spring restores the frame and barrel to their former position. The object of forcing back the barrel from the knife is to give it room to turn freely while being reversed, which withdrawal of the barrel is effected by the cam, the elasticity of the spring serving, after it has turned over, to again apply it to the knife. To effect the feeding of the plate through the barrel to the knife, I pivot a lever, R, to the frame N at *e*. The lower end of this lever is provided with an adjusting set-screw, *f*, which binds against a portion of the frame-work and regulates the feed, and the upper portion of the said lever is forked, and its branches bear upon opposite sides of the barrel against two slide-rods, *g g*. These rods pass through guide-lugs *h* on the collars *d*, and are firmly attached at their ends next to the knife to a cam-collar, *i*, which slides longitudinally on the barrel. Upon each side of the tapering mouth of the barrel are arranged the two griping-levers *j*. These levers are pivoted to a frame, *l*, which slides in slots to effect the feeding, and through which frame the nail-plate passes. The lower ends of the gripers are arranged to pass through the barrel to seize the nail-plate, and the upper extremities rest, when the barrel is in position for the knife to cut, upon the two eccentric portions *k k* of the cam-collar, which are upon opposite sides of the barrel. The slide-rods *g* are provided with springs *m*, which hold

the rods and the attached cam-collar away from the knife, ready to be pushed up by the lever R to feed the plate, and the frame carrying the pivoted gripers may be also provided with a spring to serve the same purpose.

Having thus described the construction of my improved nail-plate feeder, the manner of its operation is as follows:

The main shaft D being set in motion by any suitable power, the cog-wheels impart motion to the shaft carrying cam *a*, which cam, revolving in the forked end of lever H, causes it to work back and forth. The lower end of the lever then carrying the perforated block moves back and forth upon the spiral flanges of the shaft carrying pulley M, and causes it to revolve alternately in opposite directions, which alternately-reversed movement is imparted through the belt to the barrel. During the intervals of the revolution of the barrel also a second cam on the main shaft strikes against the spring P, and causes rod G′ to move the barrel and its frame back and forth, one movement of which carries the barrel into a position where it is free to revolve, and the other movement of which applies the barrel with the nail-plate to the knife. This last movement also serves to feed the nail-plate, for after the barrel has revolved and the griper-arms are on the eccentric portion of the cams, and the plate seized by the other ends, the movement of the barrel-frame causes the end of lever R carrying set-screw to strike the frame-work, which causes the upper end to advance the rods, with the cam-collar and the gripers, to feed the plate, the springs serving to restore the advanced parts to their former position ready for the next feed.

The advantages of the machine as thus described are obvious. The use of the spiral upon the shaft enables me to readily convert the reciprocating movement into an alternately-reversed rotary movement without the complicated and expensive devices heretofore used for this purpose, and my gearing being simpler, I secure also a more direct and reliable motion. The arrangement of the cam in the forked end of the lever, moreover, is such that the rotation of the barrel is not continuous, but intermittent, so that the barrel lies still and unmoved while the knife is operating, and its motion is thus more natural, and the operation of the machine improved.

Having thus described my invention, what I claim as new is—

1. In a nail-plate feeder, the reciprocating block I, the spirally flanged or grooved shaft fitting therein, the barrel K, and the belt or other suitable connecting mechanism, all combined and arranged substantially as described, for the purpose of effecting the alternately-reversed rotary movement of the barrel.

2. The combination of cam *a*, forked lever H, block I, and shaft J, having spiral *c*, with the barrel and the connecting-belt, or its equivalent, substantially as described.

3. The combination of the oscillating frame N, the lever R, the spring-held slide-rods, the cam-collar *i*, the sliding frame *l*, and the pivoted gripers *j*, as and for the purpose set forth.

4. The combination, with the reversely-rotating barrel, of the non-revolving sliding collar *i*, having diametrical cams *k k*, the sliding frame *l*, and the gripers *j*, pivoted thereto so as to revolve with the barrel, and arranged with their rear extensions upon the sliding collar *i*, as described, and for the purpose set forth.

5. The combination of the block I, operated by suitable mechanism, and the shaft J, having spiral *c*, with the barrel and the connecting-belt, the oscillating frame N, and the feeding-lever R, substantially as described, and for the purpose set forth.

6. The combination, substantially as herein described, of the pivoted frame N, barrel K, and feeding devices, with the connecting-rod G′, spring P, and main shaft carrying cam Q, as set forth.

The above specification of my invention signed by me this 18th day of March, 1876.

ROLLIN VAN AMBURGH.

Witnesses:
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