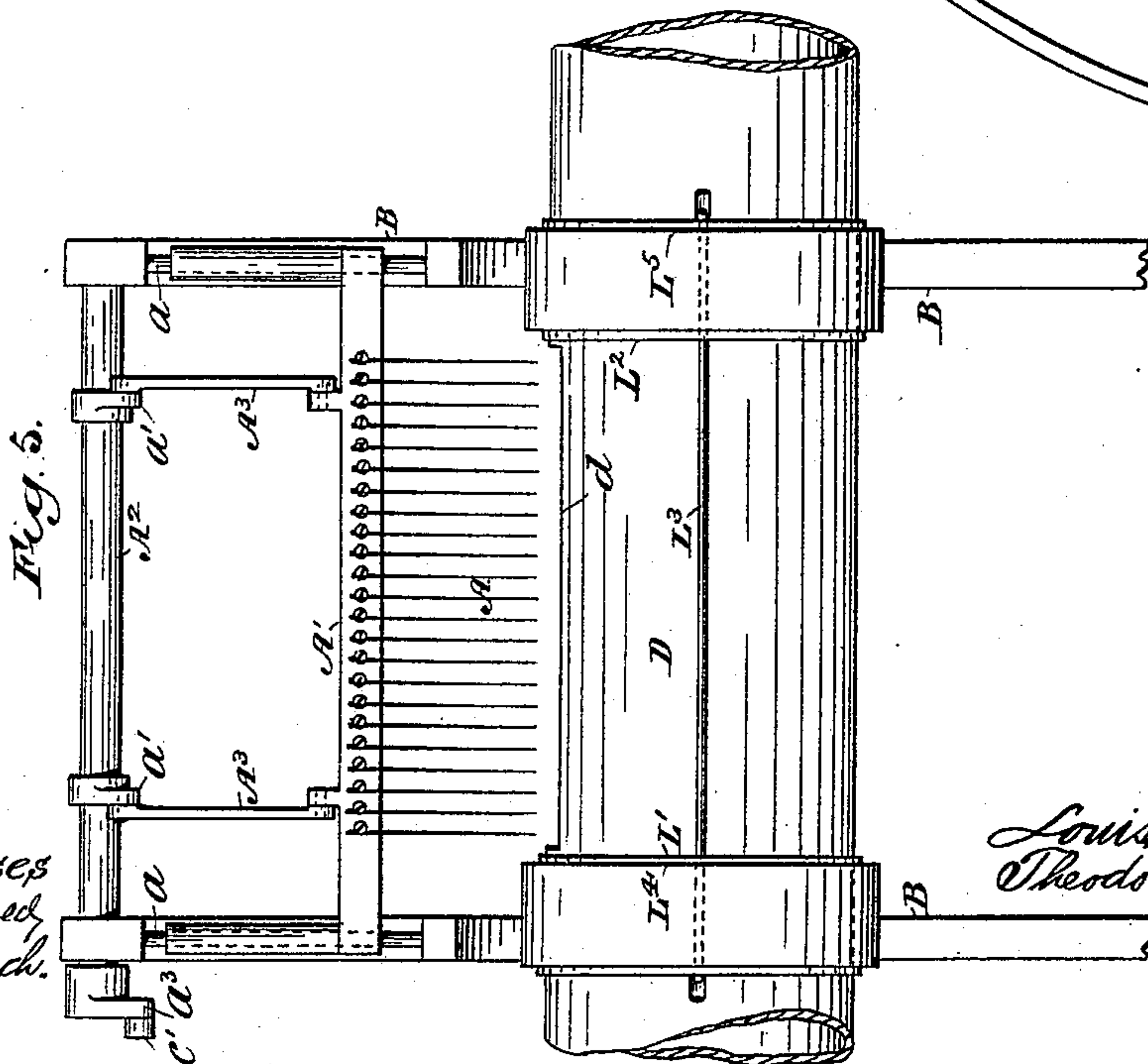
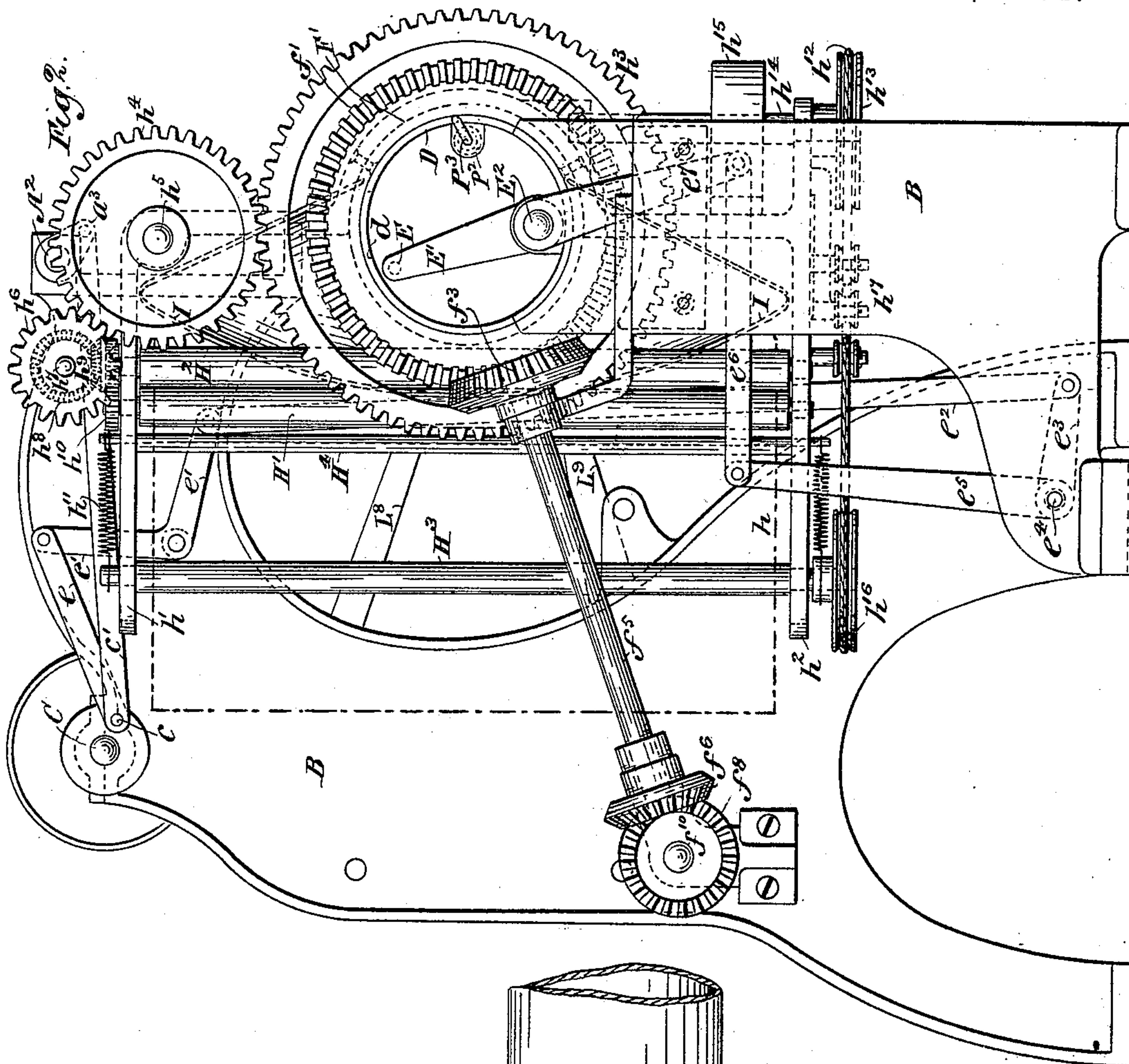


