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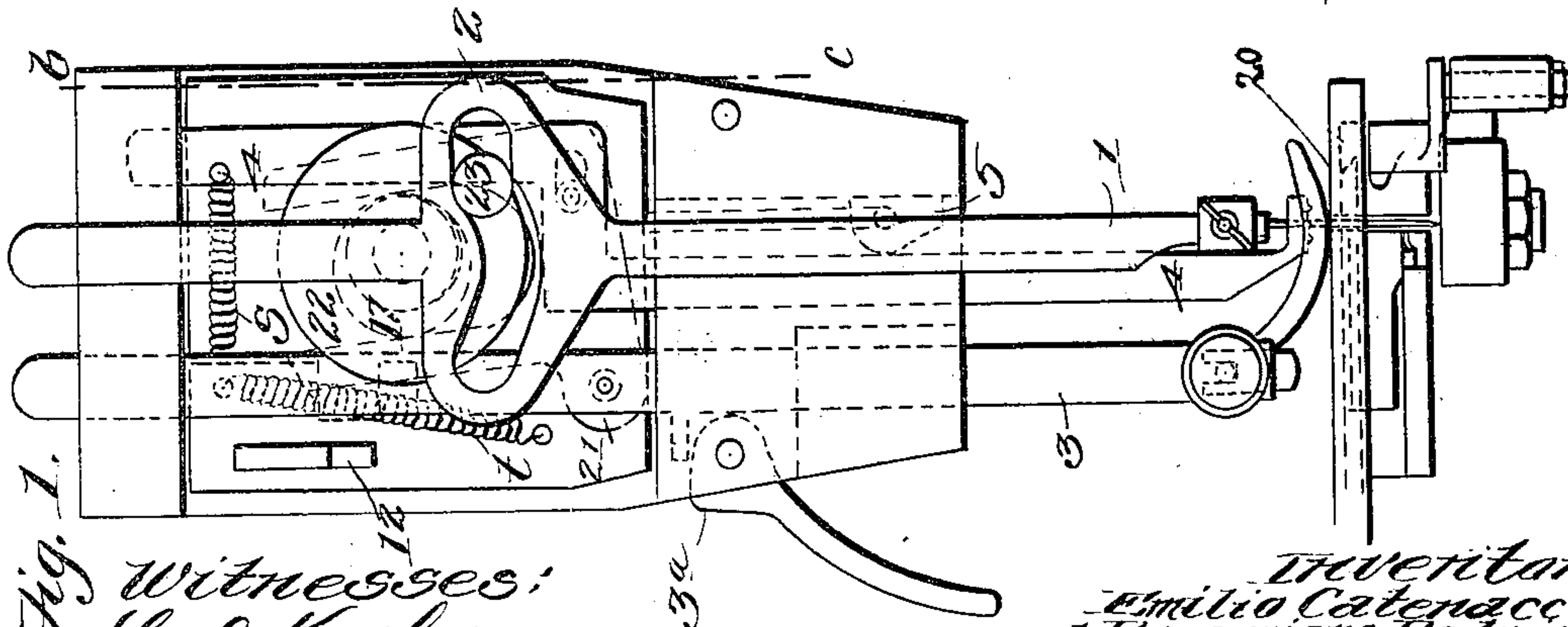
