

(No Model.)

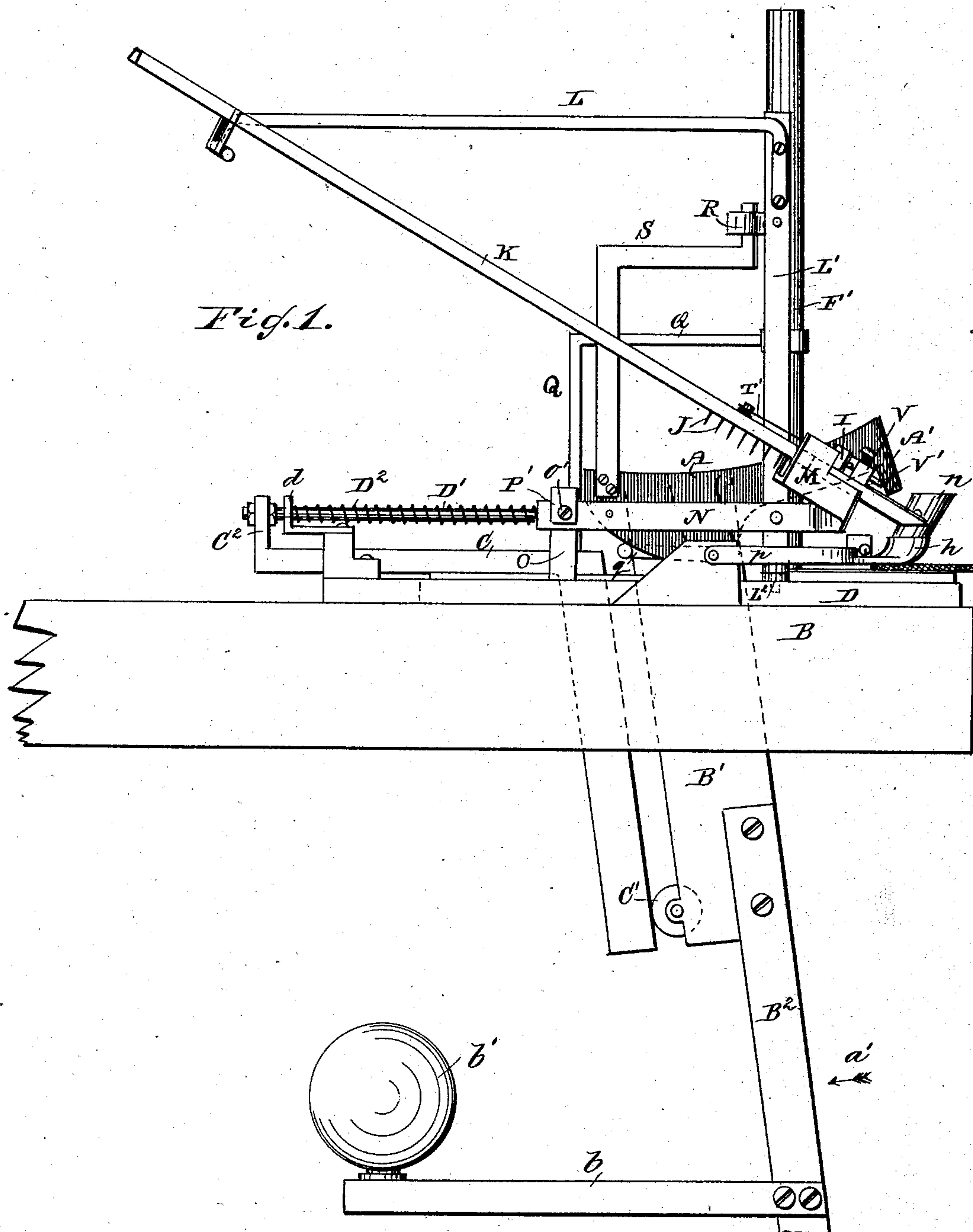
2 Sheets—Sheet 1.

A. HALL.

# AUTOMATIC BUTTON FASTENING MACHINE.

No. 315,275.

Patented Apr. 7, 1885.



WITNESSES :

Theo. G. Boston  
to Sedgwick

**INVENTOR:**

BY *A. Hall*  
*Munn & Co*  
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

A. HALL.

AUTOMATIC BUTTON FASTENING MACHINE.

