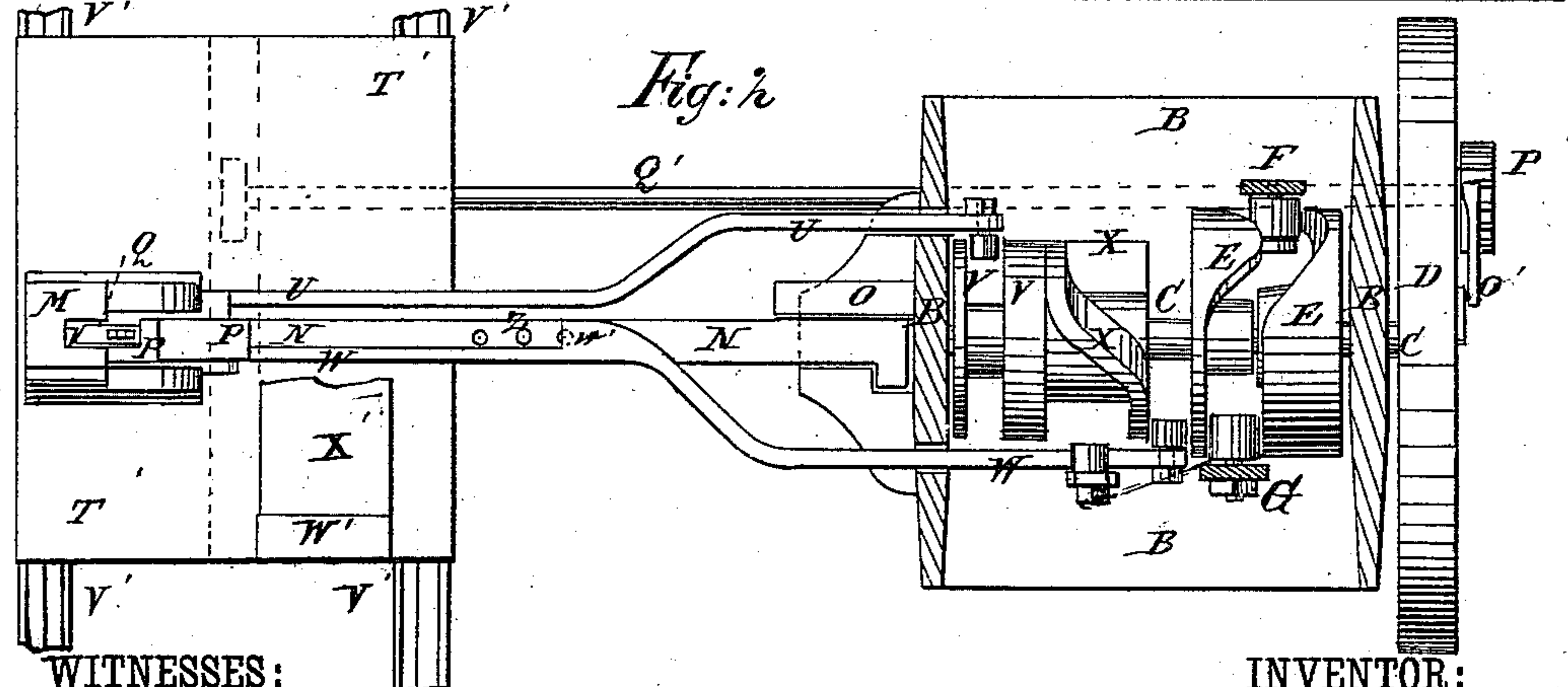
