

No. 885,672.

PATENTED APR. 21, 1908.

C. R. FISK.  
CARPET SEWING MACHINE.  
APPLICATION FILED MAR. 1, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

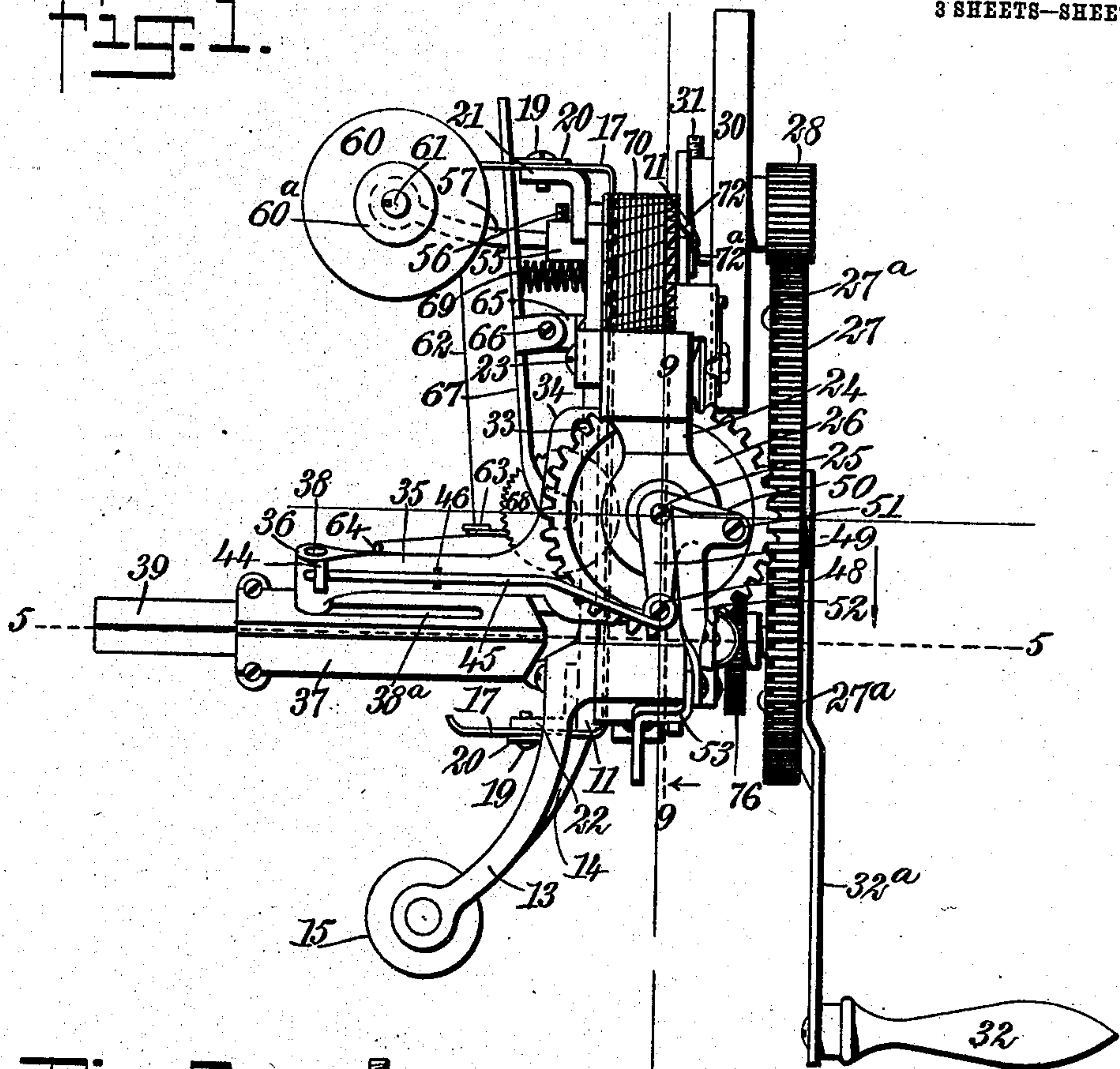
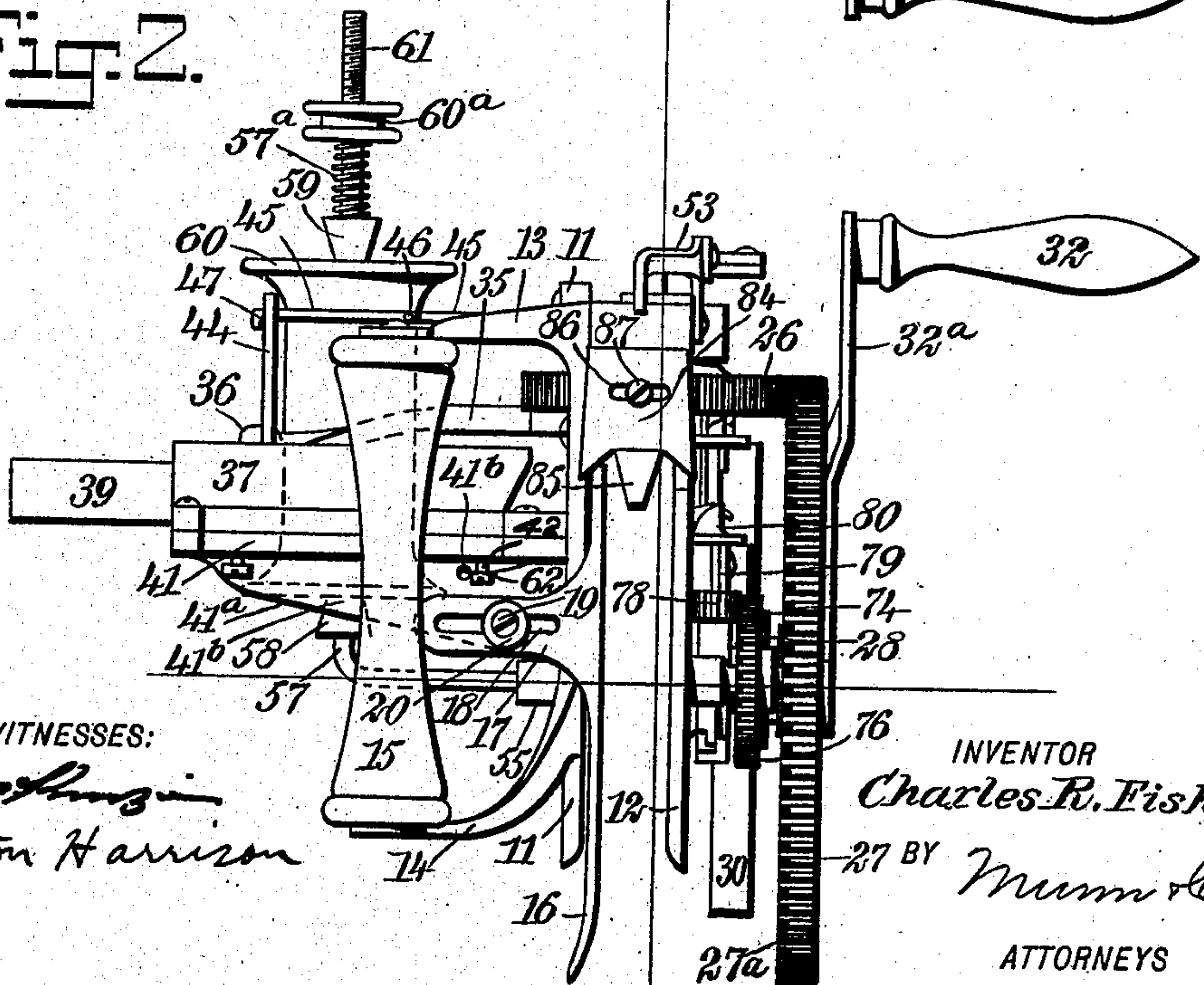


