

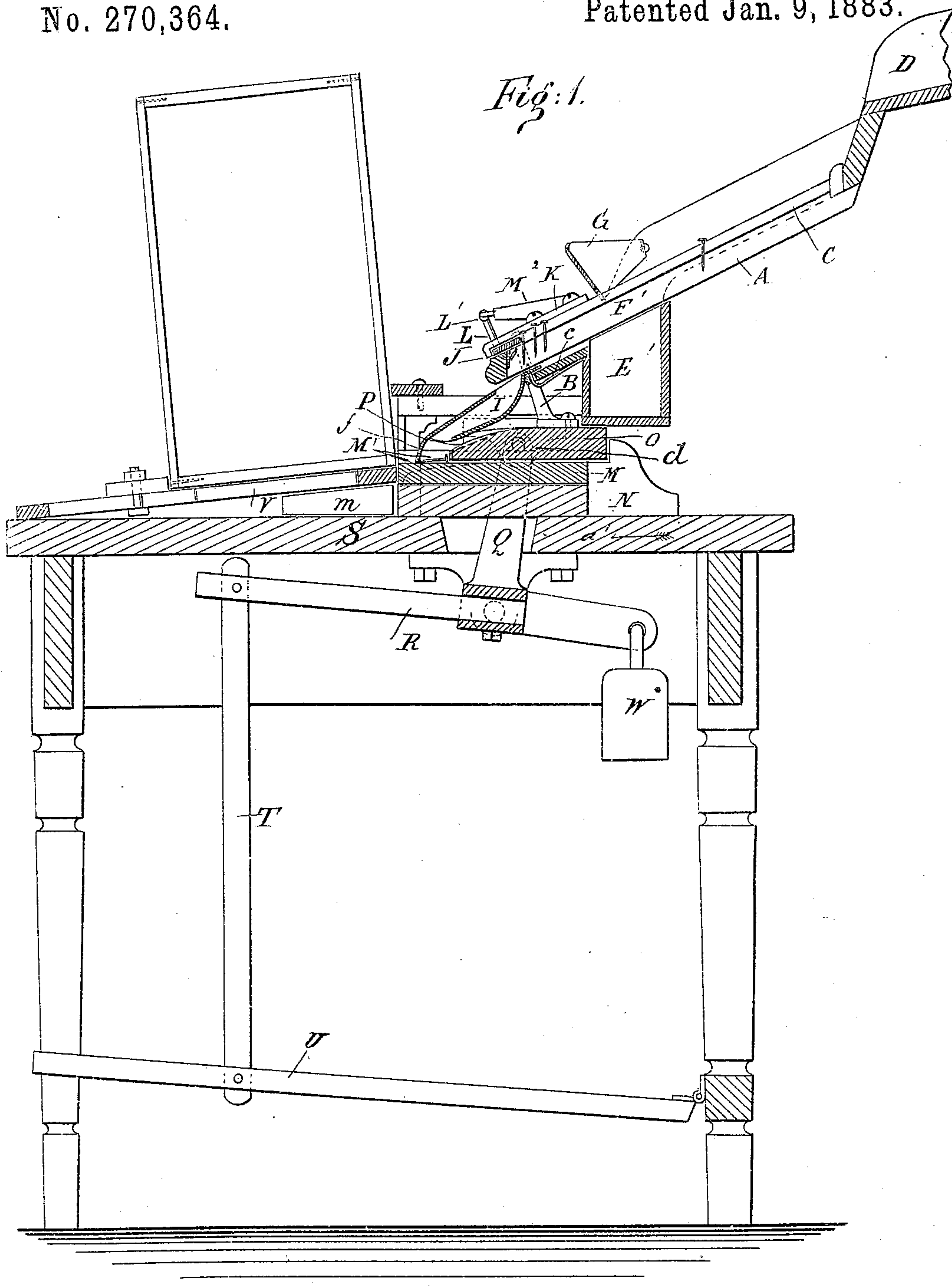
(Model.)

2 Sheets—Sheet 1.

S. AVERY.
BOX NAILING MACHINE.

No. 270,364.