5 Sheets—Sheet 2:

No. 447,794.

Patented Mar. 10, 1891.



Witnesses
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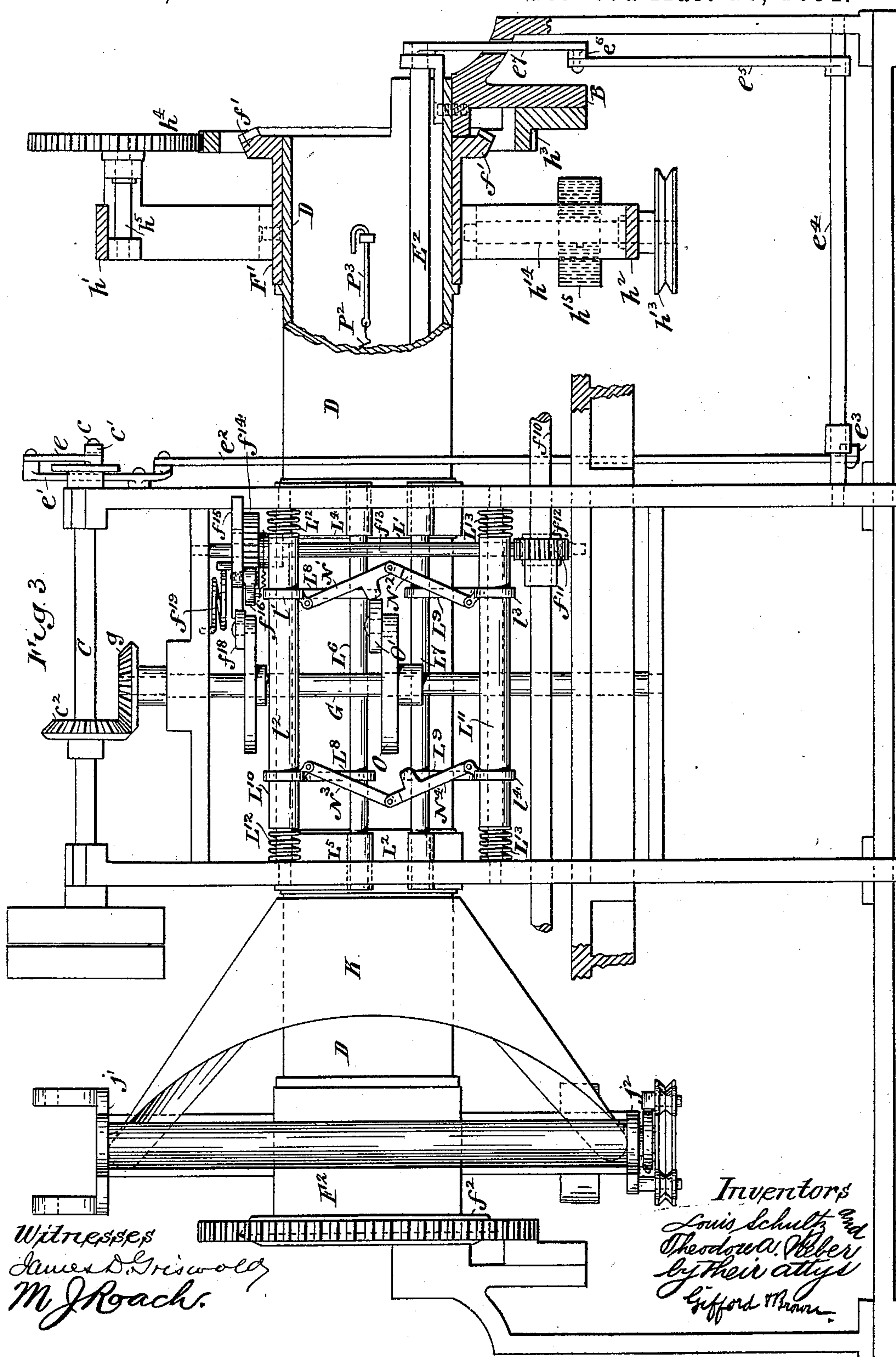
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5 Sheets—Sheet 3.

L. SCHULTZ & T. A. WEBER.
QUILTING MACHINE.

No. 447,794.

