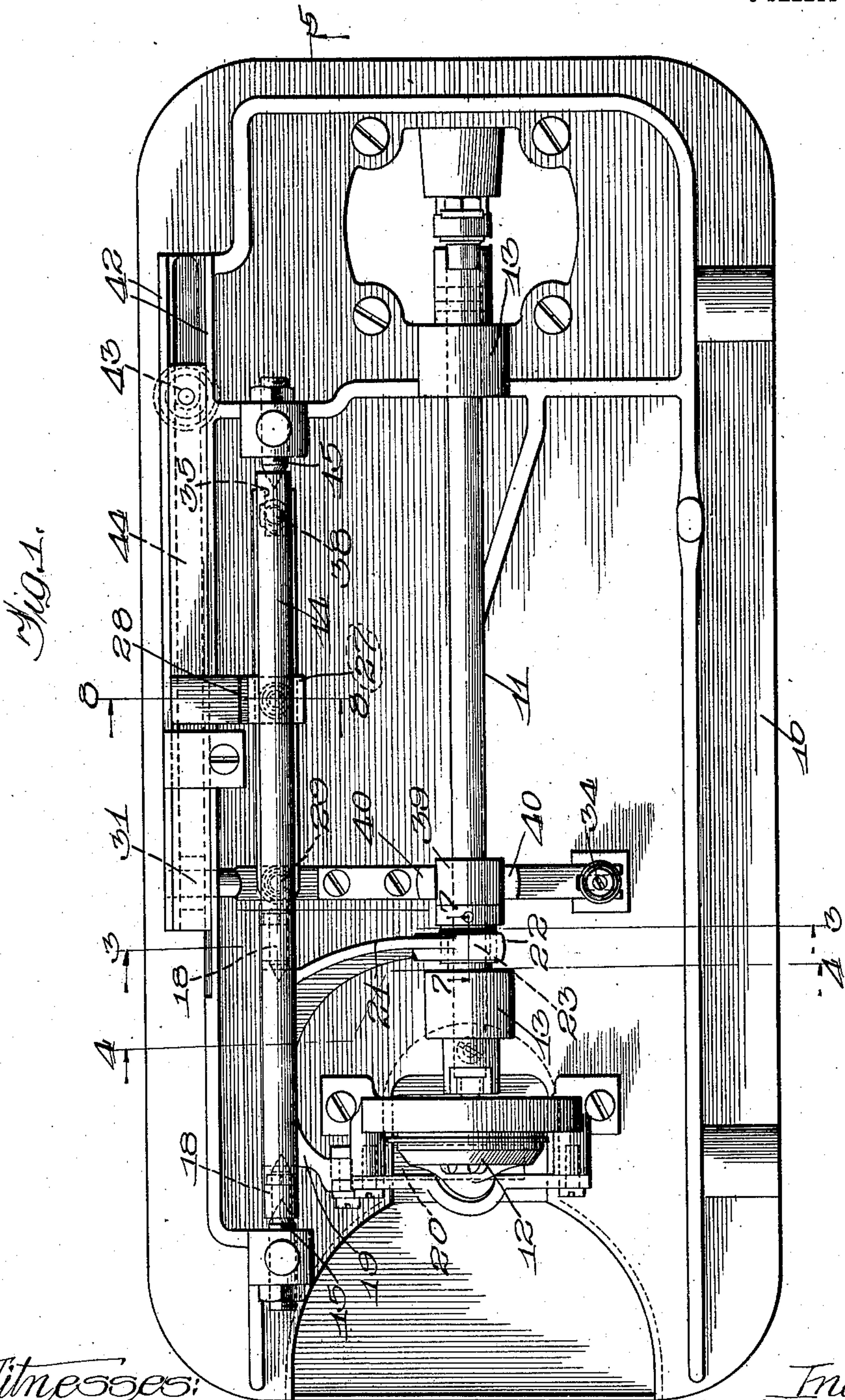


W. S. BROWN.
FEEDING MECHANISM FOR SEWING MACHINES.
APPLICATION FILED APR. 16, 1908.

986,682.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 1.



Witnesses:
G. V. Donatus Jr.
J. A. Gochman Jr.