Patented Jan. 9, 1883.



WITNESSES:

Chas. Nida.
C. Sedgwick

INVENTOR:

S. Avery
BY *Munn & Co*
ATTORNEYS.

(Model.)

2 Sheets—Sheet 2.

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Fig. 2.

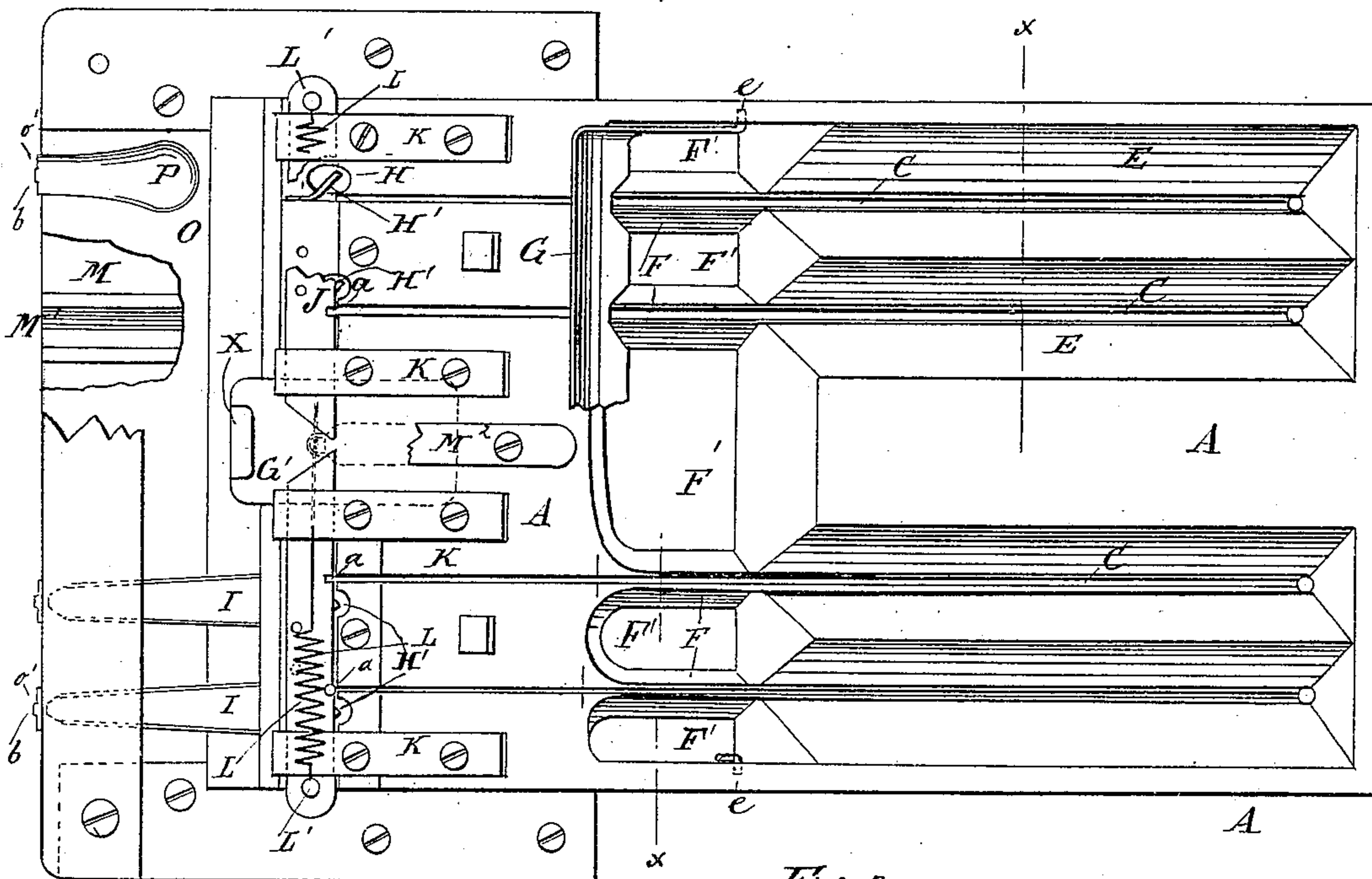


Fig. 3.

