

(No Model.)

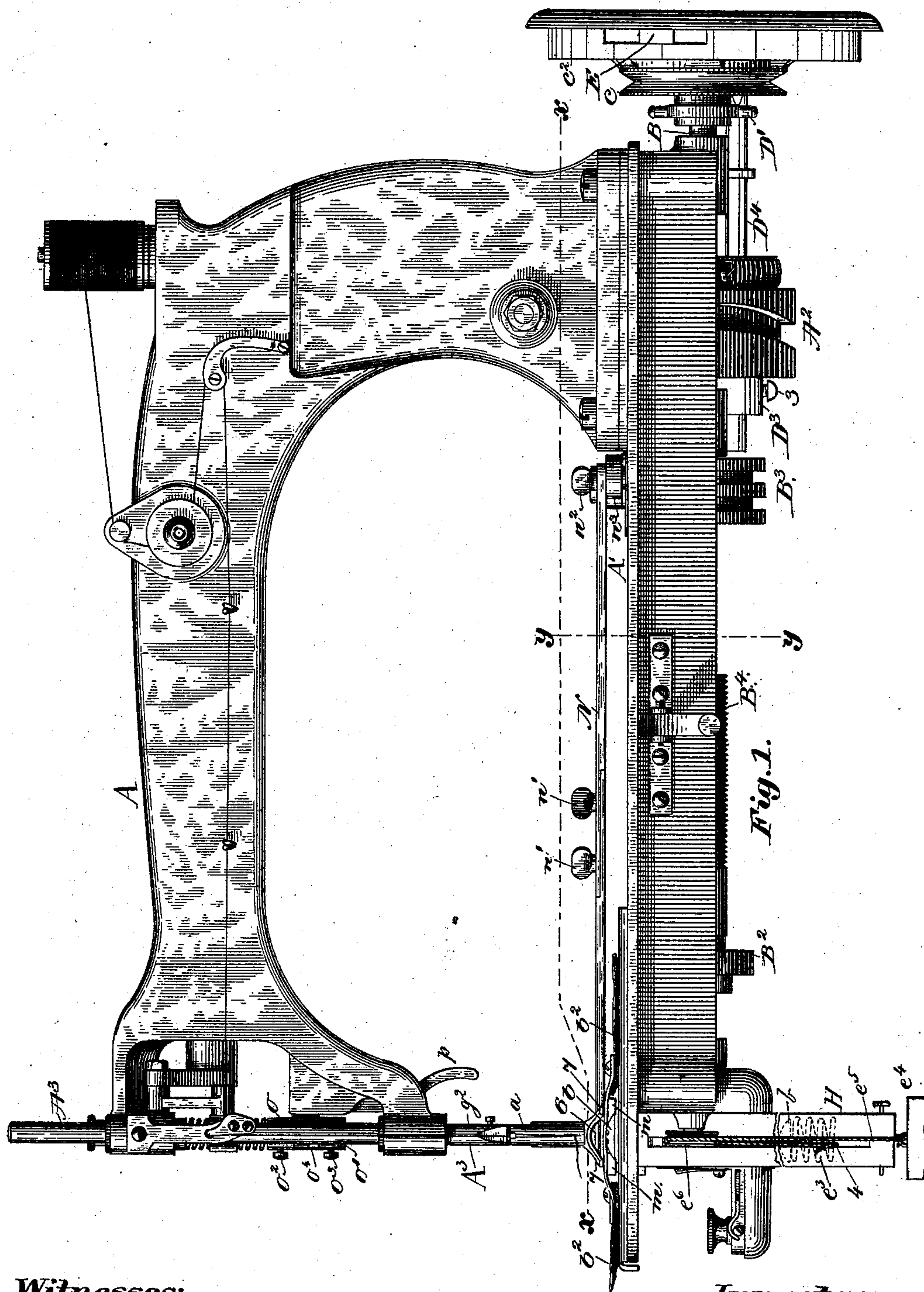
3 Sheets—Sheet 1.

L. J. DRISCOLL.

MACHINE FOR SEWING ON BUTTONS.

No. 290,981.

Patented Dec. 25, 1883.



Witnesses:

Fred A. Powell.

John F. C. Printert

Inventor:  
Lawrence J. Driscoll,

by Crosby & Gregory  
Attorney.



(No Model.)

