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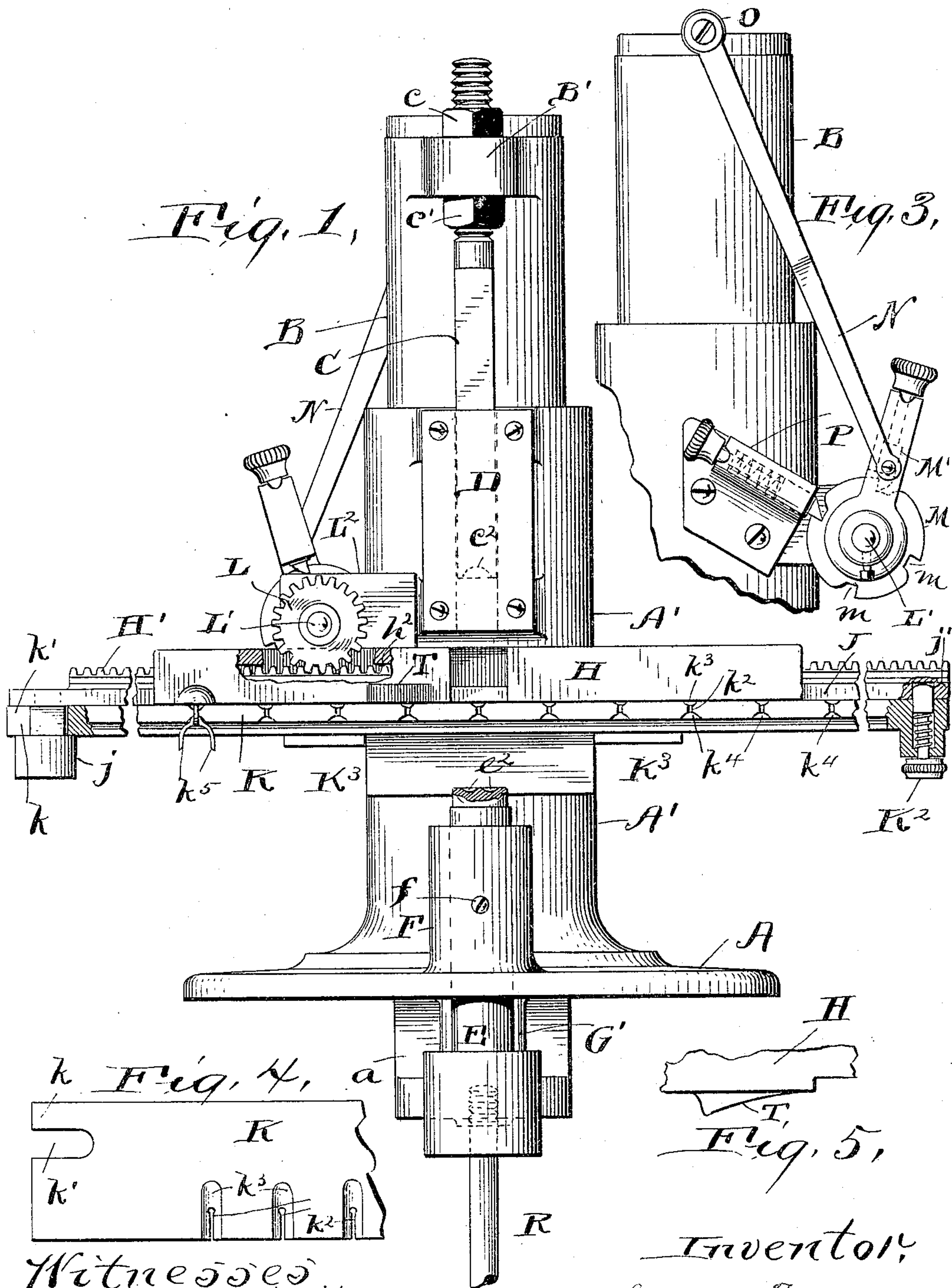
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**MACHINE FOR SETTING OR SECURING BUTTONS TO SHOES.**

