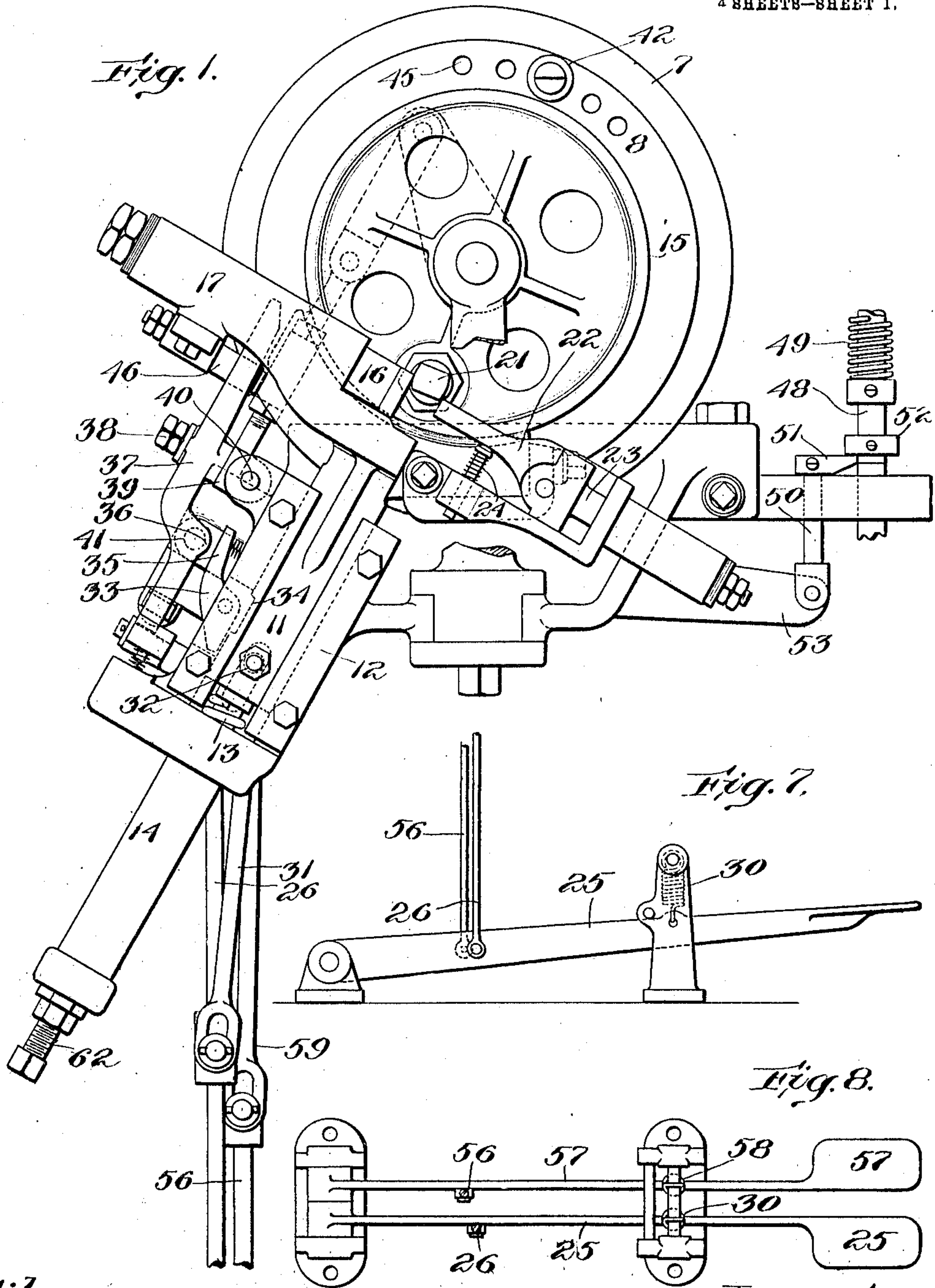


F. J. NASH.
SHOE SEWING MACHINE.
APPLICATION FILED JAN. 11, 1906.

955,982.