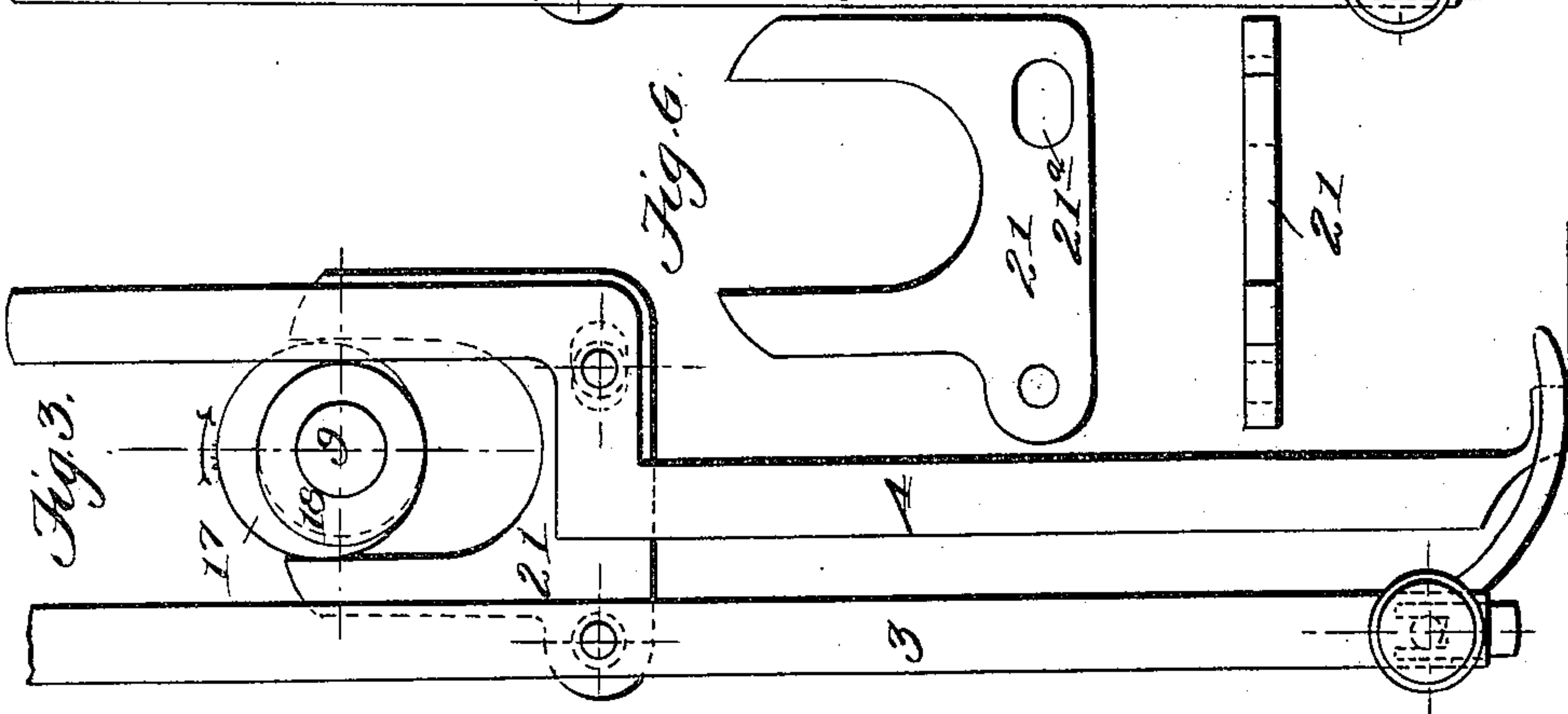
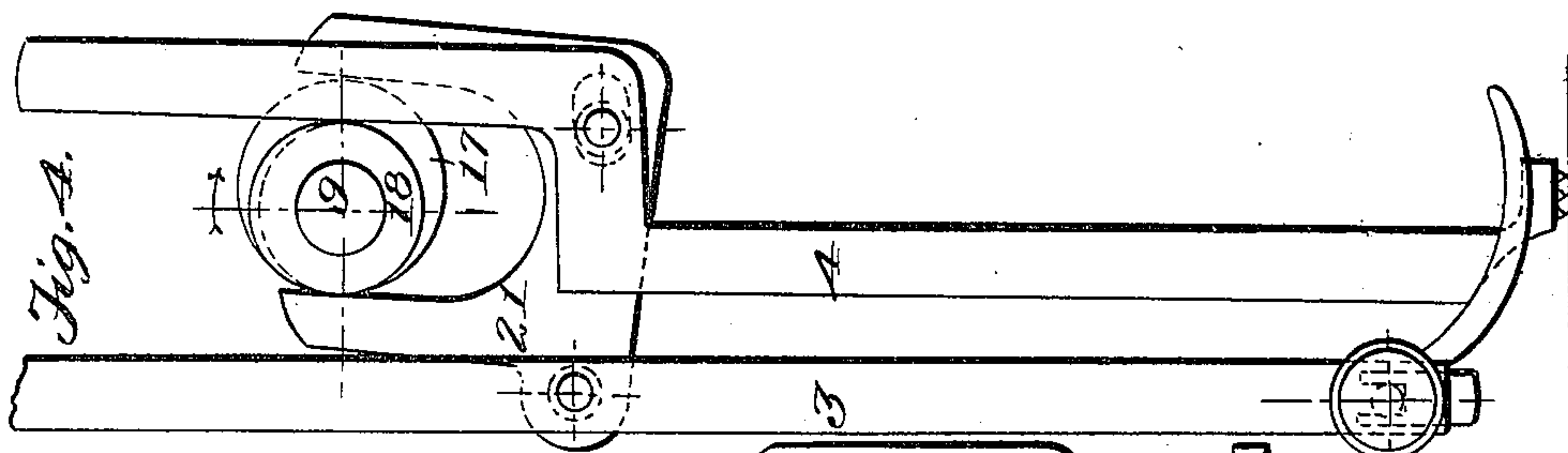
