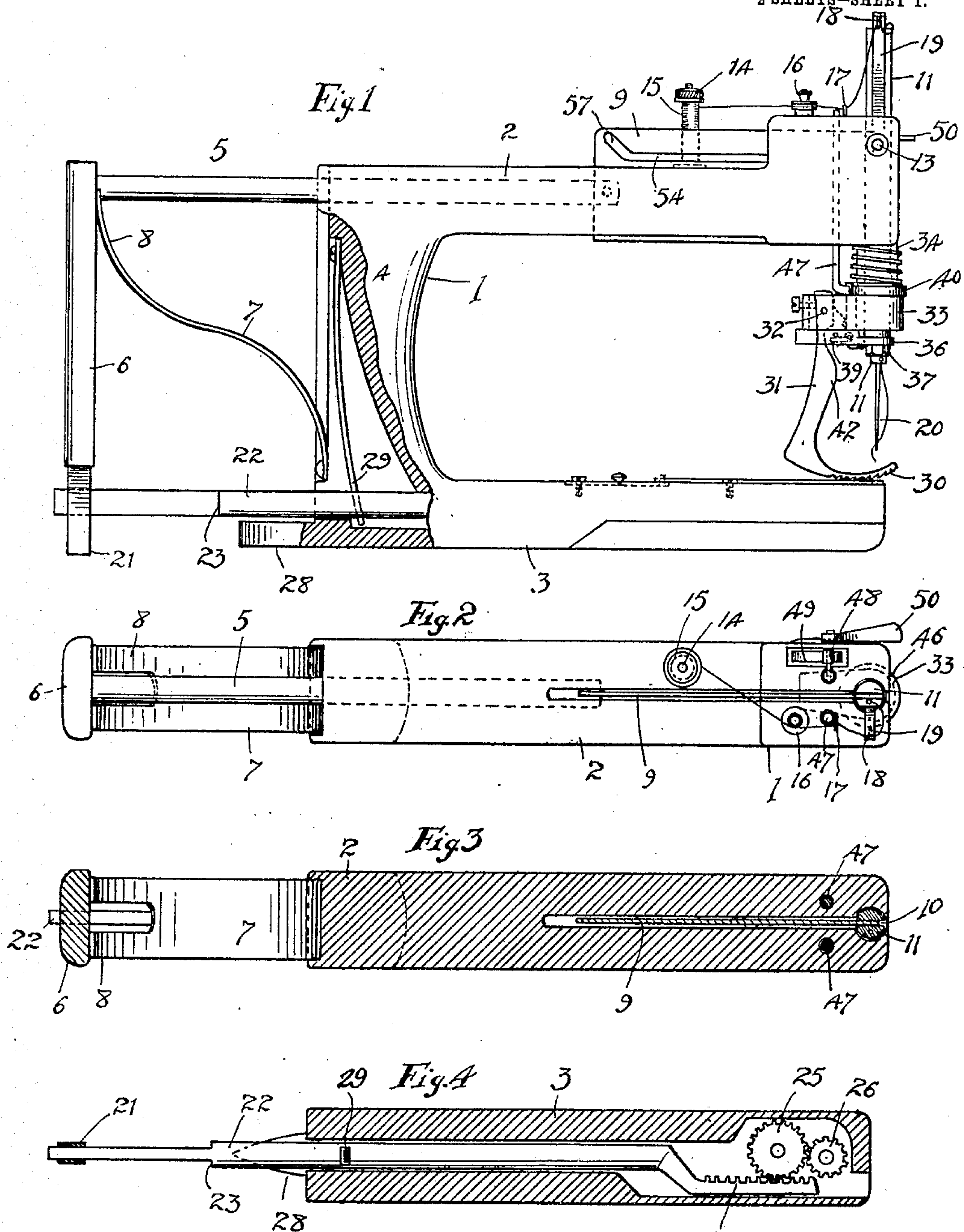


H. E. LA PLANT.
SEWING MACHINE.
APPLICATION FILED APR. 13, 1908.

916,333.

Patented Mar. 23, 1909.

2 SHEETS-SHEET 1.



WITNESSES:

Geoffrey Holt.

Hellie B. Keating.