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

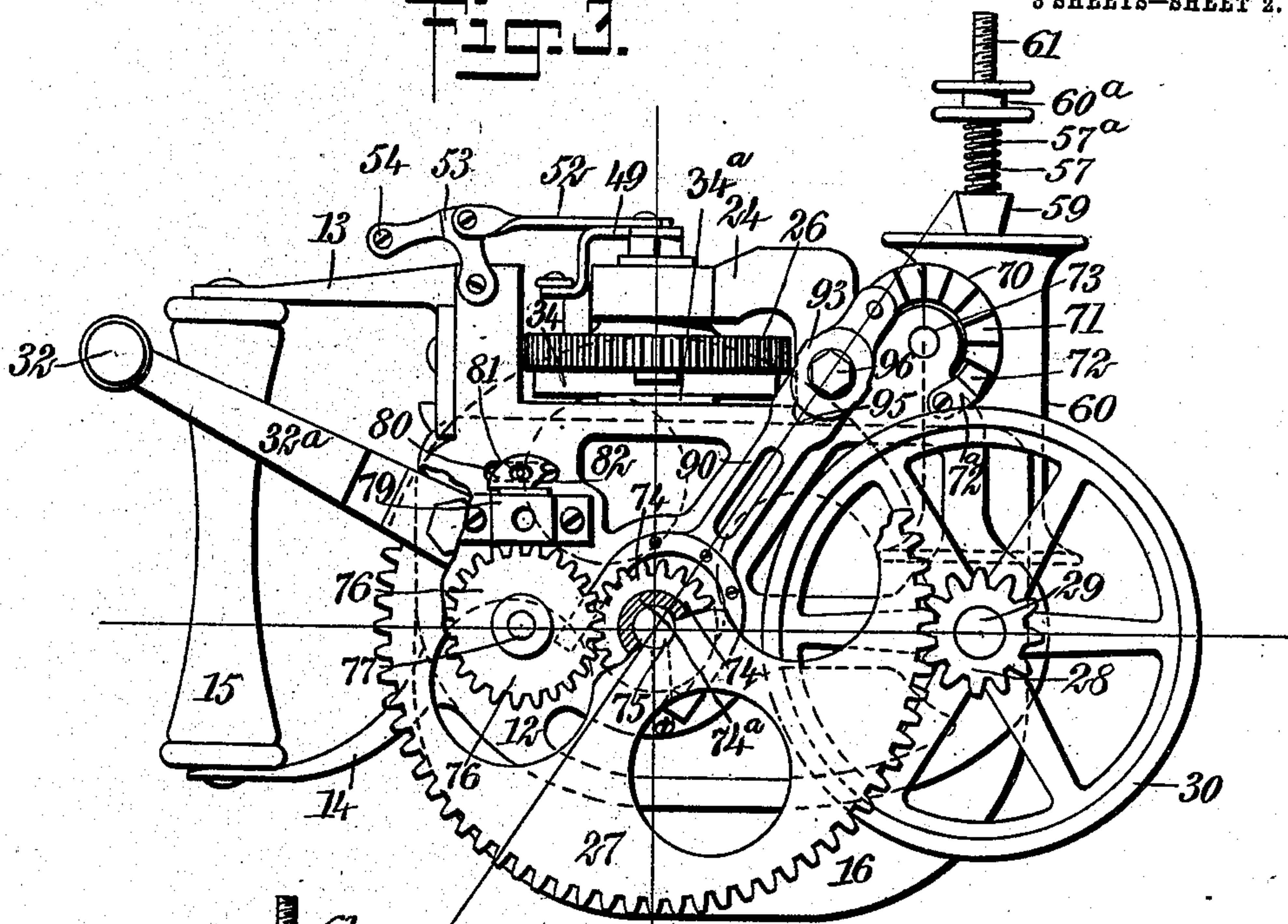
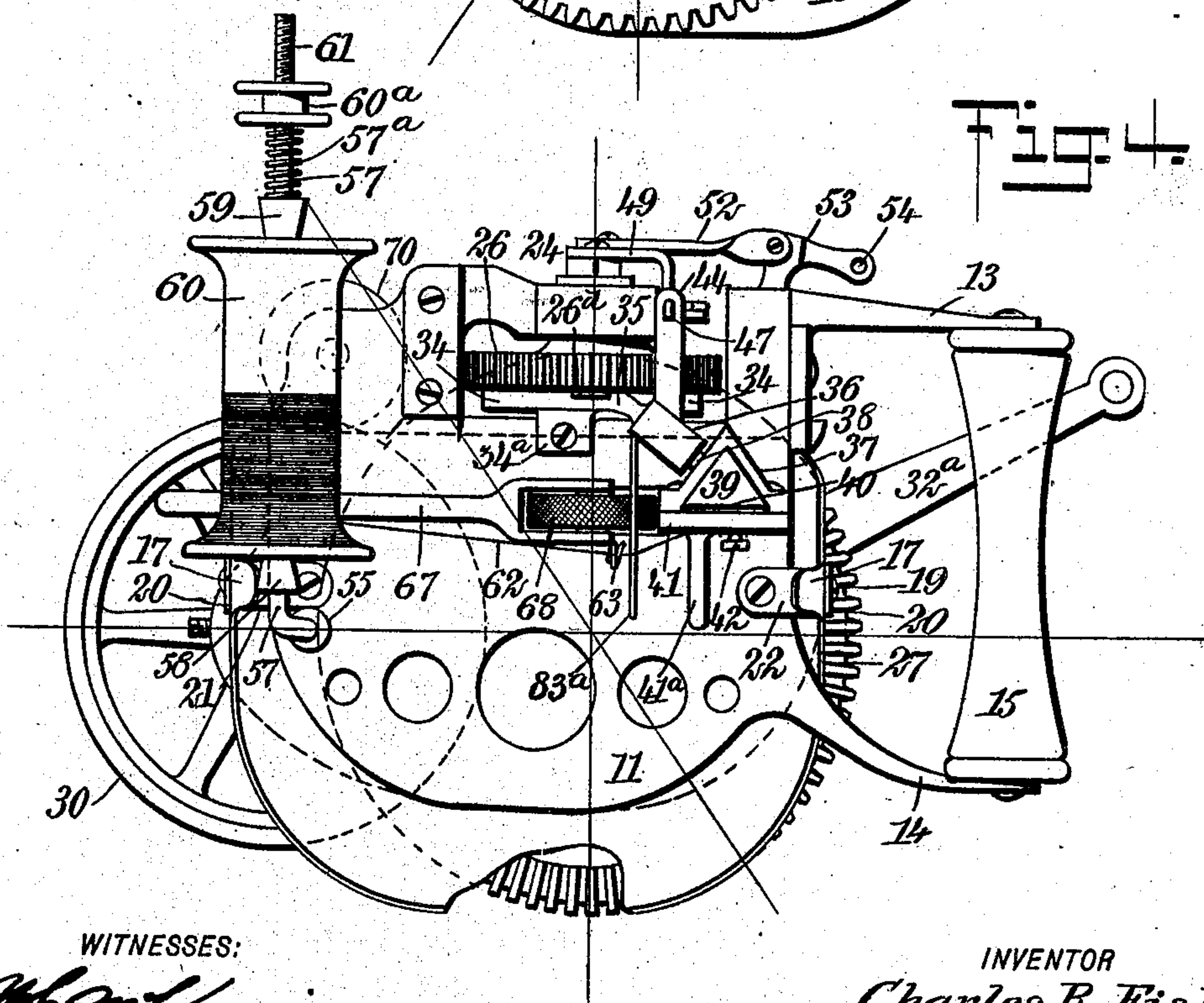