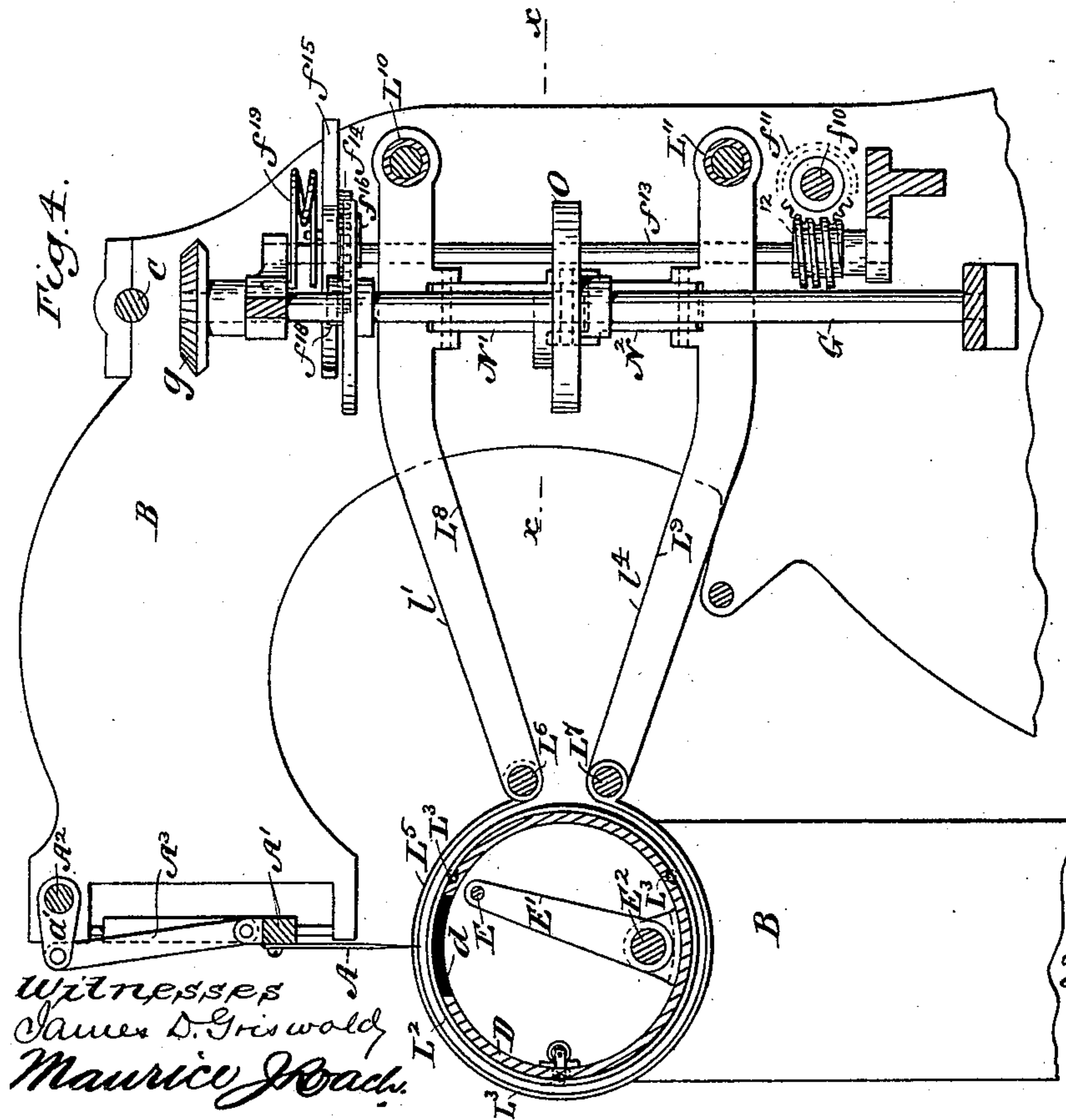
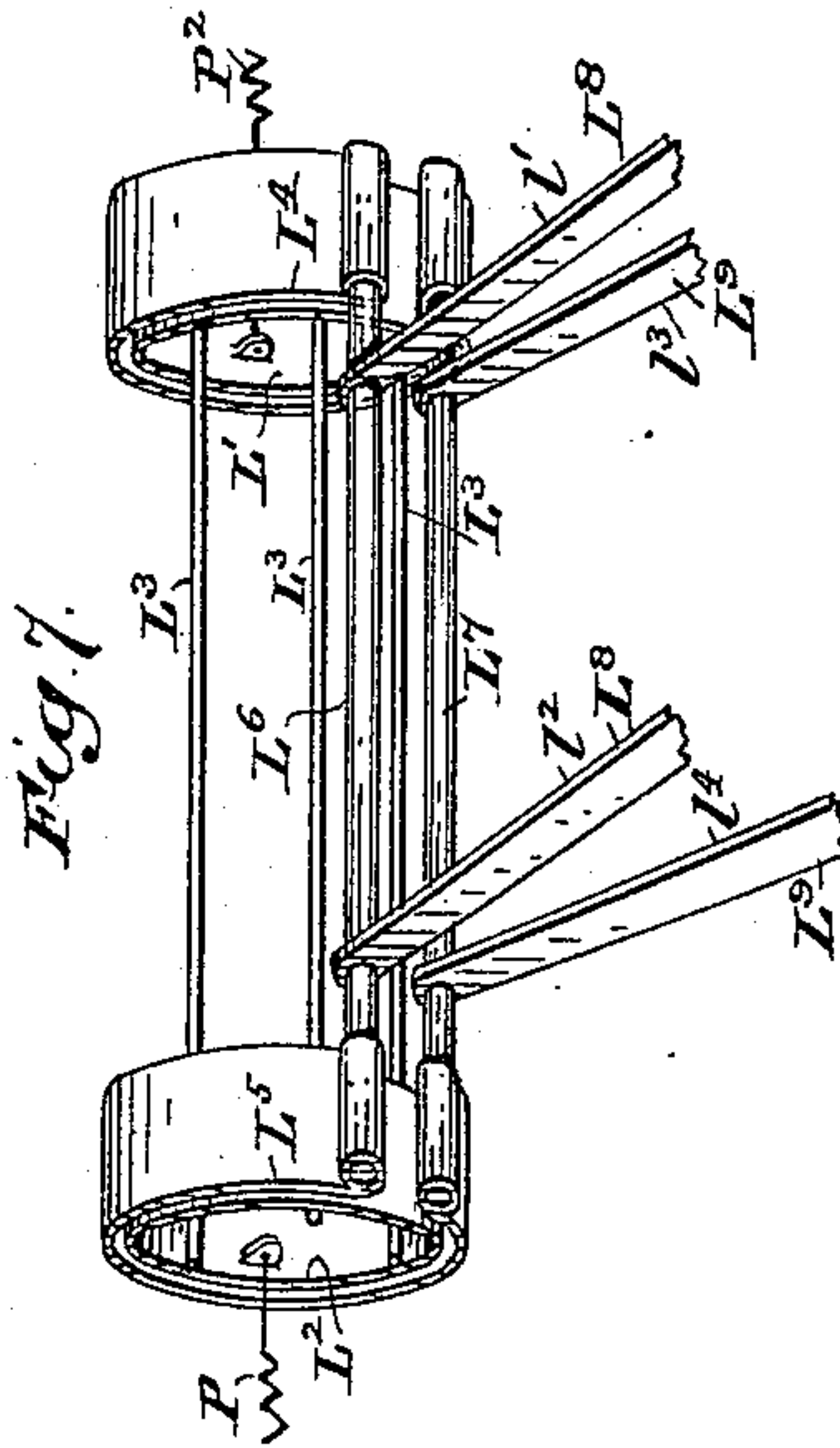
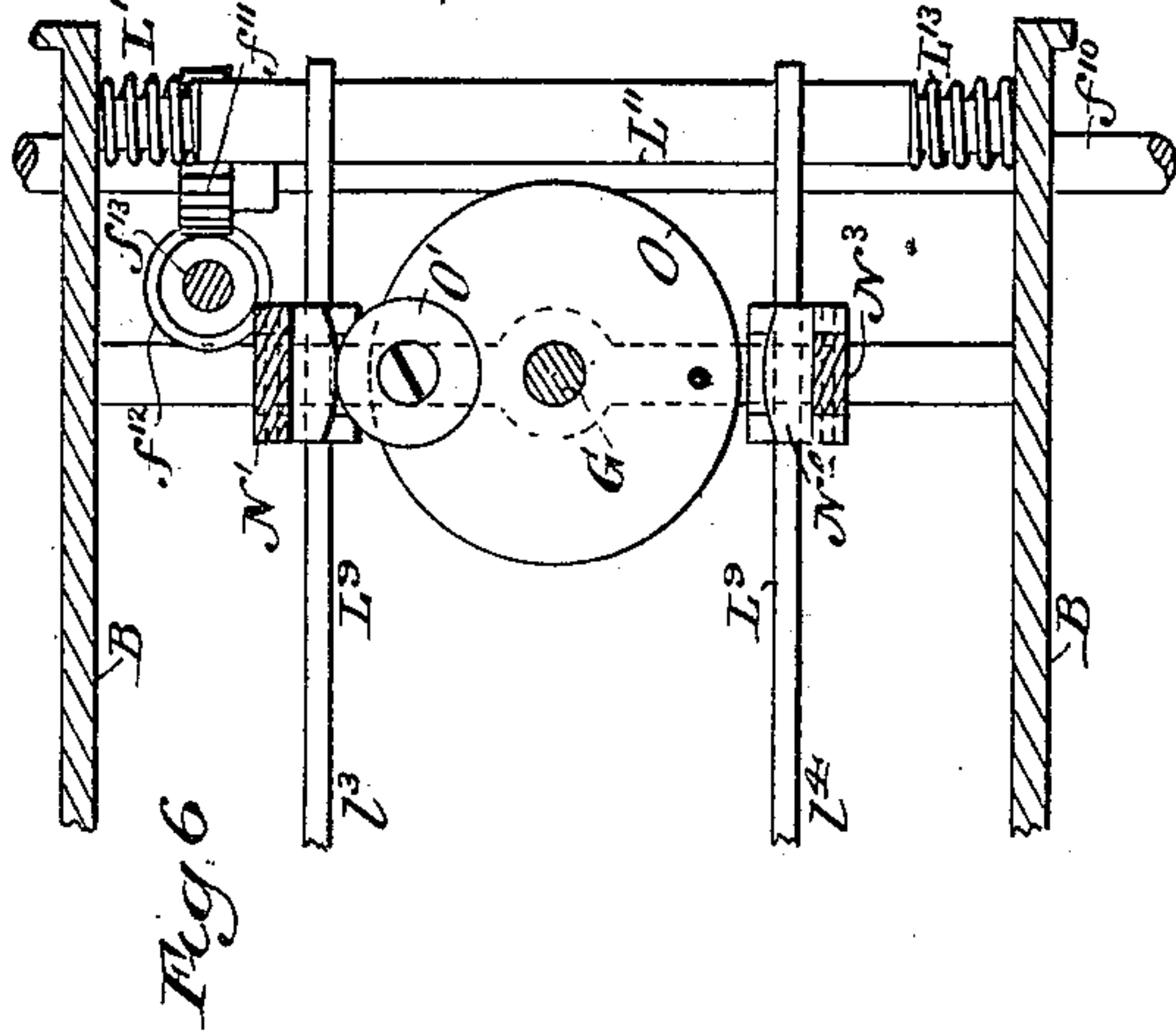
Patented Mar. 10, 1891.



