(No Model.) 7 Sheets—Sheet 1.

# C. DANCEL & J. R. SCOTT.

## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

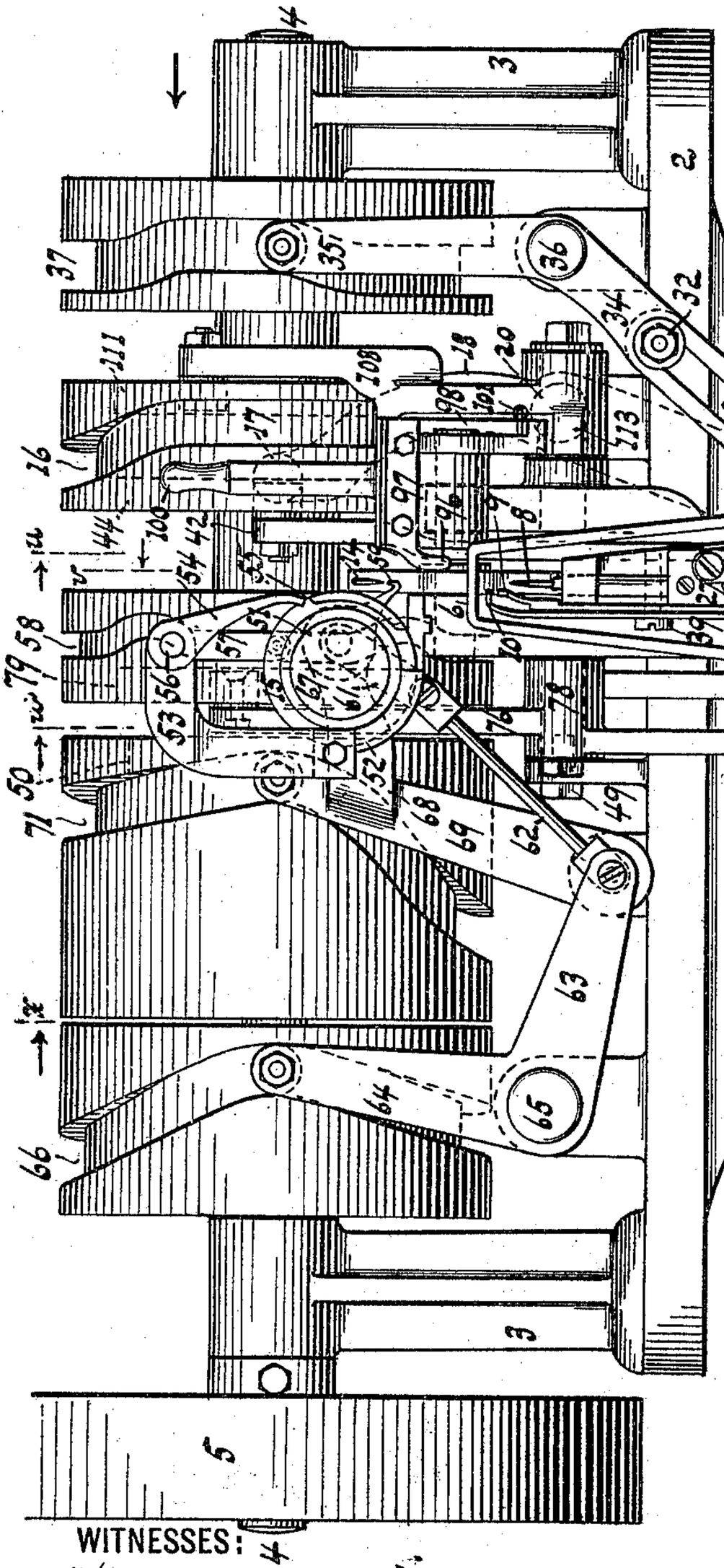

Fig. 1.

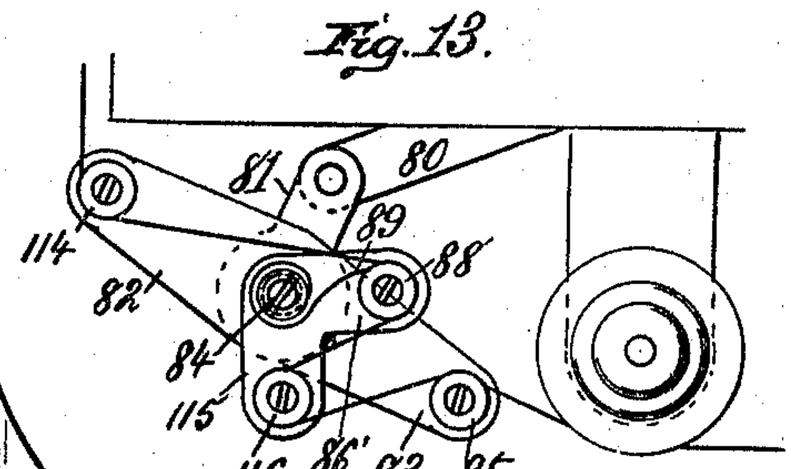

Fig. 13.

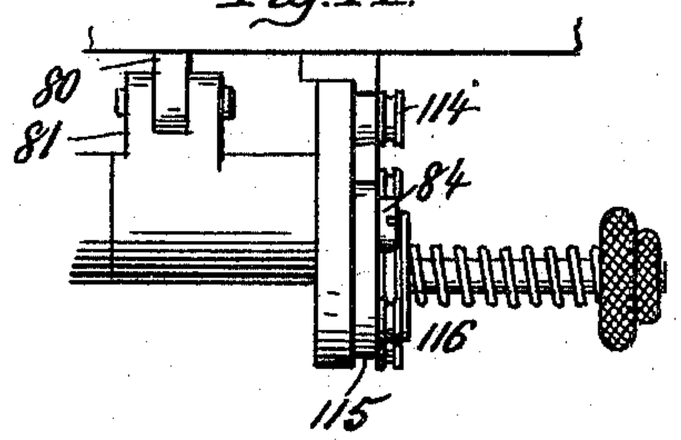

Fig. 14.