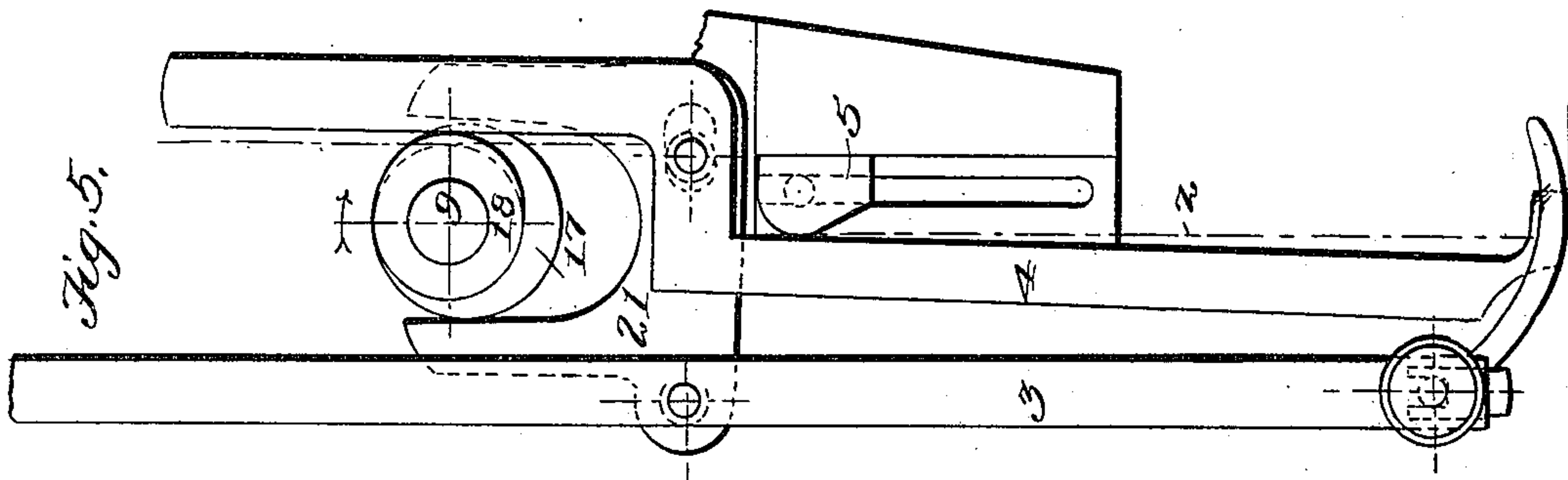
Patented Mar. 19, 1901.