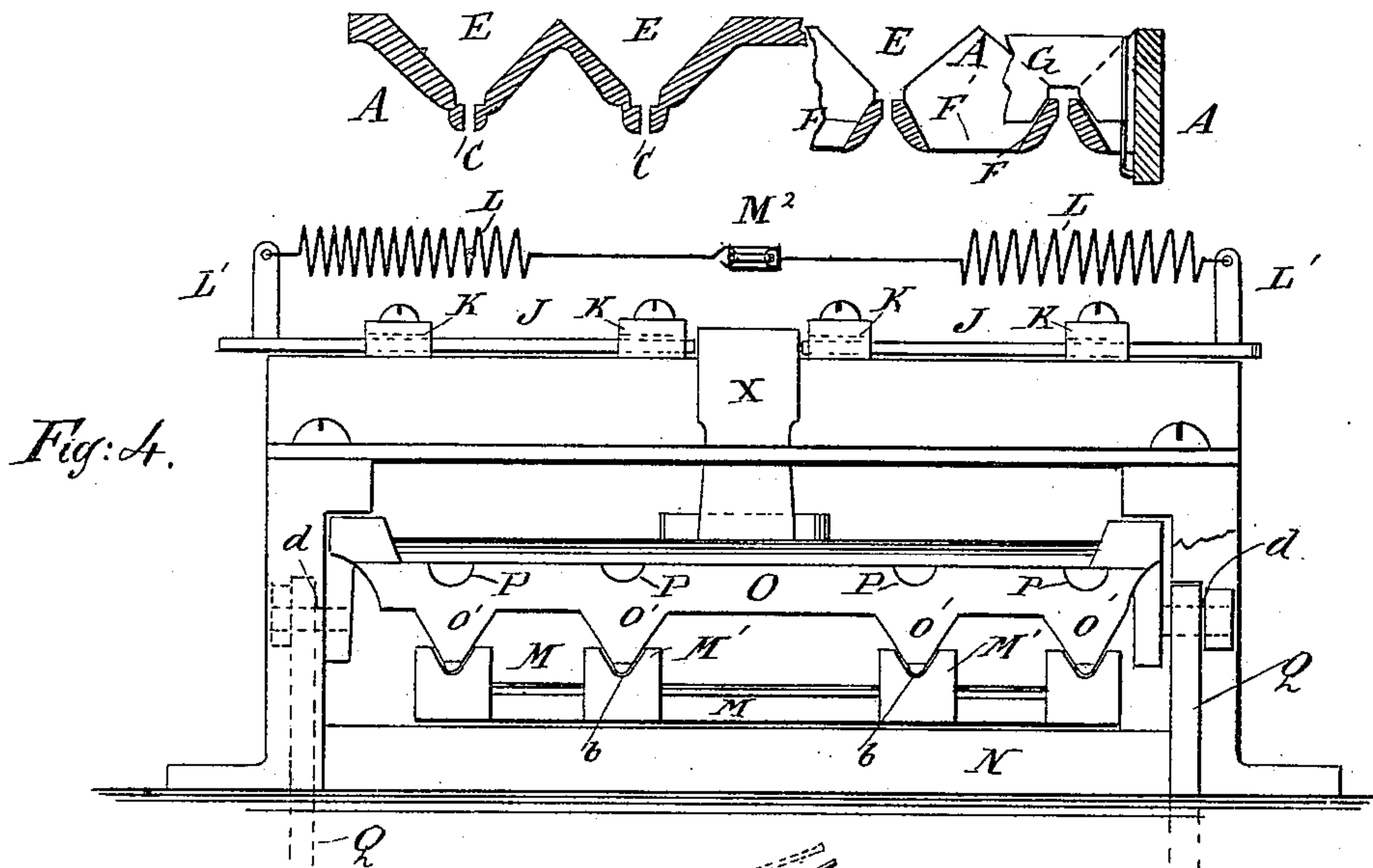