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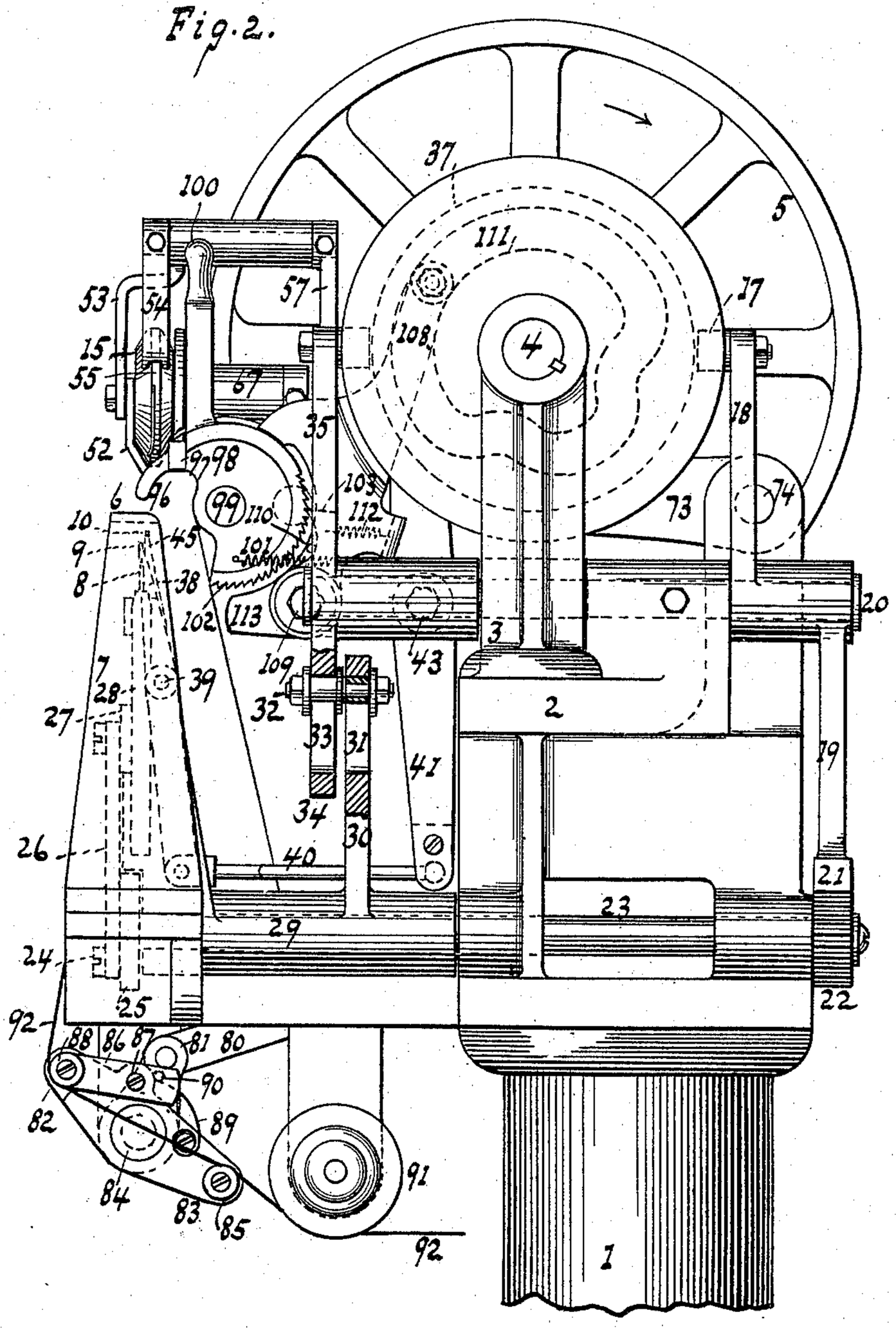
(No Model.) 7 Sheets—Sheet 2.

# C. DANCEL & J. R. SCOTT.

## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

*Fig. 2.*

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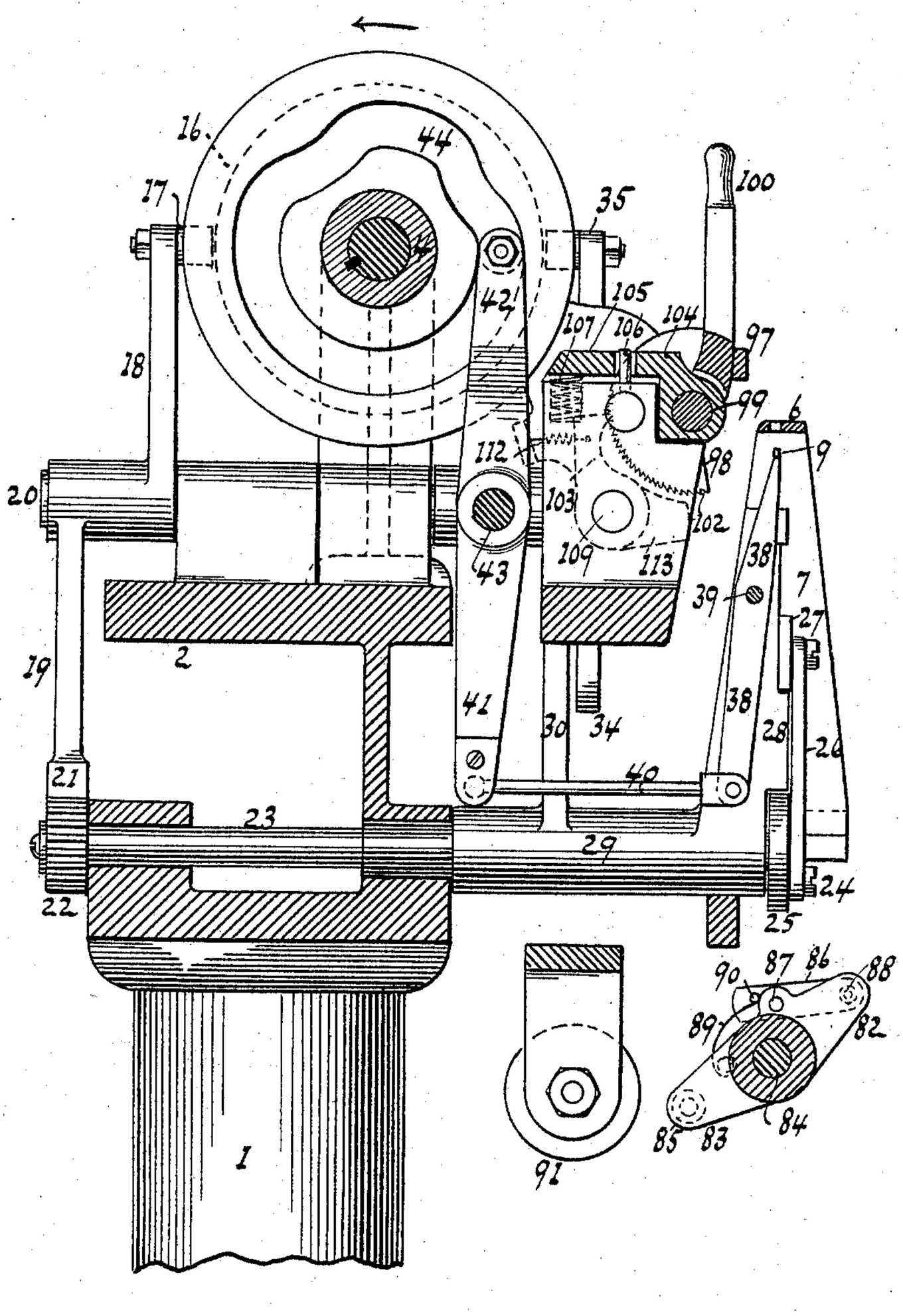
(No Model.) 7 Sheets—Sheet 3.

