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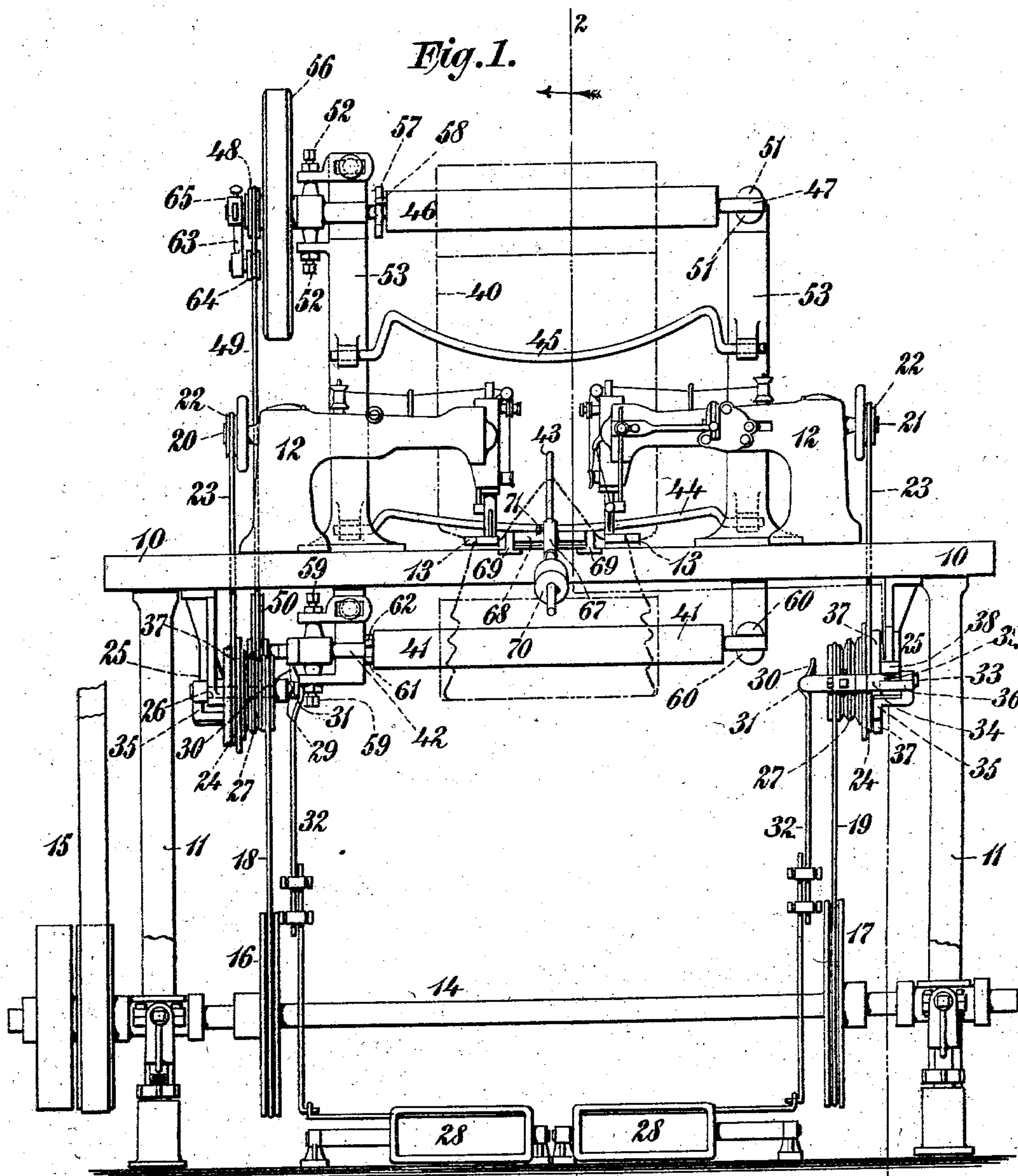
PATENTED NOV. 17, 1903.

J. A. CAMERON.
SEWING MACHINE.

APPLICATION FILED SEPT. 6, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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Edwin H. Dietrich