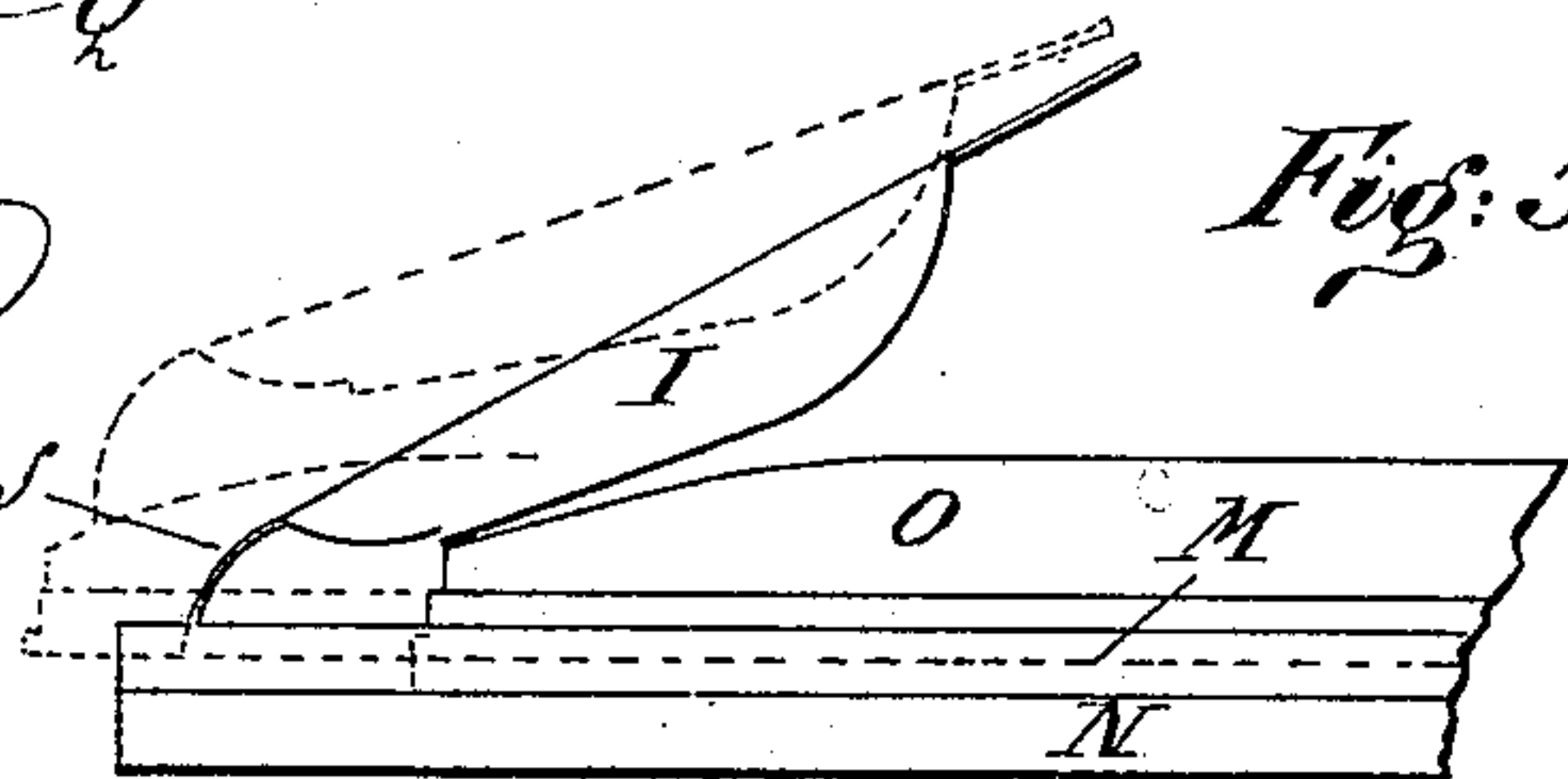