(Application filed Sept. 24, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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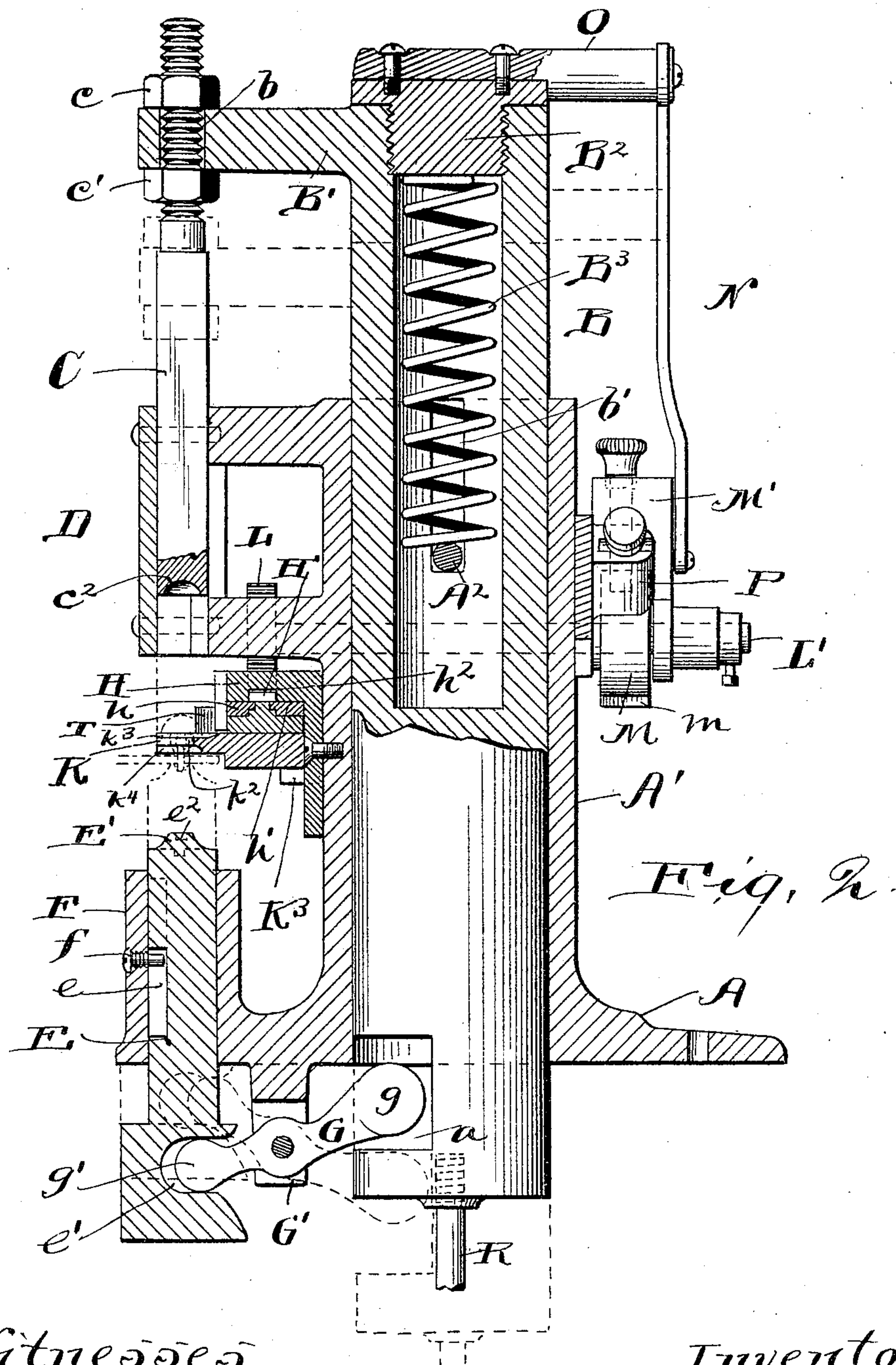
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# UNITED STATES PATENT OFFICE.

