

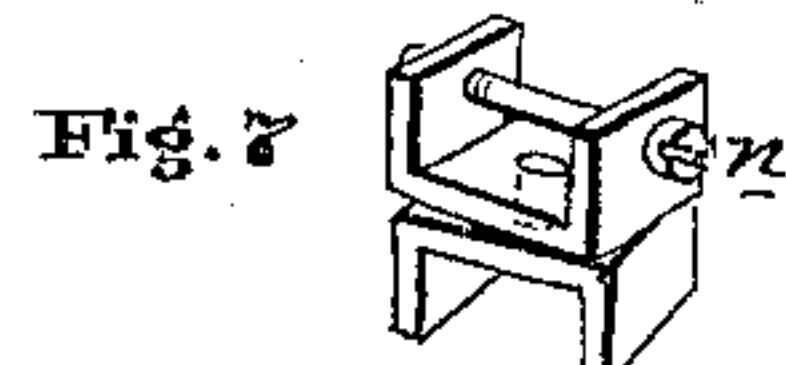
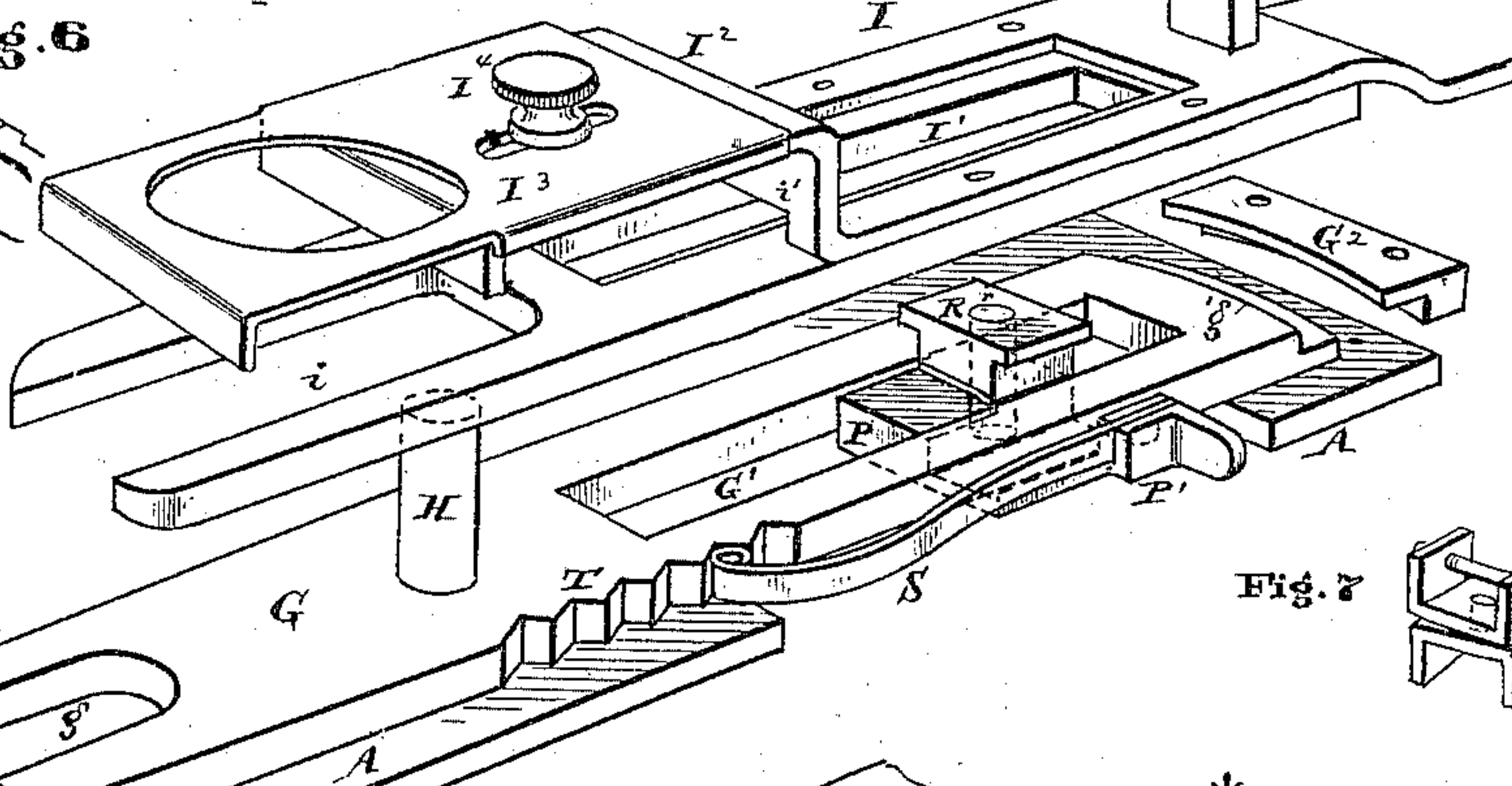
