(No Model.) 2 Sheets—Sheet 1.

J. NAGLE.

NAILING MACHINE.

No. 308,370. Patented Nov. 25, 1884.

Fig. I.

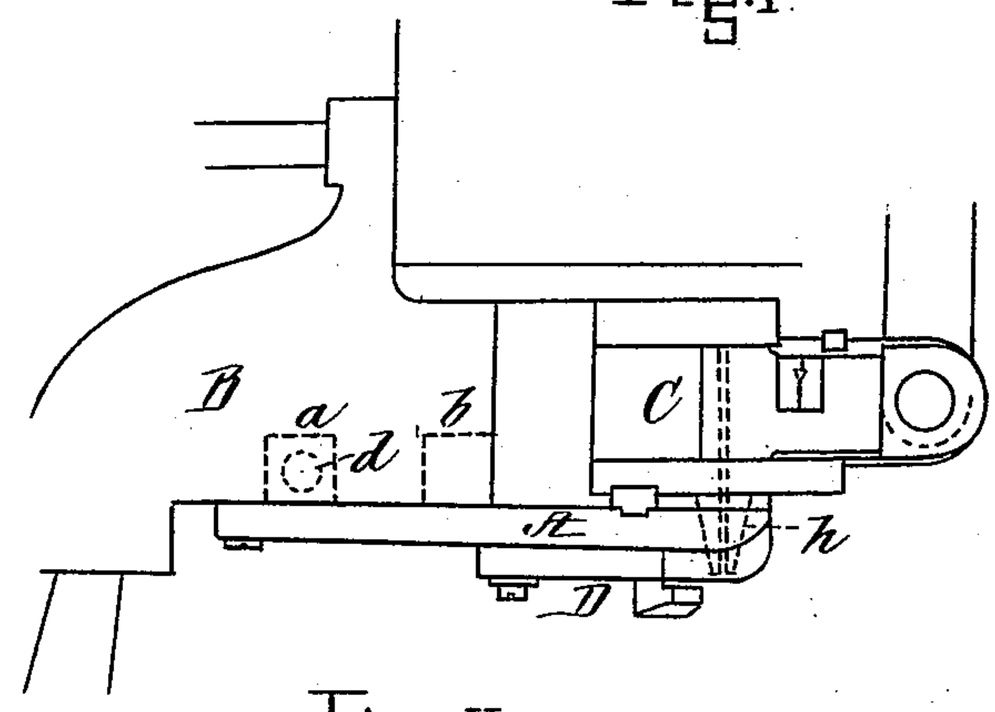


Fig. III.

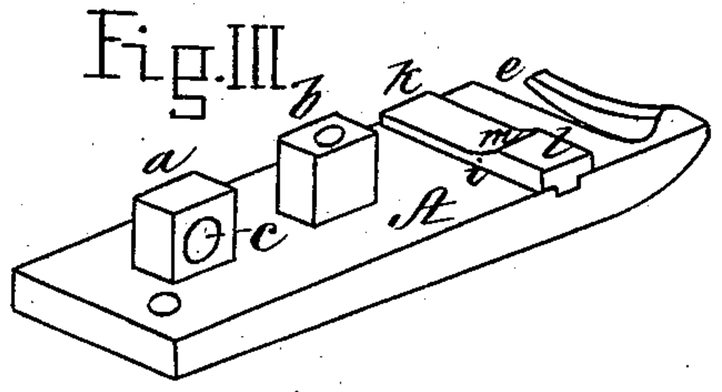


Fig. II.