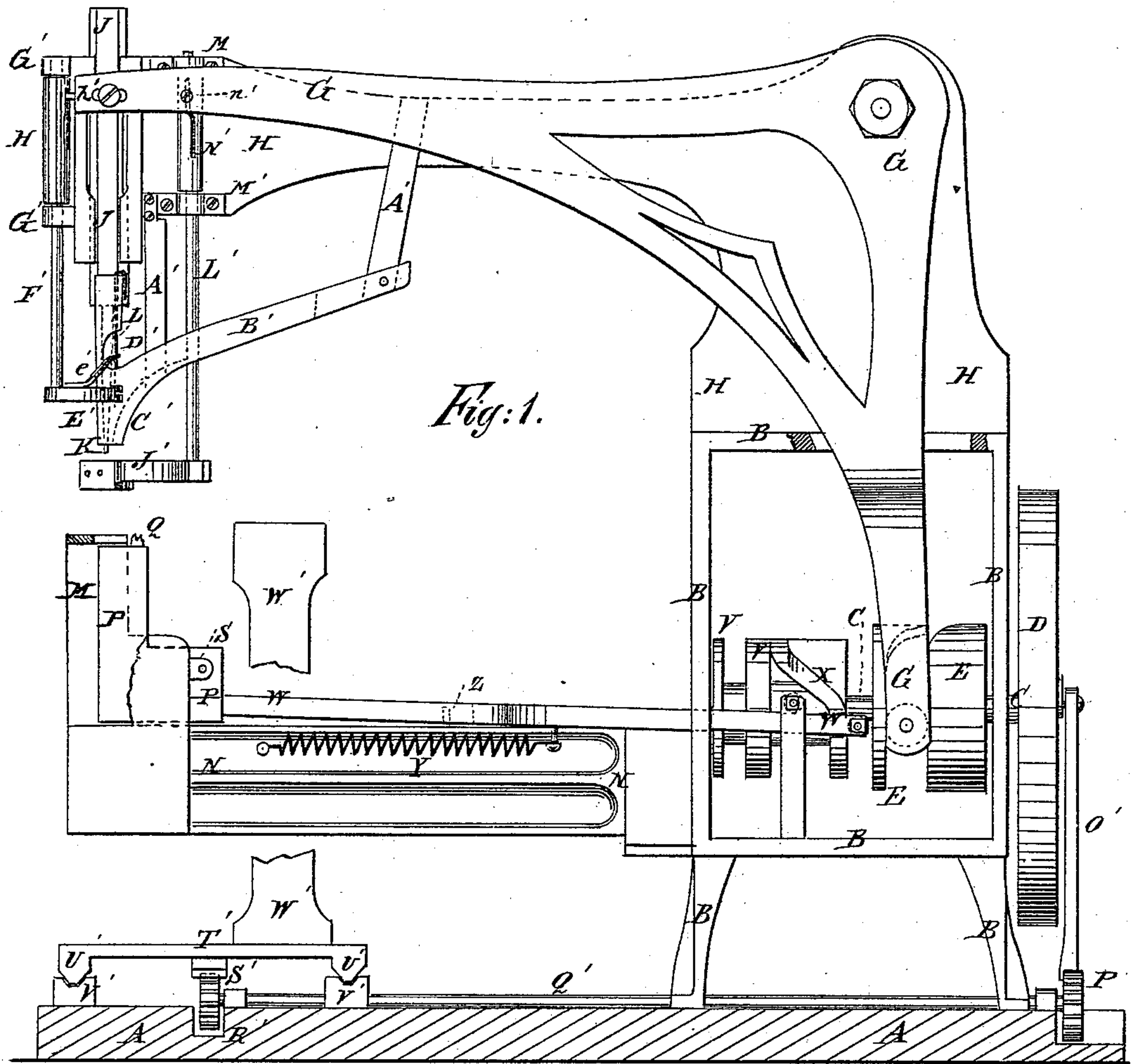