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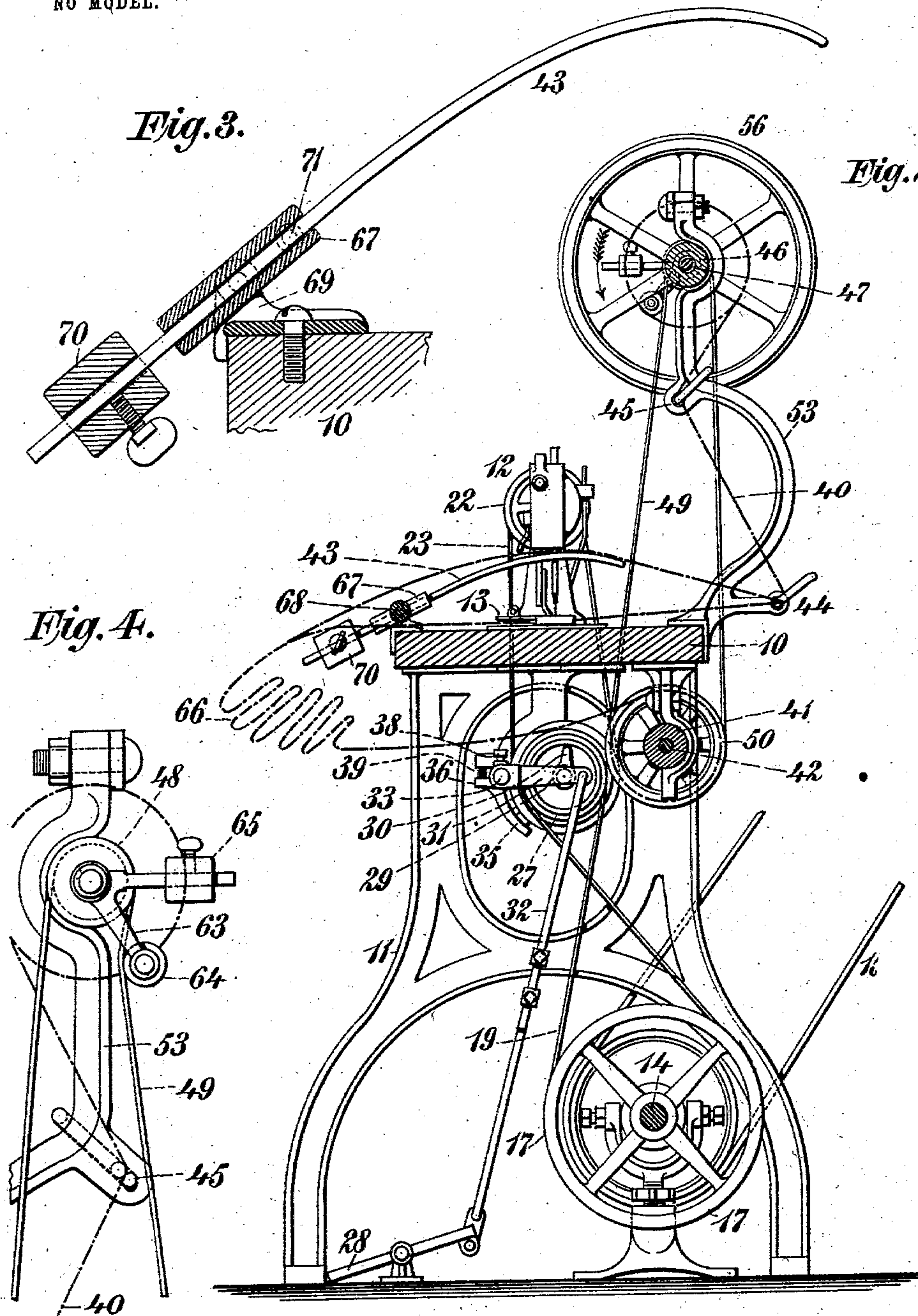
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

NO MODEL.

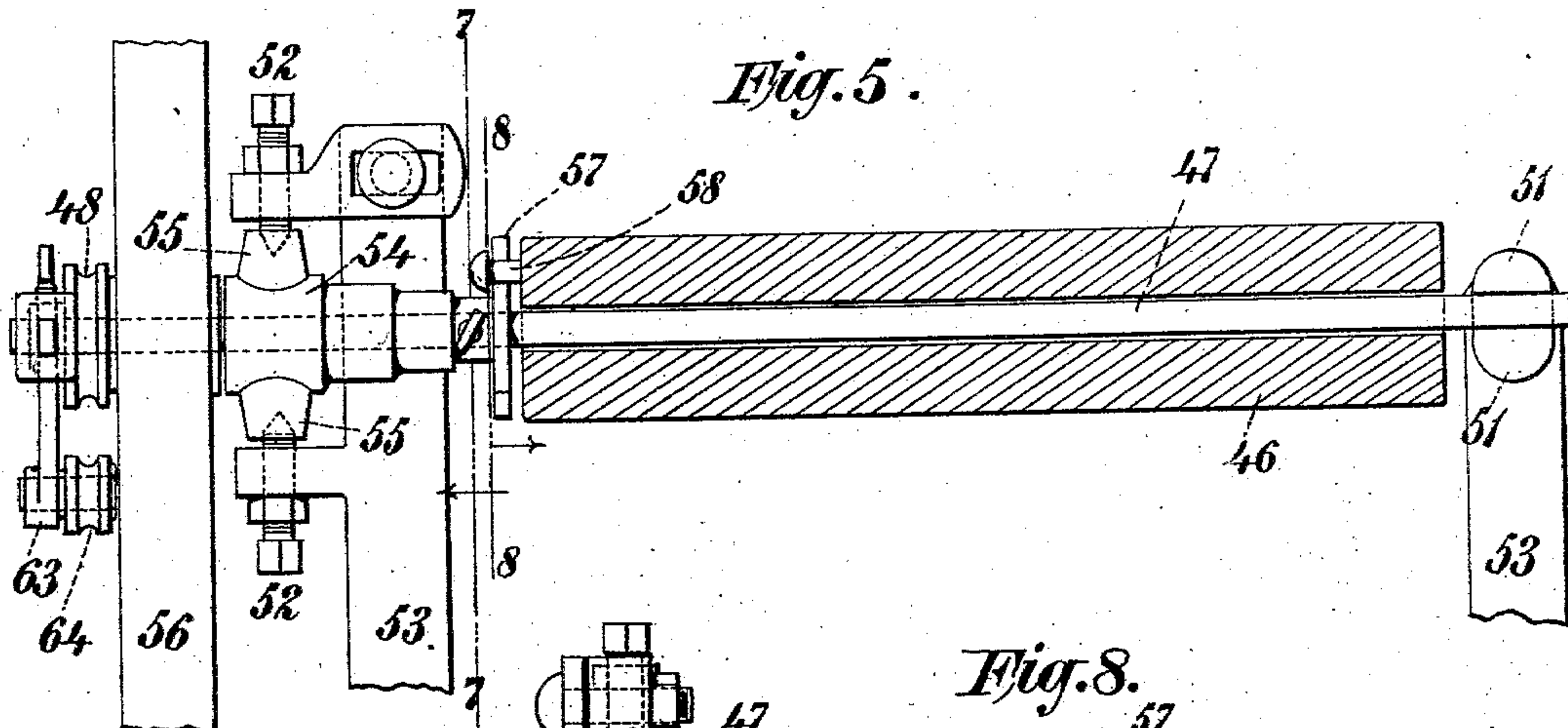


Fig. 7.