No. 315,275.

Patented Apr. 7, 1885.

Fig. 2.

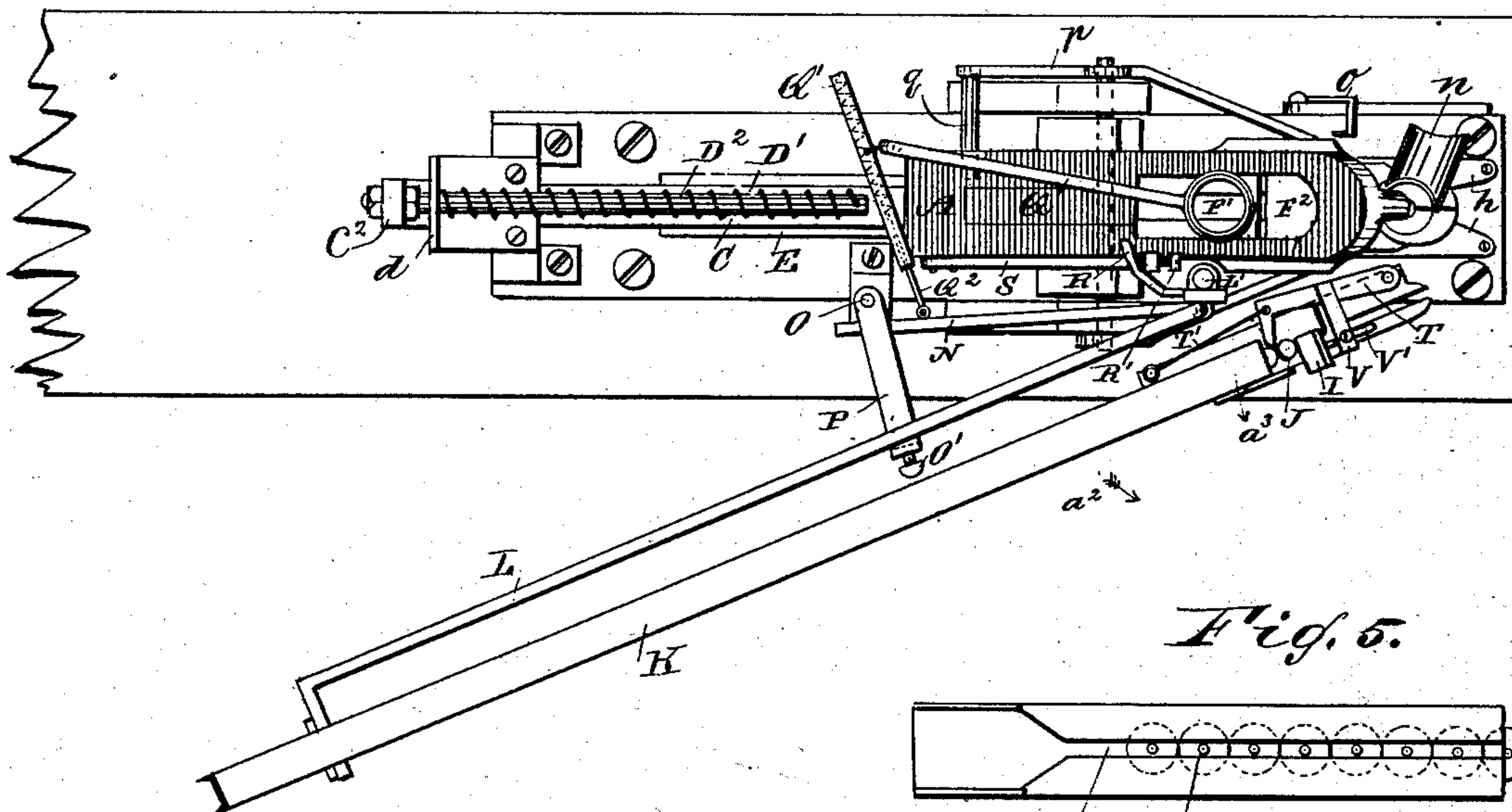


Fig. 5.