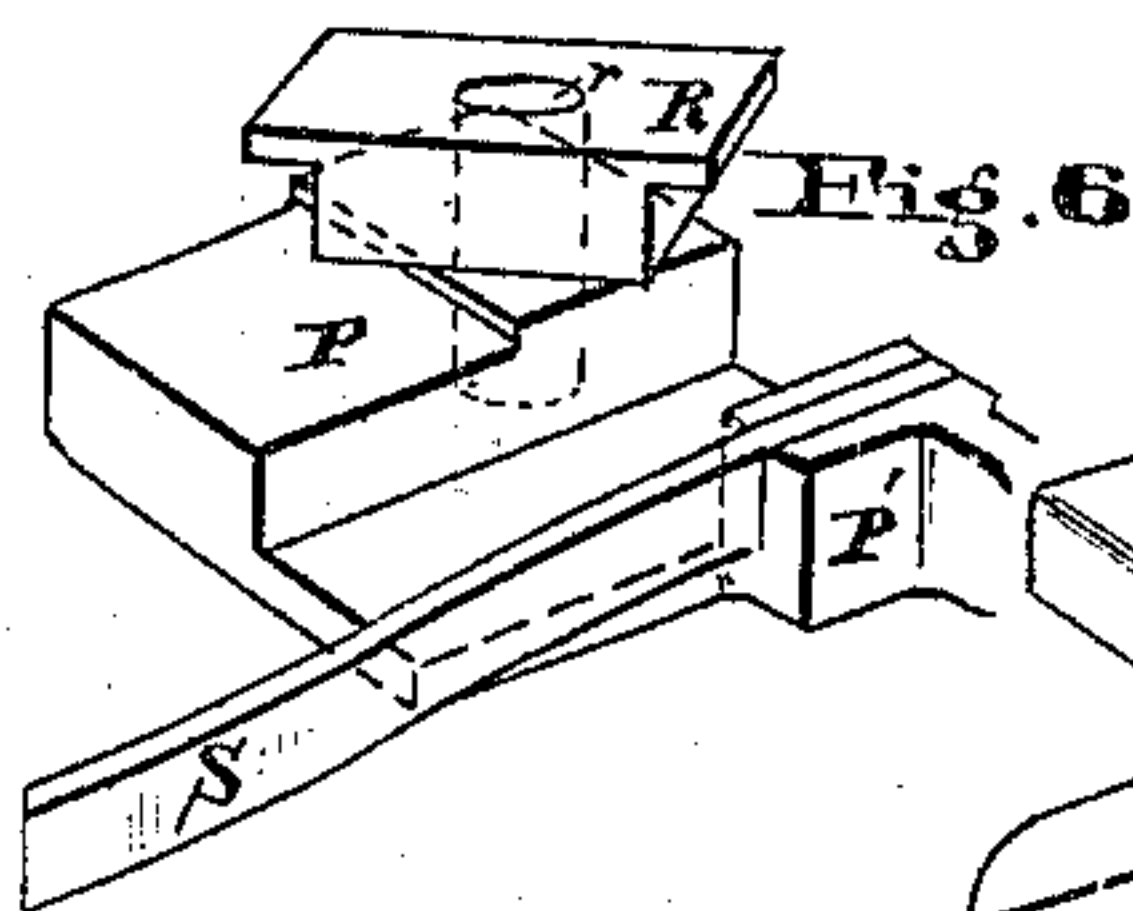