Patented Apr. 26, 1910.

4 SHEETS—SHEET 1.



Witnesses:
Garnett J. Dorsey
Margaret L. Gilman.

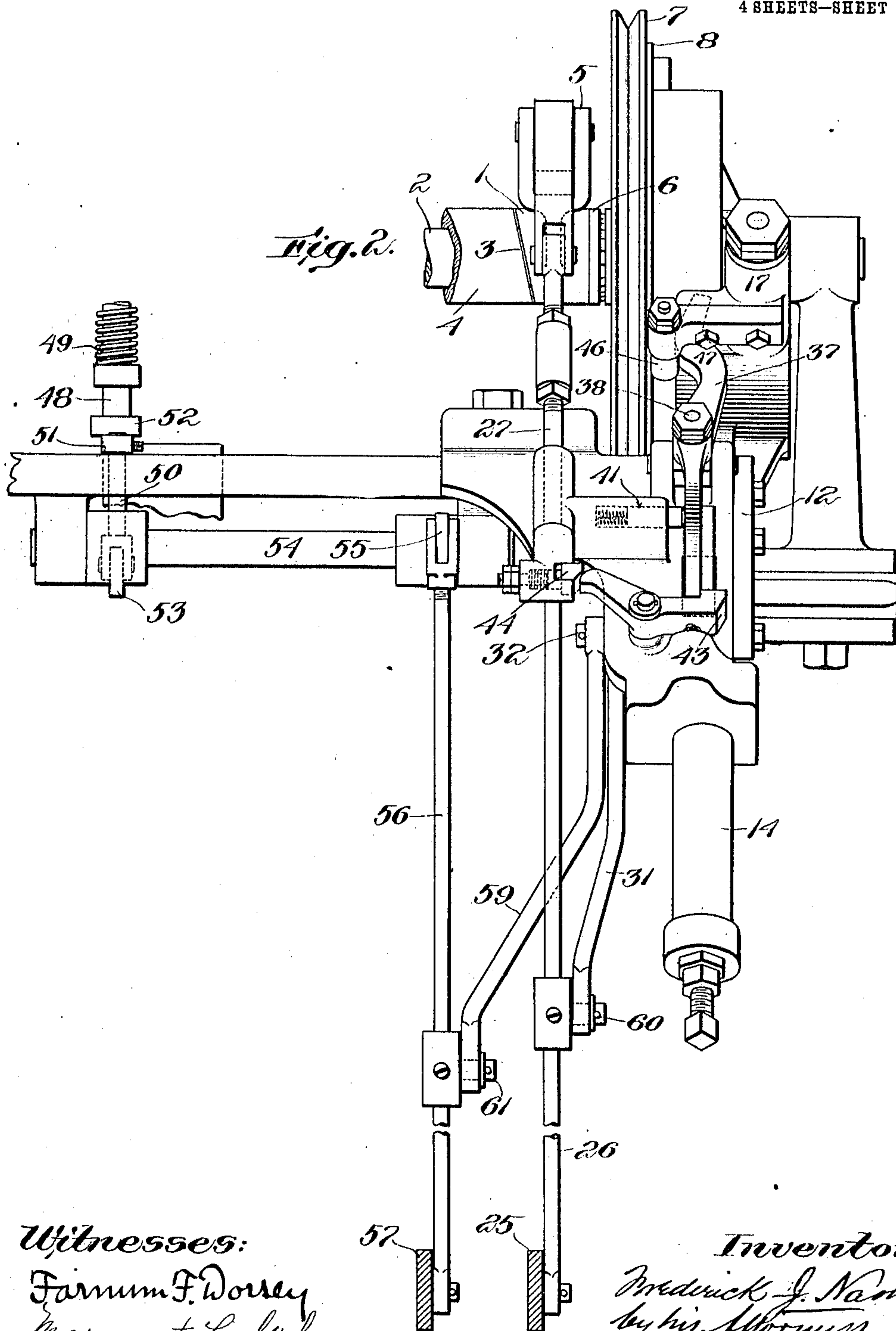
Inventor:
Friedrick J. Nash
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Phillips Van Curen & Fish

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4 SHEETS—SHEET 2.