L. SCHULTZ & T. A. WEBER.
QUILTING MACHINE.

No. 447,794.

Patented Mar. 10, 1891.



(No Model.)

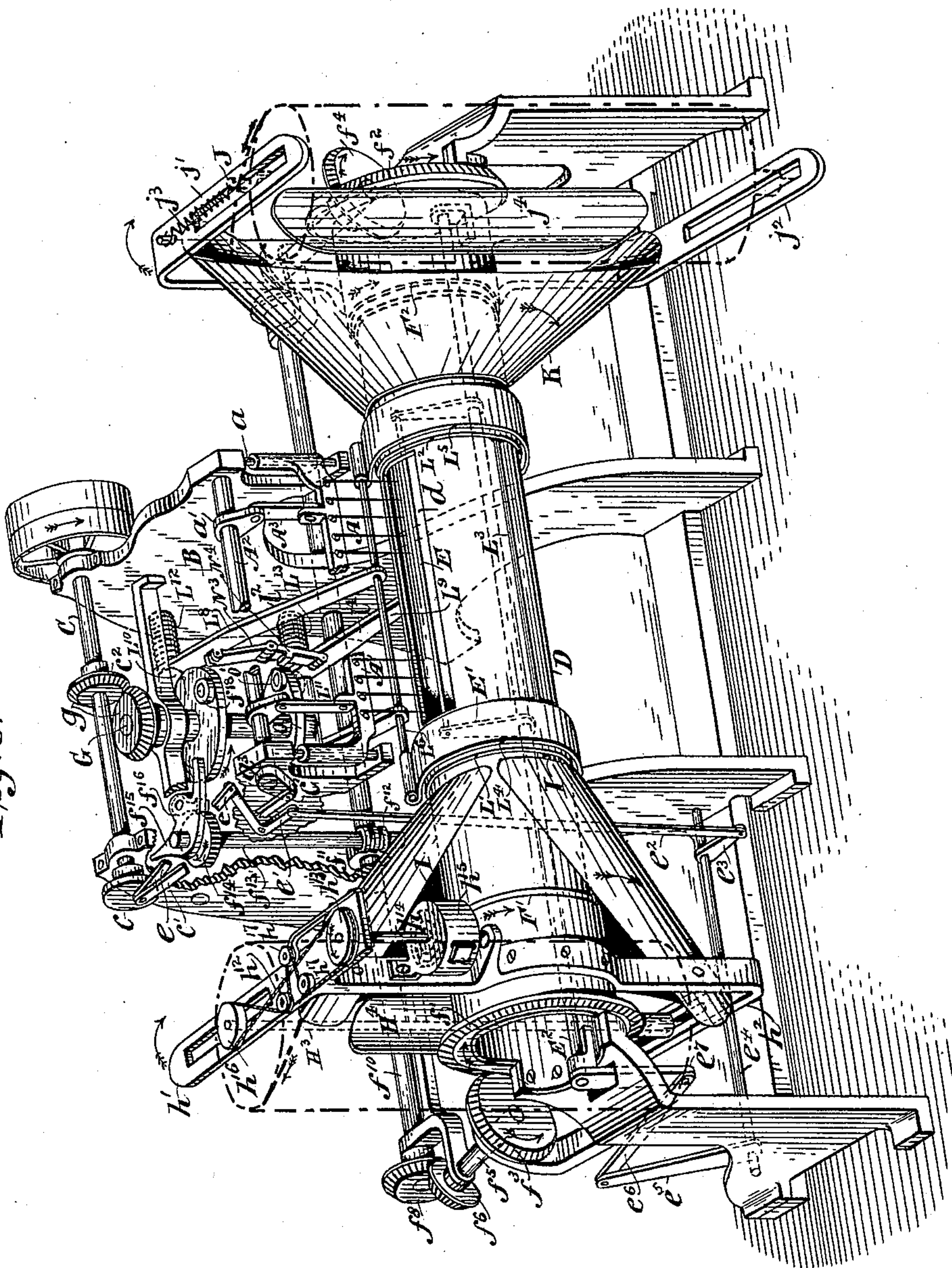
5 Sheets—Sheet 5.

