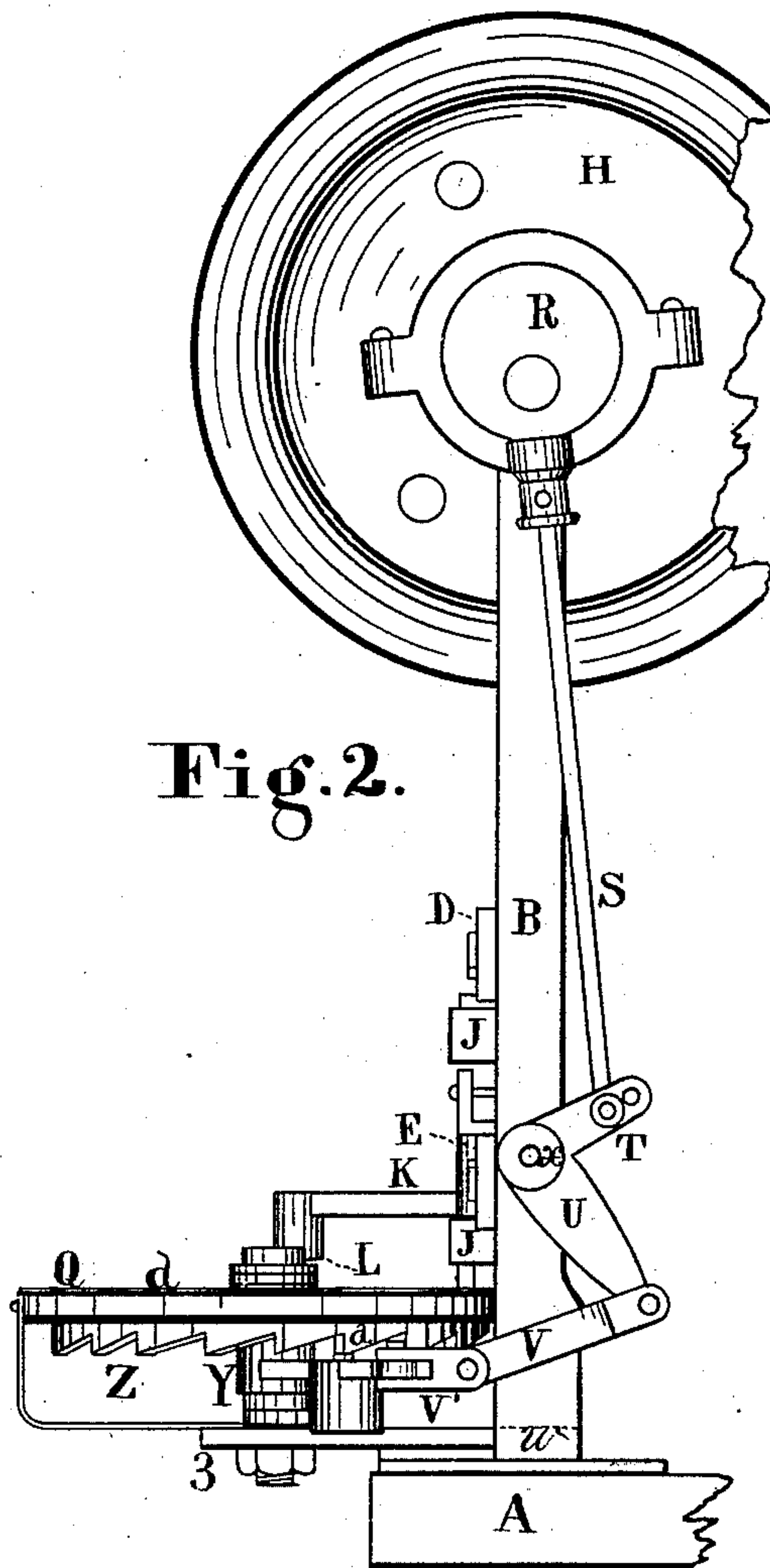