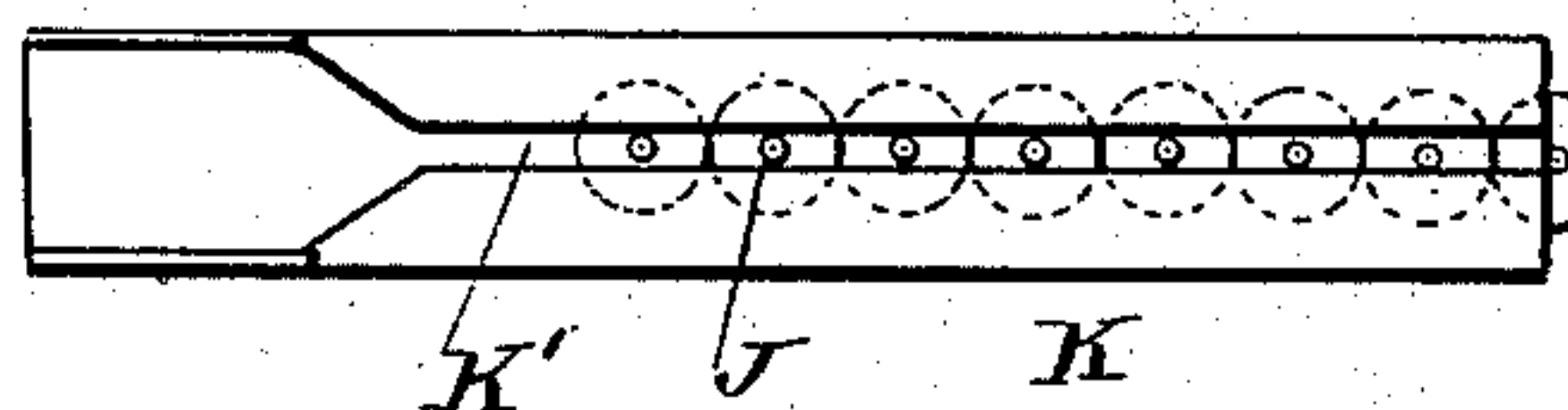
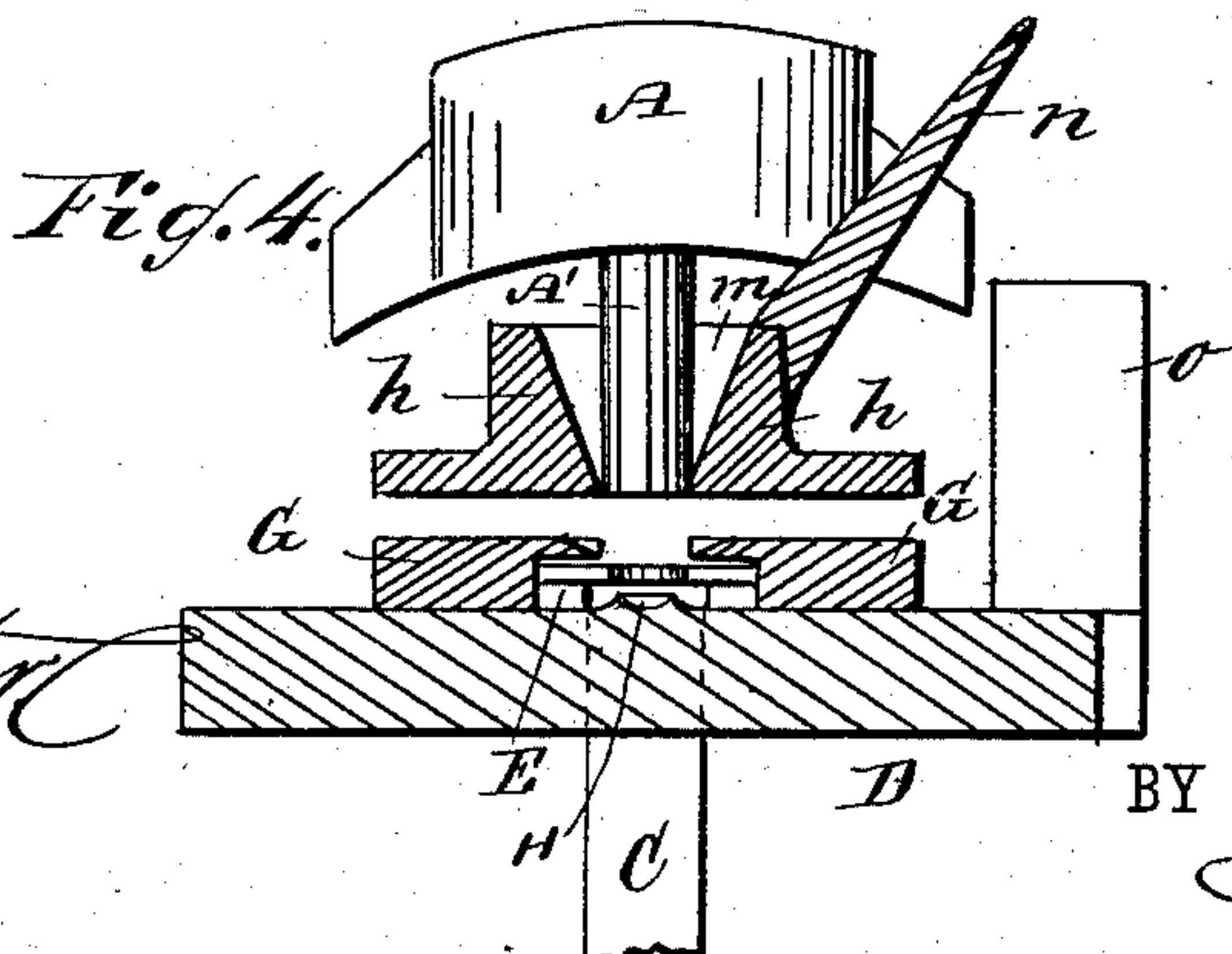