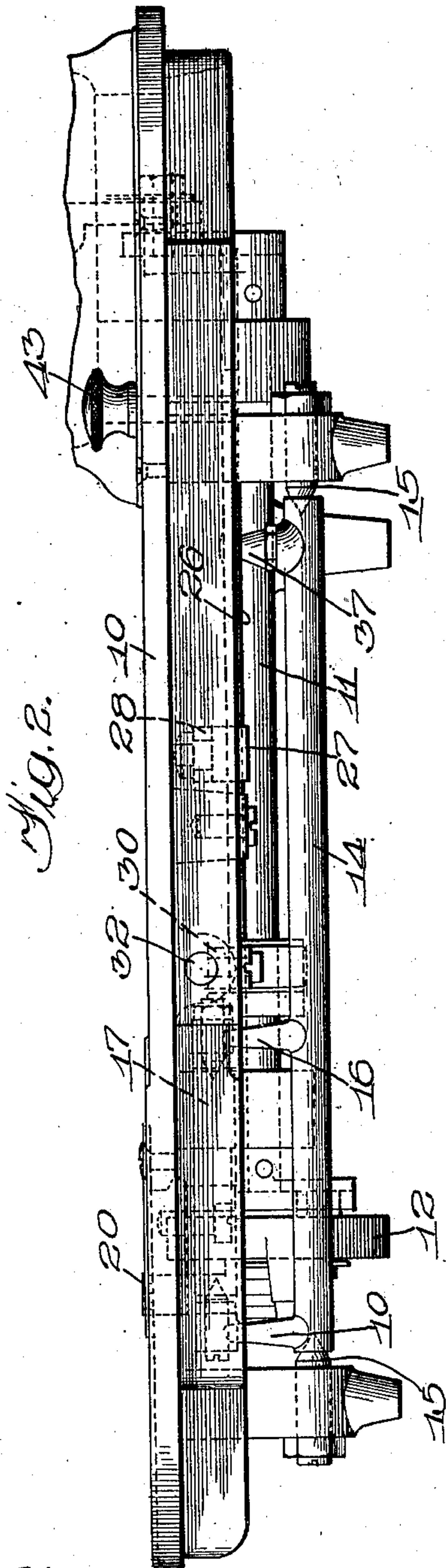
Inventor:
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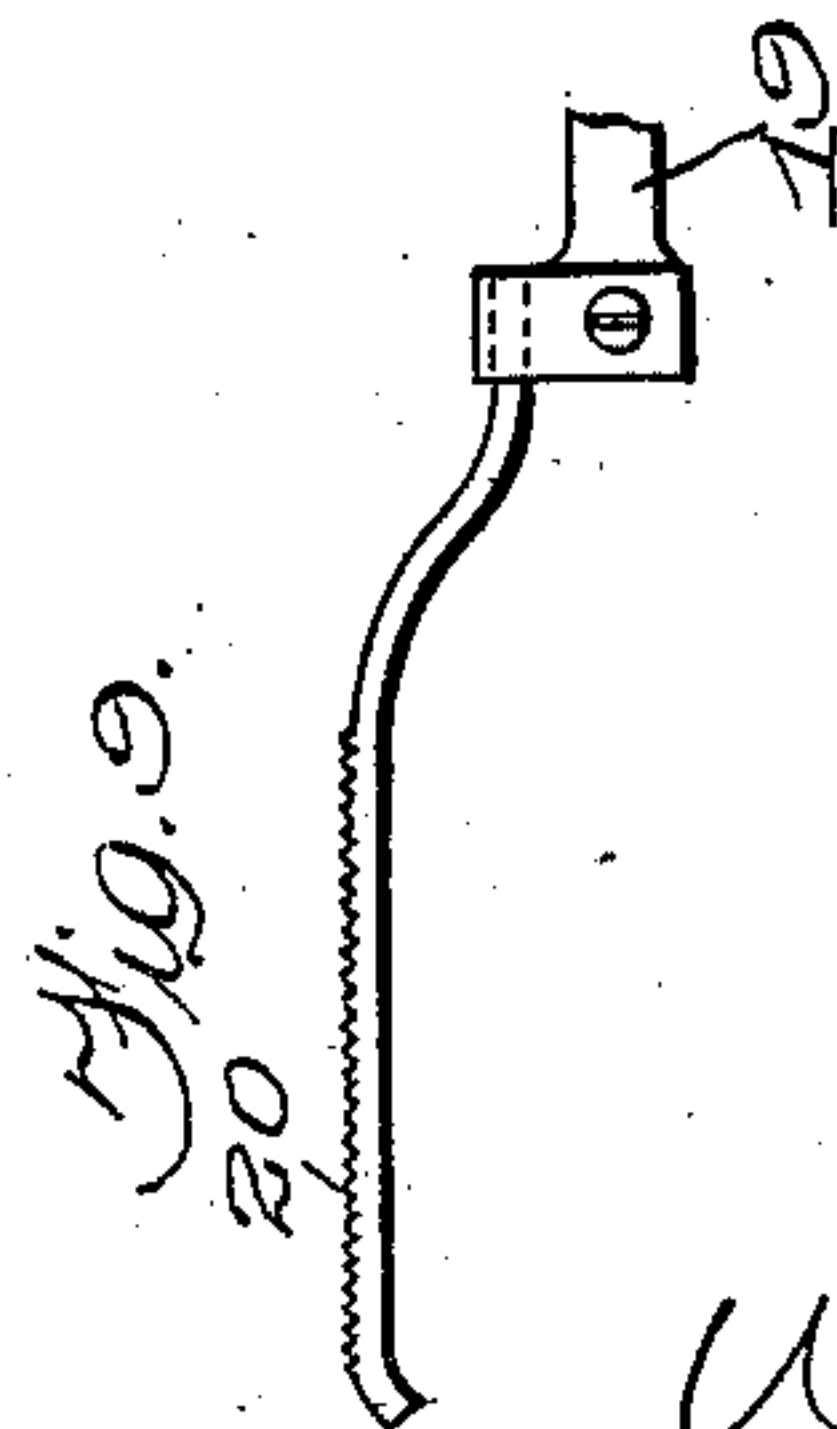