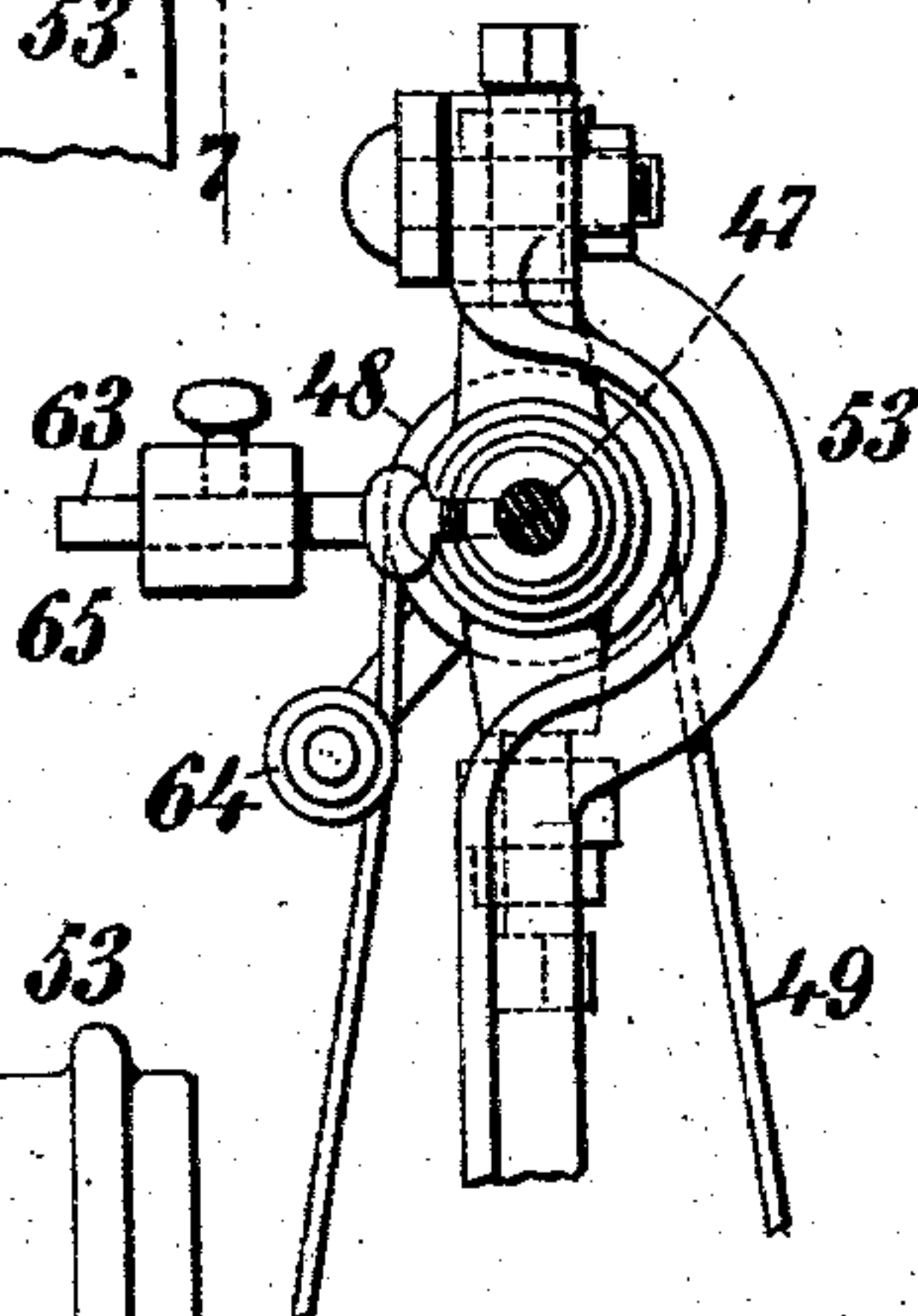


Fig. 8.