Fig. 4.



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3 SHEETS—SHEET 3.

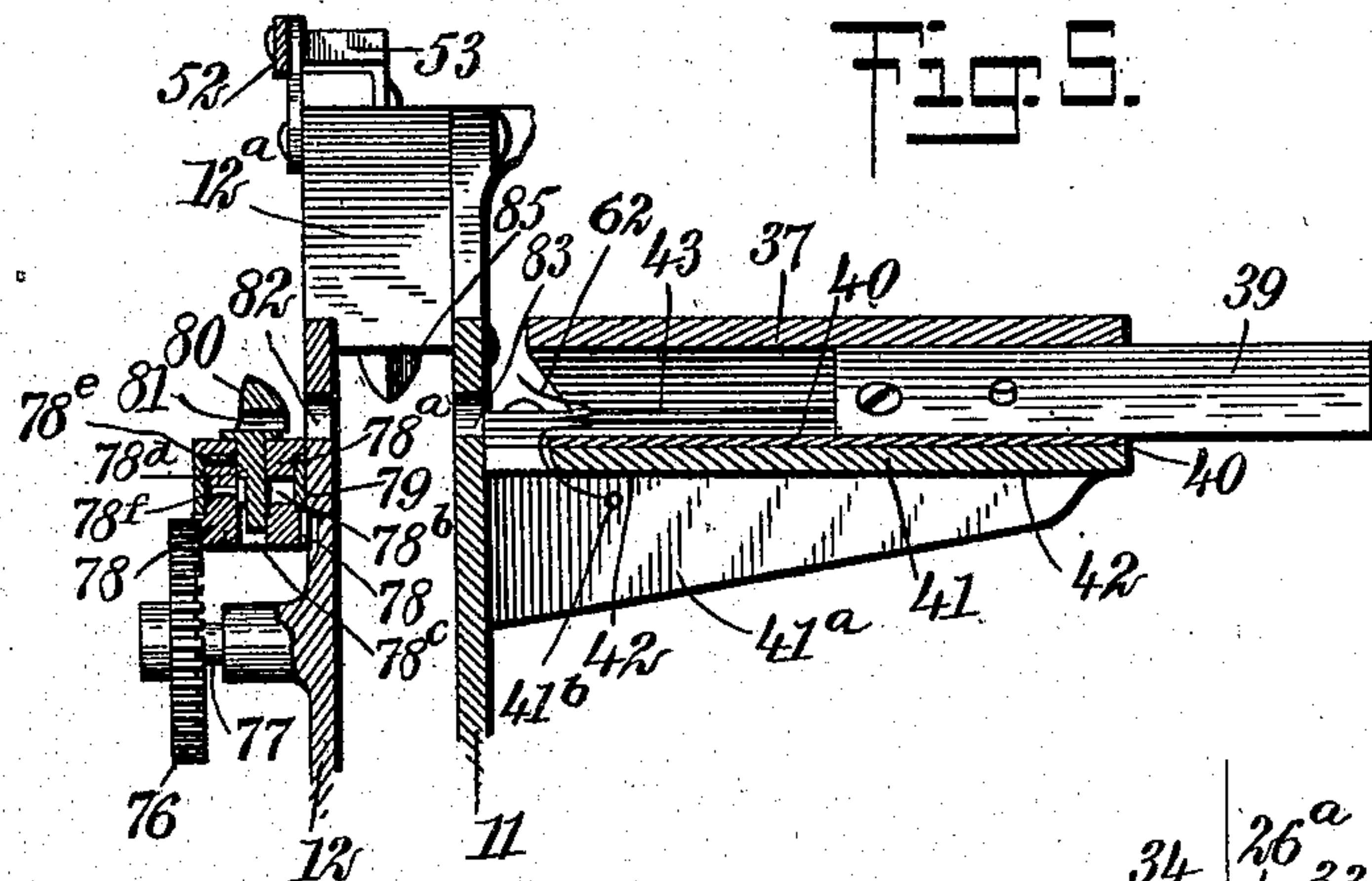


Fig. 5.

