

S. J. BAIRD.

Button-Holing Attachment for Sewing Machines.

No. 134,346.

Patented Dec. 31, 1872.

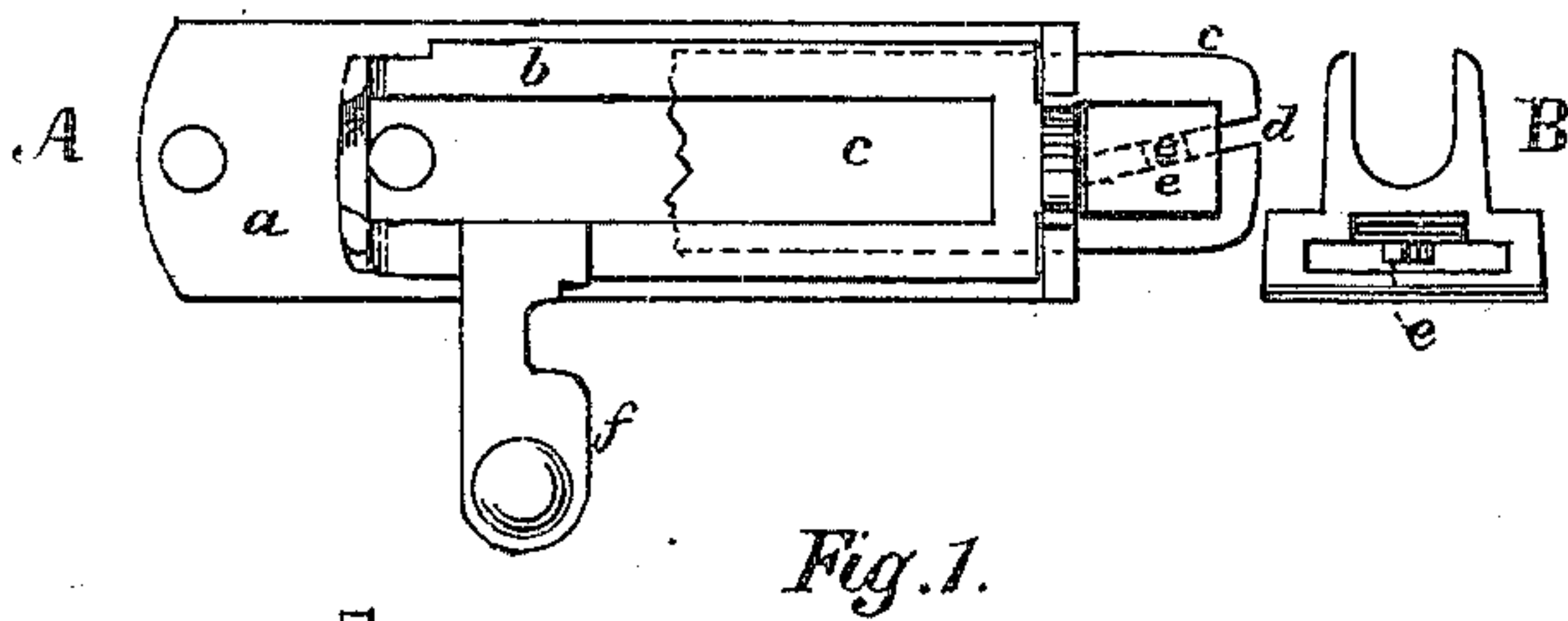


Fig. 1.