# C. DANCEL & J. R. SCOTT.

## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

*Fig. 3.*

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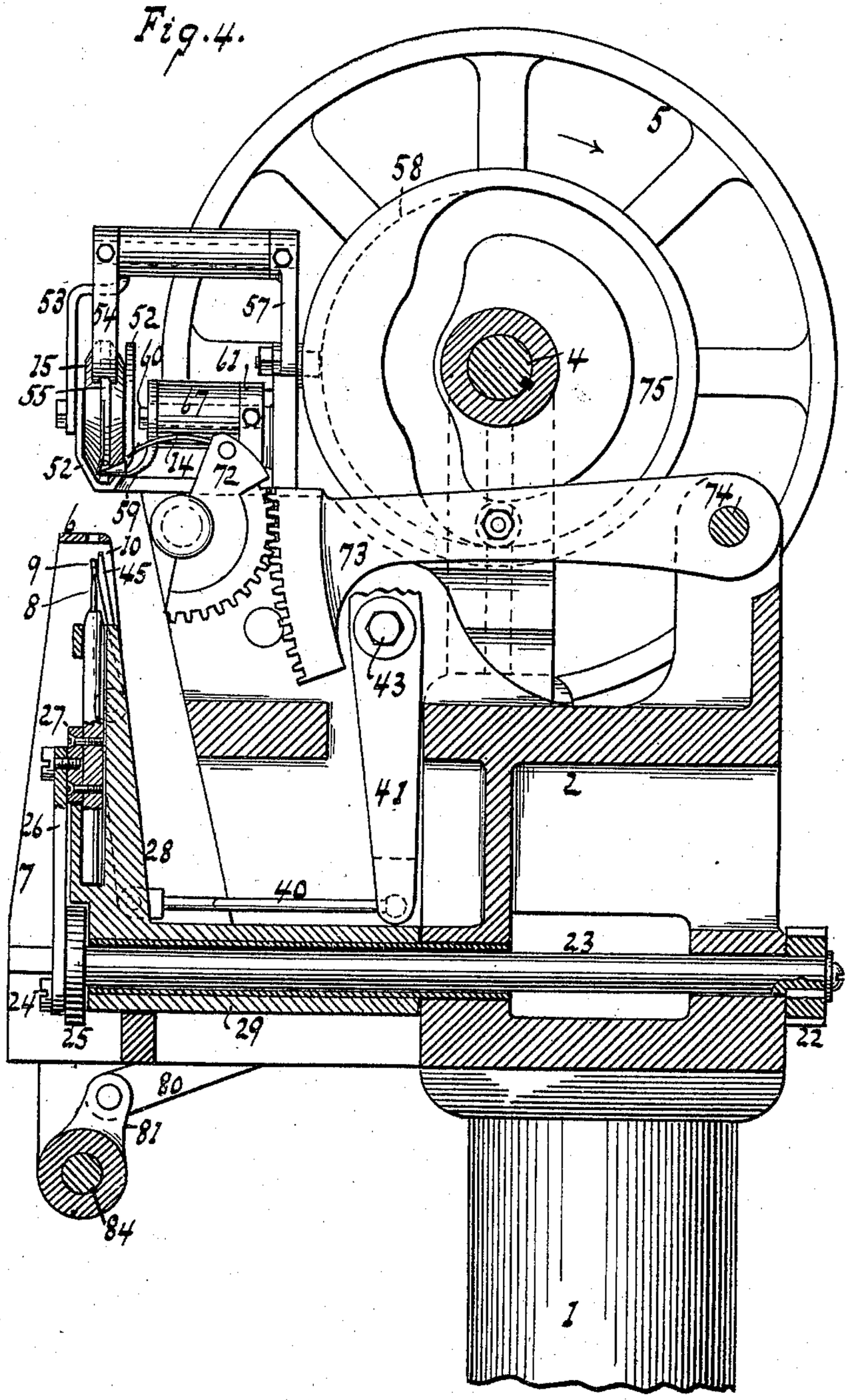
## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

Fig. 4.