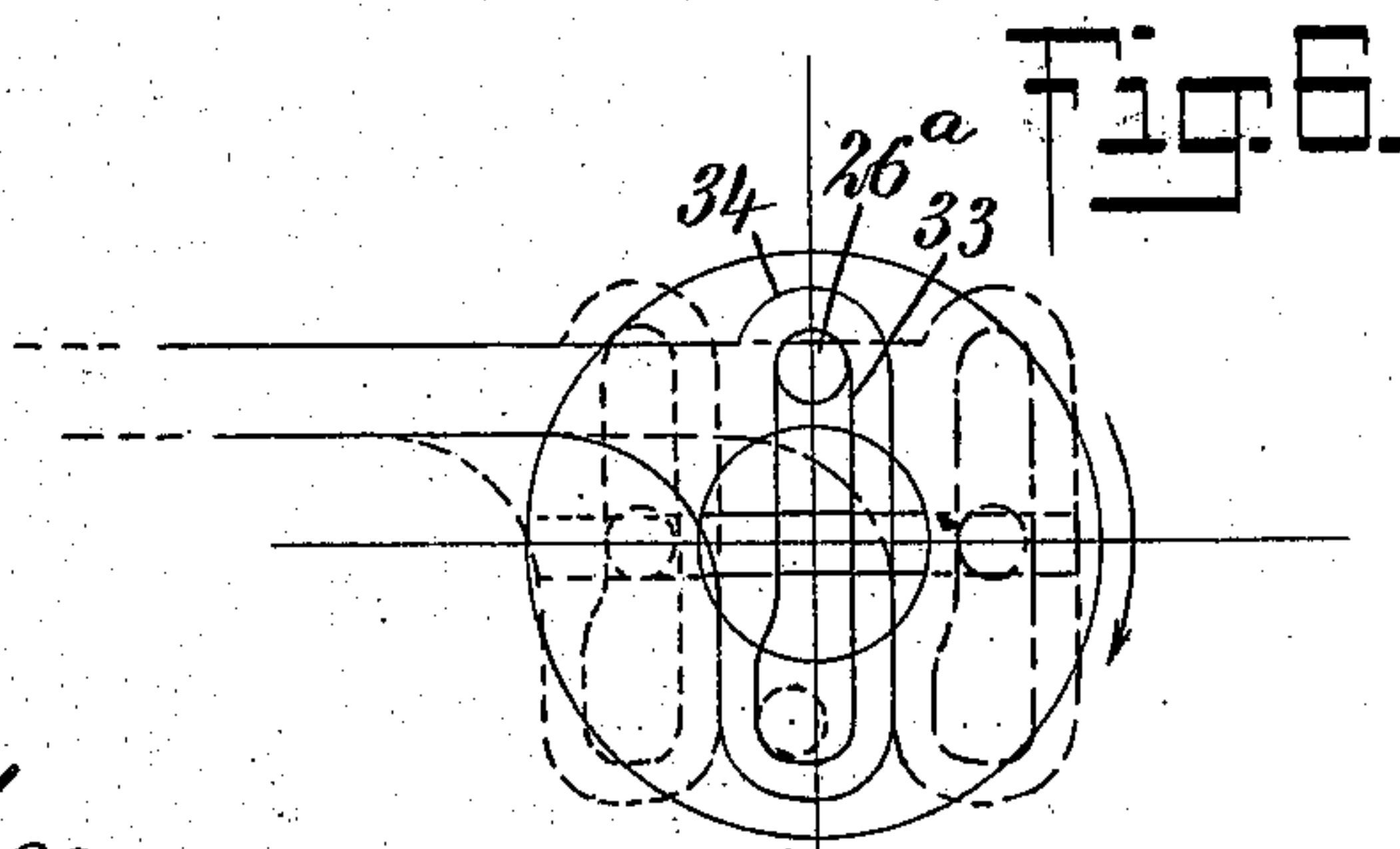


Fig. 6.

Fig. 7.

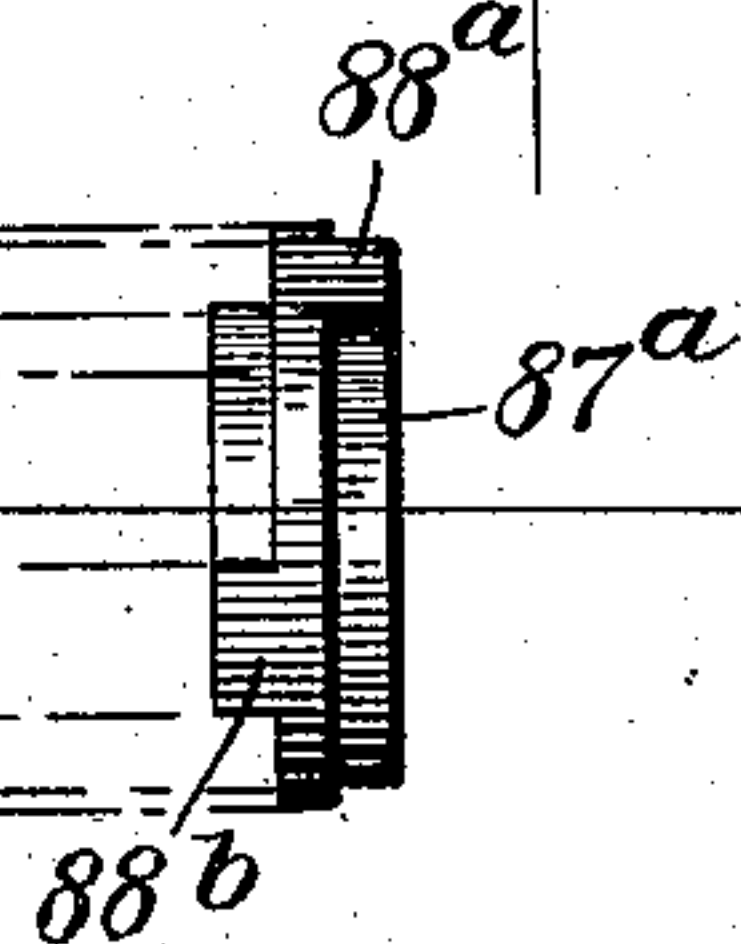
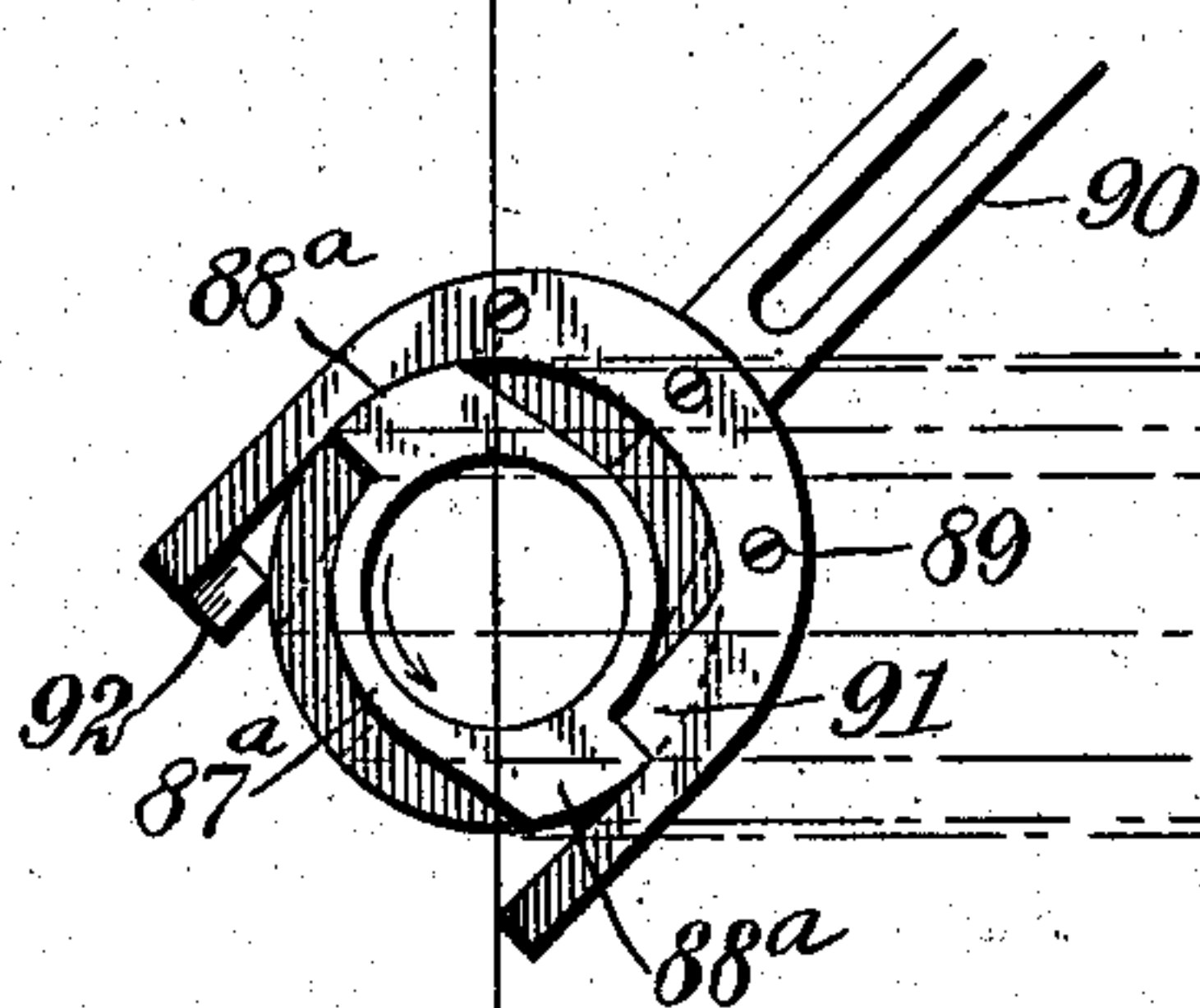


Fig. 10.

