No. 695,481. Patented Mar. 18, 1902.

L. ONDERDONK.

CYLINDER SEWING MACHINE.

(Application filed Apr. 4, 1898.)

(No Model.) 4 Sheets—Sheet 1.

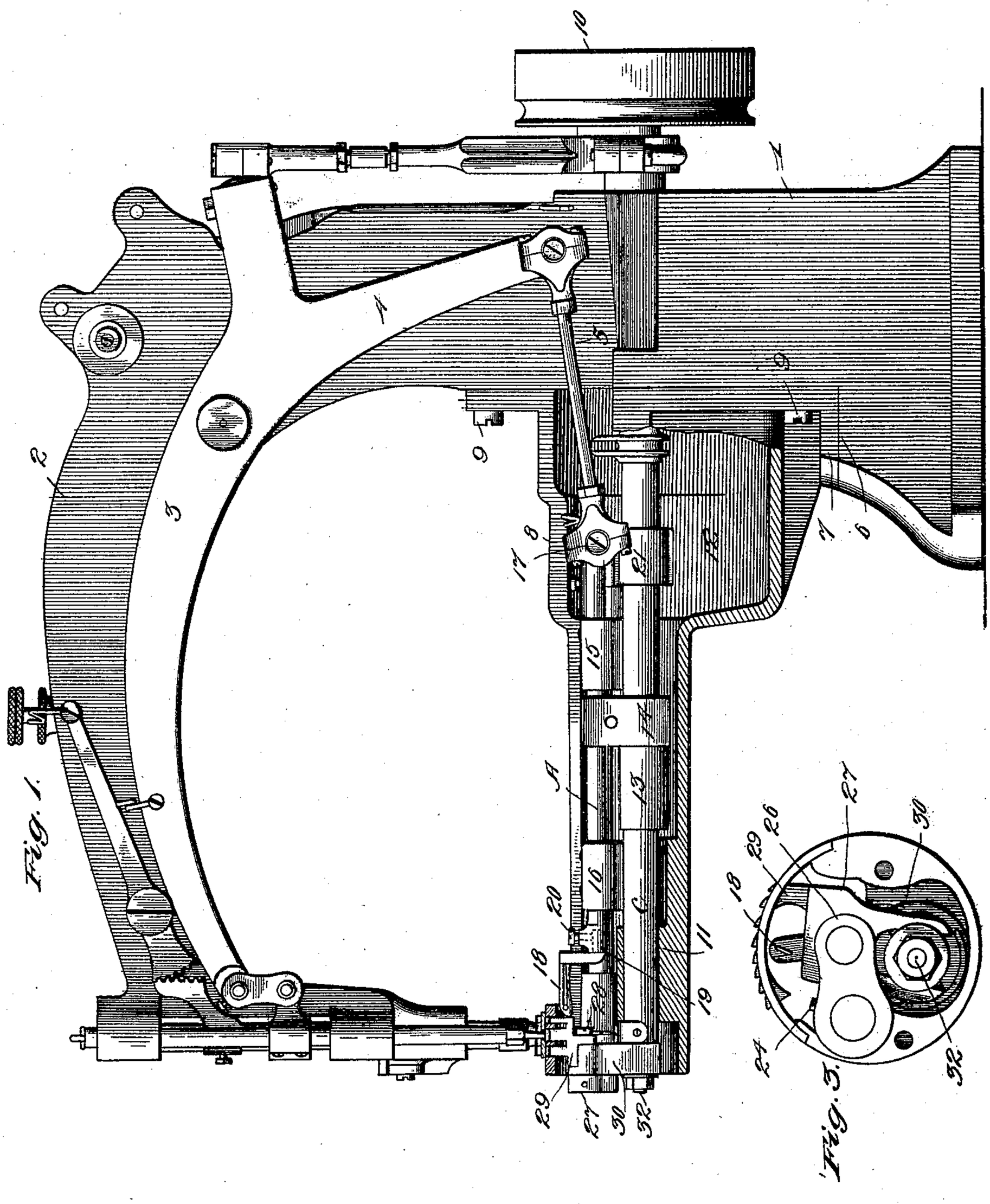

Fig. 1.

Fig. 3.

Witnesses.
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(Application filed Apr. 4, 1898.)

(No Model.) 4 Sheets—Sheet 2.