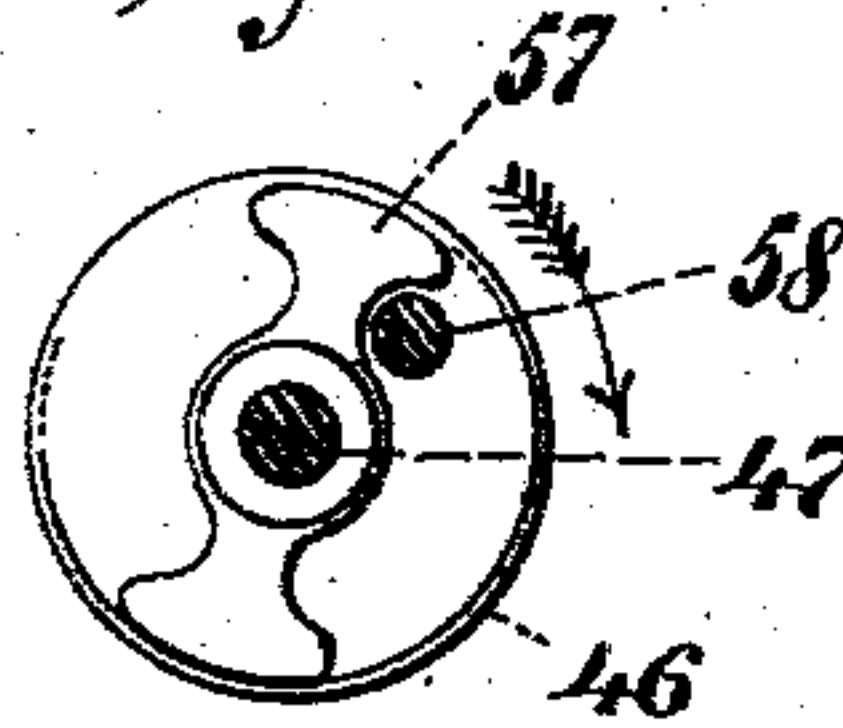
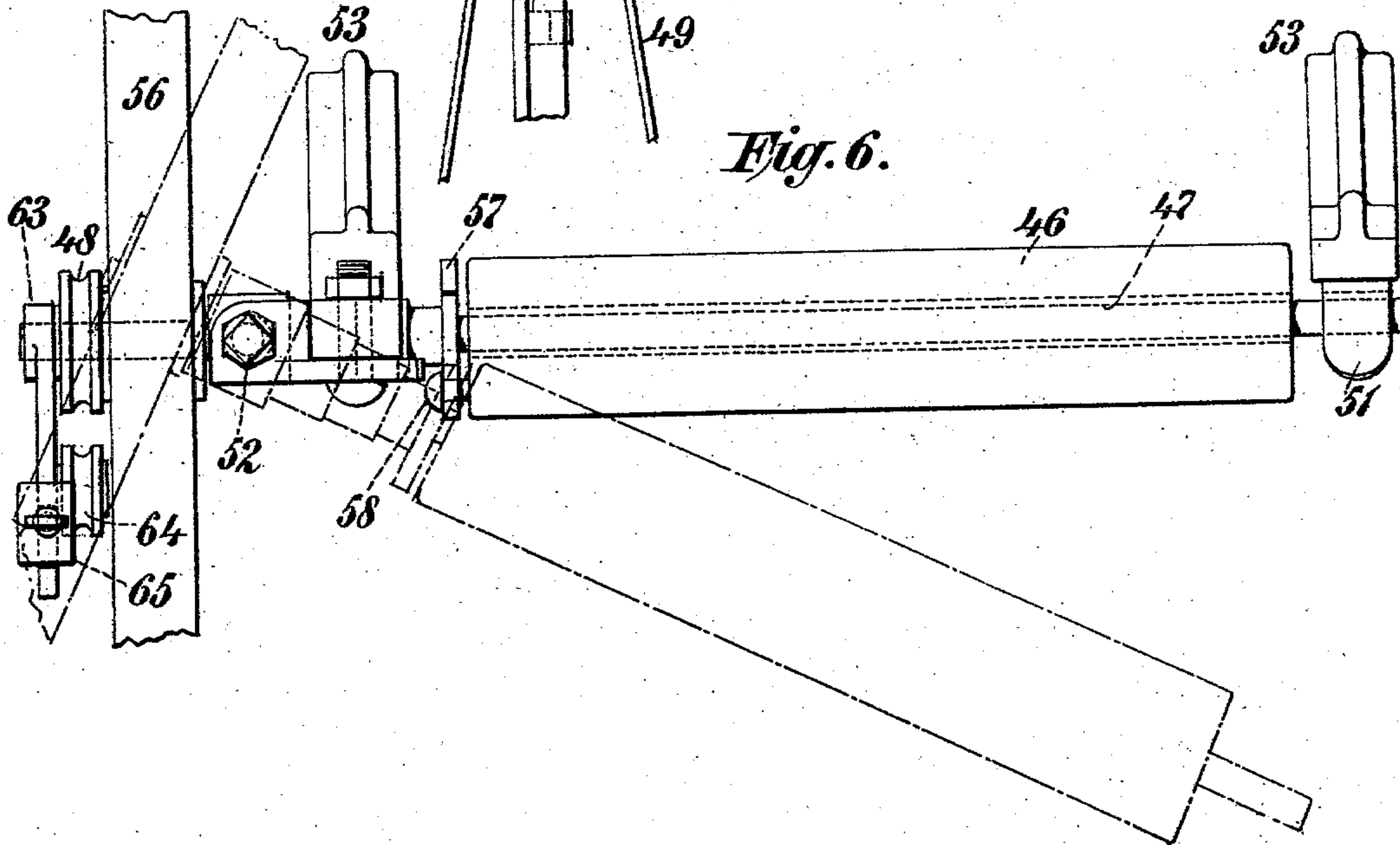


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES A. CAMERON, OF BROOKLYN, NEW YORK.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 744,045, dated November 17, 1903.

Application filed September 6, 1902. Serial No. 122,331. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. CAMERON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

The invention relates to improvements in sewing-machines; and it consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

The object of my invention is to produce an efficient and commercially-practicable machine for simultaneously sewing two parallel rows of stitches or the hems at the opposite edges of a piece of fabric. I have more especially designed the machine for use in the manufacture of hemstitched handkerchiefs, and in carrying on this manufacture in connection with the machine made the subject hereof the length of linen leaving the bolt is fed to the machine and has its opposite longitudinal edges folded to form the hem and stitched, the operation continuing until the entire length of fabric has been thus treated.

The more essential features of the present invention pertain to the means for taking care of the fabric during its passage to and from the sewing mechanisms of the machine, and in carrying out this feature of my invention I employ in the preferred construction a shaft below the table of the machine for receiving the fabric preparatory to the treatment of the latter, a shaft above the table of the machine for receiving the fabric after its edges have been hemmed, means intermediate the two sewing mechanisms for automatically taking up the slack in the fabric between the two sewing mechanisms, and means for spreading out the fabric after it has left the sewing mechanism and is on its way to the receiving reel or shaft after having been hemmed, so that the said fabric may be evenly and uniformly wound upon said shaft or reel. The two sewing mechanisms or sewing-machine heads are mounted upon a table and are a definite distance apart, and the width of fabric is fed in between these two sewing-machine heads. There are frequent occasions when the fabric to be treated is greater in width than the space between the two sewing

mechanisms, and under such conditions the fabric will be slack along its longitudinal middle portion intermediate the two sewing mechanisms, and in accordance with my invention this slack portion of the fabric is taken up by means of a rod or frame, which automatically lifts the loose middle portion of the fabric without affecting the edge portions thereof. The slackness in the middle longitudinal portion of the fabric while being taken up between the two sewing mechanisms will reappear in the fabric after the latter has passed beyond the sewing mechanisms, and hence between the sewing mechanisms and the shaft or reel which receives the finished fabric I provide means for spreading out the width of fabric on its passage to said shaft or reel in order that the fabric may be smoothly and uniformly wound upon said shaft or reel.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which I represent a duplex sewing-machine having my improvements applied thereto, and in which—