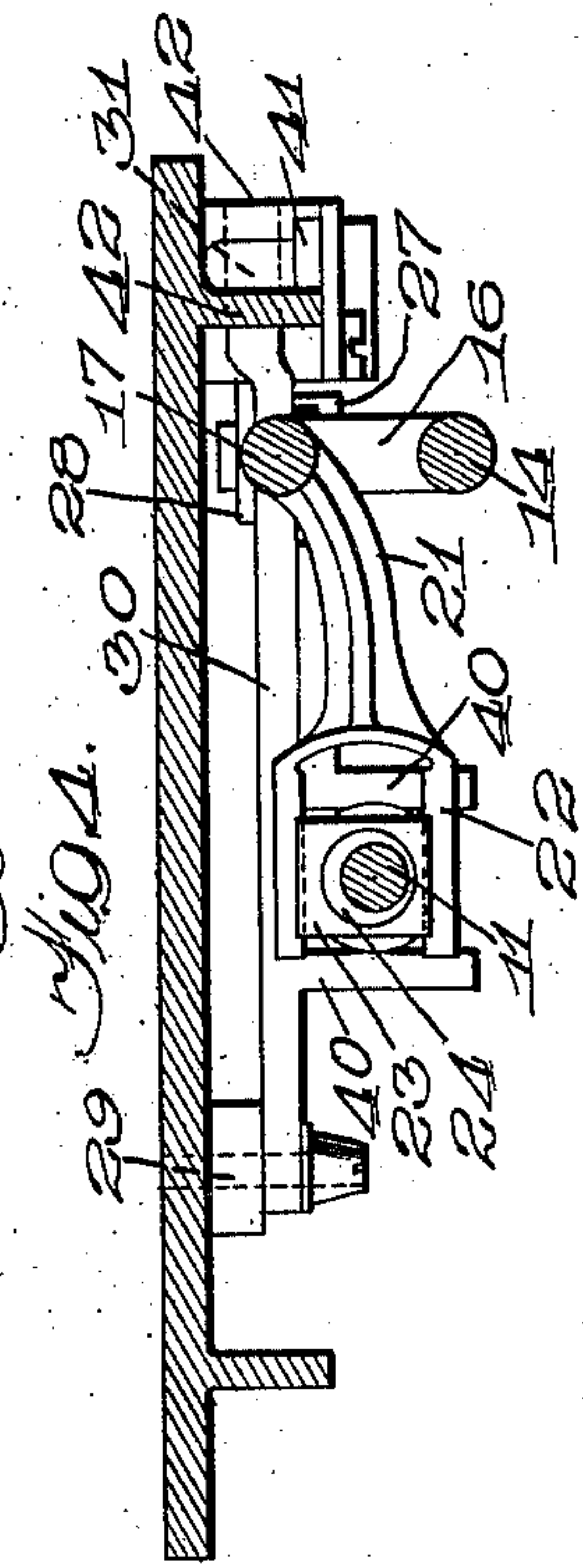
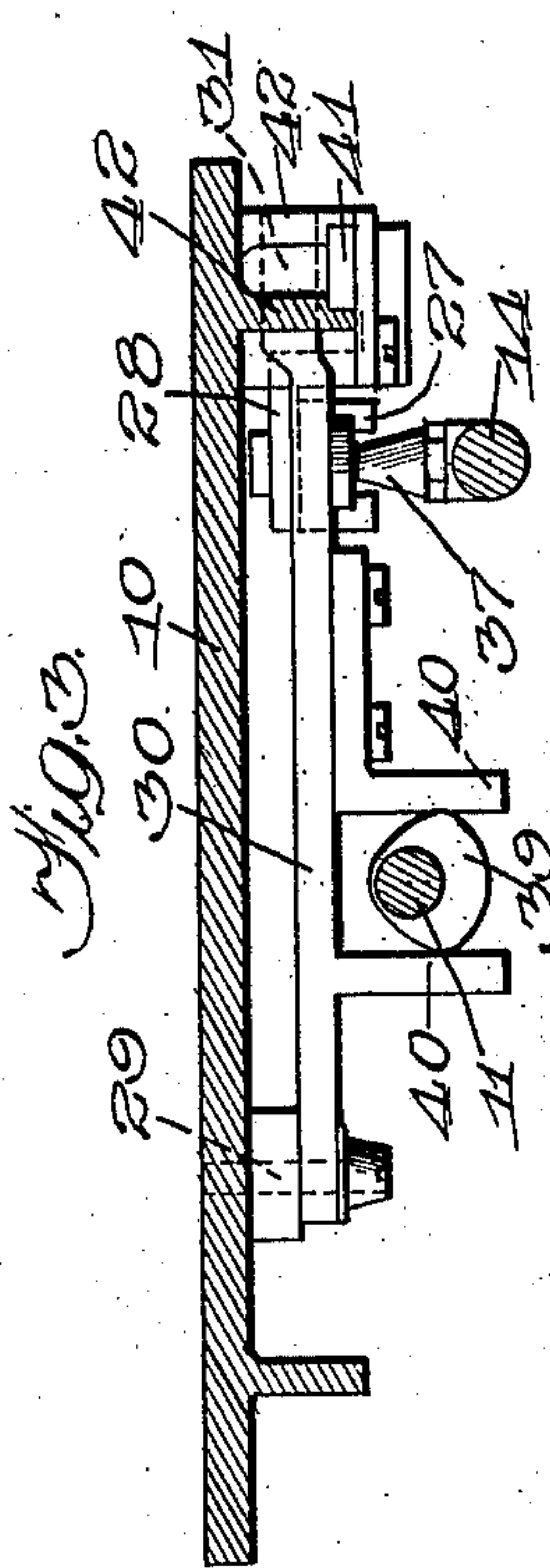
986,682.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 2.