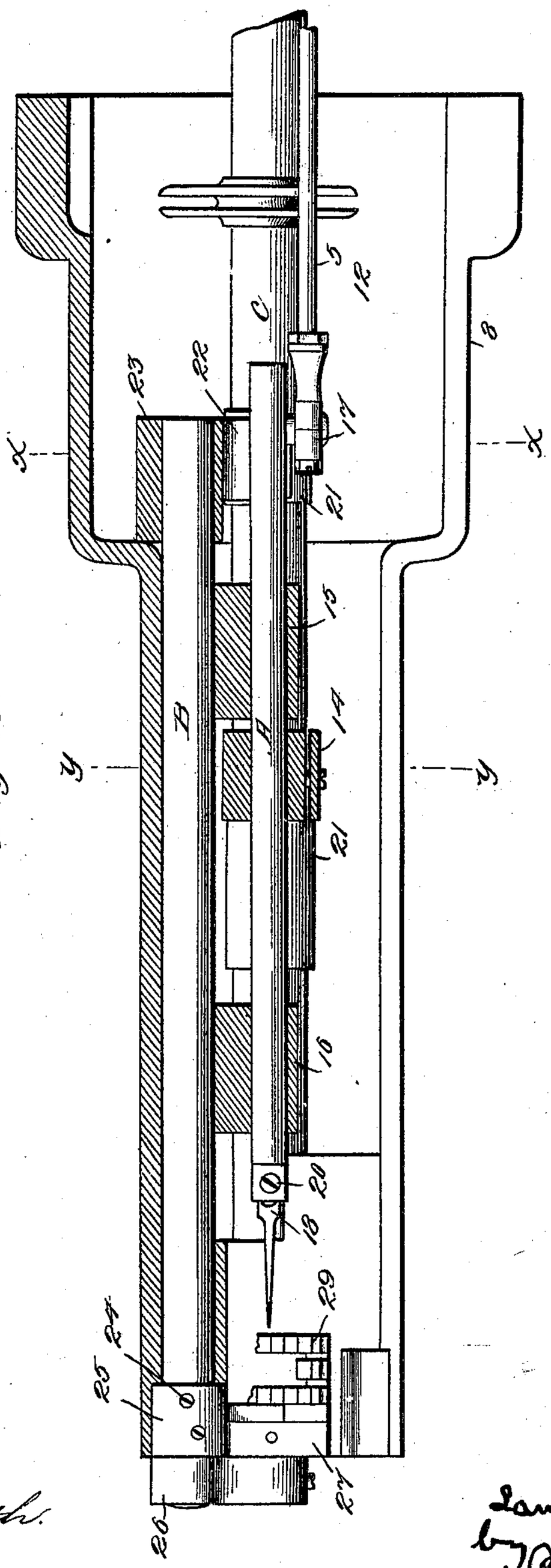

Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

Fig. 5.

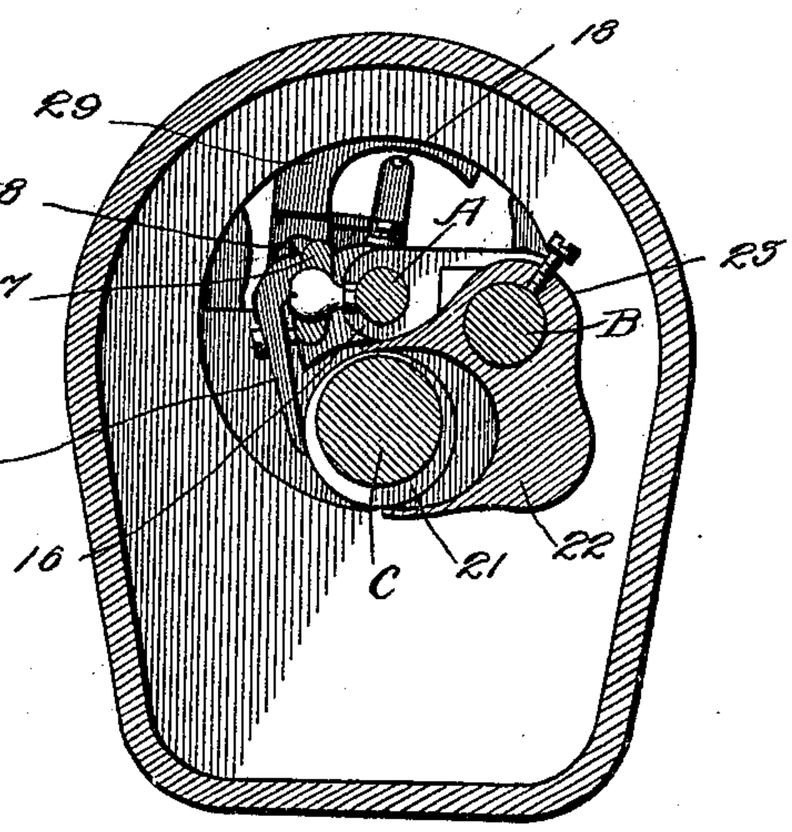


Fig. 7.

