

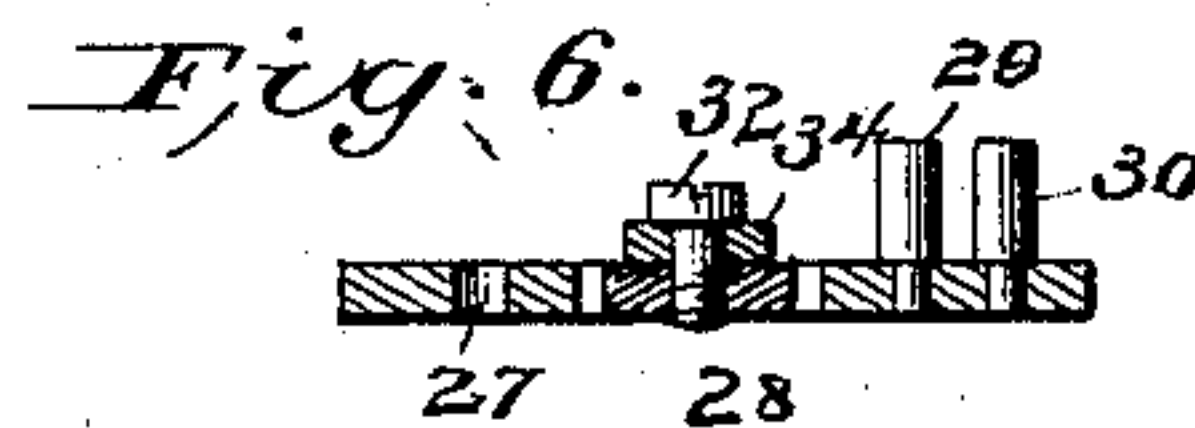