Fig. 4.

WITNESSES:

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Fig. 5.



INVENTOR:

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UNITED STATES PATENT OFFICE.

SAMUEL AVERY, OF PHOENIX, NEW YORK.

BOX-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,364, dated January 9, 1883.

Application filed July 20, 1882. (Model.)

To all whom it may concern:

Be it known that I, SAMUEL AVERY, of Phoenix, in the county of Oswego and State of New York, have invented a new and Improved Box-Nailing Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for nailing together the boards forming cigar-boxes or other like boxes.

The invention consists in parts and combinations of the same, as will be fully described hereinafter.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal elevation of my improved box-nailing machine, part in elevation. Fig. 2 is a plan view of the same, parts being shown broken out. Fig. 3 is a cross-section, part in elevation, of the nailways on the line x , Fig. 2. Fig. 4 is a front end elevation of the machine. Fig. 5 is a detail longitudinal sectional elevation of the nail-track, the nail-driving plate, and the nail-chutes.

An inclined plate, A, held and supported by suitable standards, B, is provided with a series of longitudinal slots or grooves, C, forming nailways, down which the nails slide from the nail-receptacle D. In the upper parts of the plate A the slots C are in the bottom of grooves E, and at about the middle of the plate A the slots C are in the middle of ridges F, between which the plate is broken out, whereby openings F' are formed, through which the headless or waste nails sliding down grooves E will fall over the edges of ridges F and drop into a receptacle, E', held below the plate A. The lower part of the plate A is flat. At the lower ends of the ridges F a plate, G, (partly shown,) pivoted at e , extends across the same, notched over each nail-slot to permit but one nail-head to pass at a time, for the purpose of preventing an undue quantity of nails from passing to the lower end of plate, A. Openings H are provided in the lower ends of the plate A, adjoining the lower ends of the slots C, through which openings the nails drop into the nail-chutes I, which have their upper wider ends held below the openings H. The lower end of

the upper surface of the plate A is provided with a transverse rabbet for receiving two sliding nail-feeding strips, J, the upper surfaces of which are flush with the upper surface of the plate A. The inner or adjoining ends of the strips J project into a recess, G', formed in the lower end of the plate A, and these ends of the strips are beveled from the lower to the upper edges and from the outer toward the inner ends, as shown in Fig. 2. The strips J are held in the rabbet, and are guided by clips K, attached to the plate A and projecting over these strips J. Spiral or other springs L are attached to studs L' on the outer ends of the strips J, and to a projection, M², on the plate A above the recess G'. The strips J are each provided in the upper edge with two nail-receiving notches, a , which, when the strips are drawn inward by the springs L, coincide with the lower ends of the slots or nailways C. Strips H' cross the openings H diagonally, the strip H' at the left of the recess G' being inclined toward the left, and the strips H' at the right of the recess being inclined toward the right.

A bed-plate, M, provided with nail grooves or tracks M', rests on the base N, and on this bed-plate M the sliding nail-driving plate or hammer O rests, the beveled ridges O' on the under side of this plate O passing into the grooves or nail-tracks M' of the bed-plate M. The ridges O' are provided with small heads b at the lower ends for driving the head of the nail, these heads b projecting beyond the lower ends of ridges O' enough to set the nail in deeper than the surface of the wood. The nail-driving plate O is provided with grooves P in the upper surface at the front end, these grooves being directly over the ridges O', as shown in Fig. 4, slanting down to the hammers b for the purpose of guiding the nails which slide down the chutes I upon the hammer-points as they draw back directly into the grooves M'. Without these grooves P in the upper slanting faces of the hammer-points the nails landing thereon might be turned crosswise by the motion of the hammers. Two arms, Q, attached to a rocking lever, R, pivoted in the supporting frame or table S, are pivoted to pintles d , projecting from the sides of the nail-driving plate O. A rod or bar, T,

connects one end of the lever R with a treadle, U. The nail-chutes I are suspended, by hooks or other suitable devices, below the apertures H, and the lower end tongues, *f*, of these chutes rest on the bottoms of the grooves M' in the base-plate M. The chutes I are each provided with an inlet-opening at the upper end and an outlet-opening at the lower end. The table on which the nailing-machine rests is provided with an adjustable inclined board, V, upon which the box is placed, the upper surface of that side of the box resting on the board V being flush with or slightly below the bottom of the grooves or nail-tracks M'. A weight, W, or spring acts on the lever R to draw back the nail-driving plate O. A cam-finger, X, projects from the nail-driving plate O at the middle of the front edge.