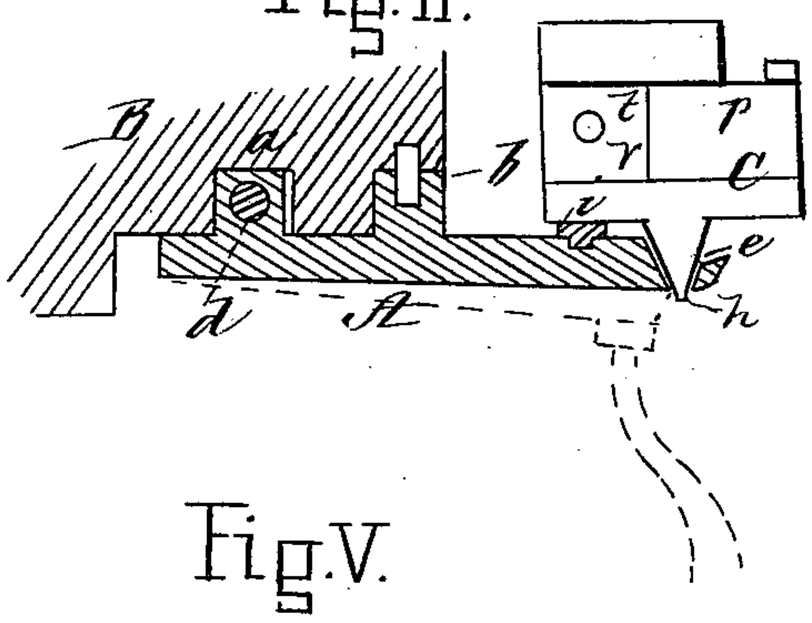


Fig. IV.

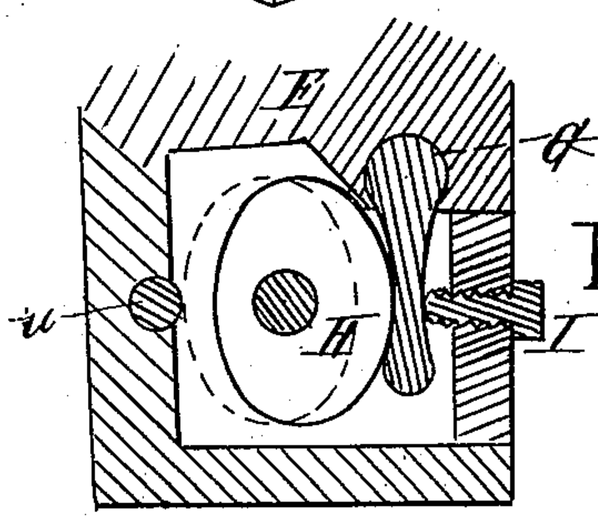


Fig. V.

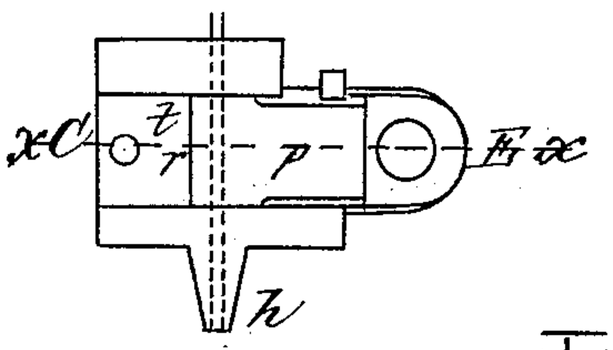


Fig. VI.

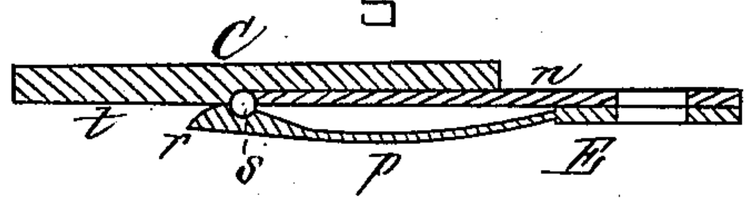
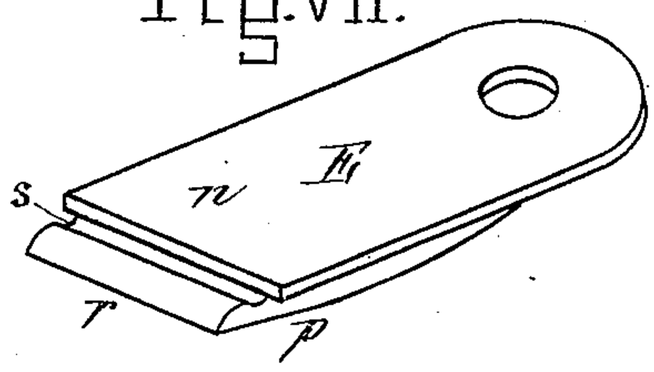


Fig. VII.



