

(No Model.)

A. N. WHEELER & J. L. PATCH.

HORSESHOE NAIL MACHINE.

No. 304,248.

Patented Aug. 26, 1884.

FIG. 1.

FIG. 4.

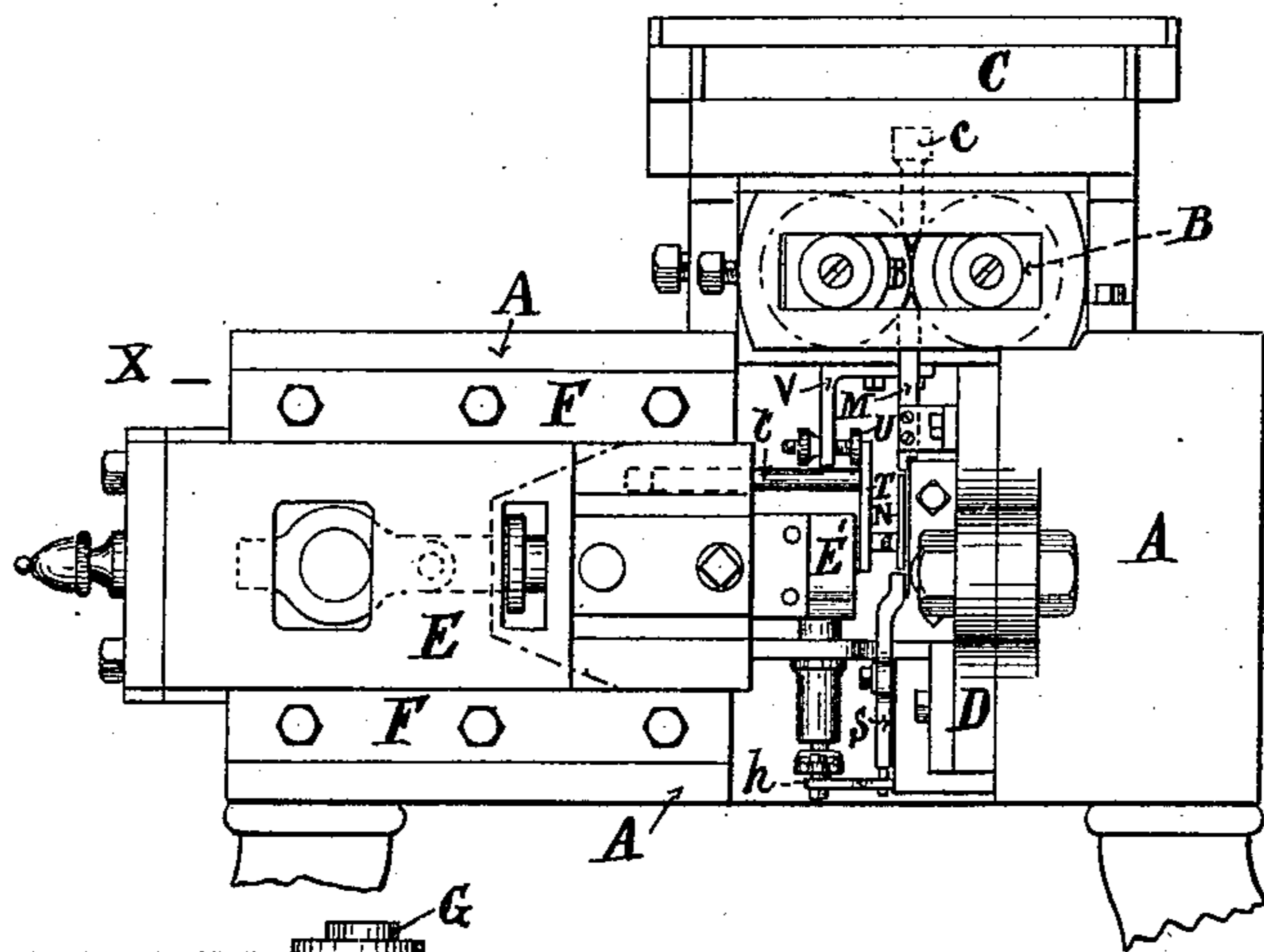
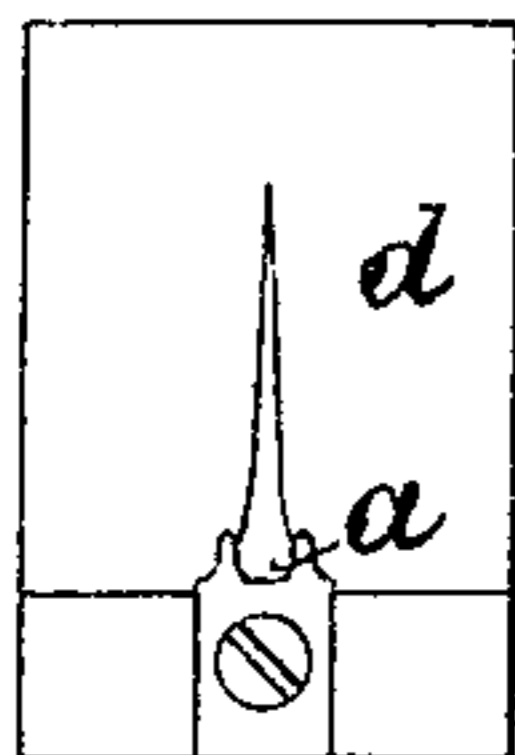