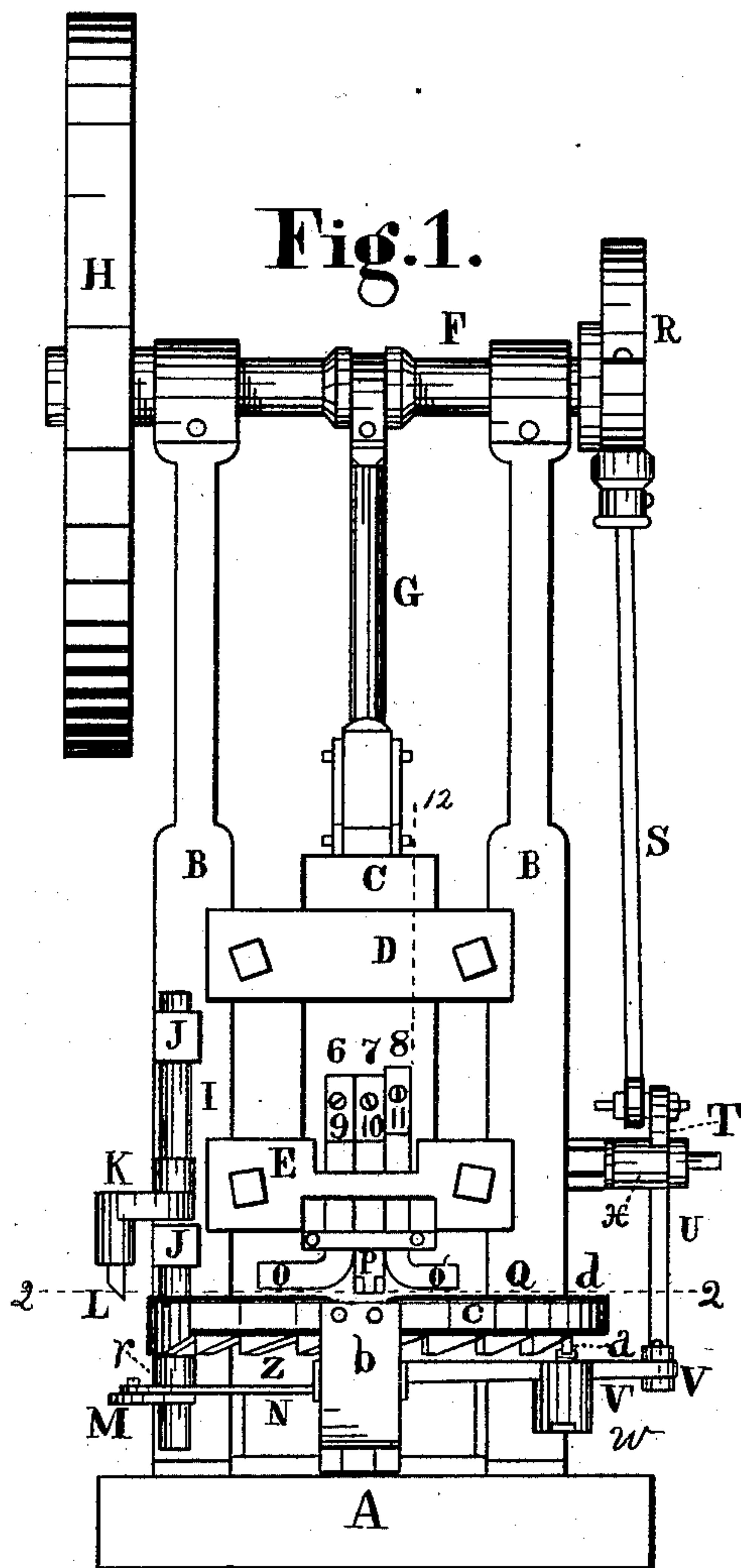