R. M. BIDELMAN.
Nail-Driving Machine.
No. 213,162. Patented Mar. 11, 1879.



WITNESSES:

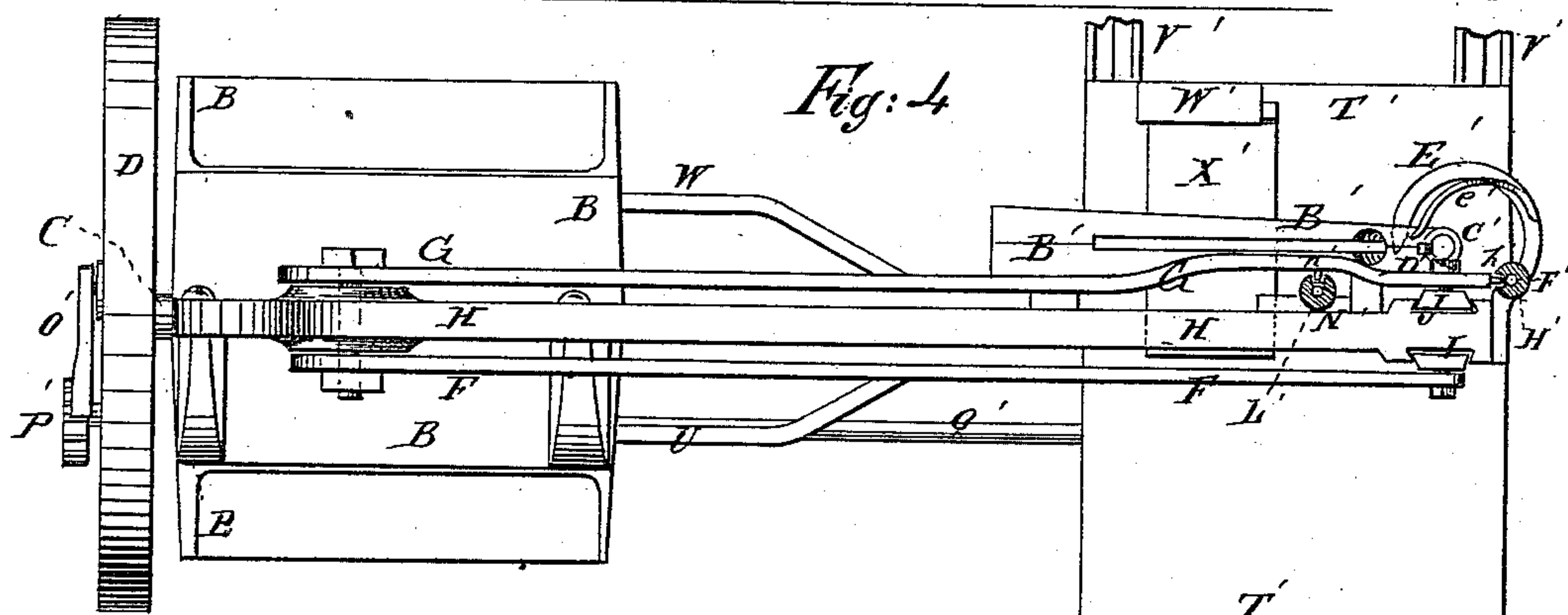
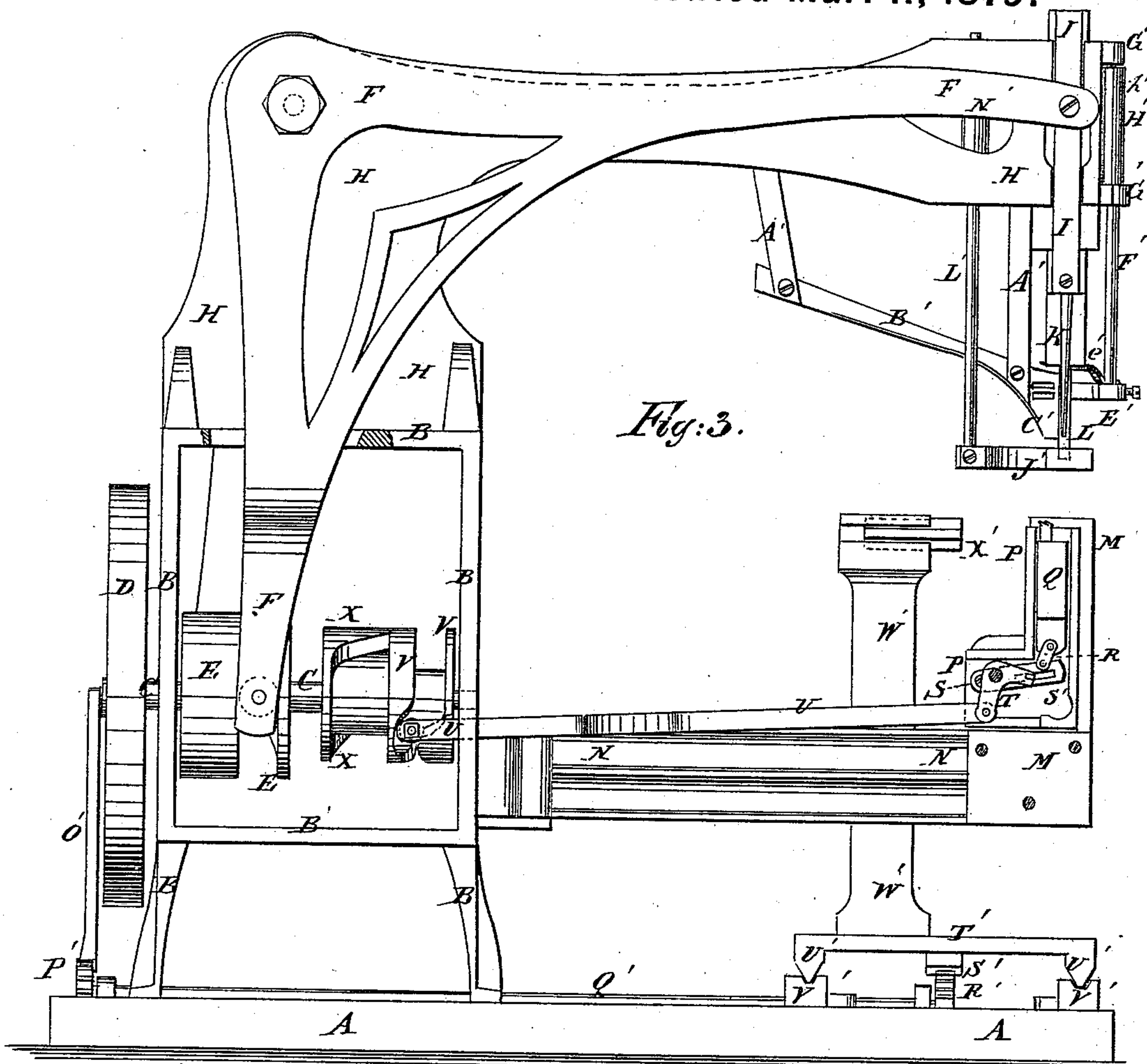
Chas. Nida
C. Sedgwick

