

(No Model.)

H. E. WOODFORD.

HORSESHOE NAIL FINISHING MACHINE.

No. 358,099.

Patented Feb. 22, 1887.

Fig. 1.

Fig. 4.

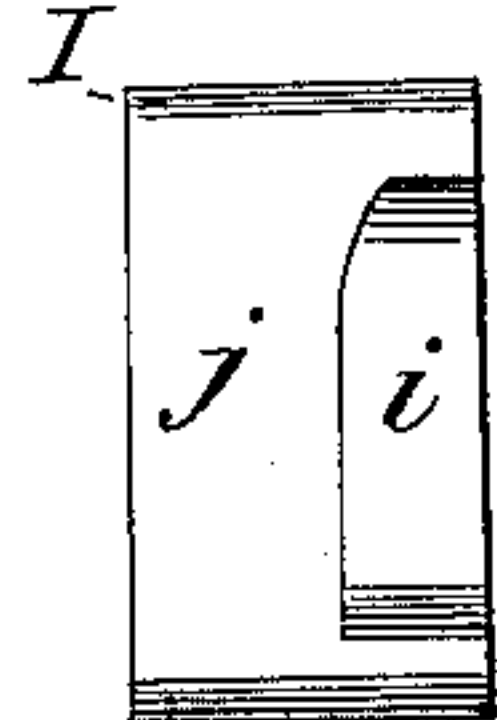
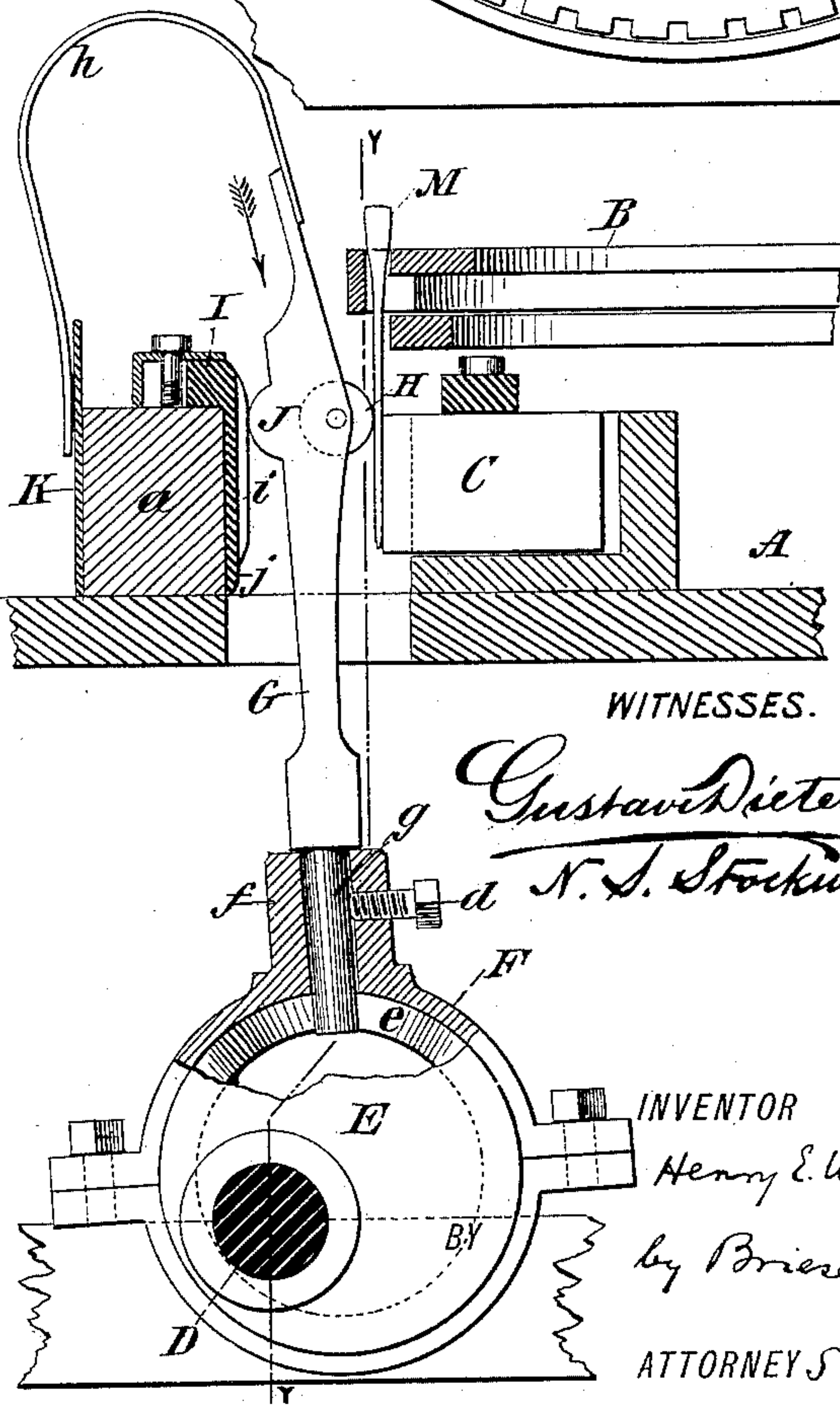
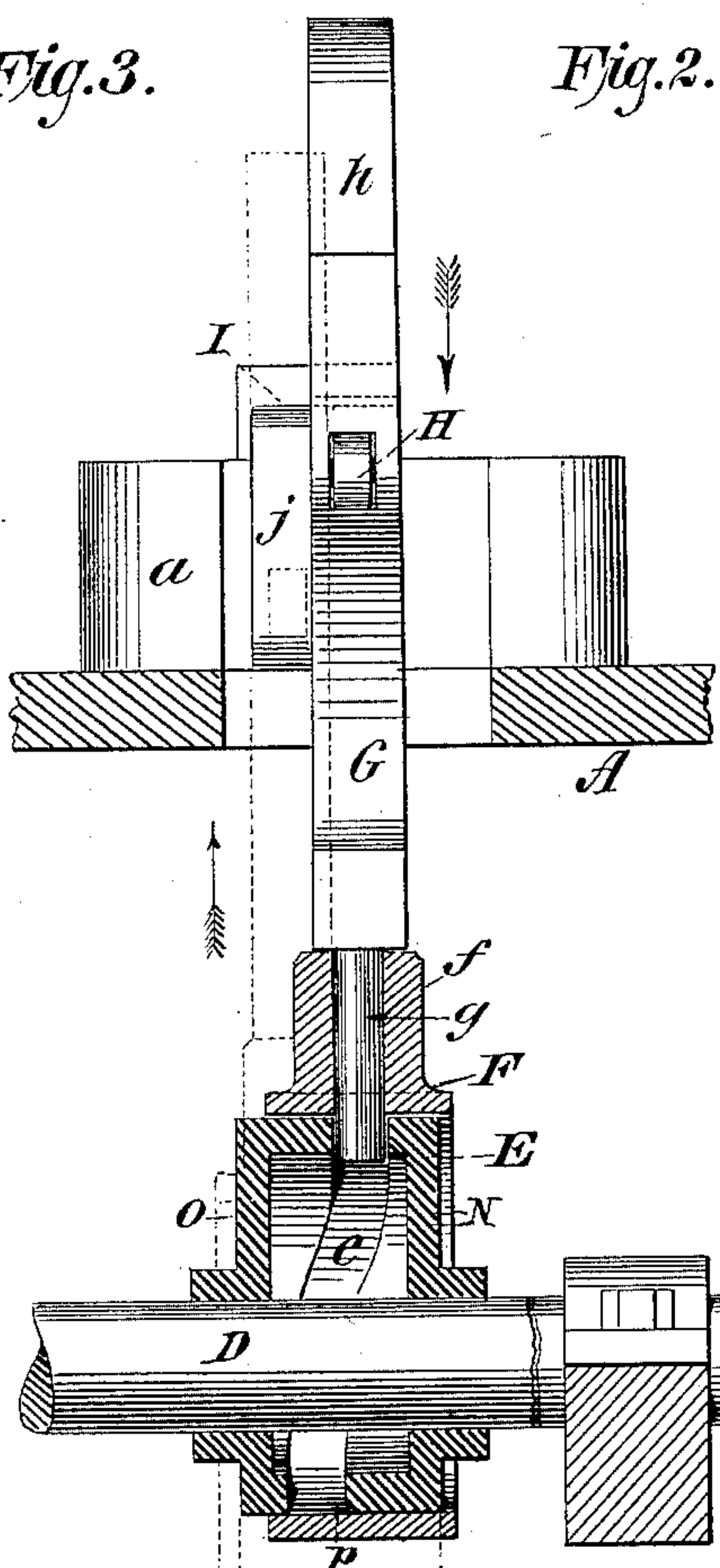