Witnesses:
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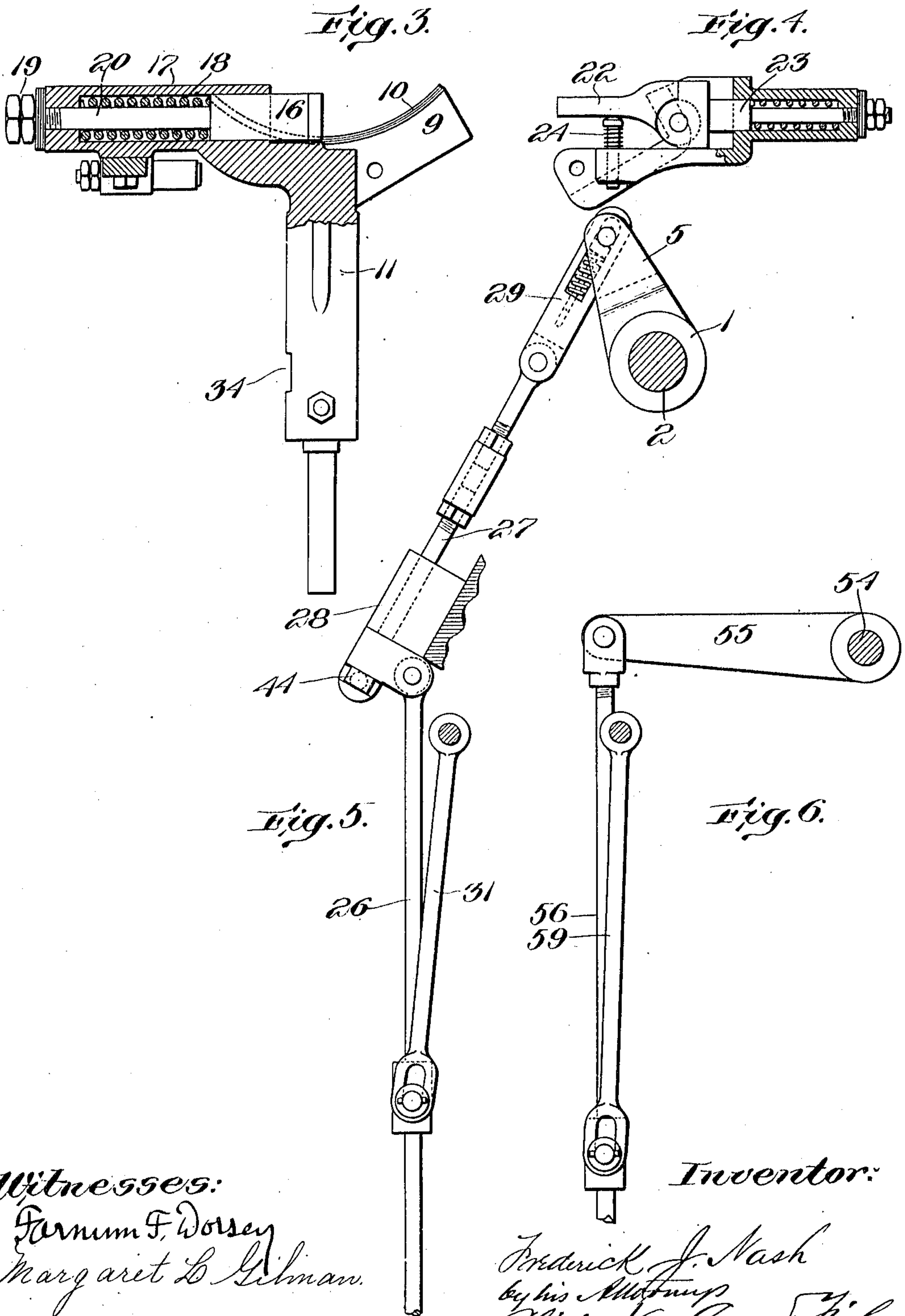
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