INVENTOR:

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3 Sheets—Sheet 2.



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Fig. 5.

Fig. 6.

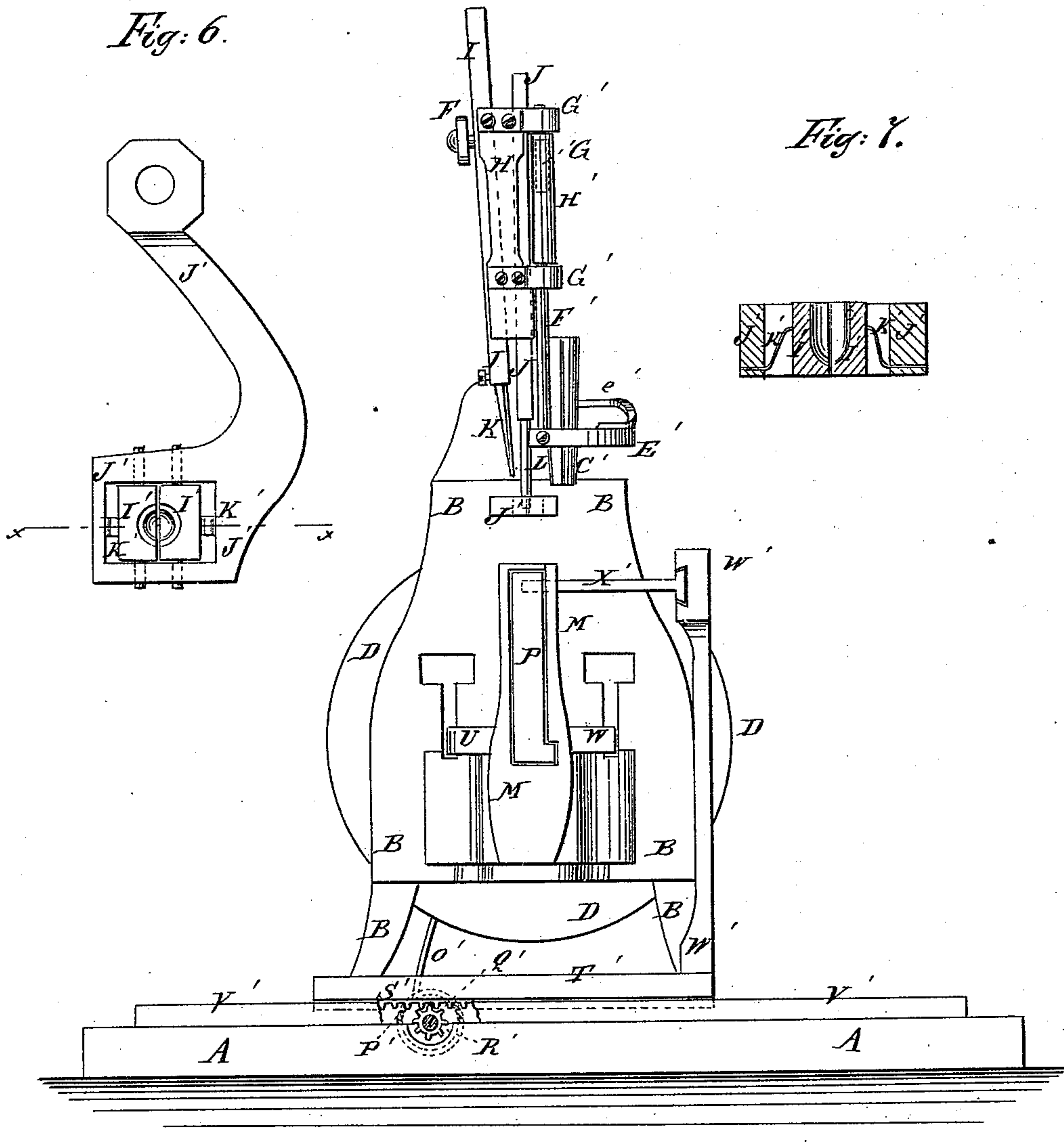
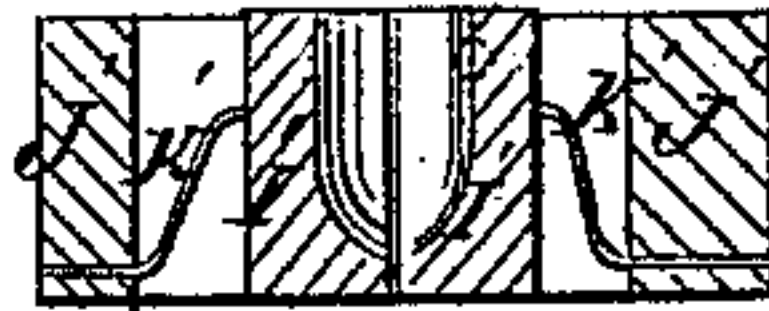


Fig. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT M. BIDELMAN, OF ADRIAN, MICHIGAN, ASSIGNOR TO HIMSELF
AND ADOLF WHEELER, OF SAME PLACE.