Figure 1 is a front elevation of a machine constructed in accordance with and embodying the invention, the fabric being represented by dotted lines. Fig. 2 is a vertical section of same on the dotted line 2 2 of Fig. 1. Fig. 3 is an enlarged detached view, partly in section, showing one edge of the machine-table with the frame applied thereto for taking up the slack in the fabric intermediate the sewing mechanisms. Fig. 4 is a detached end view of a portion of the left-hand end of the machine, this figure representing more especially the means for communicating motion to the shaft or reel upon which the completed fabric is wound. Fig. 5 is an enlarged detached sectional view of the upper shaft or reel receiving the finished fabric. Fig. 6 is a top view of same, the outward position of the said shaft or reel being illustrated by dotted lines, this being the position of said shaft or reel when the finished roll of fabric is to be removed therefrom. Fig. 7 is a sectional view of same on the dotted line 7 7 of Fig. 5, and Fig. 8 is a sectional view of same on the dotted line 8 8 of Fig. 5.

In the drawings, 10 denotes a substantial

supporting-table mounted upon legs or frames 11 and firmly supporting the sewing-machines 12 12, which may be of any suitable character. The machines 12 12 illustrated in the drawings are the well-known types of Wheeler & Wilson hemstitching sewing-machines, the said machines being arranged in alinement with and to face one another. The feeding mechanisms (not shown) of the sewing-machines 12 12 are arranged to feed in the same direction, and this result may be accomplished in a well-known manner by reversing the throw of the feed of one machine. The present invention is not of course limited to the employment of the Wheeler & Wilson hemstitching sewing-machines, and I refer to this special type of machine because of the fact that the trade is thoroughly familiar with it and that it is especially adapted for the making of hemstitched handkerchiefs. Adjacent to the presser-foot of each of the heads or machines 12 12 will in use be placed a hemstitching attachment 13, of any suitable or known form or construction, adapted in the usual manner to form the folds or hems at the edges of the fabric preparatory to the stitching of the same. I have not illustrated the hemstitching attachments 13 in detail, since the invention is not confined to any special form or construction of such attachment.

Below the table 10 is mounted in suitable bearings the main driving-shaft 14, which receives its power from a suitable belt 15 and has mounted upon it the drive-wheels 16 17, through the medium of which and suitable belts 18 19 motion is communicated from the shaft 14 to the mechanism by which power is imparted to the driving-shafts 20 21 of the sewing-machine heads 12. The driving-shafts 20 and 21 are provided with belt or pulley wheels 22 to receive the belts 23, by which said wheels 22 are connected with the intermediate drive-wheels 24, mounted in suitable bearings 25 intermediate the supporting-table 10 and the main driving-shaft 14. Upon the axles 26 of the wheels 24 are also mounted the pulley-wheels 27, which receive the belts 18 19 and are by said belts directly connected with the main drive-wheels 16 17. The pulley-wheels 27 are free upon the axles 26 and only communicate their motion to the wheels 24 when they are pressed against said wheels by the pressure of the feet of the operator upon the treadles 28. The wheels 24 and 27 constitute the two parts of a clutch, and hence the wheel 24 will remain idle except when the wheel 27 is pressed into engagement with it by the means to be presently described. The wheels 27 are provided with the projecting studs 29, which form contacts for the inclined cams 30, which may be pulled downward by the foot-treadles and which when pulled downward will press against the studs 29 and move the wheels 27 into engagement with the wheels 24, with the result that so long as the pressure of the cams 30 remains

on the studs 29 the wheels 27 will maintain their contact with the wheels 24 and impart motion to said wheels 24 and through said wheels and the belts 23 to the mechanism of the sewing-machines or heads 12. The cams 30 are secured to or formed on the crank-arms 31, which are connected at their outer ends with the usual pitman or treadle rods 32 and at their other ends are secured upon rock-shafts 33, which constitute the axes upon which said crank-arms 31 may turn. The rock-shafts 33 are mounted in suitable bearing-sleeves 34, connected with the bearing-frames 25, and have at their outer end a brake-arm 35 and lip 36, the brake-arm 35 being adapted when the treadle-rods 32 are released to move upward to impinge the periphery of a plain portion 37 of the pulley-wheels 24 in order that upon the removal of the feet of the operative from the treadles the said brake-arms 35 may aid in bringing the sewing mechanism to a stop. Intermediate the lip 36 and a projecting portion 38 of each bearing-frame 25 is arranged a coiled spring 39, whose force is normally exerted to maintain the treadle-rods 32 and cams 30 in their upward position, thus normally leaving said cams 30 relieved from the studs 29 and permitting the pulley-wheels 27 to rotate without imparting their motion to the pulley-wheels 24. When the foot-treadles 28 are depressed to pull downward on the rods 32 and cams 30, the force of the springs 39 is thereby overcome, and the cams 30 will move the pulley-wheels 27 into engagement with the wheels 24, and thereby the motion of the main power-shaft 14 may be communicated to the sewing mechanisms. Upon the release of pressure from the foot-treadles 28 the springs 39 will by pressing downward on the lips 36 elevate the rods 32 and cams 30 and at the same time cause the brake-arms 35 to operate against the pulley-wheels 24 for the purpose of checking the latter.