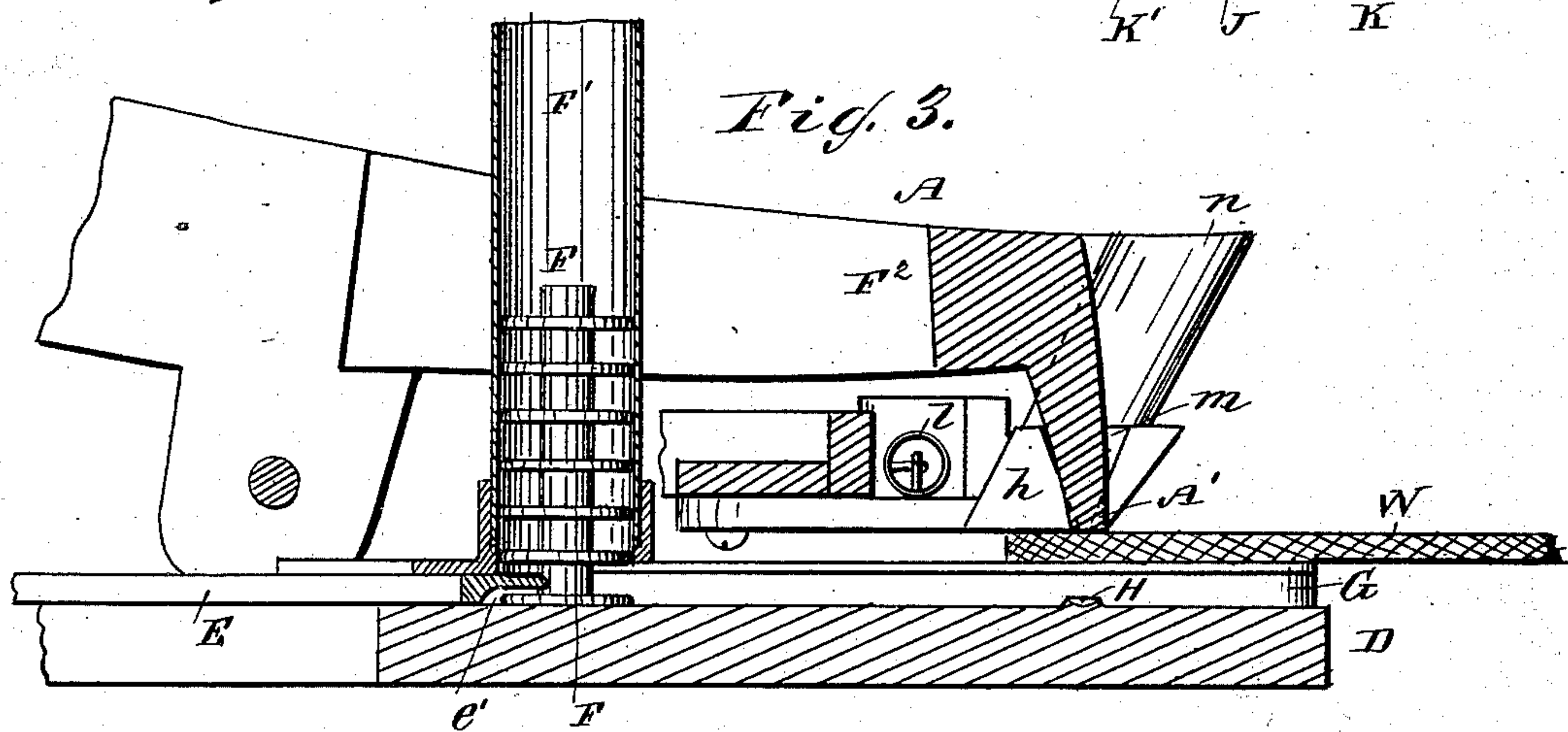