GEORGE J. FANNER, OF CLEVELAND, OHIO, ASSIGNOR TO THE FANNER MANUFACTURING COMPANY, OF SAME PLACE.

## MACHINE FOR SETTING OR SECURING BUTTONS TO SHOES.

SPECIFICATION forming part of Letters Patent No. 611,837, dated October 4, 1898.

Application filed September 24, 1897. Serial No. 652,841. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE J. FANNER, of Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in Machines for Setting or Securing Buttons to Shoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in machines for setting or securing buttons to shoes by means of staple-fasteners; and it consists in the peculiar construction of the machine, as will be hereinafter fully set forth and claimed.

In the drawings, Figure I is a view in front elevation, illustrating a machine constructed according to my invention. Fig. II is a view in side elevation, partly in section, illustrating more clearly some of the working parts. Fig. III is a view in rear elevation of a portion of the standard or cylinder, showing the feed-pawl and ratchet, locking device, and manner of operating the same. Fig. IV is a section of the button and staple holder, guide, and feeder, showing the same in plan. Fig. V illustrates the discharging-wedge, looking at the same in plan.

In the drawings, A represents a base from which projects upwardly a cylinder or standard A'. The bore of the cylinder A' is formed sufficiently large to receive a spindle B, the spindle B playing freely in a vertical direction in said bore.

B' represents an arm which extends outwardly from the spindle D, and is preferably formed integral therewith. At the outer end of the arm B' is secured the upper end of a plunger C. The manner of securing the plunger C to the arm B' is shown more clearly in Figs. I and II, and consists in forming an aperture or hole b at the outer end of the arm B', through which passes the screw-threaded upper portion of the plunger C. This screw-threaded portion of the plunger C is engaged by clamping-nuts c c', one located above and the other beneath the arm B'. This clamps the plunger in position on the arm B' and allows it to be adjusted relative thereto.

D represents a housing which receives and guides the lower end of the plunger C. The housing D is preferably formed integral with the standard or cylinder A', but, if desired, it may be secured thereto in any suitable manner. The lower end of the plunger C is concaved or recessed, as at c<sup>2</sup>, this recess c<sup>2</sup> being just deep enough and wide enough to receive the upper portion of a shoe-button.

B<sup>3</sup> represents a spiral spring which is located on the interior of the spindle B and engages the cap B<sup>2</sup> of the spindle B at the upper end of said spring, the lower end of the spring B<sup>3</sup> resting upon a pin A<sup>2</sup>, which passes from side to side through the cylinder or standard A' and through slots d', formed in the spindle D. Only one of the slots B' is shown in the drawings, being illustrated in Fig. II; but it is evident that two are required and provided. The function of spring B<sup>3</sup> is to return the spindle B to its highest position after it has been depressed for the purpose of securing the button, as will be hereinafter set forth.

The position of the machine when at rest is illustrated in full lines in Fig. II. Said dotted lines illustrate the position of the parts during the operation of securing the button in place.

E represents a plunger which is housed and moves vertically in a housing F. Housing F is preferably formed integral with the base A and extends upwardly therefrom. In order to retain the plunger E in place and prevent it from revolving, I provide said plunger with a slot e, which is engaged by the inner end of a set-screw f, thus allowing the free vertical movement of said plunger and preventing it from turning.