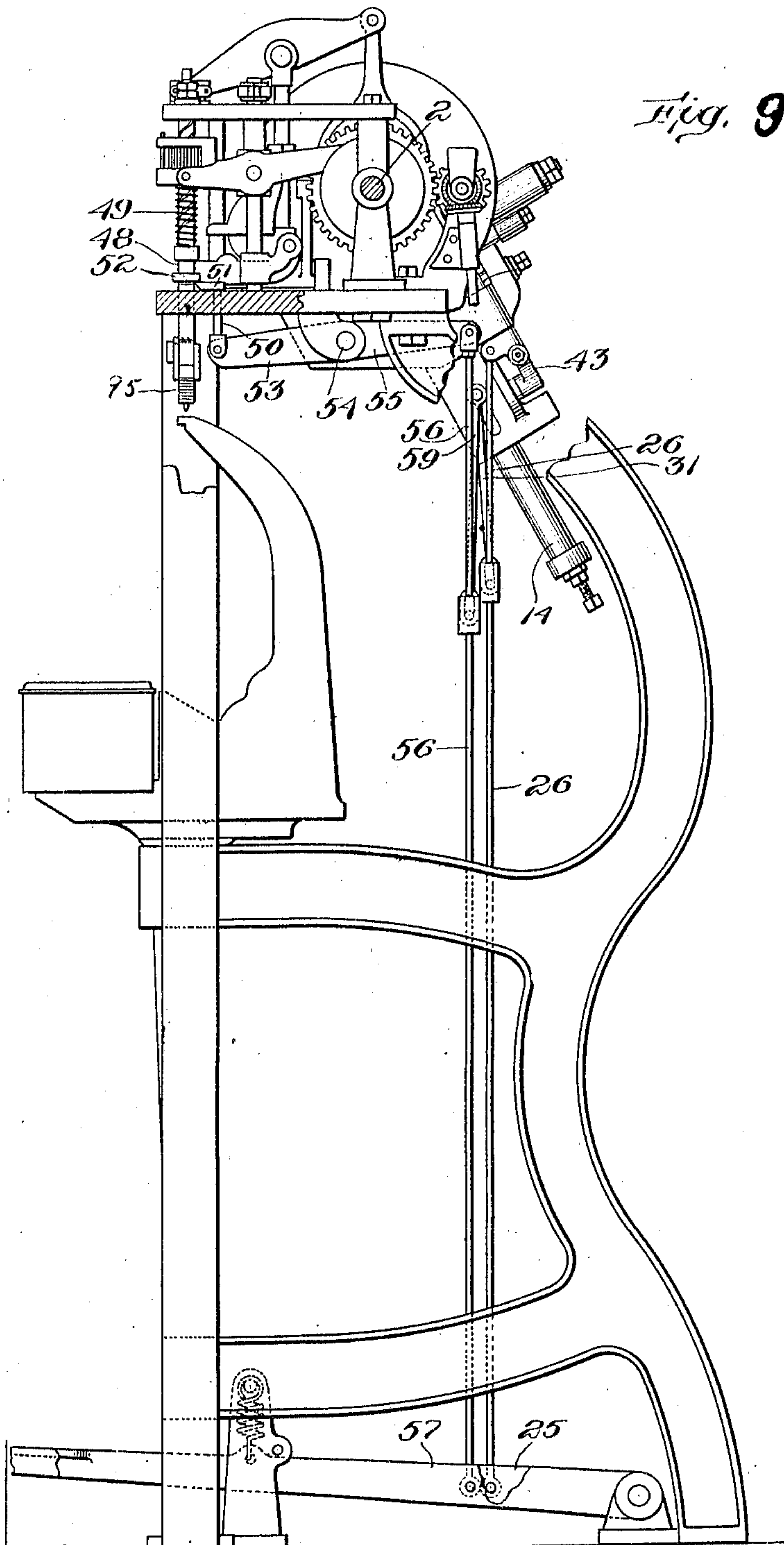


Fig. 9

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UNITED STATES PATENT OFFICE.

FREDERICK J. NASH, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SHOE-SEWING MACHINE.