Fig. 3.



WITNESSES:

*Theo. G. Norton*  
*C. Sedgwick*

INVENTOR:

*A. Hall*

BY

*Munn & Co.*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ALBERT HALL, OF CYPRESS HILL, NEW YORK.

## AUTOMATIC BUTTON-FASTENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,275, dated April 7, 1885.

Application filed October 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT HALL, of Cypress Hill, in the county of Kings and State of New York, have invented a new and improved Automatic Button-Fastening 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 fastening buttons to garments and other articles, which machine is so constructed as to feed the button and tacks or points automatically as rapidly as required.

This invention, which is an improvement on the button-fastening machine for which United States Letters Patent No. 286,921 were issued to me October 16, 1883, consists, mainly, in the combination, with the fastening device described in the said patent, of devices for automatically feeding the buttons and button-fastenings to the hammer.

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

Figure 1 is a side view of my improved automatic button-fastening machine. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged detail longitudinal sectional elevation of the fastening device. Fig. 4 is a cross-sectional view of the same. Fig. 5 is a plan view of the inclined track or tack-guide.

The hammer A, provided with a downwardly-projecting head or prong, A', for driving the fastenings into the buttons, is pivoted on the table B, and is connected with a downwardly-projecting arm, B', to which a downwardly-projecting bar, B<sup>2</sup>, is fastened. The said bar B<sup>2</sup> is shown broken off in the drawings; but it extends to the floor and is provided with a stirrup or other foot-plate. An arm, b, projecting from the bar B<sup>2</sup> carries a weight, b', which swings the bar B<sup>2</sup> toward the front, thereby raising the head end of the hammer. An L-shaped bar, C, rests upon the bed-plate or anvil-plate D, and the horizontal shank of the said L-shaped bar C is held between suitable guides and is adapted to slide on the base D. The downwardly-projecting prong or arm of the bar C rests against a roller, C', in the back edge of the bar B', secured to the hammer A and to the

bar B<sup>2</sup>. A rod, D', projects from the upwardly-projecting part C<sup>2</sup> of the angular bar C over the horizontal part of the said bar C, and is surrounded by a spiral spring, D<sup>2</sup>, having its outer end secured to the outer end of the rod D', and having its inner end resting against a guide-piece, d, at the rear end of the bed-plate D, through which guide-piece the rod D' passes and is thus guided. A flat feeding-bar, E, resting on the bed-plate D, has a recess, e', formed in its bottom edge at the free end, and also has a notch in its free end, so as to adapt the end of the feeder-bar E to fit against buttons F, which are contained in a vertical tube, F', passing through a longitudinal slot, F<sup>2</sup>, in the hammer A, the lower end of the tube F' resting upon two guide-bars, G, between which the sliding feed-bar E moves. The anvil or bed plate D is provided in its surface with a raised nipple, H, for receiving a central nipple or projection on the outer surface of the button-head. The tacks or points J, which are used for fastening the buttons, are passed into a flattened tube or chute, K, having a longitudinal slot, K', in its bottom, the prongs or points of the tacks projecting through the said slot and the heads resting on the upper surface of the bottom. The upper end of the chute K is supported by a rod, L, secured to a standard, L', which turns on its longitudinal axis, and the chute K swings with it. The lower end of the chute K is held in a box or trough, M, supported at one end by a horizontal bar, N, secured to the lower part of the standard L' and projecting into the space between the standard O and the downwardly-bent end P' of an arm, P, on the said standard O, in the bent end of which arm P an adjusting-screw, O', is held, the said arm P projecting beyond the edge of the base-plate, as shown in Fig. 2.