Witnesses:
G. V. Tomarus Jr.
J. A. Gochman Jr.



Inventor:
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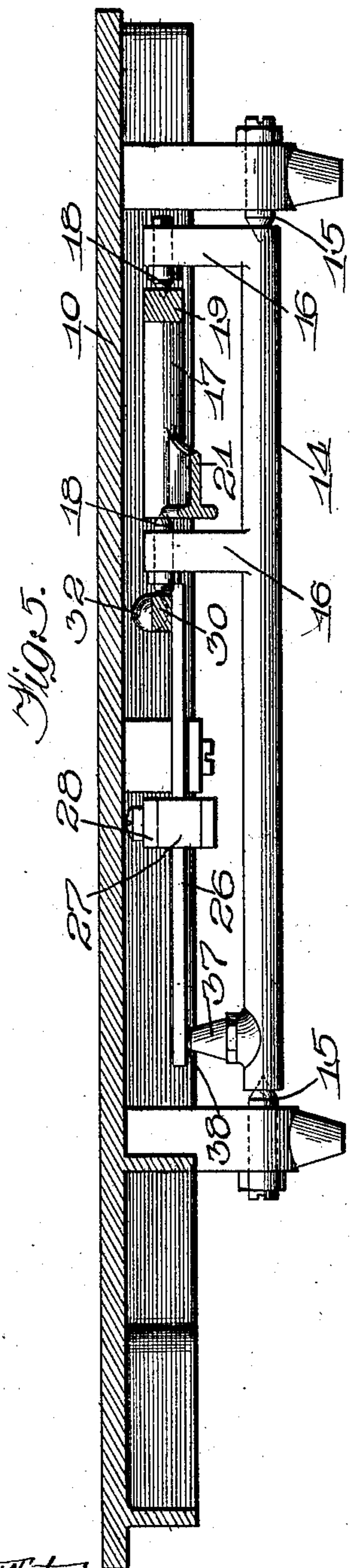
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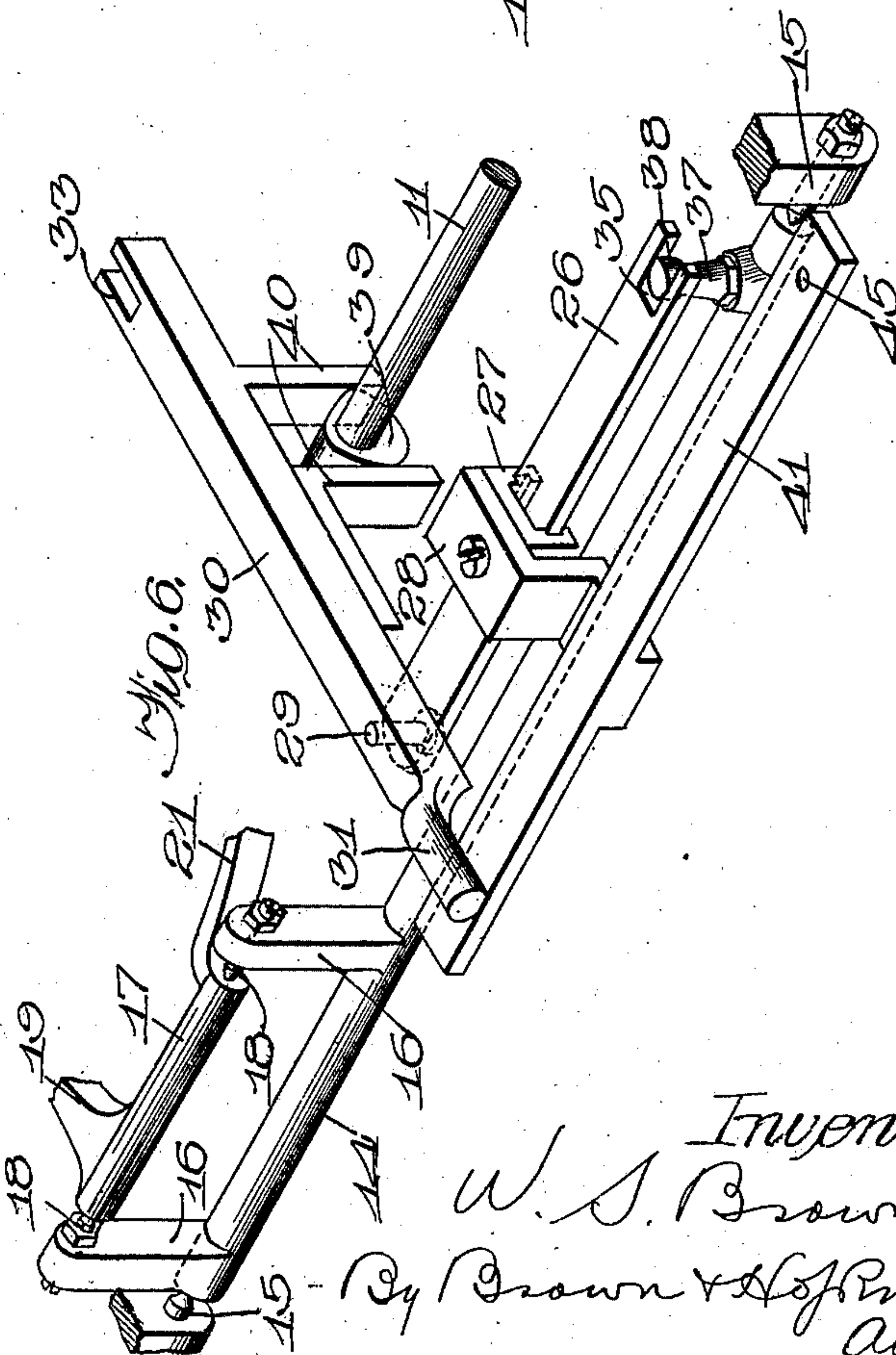