FIG. 5.



FIG. 2.

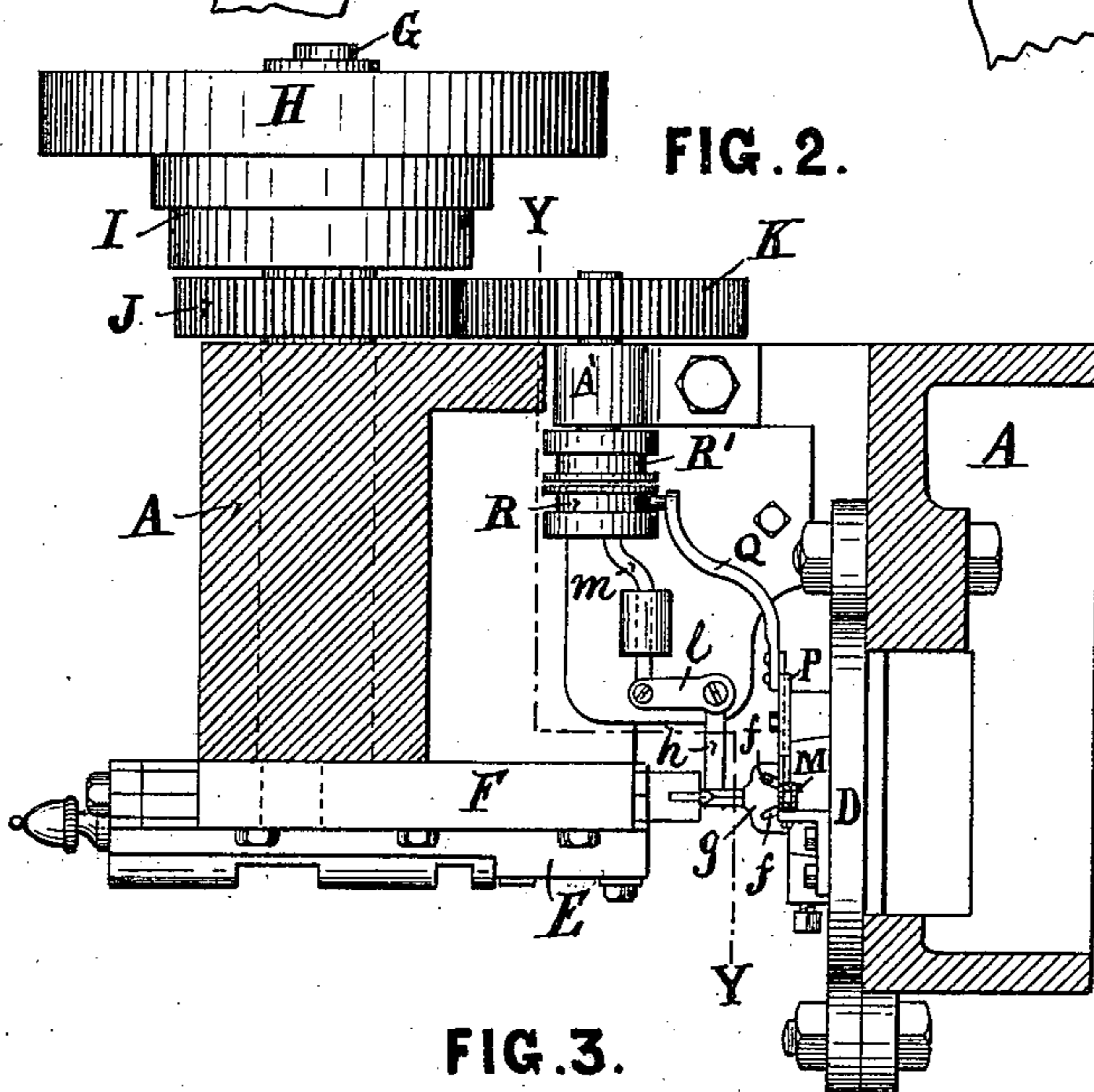