On a standard, Q, which holds the tube F, a tube, Q', is held, containing a spiral spring surrounding a rod, Q<sup>2</sup>, pivoted to the arm N and drawing the said arm in the direction toward the longitudinal axis of the machine.

On the standard L' a short curved arm, R, is provided, against which an adjusting-screw, R', rests, which is held in the upper end of an angular arm, S, secured to the hammer.

On the trough or box M, into which the lower end of the chute K leads, an L-shaped



latch, T, is pivoted, which is acted upon by a spring, T'. The L-shaped latch T is provided with an arm, V, projecting over the trough M, and in the free end of the said arm a short rod, V', is held by an adjusting-screw, on the upper end of which rod a plate, I, is formed, against which the head of the lowest tack or point J rests. The end of the right-angled prong at the top of the latch T rests between the last two points or tacks J, as shown in Fig. 2. A short distance above the base-plate laterally-swinging jaws *h* are pivoted, in the outer ends of which a tapered opening, *m*, is formed for receiving the head or prong A' of the hammer, the said jaws being pressed against each other by a spiral spring, *l*, arranged between them, which draws them together. An inclined guard or shield, *n*, projects upward from one of the jaws *h*. A guide or gage, *o*, is secured on the anvil or base plate D, and prevents passing the cloth under the hammer too far. The jaws *h* are pivoted to swing laterally, but are also pivoted to swing vertically, as they are described in Patent No. 286,921. An arm, *p*, connected with the front ends of the jaws, is pivoted on the base, and a pin, *q*, projecting from its rear end, extends under the rear part of the hammer.

The operation is as follows: A quantity of buttons, F, are placed in the tube F', the head of each button resting on the upper end of the upwardly-projecting shank of the next lower button, as shown in Fig. 3, and a quantity of tacks or pins, J, are passed into the chute K, the points or prongs of the tacks projecting through the slot in the bottom surface of the same. When the button rests on the nipple H and a tack is held in the aperture *m* between the prongs *h*, and the hammer is in the position shown in Fig. 1, the bar B<sup>2</sup> is pushed in the direction of the arrow *a'*, Fig. 1, either by means of the foot, the knee, or any other suitable means, whereby the head A' of the hammer is swung down, forcing the jaws *h* apart and forcing the pin or tack J through the cloth W, which has been placed upon the guides G, and into the neck of the button F resting on the nipple H. By pushing the bar B<sup>2</sup> in the direction of the arrow *a'* the bar C is moved in the direction of the arrow *a'*, whereby the feeder-bar E is withdrawn from the lower end of the tube F, thus permitting a button to drop upon the base-plate or anvil D. The spring D<sup>2</sup> is compressed, and when the bar B<sup>2</sup> is released it is swung in the inverse direction toward the arrow *a'* by the action of the weight *b'*, the spring D<sup>2</sup> moves the rod D', the angular bar C, and the feeder-bar E in the inverse direction of the arrow *a'*, causing the feeder-bar E to push the lowest button from the tube F and upon the nipple H. As the rear end of the hammer swings down when the bar B<sup>2</sup> swings in the inverse direction of the arrow *a'*, the said hammer strikes the rod *q'* on the arm *p*, thus raising the jaws *h* and permitting the cloth to be