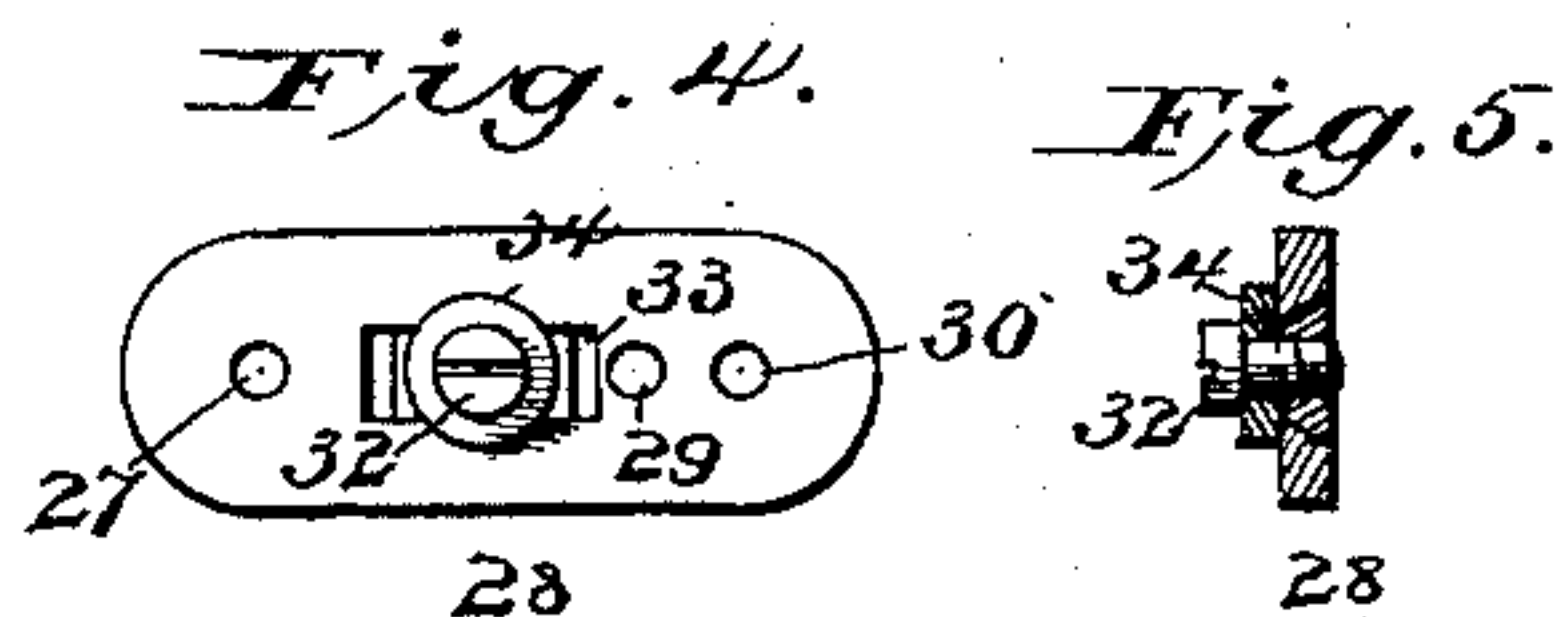
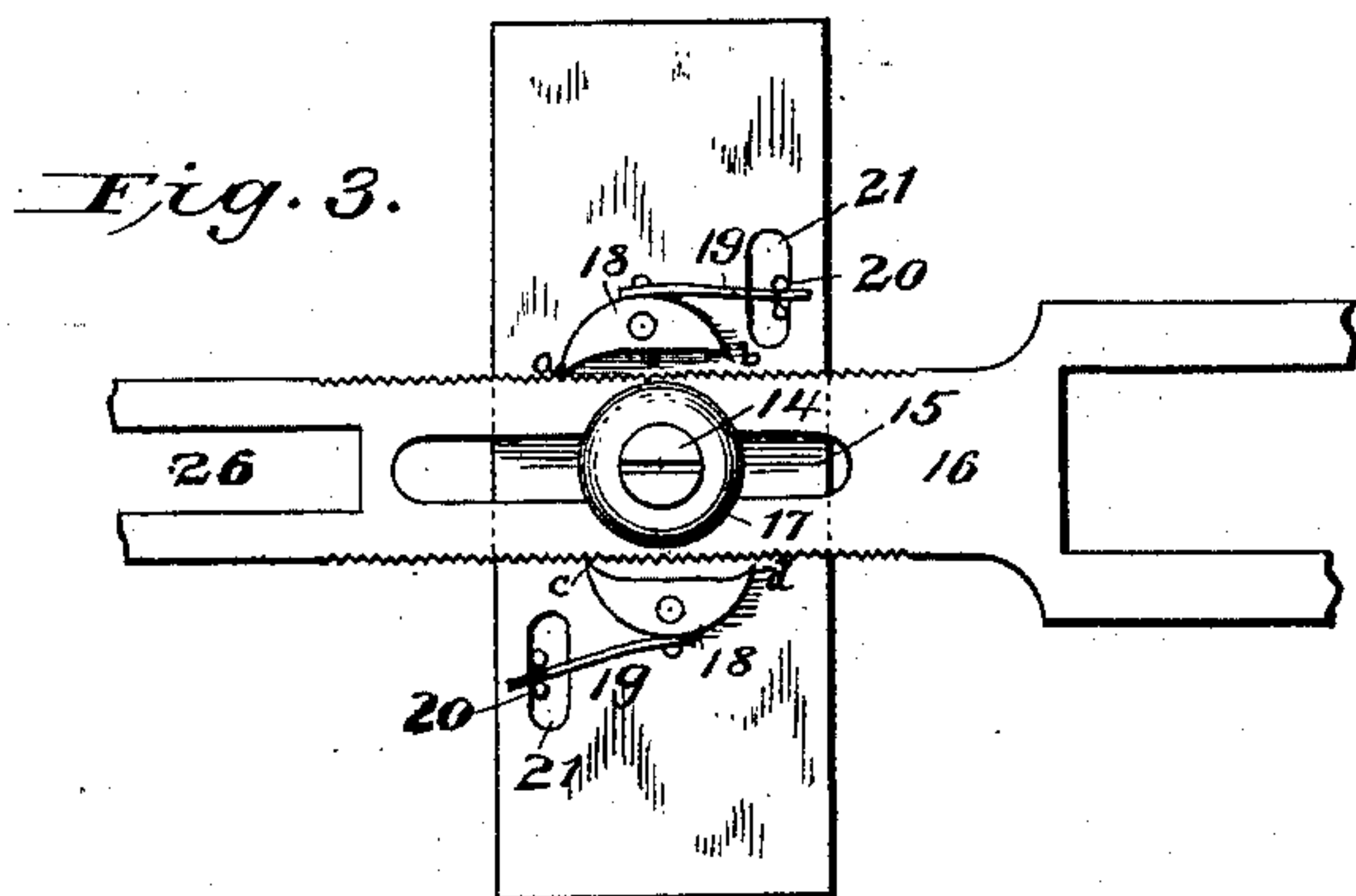