E. CATENACCI & R. & C. PETRINI.
FEEDING MECHANISM FOR SEWING MACHINES.

(Application filed Sept. 18, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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By James L. Norris

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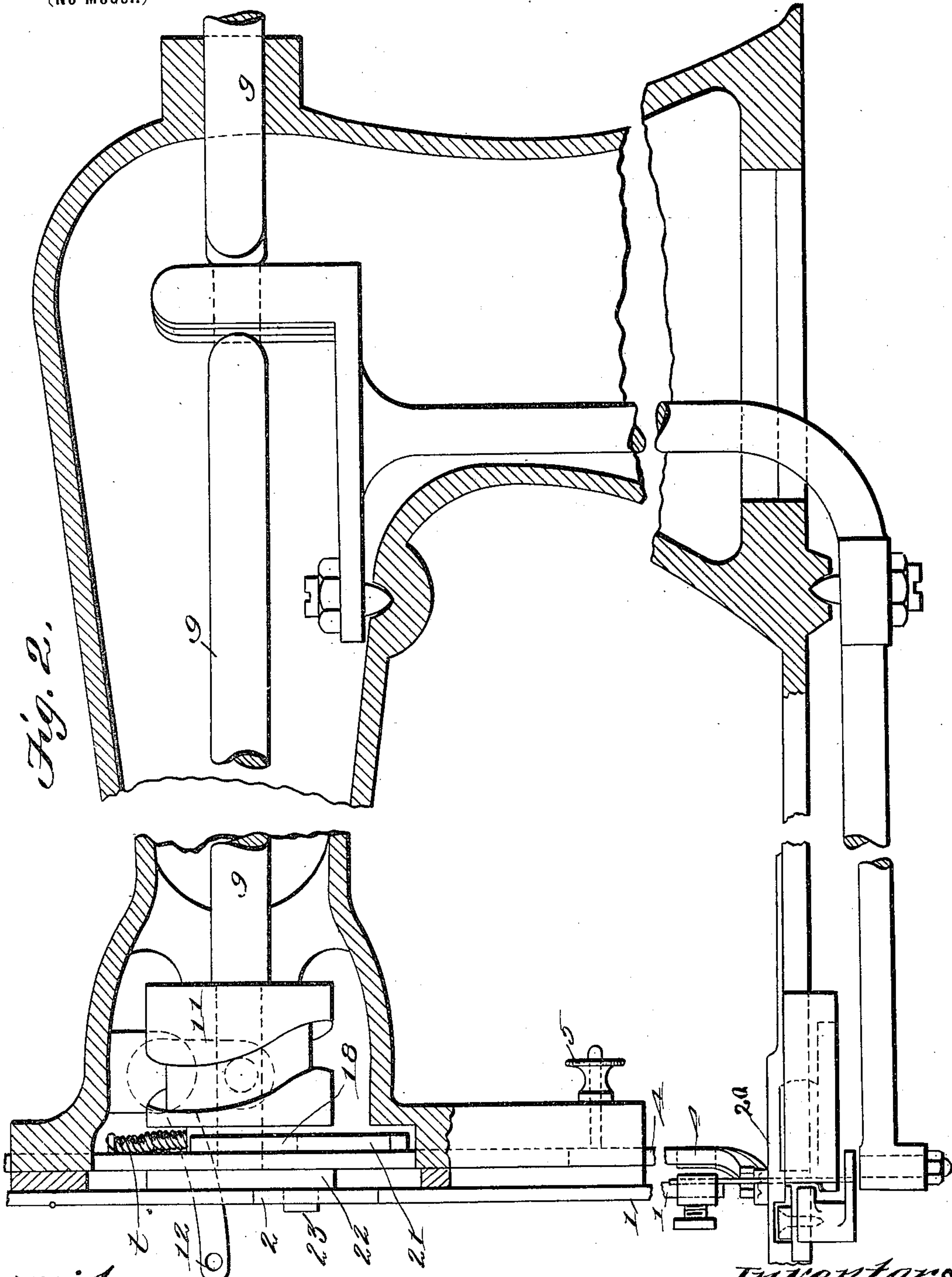
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UNITED STATES PATENT OFFICE.