T. WOOD.

Machines for Finishing Horseshoe-Nails.

No. 156,199.

Patented Oct. 20, 1874.



Attest:

H. M. Matthews

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Inventor:

Thomas Wood,

By G. L. Chapin.

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Fig. 3.

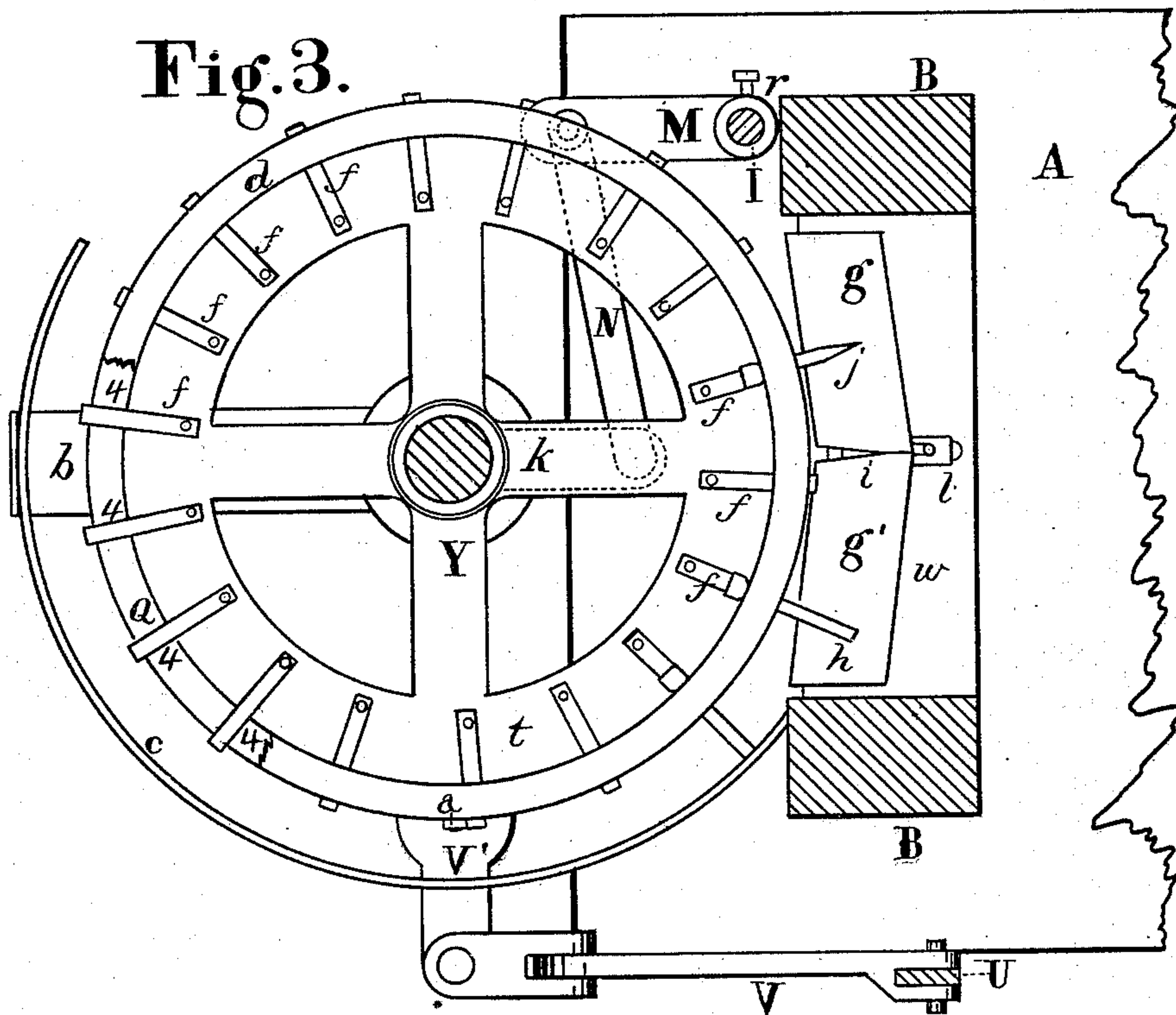


Fig. 5.

