

No. 690,680.

Patented Jan. 7, 1902.

G. M. TODD.

FEEDING MECHANISM FOR SEWING MACHINES.

(Application filed Mar. 21, 1901.)

(No Model.)

2 Sheets—Sheet I.

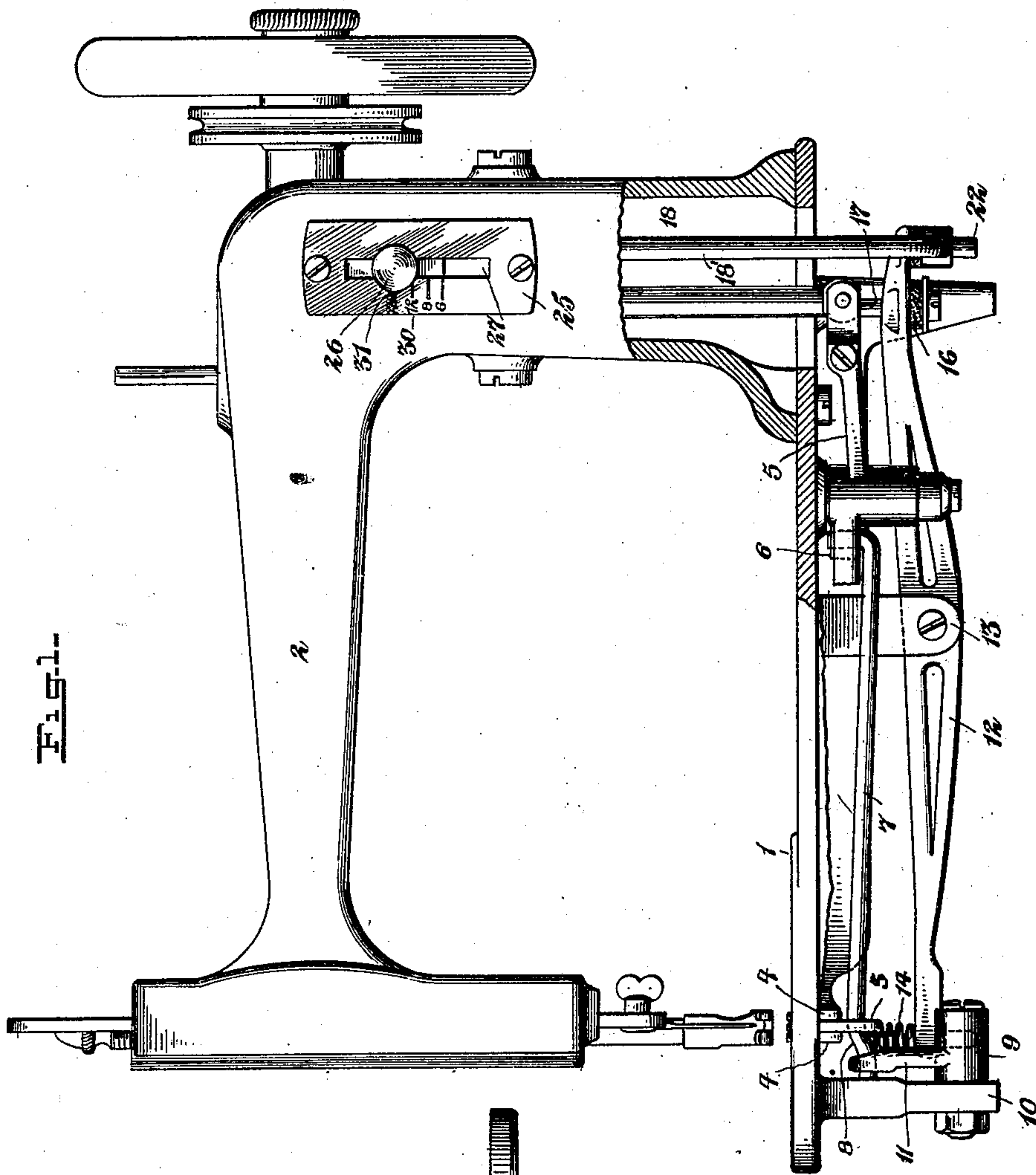
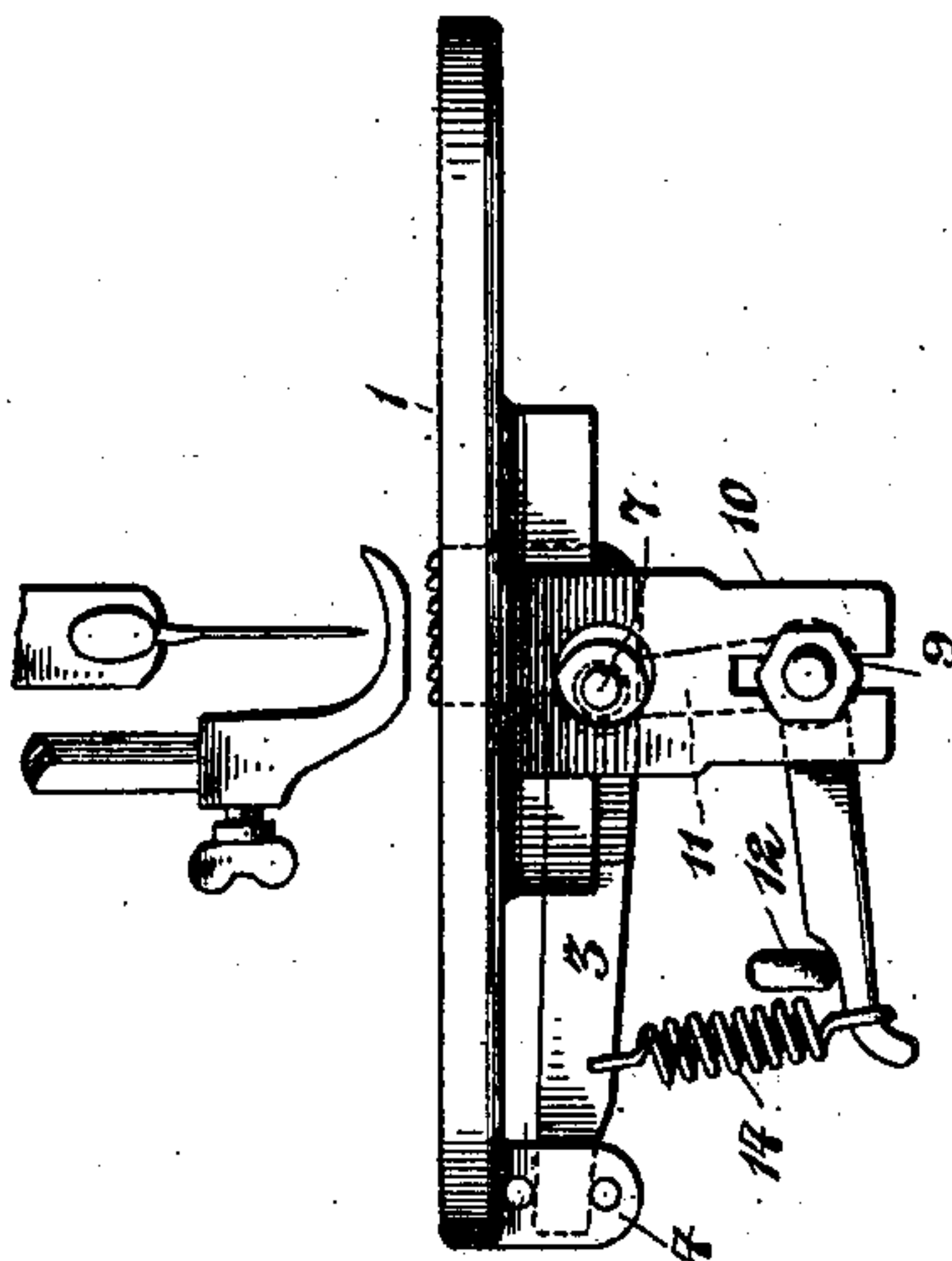