L. SCHULTZ & T. A. WEBER.
QUILTING MACHINE.

No. 447,794.

Patented Mar. 10, 1891.

Fig. 8.



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UNITED STATES PATENT OFFICE.

LOUIS SCHULTZ AND THEODORE A. WEBER, OF NEW YORK, N. Y.; SAID
WEBER ASSIGNOR TO SAID SCHULTZ.

QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 447,794, dated March 10, 1891.

Application filed February 26, 1887. Serial No. 228,939. (No model.)

To all whom it may concern:

Be it known that we, LOUIS SCHULTZ and THEODORE A. WEBER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Sewing-Machines, of which the following is a specification.

This improvement relates particularly to machines in which a gang or a number of needles are employed.

The principal object of this improvement is to provide a machine by which diagonal quilting may be performed. In such quilting a number of parallel lines are stitched obliquely across the goods from side to side. It is not desired to produce a machine which will be capable of doing this character of work only, but of producing a machine which may do this work whether or not it is also capable of doing other work.

The improvement consists in the combination of a reciprocating gang or series of needles and a work bed or support arranged adjacent thereto and made of circular form transversely, the work having a longitudinal movement axially of the bed. Preferably the bed will be made in the form of a cylinder; but it need not, however, be made in the form of a complete cylinder. The work bed or support will preferably be so arranged as to extend axially in the direction of the length of the gang or series of needles.

The improvement also consists in various other features, which will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top view of a machine embodying our improvement, certain parts, however, being shown in sections. Fig. 2 is an end view of the same. Fig. 3 is a back view thereof with certain parts represented in sections. Fig. 4 is a transverse vertical section of the machine; but in this view we have omitted to represent certain parts which would be apparent, but which, if represented, would tend to confuse the parts sought to be particularly represented in this view. Fig. 5 is a front view of certain parts of the machine. Fig. 6 is a horizontal section taken at the plane of the dotted line *x x*, Fig. 4, and representing certain parts of the machine. Fig. 7 is a perspective

view illustrating the principal parts of a mechanism which effects or contributes to effect the feeding of the goods to be quilted in the direction of the axis of the work bed or support. Fig. 8 is a front view in perspective, showing the principal parts of the machine, the same being partly in section, and certain parts being omitted which might otherwise tend to render the construction of the illustrated parts obscure.

Similar letters of reference designate corresponding parts in all the figures.

A designates a gang or series of needles. As shown, these needles are all arranged in a single row, although this arrangement is not of the essence of our improvement, and attached to a common needle-bar A'. The needle-bar, with the needles fastened thereto, has a reciprocation in a vertical plane in the present example of our improvement. Said bar is guided along rods *a*, which are fixed to the frame-work B of the machine. The reciprocation of the needle-bar is effected by means of a rock-shaft A², furnished with crank-arms *a'* and links A³, which are pivotally connected to the said crank-arms at one end and to the needle-bar at the other.

The rock-shaft A² is rocked or oscillated by means of a crank *c*, which is affixed to one end of the main shaft C of the machine, and a link *c'*, extending from this crank to a crank-arm *a³*, which is affixed to one end of the said rock-shaft.

The main shaft C of the machine is journaled in an ordinary manner to the frame B of the machine and may be rotated by any suitable means—as, for instance, a belt operating in conjunction with fast and loose pulleys arranged upon such shaft.

D designates a work bed or support having a curved surface. As shown, it is made in the form of a hollow cylinder, and is arranged directly beneath the needles A in such position that its axis will be parallel with the gang of needles and the needle-bar. This work bed or support has in that portion of its upper part which is beneath the needles an opening *d*, through which the needles may pass during their reciprocations.

Within the work bed or support D and beneath its opening *d* shuttle-carriers are ar-

ranged. We have not deemed it necessary to illustrate the shuttle-carriers or the shuttles which are to be used therewith, for there will not necessarily be anything novel about these parts. We have, however, shown an oscillating bar E, arranged within the work bed or support D, opposite the opening *d* thereof, such bar being suitable for effecting the traverse of the shuttle-carriers with their shuttles.

The bar E is supported by arms E', that are mounted upon a rock-shaft E². This rock-shaft E² extends through the cylindrical work bed or support and is journaled in bearings affixed to the latter or any suitable part of the frame B of the machine.

The rock-shaft E² is rocked or oscillated by means of the crank *c*, with which the main shaft C of the machine is provided. In order that the crank may perform this work, it is pivotally connected to one end of a link *e*, which at the other end is connected to one arm of a bell-crank or elbow lever *e'*, fulcrumed to the frame B of the machine. The other arm of the lever *e'* is pivotally connected to one end of a rod *e*², which at the other end is pivotally connected to an arm *e*³, extending from a rock-shaft *e*⁴. The rock-shaft *e*⁴ has affixed to it a second arm *e*⁵, which is pivotally connected to one end of a rod *e*⁶, which at the other end is pivotally connected to a crank-arm *e*⁷, that is affixed to the rock-shaft E². By the mechanism just described the rock-shaft E² and the bar E will be rocked or oscillated at the proper times relatively to the reciprocations of the needle-bar.

Having now explained all that is necessary to explain in reference to the mechanism, the shuttle mechanism, and the shape of the work bed or support, saving only that it is not absolutely necessary that the latter should be made in the form of a complete cylinder, we will turn our attention to the mechanism whereby the goods, work, or fabrics to be quilted are fed beneath the needles.