3 Sheets—Sheet 2.

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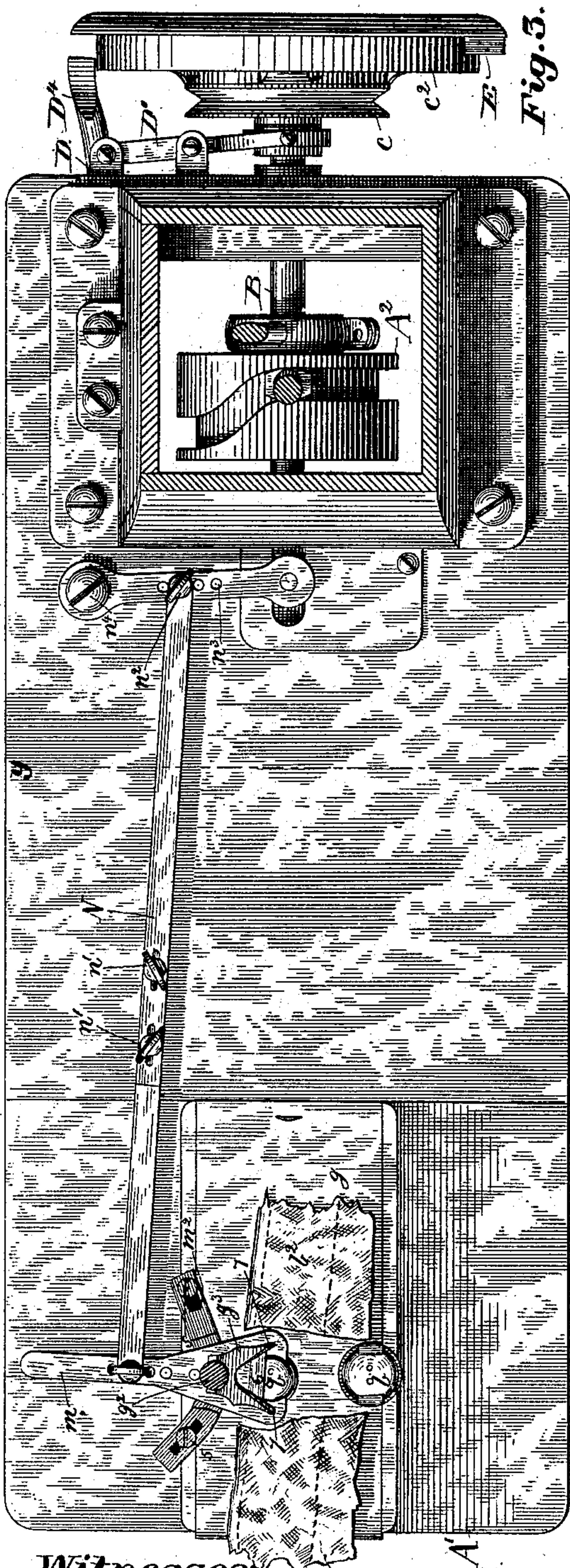


Fig. 3.

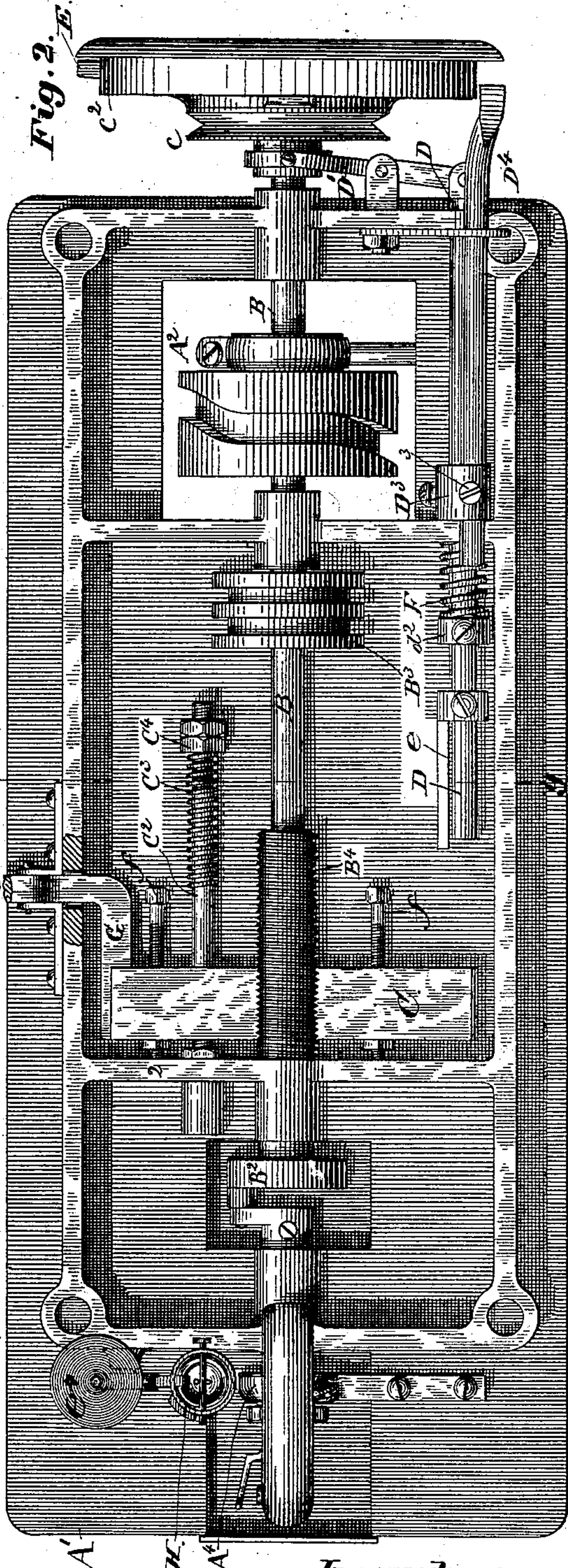


Fig. 2.