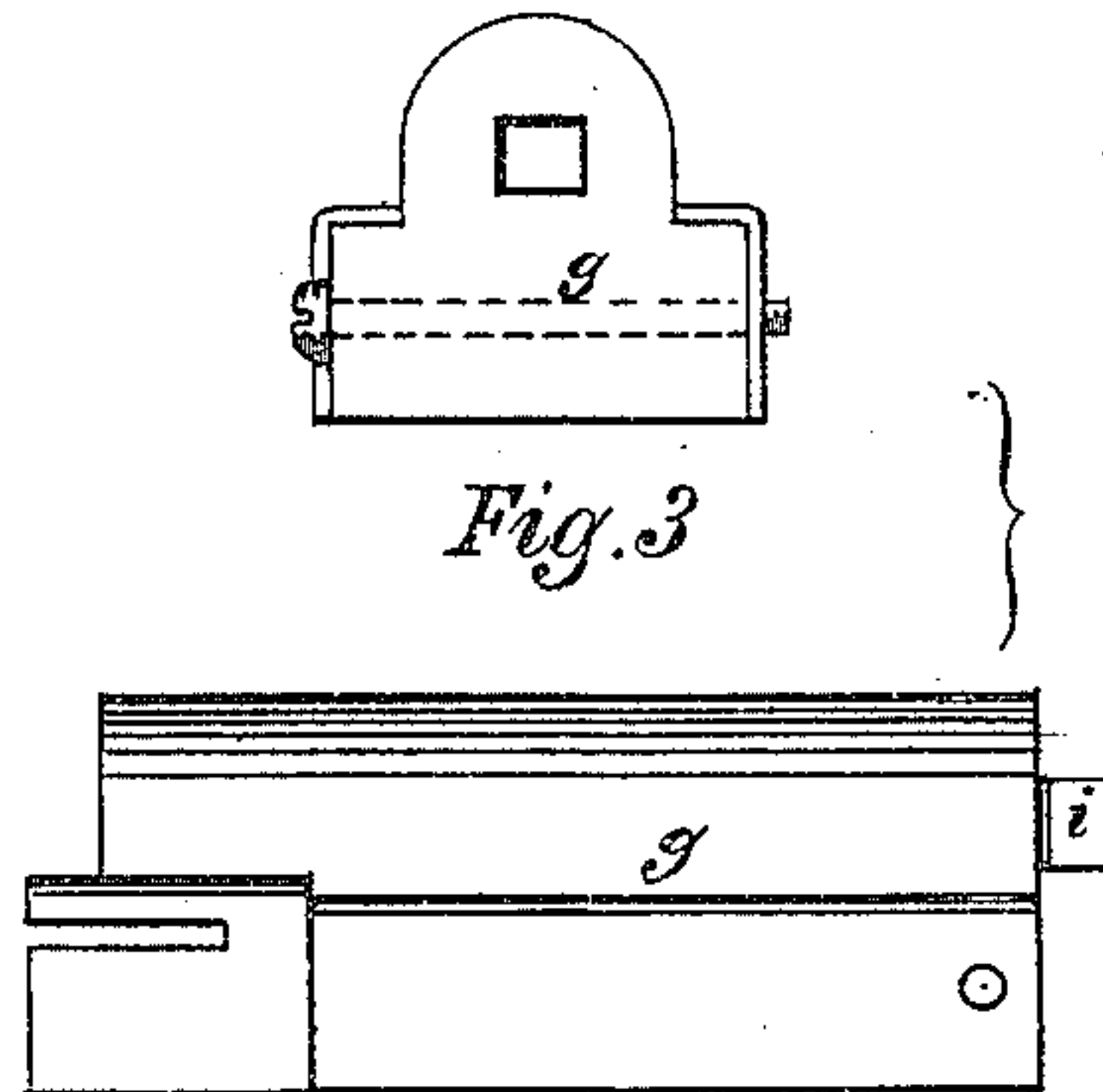
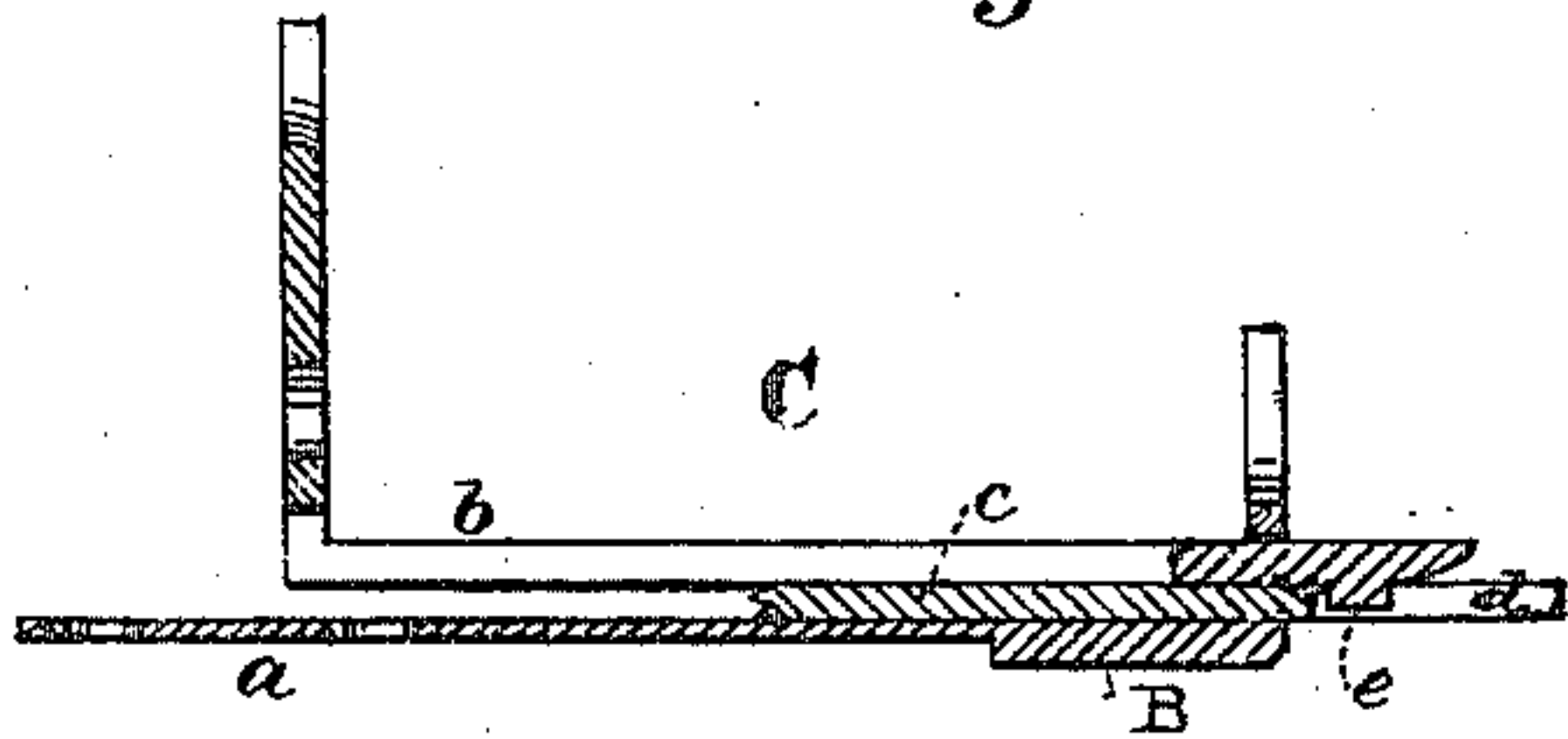