Witnesses,
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E. G. Siggers

Inventor,
James Nagle,
per Norman W. Stearns,
Atty.

(No Model.)

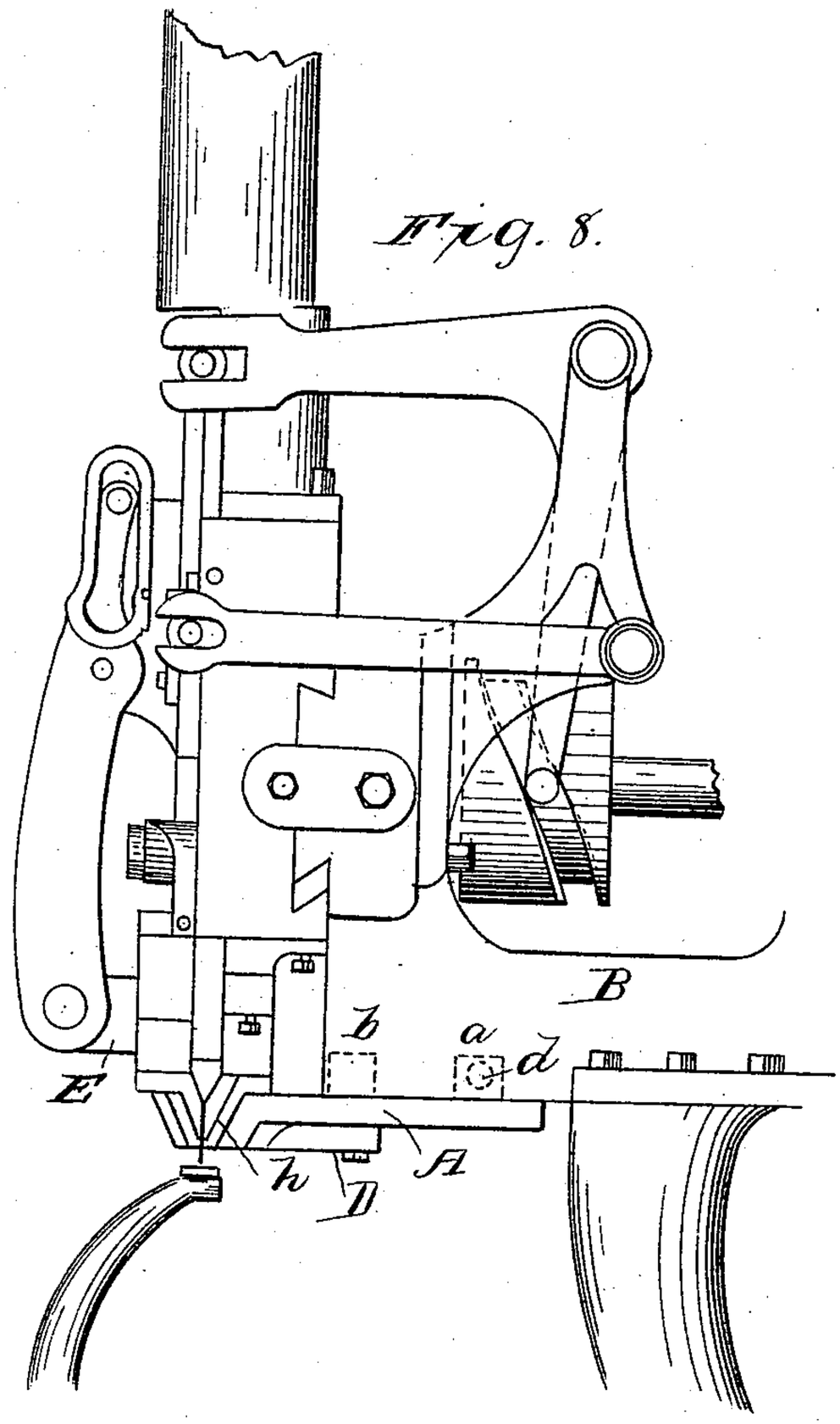
2 Sheets—Sheet 2.