IMPROVEMENT IN NAIL-DRIVING MACHINES.

Specification forming part of Letters Patent No. **213,162**, dated March 11, 1879; application filed
December 18, 1878.

To all whom it may concern:

Be it known that I, ROBERT MAURICE BIDELMAN, of Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Improvement in Nail-Driving Machines, of which the following is a specification:

Figure 1, Sheet 1, is a side view of my improved machine, parts being broken away to show the construction. Fig. 2, Sheet 1, is a horizontal section of the same. Fig. 3, Sheet 2, is a side view of the same, showing the opposite side from that shown in Fig. 1. Fig. 4, Sheet 2, is a top view of the same. Fig. 5, Sheet 3, is a front view of the same. Fig. 6, Sheet 3, is a top view of the device that carries the nails to the place where they are to be driven. Fig. 7, Sheet 3, is a detail cross-section of the same, taken through the line *x*, Fig. 6.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a machine for nailing the irons upon trunks, packing-boxes, &c., which shall be so constructed as to punch the holes in the irons, drive the nails, and clinch them, whatever be the size of the trunks, and whether they be made with flat or oval tops, and which shall be simple in construction and convenient in use.

The invention consists in the combination of the horizontally-sliding bar, the vertically-sliding bar provided with points or teeth at its upper end, the link, the pivoted slotted bar, the bent lever, the connecting-rod, the connecting-rod provided with the shoulder, the stop-pin, and the spring, and the two cam-collars with each other, with the driving-shaft, the anvil, and the anvil-arm for feeding the work forward; in the combination of the inclined grooved and slotted spout, the vertical spout, the spring-stop, the cut-off provided with the finger, and the rock-rod provided with the slotted sleeve with each other and with the arm, and the bent lever provided with the pin for feeding the tacks to the tack-holder; in the combination of the pivoted recessed holding-blocks, the springs, the arm, the rock-rod and its slotted sleeve with the

bent lever provided with the pin for receiving the tacks from the feed-spout and carrying them to the place where they are to be driven; and in the combination of the pawl, the ratchet-wheel, the shaft, the gear-wheel, the rack-bar, the platform provided with the V-flanges, the grooved rails, the standard, and its adjustable arm with the driving-pulley of a trunk-nailing machine, in connection with the anvil and its feed-bars, as hereinafter fully described.

A represents a floor or bed, to which is attached a frame, B. In bearings in the frame B revolves a shaft, C, the outer journal of which projects, and to it is attached a large pulley, D, to receive the driving-belt. The pulley D is made heavy, to adapt it to serve as a fly-wheel.

To the shaft C, within the frame B, and near its outer upright part, is attached a collar, E, around which is formed a groove having a U-bend formed in it at one side of the said collar, to adapt it to serve as a cam for operating a pair of bent levers, F G. The lower ends of the bent levers F G are placed upon the opposite sides of the cam-collar E, so as to be operated alternately, and have pins provided with friction-rollers attached to them, to enter the groove of the cam-collar E, as shown in Fig. 2.

The cam-collar E may be made in one or two pieces, as may be desired or convenient.

The lower arms of the bent levers F G pass down through slots in the top part of the frame B, and are pivoted at their bends to the opposite sides of the bend or angle of the arm H, which is attached to lugs or brackets attached to or formed upon the top of the frame B. The arm H is bent, and projects forward in the manner of the arm of a sewing-machine, and in the opposite sides of its forward end are formed vertical dovetailed grooves, in which slide dovetailed bars I J. The bars I J are pivoted, respectively, to, and are moved up and down by, the forward ends of the bent levers F G.