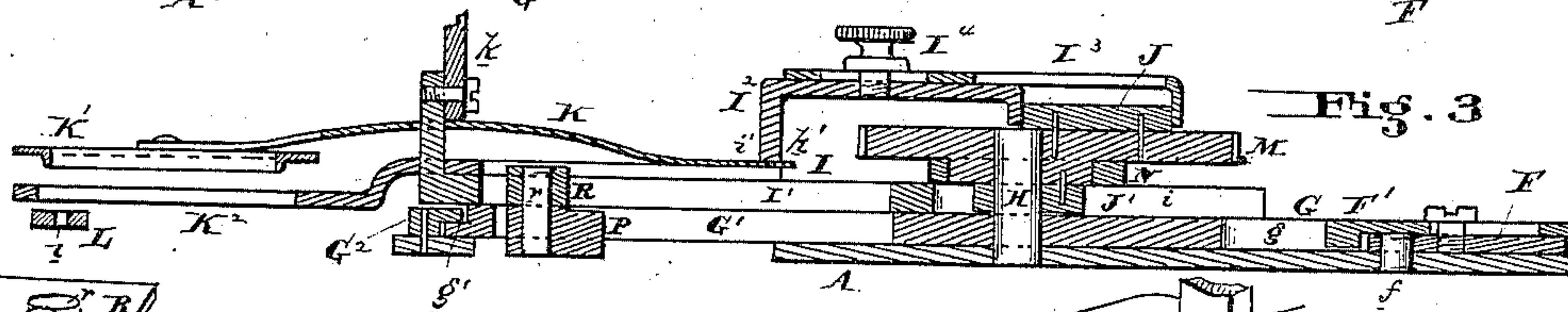
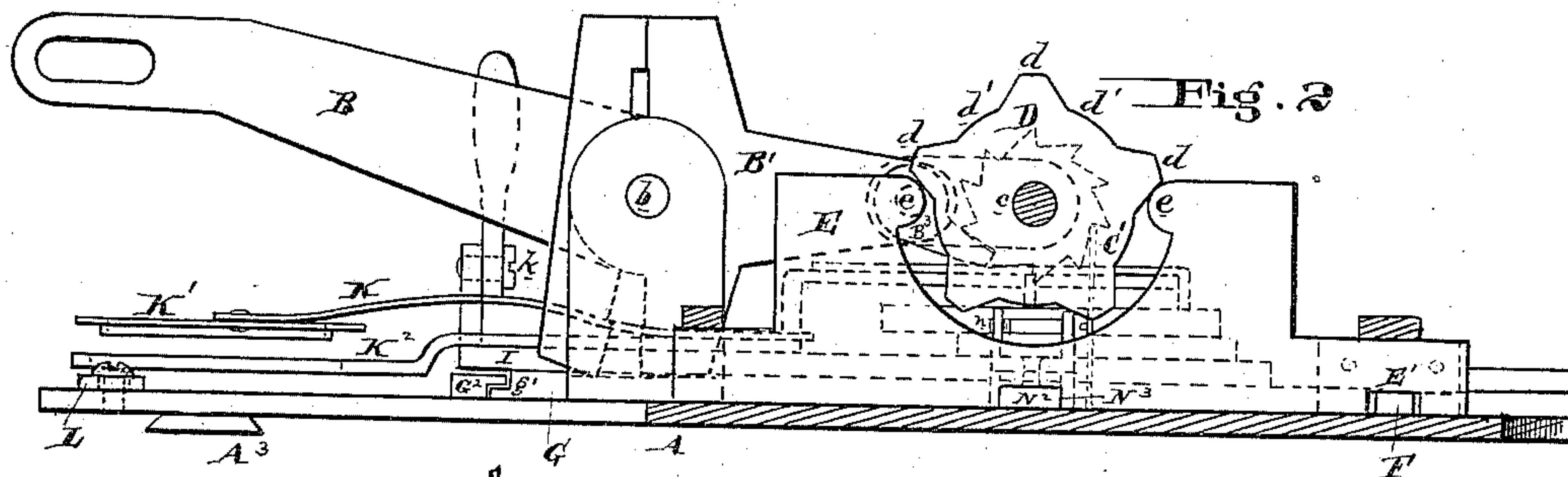