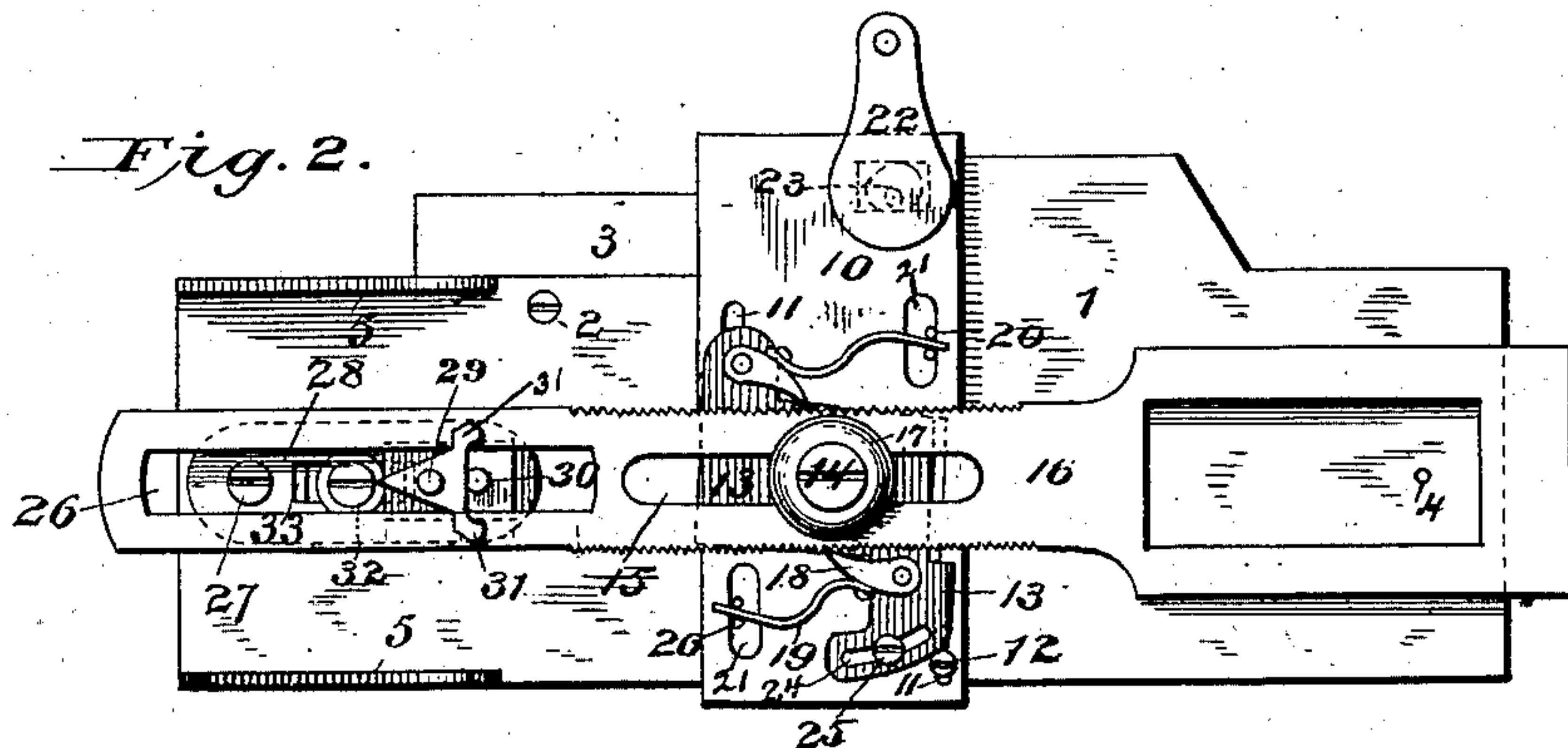