G is a lever fulcrumed to a bracket or lug G', which extends downwardly from base A. At its inner end g the lever G is rounded and engages in the slot or aperture a, formed in the lower end of the spindle B. The outer end g' of the lever G rests in an orifice or slot e', formed in the plunger E. Thus it will be seen that as the spindle B is depressed it acts upon the end g of the lever G, depressing it, which in turn acts to elevate or raise the end g', which engages the aperture, elevating the plunger E. At the upper end of plunger E



is suitably secured a clenching-die E', which acts, in conjunction with the plunger C, and its concave portion  $c^2$ , to first hold the button down on the feeder, which will hereinafter be described. Then as the clenching-die E' is raised the points of the staple are caused to pass through the fabric of the shoe and afterward clenched in the usual manner.

I will now proceed to describe the apparatus for holding, feeding, and guiding the button with its attached staple.

H represents a bracket or bed which is secured to the cylinder A' in any suitable manner. This bracket or bed H forms the bearing for a slide J, which is secured in the bed H in any suitable manner, but preferably by means of cleats  $h$   $h'$ , the cleats  $h$   $h'$  being secured to the housing or bearing and extending toward each other beneath a slot  $h^2$ , so as to include a rack H', which is secured to the upper end of slide J.

K represents the button holder, feeder, and guide-plate proper. This feeder or guide K is removably secured to the underside of the slide J in the following manner: At one end of the slide K, as at  $k$ , (shown more clearly in Figs. I and IV,) I provide a slot or opening  $k'$ . This slot or opening engages a headed stud  $j$ , which is secured to the slide J. At the opposite end of the holder or guide K is provided a spring-pin  $K^2$ , the upper end of which fits in an aperture or hole  $j'$  in the slide J. This secures the holder or feeder K from horizontal displacement. In order to secure the holder K from vertical displacement as regards the slide J, I provide a ledge or seat  $K^3$  at either side of the cylinder A' and underneath the holder, guide, and feeder K. At the forward edge of the guide-plate K it is provided with a series of openings or slots  $k^2$ , the width of which is sufficient to accommodate the thickness of the wire forming the eye of the button, but allowing the same to easily pass into and out of the slot at the upper portion of the several openings or slots  $k^2$ . I countersink or chamfer them to allow of any irregularity on the under surface of the button where the eye is attached, thus allowing the button to rest flatly or snugly on the upper surface of the holder and guide K, as shown in Fig. I. Upon the under surface of the guide or holder K, as at  $k^4$ , I also countersink or chamfer slots  $k^2$ , so as to conform to the upper portion of the staple  $k^5$ , as shown also in Fig. I, to the left of the figure. Thus it will be seen that the button, with its attached staple or fastener, is securely and snugly held in position on the holder and guide K, and when acted upon by the lower part of the plunger C is held firmly to the plate, so that the plunger E, with its clenching-die E', as it rises will force the leather against the point of the staple, thus causing the staple-points to pierce the same and will afterward clench the staple-points by turning them in the groove  $e^2$  of the clenching-die.

The manner of feeding or advancing the guide and holder K during the operation of the machine is as follows: Engaging the rack H' is a pinion L. The pinion L is in turn secured to a shaft L', which is suitably journaled in a bearing L<sup>2</sup>, secured to the cylinder A'. At the opposite end of shaft L' is secured a ratchet-wheel M, having a suitable number of openings  $m$   $m$ , predetermined according to the desired length of the feed or advancement of the feeder and guide K. Engaging the ratchet-wheel M is a spring-pawl M', which may be engaged or disengaged in the usual manner from the ratchet-wheel M. The pawl M' is loosely mounted at its lower end upon shaft L', so as to freely oscillate thereon.

N represents a pitman secured at its upper end to an arm O, extending out from the upper end of the spindle B, or, more properly speaking, extending out from and attached to the cap B<sup>2</sup>. This pitman N at its lower end is suitably secured to the housing containing the pawl M'. Thus it will be seen that as the spindle D is raised or lowered the pawl M' will engage with an opening  $m$  in the ratchet-wheel M and will turn the ratchet-wheel M a predetermined distance, which in turn will revolve the pinion L and advance the feeder and guide K.