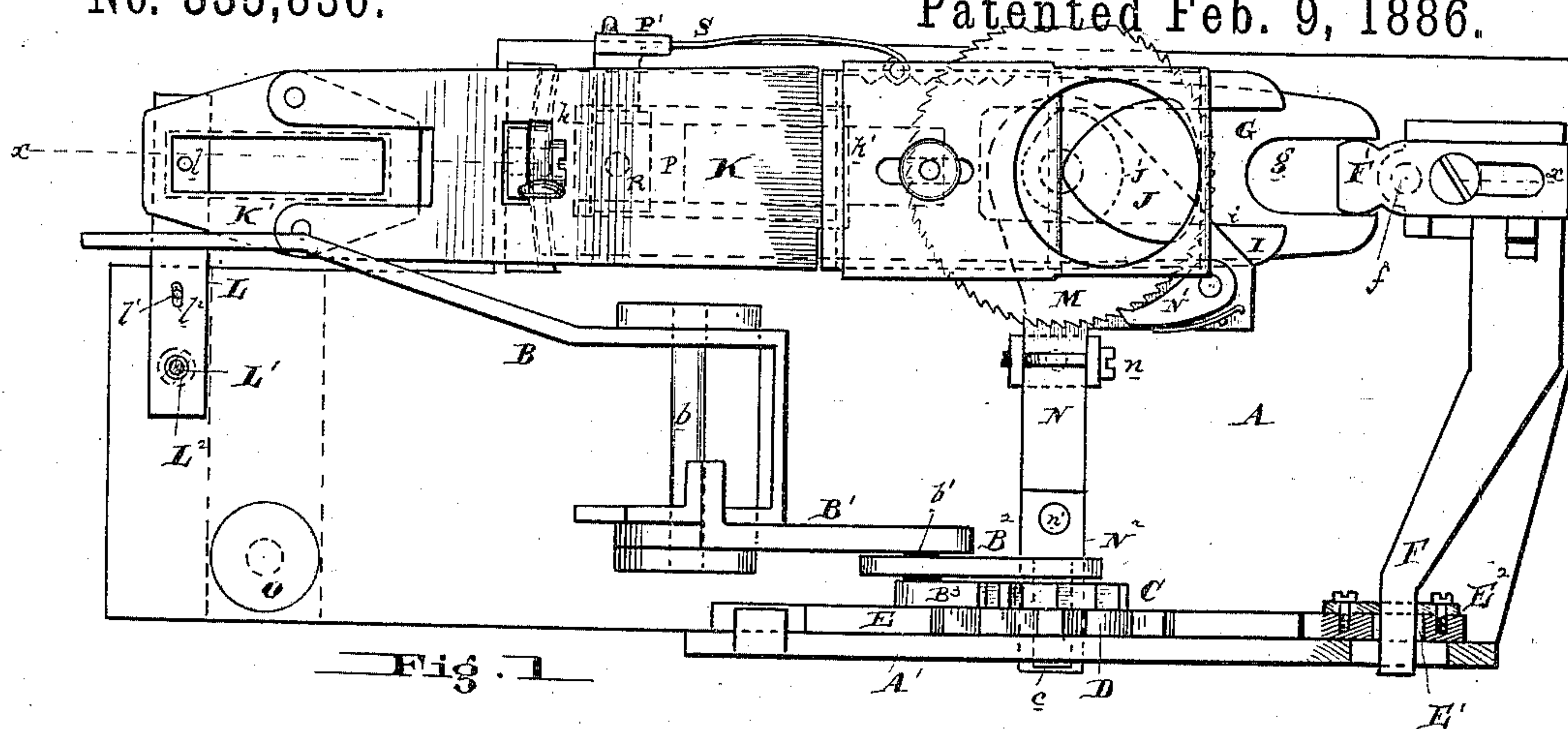
(No Model.)