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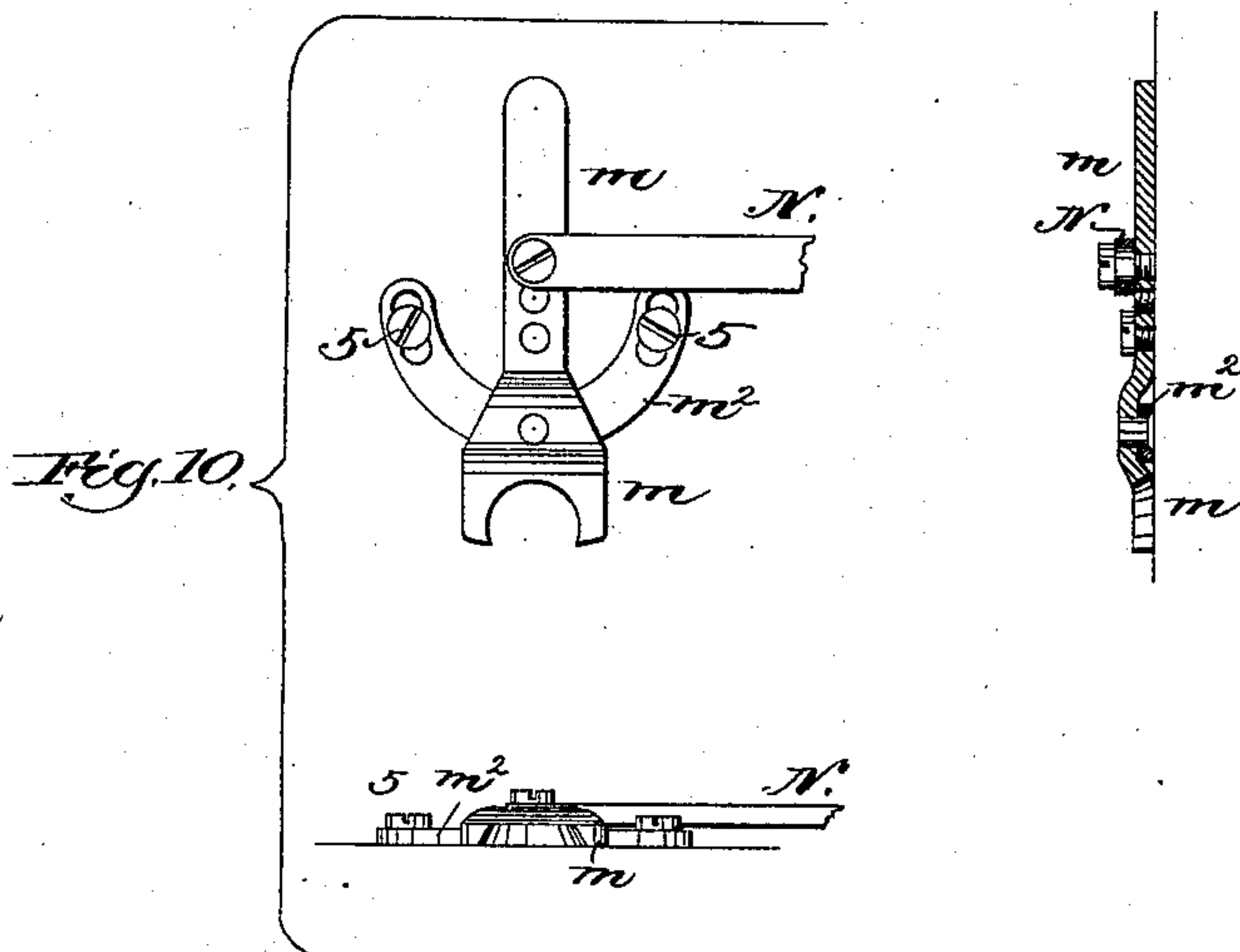
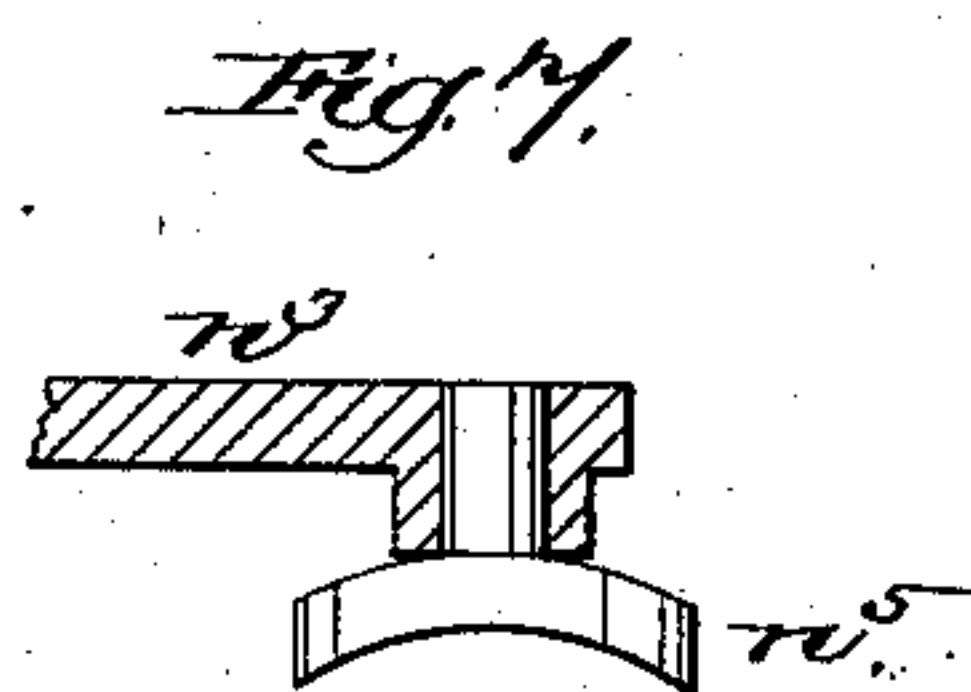
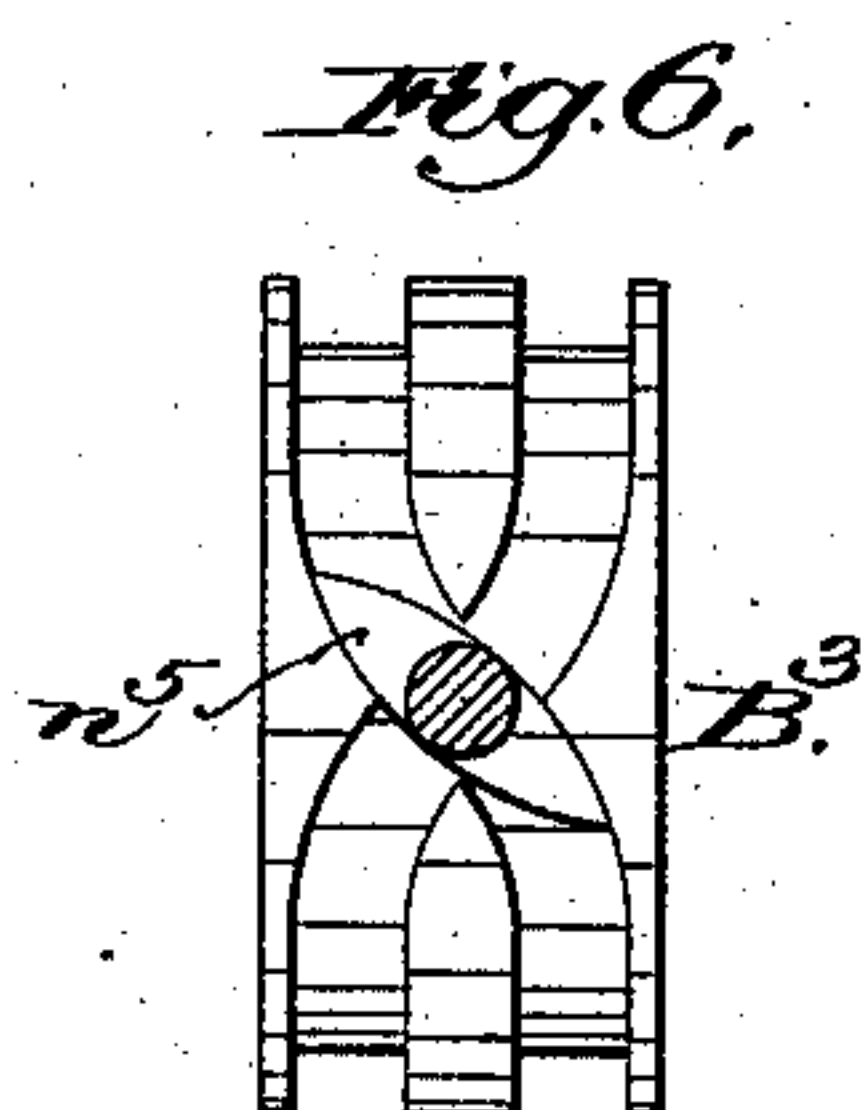