In order to prevent a reverse movement of the ratchet-wheel M and with it a reverse movement of the guide or holder, I provide a locking-pawl P, of the same construction as the pawl M'. The pawl P is secured in proper position to the cylinder A'. This pawl P may be also disengaged from the ratchet-wheel M. The object of disengaging the pawls M' and P from the ratchet-wheel M is to allow of the feeder or guide K being returned to its starting-point, as will be readily understood.

The operation of my device is as follows: A suitable lever having been secured to the spindle B at its lower end, either by means of a rod R or in any other suitable manner, and the holder, feeder, and guide being supplied with buttons, as shown at  $k^5$  in Fig. I, the fabric to which the buttons are attached is placed over the clenching-die  $d^2$  in proper position, and a button with its attached staple being beneath the orifice  $c^2$  in the plunger C the spindle B is lowered. This brings the orifice  $c^2$  upon the button-head, holding it firmly, as shown by dotted lines in Fig. III, onto the holder, feeder, and guide K. By this time the end  $g$  of the lever G is engaged by the upper part of the slot  $a$  and depressed. This raises the plunger E and with it the clenching-die E', forcing the points of the staple through the fabric and afterward clenching the staple, as indicated by dotted lines in Fig. II. After the above has been accomplished spring B<sup>3</sup> acts to return the spindle D to the position shown in solid lines, Fig. II, and as said spindle is being returned to its position the pitman N operates



the pawl M', so as to engage the ratchet M, as hereinbefore described, and feed the next button with its attached fastener beneath the plunger C and above the clenching-die  $e^2$ , and then the operation is repeated until the holder K is emptied.

The holder K may be filled on the machine, or, if desired, may be detached therefrom by loosening or pulling out the spring K<sup>2</sup> and then refilled. Several of the holders may be provided with a single machine, if desired.

As illustrated in Fig. V of the drawings and also in Fig. I, I provide a wedge-shaped projection T, which extends out from the brackets or bed H. The function of this wedge-shaped projection is to force the buttons out of the slots  $k^2$ , after they have been attached to the fabric of the shoe, as the holder or feeder K is advanced.

What I claim is—

1. In a button-setting machine of the type described, the combination with the upper and lower reciprocating dies; of a horizontally-movable button and staple guide and feeder, said guide and feeder provided with means, substantially such as set forth, for holding the buttons and staples, and means, substantially such as set forth, operating between the upper plunger and the button and staple feeding device, whereby said button and staple feeding device is intermittently operated or advanced by the return movement of the upper plunger, substantially as and for the purpose shown and set forth.

2. A button-fastening machine of the type set forth comprising two oppositely-moving dies operated by one and the same plunger; suitable means, connected with said plunger, for operating said dies in opposite directions, a horizontally and intermittently movable

button and staple carrying device operating between said dies, and means, substantially such as described, connecting the plunger and the feeding device, thus operating the plunger-die and the clenching-die and, also, the button and staple feeder, substantially in the manner and for the purpose set forth.

3. In a button-setting machine of the type set forth, the combination with a spindle, B, plungers, C and E, and intermittently-movable button and staple feeding device, said staple and button feeding device provided with a rack, H', a pinion, L, meshing with said rack, a ratchet-wheel, M, for operating said pinion, said ratchet-wheel, in turn, being operated by a pawl device, in turn, operated by the spindle of the machine, substantially as set forth.

4. A button feeding or guiding device for button-setting machines, comprising a horizontally intermittently movable slide J, and a feeding or guide plate removably secured thereto, said feeding or guide plate provided with slots  $k^2$  countersunk at both ends, substantially as and for the purpose set forth.

5. The combination with an intermittently-movable button and staple holder and guide, provided with slots  $k^2$ , of a wedge T located in the path of said feeder or guide so as to engage the buttons after they are set and release the same from said feed, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 19th day of August, 1897.

GEORGE J. FANNER.

Witnesses:

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ELLA E. TILDEN.