From what has been explained above it is to be understood that both sewing-machines 12 are simultaneously driven from the main power-shaft 14 through the medium of the transmitting mechanism intermediate said power-shaft 14 and the shafts 20 21 of the sewing-machines 12, said sewing-machines being set in motion by the pressure of the feet of the operative upon both of the treadles 28. The removal of pressure from one of the treadles 28 will result in one of the sewing-machines automatically coming to a stop, while the motion of the main driving-shaft 14 and the operation of the other sewing-machine will continue. When pressure is relieved from both of the treadles 28, both of the sewing-machines 12 will automatically come to a stop. Thus while both of the sewing-machines are operated from the one main driving-shaft 14 either of said machines may, should the occasion arise, be stopped without interfering with the continued operation of the other sewing-machine. This feature of

the construction is of great importance, since it is practically impossible for the sewing mechanisms to be so finely made, adjusted, and maintained that both machines will while sewing a long length of fabric exactly and uniformly feed forward the edges of the fabric. The differing characteristics of the fabrics to be sewed and other circumstances render it substantially impossible for the two machines to maintain a uniform rate of feed, although by the proper adjustment of the machines this result should be sought to be accomplished as far as possible. The power-transmitting mechanism hereinbefore described renders it entirely practicable to make use of the two sewing-machines 12 for the sewing of the opposite edges of the fabrics, since when one edge of the fabric advances ahead of the other edge thereof one sewing-machine may be quickly and automatically stopped, while the other sewing-machine continues until it has caught up with its work, whereupon the operator by means of her foot will start the arrested machine in order that both machines may then continue their work until it is discovered that one of the machines is again in advance of the other machine.

The clutch mechanism hereinbefore described, represented by the pulley-wheels 24 27 and cams 30, is not *per se* claimed herein, since said features are not new with me and constitute a familiar form of clutch device which I have utilized in carrying my invention into effect. My invention is not limited, therefore, to the special construction of clutch device hereinbefore described.

In order to render the duplex machine above described entirely efficient and practicable, it is necessary to supply the same with means for caring for the slack along the middle of the length of fabric when the latter is wider than the distance between the two sewing mechanisms and also with means for spreading out and feeding away the forward portion of the fabric, and the accomplishment of these purposes is the object of my present invention, in carrying out which I provide automatic means intermediate the machines 12 12 for taking up the slack along the middle of the length of the fabric and also means to act upon the fabric after it has left the machines 12 12 for spreading and winding up the same.

The fabric represented as being treated by the duplex machine is illustrated diagrammatically by dotted lines and is numbered 40, and this fabric while passing through the machine is unwound from a cylinder 41, disposed upon a shaft 42, and the fabric thence passes forwardly, as illustrated, and then rearwardly, with its edges in the hemmers 13 13 and its middle portion over the hinged rod 43, whence the fabric passes rearwardly under the rod or frame 44, thence upwardly and frontwardly over the upper frame 45, thence upwardly around the cylinder 46, which is mounted upon a shaft 47, having by

preference on its left-hand end a pulley-wheel 48, connected by a power-transmitting belt or cord 49 with a larger pulley-wheel 50, fastened upon the left-hand end of the lower shaft 42, the purpose of the belt 49 and pulley-wheels 48 and 50 being to transmit motion from the shaft 42 to the shaft 47 when the fabric 40 is by the operative withdrawn from the cylinder 41, so that at such time the shaft 47 and cylinder 46 may operate as a reel to wind up the finished fabric into the form of a roll upon the said cylinder 46. The shaft 42 and cylinder 41 are counterparts of the shaft 47 and cylinder 46, and in Figs. 5, 6, 7, and 8 I illustrate the detailed construction and method of mounting the shaft 47 and cylinder 46, upon reference to which figures it will be observed that the cylinder 46 is a plain hollow wooden cylinder loosely mounted upon the shaft 47, which is detachably held at one end by means of the spring clip or lips 51 51, and at its other end is pivotally held between centering-screws 52 52, which allow the shaft 47 to be drawn outward from its normal operative position (shown in Fig. 5) to its inoperative position, (shown in Fig. 6,) so that after the fabric 40 has been wound upon the cylinder 46 the latter may be drawn outward from the shaft 47 and another cylinder 46 placed upon said shaft for receiving a further length of the fabric 40. The shaft 47 and frames 44 45 are supported in cast arms 53 53, extending upwardly from the table 10, and the spring-lips 51 at the upper end of the right-hand arm 53 are open to permit the right-hand end of the shaft 47 to with the exercise of a little force be pressed into position between said lips and to rotate therein and be withdrawn therefrom, the purpose of the lips 51 being to detachably hold the right-hand end of the shaft 47 while the latter is in operation for, with the cylinder 46, winding the finished fabric upon the latter. The left-hand end of the shaft 47 is freely mounted within the sleeve 54, Fig. 5, having the lugs 55, which receive the points of the pivot-screws 52, the latter serving as centers for enabling the shaft 47 and cylinder 46 to be turned outward to the position indicated by the dotted lines in Fig. 6. Upon the left-hand end of the shaft 47 is applied an ordinary hand-wheel 56 and the aforesaid pulley-wheel 48, and I would here have it understood that it will not always be necessary to employ both the hand-wheel 56 and pulley-wheel 48, because when the pulley-wheel 48 is made use of the shaft 47 and cylinder 46 will receive their rotary motion through the belt or cord 49 from the pulley-wheel 50 on the lower shaft 42. When the hand-wheel 56 is employed, the fabric 40 may be wound upon the cylinder 46 by imparting to the shaft 47 a proper rotary motion by hand through the instrumentality of the said hand-wheel 56. When the shaft 47 receives its motion from the hand-wheel 56, the pulley-wheel 48 will not necessarily be em-