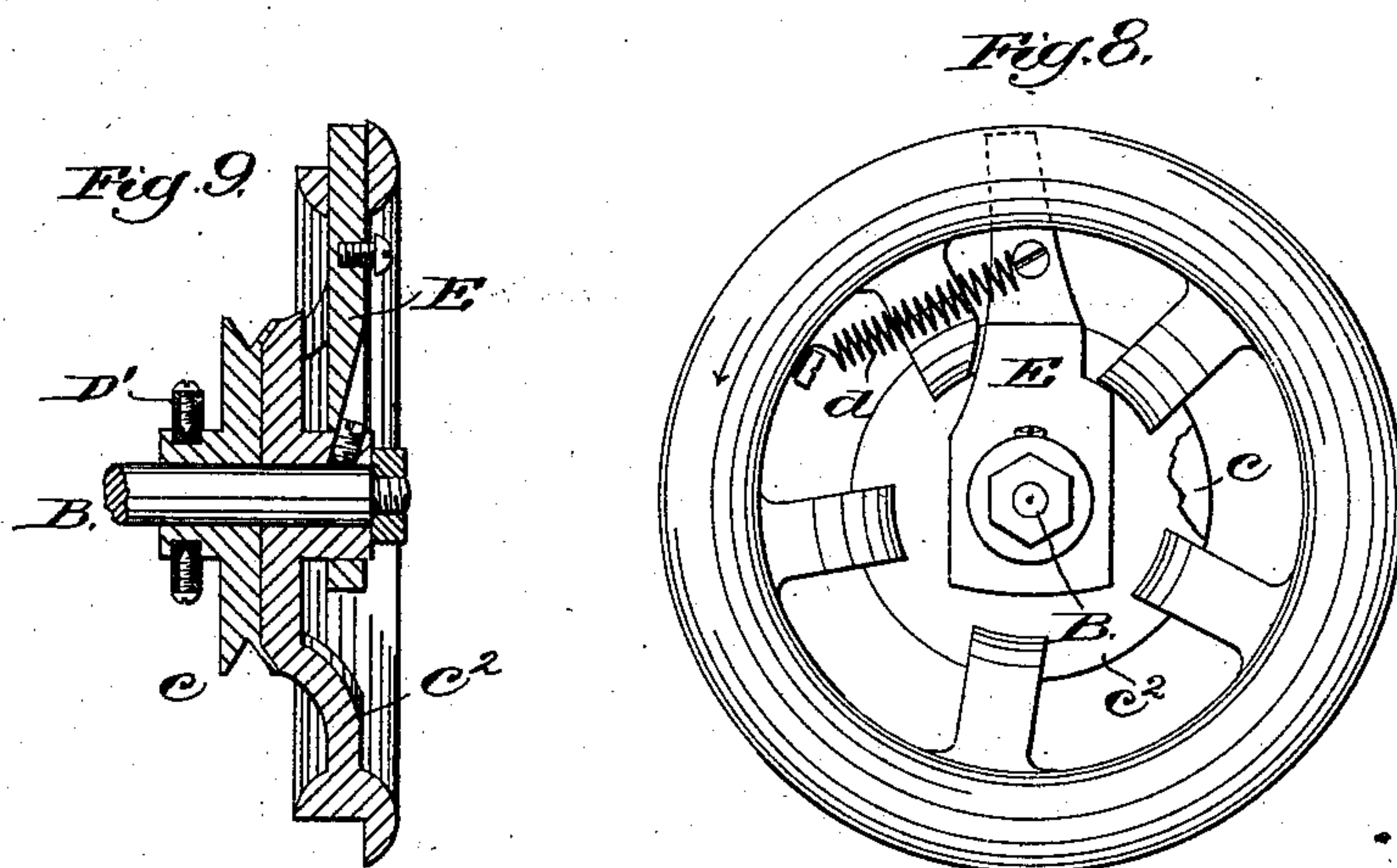
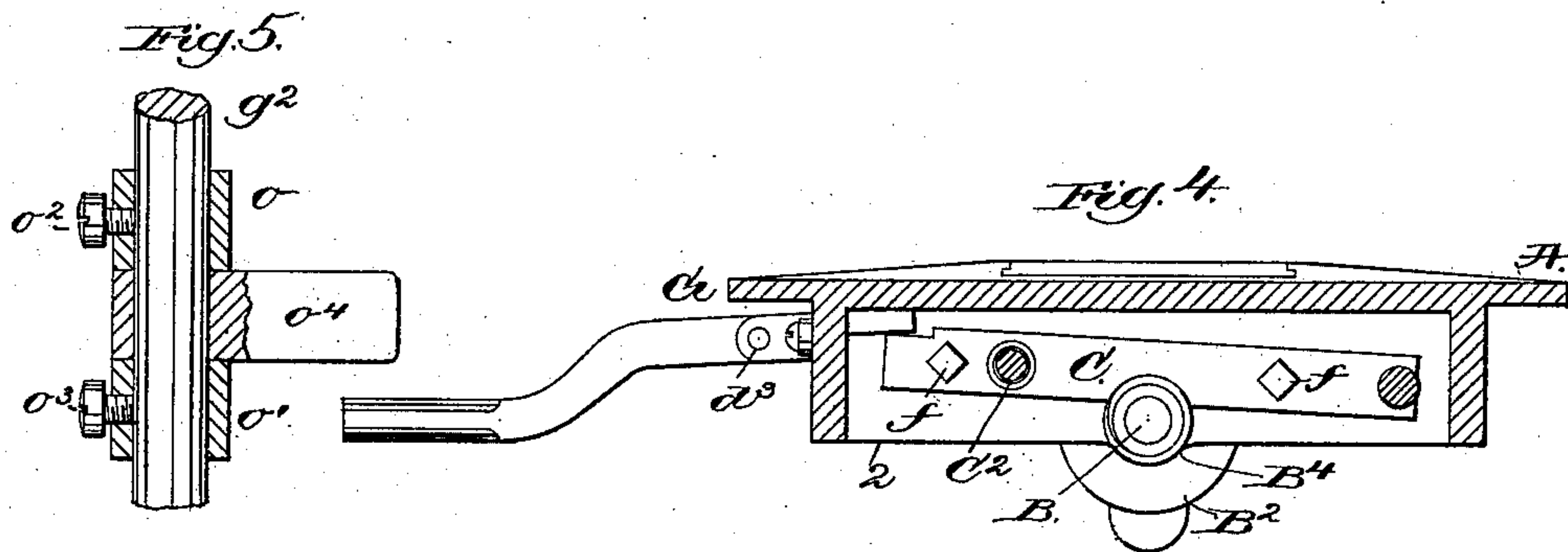
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Fred A. Powell.  
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Inventor,  
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# UNITED STATES PATENT OFFICE.