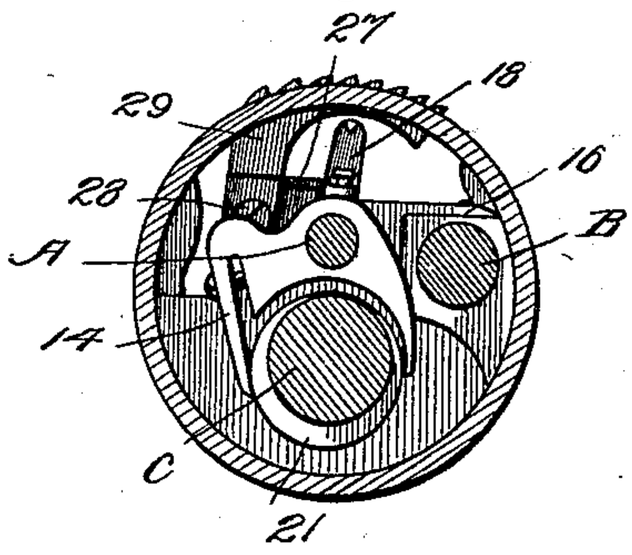


Fig. 6.

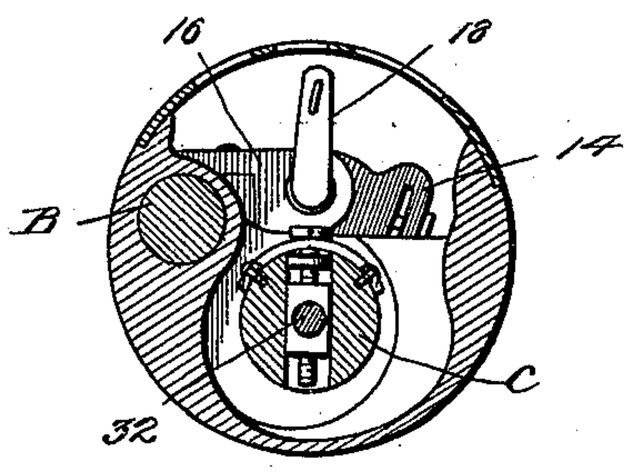
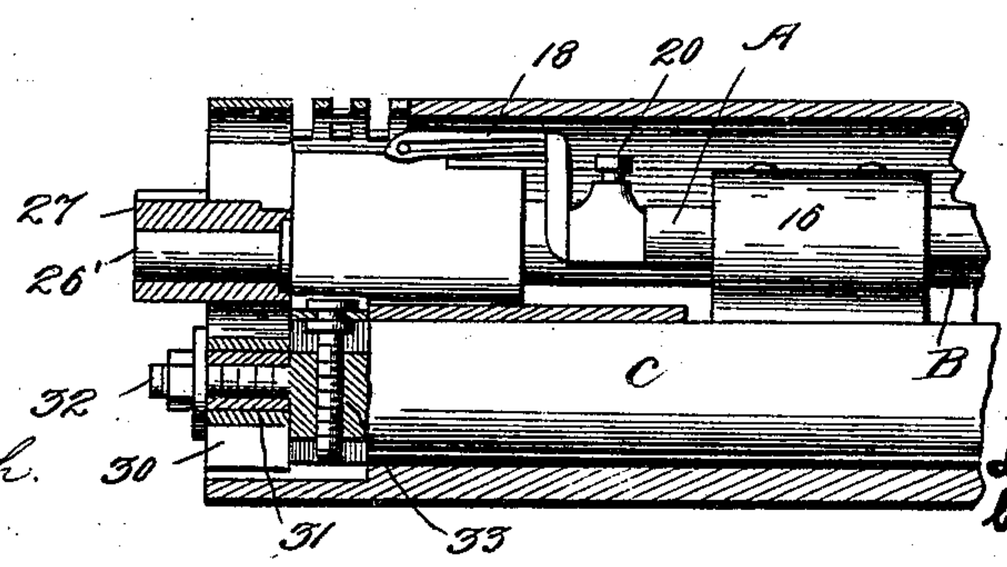


Fig. 4.



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No. 695,481. Patented Mar. 18, 1902.

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CYLINDER SEWING MACHINE.