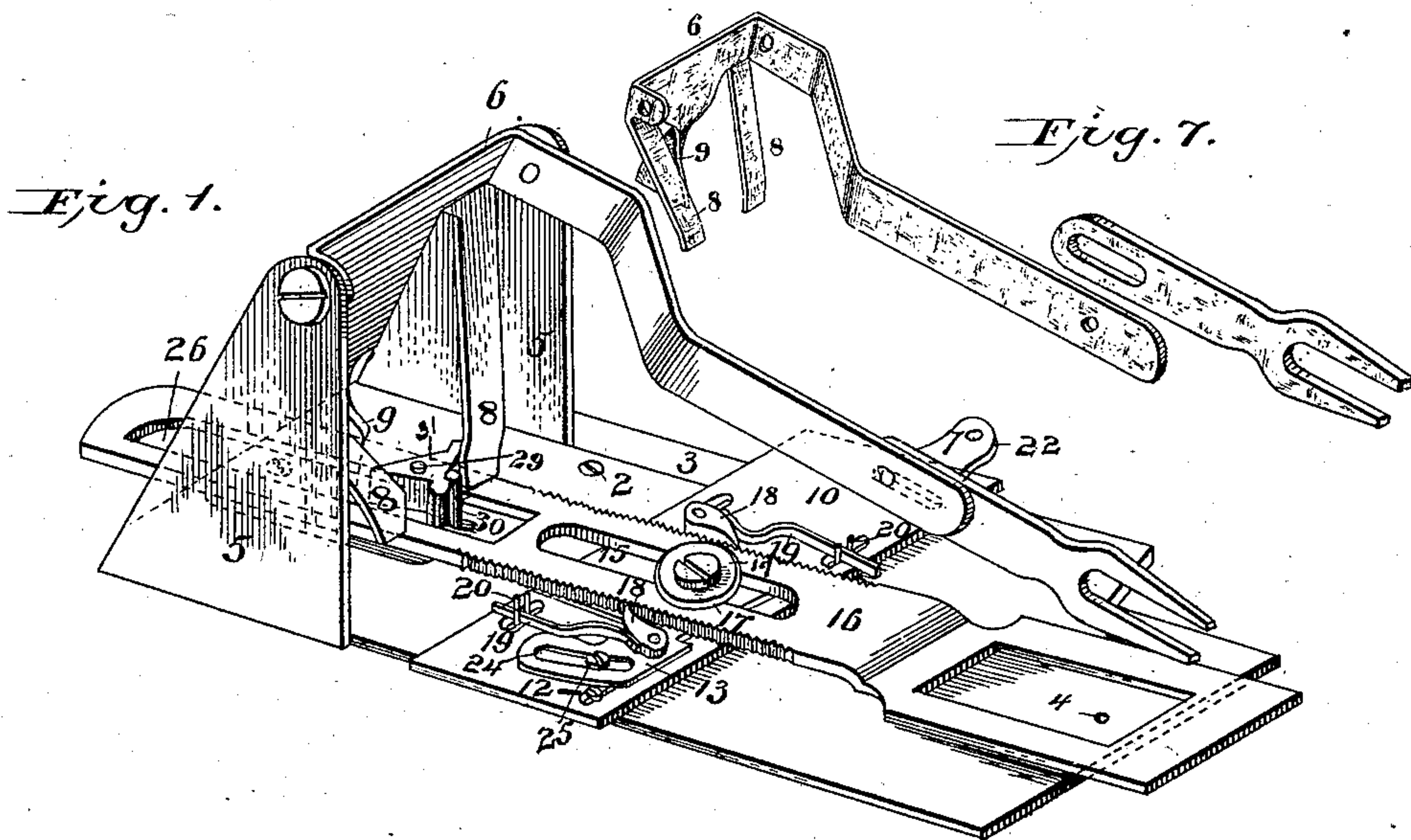
(No Model.)