ployed; but it will be found to be convenient to equip the shaft 47 with both the hand-wheel 56 and pulley-wheel 48, since when so equipped the said shaft may receive its motion through the belt or cord 49 or through the hand-wheel 56, as may be preferred by the operative. In order to impart rotary motion from the shaft 47 to the cylinder 46, while allowing said cylinder to be detachably secured upon said shaft, I affix upon the said shaft 47 a plate 57 and secure at the end of the cylinder 46 a stud 58, which during the rotation of the shaft 47 will be engaged by the said plate 57, as shown in Figs. 5 and 8, with the result that the cylinder 46 will be compelled to rotate with the said shaft 47. When desired, however, the cylinder 46 may be withdrawn from over the end of the shaft 47, the stud 58 then leaving the plate 57. The lower shaft 42, carrying the cylinder 41, is pivotally held at its left-hand end by the center screws 59, and at its right-hand end is detachably held between the spring-lips 60 60, corresponding with the aforesaid spring-lips 51 51. The cylinder 41, mounted upon the shaft 42, corresponds with the cylinder 46, mounted upon the shaft 47, and the shaft 42 is provided with a plate 61, to be engaged by a stud 62, carried on the end of the cylinder 41, so that motion may be imparted in this instance from the cylinder 41 to the shaft 42, the said plate 61 and stud 62 corresponding with the plate 57 and stud 58, above described, with respect to the shaft 47 and cylinder 46. The shaft 42 receives its motion from the cylinder 41, and the cylinder 46 receives its motion from the shaft 47, and motion is imparted to the cylinder 41 by the operative in drawing off the fabric 40 from the said cylinder 41. The shaft 42 and cylinder 41 are pivotally mounted, so that they may be swung outward from the spring-lips 60 in order that the cylinder 41 when empty may be withdrawn from the shaft 42, and another cylinder with the fabric wound thereon may be inserted upon the said shaft 42. The motion of the shaft 42 is, as above described, communicated to the shaft 47 through the pulley-wheel 50, cord or belt 49, and pulley-wheel 48, and better results may be attained if the cord or belt 49 is rather loose upon the pulley-wheels 48 and obtains its tension thereon by means of a weighted belt-tightener of the form illustrated in Fig. 4, in which it will be seen that the belt-tightener is in the form of a bell-crank lever 63, carrying on one arm a roller 64 to engage the belt 49 and having on its other arm an adjustable weight 65, the latter pressing the roller 64 against the said belt 49. By having the belt 49 rather loose upon the pulleys 50 and 48 the lower shaft 42 and upper shaft 47 may be turned outward when desired without detaching the belt 49 for the purpose of receiving or discarding the cylinders on said shafts. In addition, when the belt 49 is loosely arranged upon the pulley-wheels 50 and 48 there will be no danger of the cylinder 46 placing

too great a tension upon the fabric 40, since should the fabric 40 become taut between the sewing mechanism and the cylinder 46 the continued rotation of the shaft 42 would cause the belt 49 to slip over the pulley-wheel 48 without turning the shaft 47.

During the operation of the machine the operative will draw the fabric from the cylinder 41 from time to time and gather a portion of the said fabric in her lap, as diagrammatically illustrated by the dotted lines at 66, and the operative will feed the edges of the fabric through the hemmers 13 13, while the middle portion of the fabric will pass over and have its slack taken up by the rod 43, the latter pressing the middle portion of the fabric upward, and thence as the sewing proceeds the fabric will, as above described, pass around the rear side of the frame 44 and along the front side of the frame 45 and thence to the rear side of the cylinder 46, upon which the fabric will be wound. The purpose of the frames 44 and 45 is to spread the fabric along the line of its width, so that the said fabric may be evenly and uniformly wound upon the cylinder 46, and to this end the said frames 44 and 45 are each in the form of a rod secured at its ends in the arms 53 and having a curved middle portion, as clearly shown in Fig. 1, over which the fabric is compelled to travel, the curved portions of the frames 44 45 being arranged on different planes and serving to straighten out the fabric in line with its width before said fabric reaches the cylinder 46. When the fabric leaves the sewing mechanism, it may have its middle portion bunched together, due to the slackened portion of the fabric leaving the rod 43, and hence it becomes important that the fabric be straightened out to a normal width before it is wound upon the cylinder 46, and it is to accomplish this purpose that I employ the frames 44 and 45.

The rod 43 for taking up the slack along the middle longitudinal portion of the fabric as the latter feeds through the machines 12 is curved at its rear portion, and at its front portion, as clearly shown in Fig. 3, is held within a sleeve 67, constituting a part of the frame 68, which is pivotally mounted between lugs 69, fastened to the table 10, the object being to allow the sleeve 67 and rod 43 to have a pivotal motion. On the front end of the rod 43 is adjustably secured a weight 70, as shown in Fig. 3, and the purpose of this weight is to cause the rear portion of the arm 43 to have a tendency to move upwardly against the lower side of the fabric 40, thereby to automatically take up the slack in said fabric. The adjustment of the weight 70 will be made in accordance with the nature of the fabric 40, and the farther toward the front end of the rod 43 the weight 70 is placed the greater will be the tension exerted by the rear portion of said rod against the middle portion of the fabric. The rod 43 constitutes an automatic means

for taking up the slack in the middle portion of the fabric intermediate the sewing-machine heads 12 12, and when there is only a limited amount of slack in the fabric 40 to be taken up the rod 43 will be by the fabric held closer down to the top of the table 10, and when there is an increase in slackness due to a greater width of fabric 40 being employed the rod 43 will automatically ascend to take up the increased slackness.