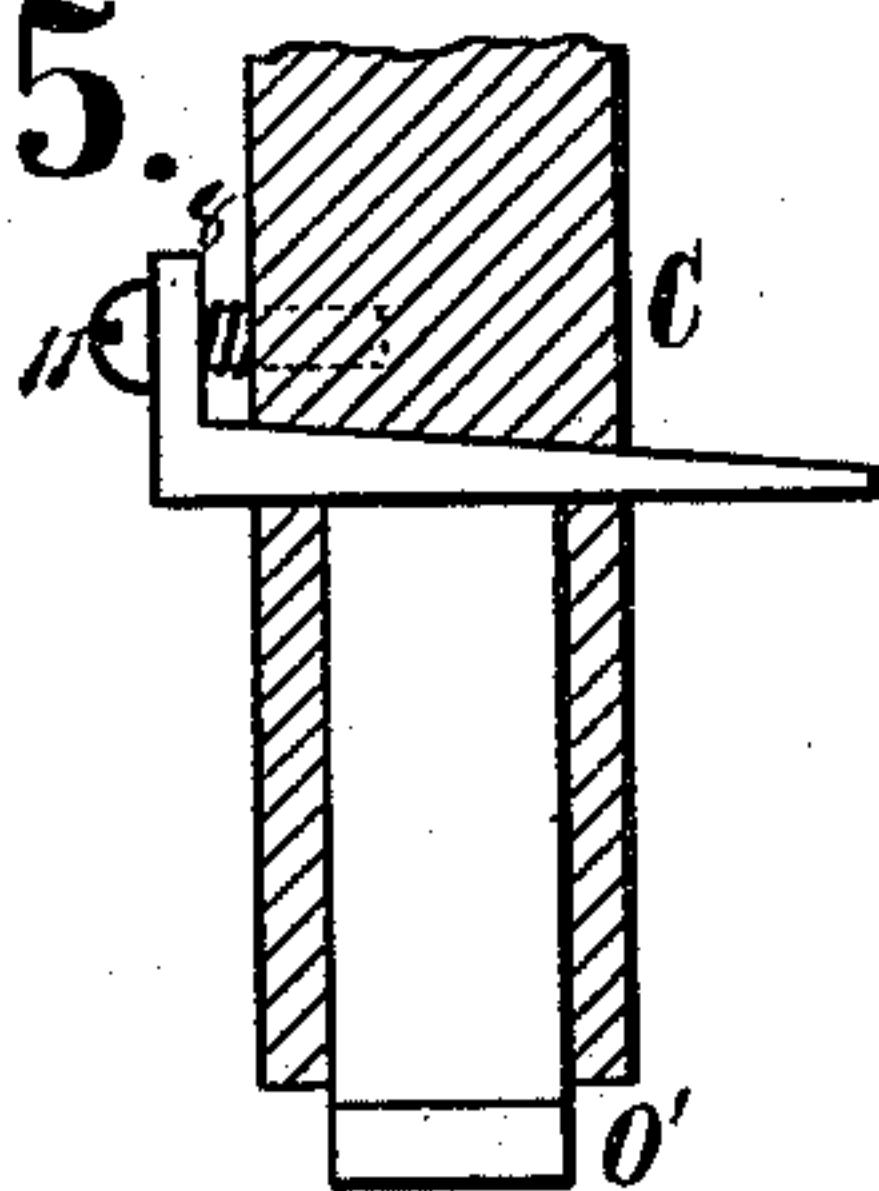
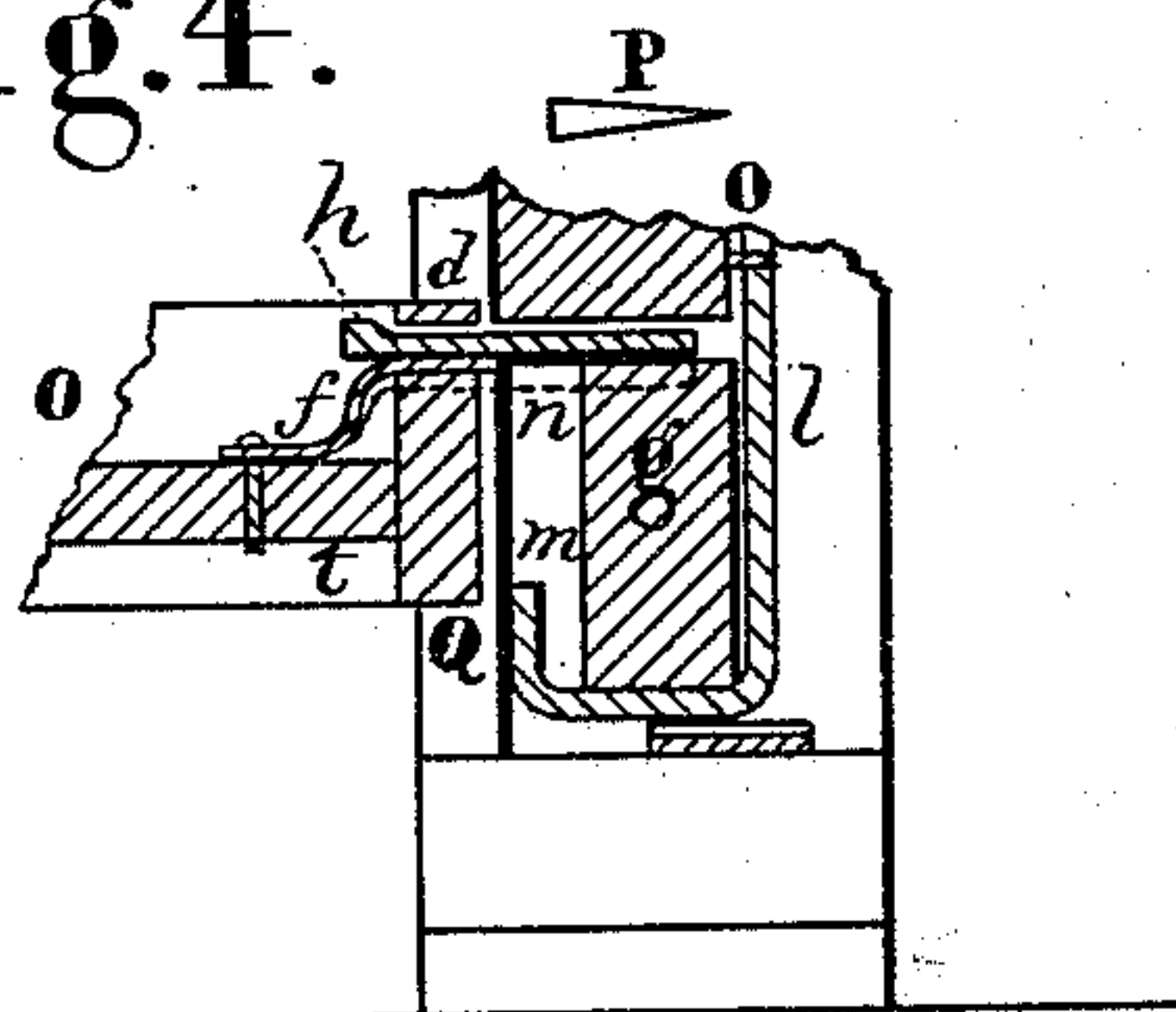