LAWRENCE J. DRISCOLL, OF SOMERVILLE, ASSIGNOR TO AMANDA M. LOUGEE, OF BOSTON, MASSACHUSETTS.

## MACHINE FOR SEWING ON BUTTONS.

SPECIFICATION forming part of Letters Patent No. 290,981, dated December 25, 1887.  
Application filed April 4, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LAWRENCE J. DRISCOLL, of Somerville, county of Middlesex, State of Massachusetts, have invented an Improvement in Machines for Sewing on Buttons, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to an organized machine by which to sew buttons or other usual fastenings upon fabrics or garments. In the present embodiment of my invention the buttons or fastenings are placed in a gage or centering device connected with the bed-plate of the machine, and made movable, in order to place the eye or opening in the button or fastening in correct position for the entrance through it of the eye-pointed needle, as is necessary to correctly attach the button or fastening. The button rests with its face downward and its back exposed at the top of the gage or centering device, and the fabric or garment to which the button is to be secured is laid upon the back of the button and across the gage or centering device, and the eye-pointed needle descends through the fabric or garment, and then through the eye in the button, and secures the same together, the fabric or garment and the button being held pressed closely together by means of a presser-foot to be described. My improved machine also contains a mechanism whereby the sewing mechanism is stopped automatically when the button or fastening has received the proper number of stitches. I have also provided the machine with a receptacle for a number of buttons, the said receptacle being herein shown as a tube containing a spring and a weight to keep the uppermost button of the pile at the level of the face-plate; but it is obvious that either a spring or weight might serve a like purpose.

My invention consists, essentially, in a sewing-machine provided with a movable button-gage or centering device adapted to hold the button with its face down, and provided with a presser or device to retain the fabric or garment against the back of the button while they are being united.

My invention also consists in the combina-

tion, with sewing mechanism and a button-gage or centering device, of a stop mechanism whereby the movement of the sewing parts is arrested when the proper or predetermined number of stitches have been made through the fabric and button.

Figure 1, in side elevation, represents my invention applied to a Wheeler & Wilson No. 10 machine, with a piece of partially broken-out fabric and a button in position for attachment; Fig. 2, an under side view thereof; Fig. 3, a section on the line *x x*, looking down, the fabric being broken out from between the back of the button and the gage or centering device on the one side and the presser on the other side to better show the parts. Fig. 4 is a section on the line *y y*, Figs. 1 and 2. Fig. 5 is a sectional detail, showing part of the presser-bar and means to lift it. Fig. 6 is a detail of the switch-cam for vibrating or moving the button-gage or centering device; Fig. 7, a detail of the switch entering the grooves of the switch-cam and the lever carrying the said switch. Fig. 8 is a detail of the fly-wheel and devices co-operating therewith to insure the stoppage of the machine with the needle elevated; Fig. 9, a section taken through the fly-wheel, made as a clutch; and Fig. 10, views of the gage or centering device by itself.

The frame-work A, including the bed-plate A', cam A<sup>2</sup>, needle-bar A<sup>3</sup>, needle *a*, and rotating hook A<sup>4</sup>, (shown best in Fig. 2,) are all substantially as in the Wheeler & Wilson machine No. 10, and the said needle-bar, needle, and hook will be supplied with thread and will be operated to form stitches as in the said machine. Instead of the shaft common in the said machine to rotate the hook A<sup>4</sup>, I provide a shaft, B, on which, besides the usual cam, A<sup>2</sup>, and the usual variable speed contrivance, B<sup>2</sup>, I place a cam, B<sup>3</sup>, shown as a switch-cam, and a sleeve, B<sup>4</sup>, having a left-handed thread. The screw-threaded sleeve B<sup>4</sup>, properly pinned or secured to the shaft B, engages a threaded half-nut or carriage, C, placed between the upper side of the sleeve and the under side of the bed-plate, the half-nut or carriage having in this instance as a guide the rod C<sup>2</sup>, supported by the flange 2, and being surrounded by a spiral spring, C<sup>3</sup>,