The operation of the machine hereinbefore described will probably be sufficiently understood from the foregoing explanation, and hence a further detailed description of such operation is probably not necessary. It may be stated, however, that the main driving-shaft 14 is utilized for driving the shafts 20 21 of the sewing-machines 12 12, that by reason of the intermediate clutch mechanism connected with the foot-treadles 28 both of the machines 12 will remain idle until the operative places her feet upon said treadles, and that either of said machines 12 may be temporarily stopped at any time by simply the removal of the foot of the operative from the appropriate treadle 28. Both of the machines may be stopped by the removal of the feet of the operative from both of the treadles 28.

The fabric to be treated is fed from the cylinder 41 into the lap of the operative and thence over the take-up rod 43 and through the hemmers 13 and thence around the frames 44 and 45 to the upper cylinder 46 for the finished fabric. The rod 43 is exclusively used for automatically taking up the slack in the middle portions of the fabric, and the frames 44 and 45 are provided for straightening out the fabric to its normal width before said fabric is wound upon the cylinder 46. The action of the operative in withdrawing the fabric from the cylinder 41 results in motion being communicated from the lower shaft 42 through the belt-wheel 50, belt 49, and pulley-wheel 48 to the upper shaft 47 and cylinder 46, whereby the completed fabric may be wound upon the cylinder 46 simultaneously with the unwinding of the fabric from the lower cylinder 41. When it is not desired or necessary to employ the belt 49 and pulley-wheel 48, the upper cylinder 46 may be rotated by means of the ordinary hand-wheel 56. The shafts 42 and 47 are pivotally mounted, and the cylinders 41 and 46 are respectively detachably arranged thereupon. The tension of the take-up rod 43 against the middle portion of the fabric may be regulated by the adjustment of the weight 70 and also by the adjustment of the said rod within its supporting-sleeve 67, said rod being adjustably held within said sleeve by means of a set-screw 71.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a sewing-machine comprising the two sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, one at each edge of a length of fabric, an au-

tomatic self-adjusting upwardly-acting take-up device disposed intermediate said mechanisms for taking up the slack along the longitudinal middle portion of the length of fabric to be treated, said take-up device being below the fabric and adapted to press upwardly against the same; substantially as set forth.

2. In a sewing-machine comprising the two sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, one at each edge of a length of fabric, a take-up rod disposed intermediate said mechanisms for taking up the slack along the longitudinal middle portion of the length of fabric to be treated, and means for automatically pressing said rod upward to varying heights against the lower surface of said fabric in accordance with the amount of slack in said fabric; substantially as set forth.

3. In a sewing-machine comprising the two sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, a take-up rod disposed intermediate said mechanisms for taking up the slack along the longitudinal middle portion of the length of fabric to be treated, a support pivotally sustaining said rod, and a weight on one end of said rod to keep the other end portion thereof pressed upward against the lower surface of said fabric; substantially as set forth.

4. In a sewing-machine comprising the two sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, a take-up rod disposed intermediate said mechanisms for taking up the slack along the longitudinal middle portion of the length of fabric to be treated, the pivotally-mounted frame 68 having the sleeve 67 to receive and support said rod, and the adjustable weight on one end of said rod to keep the other end portion thereof pressed upward against the lower surface of said fabric; substantially as set forth.

5. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, one at each edge of a length of fabric, means intermediate said mechanisms for pressing the middle portions of the fabric upwardly to take up any slack therein, the shaft for reeling up the finished fabric, and means intermediate said mechanisms and said shaft for spreading the fabric laterally to its former normal condition whereby to insure the proper winding of the fabric into a roll; substantially as set forth.

6. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, one at each side of a length of fabric, the shaft for reeling up the finished fabric, and the transverse convex bar 45 secured at its ends and disposed intermediate said mechanisms and said shaft and against which the completed fabric travels on its passage to said shaft, for spreading the fabric laterally to its former normal width whereby to insure

the proper winding of the fabric into a roll; substantially as set forth.

7. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, the shaft for reeling up the finished fabric, and the transverse bars 44, 45 having convex portions in different planes intermediate said mechanisms and said shaft and against which the completed fabric travels on its passage to said shaft, for spreading the fabric laterally to a normal width whereby to insure the proper winding of the fabric into a roll; substantially as set forth.

8. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to sew two parallel seams, the shaft for reeling up the finished fabric, means for taking up the slack along the middle longitudinal portion of the length of fabric, and means intermediate said mechanisms and said shaft for spreading the fabric laterally to a normal width whereby to insure the proper winding of the fabric into a roll; substantially as set forth.

9. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to simultaneously sew two parallel seams, one at each edge of a length of fabric, the shaft for reeling up the finished fabric, the shaft for holding the fabric to be treated, a loose belt 49 connecting said shafts, the automatic belt-tightener engaging said belt, means pivotally mounting said shafts at

one end on vertical axes so that they may be turned outward horizontally to receive or be stripped of a roll of fabric, and means detachably holding said shafts at their other end, the said belt 49 being sufficiently long to permit the outward pivotal movement of said shafts while said belt remains in position connecting said shafts; substantially as set forth.

10. In a sewing-machine comprising the two sets of sewing mechanisms adapted to feed in the same direction and to sew parallel seams along the opposite edges of a length of fabric, the shaft 47, the bearing-sleeve 54 through which one end of said shaft freely extends, the spring-clips for detachably holding said shaft at its other end, and the screws 52 pivotally mounting said sleeve on a vertical axis so that said shaft may be turned outwardly from the machine, combined with the cylinder 46 loosely mounted on said shaft to receive and wind upon itself the finished fabric, means for rotating said shaft, and the plate 57 and stud 58 on said shaft and cylinder respectively for enabling said shaft to rotate said cylinder; substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 5th day of September, A. D. 1902.

JAMES A. CAMERON.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.