955,982.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed January 11, 1906. Serial No. 295,571.

To all whom it may concern:

Be it known that I, FREDERICK J. NASH, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shoe-Sewing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in shoe sewing machines.

In the operation of a shoe-sewing machine a large part of the operator's time is spent in removing finished work from the machine and inserting new work, and it is desirable, therefore, to reduce as far as possible the number of motions or operations necessary for changing the work and interrupting and starting the operation of the machine.

In shoe-sewing machines the part of the shoe to be sewed is clamped between a work support and a cooperating presser-foot or equivalent device, and in removing or replacing the work the presser-foot must be released and raised from the work, a hand lever or treadle being usually provided for this purpose. In stopping the machine it is necessary to stop it in such position that the needle shall be out of the work, and the presser-foot unlocked.

It has been proposed to provide a shoe-sewing machine with mechanism for automatically stopping it upon the release of a pedal by the operator, in a definite position, by means of a brake or other stopping device applied, at a certain point in the rotation of the cam shaft of the machine, and in connection with such mechanism it has been proposed to provide manually operable means for releasing the shaft from the brake or other stopping device, so that the operator, after stopping the machine, may turn the machine freely by hand, as is frequently necessary in starting or finishing a seam or repairing a defective portion of the seam.

One object of the present invention is to simplify the operation of a shoe-sewing machine provided with stopping mechanism by so connecting the stopping mechanism and the presser-foot that by the movement of a single treadle or other manually controlled means the presser-foot may be raised, and simultaneously the machine released from

the stopping device to permit it to be turned by hand.

Another object of the invention is to produce, for use in such a connection, a stopping mechanism of improved construction which will stop the machine accurately and without jar.

The invention consists in the improved sewing machine hereinafter described and defined in the claims.

In the drawings Figure 1 is a side elevation of the stop mechanism as applied to a sewing machine, certain parts of the sewing machine being shown. Fig. 2 is a rear elevation of the same. Fig. 3 is a detail view, partly in section, of the slide which carries the stopping devices. Fig. 4 is a detail view, partly in section, of the rebound latch. Fig. 5 is a detail view, of the connections between the clutch and the treadle. Fig. 6 is a detail of the connections between the presser foot and the treadle, Figs. 7 and 8 are a side elevation and a plan view, respectively, of the treadles, and Fig. 9 is a view in side elevation of the entire sewing machine looking in the opposite direction from Fig. 1, certain portions of the machine frame being broken away to show underlying parts.

The invention is illustrated as applied to a shoe sewing machine of the well-known McKay type, and the illustrated embodiment comprises a treadle-operated clutch upon the driving shaft of the sewing machine for connecting the shaft with a rotating pulley to actuate the machine, a brake and other stopping devices to bring the shaft and the machine to rest when desired, and a treadle-operated device for simultaneously raising the presser foot of the machine to release the work, and releasing the shaft from the stopping devices so that the machine may be turned over by hand in starting a new piece of work.

The clutch comprises two friction disks mounted on the shaft 2 of the sewing machine and pressed together by mechanism including a sleeve 1 loosely mounted on the shaft and having an inclined surface 3 in contact with a corresponding incline on the journal 4 forming a part of the frame of the machine. The sleeve 1 has an arm 5 by which it may be turned, and when the arm 5 is drawn down by means to be hereinafter described, the sleeve is moved to the right along the shaft, and through an interne-

diated ball thrust bearing 6 it presses the belt pulley 7, which is loosely mounted upon the shaft 2 and carries one of the friction disks, against a friction disk 8 keyed to the shaft, thereby connecting the pulley with the shaft so that the latter may be rotated by the pulley and the sewing machine set in motion.