made adjustable by a nut, C<sup>1</sup>, the said spring acting to return the half-nut C or carriage to its normal position, Fig. 2, after it has been moved back toward the rear of the bed-plate, or to the right in Fig. 2, far enough to permit the desired number of stitches to be made and to stop the machine. The shaft and sleeve B<sup>1</sup> rotate once for each stitch, and as a button, b, such as herein shown requires from ten to sixteen stitches to secure it to the fabric or garment b<sup>2</sup>, it follows that the sleeve B<sup>1</sup> must turn from ten to sixteen times while each button is being connected with the fabric or garment, and the desired number of stitches having been taken, the nut or carriage C strikes the inner end of the shipper rod or bar D, or a piece carried thereby, the said rod being shown as adapted to slide longitudinally in suitable bearings in flanges of the bed-plate, as in Fig. 2, and connected at its outer end with a lever, D', forked or otherwise adapted in the usual manner to engage the hub of the loose part c of the belt or driving-pulley, the part c<sup>2</sup> being firmly secured upon the shaft B, the contiguous faces of the parts c c<sup>2</sup> being shaped and adapted to engage each other as and to constitute a friction-clutch, so that as soon as the nut or carriage C strikes the shipper rod or bar D the lever D' will, by its movement, disengage the clutch parts c c<sup>2</sup>, letting the part c, on which rests the usual driving-belt, run loose on the shaft B.

I desire it to be understood that I may employ any usual or well known and suitable clutching devices instead of those shown. The shipper-rod D has a collar, D<sup>3</sup>, attached to it, and the said collar is made to embrace or receive the stopper-rod D<sup>4</sup>, and the collar and stop-rod are so connected together by a screw, 3, as to place the outer end of the stop-rod in line with an arm, E, placed on or over the hub at the outer side of the part c<sup>2</sup> of the fly-wheel, the said arm being held by a spring, d, so that the wheel c<sup>2</sup>, turning in the direction indicated by the arrow, Fig. 8, will yield a little as the arm strikes the said stop D<sup>4</sup>, and obviate shock.

The spring F on the rod or bar D, and acting at one end against the collar d<sup>2</sup>, serves to throw the rod D to the left in Fig. 2 when the half-nut or carriage C is lifted from the sleeve B<sup>1</sup> by the catch G, made as a lever having its fulcrum at d<sup>2</sup>, as best shown in Fig. 4. The spring F is of proper strength to effect the engagement of the two parts c c<sup>2</sup> of the friction-clutch and maintain the said parts pressed together with the force necessary to drive the machine, the collar d<sup>2</sup> being made adjustable for such purpose. The half-nut or carriage, which is moved by the screw-threaded sleeve, will preferably always start from the same point, and will be moved toward the right (see Fig. 2) for a greater or less distance, in accordance with the number of stitches to be made while uniting the button to the fabric or garment, and to effect the variable stopping of the machine I apply to the rod D an ad-

justable block or projection, e, so that the half-nut or carriage C may strike the same sooner or later during its movement toward the right of Fig. 2.

If desired, I may provide the carriage C with adjusting-screws f f, as in Fig. 2, the position of which will determine the extent of its movement toward the left in Fig. 2, permitting it to move a greater or less distance, according to the number of stitches to be made while securing a button in place; but in such modification the screw-threaded sleeve will always move the carriage a certain definite distance to the right of Fig. 2.

The buttons b, herein shown as having two eyes, are piled or stacked in a tube, H, suitably supported by the frame of the machine, and, as herein shown, the open upper end of the tube is placed immediately below an opening made in the bed and throat-plate g, as best shown in Fig. 3. The button-receptacle contains a spiral spring, e<sup>3</sup>, upon which the buttons rest, and the receptacle is slotted at one side to receive a suitable hook, which is attached to a cord, e<sup>5</sup>, extended over a pulley, e<sup>6</sup>, and having a weight, e<sup>4</sup>, attached to it, to lift the said spring, that it may act as a movable bottom for the receptacle or tube H. The spring, besides acting as a bottom piece or follower for the button-receptacle and a support for the pile of buttons, one of which is shown in dotted lines, Fig. 1, also acts when the buttons of the pile have nearly all been fed out to lift the buttons constituting the bottom of the pile into position substantially flush with the top of the bed-plate, so that the said buttons, as well as all the others which preceded them, may be moved by hand or otherwise into position between the forked arms of the button-guide or centering device m. This guide m is pivoted upon the bridge or ledge m<sup>2</sup>, and adjustably attached to the bed of the machine by screws 5, so that the said gage or centering device is elevated somewhat above the throat-plate g, the pivotal point of the said gage being preferably in line with the axis of the presser-bar g<sup>2</sup>, the latter having an open presser-foot, g<sup>3</sup>, one part, 6, of which extends over the fabric above the back of the button, while the parts 7 of the said foot press the fabric against the upper side of the gage or centering device, the parts m and g<sup>3</sup> serving to clamp the fabric between them and hold it in place while the eye-pointed needle of the sewing-machine enters the fabric and passes through one of the eyes of the button, on the back of which the fabric is lightly pressed by the part 6 of the foot, the said button being retained from lateral movement, except at the desired times, by the shape of the opening in the said gage m. This gage m has adjustably attached to it a link, N, also preferably made adjustable longitudinally by screws n', and preferably attached in an adjustable manner, by the screw n<sup>2</sup>, with the lever n<sup>3</sup>, pivoted at n<sup>4</sup>, and provided at its other end with a shoe, n<sup>5</sup>, (see Fig. 7,) which is pivoted to the said