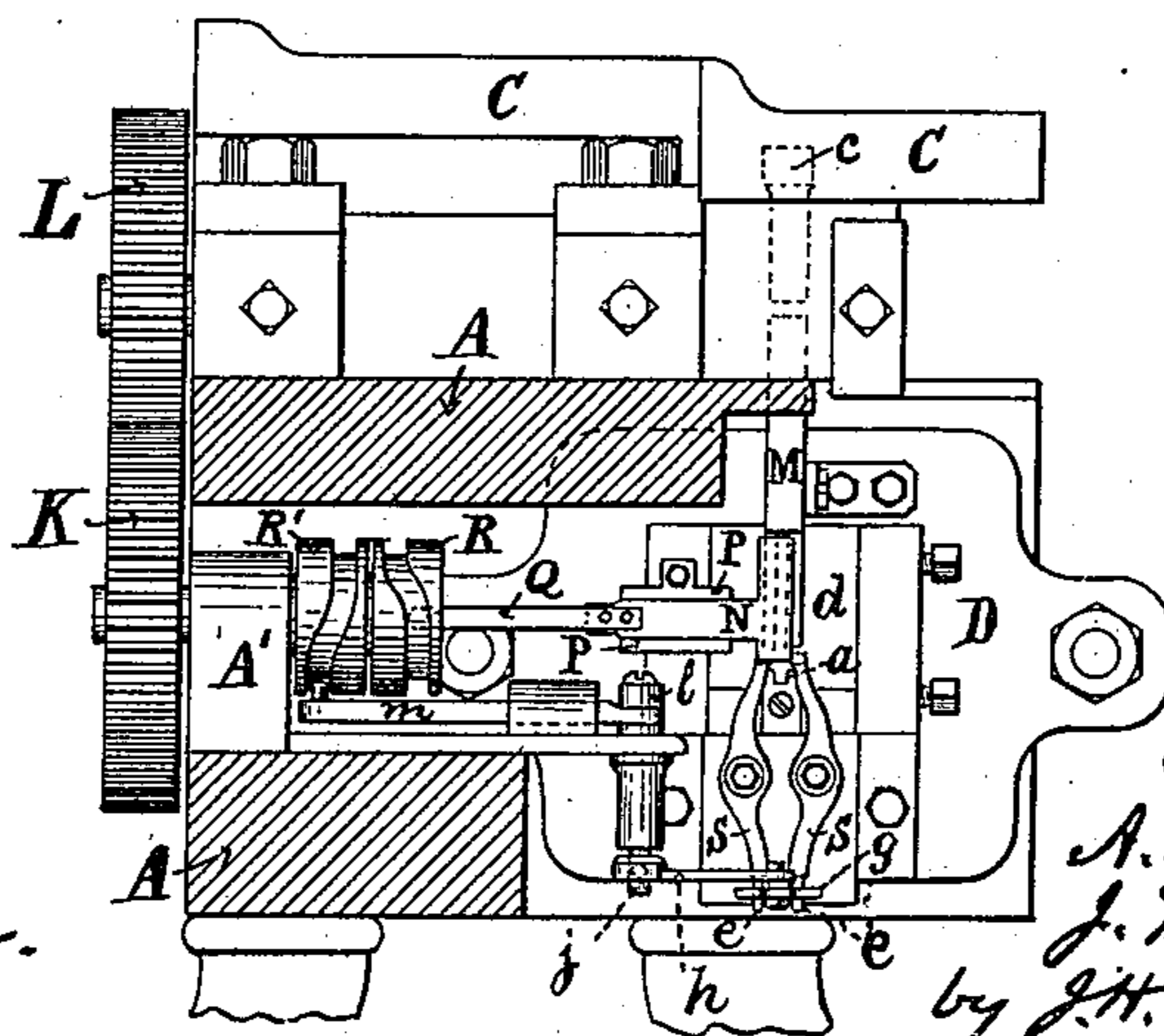