INVENTOR,

H. E. La Plant

BY

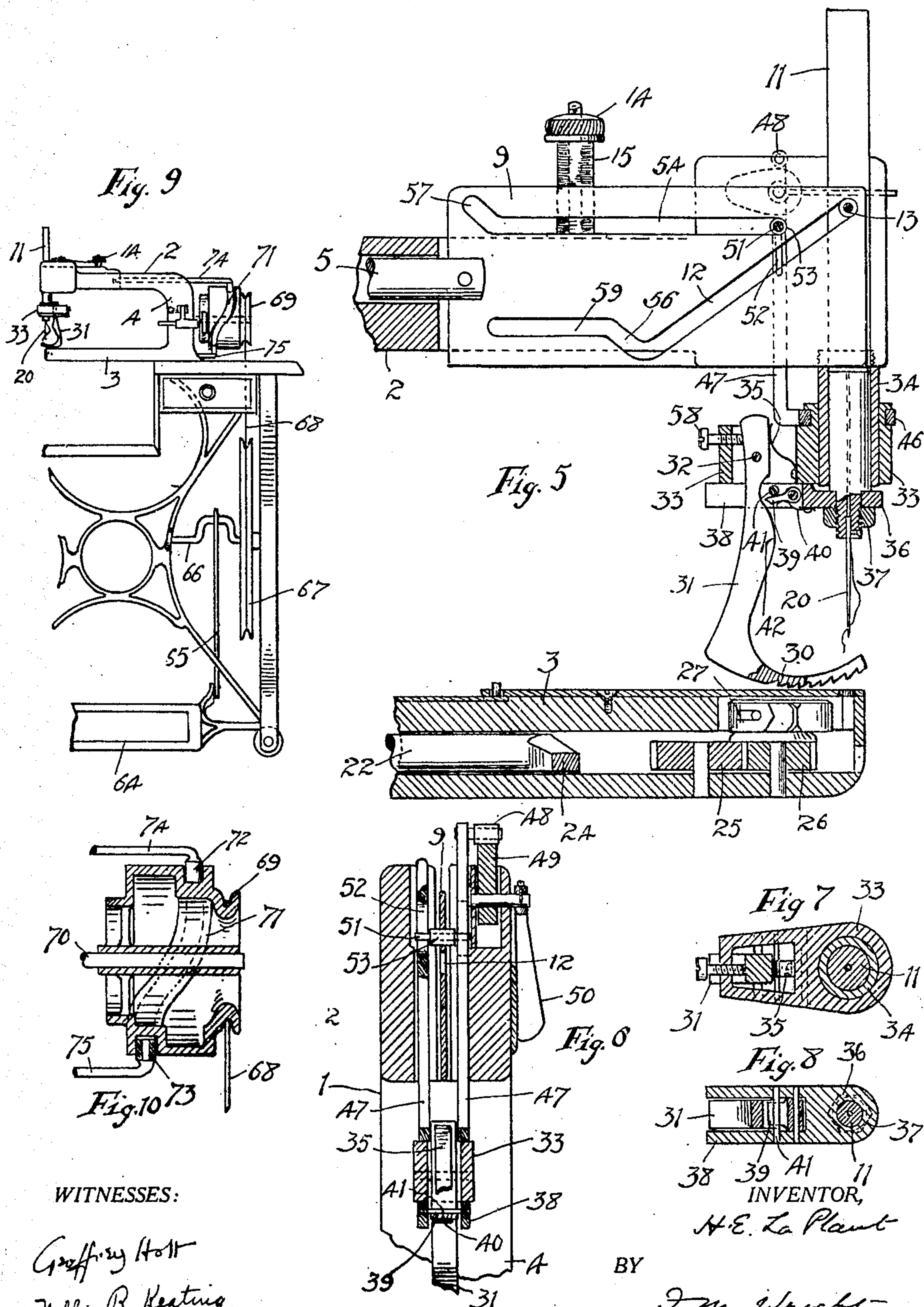
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UNITED STATES PATENT OFFICE.

HARRY E. LA PLANT, OF KENNET, CALIFORNIA.

SEWING-MACHINE.

No. 916,333.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed April 13, 1908. Serial No. 426,924.

To all whom it may concern:

Be it known that I, HARRY E. LA PLANT, a citizen of the United States, residing at Kennet, in the county of Shasta and State of California, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

The object of the present invention is to provide a sewing machine which can be manufactured and sold at a low cost, and which is especially adapted for stitching leather, although it may also be used for stitching cloth and other material.

In the accompanying drawing, Figure 1 is a side view of the machine; Fig. 2 is a top plan view of the same; Fig. 3 is a horizontal section through the upper arm; Fig. 4 is a horizontal section through the lower arm; Fig. 5 is an enlarged broken longitudinal vertical section; Fig. 6 is a transverse vertical section; Fig. 7 is a horizontal section through the collar; Fig. 8 is a similar view through the dog; Fig. 9 is a side view of a modified form of the invention; Fig. 10 is an enlarged detail sectional view of the same.