H. C. HARTLEY & J. L. RODGERS.

BUTTON HOLE ATTACHMENT FOR SEWING MACHINES.

No. 279,563.

Patented June 19, 1883.



Witnesses.

A. M. Loag.
Herbert Wright

Inventors.

Henry C. Hartley
James L. Rodgers
184 Spring St. Boston

Attys.

UNITED STATES PATENT OFFICE.

HENRY C. HARTLEY AND JAMES L. RODGERS, OF SPRINGFIELD, OHIO.

BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 279,563, dated June 19, 1883.

Application filed July 31, 1882. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. HARTLEY and JAMES L. RODGERS, citizens of the United States, residing at Springfield, in the county of Clarke and State of Ohio, have invented Improvements in Button-Hole Attachments for Sewing-Machines, of which the following is a specification.

The subject of our invention is an attachment, to be operated by the needle-bar of a sewing-machine, for the purpose of automatically feeding the goods and shifting it from side to side beneath the needle, as required in the work of sewing button-holes and similar work.

Our invention particularly consists in means for oscillating and feeding the cloth-clamp, for shifting the feeding mechanism, so as to reverse the feed of the clamp and for varying the rapidity of feed or length of stitch; and in order that our invention may be more fully understood, we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of our improved button-hole attachment. Fig. 2 is a top view with the operating-lever removed. Fig. 3 is a plan of a portion of the attachment, showing a modification of the feed-pawls and their accessories. Figs. 4 to 6 are details in plan and section of the link and mechanism employed for changing the width of stitch. Fig. 7 is a detail view of the two-part rock-arm.

1 is the base or bed plate of the attachment. To the bottom of the bed-plate is attached by screws, as at 2, a slide (a portion of which is shown projecting at 3) of suitable size and shape to enter the guides above the shuttle-race of a sewing-machine. The bed-plate 1 is pierced at 4, at one end, to allow of the free passage of the needle. At the other end the bed-plate is provided with vertical flanges 5 5, in the upper ends of which is pivoted the operating crank-lever 6. The horizontal arm of this lever is made in two parts, as shown at 7, one of the parts being slotted so that the arm may be adjusted as to length, or that the two parts may be set at any desired angle by means of a set-screw. The vertical arm of the oscillating lever projects downward between the

flanges 5 5, and is divided into three fingers or prongs, 8 9 8—two, 8 8, bent forward (toward the needle-bar) and the middle one, 9, bent in an opposite direction. A plate, 10, having slots 11 and screws 12 to hold it on base-plate 1 and allow it transverse lateral motion thereon, carries the plate 13, which is pivoted to the sliding plate 10 by means of pivot-bolt 14. The said pivot-bolt also passes through a longitudinal slot, 15, in the cloth-clamp 16, which is held closely to the plate 13 by the said bolt and a washer, 17. The cloth-clamp is milled or provided with ratchet-teeth along each edge for a length somewhat greater than that of the slot 15, for the engagement therewith of one or other (according to the direction of feed) of the pawls 18, pivoted to the plate 13. Springs 19, fastened to pawls 18 at one end and at the other to or between lugs 20, projecting from the base-plate 1 through slots 21 in the sliding plate 10, serve to hold the pawls with gentle pressure against the milled edges of the cloth-clamp, or to retract them therefrom when required. This action is effected by means of a handle, 22, provided with a pin, 23, eccentrically pivoted in the base-plate and passing through a slot or bearing in the sliding plate 10. It will be seen that this arrangement is such that by turning the handle 22 the sliding plate and all the parts carried thereby will be shifted to one side or other of the bed-plate. The plate 13 is slotted, as shown at 24, to allow of its being adjusted back or forth on set-screw 25, so as to increase or shorten the stitch.

One end of the cloth-clamp is provided with a large slot surrounding the needle-hole to allow free passage of the needle in any position of the cloth-clamp. At its other end the cloth-clamp is provided with a slot, 26, longer and broader than the slot 15.

If desired, the pawl-plate 13 may be dispensed with, in which case the arrangement shown in Fig. 3 may be employed. In this case the pawls are or may be provided with engaging-points at both ends, and are pivoted at their middles directly to plate 10, so that by shifting the handle 22 in one direction the points *a* and *c* will come in contact with the cloth-clamp, and by shifting the handle in the other direction the points *a* and *c* are removed from contact and the points *b* and *d* brought

into engagement, and the direction of feed thus changed. With the modification the clamp is fed at every stroke, instead of at alternate strokes, and one pawl always catches while the other is getting a new hold. A further modification may be made by providing only a single pawl with both ends pointed, as shown, and omitting the other pawl and its accessories.

10 . Pivoted at 27 to the bed-plate 1, is a link, 28, the forward end of which carries two pins, 29 30, the pin 29 carrying a V-shaped oscillating switch, 31, whose ends abut against the pin 30 on one side and the other alternately to limit the motion of the switch. The switch 31 rests and oscillates upon the top of the clamp-plate, and is alternately driven to one side or the other by the impact of the finger 9 of the crank-lever with its two inclined sides alternately.