The brake by which the rotation of the shaft is retarded before bringing the shaft finally to rest comprises a brake shoe 9 lined with frictional material 10 and carried by a slide 11 sliding in a slide guide 12 on the frame of the machine. A coil spring 13 mounted in a tubular extension 14 from the guide 12 tends to press the slide 11 upward so as to press the brake shoe 9 against a cylindrical brake surface 15 fixed to the friction disk 8. The slide 11 carries, in addition to the brake, a spring buffer 16 sliding in a hollow arm 17 on the slide and pressed outwardly by a spring 18, its movement being limited by stop nuts 19 on the stem 20 of the spring buffer. The spring buffer serves to bring the shaft finally to rest after its rotation has been retarded by the brake, by engagement with a stop pin 21 mounted on the friction disk 8.

To prevent rebound of the pin 21 and the shaft when arrested by the spring buffer 16, a latch 22 is mounted upon the slide 11 in position to engage the stop pin 21. The latch is pivoted upon a spring-pressed slide 23 similar in construction to the spring buffer 16 so as to arrest the rebound of the pin 21 without jar, and is held normally up in position to engage the stop pin by a spring plunger 24.

The machine is set in motion by a treadle 25 which is connected by a link 26 with a slide 27 in a sleeve 28 on the frame of the machine and connected by a link 29 with the arm 5 on the clutch-operating hub 2. When the treadle 25, which is normally held in a raised position by a spring 30, is depressed, the clutch is thrown into operation as above described and simultaneously the slide 11 with the stopping devices thereon is drawn down out of operative position by a link 31 connected at one end with the link 26 and at its upper end connected by means of a pin 32 with the slide 11.

The stop mechanism is arranged to apply the brake to the brake surface at a certain point in the rotation of the shaft so that the speed of the shaft may be sufficiently reduced before the stop pin 21 is arrested by the spring buffer 16 when the treadle 25 is allowed to rise. When the operator allows the treadle 25 to rise in order to stop the machine the driving clutch is released, but the slide 11 does not immediately move upward to operate the brake, but is held in lowered position by a latch 33 pivoted upon

the slide guide 12 and engaging a notch 34 in the side of the slide. The latch 33 has a tail 35 in position to be engaged by a boss 36 on a trip lever 37 which is pivoted on a stud 38 projecting from a block 39 pivoted at 40 in lugs on the slide guide 12. A spring plunger 41 tends to swing the trip lever about the stud 38 so as to move the upper end of the trip lever to the left of the position shown in Fig. 2 and into the path of movement of the trip pin 42 carried by the friction disk 8; but during the operation of the sewing machine, the lower end of the trip lever 37 is held to the left, as shown in Fig. 2, by a spring-pressed latch 43. A spring-pressed by-pass 44 carried by the slide 27 moves freely past the latch 43 when the link 26 is drawn down by the treadle 25, but trips the latch and releases the trip lever 37 when the link 26 and slide 27 rise.

The operation of these parts is as follows:—Supposing the parts to be in position shown in the drawings and the pulley 7 to be driven continuously by a belt from a suitable source of power, when the operator desires to start the sewing machine the treadle 25 is depressed, drawing down the link 26 and throwing the driving clutch into operation, and by the same movement drawing down the slide 11 by means of the link 31 unless this has previously been drawn down by mechanism to be presently described so as to release the shaft from the stopping mechanism. When the operator desires to stop the machine the treadle 25 is released and rises, thus throwing the driving clutch out of operation. At the same time the by-pass 44 trips the latch 43 which releases the trip lever 37, and the upper end of the trip lever moves to the left into position to be engaged by the trip pin 42. When the trip pin 42 engages the trip lever it swings the upper end of the trip lever to the left of the position shown in Fig. 1, thereby pressing the boss 36 against the tail of the latch 33 and releasing the slide 11, which thereupon is pressed upwardly by the spring 13 and the brake 9 is pressed against the brake surface 15. After the shaft has performed a further part of a rotation owing to the momentum of the parts connected therewith the stop pin 21 passes over the latch 22 and strikes the buffer 23 which brings it finally to rest. The rebound latch 22 rises behind the pin 21 so as to check its rebound from the spring buffer. Since the trip pin 42 engages the trip lever 37 some time before the stop pin 21 engages the spring buffer the brake is applied and operates to retard the rotation of the shaft some time before the latter is brought to rest, and by adjusting the stop pin 42 to different positions, which is arranged for by supplying several screw-threaded holes 45 in the friction disk