It will, we believe, conduce to a clear understanding of the feed mechanism to premise that it feeds the goods lengthwise of the work bed or support, or, in other words, in the direction of the axis of the latter, and that it also feeds the goods in a curved path around the work bed or support. The goods will be fed in these two directions simultaneously, and preferably with an intermittent action corresponding to the stitching done upon it. As the longitudinal and circumferential feeding of the goods occur simultaneously, the goods will receive a resultant feed spirally around the work bed or support. At or near the ends of the work bed or support there are fitted to it rotary supports F' F² for certain feeding mechanism. These rotary supports are arranged one at each end of the work bed or support and rotate around the axial line of the latter and while the latter remains stationary. The rotary support F' carries a take-up or feed roller or rollers and a guide for di-

recting the goods from the curved surface of the work bed or support to the straight surface of such take-up or feed roller or rollers. The rotary support F² carries a delivery roller or rollers and a guide serving to direct the goods to be quilted properly from the said delivery roller or rollers to the curved surface of the work bed or support.

Before giving a detail description of the feed and delivery rollers or their guides I will explain the means by which the rotary supports F' F² are driven. They are provided at their outer ends with beveled gear-wheels *f'* *f*², which mesh or engage with beveled pinions *f*³ *f*⁴, affixed to shafts *f*⁵. These shafts *f*⁵ are journaled in bearings with which the frame-work B of the machine is furnished. They have also affixed to them beveled gear-wheels *f*⁶ *f*⁷, which mesh into beveled gear-wheels *f*⁸ *f*⁹, affixed to a shaft *f*¹⁰. This shaft *f*¹⁰ is suitably journaled in the frame B of the machine and extends lengthwise of the machine, or, in other words, in the same direction as the needle-bar and the work bed or support. Consequently the shafts *f*⁵ will extend transversely thereto and from it toward the work bed or support. The shaft *f*¹⁰ is furnished with a worm-wheel *f*¹¹, with which engages a worm *f*¹², which, as here shown, is arranged upon an upright shaft *f*¹³. This worm-shaft *f*¹³ is journaled in the frame-work B of the machine and at the upper end has affixed to it a toothed wheel *f*¹⁴. Adjacent to the toothed wheel *f*¹⁴ there is loosely mounted upon the shaft *f*¹³ a pawl-lever *f*¹⁵. The pawl-lever has two arms and carries a two-armed pawl *f*¹⁶, which is impelled against the toothed wheel *f*¹⁴ by means of a spring *f*¹⁹. The pawl-lever *f*¹⁵ may be swung into either of two positions, so that either of its arms will extend across the path of a cam or tappet *f*¹⁸, and when adjusted into either of its extreme positions it will be held there except when moved aside by the said cam or tappet by means of a spring *f*¹⁹, which is fastened to said lever and also to a portion of the frame B of the machine. The pawl carried by the lever may also be swung into either of two positions, so that either of its arms will operate upon the toothed wheel *f*¹⁴. This wheel has its teeth so formed as to be alike on both sides. It is so constructed and the pawl and pawl-lever are made in the manner described in order that the worm-shaft *f*¹³ may be rotated in either direction, while the cam or tappet is made to rotate continuously in the same direction. Thus provision will be afforded by a very simple and easy adjustment of parts for driving the rotary supports *f'* *f*² in either direction without changing the driving of the whole machine. The cam or tappet *f*¹⁸ is shown in the present example of our improvement as consisting of a disk affixed to an upright shaft G and provided at or near its periphery with an anti-friction roller or bowl.

As we stated at the outset in this specification, the principal object of our improvement

is to provide for quilting goods with diagonal or oblique lines of stitching from one side edge to the other in either direction, with the lines starting at either side edge of the goods.

5 The provision which we have just explained as being afforded for driving the rotary supports f' f^2 in different directions enables the diagonal or oblique lines of stitching to be started from either side edge of the goods to be quilted. To understand this it must be borne in mind that these rotary supports carry the take-up or feed and the delivery rollers and thereby impart to the goods to be quilted the same rotation which they receive themselves.

10 The shaft G is provided at its upper end with the beveled wheel g , that engages with a beveled wheel c^2 , affixed to the main shaft C of the machine. Hence the shaft G is driven directly from the main shaft.

20 H' H^2 designate a pair of feed-rollers, and H^3 designates a take-up roller. These rollers constitute holders for the work. It may not be necessary to use the feed-rollers in addition to the take-up roller. These rollers H' H^2 H^3 are carried by the rotary support F' . They are journaled in brackets h' h^2 , which are affixed to this rotary support. Adjacent to the rotary support F' is a circular rack h^3 . This rack is immovable. It is secured by bolts or other means to a portion of the frame B of the machine. It is concentric with the rotary support F' , and consequently with the work bed or support. The gear-wheel h^4 , mounted upon a stud h^5 , which is affixed to the bracket h' of the rotary support F' , engages with the circular rack h^3 and travels around the latter when it is revolved by the rotation of the support F' . As it revolves it rotates on its own axis. It engages with a gear-wheel h^6 , which is mounted on a stud or shaft h^7 , journaled in bearings provided upon the brackets h' . The shaft h^7 has also affixed to it a beveled gear-wheel h^8 . This beveled gear-wheel engages with a beveled gear-wheel h^9 , which is affixed to one of the journals of the feed-roller H^2 . The rotary motion which the gear-wheel h^4 acquires in revolving around the circular rack h^3 will be transmitted to the gear-wheel h^6 , and by the latter transmitted through the beveled gear-wheels h^8 h^9 to the feed-roller H^2 . The feed-roller H' need not be positively driven, but may rotate simply by the action of the goods passing between it and its feed-roller H^2 ; but we have shown these two feed-rollers as driven positively through the agency of intermeshing gear-wheels h^{10} , affixed to corresponding journals.