In the lower end of the sliding bar I is formed a socket, in which is secured by a set-screw a punch, K, to form the holes in the trunk-irons for the tacks or nails. In the lower end of the sliding bar J is formed a socket, in which

is secured by a set-screw a blunt punch or hammer, L, for driving or forcing the tacks or nails into the holes made by the punch K.

The grooves in the arm H, in which the bars I J slide, incline toward each other, so that the punch K and the hammer L may both operate at a common point or center, as shown in Fig. 5.

The trunk and trunk-iron are supported against the action of the punch K and the hammer L by the upper end of the upright or anvil M, attached to or formed upon the outer end of the arm N, the inner end of which has a flange formed upon one side, to enter an L-groove, formed in lugs or brackets formed upon or attached to the frame B, where it is secured in place by a wedge-key, O, or by other suitable means, so that it may be adjusted higher or lower, as the thickness of the trunk material may require.

In an L-shaped slot in the anvil M is placed an L shaped bar, P, which slides horizontally in its slot, and which is grooved vertically upon one side to receive the bar Q. The bar Q has teeth or points formed upon its upper end to enter the work and feed it forward.

To the lower part of the vertically-sliding bar Q is pivoted the upper end of the link R, the lower end of which is pivoted to the end part of the bar S. The other end of the bar S is pivoted to the horizontally-sliding bar P. The bar S is slotted longitudinally to receive the point formed upon or attached to the side of the end of the bent lever T, which is pivoted at its angle to the side part of the anvil M.

To the end of the lower arm of the bent lever T is pivoted the end of a connecting-rod, U, the other end of which passes through a slot in the frame B, and has a pin provided with a friction-roller attached to it, to enter a groove formed around the collar V, attached to shaft C, within the said frame B. The groove in the collar V is made with a U-bend, to cause it to act as a cam to draw the toothed bar Q down and raise it up at the proper time to do its work.

To the sliding bar P is attached the end of a connecting-rod, W, the other end of which passes through a slot in the frame B, and has a pin provided with a friction-roller attached to it, to rest against a cam-collar, X, attached to the shaft C.

The cam-collar X is so formed as to draw the bar P forward at the proper time. The connecting-rod W and the sliding feed-bar P are drawn back, when released from the cam X, by a spiral or other spring, Y, attached to the said connecting-rod W and to the arm N. Upon the side of the connecting-rod W is formed a shoulder, w', to strike against a stop-pin, Z, inserted in a hole in the arm N, to limit the movement of the connecting-rod W and of the feed-bar P, according to the required distance apart of the tacks or nails. Several holes are formed in the arm N to receive the stop-pin Z, so that the nails or tacks may be

driven at a greater or less distance apart, as may be desired.

To the forward part of the bent arm H are attached the upper ends of two bars or hangers, A', to the lower ends of which is attached an inclined spout, B', to receive the tacks. The lower part of the spout B' is slotted longitudinally to allow the points of the tacks to drop through. To the lower end of the inclined spout B' is attached, or upon it is formed, a vertical spout, C', through which the tacks drop to the device that carries them to the place where they are to be driven.

The vertical spout C' has a spring, D', attached to its projecting upper end, which spring projects downward into the cavity of the said spout C', to serve as a stop to detain or hold the tack until it is forced back by the cut-off E' into the said spout C'. The cut-off E' is made in the form of a curved bar, the forward end of which is pointed and slotted, and works in short horizontal slots in the vertical spout C' at the point where it connects with the inclined spout B'.

The cut-off E' is provided with a finger, e', which projects into such a position as to push back the spring-stop D' at the same time that the cut-off E' pushes back the tack.

The shank of the cut-off E' is secured to the lower end of the rod F', which works in two bearings, G', attached to the forward end of the bent arm H, and to which, between the said bearings G', is attached a sleeve or tubular collar, H'. The sleeve H' has a slot formed in it to receive a pin, h', attached to the end of the bent lever G.