20 The fingers 8 of the lever striking one or the other of the ends of the switch as the arm 6 descends forces the switch over so as to insure the engagement of the finger 9 with the faces of the switch alternately. We form a slot, 33, in the link 28 and place therein a sliding pin, 32, and washer 34, which can be so clamped to any position by the pin and V-shaped nut shown in Figs. 5 and 6 within the said slot as by impinging on the sides of the slot 26 to regulate the amplitude of vibration of the cloth-clamp. The washer 34 may be made of a diameter equal to the breadth of the slot 26 in the cloth-clamp and be employed to transfer motion from the link 28 to the cloth-clamp.

35 The slot 26 is of such breadth as that the pins 29 and 30 will not strike or come in contact with the sides of the slot.

Mode of operation: A piece of goods having been placed between the broad end of the cloth-clamp and the bed-plate, and the clamp set at one end of its stroke, and the slide so placed as to bring one pawl to bear on the edge of the clamp-plate, the machine is started. Each upward motion of the lever rocking with the needle-bar will, by means of its prongs 8 9, bearing alternately on opposite faces of the V-shaped switch, force it first to one side and then the other, and carry with it the link 28 and cloth-clamp 16. The pivot-bolt 14 being screwed down so as to bear on the clamp with a light pressure, sufficient to hold it from slipping, the clamp and cloth will be shifted from side to side, the clamp oscillating on the bolt 14, and being fed forward with every alternate stroke of the needle-bar in such a manner as to make the ordinary button-hole stitch. On reaching the end of the button-hole the handle 22 is turned, shifting the plate and cloth-clamp, and bringing the opposite pawl to bear against the cloth-clamp, so as to put the attachment in readiness for a reverse feed on the opposite side of the button-hole. To lengthen or shorten the stitch the plate 13 is shifted on the set-screw 25, while to increase or lessen the side stroke of the cloth-clamp, the pin or

washer 34 is shifted in the slot 33 of the link 28.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. In a button-hole attachment, the combination of a lever operated by the needle-bar and having fingers or prongs projecting downward therefrom, the V-shaped switch pivoted on a moving base, and the oscillating and sliding cloth-clamp for holding and shifting the goods, substantially in the manner and for the purpose set forth.

2. In combination with the cloth-clamp having milled or ratcheted edges and means for oscillating and feeding the said cloth-clamp, the pawl or pawls adapted to be held against the same by suitable springs, and means for shifting the pawls so as to bring one or other into action, substantially as and for the purpose set forth.

3. The operating crank-lever having a two-part horizontal arm with longitudinal slot and set-screw for enabling adjustment both as to length and angle, substantially as set forth.

4. The combination of a bed-plate, a guide-plate held by screw and slot thereto, a cloth-clamp pivoted to the guide-plate by a suitable bolt, and means for shifting said plate transversely on the bed-plate to change the line of stitch, substantially as and for the purpose set forth.

5. The combination of a fixed bed-plate, a guide-plate arranged to slide transversely thereon, a pawl-plate and pawls pivoted thereto, a ratcheted or milled cloth-clamp, and a pivot-bolt on which the cloth-clamp slides and oscillates, all arranged substantially in the manner described, to enable the simultaneous shifting of the line of stitch and the direction of feed.

6. In combination with a sliding and oscillating ratcheted or milled cloth-clamp, the pivoted pawl-plate, pawls pivoted to said plate, and means, substantially as described, for shifting the position of the plate to change the length of stitch.

7. The combination of an oscillating cloth-clamp, a slotted link pivoted beneath the same, and a sliding pin or washer in said slot, all arranged substantially as shown and described, and for the purpose set forth.

8. In a button-holing attachment, the combination, with a cloth-clamp having slot 26, of link 28, pin 29, washer 32, and suitable mechanism for actuating the link, as described.

9. In a button-holing attachment, the oscillating link 28, having slot 33, and adjustable pin or washer 34, in combination with a cloth-clamp and actuating mechanism, substantially as set forth.

HENRY C. HARTLEY.
JAMES L. RODGERS.

Witnesses:

ROBT. C. RODGERS,
EMMA W. RODGERS.