Fig. 3.

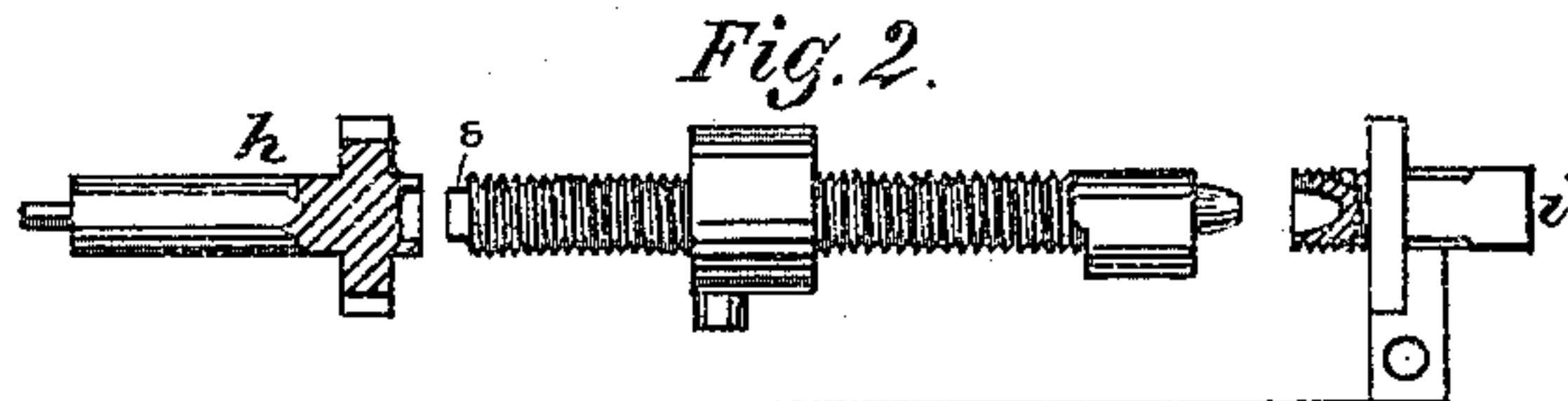


Fig. 2.