J. H. PALMER.

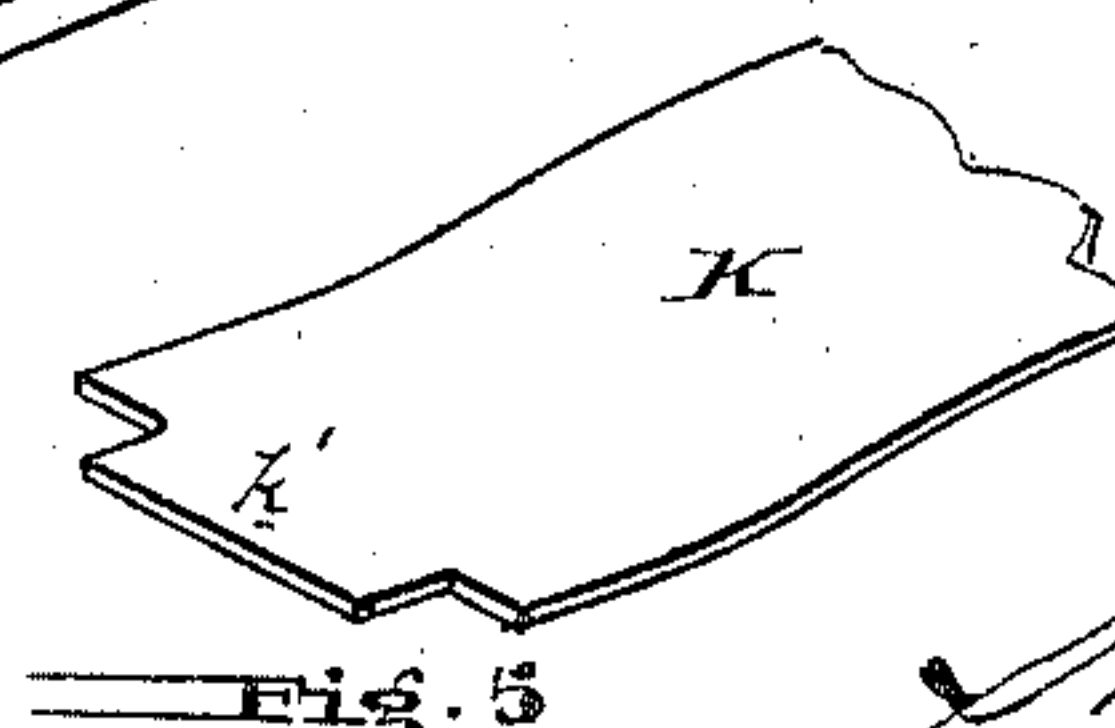
BUTTON HOLE ATTACHMENT FOR SEWING MACHINES.

No. 335,836.

Patented Feb. 9, 1886.



Attest
Homer A. Kerr.
C. M. Breckinred.



Inventor
John H. Palmer
By his atty.
J. H. Palmer

UNITED STATES PATENT OFFICE.

JOHN H. PALMER, OF PHILADELPHIA, PENNSYLVANIA.

BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 335,836, dated February 9, 1886.

Application filed April 28, 1885. Serial No. 163,711. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. PALMER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Button-Hole Attachments for Sewing-Machines, of which the following is a specification.

My invention has reference to button-hole attachments for sewing-machines; and it consists in certain improvements upon the apparatus for regulating or adjusting the positions of the vibrating cloth-holding lever and in details of construction, the same being improvements upon the machine set forth in my application filed January 9, 1885, and Serial No. 152,387, all of which improvements are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof, and pointed out in the claims.

In the drawings, Figure 1 is a plan view of a button-hole attachment for sewing-machines embodying my improvements. Fig. 2 is a side elevation of same with the front part of the base-plate cut away. Fig. 3 is a sectional elevation on line *x x*. Fig. 4 is a perspective view of vibrating and reciprocating levers for operating the cloth-clamp, the same being separated for the purpose of more clearly showing their construction. Fig. 5 is a perspective view of the inner end of the cloth-clamp spring. Fig. 6 is a perspective view of the adjustable hinge-blocks by which the two levers shown in Fig. 4 are connected, and Fig. 7 is a perspective view of the adjustable hinge for regulating the throw of the pawl for operating the intermittently-rotating feed-wheel.