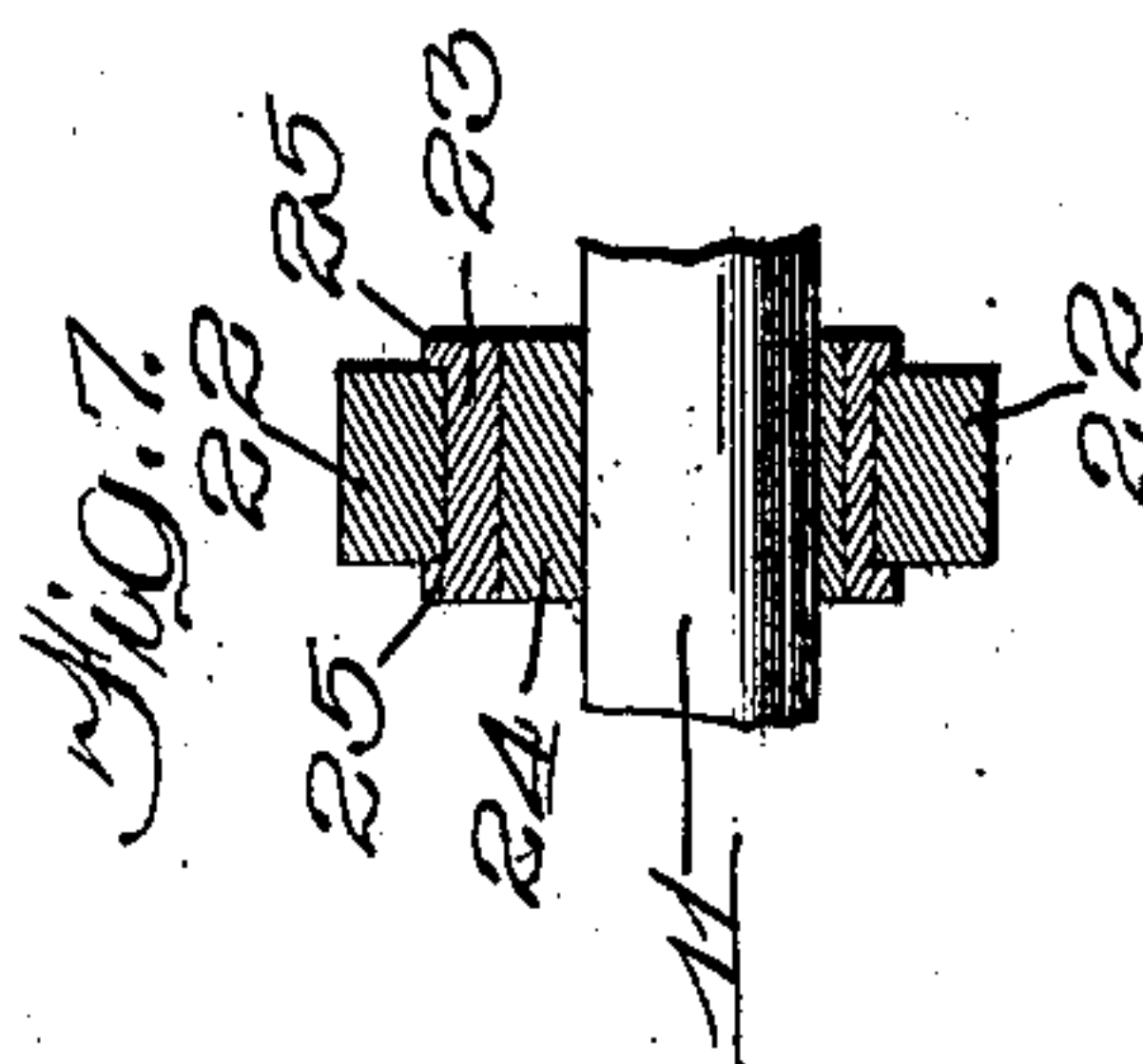
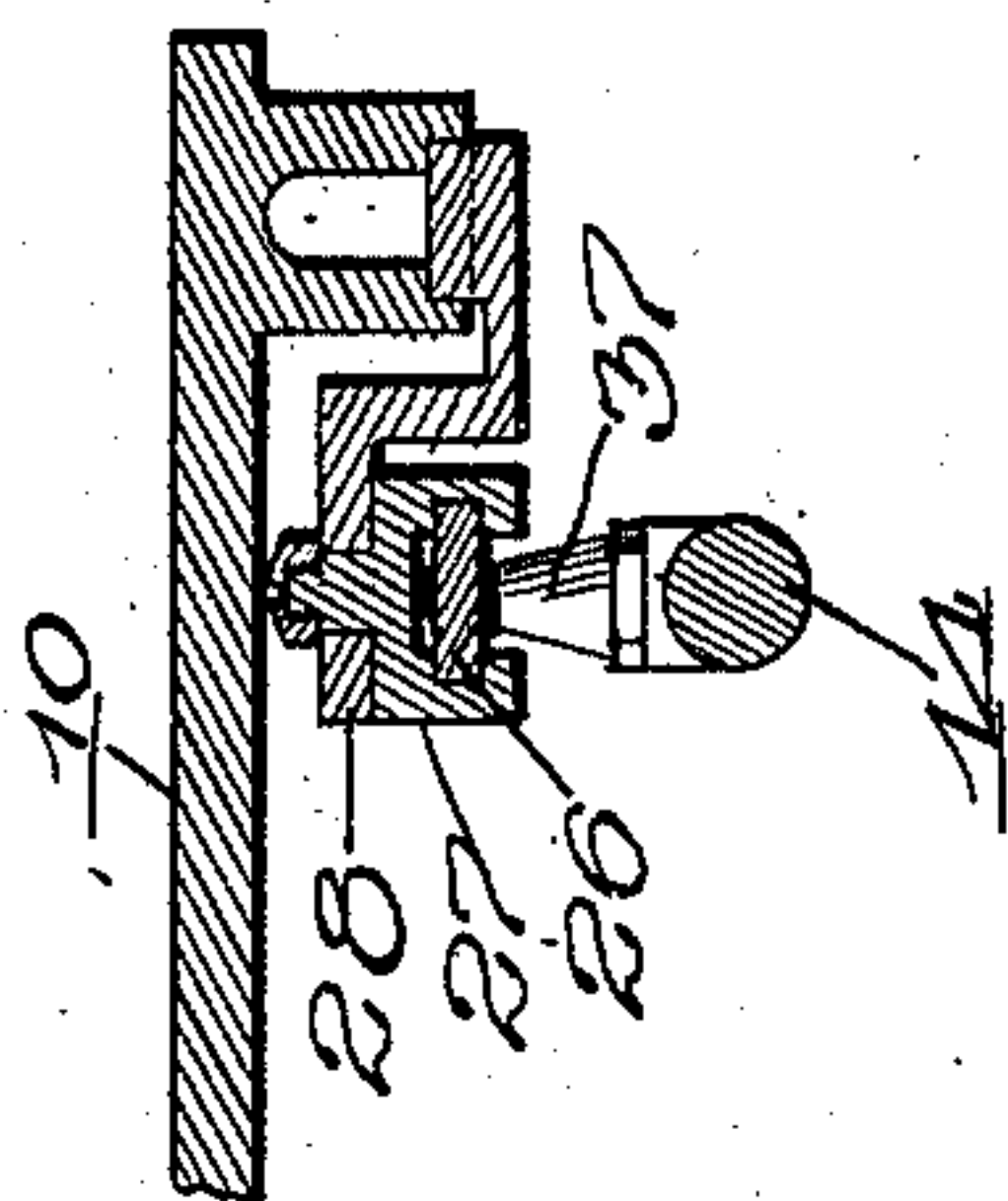
986,682.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 3.