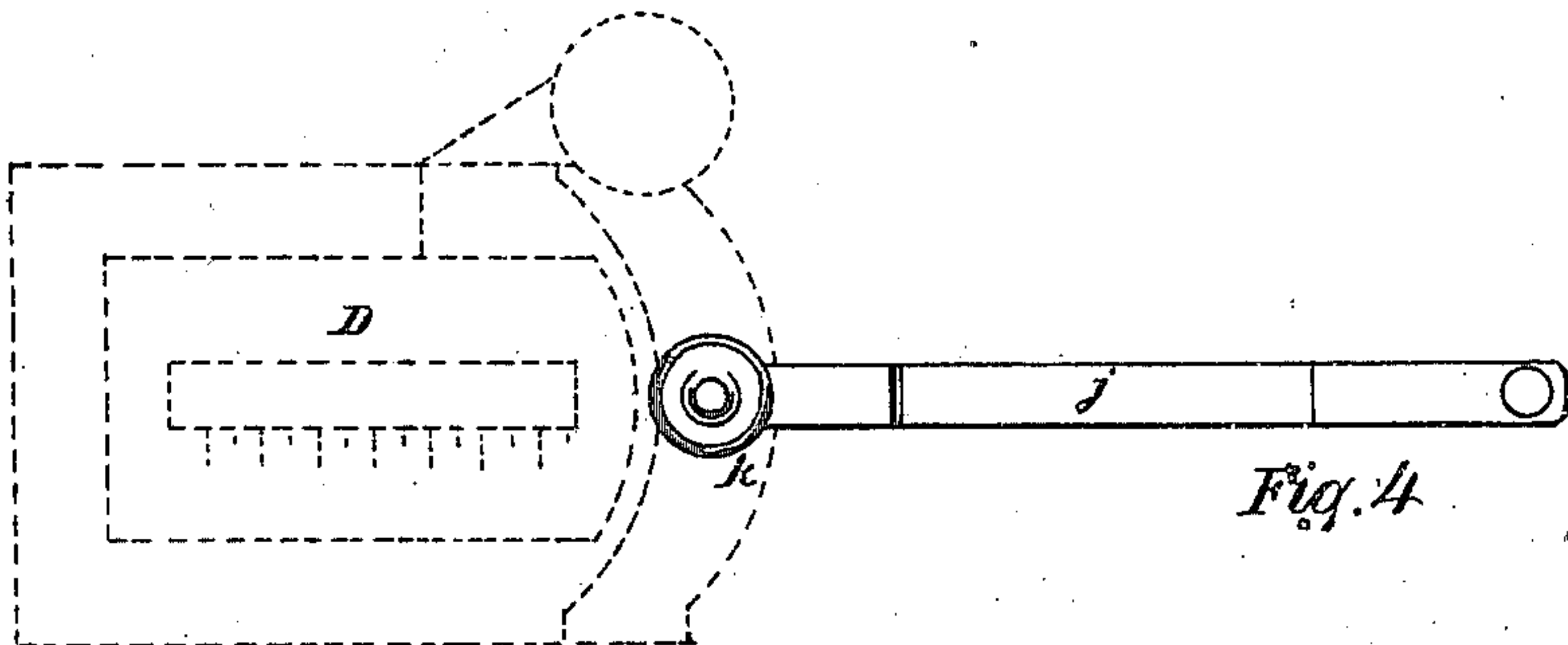


Fig. 4.

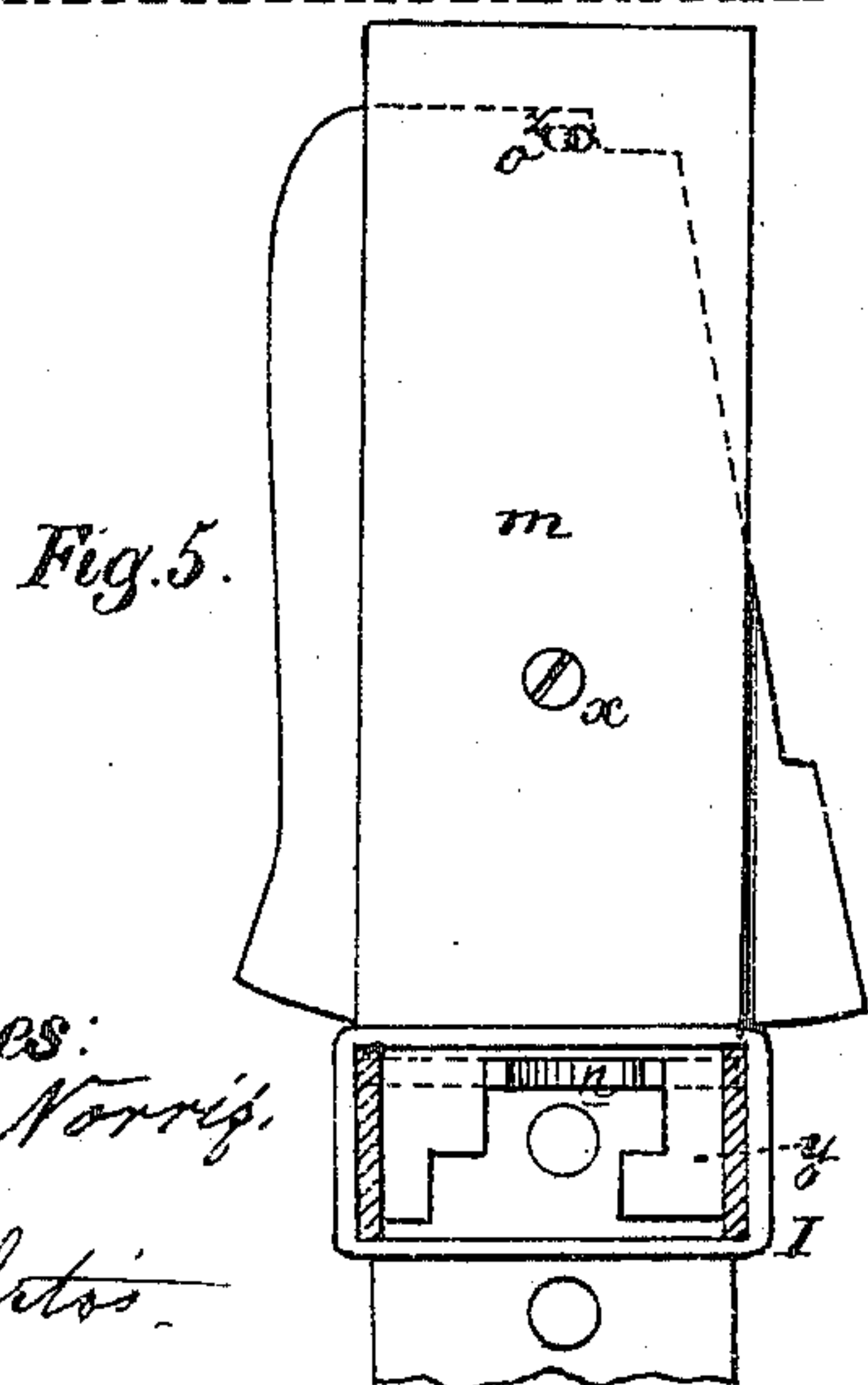


Fig. 5.