Fig. 8.

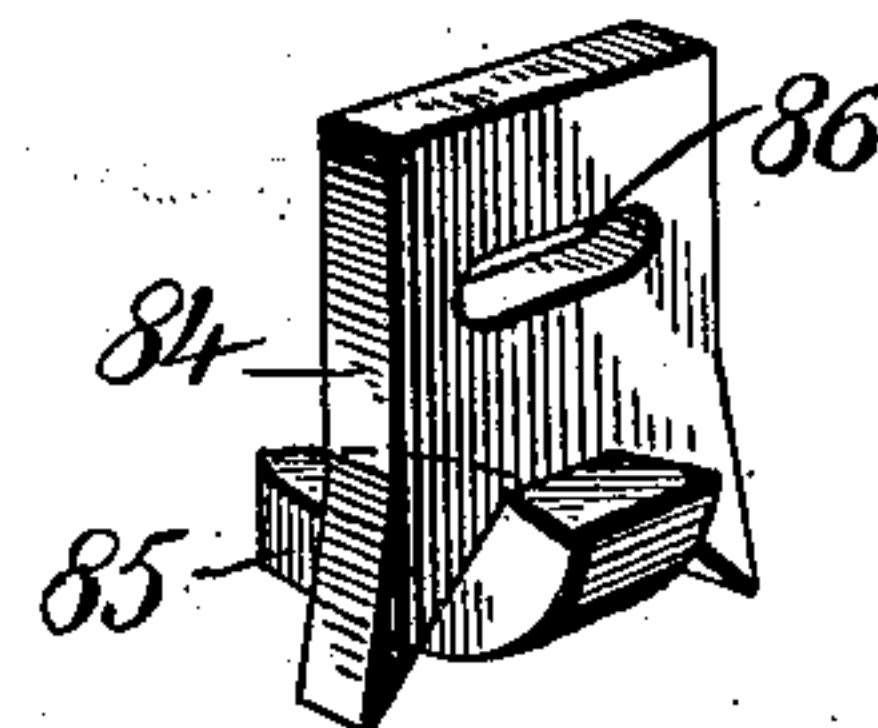
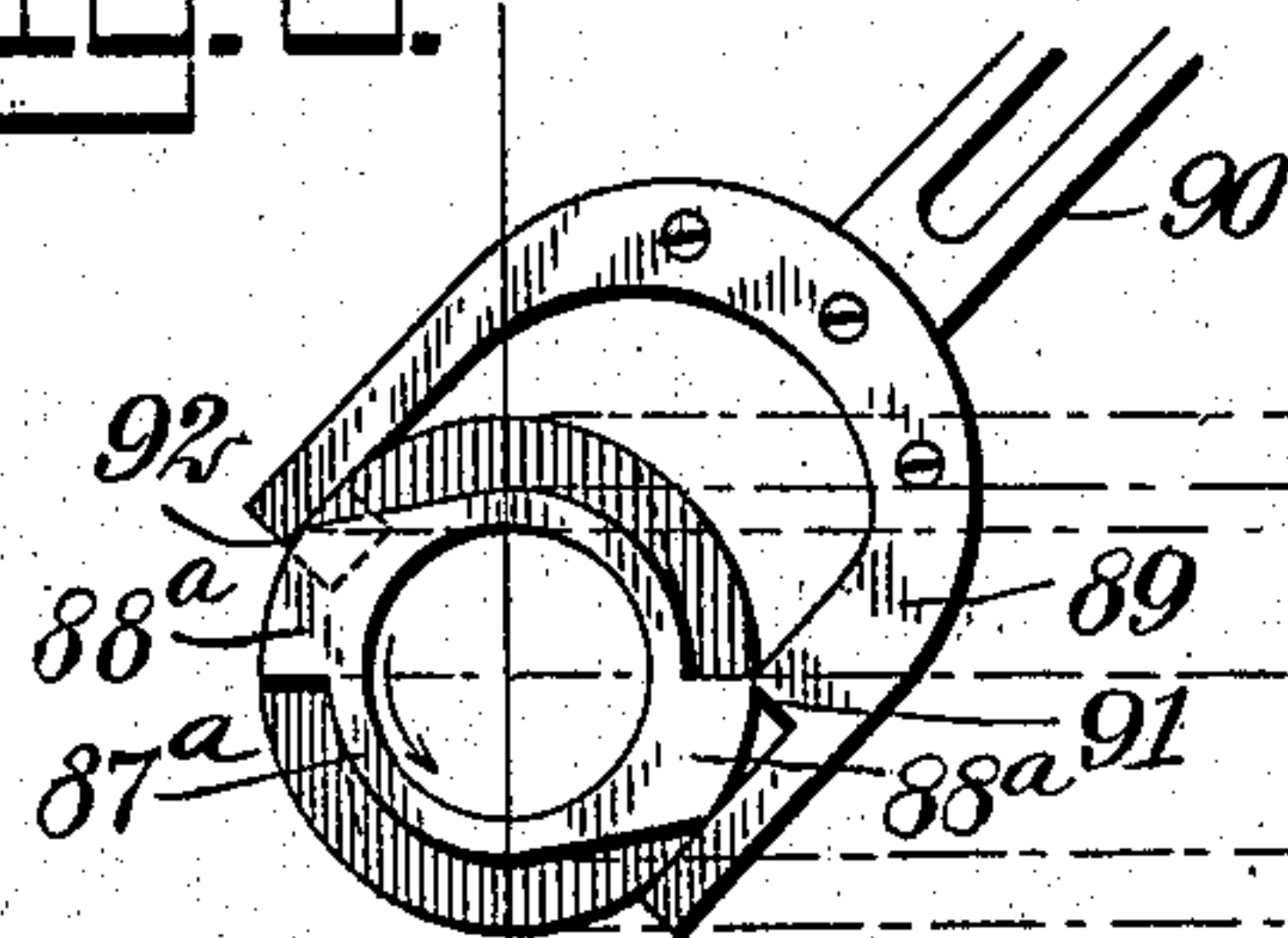
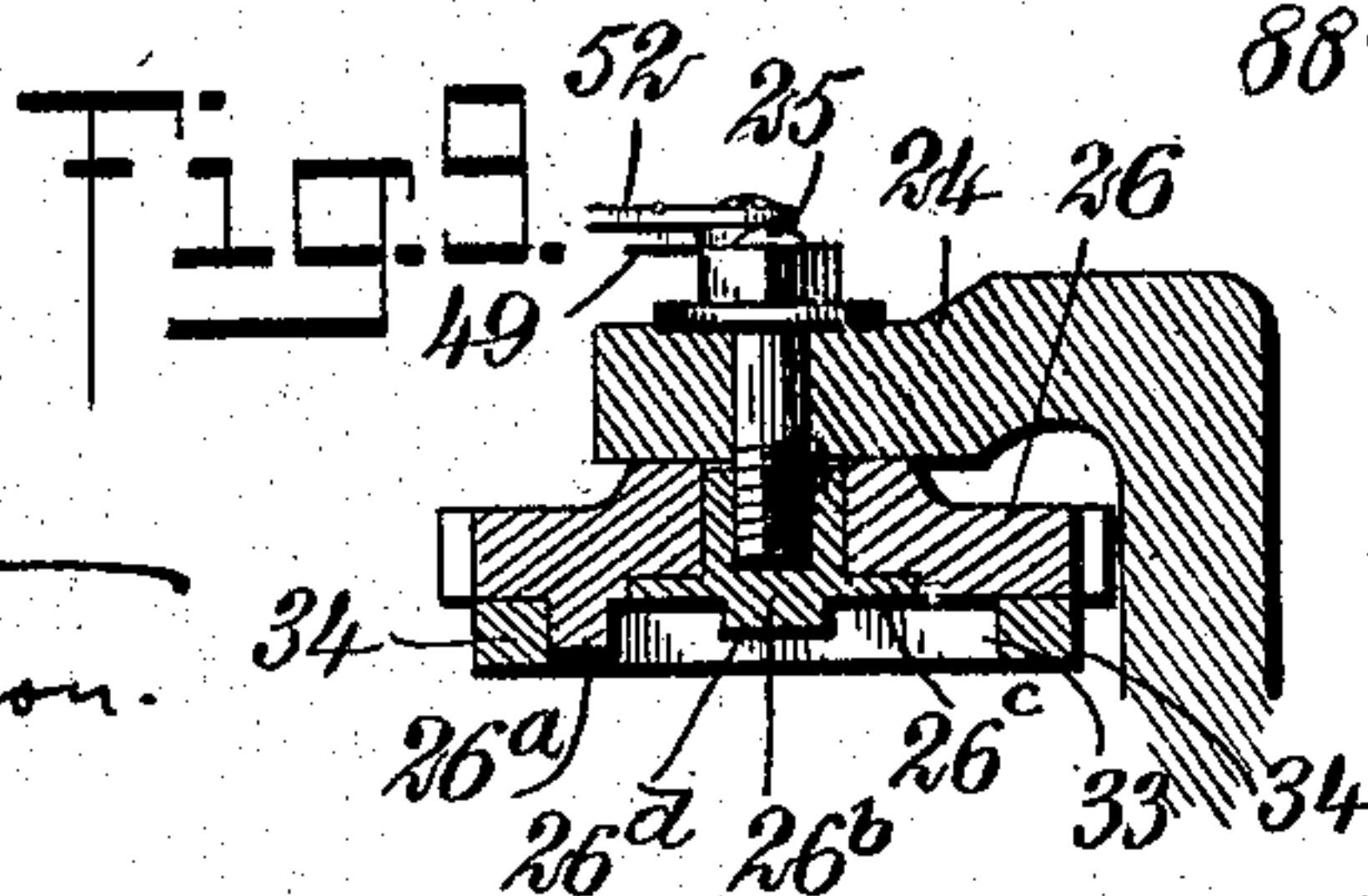