60 The take-up roller H^3 is shown as having its journals fitted into slots which extend lengthwise of the brackets h' h^2 . Springs h^{11} are employed to pull this take-up roller toward a bar H^4 , which is affixed to the brackets h' h^2 . The take-up roller will therefore be moved as near to the bar H^4 as the goods wound upon it will permit, and it will recede from the bar as the goods accumulate upon

it. Owing to the variations which occur in its position it must be driven by mechanism which will admit of extension or contraction. 70 We have shown mechanism consisting of a belt h^{12} , passing around a pulley h^{13} , affixed to a shaft h^{14} . This shaft is journaled in the bracket h^2 and has combined with it a convolute spring h^{15} , affixed at one end to it and at the other end, as shown, to a spring-barrel, which is rigidly secured to the said bracket or an appurtenance thereof. This spring will be wound from time to time by hand when it is employed as the agent for rotating the take-up roller H^3 . The belt h^{12} also passes around a pulley h^{16} , affixed to one of the journals of the take-up roller H^3 . Combined with the belt are pulleys h^{17} , one or more of which are bodily movable under the influence of a spring to take up and let out the belt, as may be necessary to admit of the movements of the take-up roller H^3 along the slots of the brackets h' h^2 in consequence of variations in the amount of goods wound upon said take-up roller. 80 85 90

I designates a guide, which may be made of sheet metal or other analogous material. At one end it extends around the work bed or support D at a sufficient distance therefrom to admit of the passage between it and the work bed or support of the goods which have been quilted. From this end it flares outwardly and gradually becomes flatter and flatter toward its other end, which will be in close proximity to the feed-rollers H' H^2 , or if they be omitted then in close proximity to the take-up roller. The function of this guide is therefore to receive the quilted goods while they are in the curved form which they assume during the time they are upon the work bed or support and to gradually straighten them out widthwise, so that they may pass between the feed-rollers or upon the take-up roller. 95 100 105 110

J designates a delivery-roller, which is journaled in brackets j' j^2 , affixed to the rotary support F^2 . It is journaled in slots which extend lengthwise of the brackets and have combined with them springs j^3 , whereby the roller will be drawn toward a bar or plate j^4 , which is affixed to the rotary support F^2 or to its brackets j' j^2 . These springs provide for the adjustment of the roller into different positions as the amount of goods upon it varies. This roller need not be driven, as it will derive a rotary movement from the drawing or feeding of the goods along the work bed or support. 115 120

K designates a guide, which is or may be very similar to the guide I, heretofore described. The goods enter this guide in a comparatively flat state, and, owing to the contraction and bending of the guide toward its other end, will be gradually bent around into curved form, so that they may, when delivered upon the work bed or support, conform to the contour of the latter. 125 130

The mechanism which we have now de-

scribed may be sufficient for feeding the goods in the required manner; but we have shown additional feeding mechanism for the purpose of feeding the goods lengthwise of the work bed or support. The mechanism just alluded to has not, however, the function of feeding the goods circumferentially of or around the work bed or support.

$L' L^2 L^3$ designate a carrier which conforms to the contour of the work bed or support. As shown, it is composed of two rings $L' L^2$, surrounding said work bed or support, one near each end of the opening d thereof, and a number of rods L^3 , united to said rings and extending between them, so as to secure them together. The goods pass over the outer surface of this carrier. Around the rings $L' L^2$ bands or straps $L^4 L^5$ extend. The ends of these straps are secured to rods $L^6 L^7$, which are connected to the ends of levers $L^8 L^9$. The lever L^8 is composed of two parallel and similar portions $L'^ L^2$. These portions at the forward end are secured to the rod L^6 and at the rear end to a tubular rod L^{10} . This tubular rod L^{10} is a fulcrum-piece of the lever L^8 and fits upon the rod which is secured to side pieces of frame-work B of the machine. The tubular rod L^{10} can slide upon the rod last named lengthwise. Between the ends of the tubular rod L^{10} and the side pieces of the frame adjacent thereto we interpose springs L^{12} , here shown as of spiral form. They serve to maintain the tubular rod L^{10} , and consequently the lever L^8 , in its normal position. The rod L^7 , to which the lower ends of the bands or straps $L^4 L^5$ are secured, is integral with or affixed to the lever L^9 . This lever L^9 is composed of two similar and parallel portions $L^3 L^4$, which are secured at the rear end to a tubular rod L^{11} . This tubular rod, like the tubular rod L^{10} of the other lever L^8 , is fitted to slide lengthwise upon a rod supported by side pieces of the frame of the machine. Springs L^{13} are interposed between the tubular rod L^{11} and the adjacent side pieces of the machine-frame to hold the lever L^9 normally in position.

The levers $L^8 L^9$ are shown as united by pairs of toggle-links. As shown, the portion L' of the lever L^8 is connected to the portion L^3 of the lever L^9 by one pair of toggle-links $N' N^2$, and the portion L^2 of the lever L^8 is connected to the portion L^4 of the lever L^9 by another pair of toggle-links $N^3 N^4$. By deflecting either pair of the toggle-links the levers $L^8 L^9$ will be swung nearer together and the bands or straps $L^4 L^5$ will be correspondingly tightened around the rings $L' L^2$ of the carrier. When this occurs the goods will be gripped tightly between the bands or straps and the carrier. As the levers are free to move sidewise, they will be moved sidewise by the action of the cam which deflects the toggle-links, providing the throw of the cam be sufficient not only to deflect either pair of links sufficiently to cause the gripping of the goods, but also subsequently deflect the tog-

gle-links bodily to one side. Such action will cause the movement of the levers to one side against the resistance of the springs $L^{12} L^{13}$, which oppose the movement of the levers in that direction. It will therefore be obvious that not only will the goods be gripped, but that they will also be fed lengthwise of the work bed or support.

We provide two pairs of toggle-links in order that a feed of the goods may be obtained in either direction lengthwise of the work bed or support. A separate cam will be employed for each pair of toggle-links, and these cams will operate in different horizontal planes in order that they may not interfere with the toggle-links, with which they are not intended to coact. We have shown a cam consisting of a disk O, affixed to the shaft G and provided with an anti-friction roller or bowl projecting beyond its delivery. When the anti-friction roller or bowl O' is arranged above the disk, it will operate one pair of toggle-links. If removed and placed below the disk, it will operate the other pair of toggle-links. In either case it will not only effect the gripping of the goods between the bands or straps $L^4 L^5$ and the rings $L' L^2$, but it will also effect a movement of the goods after they are gripped in the direction of the length of the work bed or support. When the bands or straps $L^4 L^5$ are moved lengthwise of the work bed or support, the carrier $L' L^2 L^3$ will be similarly moved because it becomes fixed to the bands or straps when the goods are gripped. After the movement of the goods lengthwise of the work bed or support, which is effected by the cam O', this cam will pass beyond the pair of toggle-links with which it operated, and thereupon the levers $L^8 L^9$ will be released, the straps $L^4 L^5$ will be relaxed, and the goods and carrier left free. The spring $L^{12} L^{13}$ will then move the levers $L^8 L^9$ to their normal position, where they will be ready to again operate upon the goods to feed them along the work bed or support. The carrier will be moved to its normal position by means of a spring P, connected at one end to a lug projecting from one of the rings $L' L^2$ through a slot which extends lengthwise of the work bed or support and connected at the other end to a rod P', which may be engaged with or disengaged from the work bed or support at the nearer extremity thereof. This spring will draw the carrier toward the end of the work bed or support to which said spring is connected. A similar spring P² is connected in like manner to the other of the rings $L' L^2$ and connected to a rod P³, that is capable of being engaged with or disengaged from the nearer end of the work bed or support. The object of employing two springs and two rods and providing for engaging and disengaging either of the rods from the work bed or support enables the carrier to be returned or moved in either direction lengthwise of the work bed or support after the bands or straps $L^4 L^5$ shall

be relaxed, and hence adapts the carrier for use in feeding the goods in either direction lengthwise of the work bed or support.