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS WOOD, OF CHICAGO, ILL., ASSIGNOR TO BIGELOW BROS. & STONE.

IMPROVEMENT IN MACHINES FOR FINISHING HORSESHOE-NAILS.

Specification forming part of Letters Patent No. 156,199, dated October 20, 1874; application filed September 27, 1873.

To all whom it may concern:

Be it known that I, THOMAS WOOD, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Finishing Horseshoe-Nails, of which the following is a specification:

The present invention relates to an improvement in machines for finishing the points and shanks of blank nails (more especially horseshoe-nails) as they are taken from forging-machine; and its nature consists in a rotating feed-wheel which is provided with a series of slots in its rim, in which are placed springs to hold nails put therein while the latter are being straightened by a swage, pointed by a die, and points beveled; and, further, in an automatically-operating arm for removing the nails from the feed-wheel, and in a guide which regulates the distance that the nails are to project through the rim of the feed-wheel, as the whole is hereinafter described and shown.

In the drawing, Figure 1, Sheet 1, is a front elevation of a spike and nail machine constructed on my improved plan; Fig. 2, a side elevation thereof; Fig. 3, Sheet 2, a horizontal section of double size on line 2 2, Fig. 1; Fig. 4, a section taken through the rim of the feed-wheel and between the pointing-dies, also double size; Fig. 5, a section through the punch-bar C on the line 12, showing how the hammers and punch are adjusted.