Fig. 11.



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# UNITED STATES PATENT OFFICE.

CHARLES RUSSEL FISK, OF LOS ANGELES, CALIFORNIA.

## CARPET-SEWING MACHINE.

No. 885,672.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed March 1, 1906. Serial No. 303,661.

*To all whom it may concern:*

Be it known that I, CHARLES RUSSEL FISK, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented a new and Improved Carpet-Sewing Machine, of which the following is a full, clear, and exact description.

My invention relates to carpet sewing machines and embraces several distinct improvements relating to construction, my more particular object being to produce an improved type of machine especially adapted to be moved along the edges of the carpet to be sewed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a carpet sewing machine made in accordance with my invention and ready for use; Fig. 2 is a front elevation of the same; Fig. 3 is a side elevation of the sewing machine viewed as from the right of Fig. 1; Fig. 4 is a side elevation viewed as from the left of Fig. 1; Fig. 5 is a fragmentary section through the looper and its accompanying parts, and is taken upon the line 5—5 of Fig. 1, looking in the direction of the arrow; Fig. 6 is a diagrammatic plan view of the slotted head used for conferring motion upon the needle bar; Fig. 7 is a side elevation of the cam mechanism and reciprocating bar actuated thereby for operating the feed; Fig. 8 is a view similar to Fig. 7, but showing the reciprocating bar as occupying a different position; Fig. 9 is an enlarged vertical section through the bracket 24, the gear 26 and the slotted head 34, this view being taken upon the line 9—9 of Fig. 1, looking in the direction of the arrow; Fig. 10 is a perspective view of the guide 84 provided with the center piece 85 serving as a tramper; and Fig. 11 is a detail view showing the spring pawl 94 for operating the feed wheel 70 by means of the annular rack 71 mounted thereupon.

It will be understood that this carpet sewing machine is of the so-called "saddle" type. It is placed upon the upper edges of the work and is operated by hand, the machine crawling slowly along the edge of the work upon which it is to be supported. The main plates 11, 12 are detachably secured together to form the saddle-like frame of the machine.

Mounted upon the main plate 11 and preferably integral therewith are arms 13, 14 supporting the handle 15, the arms being curved sufficiently to locate the handle 15 about an inch out of alinement with the plate 11. A shield 16 is disposed adjacent to the main plate 11 and is provided at each of its ends with a tongue 17 having a slot 18 through which passes a screw 19, the latter being encircled by a washer 20.

By means of the screws 19 the tongues 17 may be tightened or loosened and the shield 16 adjusted at will relatively to the main plate 11. In this way the space between the main plate 12 and the shield 16 can be increased or diminished at will for the purpose of enabling the machine to fit upon different thicknesses of work, or for any other purpose desired by the operator. Brackets 21, 22 are mounted upon opposite ends of the main plate 11 and engage the screws 19, these brackets virtually constituting continuations of the main plate 11 but having this advantage that they may be removed or replaced by others when desired. Screws 23 are used for the purpose of securing the main plates in position relatively to each other. Extending from the main plate 12 and integral therewith is an arm 24 supporting a stud 25 which is encircled by a gear 26. The upper face of the gear 26 bears against the under face of bracket 24 as will be understood from Fig. 9. The lower face of the gear 26 is provided with a boss 26<sup>a</sup> preferably integral therewith. The threaded stub shaft 26<sup>b</sup> is provided with an annular cap 26<sup>c</sup> serving as a bearing for the gear 26, this cap 26<sup>c</sup> being screwed firmly into position and provided with a cleat 26<sup>d</sup>. A comparatively large revoluble gear 27 meshes with a smaller gear 28, the latter being mounted upon a stub shaft 29 carrying a fly wheel 30 in such manner that the rotation of the large gear 27 causes the fly wheel 30 to turn at a comparatively rapid rate. The gear 27 is provided with crown teeth 27<sup>a</sup> which enable this gear to engage the horizontal gear 26 as will be understood from Fig. 1.