Fig. 2-



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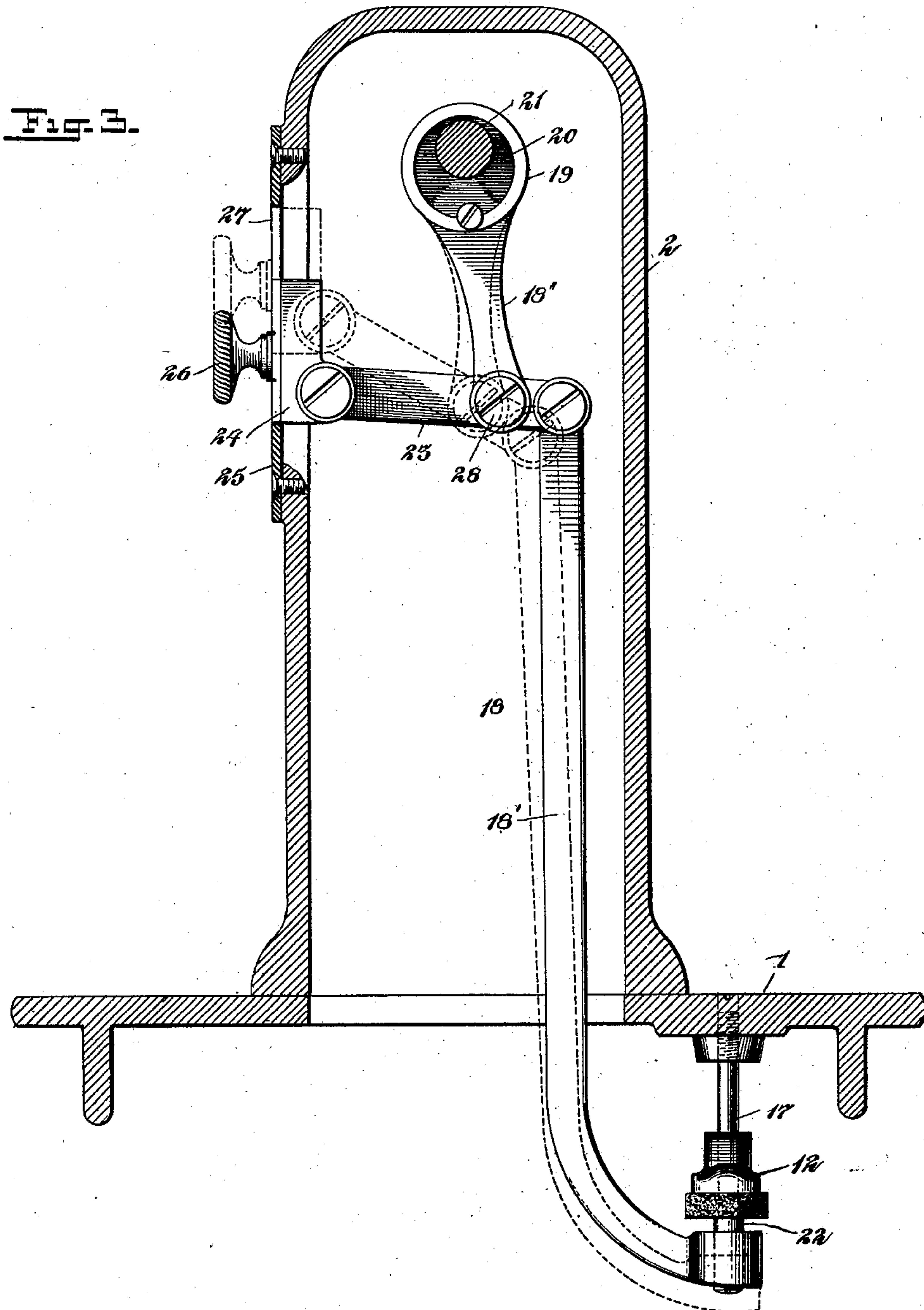
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# UNITED STATES PATENT OFFICE.

GEORGE M. TODD, OF NEWARK, NEW JERSEY, ASSIGNOR TO NEW DOMESTIC SEWING MACHINE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 690,680, dated January 7, 1902.

Application filed March 21, 1901. Serial No. 52,189. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. TODD, a citizen of the United States, and a resident of Newark, Essex county, State of New Jersey, 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, forming part thereof.

10 This invention relates to the feeding mechanism of sewing-machines, and has particular reference to the means for adjusting the horizontal movement of the feed-bar forming part of such feeding mechanism, and thereby regulating the length of stitch.

15 The form of feeding mechanism to which my present invention more particularly relates comprises a vertically-rocking feed-lever supported on the under side of the bed-plate for communicating horizontal movement to the feed-bar through the medium of suitable connections, and a vertical connecting-rod for transmitting motion from an eccentric on the upper driving-shaft to the said feed-lever, the latter being yieldingly held in a normal stationary position against a suitable stop and the connecting-rod being operated to engage therewith and rock the same.

20 In this construction by adjusting the position of one of the engaging surfaces of the rod and lever relative to the other so as to vary the amount of lost motion between the same in operation the movement of the feed-lever and connecting feed-bar will be regulated accordingly. The means for securing such adjustment as heretofore employed has consisted of an adjusting-screw supported in the end of the feed-lever with one end projecting upward through an opening in the bed-plate in a position to be reached for adjustment and adjacent to its opposite or lower end having a bearing-surface to receive the engagement of the connecting-rod. This construction has been found undesirable, however, on account of the inconvenient position of the adjusting-screw at the rear of the arm of the machine and also on account of the continuous up-and-down movement of the screw, as caused by the action of the feed-

lever. To avoid such objectionable features and provide an otherwise-improved adjustment has been the object of my invention, which object I secure by means of the new and novel construction and combinations of parts, as hereinafter set forth in detail, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a front elevation of a sewing-machine embodying my invention with the arm and bed-plate partly broken away. Fig. 2 is a front end view of the same; and Fig. 3 is an enlarged detail view with the arm in section, showing the connection between the upper driving-shaft and the lower feed-lever and my improved adjustment or stitch-regulator.