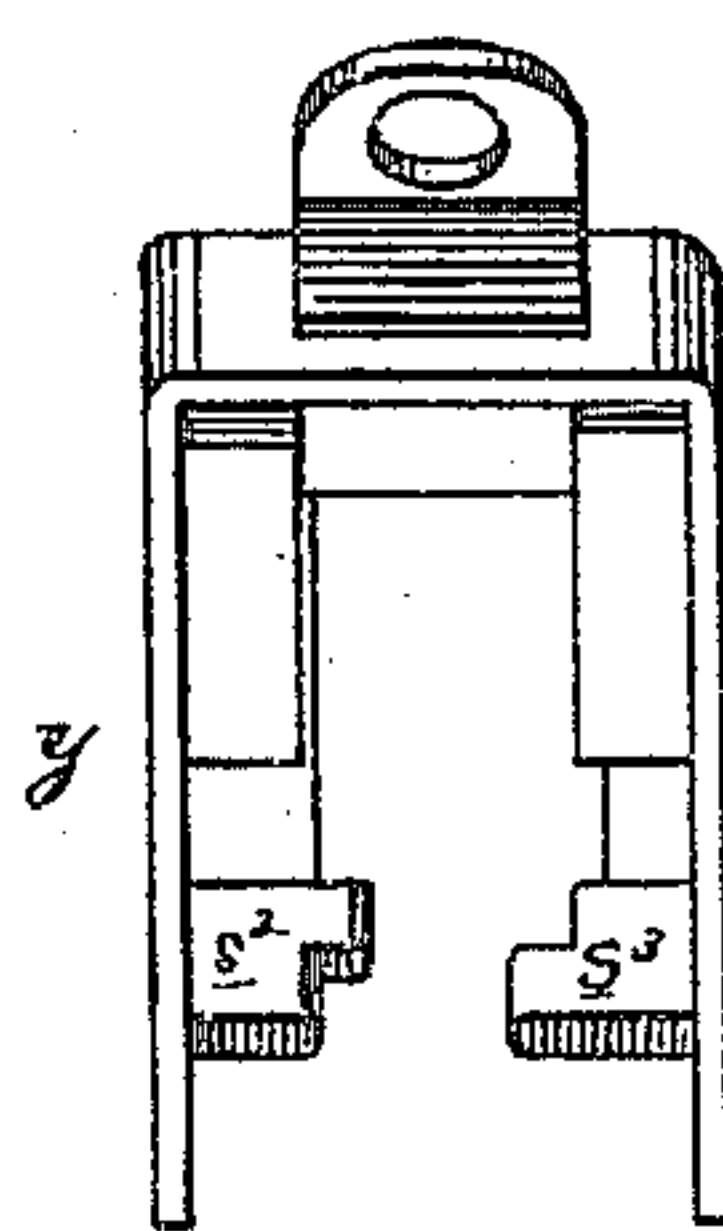


Fig. 6.

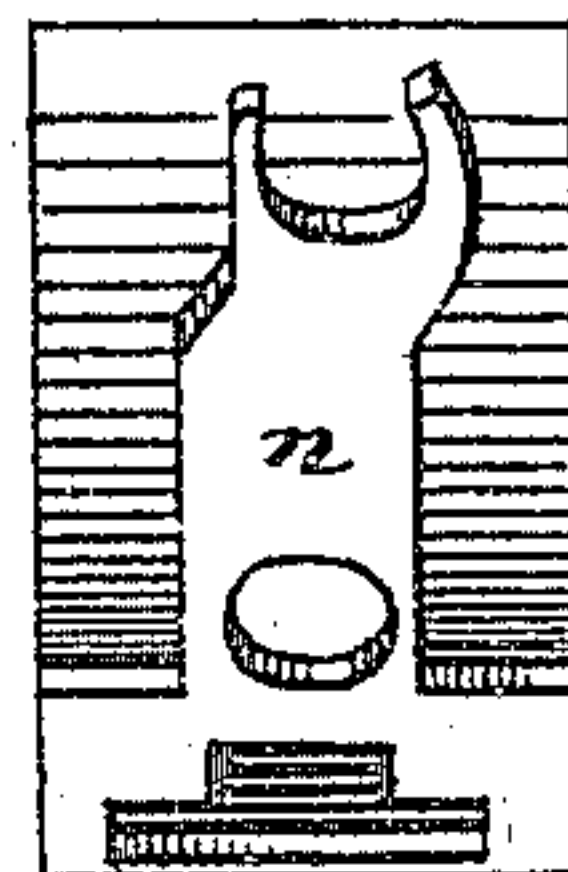


Fig. 7.