By means of a set screw 31 the fly wheel 30 is locked upon the stub shaft 29. A handle 32 is located at the outer end of a crank 32<sup>a</sup>, the inner end of this crank being secured upon the gear 27. The boss 26<sup>a</sup> projecting from the under face of the horizontal gear 26 extends into a slot 33 within the head 34 as shown in Figs. 6 and 9. This head 34 is re-



cessed to receive the cleat 26<sup>d</sup> as will be seen from Fig. 9. The cleat 26<sup>d</sup>, being stationary, merely acts as a guide for the head 34, which is thus rendered slidable relatively to the  
 5 cleat. The horizontal gear 26 being revolvable, the boss 26<sup>a</sup> passes around in a circle and as the head 34 can move in one direction only, this head simply acquires a reciprocating motion, crossing the plane of the main plates 11  
 10 and 12. Any tendency of the head 34 to move in any direction except that of a straight line crossing this plane is prevented by the cleat 26<sup>d</sup>. A plate 34<sup>a</sup> holds the slotted head 34 up against the gear wheel 26.  
 15 Integral with the head 34 is an arm 35 terminating in a sleeve 36 as indicated in Fig. 1. This sleeve is disposed immediately adjacent to the needle bar shed 37. A stub shaft 38 passes from the sleeve 36 through a slot 38<sup>a</sup>  
 20 in the needle bar shed and engages the needle bar 39 within the same as will be understood from Figs. 1 and 4. Below the needle bar 39 is a gib 40 supported upon a plate 41 which is connected to the shed 37. Adjusting screws  
 25 42 pass through the plate 41 and engage the under side of the gib 40 so as to enable the same to be raised or lowered at will. This adjustment of the gib is for the purpose of compensating wear upon the needle bar shed  
 30 immediately over the same, the latter acting as a bearing. If need be, the under portion of the shed 37 may be filed away slightly from time to time in order that the needle bar 39 may fit neatly upon the gib 40 without neces-  
 35 sitating any considerable play below the gib. So also the edges of the gib may be filed away to allow for the wear.

Very little filing will enable the machine to run for a long time without any complica-  
 40 tions arising, for the reason that a comparatively slight movement of the screws 42 and a consequent slight elevation of the gib 40 represents a considerable amount of wear upon the needle bar 39, and this bar, owing  
 45 to its massive form and the equal distribution of wearing strains upon it, encounters a minimum of wear. The fact that it has no side thrust is of peculiar importance. The plate 41 is supported by a rib 41<sup>a</sup> and is preferably integral with the same and with the  
 50 main plate 11. This rib 41<sup>a</sup> is provided with a hole 41<sup>b</sup> through which the thread 62 passes. The sewing needle is shown at 43. Projecting upwardly from the arm 35 is a  
 55 boss 44, and threaded loosely through the same is a sliding rod 45 provided with a pin 46 and with a hook 47 acting as limiting stops. The sliding rod is thus controlled by  
 60 movements of the arm 35, though the movements of the sliding rod 45 are comparatively short and are quickly made. By means of a  
 bolt 48 one end of the sliding rod 45 is pivoted upon a bell crank 49. The latter is provided  
 65 with a portion 50 connected by a bolt 51 with a rod 52, the latter being pivotally connected

with another bell crank 53 which is provided with a hole 54. This hole is for the purpose of connecting the bell crank 53 with the tramper. A bearing sleeve 55, integral with  
 the main plate 11, supports a set screw 56  
 70 which engages the curved rod 57 for the purpose of enabling the same to be set to relatively different angles. Mounted upon this rod are conoidal wedges 58, 59 which engage  
 75 a spool 60. The upper end of the rod 57 is encircled by a spiral spring 57<sup>a</sup> which presses upon the conoidal wedge 59, and a pressure nut 60<sup>a</sup> is provided for the purpose of regulating the tension of the spring 57<sup>a</sup>. This  
 80 pressure nut 60<sup>a</sup> runs upon a thread 61 upon the upper end of the rod 57. The rod 57 and its accompanying parts constitute the spool bracket for supporting the spool 60. The  
 85 thread from this spool is shown at 62 and passes through wire loops 63, 64, as indicated in Fig. 1, thence passing to the needle 43. Projecting laterally from the main frame 11  
 is a lug 65 carrying a pin 66, and pivotally mounted upon this pin is a lever 67 carrying  
 90 a milled roller 68 which engages the work and serves to prevent displacement thereof owing to accidental movements of the main plates 11 and 12 relatively to the work. A spring  
 95 69 constantly presses against this lever, thus causing the milled roller 68 to press against the carpet. The feed wheel is shown at 70 and is provided upon one of its faces with an  
 annular ratchet 71. This feed wheel may be milled or roughened as indicated in Fig. 1. A pawl 72 pressed by a spring 72<sup>a</sup> (see Fig. 3)  
 100 prevents backward rotation of the ratchet 71. The feed wheel 70 carrying the ratchet 71 is mounted upon a stub shaft 73. A gear 74 is mounted rigidly upon the hub 74<sup>a</sup> of the gear 27 and meshes with another gear 76,  
 105 the latter being journaled upon a stub shaft 77. These gears 27 and 74 are supported by a stationary shaft 75. The gear 76 is a crown gear and meshes laterally with a  
 110 pinion 78 (see Figs. 2 and 5). This pinion is provided with a barrel 78<sup>a</sup>, which is preferably integral therewith, and is encircled by a bearing sleeve 79 so as to turn freely within the same and to be supported thereby. The  
 115 barrel 78<sup>a</sup> is provided with a radial hole 78<sup>b</sup> and with an axial hole 78<sup>c</sup>. Into the axial hole 78<sup>c</sup> extends the looper stem 78<sup>d</sup>. A screw 78<sup>e</sup> holds the looper stem 78<sup>d</sup> rigid in relation to the barrel 78<sup>a</sup>. Another screw  
 120 78<sup>f</sup> engages the barrel 78<sup>a</sup> and also engages the looper stem 78<sup>d</sup>. This screw 78<sup>f</sup> is inserted before the looper stem 78<sup>d</sup> is inserted, the hole 78<sup>b</sup> being provided for this purpose. The looper is shown at 80 and is integral with  
 125 the looper stem 78<sup>d</sup>. This looper 80 is provided with an aperture 81 through which the needle passes at predetermined intervals during the revolution of the looper as indicated in Fig. 5. The looper is of the hook  
 130 type. The looper and the needle are caused



to operate in unison by virtue of the fact that the ratio of the gear-wheels 74, 78, and 26, 27, is 2 to 1.