lever, and enters the grooves of the switch-cam  $B^3$ , the rotation of the said switch-cam moving the lever and connected gage  $m$ , so as to place the button under the eye-pointed needle in such position that the said needle will descend first through one and then through another hole in the button, and by adjusting the connection of the parts referred to the movement of the gage, which serves the function of a button-holder, may be for a greater or less distance prior to each descent of the needle, in order to adapt the apparatus to operate with buttons having their eyes more or less separated. The open or forked presser  $g^3$  straddles the button  $b$ , and to operate correctly must move in unison with the gage or centering device  $m$  as it is moved to place the eye of a button in position to be stitched. To enable this to be done, I have made the presser-bar to extend loosely through all its bearings, and also through the arm or block  $o^4$ , which co-operates with the lifting-lever to lift the said bar and foot, and I have provided the shank of the presser-bar  $g^2$  with two collars,  $o o$ , made adjustable thereon by screws  $o^2 o^3$ , so that the presser-bar is free to oscillate or turn in its bearings with and as the gage or centering device is moved, as described. The presser-foot-lifting lever  $p$ , common to the said Wheeler & Wilson machine, acts upon the arm or block  $o^4$  to lift the presser-foot, the said arm acting against the collar  $o$ . The back of the button is substantially flush with the top of the gage or centering device, and the latter serves to place and hold the eye of the button directly in contact with the throat-plate  $g$ , and just above the needle-hole therein.

In another application to be filed I shall show automatic mechanism by which to transfer the buttons from the receptacle into position under the fabric and needle, either two or four eyed buttons; and I shall also soon file an application for United States patent on a modification of my invention for holding hooks or eyes while sewing the same to a fabric or garment.

I have herein shown the sewing mechanism as of the Wheeler & Wilson class; but it will be understood that my improvements might be readily applied to other well-known sewing mechanisms without departing from my invention.

In this my invention the eye-pointed needle always enters the eye of the button from the back thereof, instead of from the front, as in all other sewing-machines known to me, and the needle can therefore never injure or mar the face of the button, and in the operation the needle-thread will be held at greater tension than the bobbin or under thread, so that the under thread will be drawn by the needle-thread up through the eye of the button, the interlocking of the threads being substantially at the surface of or in the cloth.

I claim—

1. In a sewing-machine, a movable gage or centering device located immediately above

the bed-plate, and adapted to receive and hold a button or fastening, and to have a fabric or garment extended over it, combined with a presser to retain the said fabric or garment against the said gage or centering device and across the back of the button, substantially as described.

2. In a sewing-machine having a button-receptacle, a movable button-gage or centering device located immediately above the bed-plate, and adapted to receive and hold a button or fastening, and to have a fabric or garment to which the button or fastening is to be affixed extended over it, combined with a presser to retain the said fabric or garment against the said gage or centering device and across the back of the button, substantially as set forth.

3. In a sewing-machine, the button-gage or centering device pivoted upon a bridge or projection elevated above the bed-plate, and adapted to receive a button under it, combined with means to vibrate the said button-gage, and with a presser-foot to bear the fabric or garment against the upper side of the button-gage and across the back of the button, the said presser-foot and button-gage being adapted to be moved in unison to enable the button and fabric to be changed in position to receive the needle through the fabric and the eye of the button, substantially as described.

4. In a sewing-machine, a stitch-forming organization, a button-holding mechanism, and feeding mechanism for properly moving the button and fabric with relation to the stitch-forming mechanism, combined with the shaft  $B$ , its screw-threaded sleeve  $B^4$ , carriage  $C$ , fast and loose pulleys on said shaft, and means, substantially as described, between said carriage and pulleys operated by said carriage to effect the stopping of the machine after a given or predetermined number of stitches have been made.

5. In a sewing-machine, the button-gage or centering device and means to move it, combined with the clutch on the main shaft, the carriage, the screw-threaded sleeve, and shipping-rod and means to join it with and to actuate one part of the clutch to release it from the other part, to run loose on the main shaft after the completion of a definite number of stitches, substantially as described.

6. In a sewing-machine, the friction-clutch parts  $c c^2$  and an arm mounted on the said part  $c^2$ , combined with the stop-rod, adapted to be struck by the said arm to arrest the main shaft of the machine, and with the movable carriage, screw-threaded sleeve, and means to separate the clutch parts  $c c^2$ , substantially as described.

7. In a sewing-machine, the combination, with the stitch-forming mechanism, of the shaft  $B$ , provided with the threaded sleeve  $B^4$ , the carriage  $C$ , the disengaging-lever  $G$ , and the spring  $C^3$ , substantially as shown and described.

8. The combination, substantially as shown and described, in an organized mechanism for



attaching buttons or like fastenings to garments or fabrics, of stitch-forming mechanism, means to receive and center the buttons or fastenings, means to hold the fabric between  
5 the needle and button, and means to properly move the fabric and button with relation to the stitch-forming mechanism, whereby the needle first enters the cloth, then passes first  
10 through one and then the other of the eyes of the button from the rear, engages the under

thread, and draws it up into the eyes of the button from its face, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LAWRENCE J. DRISCOLL.

Witnesses:

GEO. W. GREGORY,  
B. J. NOYES.