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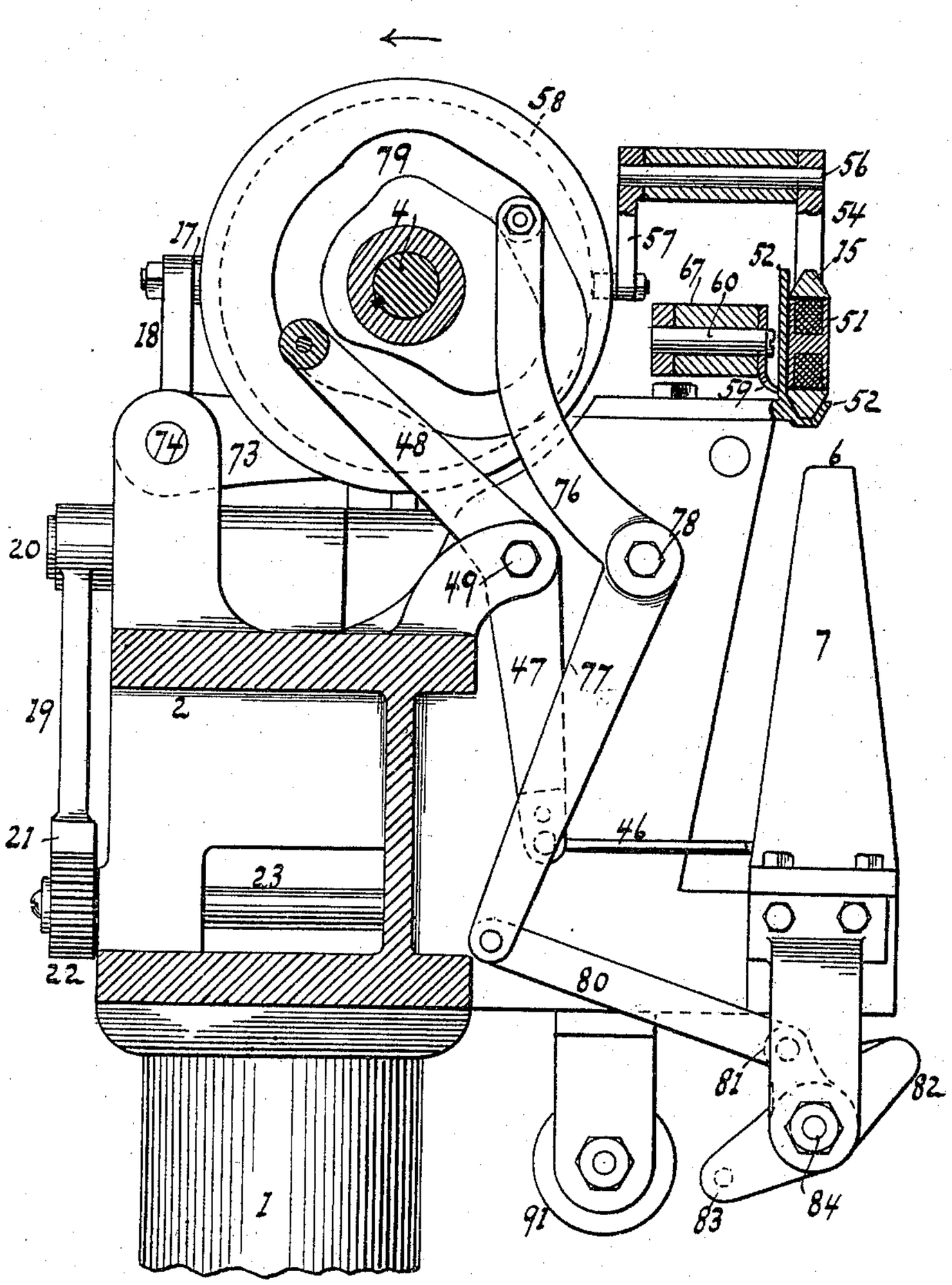
## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

*Fig. 5.*

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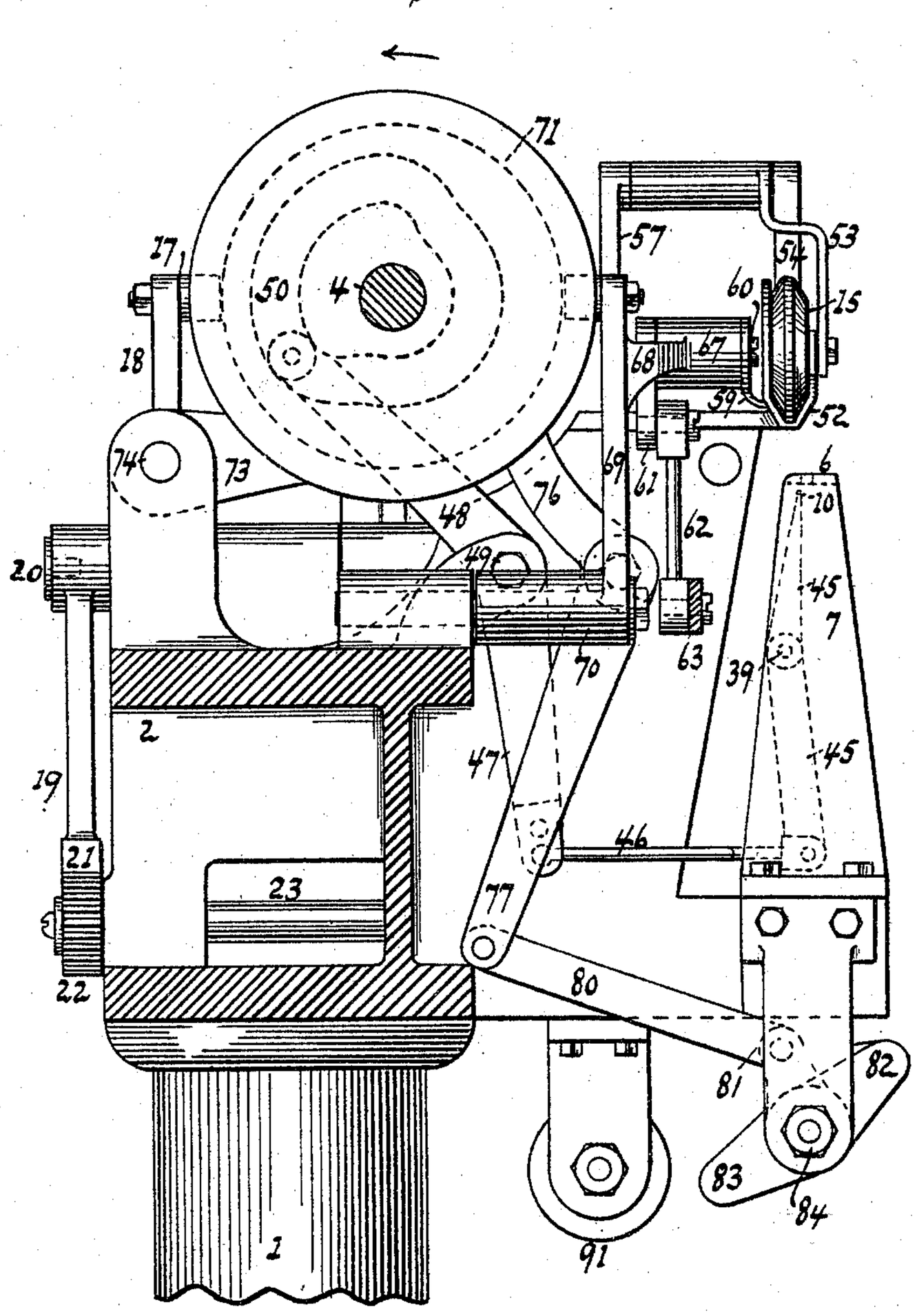
# C. DANCEL & J. R. SCOTT.

## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

*Fig. 6.*

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# C. DANCEL & J. R. SCOTT.

## SEWING MACHINE.

No. 584,675. Patented June 15, 1897.

Fig. 7.

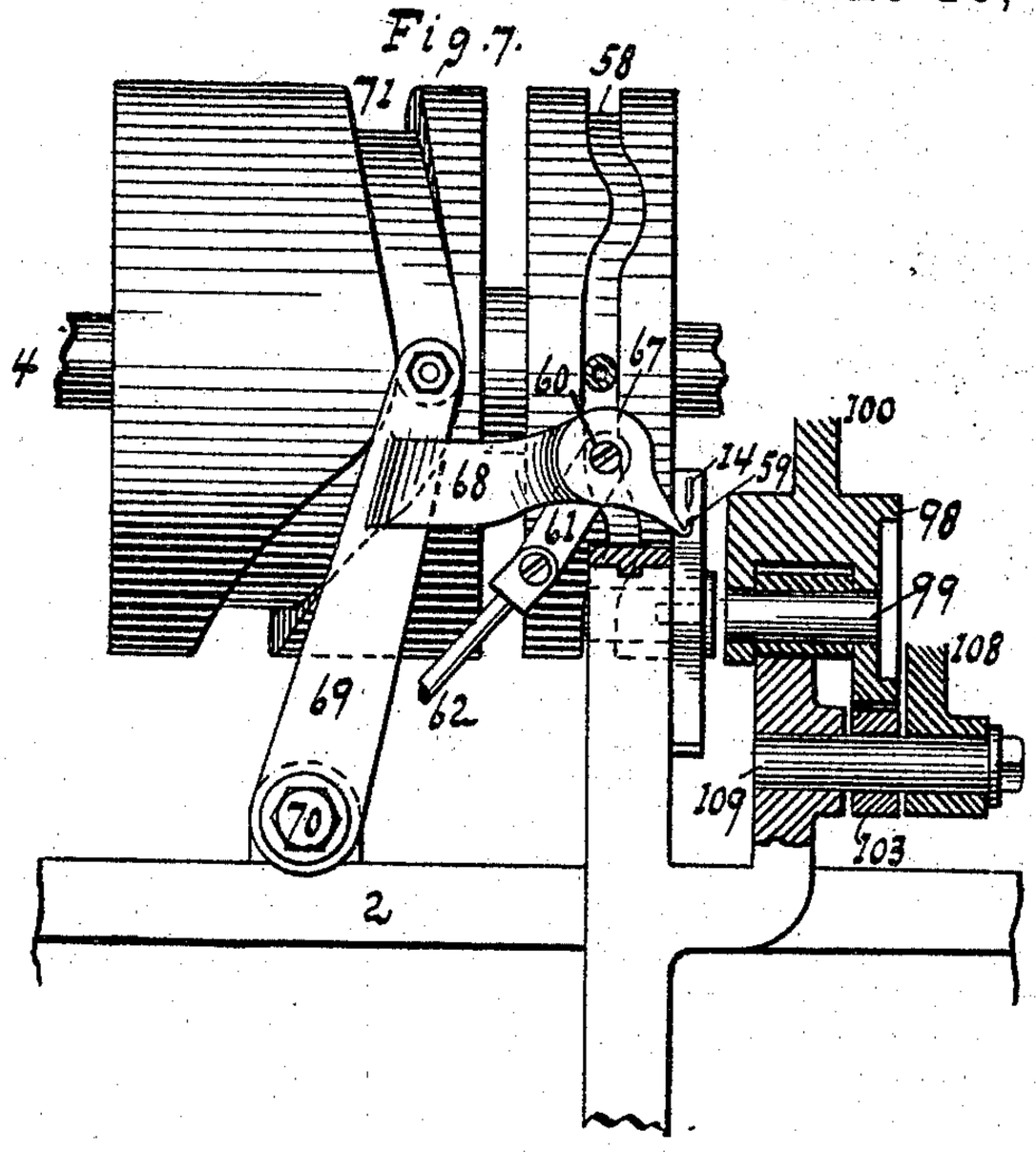



Fig. 8.

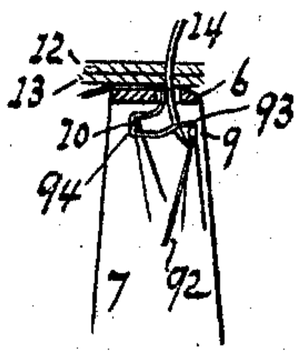



Fig. 9.

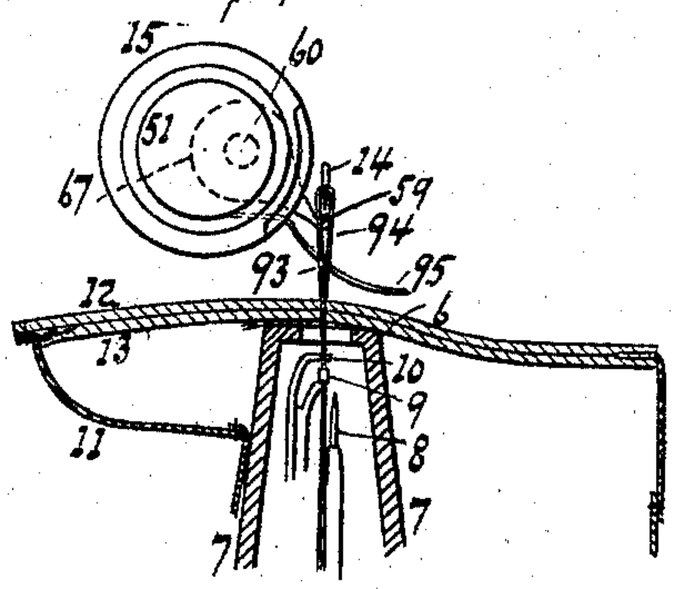



Fig. 10.