A is the bed or base plate. The two-part lever B B' is made in two parts, the fulcrum of which is at *b*, and the short arm B' of the said lever is connected by the pin *b'* to the pawl B³, the rotation of which about the shaft *c* being insured by the radius-bar B². The ratchet-wheel C, with which the pawl B³ meshes, is securely attached to the cam D, which has an uneven number of projections, *d*, and a corresponding number of depressions, *d'*, upon its outer edge or periphery, the number of which projections and depressions are uneven, so that when the cam is placed between the opposite rounded surfaces *e* of the slide or bar E

and turned around upon its fulcrum or axis *c* the slide or bar is caused to reciprocate in the guides on the part A' of the base-plate A. The spring C' prevents the ratchet-wheel turning backward. It is necessary that the reciprocation of the slide should be in proportion to the vibrations of the lever B B' as one to two, and to secure this proportion the number of teeth on the ratchet-wheel *c* is twice that of the projections on the cam D, and as the ratchet-wheel is advanced in its rotation one tooth by each full vibration of the lever, it follows that the slide or bar is moved one part of its reciprocation only for each full vibration of the said lever B B'. The outer curvature of the parts *d* and *d'* have their working faces made curved and concentric.

To the base-plate A the lever F is pivoted by its fulcrum-pin *f*, and carries the movable short arm F', which is secured thereto by an adjusting-screw and held in position by suitable guides. The short arm F' is movable, so that the amount of vibration of the cam-bearing slide or of the lever G, with which the short arm engages through the agency of the slot *g*, can be varied. The free end of the long arm of the lever F is passed through the slide or bar E, being retained in the desired position within the slot E' by an adjustable plate, E², secured to said slide, and by means of which the said lever directly receives its vibrations. The lever G is pivoted on the vertical pin H, and upon which it is vibrated by lever F, and its free end is provided with a slot, G', and the curved step *g'*, by which it is held down upon the plate A through the agency of the anchor-block G² and under which it is free to vibrate.

I is the cloth-clamp lever, and has a vibrating and reciprocating action imparted to it. It is provided with longitudinal slots I' and *i*, in the latter of which the cam J' works. This lever has the bent part I² secured thereto, one end of which is extended to form the base or lower jaw, K², of the cloth-clamp, and the other end of which is bent over, forming one face, against which the feeding-cam J works, and a support for the adjustable plate I³, provided with a face to inclose the cam on the other side, the said plate being adjustably secured by a screw, I⁴. The part I² has the cut-away part or notch *i'*, under which the tongue

k' of the spring K is inserted, the free end of said spring being connected to the upper jaw, K' , of the cloth-clamp. By this construction the end k' is prevented from rising, and the curvature of the spring K is such that the tendency is to make the jaw K' rise.

k is the cam-clamping lever and acts upon the spring K, depressing it and limiting its upward movement.

M is the intermittently-rotated ratchet-wheel, and is loosely supported upon the pin H, and has detachably secured to it the two cams J and J' , and the latter of which imparts an oscillatory movement, whereby the cloth-clamp is made to move from one side of the button-hole to the other to form the two rows of stitches thereof, and the former of which imparts a longitudinal movement in the direction of the length of the button-hole to the extent of said length. The lever N swings about the pin H as a center and carries the pawl N' , which works in contact with the ratchet-wheel M. One end of the lever N^2 passes through the reciprocating slide-bar E, and is pivoted at n' to the base-plate A, and the free ends of both these levers are connected by the adjustable guides n , clearly shown in Fig. 7, which consist of two guides adapted to receive the said levers, which guides are pivoted together. By moving the guides farther from or nearer to the pivot n' the amount of rotation of the ratchet-wheel M may be varied, being increased or decreased with each reciprocation of the slide E. The levers G and I are connected together by the adjustable hinge-block, (shown in Fig. 6,) in which the two blocks P and R are connected together by a rivet or pivot connection, r . The upper block, R, is made with flanges, which, when the said block is passed through the slot I' in the lever I, rest over the upper portion thereof and hold the said levers I and G together. The block P fits into the guide-slot G' of the lever G, and it has an extension, P' , which projects out from under said lever, and is brought up at the side thereof, and to which the adjusting-spring S is secured. This adjusting-spring S is made to snap into the teeth T on the side of the lever G with sufficient pressure to retain the block P in position when set. As the lever I swings upon the block P, being oscillated by cam J' , any variation of the block P to or from the pin H will vary the amount of said oscillation, and thus increase or decrease the distance between the two rows of stitches. As the ratchet-wheel M is held down by the lever I and its connection, and as the lever I is held down upon the lever G by the hinge-blocks P R, and as this lever G is held upon the plate A by the anchor-block G^2 , it follows that this block really secures all parts upon the said base-plate and greatly simplifies the construction.