The operation is as follows: The nails slide down the railways C, and the headless and worthless nails fall over the edges of ridges F and drop into the receptacle E'. If too many nails slide down the railways C, they are checked by the plate G. The lowest nail in each railway passes into a notch, *a*, in the plate J. If the treadle U is released, the weight W pulls the rear end of the lever R downward and moves the nail-driving plate O in the inverse direction of the arrow *a'*, whereby the cam-finger X will be moved into the recess G', and as it presses against the beveled adjoining ends of the strips J it moves these strips from each other in the direction of their length. The nails in the notches *a* will be moved into the openings H, and by the diagonal strips or plates H' in these openings H the nails are pushed out of the notches *a*, as these diagonal plates project beyond the upper edges of the strips J, and will thus move the nails from the upper edge of the strips J—that is, as stated, the nails are moved out of the notches *a* and drop through the openings H into the nail-chutes I, down which they slide and drop into the nail-grooves M' in the plate M, and are prevented from sliding out of these grooves by the fingers *f* of the nail-chutes I, the ends of which fingers rest on the bottoms of the grooves M'. By depressing the treadle U the nail-driving plate O is moved in the direction of the arrow *a'*, and the front beveled end of the nail-driving plate O strikes against the lower beveled edges of the nail-chutes and raises the fingers *f* on the outer ends of the nail-chutes to permit the nails in the grooves M' to be pressed outward by the hammer-points *b* on the ends of ridges O', which ridges force, push, or drive the nails into the ends and edges of the boards of the box, resting flat and edgewise on the inclined platform V. The platform V is inclined, so that the nails will pass properly into the edges of the board resting thereon, one edge of said platform being supported on a block, *m*, of suitable height. The nails rest on

the sides of their ends and heads in the grooves M, and as the heads are toward the rear the nails will be inclined toward the front, and if the bottom board, into which the nails are to be driven, should not be inclined, the ends of the nails would be forced out at the sides of the board, and the box would be imperfect.

I have shown four railways; but it is evident that more or less may be provided.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a nail-driving machine, the combination, with the bed-plate M, provided with grooves M', and a nail-driving plate, O, of the platform V, arranged to rest at an inclination on the table S, and a block, *m*, interposed between them, as shown and described.

2. In a box-nailing machine, the combination, with the plate A, provided with railways C and openings H at the sides of the lower ends of the railways, of the diagonal strips or plates H' in the openings H, and the sliding nail-feeding strips J, provided with notches *a*, substantially as herein shown and described, and for the purpose set forth.

3. In a box-nailing machine, the combination, with the plate A, provided with railways C and openings H, of the sliding nail-feeding strips J, having the inner ends beveled, the springs L, and the cam-finger X on the nail-driving plate O, substantially as herein shown and described, and for the purpose set forth.

4. In a box-nailing machine, the combination, with the plate A, provided with railways C and openings H, of the sliding nail-feeding strips J, the springs L, the cam-finger X on the nail-driving plate O, and the nail-chutes I, substantially as herein shown and described, and for the purpose set forth.

5. In a nail-driving machine, the bed-plate M, provided with nail-grooves M', and the sliding plate O, provided with ribs, serving as hammers, adapted to slide in said grooves, the forward ends of said ribs being beveled or slanted forward and provided with nail-grooves P, in combination with the vertically-swinging nail-chutes I, beveled on their lower sides, substantially as specified, whereby said chutes may deliver nails into grooves M' and be raised out of the way by the slanted hammer-points, as described.

6. In a nail-driving machine, the vertically-swinging nail-chutes I, beveled on their lower faces, and the fingers *f*, secured thereto, in combination with ribs slanted and grooved on the upper side of their forward ends, and the bed-plate M, provided with nail-grooves M', substantially as and for the purpose specified.

SAMUEL AVERY.

Witnesses:

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EDDIE C. VICKERY.