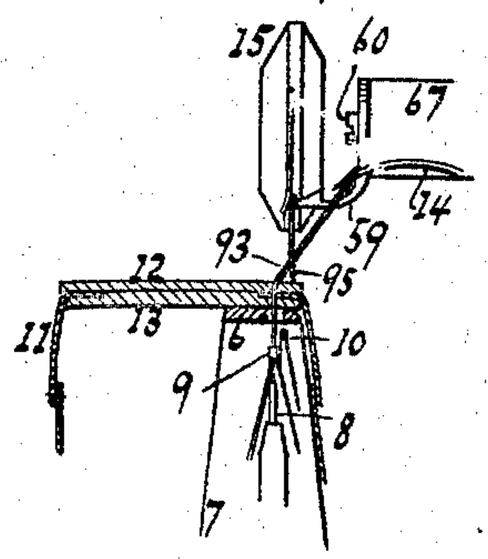



Fig. 11.

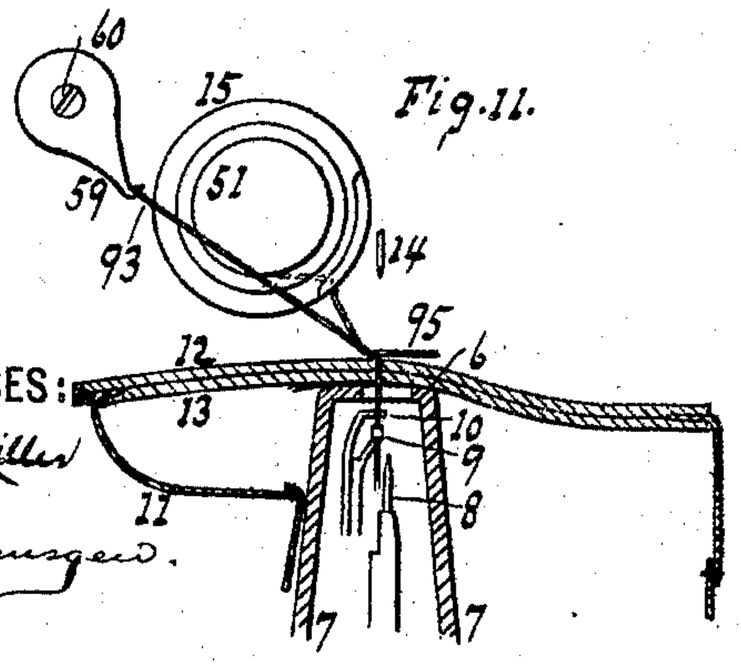
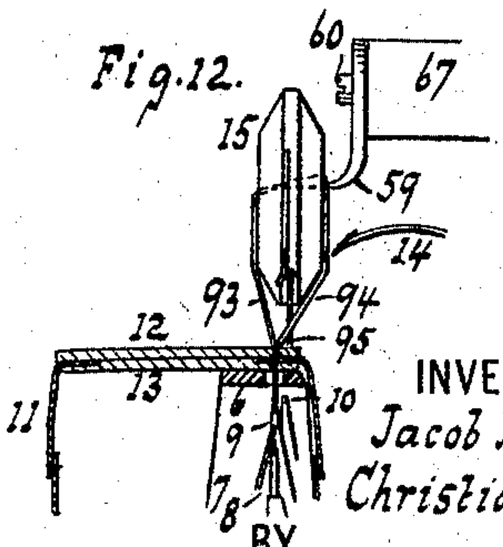



Fig. 12.

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# UNITED STATES PATENT OFFICE.

CHRISTIAN DANCEL, OF BROOKLYN, AND JACOB R. SCOTT, OF NEW YORK, N. Y.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,675, dated June 15, 1897.

Application filed February 27, 1896. Serial No. 580,997. (No model.)

*To all whom it may concern:*

Be it known that we, CHRISTIAN DANCEL, residing at Brooklyn, in the county of Kings, and JACOB R. SCOTT, residing at New York, in the county of New York, State of New York, citizens of the United States, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

The object of this invention is to obtain a machine serviceable in sewing boots and shoes and adapted to secure an improved quality of work; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a front elevation of a sewing-machine. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a section along line *u u*, Fig. 1, showing the looper and looper-cam. Fig. 4 is a section along line *v v*, Fig. 1, showing the awl and the needle and needle-cam. Fig. 5 is a section along line *w w*, Fig. 1, showing the take-up and take-up cam. Fig. 6 is a section along line *x x*, Fig. 1, showing the thread-measurer and the thread-measurer cam. Fig. 7 shows a loop-carrier. Fig. 8 shows the needle as having passed through the work and receiving a loop of thread. Fig. 9 shows a front elevation of the needle as having drawn out a loop of thread. Fig. 10 shows a side elevation of the shuttle, the loop-carrier, and of the needle as having drawn out a loop of thread. Fig. 11 shows a side elevation of the loop-carrier having carried the loop over the shuttle. Fig. 12 is a side elevation of Fig. 11. Figs. 13 and 14 show a take-up lever.

The column 1 supports a plate or base 2 and stands or bearings 3 for the shaft 4, having the pulley or driver 5 and provided with cams for actuating various parts. The work-support 6 has a hollow or chambered or preferably frame-like support consisting of the legs 7, giving access to as well as room for the motion of the awl 8, the looper 9, and thread-measurer 10. The work, such as a boot or shoe with its upper 11, its outsole 12, and its insole 13, being supported on the work-plate 6, the awl 8, passing through a slot or throat in plate 6, pierces the work 13 12, after which the awl returns into the support 6 7, and the needle 14, entering the hole pierced by the awl, is supplied with thread by looper 9. The needle seizing and drawing out the loop of thread, such loop is enchained, if the machine produces a chain-stitch, or, what is thought preferable, the loop is locked by thread from thread-case or bobbin-holder 15.