L is the needle-plate, and is adjustably secured to the base-plate A, it being provided with a slot, l^2 , and holes L^2 , through which

pins l' and clamping-screw L' , respectively, pass. The slot l^2 in the needle-plate is made with its greatest length in line with the length of the plate, to enable the same to be shifted longitudinally, while the aperture L^2 is made round and of greater diameter than that of the screw L' , which passes through. By this means the needle-plate may be adjusted longitudinally or rock upon the pin l' . To obtain lateral adjustment, the needle-hole l should be brought properly in line with the needle, and when so adjusted the screw L' securely locks the plate in position. The object of this is to enable the said needle-plate to be so adjustable that the needle-hole l shall be located directly under the needle. The adjusting-plate E^2 allows the cloth-clamp to be adjusted relatively to the needle or needle-plate by which the button-hole may be insured to come in such a position as to be worked wholly within the apertures in needle-cloth clamp.

A^3 is the guide-plate to secure the attachment to the sewing-machine, and O is the clamping-screw to rigidly secure it in the desired position.

While I prefer the construction shown, owing to the fact that all parts are adapted to be stamped from sheets of steel, yet it is evident that the details of construction may be considerably varied or modified without departing from my invention.

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

1. In a button-hole attachment for sewing-machines, the combination of the reciprocating plate E with the cloth-clamp levers, the oscillating lever F, arranged to vibrate said cloth-clamp levers, and an adjustable connection between said plate E and lever F, substantially as and for the purpose specified.

2. In a button-hole attachment for sewing-machines, the combination of the reciprocating plate E with the cloth-clamp levers, the oscillating lever F, arranged to vibrate said cloth-clamp levers, and an adjustable connection between said plate E and lever F, consisting of the plate E^2 , adjustably secured to plate E, substantially as and for the purpose specified.

3. In a button-hole attachment, the cloth-carrying clamp and the base-plate A, in combination with the needle-plate L, having slot l^2 and large hole L^2 , and pin l' and clamp-screw L' , substantially as and for the purpose specified.

4. In a button-hole attachment for sewing-machines, the combination of the reciprocating plate E with the cloth-clamp levers, the cloth-clamp, the oscillating lever F, arranged to vibrate said cloth-clamp levers, and an adjustable connection between said plate E and lever F with an adjustable needle-plate, whereby the said plate and cloth-clamp may both be adjusted with respect to the needle, substantially as and for the purpose specified.

5. The combination of the vibrating lever G and mechanism for vibrating said lever, substantially as shown, with base-plate A, pin H,

and an anchor-plate under which a part of the said lever G works and by which it is held down upon plate A, substantially as and for the purpose specified.

5 6. The combination of the cloth-clamp lever I, having slot I', hinge-blocks R P, and vibrating lever G, having slot G', with means, substantially as described, to vibrate said lever G, base-plate A, pin H, and an anchor-plate under which a part of the said lever G works and
10 by which it is held down upon plate A, substantially as and for the purpose specified.

15 7. The combination of lever G, having ratchet I and slot G', means, substantially described, to vibrate said lever G, with pin H, lever I, having slot I' and a cloth-clamp carried by said lever, and hinge-blocks P R, provided with the adjusting-spring S, substantially as and for the purpose specified.

8. The lever I, having the slots I' i and plate I², in combination with piece I³ and adjusting-screw I⁴, substantially as and for the purpose specified.

9. The lever I, having piece I², provided with the lower jaw, K², and notch i', in combination with spring-plate K, carrying upper jaw, K', and having its rear end, k', placed in the notch i', and clamping-lever k, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. PALMER.

Witnesses:

R. M. HUNTER,

E. M. BRECKINREED.