FIG. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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HORSESHOE-NAIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,248, dated August 26, 1884.

Application filed August 9, 1883. (No model.)

To all whom it may concern:

Be it known that we, ASA N. WHEELER and JOHN L. PATCH, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Machines for Making Horseshoe-Nails, of which the following is a specification.

The object of our invention is to combine in one machine the "rolling-machine" and "trimming-machine" now usually employed in the manufacture of horseshoe-nails, thereby dispensing with a large amount of manual labor.

The invention consists in mounting the die-rollers on a frame immediately over the die of the trimmer, and in providing a conductor between the two, so that as a nail-blank passes from the die-rollers to be trimmed it shall be so guided as to be held in the proper position for the punch to strike it and force it through the die, this being accomplished by the head of the nail falling into a fork or pocket, after which the nail is caught and held by a pair of nippers operated by a suitable cam. Then a slide which covers the lower portion of the conductor is withdrawn by a suitable cam, and the punch is free to operate upon the nail-blank so held.

Referring to the accompanying drawings, Figure 1 represents a front view of a machine embodying my invention. Fig. 2 is a horizontal section taken on line X X of Fig. 1. Fig. 3 is a vertical section taken on line Y Y of Fig. 2. Fig. 4 is a view of the face of the die, showing the fork or pocket attached. Fig. 5 is a face view of the scrap-clearer.

A is the frame of the machine, on the top of which are mounted the die-rollers B B and trough C for holding the nail-blanks, which trough is also provided with a conductor, c, for feeding the blanks to the rollers.

D is a die-carrier secured to the inner side of the frame A, and E is a punch-holder free to slide in guides F F, secured to the front of the frame A.

The die-rollers B B and the punch-holder E are both driven from the main shaft G, which has its bearings in the frame A. On one end of the shaft G is mounted a driving-pulley, H,

and clutch-collar I, for throwing the machine in and out of gear; also, a cog-wheel, J, that gears with another cog-wheel, K, which latter gears with a cog-wheel, L, that imparts motion to the die-rollers B B. The opposite end of the shaft G is turned down so as to form an eccentric to impart a reciprocating motion to the punch-holder E.