By having the shoe or work support made to enter the shoe or work and the awl made to act from the support to the shoe or work and outward through the latter any bur or roughness caused by the piercing will be formed on the outside of the work, leaving the interior smooth and comfortable to the touch.

The awl has a piercing motion or reciprocation and also a feeding motion or reciprocation. The piercing motion is effected by groove or cam 16, Fig. 3, engaged by stud or roller 17 of lever 18 19, fulcrumed at 20 and carrying a gear or toothed segment 21, engaging gear 22 of rock-shaft 23. This rock-shaft 23, by an eccentric 24 or eccentrically-studded disk 25, reciprocates link 26, with slide 27, carrying the awl 8 or the awl-carrying socket. The slide 27 reciprocates in a way or carrying-arm 28. The feed-motion of the awl is obtained by reciprocating this way or track 28.

The track or arm 28 extends from or forms part of a rock-sleeve 29, Figs. 2 and 3, sitting loosely about rock-shaft 23, so that the sleeve and arm can rock independently of one another. From sleeve 29 extends an arm 30, Figs. 1 and 2, having slot 31, from which extends stud 32 into slot 33 of arm 34 of lever 34 35, fulcrumed at 36 and actuated by groove or cam 37. The track or arm 28 extends suitably into the work-support 6 7, and as this arm 28 is reciprocated by sleeve 29 and arm 30 a feeding reciprocation or stroke is imparted at proper moments to the awl carried by or sliding on arm 28. By setting the stud or pivot 32 along slots 31 and 33 toward or from sleeve 29 the feed-stroke of arm 28 and awl 8 is regulated.

The eye or looper 9 has, as known, a four-motion stroke or a lateral as well as back-

and-forth motion to loop the thread onto the needle or needle-hook. This looper is carried by or forms part of a lever 38, Figs. 1 and 3, having its fulcrum or pivot 39, carried by arm 28, so as to partake of the lateral motion or reciprocation already described of this arm 28. The lever 38 connects by link 40 with lever 41 42, fulcrumed at 43 and actuated by groove or cam 44. The looper 9 being reciprocated back and forth by lever-arm 41 and accompanying arm 28 in its lateral reciprocations executes the requisite four-motion or looping stroke. To prevent breakage or secure easy motion, the link 40 is shown connected to lever-arm 41 by a ball-and-socket joint.

The thread-measurer 10 is carried by or forms part of a lever 45, Figs. 1 and 6, also fulcrumed at 39 on arm 28. Lever 45 connects by link 46 with lever 47 48, fulcrumed at 49 and actuated by groove or cam 50. Link 46 advantageously connects with lever-arm 47 by a ball-and-socket joint. The action of lever-arm 47 gives the thread-measurer its back-and-forth or measuring stroke. By having the thread-measurer with looper 9 carried by laterally-reciprocating arm 28 said thread-measurer will accompany or keep near to the looper in its lateral strokes.

The thread-case 15 has a bobbin 51, Fig. 5, which is free to be rotated in the thread-case by the draft on the thread to deliver or unwind thread. The thread-case 15 is stationary and is seated in a box or receptacle 52, Fig. 1, surrounding the thread-case sufficiently to keep the latter from falling or rolling out away from the needle 14. The thread-case is held in its box by an arm 54, the free end of which engages a shoulder 55 on the shuttle. This arm 54 extends from a rock-shaft 56, Fig. 5, having arm 57, engaging groove or cam 58, Fig. 1, so that at suitable moments the arm 54 is rocked or swung to lift its free end sufficiently clear of thread-case 15 or of nose 55 to allow a needle-thread loop to be passed over the thread-case. The engagement of arm 54 with nose 55 prevents the thread-case 15 from rotating.

The loop-carrier 59, Figs. 1, 5, 7, 9, 10, 11, and 12, extends from a rock-shaft 60, carrying arm 61, Figs. 1 and 7. The link 62, Fig. 1, is jointed to arm 61 and to arm 63 of lever 63 64, fulcrumed at 65 and actuated by groove or cam 66. The rock-shaft 60 is journaled in sleeve 67, Figs. 1 and 5, which is carried by arm 68, Figs. 1, 6, and 7, extending from lever 69, fulcrumed at 70 and actuated by groove or cam 71. When the needle has drawn up a loop of sewing-thread, the rock-shaft 60 is moved to swing the loop-carrier 59 into said loop, so as to lift or free the loop from the needle-hook and cause said loop to rest on or straddle the carrier 59, at the same time becoming somewhat spread. The lever 69 being then actuated to swing or move the carrier with the loop over the thread-case 15 and the rock-shaft 60 being then swung to bring the loop-carrier 59 to releasing position or to such dip that the loop slips off the carrier, said loop is free to be drawn through between the thread-case 15 and its seat 52 and to be then drawn in to complete or set a stitch. In entering the loop the carrier 59 also spreads the same, so as to secure the straddling of the thread-case by the loop. The arm 54, as before noted, being temporarily or momentarily raised at the proper moment the loop-thread can pass between the arm 54 and the thread-case 15.

The needle 14 is suitably mounted, as on a carrier 72, Fig. 4, actuated by or geared to lever 73, fulcrumed at 74 and engaging groove or cam 75.

The take-up-actuating lever 76 77, Fig. 5, fulcrumed at 78 is actuated by groove or cam 79 and connects by link 80 with an arm 81 of a three-armed lever or take-up 81 82 83, fulcrumed at 84. The take-up carries a pulley or roller 85, Figs. 2 and 3, and an arm or lever 86 is fulcrumed or pivoted at 87 to the take-up. This arm 86 carries a roller 88, and a spring 89, secured to the take-up arm 83, acts on the tail or stud 90 of arm 86. The tendency of spring 89 is to move roller 88 in a direction away from the work-support 6 or needle 14. From tension 91 the sewing-thread 92, Fig. 2, passes by or about rollers 85 88 to the work-support. A motion or swing of arm 82 83 to carry roller 88 away from the work-support and to carry roller 85 toward the work-support will take up or tighten a stitch and also draw thread for a succeeding stitch from tension 91. The arm 86, forming a supplemental take-up, aids or supplements the action of the take-up 81 82 83, as required.