Witnesses:
G. V. Tomarus Jr.
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UNITED STATES PATENT OFFICE.

WILLIS S. BROWN, OF BELVIDERE, ILLINOIS, ASSIGNOR TO NATIONAL SEWING MACHINE COMPANY, OF BELVIDERE, ILLINOIS, A CORPORATION OF ILLINOIS.

FEEDING MECHANISM FOR SEWING-MACHINES.

986,682.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed April 15, 1908. Serial No. 427,103.

To all whom it may concern:

Be it known that I, WILLIS S. BROWN, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a specification.

This invention relates to improvements in feeding mechanism for sewing machines and more particularly to the mechanism for imparting the four-way movement to the feed dog, and the primary object of the invention is to provide an improved, simple, durable and inexpensive feed mechanism for this purpose and which shall be positive in all four of its movements and free from springs or other like elements liable to get out of order.

A further object is to provide improved means for adjusting the stroke to vary the length of the stitch.

A further object is to provide improved mechanism for imparting the raising movement to the feed.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating an embodiment of the invention, and in which—

Figure 1 is a bottom plan view of the bed plate of the sewing machine, having the improved feeding mechanism attached thereto, constructed in accordance with the principles of this invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a sectional view on line 4—4 of Fig. 1. Fig. 5 is a sectional view on line 5—5 of Fig. 1. Fig. 6 is a detail perspective view of a portion of the feed mechanism showing the adjustable fulcrum for varying the length of the stitches. Fig. 7 is a detail sectional view taken on line 7—7 of Fig. 1. Fig. 8 is a detail sectional view taken on line 8—8 of Fig.

1. Fig. 9 is a detail view, partly in section, showing the feed dog.

Referring more particularly to the drawings and in the present exemplification of the invention, the numeral 10 designates the base or plate of the sewing machine head, and 11 is a shaft extending longitudinally thereof, similar to that employed in well known forms of rotary sewing machines for driving or imparting motion to the shuttle or hook mechanism designated generally by the reference numeral 12 and this shaft is shown as being supported in suitable bearings 13.

A rocker shaft 14 is supported by suitable bearings 15 adjacent one side of the plate 10 and is preferably arranged parallel with the shaft 11. Projecting upwardly from one extremity of the shaft 14 and at the points adjacent the shuttle or hook mechanism 12 are standards or uprights 16 between which a second rocker shaft 17 is supported by means of suitable bearings 18. Projecting from the rocker shaft 17 and toward the hook mechanism 12 is an arm 19, which is adapted to support the feed dog 20, which latter receives its up and down movement when the rocker shaft 17 is oscillated in its bearings, and its forward and backward movement when the rocker shaft 14 is oscillated in its bearings.

The rocker shaft 17 is moved on its bearings by means of an arm 21, shown more clearly in Fig. 4 of the drawings which is provided with an enlarged bifurcated extremity 22 and slidingly mounted in this bifurcation is a bearing block 23. A cam 24 is rotatably mounted in the block 23 and this cam is secured to the shaft 11 for rotation therewith. When the shaft 11 is rotated, the cam 24 will be rotated in the bearing block 23 to raise and lower the arm 21 and rock the shaft 17 at the same time the block 23 slides upon the bearings formed by the bifurcated extremity 22 of the arm. The block 23 is preferably provided with flanges at the sides thereof to engage the outer faces of the extremity of the arm 21 to prevent displacement of the block.