At 82 and 83 (see Fig. 5) are slots through which the needle 43 passes in finding its way through the work and through the looper hole 81. A guide 84 is provided with a center piece 85 and with a horizontal slot 86. This guide is shown in perspective view in Fig. 10 and is shown as occupying its normal position in Figs. 2 and 5. An adjusting screw 87 passes through the slot 86 and into a comparatively thick portion of the main plate 12. By loosening or tightening the screw 87 the guide 84 may be moved to the right or to the left as the case may be. The center piece 85 presses down the nap, and also divides the edges of the work; or in other words, turns margins of the carpet slightly away from each other in order that the needle may do its work to better advantage. A cam 87<sup>a</sup> is secured rigidly upon the hub of gear 27 and is provided with oppositely disposed cam lugs 88<sup>a</sup> upon one side and with other oppositely disposed lugs 88<sup>b</sup> upon the opposite side, the lugs 88<sup>a</sup> lying in a different plane from the lugs 88<sup>b</sup>. A yoke 89 is mounted upon the lower end of a reciprocating bar 90 and engages the cam 87<sup>a</sup>. This yoke is provided with a shoulder 91 and with a lug 92 as indicated in Fig. 8. A stationary guide 93 partially encircles the reciprocating rod 90. The upper end of this reciprocating rod is provided with a movable pawl 94 (see Fig. 11), which turns the ratchet 71 step by step and is pressed against the same by a spring 94<sup>a</sup>. The rod 90 is provided with a slot 95, and a bolt 96 passes through this slot and also through the guide 93. When the rod 90 reciprocates longitudinally in the general direction of its length the ends of the slot 95 serve as limiting stops, so that the reciprocating rod 90 can have no movement other than that of an end thrust. The rotation of the cam 87<sup>a</sup> by causing the cam lugs 88<sup>a</sup> and 88<sup>b</sup> to properly engage and disengage the shoulder 91 and the lug 92 in a predetermined sequential order as indicated in Figs. 7 and 8, causes the reciprocating rod 90 to turn the ratchet 71 with a step by step movement. The take-up rod is shown at 83<sup>a</sup>.

The action of my device is as follows:—The operator places in position the carpets to be operated upon by stretching the same upon suitable frames, the edges of the carpet to be sewed being placed uppermost and in registry with each other. The operator then places the sewing machine upon the upper edges of the carpet and by holding the handle 15 in his left hand and turning the handle 32 with his right hand he moves along at a rate of travel commensurate with the needle movement of the machine. The rotation of the gearing above described causes the needle

bar 39 to reciprocate so that the needle 43 is repeatedly thrust through the carpet. The thread carried through by the needle is caught by the looper 80 and is taken up by means of the take-up rod 83 near the end of the stroke of the needle. The feed is accomplished by the step by step rotation of the feed wheel 70, the ratchet 71 of this feed wheel being actuated by movements of the pawl 94 and the reciprocating rod 90. The tension of the sewing thread is effected by means of the nut 60<sup>a</sup> in the usual manner. The cam 87<sup>a</sup> is set upon the hub of the gear 27 in such position as to enable the lugs 88<sup>a</sup> and 88<sup>b</sup> to move the machine forward the length of one stitch just as the needle bar is finishing its stroke.

It will be noted that as the horizontal gear 26 rotates so that the boss 26<sup>a</sup> communicates a motion to the head 34, this head is unable to move in any other direction except the one crossing the plane of the main plates 11 and 12. Hence, the needle bar 39 is not subjected to lateral pressure and its friction is thus reduced to a minimum. The rotation of the gear 26 causes the boss 26<sup>a</sup> (see Fig. 9) to move in a circle and as this boss plays from one end to the other of the slot 33 (see Fig. 6) the head 34 is given a single lateral reciprocating motion in a direction crossing the general direction of the length of the needle bar. When the machine is used for sewing comparatively thin carpet material there is a tendency for the machine to move laterally in a direction crossing its general path of travel. By adjusting the shield 16 this tendency is largely overcome, thereby enabling the machine to rotate comparatively true and avoiding annoyance and waste of muscular energy upon the part of the operator. It will also be noted that the number of the wearing parts is reduced so that they may be easily replaced and so that the friction of the machine is reduced to a minimum.

The shield 16 is preferably of polished sheet metal and is useful in steadying the machine while in action. The shield may be adjusted to various points intermediate of the plates 11 and 12. For instance, by moving it to the right according to Fig. 2, it moves away from the plate 11 and toward the plate 12; being properly adjusted it is clamped by the aid of a screw 19. The adjustment just described readily adapts the machine to different thicknesses of carpet. The lobes 88<sup>a</sup> being set at quarter-angles from the lobes 88<sup>b</sup>, serve to trip the yoke 89 back and forth in a given path and thus give the rod 90 a very simple reciprocating motion as will be understood from Figs. 7 and 8, and this insures regularity in the turning of the feed wheel 70. Otherwise than as above described the machine acts substantially as in other carpet sewing machines. There is



considerable advantage in having the crank upon the opposite side of the machine from the needle bar.

It is obvious that when only two gears are used in transmitting power to the needle bar the number of wearing parts is reduced practically to a minimum. Again, owing to the fact that the needle bar is upon the side of the machine opposite the driving crank, the gear wheel 27 can be placed comparatively close to the frame of the machine. With the parts thus distributed less effort is required to hold the machine steady while being operated. This arrangement also enables the needle bar to be made as long as may be desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a sewing machine, the combination of a pair of main plates connected together and adapted to straddle the work, a guide provided with a center piece mounted upon said main plates for the purpose of pressing down the nap of the carpets to be sewed, means for adjusting said guide so as to alter the position of said center piece relatively to said main plates, and stitching mechanism connected with said plates for the purpose of sewing the work.

2. In a device of the character described, the combination of a saddle-like member movable relatively to the edges of the carpets to be sewed, said saddle-like member being provided with plates, a shield mounted intermediate of said plates and adapted to engage the work to be operated upon, means for adjusting said shield bodily in relation to one of said plates, and for securing said shield firmly in position when thus moved, and sewing mechanism mounted upon said saddle-like member.

3. In a sewing machine, the combination of a saddle-like member adapted to travel along the edges of the goods to be sewed, said saddle-like member being provided with main plates, a guide mounted upon said saddle-like member and provided with a center piece for pressing down the nap of the goods operated upon, means for adjusting said

guide relatively to said main plates, a shield mounted upon said saddle like member, and means for adjusting said shield relatively to said main plates.

4. In a sewing machine, the combination of a traveling saddle-like member, a reciprocating needle bar slidably mounted upon one side of said saddle-like member and adapted to give an end thrust in a direction crossing the general line of travel of said saddle-like member, a sliding head for actuating said needle bar, said head having a slot, a stationary cleat for guiding said head, a revoluble member provided with a boss projecting into said slot, and means for turning said revoluble member, said means including a hand wheel located upon the opposite side of said work from said needle bar.

5. The combination of a frame, a bearing sleeve connected therewith, a gear provided with a barrel encircled by said sleeve, mechanism for driving said gear, a looper having a general hook form and provided with a stem extending into said barrel, said stem being provided with a mutilation, a screw engaging said revoluble barrel and provided with a head fitting said mutilation of said stem so as to prevent said stem from turning relatively to said barrel, and a sewing needle movable in relation to said looper.

6. The combination of a revoluble barrel provided with an axially disposed hole and with a radially disposed hole merging into said axially disposed hole, means for supporting said barrel, a fastening member mounted within said barrel at a point adjacent to said radial hole, so as to facilitate the insertion of said fastening member through said radially disposed hole, and a looper provided with a hook, said looper being further provided with a stem inserted into said axially disposed hole and engaging said fastening member.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES RUSSEL FISK.

Witnesses:

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GUSTAVE WILLIAM SCHELLENBERG.