J. NAGLE.

NAILING MACHINE.

No. 308,370. Patented Nov. 25, 1884.

Fig. 8.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

JAMES NAGLE, OF PEPPERELL, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE AMERICAN METALLIC FASTENING ASSOCIATION, OF BOSTON, MASSACHUSETTS.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,370, dated November 25, 1884.

Application filed February 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES NAGLE, of Pepperell, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Nailing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure I is a front elevation representing my improved presser-foot and the lower contiguous portion of the stationary frame. Fig. II is a sectional elevation of the lower portion of the same; Fig. III, a view of my yielding presser-foot enlarged; Fig. IV, a vertical section representing the reciprocating head, the cam by which it is moved, and my adjustable block for returning the head to its position. Fig. V represents my improved nail-carrier and the nail-throat in which it moves; Fig. VI, an enlarged section on the line *x x* of Fig. V; Fig. VII, a view of my improved carrier inverted. Fig. VIII is an elevation of the lower portion of the machine taken opposite to that shown in Fig. I.

The subject-matter of this invention has special reference to that class of sole-nailing machines in which a continuous wire or a continuous metallic tube having a core of wax thread, &c., are converted into nails or fastenings, such machines being described and shown in Patent No. 283,228.

One feature of my present invention consists in a yielding presser-foot depressed by the nail-delivering throat while the work is being fed, in order thereby to prevent it from coming up into the path of the bottom of the throat and dragging or catching its nails thereon, incident to the use of a rigid presser-foot, as heretofore, the pressure of the throat on the presser-foot being relieved when the orifice of the nail-delivering throat is in line with the hole last made by the awl to allow the work to come up and close the space between it and the bottom of the throat, in order thereby to give proper support and guide the nail on being struck by the driver, thus avoiding the spreading or upsetting of the upper portion of the nail, incident to the use of a rigid presser-foot, which prevented the work from coming up to the bottom of the throat, and thus left the nail unsupported at said time.

This invention also consists in an improved grasping device for retaining the nail in front of the carrier while the latter delivers it to the throat in an upright position properly presented to the driver, the alternate ribs and grooves of the rigid and spring plates previously employed, as well as the similarly-formed "frog" used in connection therewith, being dispensed with, whereby the clogging of the throat by the nails catching on the ribs of the frog—a frequent occurrence heretofore—is entirely avoided.

My invention also consists in the combination, with a cam previously employed, of an adjustable block for insuring the positive return of the reciprocating sliding head into a position to bring the throat in line with the hole last made by the awl, thus avoiding the "crippling" of the nail by being struck by the driver before reaching the awl-hole, incident to the employment and dependence upon a spring, as heretofore, for this purpose.

To enable those skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents my improved presser-block, provided with two studs or projections, *a b*, rising from its upper surface, the stud *a* having a centrally-located aperture, *c*, for the passage of a bolt, *d*, by which it is pivoted to the under side of the stationary frame B, the presser-foot, in its normal position, having its outer end slightly deflected by its gravity below the horizontal, and being guided in its vertical movements by the stud *b*, moving in an aperture in the front of the frame. The outer end of the presser-foot is of the usual form, being rounded at its bottom to facilitate the feeding of the work thereunder, and having a passage, *e*, opening out to its side for the reception and to permit of the traverse of the conically-shaped lower portion, *h*, of the nail-delivering throat C. Secured to the upper side of the presser-foot near the passage *e* is a cleat, *i*, of nearly rect-