Referring to the drawing, the frame of the machine comprises a yoke-shaped casting 1 having upper and lower hollow arms 2, 3, and a back 4. In the upper arm reciprocates a slide bar 5, which is connected at the rear end to a vertical hand piece 6, between which hand piece and the back of the frame is interposed an ogee spring 7, secured at its lower end to the back of the frame, its upper forked end 8 being free, and bearing against the inner vertical surface of the hand piece, and slidable upon said surface, when said hand piece is moved to and from the frame. To the front end of said slide bar is attached a plate 9, which slides through a guideway in the upper arm 2, and also slides through a vertical slot 10 formed in a vertical needle carrier 11. Said plate is formed with a slot 12, inclined or oblique for the greater part of its length, through which passes a pin 13, extending transversely through the needle carrier, and joining the two sides of the latter. Upon the upper arm of said frame is secured a spool holder 14, upon which can be placed a spool the thread 15 from said spool passing through a tension device 16, then through a fixed eye 17 and then through an eye 18 on the top or free end of a spring 19, the latter being secured at its lower end to the needle carrier and reciprocating therewith. As the needle carrier descends, said

spring is pressed inward by the side of the bearing for the needle carrier, and as the needle carrier returns, said eye 18, moving outward owing to the spring emerging from said bearing, takes up the slack of the thread. After passing through the eye 18, the thread then passes down through the middle of the needle carrier, and through the eye of the needle 20. By reason of the above construction, upon each forward movement of the hand piece, the needle is depressed, carrying the thread through the cloth.

From the lower end of the hand piece depend two flat springs 21, which, in the forward movement of the hand piece, slide close to, or in contact with the sides of a slide bar 22, reciprocating in the lower arm 3, said springs moving freely along said slide bar until their front edges engage shoulders 23 formed upon said slide bar, whereupon in the continued advance of the hand piece from that point, said lower slide bar is moved inward with said springs and hand piece. Said lower slide bar is offset at its forward end and is formed into a rack 24 engaging a gear wheel 25, which in turn engages a gear wheel 26 which carries an oscillating shuttle 27. This shuttle is of the same character as that used in the Singer sewing machine, and need not be herein further specified. In the continued inward movement of the hand piece, the two flat springs 21 engage opposite sides of a rearwardly directed wedge 28 secured to the bottom of said back, so that, in said continued movement, said springs are spread apart, and consequently no longer engage said shoulders 23, whereupon the lower slide bar 22 is free to return, which it immediately does, by the action of a spring 29, contained in a recess in the back 4, the upper end of which spring is secured to said back, and the lower end passes through said lower slide bar. From this it results that the lower slide bar immediately returns the instant that the hand piece has traveled inward a distance which is constant for every movement of the hand piece, thereby producing a reciprocatory movement of the lower slide bar, and correspondingly actuating the shuttle in the manner already described. This movement of the shuttle is arranged to take place in such conformity with the reciprocating movement of the needle carrier as to form the necessary stitching.

30 indicates the presser foot which is carried by a hanger 31, pivoted at 32 to a collar 33 which surrounds the cylindrical guideway 34 for the needle carrier. A spring 35 is interposed between said collar 33 and the bottom of the frame around the guideway 34 and said spring 35 acting upon said collar to depress the presser foot upon the material. Said collar can be moved around the cylindrical guideway 34 to any desired angular position. Around the lower reduced end of the needle carrier is a collar 36 retained in place by a nut 37 screwed on the lower end of the needle carrier, and having a forked extension 38 which straddles the hanger 31, and in which extension is pivoted a dog 39 normally raised by a spring 40, and arrested by a cross pin 41. In the first part of the descent of the needle carrier, the free end of said dog is adapted to engage a hump 42 formed on the inner side of said hanger, and thereby swings said hanger on its pivot outward, or away from the needle, thereby causing the presser foot, provided on its under surface with the usual teeth, to feed the material into position for the next stitch, and before the needle enters the material. In the continued descent of the needle carrier, the hanger 31 swings outward to such an extent as to permit the dog 39 to pass said hump 42. Said collar 33 can rotate inside a second collar 46, which is secured to two rods 47 passing upward through the frame in suitable bearings on opposite sides of the slotted plate 9. One of these rods carries at the top a roller 48, and in said upper arm 2 there is formed a recess in which is mounted an eccentric 49 engaged by said roller 48 and adapted to be turned by a suitable handle 50. By means of this handle, and the eccentric 49, the presser foot can be raised from off the cloth, whenever desired. The two rods are connected by a pin 51, which works in slots 52 in the rods, and has a roller 53 engaging a second slot 54 in the slotted plate 9, so that, as hereinafter described, at a suitable time in the operation of the machine, after the stitch has been commenced, said slot operates through said pin to raise said collar 46, and thereby raise the hanger and presser foot.