EMILIO CATENACCI, OF MILAN, AND RUGGIERO PETRINI AND CORRADINO PETRINI, OF CHIETA, ITALY.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 670,340, dated March 19, 1901.

Application filed September 18, 1897. Serial No. 652,189. (No model.)

To all whom it may concern:

Be it known that we, EMILIO CATENACCI, residing at Milan, and RUGGIERO PETRINI and CORRADINO PETRINI, residing at Chieta, in the Kingdom of Italy, subjects of the King of Italy, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain new and useful improvements in feeding mechanism for sewing-machines.

The improved machine is distinguished by the simplified construction of the working parts, as well as by its great efficiency and comparatively noiseless action.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 represents the uncovered face of the needle-bar casing, showing the mechanism for driving the needle-bar, the presser-foot, and the feed-bar. Fig. 2 is a side elevation in section on the line *b c* of Fig. 1 of the machine-casing. Figs. 3, 4, and 5 represent the relative positions of the presser-foot and of the feed-bar after each consecutive quarter-turn of the driving-eccentric. Fig. 6 is a detail view of the mechanism actuating the presser-foot and the feed-bar.

Referring to Figs. 1 and 2, 1 designates the needle-bar, constructed in the form of a slide-cam, the guide-slot 2 of which for guiding the trunnion 23 is made of a particular shape, so as to allow the needle, suitably fixed to the end of the needle-bar 1, to execute the required movement.

3 is the presser-foot, consisting of a rail, at the end of which the known fabric-retaining device is mounted. This presser-foot is by means of the U-shaped piece 21, Fig. 6, pivotally connected with the feed-bar 4 in such manner that the pivot of the feed-bar is located in the slot 21^a of the U-shaped piece 21. Between the two arms of the U-shaped piece works an eccentric 17, with which another eccentric 18 (mounted so as to follow the former at an angle of ninety degrees) is rigidly connected. The eccentric 17 serves to impart to the U-shaped piece 21 an oscillating movement. Thus the presser-foot 3,

connected therewith, and the feed-bar 4 receive a vertical reciprocating movement, so that at each half-revolution executed by the said eccentric the presser-foot descends and the feed-bar ascends, while at the following half-revolution the reverse movement takes place. The eccentric 18 serves to impart to the feed-bar the required lateral movement as is necessitated in order to obtain the length of the stitch, which is regulated by the stitch-regulator 5.

The spring S, which is arranged in the bar-casing and connected with the feed-bar, maintains the said bar in continuous contact with the eccentric 18, producing its movement, and the spring *t*, fixed to the presser-foot, draws the latter and the feed-bar 4, connected with the presser-foot by means of the U-shaped piece 21, down upon the work-plate 20. The crank-shaft 9 also imparts movement to the needle-bar, the presser-foot, the feed-bar, and the take-up device 12, the three first mentioned of which are actuated by means of the crank-disks 22 23 or the two eccentrics 17 18, Figs. 1 and 2, respectively keyed on said shaft. The take-up device 12 receives a corresponding movement from the cam 11.

The shaft 9 is driven by a hand-wheel or the like mounted on the outer extremity of the machine-arm. In the widened portion of the machine-arm, near the externally-mounted hand-wheel, is arranged the cranked part of the shaft 9.

The stitch-regulator 5 is provided with a screw-threaded pin, which through the medium of its knob is moved upward to the extent required in order to obtain the proper length of the stitch, so that by moving the knob upward the length of the stitch is increased, whereby by moving it down the stitch is diminished in length. The machine, moreover, is provided in the known manner with a tension device and a presser-foot lever 3^a for lifting the presser-foot 3.