passed under them, and at the same time the screw R' on the end of the arm S strikes the arm R on the standard L', thereby swinging the said standard, the chute K, and the arm N in the direction of the arrow *a'*, whereby the rod Q<sup>2</sup> is drawn into the tube Q', and the spring in the tube Q' is compressed, and at the same time the lower end of the trough or box M is forced against the front end of the hammer, whereby the upper angular end of the L-shaped latch or lever T is swung in the direction of the arrow *a'*, Fig. 2, whereby the upper prong of the said latch will be forced in between the lowest and the next to the lowest tack J at the same time that the plate I is swung from the lowest tack J, thus permitting it to slide from the end of the trough or box and drop into the aperture *m* between the jaws *h*. As the prong at the upper end of the latch T is forced in between the lowest and next lowest point or tack it prevents the remaining points from sliding out of the box until the plate I is swung back over the slot through which the tacks slide, which takes place when the hammer is forced down. The guard *n* prevents the tacks from jumping over the sides of the jaws and conducts them into the aperture *m*. When the hammer is swung down, the pressure of the arm S on the arm R is removed, and the spring in the tube Q' can pull the arm N and the chute K in the inverse direction of the arrow *a'*. The arm P serves as a check to limit the movements of the chute K and the arm N. Every time the hammer is raised the jaws are raised to permit of passing the cloth under them, the box or trough M is swung against the end of the hammer to permit a tack to slide into the aperture *m*, and a button is carried from the tube F and upon the nipple H. When the hammer is forced down, a tack is driven through the cloth into the head of the button, and the above-described operation is repeated, and so on.

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

1. In an automatic button-fastening machine, the combination, with a rocking hammer, of an upright tube passed through a slot in the hammer and adapted to contain buttons, a sliding bar operated by mechanism connected with the hammer and adapted to shift the buttons from the tube to the hammer-head, and of a chute for conducting the points or tacks to the hammer-head, substantially as herein shown and described.

2. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a downwardly-projecting bar connected with the hammer, an L-shaped bar arranged to slide on the base and adapted to be acted upon by the hammer-bar, and of a sliding bar connected with the L-shaped bar and adapted to carry the buttons under the hammer-head, substantially as herein shown and described.

3. In an automatic button-fastening ma-



chine, the combination, with the pivoted hammer A, of the bars B' B<sup>2</sup>, the L-shaped bar C, the sliding feeding-bar E, the rod D', connected with the L-shaped bar C, and the spring D<sup>2</sup>, surrounding the rod D', substantially as herein shown and described.

4. In an automatic button-fastening machine, the combination, with a pivoted hammer of an upright adapted to turn on its longitudinal axis and provided with an arm or projection, an arm or projection on the hammer adapted to act on the arm or projection on the upright, and of a chute containing points or tacks for fastening the buttons, which chute is supported by the above-mentioned pivoted upright, substantially as herein shown and described.

5. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, and of a laterally-swinging chute containing the points or tacks, substantially as herein shown and described.

6. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, a laterally-swinging chute containing the points or tacks, and of a latch pivoted on the lower end of the said chute, substantially as herein shown and described.

7. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for pushing forward the buttons, a laterally-swinging chute containing the points or tacks, and of the L-shaped latch T, the spring T', and the stop I, substantially as herein shown and described.

8. In an automatic button-fastening machine, the combination, with a pivoted hammer, of the receptacle for the buttons, the sliding bar for pushing the buttons forward, the pivoted standard L', the arm N on the

same, the stop P, and the chute K, held on the pivoted upright L', substantially as herein shown and described.

9. In an automatic button-fastening machine, the combination, with the pivoted hammer, of a receptacle for containing buttons, a bar for pushing the buttons forward, which bar is operated by mechanism connected with the hammer, the pivoted upright L', provided with the arm R, the arm S on the hammer, the arm N on the upright, the tube Q', containing a spring, the rod Q<sup>2</sup>, pivoted to the arm N and passing into the tube Q', and of the stop P, substantially as herein shown and described.

10. In an automatic button-fastening machine, the combination, with a pivoted hammer, of a receptacle for containing the buttons, a sliding bar for moving forward the buttons, which bar is operated by mechanism connected with the hammer, a pivoted upright adapted to turn on its vertical axis, arms for turning the upright by means of the hammer, a chute held on the pivoted upright, and a spring-latch held at the lower end of the chute, substantially as herein shown and described.

11. In an automatic button-fastening machine, the combination, with the anvil or base plate D, of the spring-pressed jaws h, the hammer A, and the pivoted lever p, projecting under the front ends of the jaws and having a pin, q, projecting under the rear end of the hammer, substantially as herein shown and described.

12. In an automatic button-fastening device, the combination, with a pivoted hammer, of the jaws h, the spring l, an automatic feeding device for passing buttons and tacks under the hammer, and of the guard n on one of the jaws h, substantially as herein shown and described.

ALBERT HALL.

Witnesses:

OSCAR F. GUNZ,  
C. SEDGWICK.