The mode of operation is as follows:—As the needle descends, and before it enters the cloth, the dog 39 engages the hump 42 and swings the presser foot so as to advance the cloth the distance of one stitch. The needle then descends into the cloth until the pin 13 arrives at the bottom of the inclined slot 12. Then by reason of the upwardly inclined portion 56 of said slot, the needle slightly ascends. Immediately afterward the pin 51 is also engaged by an upwardly inclined portion of the slot 57, which raises the collar 46 and therefore also the collar 33, raising the presser foot from the cloth,

and, as it rises, said presser foot is swung into its former position by means of a spring 35, which presses against the upper end of the hanger, its movement being limited by a screw 58. By this means the presser foot is returned to its normal position ready for the beginning of another stitch. The horizontal part 54 of the slot 57 engages the pin 51 during the time the pin 13 is moving in the oblique portion of the slot 12, and the horizontal part 59 of the slot 12 engages the pin 13, while the pin 51 is moving in the oblique portion of the slot 57. On the return movement the presser foot again drops so as to firmly engage the cloth before the needle starts to rise from the cloth, so that the parts are steadily held by the stitches being completed.

The invention can also be used as a foot power machine, there being provided, for this purpose, the usual treadle 64 connected by a pitman 65 with a crank shaft 66 upon which is mounted a grooved wheel 67, connected by a band 68 with a grooved wheel 69 upon a shaft 70, on which wheel is also formed a cam groove 71 in which are contained rollers 72, 73, on the bent ends of bars 74, 75, which, in this form of the invention, take the place of the bars 5 and 22, shown in the first form of the invention. It is evident that, by the motion of said treadle, said bars 74, 75, will be given reciprocatory movements in the same manner as the bars 5 and 22.

I claim:—

1. In a sewing machine, the combination of a needle carrier, a transverse pin carried thereby, a vertical guideway for said needle carrier, a plate reciprocated transversely to the needle carrier, said plate having a guideway for said pin having a main longer portion oblique or inclined to the direction of reciprocation, a shorter portion oppositely inclined, and a terminal portion at right angles to said direction, and means for reciprocating said plate, substantially as described.

2. In a sewing machine, the combination of a needle carrier, a transverse pin carried thereby, a vertical guideway for said needle carrier, a presser foot, a support therefor, and a plate having slots therein, one of said slots being operatively connected with said needle carrier, and the other being operatively connected to said support, and means for reciprocating said plate, substantially as described.

3. In a sewing machine, the combination of a needle carrier, a transverse pin carried thereby, a vertical guideway for said needle carrier, a presser foot, a support therefor, means for independently raising said support, and a plate having slots therein, one of said slots being operatively connected with said needle carrier, and the other being oper-

actively connected to said support, and means for reciprocating said plate, substantially as described.

4. In a sewing machine, the combination 5 of a needle carrier, a vertical guideway therefor, a presser foot, a horizontal reciprocating plate, having slots therein, one of said slots being oblique in the forward or advancing portion thereof and operatively connected 10 with the needle carrier, and the other slot being straight in the advancing portion thereof and oblique in the rear portion and operatively connected to said hanger support, substantially as described.

15 5. In a sewing machine, the combination of a frame, a needle carrier reciprocating vertically therein, a shuttle rotatable therein, upper and lower reciprocating bars, the upper bar being operatively connected to the 20 needle carrier and the lower bar being operatively connected to the shuttle, a reciprocating device rigidly connected to the upper bar and having an intermittent operative engagement with the lower bar to advance 25 the same, a spring for resisting the movement of said reciprocating device, and a spring for returning said lower bar to its

normal position after being so operated, substantially as described.

6. In a sewing machine, the combination 30 of a frame, a needle carrier reciprocating vertically therein, a shuttle rotating therein, upper and lower reciprocating bars, the upper bar being operatively connected to the needle carrier and the lower bar being 35 operatively connected to the shuttle, a reciprocating device permanently connected to the upper bar, and having a pair of flat springs passing on each side of the lower bar, said lower bar having shoulders adapted to 40 be engaged by said springs, a spring arranged to resist the movement of said lower bar due to the action of said reciprocating device, and a wedge adapted to engage said 45 flat springs to release them from said shoulder, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HARRY E. LA PLANT.

Witnesses:

F. M. WRIGHT,
D. B. RICHARDS.