(Application filed Apr. 4, 1898.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 8

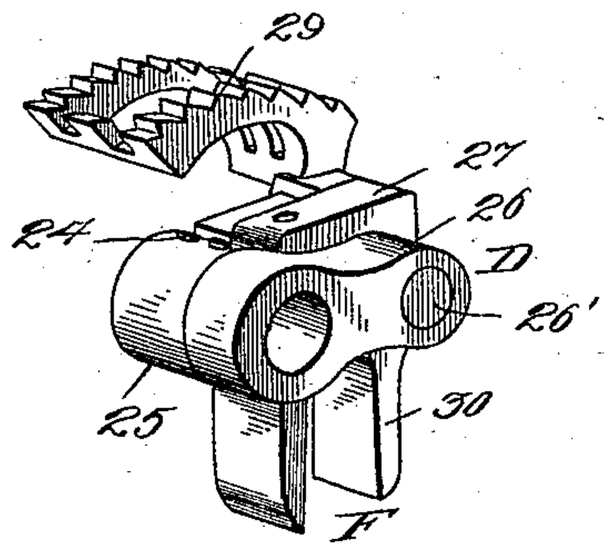


Fig. 9.

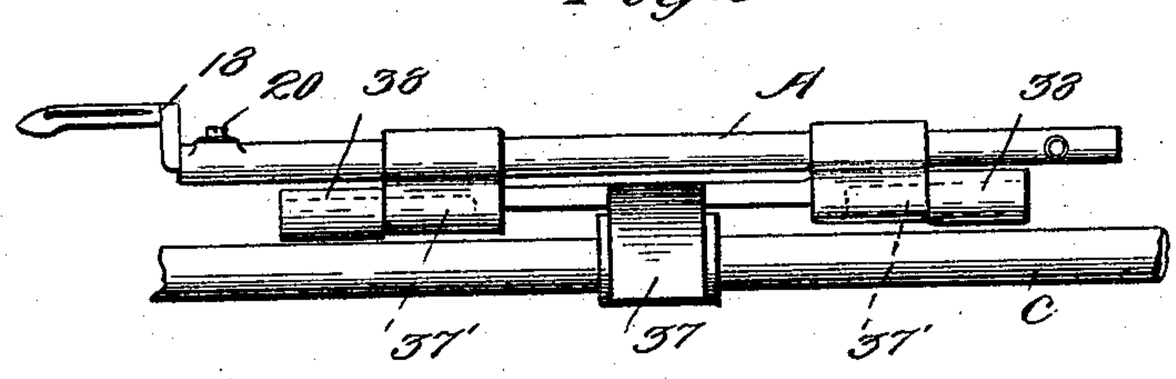
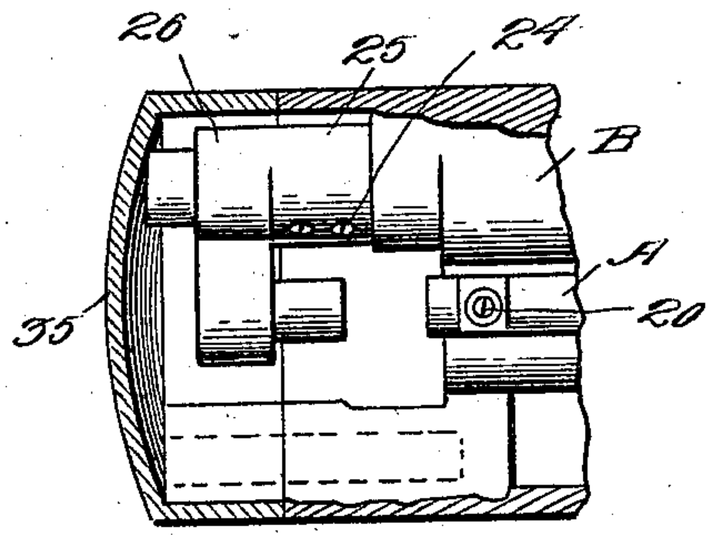


Fig. 10.



Witnesses
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UNITED STATES PATENT OFFICE.

LANSING ONDERDONK, OF NEW YORK, N. Y., ASSIGNOR TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CYLINDER SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 695,481, dated March 18, 1902.

Application filed April 4, 1898. Serial No. 676,431. (No model.)

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cylinder Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

My invention relates to an improvement in sewing-machines, and espécially to a sewing-machine of the chain and double-chain stitch type, in which an under-thread-carrying looper coöperates with a vertically-reciprocating eye-pointed thread-carrying needle to form the stitch.

The present invention has for its object to provide a machine of the character described in which the parts which are ordinarily arranged below the bed-plate of the machine—such as the main shaft, feeding mechanism, looper, take-up, &c.—may be arranged within a minimum space and within a cylindrical bed-plate or casing of very small diameter; and to accomplish this object the invention consists in such an arrangement and construction of parts that great compactness is secured without any decrease in effectiveness of the working members of the sewing-machine.