A represents a foundation of any suitable form and kind to support the upright ways or standards B B and the dies *g g'*, a strong bed-plate, *w*, connecting the standards B B, and intervening between the foundation A and the dies, if desired; but I am not particular as to that, only so that the supporting parts be strong. The bed-plate *w* is provided with an outwardly-projecting step, 3, which supports the lower end of a shaft, Y, of a rotating feed-wheel, Q. In the rim of this wheel are formed a continuous series of radial slots, 4, to receive the nails to be finished, and to hold the latter in place. Curved springs *f*, Figs. 3 and 4, Sheet 2, are put through the slots and fastened to the flange *t* of the wheel Q, and a circular rim, *d*, is then fastened to the top of the rim Q, so that the force of the spring will press the nails against the rims, causing such friction that the nails will retain their positions when being op-

erated on by the dies or hammers O O P, Figs. 1 and 4. The under edge of the wheel Q is provided with a continuous series of teeth, Z, of a distance corresponding to the distance between the slots 4. Attached to an arm, V', which is fastened to the shaft Y, is a spring-catch, *a*, Figs. 1, 2, and 3, operating in the teeth Z, so as to move the wheel Q by the following means: A rod, V, connects with the arm V' and an elbow-lever, U T, which is pivoted to one of the standards B, at *x*, and driven by a connecting-rod, S. This rod is driven by an eccentric, R, on the end of the main shaft F. The dies are shown at *g g'*. The hammers or swages for straightening and beveling the points of nails are shown at O O', Fig. 1, Sheet 1, and the punch is shown at P, Figs. 1 and 4, the form of the end of the punch being shown in latter figure. These hammers and dies are firmly affixed to a strong punch-bar, C, Fig. 1, Sheet 1, which runs in ways or guides D E, and has given to it a vertical reciprocating motion by means of a pitman, G, jointed to it, and operated by a crank on the shaft F, which is to be put in motion by a wheel, H, thereon. The die P and hammers O O' have a vertical adjustment by means of wedge-keys 6 7 8, Fig. 1, put through the bar C above them, as shown in Fig. 5, and held in place by set-screws 9 10 11. This arrangement is necessary in order properly to form the nails.

The nails are removed from the slots 4 in the wheel Q by an arm, K, carrying a point, L, Fig. 1, for that purpose. This arm is rigidly fastened to a vertical shaft, I, turning in bearings J J, and it has given to it an oscillating movement by means of a crank, M, which is driven by a connecting-rod, N, Figs. 1 and 3, pivoted to a short arm, *k*, (dotted lines, Fig. 3,) projecting out from the same shaft Y, which supports the arm V', so that the arm *k* moves simultaneously with the wheel Q, and the point L strikes the points of the nails and pushes them out of slots 4, and they then drop through the wheel Q into any suitable receptacle. A guide, *c*, is secured to standard B and to a supporting-bar, *b*, and used to stop the points of the nails as they are fed into slots 4. The means for removing the nails from the die consist of a bent metal bar, *l*, which is attached to the punch-bar C, as shown at Fig. 4. When

the hammers are elevated from the dies the bar *l* moves up under and forces the nail out of the die, the bar receding with the downward motion of the punch.

The machine is put in motion as follows: Power is to be applied to wheel *H* so as to rotate the wheel *Q* as fast as nails can be placed in the slots *4* by one or more persons, and as nails *h* come under swage *O'* they are straightened and brought to a suitable thickness, and when they come over the die *i* they are pointed, as shown by nail *j*, and when they come under die *O* the points are beveled flatwise for driving.

I claim—

1. The feed-wheel *Q*, provided with slots *4*, springs *f* therein, and top plates *d*, in combi-

nation with the dies *g g'*, hammers or swages *O O'*, punch *P*, and guide *c*, when operated by suitable mechanism, as and for the purpose set forth.

2. The combination of the arm *K*, point *L*, wheel *Q*, constructed as set forth, crank *M*, connecting-rod *N*, and arm *k*, for removing the nails, as set forth.

3. The combination of the wheel *Q*, guide *c*, dies *g g'*, punch-bar *C*, adjustable hammers *G O'*, punch *P*, pitman *G*, bar *l*, and crank-shaft *F*, as described.

THOMAS WOOD.

Witnesses:

J. H. ELLIOTT,
G. L. CHAPIN.