Between the die-rollers B B and the die d, held in the carrier D, is placed a conductor, M, which is closed on all four sides down as far as the top of the die d, and from there down on the two sides only, the die forming the back of the conductor, and a sliding cover, N, forming the front. The cover N is supported in guides P, and is operated from a cam, R, through rod Q, in such manner that when the punch has advanced so as to nearly touch the cover the latter will be withdrawn and held out of the way until the punch has completed its stroke and receded, so as to be clear of the cover N, which is then again pushed over the opening in the conductor.

Secured to the bottom of the die d is a pocket, a, (see Fig. 4,) into which the head of the nail falls after passing through the conductor M. By means of this pocket the nail is caused to always stand in its proper position in relation to the die, thereby preventing much waste, as the nails cannot get askew, and so be improperly trimmed.

S S are a pair of nippers, pivoted at or about their centers to the die-carrier D. The lower ends of these nippers are provided with pins e, that pass through converging slots ff in a sliding plate, g, that is pushed in and drawn out by an arm, h, secured to a spindle, j, provided at the top with an arm, l, that is operated from a cam, R', through rod m. As the plate g is pushed in, it expands the lower ends of the nippers, and consequently the upper ends are drawn together and hold the nail that has fallen into the pocket a in an upright position when the cover N is drawn back, and their motion is so timed that they will release the nail as soon as the punch has advanced to touch the same.

The cams R R' are mounted on the shaft carrying the cog-wheel K, which shaft is carried in a bearing, A', on the frame A. The

cams are so secured to the shaft that they can be easily taken off and replaced by another set, according to the number of nails it is required to turn out in a given time.

- 5 T is a scrap-clearer (see Figs. 1 and 5) carried on the end of a rod, *t*, which is held loosely in a hole in the punch-carrier E, the said hole being of such a depth as to allow the punch F' to advance in front of the clearer T, and as
 10 the punch is withdrawn from the die with the scrap upon it the clearer is pushed back by the scrap until the clearer comes against a stop, U, and, the punch still receding, the scrap is forced off. The stop U is made adjustable,
 15 and is carried by the bracket V.

The operation is as follows: The machine being set in motion, a nail-blank is fed into the conductor *c*, and, passing between the die-rollers B B, is pressed into shape in the ordinary manner. It then passes down the con-
 20 ductor M, and the head falls into the pocket *a*. The cam R' now operates the sliding plate *g*, and the nippers S S close upon the nail just above the head. In the meantime the punch
 25 has been advancing toward the die and nearly touches the cover N, which latter is now withdrawn by the cam R, and the nippers at the same time releasing their hold of the nail. The punch, finishing its stroke, forces the nail
 30 through the die and recedes with the scrap upon it, which is pushed off by the clearer as soon as the latter touches the stop U. As soon as

the punch is withdrawn sufficiently, the cover N is again pushed over the opening, and the conductor M is ready to receive another nail. 35

What we claim as our invention is—

1. In a horseshoe-nail machine, the sliding cover N, operated by means of the cam R, in combination with the conductor M, the pocket *a*, and nippers S, substantially as and for the
 40 purpose set forth.

2. In a horseshoe-nail machine, the pocket *a*, in combination with the die *d* and conductor M, substantially as shown and described.

3. In a horseshoe-nail machine, the nippers S S, in combination with the pocket *a*, die *d*, and conductor M, substantially as shown and described. 45

4. In a horseshoe-nail machine, the plate *g*, provided with converging slots *f f*, for operating the nippers S S, in combination with the
 50 arm *h*, spindle *j*, arm *l*, rod *m*, and cam R', substantially as shown and described.

5. The combination of the carrier E, the rod *t*, the clearer T, the adjustable stop U, and the
 55 punch F', as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ASA N. WHEELER.
 JOHN L. PATCH.

Witnesses:

JOS. H. ADAMS,
 CHAS. W. HEDENBERG.