Fig. 3.

Fig. 2.



WITNESSES.

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HENRY E. WOODFORD, OF ESSEX, NEW YORK, ASSIGNOR OF ONE-HALF TO
THE ESSEX HORSE NAIL COMPANY, (LIMITED,) OF SAME PLACE.

HORSESHOE-NAIL-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 358,099, dated February 22, 1887.

Application filed November 24, 1886. Serial No. 219,786. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WOODFORD, a resident of Essex, in the county of Essex and State of New York, have invented an Improve-
5 ment in Horseshoe-Nail-Finishing Machines, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings.

My invention relates to horseshoe-nail-fin-
10 ishing machines, and more particularly to the device for rolling and swaging the nail-blank.

Heretofore in horseshoe-nail-finishing machines that are in actual use the anvil was moved back between the advance movements
15 of the carrier in order to allow the nail-blank to come into position between the swaging-roller and the anvil.

The object of my invention is to simplify the construction of this class of machines by
20 dispensing with the movement of the anvil or anvil-die, as will be more fully hereinafter set forth.

In the accompanying drawings, Figure 1 shows a plan view of a portion of a horseshoe-
25 nail-finishing machine with my invention applied thereto. Fig. 2 is a vertical section on the line *x x*, Fig. 1. Fig. 3 is a vertical section on the line *y y*, Fig. 2. Fig. 4 is a detail view of the cam which actuates the roller to-
30 ward and away from the nail-blank.

On a suitable frame, A, is mounted the carrier or feed wheel B, which is of the usual or suitable construction, and has an intermittent rotary motion imparted to it by suitable mech-
35 anism.

D is a shaft journaled in bearings in the frame A, and on this shaft is keyed or otherwise secured the eccentric E. This eccentric is made in two parts, N and O, so as to form
40 the sinuous cam opening or groove *e*, between the edges of the parts N and O, for the purpose which will more fully hereinafter appear.

Instead of making the eccentric in two parts, as shown, a sinuous groove may be formed in
45 the surface of a solid eccentric.

Embracing the eccentric E is a strap, F, through the sleeve or boss *f* of which passes the shank *g* of the roller-stock G, the said shank *g* engaging the sinuous groove or opening *e* in
50 the eccentric E, and being held in the boss or

sleeve *f* of the strap F by the screw *d*, or otherwise.

For the purpose of this invention, the essential and operative part of the shank or pin *g* is that part which projects inward from the strap
55 F. It is therefore not necessary that said pin *g* be aligned with or attached to the roller-stock.

The roller-stock G carries the swaging-roller H, and has upon its upper end the spring *h*,
60 which bears on the plate K, attached to the projection *a* of the frame A.

J is a projection or wearing-piece on the roller-stock G, opposite the roller H, which projection is held by the spring *h* against the
65 cam or race I, secured to the part *a* of the frame A. This cam or race I, Fig. 4, has the raised surface or vertical rib *i*, for forcing the roller H toward the nail-blank and anvil during one
70 movement of the roller-stock G, and a main surface, *j*, alongside of the rib *i*, for allowing the roller H to recede from the anvil and nail-blank during the other movement of the roller-stock.

C is the anvil-die, which is securely fixed to
75 the frame A, and the said anvil may be composed of three pieces, as shown, or of one piece, with a matrix formed therein for the reception of the nail-blank.

The operation of the device is as follows:
80 The rotation of the shaft D gives, by virtue of the eccentric E and strap F, a vertical reciprocation to the roller-stock G. During the one—say the upward—movement of the roller-stock G the projection or wearing-piece J is
85 held by the spring *h* against the main surface *j* of the cam I, whereby the roller H is held at a distance from the anvil sufficient to allow a nail-blank, M, to be brought in front of the anvil by the carrier or feed-wheel B. When
90 the limit of said upward movement of the roller-stock G has been reached, the roller-stock is forced sidewise by the opening or sinuous groove *e* in the eccentric E, acting on the shank or pin *g* so as to bring the projection J
95 in alignment with the rib *i*. Upon the return or downward motion of the roller-stock the rib *i* crowds the roller H against the nail-blank, and the roller now rolls or swages the said nail-blank against the anvil C.

The shaft D is connected to the driving mechanism by suitable gearing, so that rotation of the said shaft will impart the reciprocating movement to the roller-stock G at proper intervals of time with respect to the intermittent motion of the carrier or feed-wheel B.

I do not wish to limit myself to the exact details of construction herein shown and described, as they may be departed from without deviating from the spirit of my invention— as, for instance, a friction-roller may be substituted for the wearing-piece J, and the mechanism which imparts a lateral movement to the roller-stock may consist of an eccentric having a projection on its surface, while the strap which embraces the eccentric is constructed to fit against such projection and receive its lateral displacement from the same; or the strap F may have a pin projecting into the sinuous groove *e*, and the roller-stock be attached directly to the strap.

Having now described my invention, what I claim is—

1. The combination of a fixed anvil or anvil-die with a reciprocating and laterally-movable roller-stock carrying a roller, substantially as described.

2. The combination of an anvil with a reciprocating roller-stock carrying a swaging-roller, and means for imparting a lateral movement to said roller-stock at each stroke, substantially as described.

3. The combination of an anvil-die and

roller-stock carrying a roller with means for reciprocating said roller-stock and imparting a lateral movement thereto after each stroke, and a cam or rib for forcing the roller toward the anvil on the alternate strokes of the roller-stock, substantially as described.

4. The combination of the anvil C, roller-stock G, carrying the roller H, cam I, having surfaces *i* and *j*, and means for imparting a reciprocating and lateral movement to the roller-stock, substantially as described.

5. The combination, with the roller-stock G, carrying the roller H, of the pin or shank *g*, strap F, and grooved eccentric E, engaging with said pin or shank *g*, substantially as described.

6. The combination of the reciprocating roller-stock G, carrying the roller H, and having the wearing-piece or projection J, with the cam I, having the surfaces *i* and *j*, substantially as described.

7. A cam eccentric on a shaft and having a sinuous groove on its periphery, in combination with a strap having a pin projecting into said groove, adapting said strap to be moved up and down and also sidewise by the action of the sinuously-grooved eccentric cam, substantially as described.

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Witnesses:

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