The positions represented in Figs. 1, 3, 4, and 5 illustrate the different relative positions in which the needle-bar, the presser-foot, and the feed-bar move, or, in other words, the positions which the machine occupies after each consecutive quarter-turn of the shaft 9.

Starting from the position represented in

Fig. 1, following the direction indicated by the arrow, the crank-disk 22, with the crank-pin 23, causes the needle to execute its complete down movement and to subsequently reascend to the extent of two millimeters, so as to form the loop. The presser-foot remains stationary during this movement, and the feed-bar has descended upon the fabric, Fig. 3. On effecting a further quarter-turn the needle-bar, with the needle, abruptly ascends, and after a three-quarter turn has been completed the presser-foot 3 redescends. Simultaneously the eccentric 18 acts upon the feed-bar 4 and displaces the same to such an extent as corresponds to the desired length of the stitch. After the shaft 9 has effected a complete revolution the feed-bar, which at the commencement of the last quarter-turn is no longer acted upon by the eccentric 18, has again arrived in the position indicated in Fig. 1.

Of course in the constructional example set forth in the body of this specification any other driving mechanism may be employed instead of that indicated therein.

Having now fully described the nature of our said invention, what we desire to secure by Letters Patent of the United States is—

1. In a feeding mechanism for sewing-machines, the combination with a presser-foot and feed-bar, of a U-shaped piece having its two arms extending in an upward direction and provided with a pivotal connection at its base and slightly outside the longitudinal line of one of its arms, for the presser-foot rail, said piece also having a slot at its base within the longitudinal line of the other arm and at a right angle to said line, for a separate pivotal connection, an eccentric between said arms, a differently-timed eccentric on the same shaft to act on the feed-bar and a stitch-regulator mounted upon the machine-arm and vertically adjustable in a slotted guide, to vary the position of a projection thereon on which the feed-bar has its fulcrum, substantially as described.

2. In a feeding mechanism for sewing-machines, the combination with a presser-foot and feed-bar, of a U-shaped piece the two arms of which extend in an upward direction, said piece lying in a recess in the arm of the

machine, a presser-foot and feed-bar both pivotally connected to said piece in the base of the same, two differently-timed eccentrics on a single shaft, to operate said presser-bar and feed-bar, and a stitch-regulator vertically adjustable in a slotted guide on the machine-arm and provided with a projection forming a fulcrum for the feed-bar, substantially as described.

3. In a feeding mechanism for sewing-machines, the combination with a presser-foot and feed-bar, of a U-shaped piece having its arms extending in an upward direction, and lying in a recess in the arm of the machine, the feed foot and presser-bar having respectively a pivotal and a slot-and-pivot connection in the base of said piece, two differently-timed eccentrics arranged between the arms of the U-shaped piece to act on said feed-foot and presser-bar and a stitch-regulator arranged beneath the slot-and-pivot connection for the feed-bar and vertically adjustable in a slot upon the machine-arm to vary the position of a fulcrum for said feed-bar, substantially as described.

4. In a feeding mechanism for sewing-machines, the combination of a presser-foot and feed-bar, both being pivotally connected to each other, by a U-shaped piece 21 the up-and-down movement of the said two parts being effected by an eccentric, working between the arms of a U-shaped piece 21, a second eccentric, which is rigidly connected to the first-mentioned eccentric being adapted to effect the lateral displacement of the feed-bar, with a stitch-regulator in the form of a plate *m* resting against the feed-bar, said plate being vertically adjustable so that when the plate is moved upward, a long stitch, and when moved downward, a short stitch is obtained, substantially as hereinbefore set forth.

In witness whereof we have hereunto set our hands, in presence of two witnesses, this 26th day of March, 1897.

EMILIO CATENACCI.
RUGGIERO PETRINI.
CORRADINO PETRINI.

Witnesses:

SYLVESTER N. D. SPAGNOLI,
OTTORINO HASSARI.