The rocking movement is imparted to the shaft 14 to cause the feed dog to move longitudinally, by means of a vibratory lever 26, which latter is supported by means of an adjustable sleeve 27 pivotally connected to an adjustable support 28, so that when the support 28 is adjusted, the sleeve 27 will be adjusted longitudinally with respect to the lever 26 to change the fulcrum thereof. One end of the lever 26 is pivotally connected as at 29 to a reciprocating bar 30, which is preferably arranged transversely of the shafts 11 and 14 and is supported at one end by means of the extremity 31 thereof passing through a suitable bearing 32 on the base 10, as shown more clearly in Figs. 1 and 5. The other extremity 33 of the bar is bifurcated as at 33 and is adapted to be adjustably held in position by means of a fastening member 34, such as a bolt or screw which passes through the bifurcation 33 and into the bed plate 10. The other extremity of the vibratory lever 26 is bifurcated as at 35 and a projection 37 on the shaft 14 having a rounded extremity 38 projects into the bifurcation 35 so that the rounded extremity 38 thereof will engage the walls of the bifurcation. When the bar 30 is reciprocated, the lever 26 will be vibrated about its fulcrum and this vibratory motion of the lever will rock the shaft 14 upon its bearings.

Any suitable means may be provided for reciprocating the bar 30, such, for instance, as a cam 39 which is secured to and for rotation with the shaft 11 and this cam stands between spaced depending portions 40 on the bar 30.

The length of the stroke of the feed dog is varied to vary the length of the stitch by adjusting the fulcrum 28 longitudinally with respect to the vibratory lever 26. A suitable means for adjusting the fulcrum comprises a slide 41 which is preferably connected to the support 28 and may be of any desired length. This slide is adapted to move between suitable guides 42 on the bed plate 10 and is preferably spaced for some distance below the plate so as to pass below the extremity 31 of the reciprocating bar 30 to permit the fulcrum to be adjusted without interfering with the operation of the other parts of the mechanism. A set screw 43 is adapted to pass through a suitable slot 44 in the bed plate and extend between the guides 42 so that one extremity thereof may be secured to the point 45 of the slide 41. When this set screw is loosened it may be moved in the slot 44 to adjust the slide 41 in its guide 42 and thereby shift the fulcrum 28 longitudinally with respect to the lever 26 and when the fulcrum has been adjusted to the position to obtain the desired stroke of the feed mechanism, the slide and fulcrum

may be secured against further adjustment by tightening the set screw 43.

With this improved construction the adjusting screw 43 is arranged in a convenient position for the operator and the parts are so arranged and connected that the mechanism will operate quietly. Furthermore with this improved construction of raising mechanism, the supporting block 23 will slide easily within the bifurcated extremity of the arm 21 and the operating cam rotating in the block will prevent the latter from wearing a hole or groove in the fork of the lever formed by the bifurcated extremity, if the mechanism should be operated for any length of time.

In order that the invention might be fully understood, the details of the foregoing embodiment have been thus specifically described, but

What I claim as new is—

1. In a feed mechanism for sewing machines, the combination with a rocker shaft and feed dog oscillatably mounted on supports carried by said rocker shaft, of means for rocking said rocker shaft, said means comprising a projection on said rocker shaft removed from said supports, and a lever oscillatable about an axis between one of said supports and said projection and in operatable engagement with said projection.

2. In a feed mechanism for sewing machines, the combination with a drive shaft, of a pair of cams rigidly mounted on said drive shaft, a rocker shaft oscillatable on its own axis, said rocker shaft being provided with a pair of supports rigid thereon at one end, a feed dog oscillatably mounted in said supports, a lever arm rigidly connected with said feed dog and in oscillatable engagement with one of said cams, a rocker arm rigidly mounted on said rocker shaft at a point distant from said supports, a lever extending longitudinally of and above the rocker shaft, said lever being in operable engagement with said rocker arm, and a bar reciprocated by the other of said cams and in driving engagement with said lever.

3. In a feed mechanism for sewing machines, the combination with a base plate, of a rocker shaft mounted below said plate, said rocker shaft being provided with a pair of integral supporting arms adjacent one end and a radially projecting arm adjacent the other end, a second rocker shaft pivotally mounted in said arms between the first said rocker shaft and the plate, said second rocker shaft having a feed bar rigidly mounted thereon immediately below the base plate, a lever extending longitudinally of and above the first said rocker shaft between said radially projecting arm and one of said supporting arms, said lever being pivoted in-

intermediate of its ends and having one end
operably engaging the radially projecting
arm, a rotating shaft, means for operably
connecting said lever with said rotating
5 shaft, and further means for connecting said
second rocker shaft with said rotating shaft.

In testimony whereof I have signed my

name to this specification, in the presence of
two subscribing witnesses, on this 11th day
of April A. D. 1908.

WILLIS S. BROWN.

Witnesses:

EDMOND L. FREENE,

JOHN W. ELDRIDGE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