We have only described mechanism for moving the work to be quilted lengthwise of the work bed or support while being carried around the latter in relation with parts shown at one end of the work bed or support. The mechanism which has thus been particularly described, consisting of feed-rollers, take-up roller, and mechanism for driving these rollers, will be duplicated at the other end of the work bed or support whenever it is desirable to provide for the longitudinal feed of the goods in each direction axially of the work bed or support.

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

1. The combination, in a sewing-machine, of a fabric-carrying frame revolving about a central longitudinal axis, a feed mechanism carried by said frame and operating to draw the fabric longitudinally lengthwise of the frame parallel with said axis, and needles reciprocating toward and from said axis, substantially as described.

2. The combination, in a sewing-machine, of a frame revolving about a central longitudinal axis, an automatic feed mechanism for drawing a fabric in the direction of said axis during the operation of the machine, and needles reciprocating in the line of said axis, substantially as specified.

3. The combination, with sewing mechanism, of a curved work-bed, fabric-supports rotating at the ends thereof, the axis of their rotation being coincident with the longitudinal axis of the curved work-bed, and a carrier moving lengthwise of the work-bed for moving the work along and with the fabric-supports causing it to move spirally about the work-bed, substantially as specified.

4. The combination, with sewing mechanism, of a curved work-bed and fabric-supports rotating on their own axes and revolving at the ends of the work-bed, the axis of their revolution being coincident with the longitudinal axis of the curved work-bed, said supports carrying the work longitudinally and around the work-bed, substantially as specified.

5. In a sewing-machine, the combination of a reciprocating needle or needles, a work bed or support of curved form, and roller mechanism revolving around said work bed or support and rotating on their axes for moving the goods to be sewed lengthwise of said work bed or support, substantially as specified.

6. In a sewing-machine, the combination of a reciprocating needle or needles, a work bed or support of curved form, and feed-rollers and delivery-rollers revolving around said work bed or support for moving the goods to be sewed lengthwise of said work bed or support, substantially as specified.

7. In a sewing-machine, the combination

of a reciprocating needle or needles, a work bed or support of curved form, a roller or rollers revolving around said work bed or support and serving to feed the goods to be sewed lengthwise thereof, and a delivery-roller and guides also revolving around said work bed or support for guiding the work to be sewed from the delivery-roller to the surface of the work bed or support and from the latter to the take-up or feed roller or rollers, substantially as specified.

8. In a sewing-machine, the combination of a reciprocating needle or needles, a work bed or support of curved form, a curved carrier fitting said work bed or support, a band or strap adjacent to the carrier, and mechanism comprising toggle-links and levers whereby the band or strap will be at times tightened on the goods being sewed and with the carrier moved in the direction of the axis of the work bed or support to feed the goods in that direction and at other times released, so that it and the carrier may be moved back to the original position without dragging back the goods, substantially as specified.

9. In a sewing-machine, the combination of a reciprocating needle or needles, a work bed or support of curved form arranged adjacent thereto, a delivery-roller, a guide between the delivery-roller and the work bed or support, a rotary support for the delivery-roller and guide, a take-up or feed roller, a guide between the work bed or support and such take-up and feed roller, a rotary support for the take-up or feed roller and its guide, and mechanism for rotating the two said rotary supports in unison, substantially as specified.

10. In a sewing-machine, the combination, with a reciprocating needle or needles, of a work bed or support of curved form, a curved carrier fitting said work bed or support, a band or strap adjacent to the carrier, a support for one end of the band or strap, a lever connected to the other end of the band or strap, toggle-links connected to the lever, a cam for deflecting the toggle-links and moving the work in one direction, and a spring for moving the curved carrier in one direction, substantially as specified.

11. In a sewing-machine having a reciprocating needle or needles, a work bed or support of curved form, a curved carrier for moving the goods lengthwise of the work-bed, and a spring for moving the curved carrier in one direction, the combination of the bands or straps $L^4 L^5$, the levers $L^8 L^9$, springs $L^{12} L^{13}$, toggle-links, and a cam for operating the toggle-links and serving to move the goods, substantially as specified.

12. In a sewing-machine, the combination of a reciprocating needle or needles, a curved work bed or support arranged adjacent thereto, mechanism for feeding the goods to be sewed spirally in the direction of the curved surface of the work bed or support and comprising rotary feed and delivery rollers, the

carrier L' L² L³, springs P P², rods P' P³, straps or bands L⁴ L⁵, levers L⁸ L⁹, toggle-links, and a cam for operating the toggle-links and moving the carrier, substantially
5 as specified.

13. In a sewing-machine, the combination of a reciprocating needle or needles, a curved work bed or support arranged adjacent thereto, rotary supports for the goods at the ends
10 of the work bed or support, stationary racks concentric therewith, feed and delivery rollers comprised in said supports and fitted in brackets affixed to the supports, and mechanism, substantially such as described, for im-
15 parting rotary motion to the rollers from said stationary racks, substantially as specified.

14. In a sewing-machine having a reciprocating needle or needles, a work bed or support of curved form, and mechanism for feed-
20 ing the goods lengthwise, the combination of rotary supports, take-up and delivery rollers carried by said supports, a spring-actuated

shaft, and mechanism between the spring-actuated shaft and the take-up roller for rotating the latter, substantially as specified. 25

15. In a sewing-machine, the combination, with a reciprocating needle or needles, of a curved work bed or support arranged adjacent thereto, rotary supports at the ends of the latter, feed and delivery rollers carried
30 by said supports, a worm, mechanism between the worm and the rotary supports for transmitting motion to the latter, a two-armed pawl-lever upon the worm-shaft, a two-armed pawl carried by this lever, a toothed wheel with which this pawl may engage, and a tap-
pet or cam for actuating the said pawl, substantially as specified.

LOUIS SCHULTZ.
THEODORE A. WEBER.

In presence of—
JAMES S. GREVES,
M. J. ROACH.