angular outline, the upper surface of said cleat being divided into two flat steps, *k l*, one located slightly above the other. As the conical lower portion, *k*, of the nail-delivering throat travels within its passage *e* in the presser-foot the under side of the throat-plate rides up and over the surface of the step *k*, and ascends a slight incline, *m*, till it reaches the upper step, *l*, this motion of the throat-plate enabling its lower conical end to be out of the path of the work while being fed against a gage or guide, D, secured to the under side of the presser-foot, the work being thereby prevented from dragging and catching its nails against the lower end of the throat, an objectionable feature incident to the use of the rigid presser-foot, as heretofore. After the work has ceased feeding the under side of the throat-plate moves from the step *l* down onto the step *k*, thus allowing the work to elevate the presser-foot and close the space between the bottom of the throat and the work, in order thereby to give the necessary support and to guide the nail when struck by the driver at the time the nail-orifice of the throat is in line with the hole last made by the awl, by which construction I am enabled to avoid the spreading or upsetting of the nail, incident to the use of a rigid foot, which prevented the work from coming up to the bottom of the nail-throat.

The yielding presser-foot may be depressed at the required times by means of a cam on the main shaft, or the presser-foot may be connected by a lever with a block caused to slide within the frame, and thus be free to yield as desired.

Fig. VI shows in section the throat C and my improved carrier E, which advances the nail to a position under the driver. This carrier is composed of a rigid portion, *n*, and a spring portion, *p*, the latter projecting slightly beyond the former, and having a lip, *r*, formed at its outer end, the interior of the spring portion, the end of the rigid portion, and the contiguous surface of the throat being of such shape as to constitute a vertical aperture or orifice, *s*, for the nail in line with the nail-orifices in the upper and lower portions of the throat, the form in cross-section of said aperture *s* corresponding to that of the nail. The end of the rigid portion *n* and the portion of the nail-aperture *s* located in the spring portion *p* of the carrier E are both straight and continuously smooth in a vertical direction, which conformation peculiarly adapts them to take a firm hold of the nail during the time it is advanced and while being delivered in its upright position into the vertical nail-aperture *s*, when the spring-lip *r* is pressed outward by riding up on the surface *t* of the throat, and the nail is released at the instant the driver is ready to carry it down into the awl-hole, the alternate grooves and ribs of the spring-plate and the rigid portion of the carrier and frog previously employed being dispensed with, and the clogging of the nail, incident to their use, being avoided.

As previously constructed a spiral spring was relied upon to return the reciprocating head into a position to bring the nail-aperture in the throat in line with the hole last made by the awl. This I have found inefficient, as the nail was frequently struck by the driver before the awl-hole was in line therewith, and the nail was crippled thereby, and an imperfect fastening was made. To remedy this difficulty I resort to the following construction:

Within the reciprocating head F, Fig. IV, is located the upper rounded end of the block G, made adjustable to and from the cam H on the driving-shaft by means of a screw, I, whereby the positive return of the nail-passage in the throat in line with the driver and the hole made by the awl is reliably insured.

u is a friction-roll set into the side of the reciprocating head F, opposite that in which the adjusting-screw I is located, said roll being struck by the cam H when the head is to be carried back in the opposite direction.

I claim—

1. In a shoe-nailing machine, the presser-foot A, pivoted to the stationary frame B, in combination with a nail-throat, C, and a work-supporting mechanism, for the purpose described.

2. The pivoted presser-foot A, with its steps *k l*, in combination with a nail-throat above it and a work-supporting mechanism below it, for the purpose set forth.

3. In combination with the nail-throat of a shoe-nailing machine, a nail-carrier composed of a rigid portion, *n*, and a spring portion, *p*, secured together at one end, and provided at the other end with a vertical nail-aperture, *s*, formed by and between them and the contiguous side of the throat, all of the nail-grasping surfaces being continuously smooth, constructed to operate substantially as and for the purpose set forth.

4. The combination, with the cam H, secured to the driving-shaft, and the reciprocating head F, of a block, G, having its upper end located in a recess therein, and capable of being adjusted by the screw I, as and for the purpose specified.

Witness my hand this 25th day of January, 1884.

JAMES NAGLE.

In presence of—
N. W. STEARNS,
JAS. W. CHAPMAN.