8 in which it may be screwed, the mechanism may be so adjusted according to the weight of the parts carried by the shaft as to retard the rotation of the shaft sufficiently, before the spring buffer is encountered by the stop pin, to prevent jar in the stopping of the machine, while leaving sufficient velocity in the shaft to insure the stopping of the shaft at the right point. When the slide 11 moves into operative position, as above described, a resetting pin 46 carried thereby engages an inclined portion 47 on the trip lever 37 and moves the upper end of the trip lever back to the position shown in Fig. 2, so that it is again engaged by the latch 43 ready for the next operation of the mechanism.

The means for raising the presser foot to release the work after the sewing machine has been stopped, and for simultaneously releasing the shaft from the stopping devices, so that the operator may turn the shaft by hand, are constructed as follows: The presser foot 95 of the sewing machine is carried by a vertically sliding bar 48, this bar being normally pressed downward by springs 49. A sliding stem 50 provided with a finger 51 engaging a collar 52 on the bar 48 is connected with a lever 53 fixed to a rock shaft 54 connected by means of a lever 55 and a link 56 with a treadle 57 normally held up by a spring 58. The link 56 is also connected with the slide 11 by a link 59. When the treadle 57 is depressed the links 56 and 59 are drawn down and thereby, through the mechanism described, the presser foot is lifted and the slide 11 is drawn into position to be retained by the latch 33. Thereafter, when the treadle 57 is released to lower the presser foot upon the work, the shaft may be turned freely by hand. The links 31 and 59 are connected with the links 26 and 56 respectively by slotted ends engaging pins 60 and 61 mounted on the links, so that the slide 11 may be drawn down by either treadle without interfering with the operation of the other treadle.

The spring 13 by which the brake is applied may be adjusted by an adjusting screw 62, and by these means, in connection with the adjustment of the trip pin 42, the brake may be arranged to bring the shaft substantially to rest before the spring buffer acts.

The present invention although particularly useful in connection with shoe-sewing machines, may be used with sewing machines of various kinds, and the invention is not, in general limited to the details of construction and operation of the illustrated embodiment, but may be embodied in other forms within the terms and spirit of the claims.

I claim—

1. A sewing machine having, in combination with suitable sewing instrumentalities, a presser-foot, a driving shaft, a stop mechanism for stopping the rotation of the driving shaft, and manually operated means for simultaneously raising the presser-foot to release the work and releasing the shaft from the stop mechanism to allow the shaft to be turned by hand, substantially as described.

2. A sewing machine having, in combination with suitable sewing instrumentalities, a presser-foot, a driving shaft, a brake for stopping the rotation of the driving shaft, means for holding the brake in operative position, and means for simultaneously raising the presser-foot and throwing the brake out of operation, substantially as described.

3. A sewing machine having, in combination with a shaft, a brake surface and a detent carried by the shaft, a slide, a brake shoe and a stop carried thereby, means for moving the slide to bring the brake shoe into contact with the brake surface and the stop into the path of the detent, a presser-foot and means under the control of the operator for moving the slide to throw the brake shoe out of operation and for raising the presser-foot, substantially as described.

4. A sewing machine having, in combination with a shaft, a brake surface and a detent carried thereby, a slide, a brake shoe and a stop carried thereby, a spring normally tending to move the slide, a latch for retaining the slide in inoperative position, means for acting under control of the operator to release the slide to permit it to be moved by the spring so as to bring the brake shoe against the brake surface and the stop into the path of the detent, a presser-foot and means under the control of the operator for moving the slide to throw the brake shoe out of operation and for raising the presser-foot, substantially as described.

5. A sewing machine, having, in combination with suitable sewing instrumentalities, a presser-foot, a driving shaft, a stop mechanism for stopping the rotation of the driving shaft, means under control of the operator for raising the presser-foot to release the work and connections operated by said means for releasing the shaft from the stop mechanism to allow the shaft to be turned by hand, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

FREDERICK J. NASH.

Witnesses:

FARNUM F. DORSEY,
FRED O. FISH.