The slot in the sleeve H' is made with a slight lateral inclination in its upper part, so that the rod F' may be rocked at the proper time, by the movements of the said bent lever G, to operate the cut-off E'.

As the tack drops from the vertical spout C' it drops into the cup-shaped recess formed in the adjacent faces of the two blocks I', placed in a hole in the free end of the arm J', and pivoted at the upper parts of their ends to the said arm. The lower edges of the recessed pivoted blocks I' are held toward each other, to prevent the tack from dropping through, by the springs K', attached to the arm J' at the sides of the hole through it, and which bear against the sides of the said blocks I'. The shank of the arm J' is secured by a set-screw to the lower end of the rod L', which rocks in two bearings, M', attached to the side of the bent arm H.

To the rod L', between the bearings M', is attached a sleeve, N', in the side of which is formed a slot to receive a pin, n', attached to the side of the bent lever G. The slot in the sleeve N' is made with an offset or incline, so that the rod L' may be turned at the proper time to carry the arm J' and holding-blocks I' beneath the vertical spout C' to receive the tack, and beneath the hammer L, so that the said tack may be forced by the descent of the said hammer L into the hole formed by the

descent of the punch K, where it is clinched by having its point pressed down upon the anvil M.

To the hub of the pulley D is pivoted the end of the pawl O', the other end of which engages with the teeth of the ratchet-wheel P', attached to the end of the shaft Q'. The shaft Q' revolves in bearings attached to the floor or bed A, and to its other end is attached a gear-wheel, R', the teeth of which mesh into the teeth of the rack-bar S', formed upon or attached to the lower side of the platform T'.

Upon the side parts of the lower side of the platform T' are formed V-shaped flanges U', which rest and slide in V-shaped grooves in the rails V'. To the upper side of the platform T', at or near one end, is rigidly attached the lower end of the upright or standard W', the upper end of which is made wide, and has a dovetailed groove formed across its forward side to receive the dovetailed end of the platform or wide arm X', which supports the trunk or box while being nailed, and which may be moved laterally in its groove to bring it into such a position as to receive another row of tacks.

With this construction, by throwing the pawl O' into gear with the ratchet-wheel P', the trunk may be fed forward to regulate the distance of the tacks in the rows.

The feed P Q may be thrown out of gear, when desired, by inserting the stop-pin Z in a hole formed in the arm N, in such a position as to prevent the connecting-rod W from being operated by the cam-collar X.

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

1. The combination of the horizontally-sliding bar P, the vertically-sliding bar Q, pro-

vided with points or teeth at its upper end, the link R, the pivoted slotted bar S, the bent lever T, the connecting-rod U, the connecting-rod W, provided with the shoulder w', the stop-pin Z, and the spring Y, and the two cam-collars V X, with each other, and with the driving-shaft C, the anvil M, and the anvil-arm N, for feeding the work forward, substantially as herein shown and described.

2. The combination of the inclined grooved and slotted spout B', the vertical spout C', the spring-stop D', the cut-off E', provided with the finger e', and the rock-rod F', provided with the slotted sleeve H', with each other, and with the arm H and the bent lever G, provided with the pin h', for feeding the tacks to the tack-holder, substantially as herein shown and described.

3. The combination of the pivoted recessed holding-blocks I', the springs K', the arm J', the rack-rod L', and its slotted sleeve N' with the bent lever G, provided with the pin n', for receiving the tacks from the feed-spout C' and carrying them to the place where they are to be driven, substantially as herein shown and described.

4. The combination of the pawl O', the ratchet-wheel P', the shaft Q', the gear-wheel R', the rock-bar S', the platform T', provided with the V-flanges U', the grooved rails V', the standard W', and the adjustable arm X', with the driving-pulley D of a trunk-nailing machine, in connection with the anvil M and its feed-bars P Q, substantially as herein shown and described.

ROBERT MAURICE BIDELMAN.

Witnesses:

W. F. CORNELL,
R. B. ROBBINS.