Witnesses:
Jas. L. Norris.
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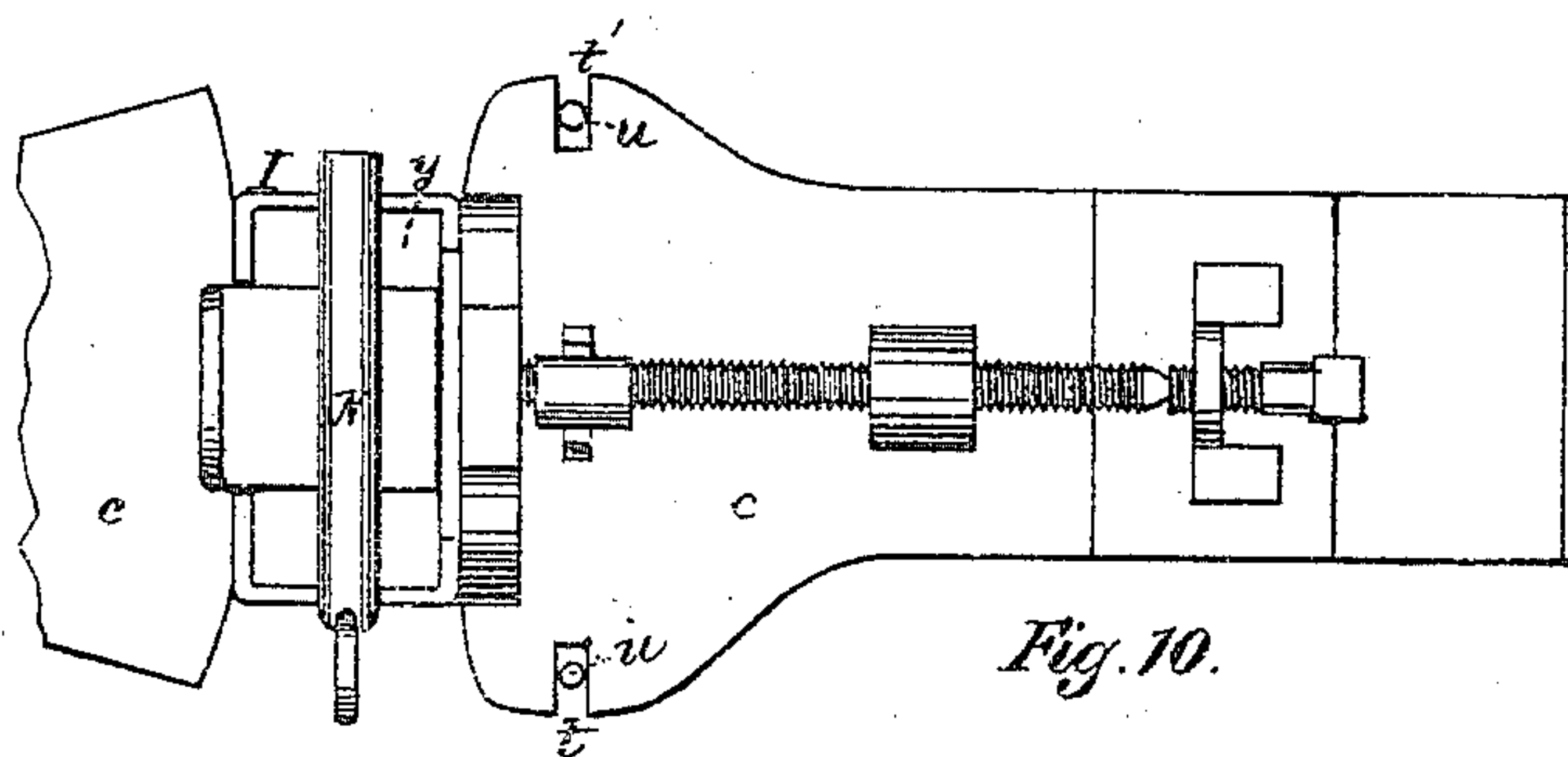
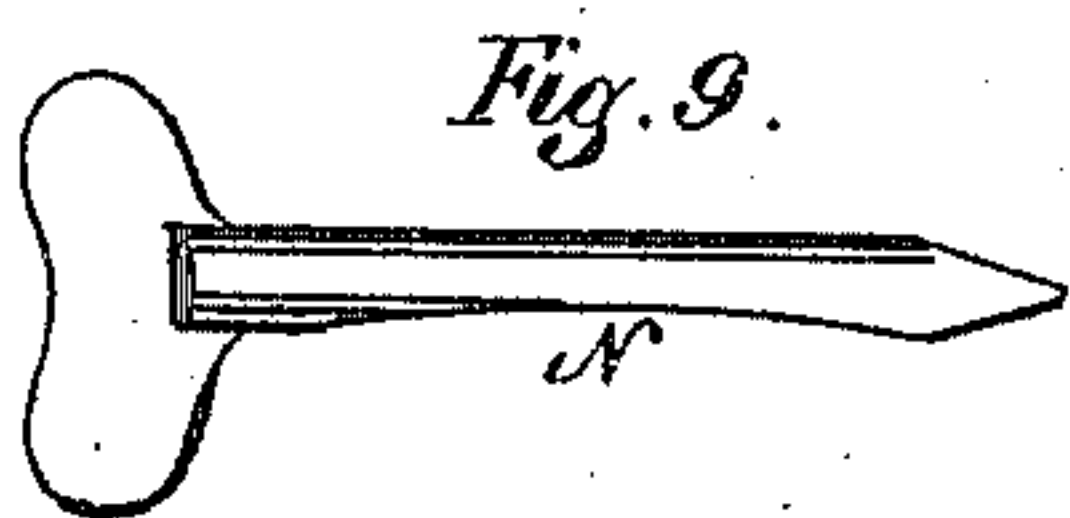
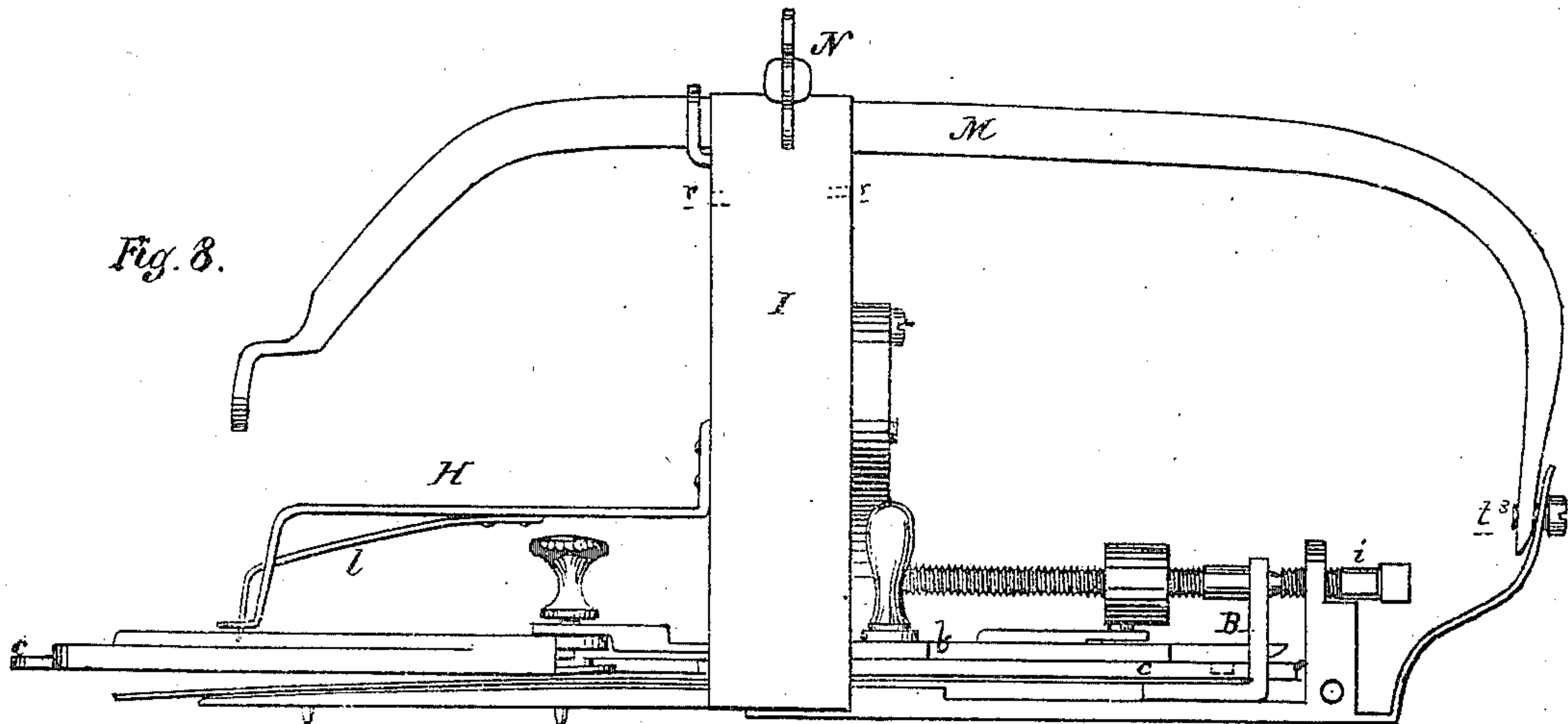
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Witnesses: } James L. Norris.
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UNITED STATES PATENT OFFICE.