65 In said drawings the bed-plate 1, the overhanging bracket-arm 2, the feed-bar 3, arranged to operate between guiding-lugs 4 4 on the under side of the bed-plate, the horizontally-vibrating shuttle-lever 5, having a lateral arm 6, the push-rod 7, connected at one end to said arm 6 and adjacent to its opposite end having a bend 8 therein which reciprocates through an opening in the feed-bar to communicate vertical movement to the latter, the bell-crank lever 9, pivotally supported by a hanger 10 on the under side of the bed-plate with its vertical arm 11 connecting with the end of the push-rod 7, the vertically-rocking feed-lever 12, pivotally supported by the hanger 13 on the under side of the bed-plate with its front end engaging the horizontal arm of the bell-crank lever 9 to rock the latter, and thereby move the connecting feed-bar horizontally in a forward direction, and the coiled spring 14, connecting with the said bell-crank lever to move the same and connecting feed-bar in a backward or return direction, are all of usual and well-known construction and not in themselves of my present invention. When the feed-bar 3 is in a position at the beginning of its feeding movement, the connecting bell-crank lever 9 holds the feed-lever 12 in a position with its rear arm resting upon a suitable stop 16, which latter in the present instance shown consists of a felt washer, which is carried by a pin or screw 17, depending from the under



side of the bed-plate. This pin or screw 17 extends through an opening in the feed-lever, and thereby also serves as a guide and support to the latter during its rocking movement.

As a means to rock the feed-lever 12 against the pressure of the spring 14, and thereby communicate a positive forward or feeding movement to the feed-bar, I provide a connecting-rod 18, which is formed with a collar 19 at its upper end to embrace the actuating-eccentric 20 on the upper driving-shaft 21 and at its lower end is bent to extend beneath the under side of the feed-lever and provided with an opening therein which receives a connecting guide-pin 22 on said lever. In the operation of the machine the rod 18 is actuated by the eccentric 20 to receive a vertical or up-and-down movement, and so cause its lower end to engage with the feed-lever and operate the same, and according to the amount of lost motion between the engaging parts or surfaces of the rod and lever the throw or movement of the latter will be regulated accordingly. Therefore in accordance with my invention and as a means of adjustment for regulating such lost motion I have formed the rod 18 in two parts or sections, (indicated at 18' and 18'') the adjacent ends of which are pivotally connected to a lever 23 at points laterally distant from each other, as shown in Fig. 3, which lever is pivotally connected at one end to a slide-block 24, which is arranged to slide against a plate 25 on the front of the arm 2 and be held in stationary adjusted position relative thereto by means of an adjusting-screw 26, which engages with the block through a vertical slot 27 in the plate 25. By turning the screw 26 in the proper direction to release the block from clamping engagement with the plate 25 and then raising and lowering the same the lever 23 will be thereby turned on its pivot connection 28 on the upper rod-section 18'' and either raise or lower the other section 18' relative to the adjacent end of the feed-lever 12. In this manner the rod may be either shortened or lengthened, and so adjust the position of its lower lever-engaging end, whereby more or less lost motion will be had before engagement with the feed-lever, so as to regulate the movement of the latter. For instance, referring to Fig. 3, the parts are shown in full lines as adjusted for a long stitch, the end of the rod 18 being relatively close to the feed-lever, so as to have but little lost motion and communicate the greater part of its vertical movement thereto. In order to shorten the stitch, the block 24 is raised, as indicated by dotted lines in said Fig. 3, thereby lengthening the rod 18 and causing a greater amount of lost motion before engagement with the feed-lever, so as to regulate the movement of the latter accordingly. As a means for readily and accurately regulating the length of stitch I provide the

plate 25 on the front of the arm with a scale 30 and also provide the screw 26 with a pointer or indicator 31, connected therewith, for moving over the face of the plate opposite said scale.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-reciprocating connection operated from said eccentric or actuating device, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted at points distant from each other, means for movably holding said lever in adjusted position, and means actuated by said reciprocating connection for moving the feed-bar horizontally.

2. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-reciprocating connection operated from said eccentric or actuating device, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted at points distant from each other, means for adjusting the position of said lever so as to move one of the sections longitudinally relative to the other, and means actuated by said reciprocating connection for moving the feed-bar horizontally.

3. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-rocking feed-lever, means for movably holding said lever in a normal stationary position, a vertically-reciprocating connection having one end connected with said eccentric or actuating device and at its opposite or lower end having means for engaging with said lever, the said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted, and means for adjusting the position of said lever so as to move the lower end of the reciprocating connection vertically relative to the feed-lever, for the purpose set forth.

4. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving the feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-rocking feed-lever, a vertically-reciprocating connection



between said eccentric or actuating device and the feed-lever, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections  
5 are directly connected at points distant from each other, a slide-block to which said lever is pivotally connected, and an adjusting-

screw engaging said block through a vertical slot in the arm for holding the same in stationary adjusted position.

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Witnesses:

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