The action of the machine will be readily understood. The awl 8 having pierced the work and also fed, if required, and the thread 92 having had a certain length 93 94, Fig. 8, measured off by thread-measurer 10, the needle 14, descending or entering into the hole left by awl 8, has the thread portion 93 94 hooked or engaged thereto by looper 9. The needle then rising or returning draws out the sewing-thread loop 93 94, Fig. 9, which is taken by loop-carrier 59 off the needle-hook and over the thread-case 15, Fig. 9, to be then drawn in by the take-up and locked by the thread-case thread 95. A presser-foot 96, Figs. 1 and 2, extends from plate or carrier 97 on the segment 98 on pivot or shaft 99 and having a handle 100. A spring 101 tends to hold or move the presser-foot to the work or throat plate 6. The segment 98 has a ratchet 102, which when engaged by pawl 103 locks or holds the presser-foot to the work. The pivot 99 is mounted on a plate 104 105, Fig. 3, forming a lever fulcrumed or centered at 106. The spring 107 presses on lever arm or plate portion 105.

At every revolution of the machine the pawl 103 is unlocked to free the presser-foot for al-

lowing the work to be fed. The lever 108, Fig. 2, fulcrumed at 109, has a stud 110, made to abut against or release the pawl 103. The lever 108 is actuated by groove or cam 111, so as to withdraw or release the pawl 103 at suitable periods. The pawl 103 under the push or tension of spring 112 normally tends to assume a locking position or to engage ratchet 102.

The lever 108 has a tail or arm 113. When the lever 108 moves the pawl 103 to releasing position, the tail 113 is forced against the presser-foot carrier 98 and lifts the presser-foot or channel-guide off the work or against the resistance of the spring 107 to allow easy feed of the work. In general it may be found of advantage to have two locking-pawls 103 alongside one another to engage ratchet 102.

The machine it is noticed is serviceable in sewing shanks after the last has been taken out, said machine, as seen in Fig. 12, being serviceable for uniting the insole, outsole, and upper of boots and shoes by stitches, or making shoes with welted fore parts and stitched shanks, but of course the machine is not confined to such specific uses, as it can be employed wherever serviceable.

It will be observed that in our invention the thread-measurer executes its measuring-stroke wholly at one side of the line of sewing and in a direction from the line of sewing outward or away from the machine-frame. This is advantageous in that the thread-measurer is effectually prevented from coming in contact with the work or shoe, because the measuring stroke is made from the side or end of the work at or near which the sewing is being effected toward the other or opposite side or end of the work.

By having the lever 81 82 83 provided with the third arm 82 such third arm can enable an increased take-up to be effected, as by supplying such third arm 82 with a pulley 114, Fig. 13, about which the thread can be led. In Fig. 13 the supplementary lever, as shown at 86′, has a second arm 115, with pulley 116, and the thread passing by the pulleys 85, 116, 88, and 114 can have a considerable take-up imparted thereto by the actuation of said three-armed lever.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a shoe-sewing machine a hollow shoe-support, an oscillating awl guide or way in the support, an awl-carrier made to reciprocate along the guide, and an oscillating looper and thread-measurer commonly pivoted or fulcrumed to the guide, in combination with a needle, and actuating mechanism substantially as described for the awl-guide, the awl-carrier, the looper, the thread-measurer and the needle, substantially as described.

2. A shoe-sewing machine provided with a work-support constructed to enter the shoe, and with a suitably-actuated awl, looper and thread-measurer contained in the work-support, said thread-measurer executing its measuring stroke wholly at one side of the line of sewing, combined with actuating mechanism, substantially as described, for actuating the looper and thread-measurer.

3. A shoe-sewing machine comprising a suitably-actuated needle, a feed-awl, and a looper, combined with a cam for giving the feed-awl a piercing motion, a cam for giving the looper a forward and back motion, and a cam common to the feed and looper for imparting lateral motion to said feeding-awl and looper, substantially as described.

4. A shoe-sewing machine comprising a suitably-actuated needle, a suitably-actuated awl and awl-support, and a guide for the awl-support, in combination with a looper pivoted or fulcrumed to a side of the awl-support guide so as to oscillate transversely while being carried by said guide, and mechanism substantially as described for oscillating said looper.

5. A shoe-sewing machine comprising a suitably-actuated needle and a suitably-actuated awl and awl-support, in combination with a looper and a thread-measurer carried by or made to move with the awl-support substantially as described.

6. A sewing-machine take-up consisting of a three-armed lever comprising a power receiving or actuating arm, and take-up-roller-carrying arms, a roller carrying or supplemental take-up lever fulcrumed on the three-armed lever, and a spring made to engage said supplemental take-up lever for moving the supplemental take-up roller away from the work-support of the machine substantially as described.

7. A sewing-machine provided with an awl, a shaft for giving the awl a piercing motion, an arm made to guide the awl during its piercing motion, and a rock-sleeve made to support and to oscillate the arm for giving the awl a feeding motion, said sleeve being loosely seated about the shaft substantially as described.

8. A sewing-machine provided with an awl, a reciprocating arm for guiding the awl, a looper mounted on and made to reciprocate with the arm, and a cam or actuator for actuating the looper independently of the reciprocations of the arm substantially as described.

9. A sewing-machine provided with an awl, a reciprocating arm for guiding the awl, a thread-measurer mounted on and made to reciprocate with the arm, and a cam or actuator for actuating the thread-measurer independently of the reciprocations of the arm substantially as described.

10. A sewing-machine provided with a thread-case or bobbin-holder, a seat made to partly inclose or hold said thread-case, a bobbin free to rotate in said holder to deliver thread, and an arm made to oscillate from and toward the seat and to hold the thread-case against rotation or movement in said

seat, a swinging loop-carrier for drawing a loop of sewing-thread over the shuttle, an oscillating or rock arm to which the loop-carrier is jointed, and actuating mechanism substantially as described for the loop-carrier and arm substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

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JACOB R. SCOTT.

Witnesses:
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