SAMUEL J. BAIRD, OF WAYNESBOROUGH, VIRGINIA.

IMPROVEMENT IN BUTTON-HOLING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 134,346, dated December 31, 1872.

To all whom it may concern:

Be it known that I, SAMUEL J. BAIRD, of the town of Waynesborough, in the county of Augusta and State of Virginia, have invented certain Improvements in my Button-Holing Attachment for Sewing-Machines, of which the following is a specification:

The object of my invention is to simplify and perfect the details in the construction of the attachment for button-hole sewing-machines for which Letters Patent were granted to me on the 25th day of July, 1871. In my said attachment it is necessary to reverse the movement of the feed-screw simultaneously with the change in the axis of oscillation of the cloth-holder. By the first of these changes the longitudinal movement of the cloth under the needle is reversed, and by the other the cloth is so shifted as to bring the opposite side of the button-hole under the needle. These changes were accomplished by means of a lever, a sliding piece, and an L-shaped slide; and one feature of my present invention consists in so forming the latter piece as to serve the purposes of the three previously used.

In the drawing, *b*, Figure 1, is the L-shaped slide, the upright end of which is notched so as to embrace the neck of the sliding tooth-wheel, which is operated from the needle-arm. The other end of the slide extends through a slot in the bent forked end of a plate, *B*, to which it is so fitted as to slide freely without any lateral play. The end of the oscillating lever *c*, which carries the clamp, also passes through the slot in the plate *B*, and is somewhat narrower than the slot so as to admit of lateral adjustment therein. A pin, *e*, on the under side of the slide *b* enters a diagonal slot, *d*, in the end of the lever *c*, and an arm, *f*, projecting through the cover from any convenient part of the slide, serves as a handle, by means of which the slide may be moved back or forward, as required. As the slide is moved it changes the position of the sliding toothed wheel so as to reverse the movement of the shaft, as described in my said patent; and at the same time the movement of the pin *e* in the diagonal slot effects the desired lateral adjustment of the lever *c*, thus shifting the cloth under the needle, at the same time that it begins to traverse longitudinally in a reverse direction. To facilitate the adjustment or chang-

ing of the feed-screw, and to compensate for the wear of its bearings, it is provided with a square end, *s*, adapted to a recess in the end of the shaft *h*, its opposite end being conical and adapted to the recessed end of the bearing-screw *i*. The head of the latter is angular, and adapted to an angular recess in the cover *g*, by which means it is prevented from being turned by the jarring of the mechanism. An elastic presser, *H*, Fig. 8, bears on the cloth adjacent to the needle, and consists of a bent spring-plate, one end of which is fastened to the box *I* or other suitable part of the machine. The presser fits into the clamp-slot immediately back of the needle, where it rests with a gentle pressure on the cloth. To hold open the slit for the entrance of the needle a spring, *l*, is fastened to the shaft of the presser, and so bent that its point drops into a notch in the toe of the presser, and passes down between the edges of the cloth. There are two small holes, *r r*, in the upright box *I*, Fig. 8, and should it be so desired the thread may be passed through these holes, so that when the yoke *Y* rises it will strike the thread and act as a take-up to the same. A plate, *m*, vibrates on a center, *x*, and has a vertical forked end, *n*, which projects upward into the box *I*, a hole, *o*, at the front end of the plate corresponding with the needle-hole *z* in the cloth-plate. The upright end *n* within the box *I*, Figs. 6 and 7, fits between the lugs *s*² *s*³ of the yoke *Y*, and has an edge so inclined that when acted on by one of said lugs as it rises the plate is caused to swing laterally. It may be similarly operated by a pin on the yoke moving in a slot in the upright piece, or otherwise. As the needle rises out of the cloth the plate *m*, swinging on the fulcrum *x*, is thrown in the direction in which the sewing-machine ordinarily feeds, and the thread is carried with it, and thus takes the position which the feed of the sewing-machine would give it. The same device may be used to compensate for a defective under take-up in the sewing-machine. To operate the device from a machine having no vibrating arm, a lever, *M*, Fig. 8, is used, said lever having its fulcrum at *t*³, being connected to the yoke, and having its forward end recessed to receive a screw on the needle-bar. A pin, *N*, fitted to a recess in the box *I*, is cut away, as shown, on one side, and is wedge-

shaped at the end to serve as a screw-driver, when required.

When the button-holer is placed upon the work-plate of a sewing-machine, (its guide-pins fitting the usual attachment holes,) the pin *N* is inserted, with concave side up, between the top of the box and the stationary overhanging arm of the machine. The pin is then turned until the concave side is down, the attachment being thus wedged firmly in position. The lever *c* may be converted into a lever of the third order, with the fulcrum at the end, in any suitable manner. For instance, the fulcrum-screw may be screwed into the box *B* instead of into the lever, while the jaws are removed and riveted on the lever near the middle, and the eccentric arranged on the pinion-shaft or adjacent end of the feed-screw. In this modification the lateral adjustment by which the two sides of the button-hole are alternated under the needle is effected, as at present, by shifting the end of the lever laterally in the box. Again, the fulcrum-screw may be at the end instead of the middle, while the box *B* and jaw are near the middle of the lever.

The box *I* with its inclosed movements may be transferred to the end of the attachment, and there placed either above the base-plate or below it. Instead of a lever movement, the plate *c*, which imparts lateral reciprocating motion to the cloth-holder, may be made to reciprocate laterally by having the eccentric on the forward end of the feed-screw, or one

on each end, with corresponding jaws and adjusting devices, as before described, while the plate *c* is guided by lateral slots and pins, Fig. 10, or other equivalent device for guiding its movement in a line at a right angle to the axis of the eccentric.

What I claim as my invention is—

1. The combination, with the reciprocating plate *B* and lever *c* carried by said plate, of the slide *b* having a pin fitting a diagonal slot in the lever and carrying the toothed operating-wheel, substantially as set forth.

2. The combination of the shaft *h*, adjustable bearing *i*, and screw-shaft, adapted to recesses in ends of said shaft and bearing.

3. The lever *m* having an opening, *o*, arranged to coincide with the needle-opening *z*, and an arm, *n*, extending into the case *I*, the said lever being operated by the movement of the yoke, as specified.

4. The combination, with the attachment described, of a lever, *M*, connected to the yoke, and adapted for connection to the sliding bar of the sewing-machine.

5. The combination, with the case *I*, of a pin, *N*, constructed substantially as described.

6. The combination, with plate *c*, of pins or guides, whereby the said plate is guided laterally, as set forth.

SAMUEL J. BAIRD.

Witnesses:

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FRED. ARTOS.