For especial reference to the features in which the present invention consists attention is called to the description and drawings and to the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a sewing-machine embodying my invention. Fig. 2 is a top plan view, partly in section. Fig. 3 is a front end view of Fig. 2. Fig. 4 is a sectional front view of the forward part of the bed-plate with its inclosed parts. Fig. 5 is a sectional view on line *x x*, Fig. 2. Fig. 6 is an end view of Fig. 1, some of the parts being removed. Fig. 7 is a section on line *y y*, Fig. 2. Fig. 8 is a detail view showing the yoke supporting the feed-dog and the connection to the feed rocking shaft for giving it the vertical movement. Fig. 9 is an enlarged top plan with the looper and feed-dog removed. Fig. 10 is a side view showing a modified arrangement for oscillating the looper.

In the drawings, 1 represents the standard, which may be of any suitable dimensions and weight and to which the gooseneck 2 is preferably integrally attached. Upon this gooseneck is pivoted the needle-lever 3 in the ordinary way, and to this is connected the needle-bar, as in the well-known Union Special sewing-machines. The needle-lever 3 has a downwardly-extending arm 4, to which is attached, by a ball-joint, a pitman 5, th rough which a forward-and-backward motion is imparted to the looper, which is supported in the manner hereinafter described. The standard 1 is preferably provided with a flattened ledge 6, upon which rests the lower edge of the rear end 7 of the cylindrical bed-plate or casing 8, which is enlarged at its rear end, as shown, and is bolted, by means of screws 9, to the standard 1. Passing lengthwise of the bed-plate or casing 8 and having on its inner end a belt-wheel 10 is the main shaft C, journaled in the standard 1 and in the lug 11, attached to the cylindrical casing or bed-plate. Upon the main shaft is arranged the elongated eccentric 13, embraced by a fork 14, the opposite end of said fork being clamped on the looper-supporting shaft A, which has a sliding and rocking movement in bearings formed in lugs 15 16, being oscillated by the eccentric and fork 13 14 and being reciprocated through a ball-and-socket connection 17 with the pitman 5. At its forward end the looper-shaft has removably secured to it in any suitable manner the shank of a looper or loopers 18. Preferably the forward end of said shaft A is provided with a longitudinal opening 19, and the horizontal shank of the looper is placed therein and held in position by means of the set-screw 20. By the arrangements described it will be noticed that as the main shaft revolves the looper-shaft A will slide back and forth in its bearings, giving the forward and backward or loop-taking and loop-leav-

ing movements to the looper, while at the same time an oscillating sidewise or needle-avoiding movement will be given to the looper.

It will be noticed that the looper-shaft is arranged practically above the main shaft, while the feed-shaft B, which I will now describe, is arranged to one side and below the looper-shaft, but above the plane of the main shaft, and by this arrangement I am enabled to get the parts within a small compass.

In the figures, 21 represents the eccentric on the main shaft, engaging the fork 22 of the sleeve 23, which embraces the feed-shaft B, which is journaled in the lugs 15 and 16, formed on the wall of the cylindrical casing or bed-plate. As the main shaft rotates through the eccentric 21, fork 22, and sleeve 23 the shaft B oscillates. At its forward end the shaft B has secured to it by set-screws 24 a sleeve 25, having a horizontally-projecting arm 26, which has a right-angular-projecting pivot-pin 26′, the whole forming an arm or pivotal frame D. Pivoted on this pin 26′ is a yoke or part 27, to which, at its upper end, by a set-screw 28 is secured the feed-dog 29, preferably curved to conform to the periphery of the bed-plate. It will be noticed that as the feed-shaft B oscillates the yoke or part 27 will be raised up and down, thus giving the vertical movements to the feed-dog 29. In addition to the vertical movements of the feed-dog it is of course necessary to provide a forward-and-backward movement, and to this end and to prevent binding the yoke F is pivoted, as aforesaid. This yoke or part F has a fork 30 at its lower end, and this fork embraces a roller 31, secured on a crank-pin 32, attached to the forward enlarged end or head 33 of the main shaft C. This head is slotted, and the crank-pin is adjustable across its face in the manner described in connection with the patent heretofore granted to the Union Special Sewing Machine Company as assignee of myself, said patent being numbered 547,676 and dated October 8, 1895. By adjusting this crank-pin nearer to or farther from the axis of the main shaft it will be noticed that the amount of swing of the yoke F is varied, thus regulating the amount of feed and of course the length of the stitch. The take-up mechanism is shown in brief at 34 and is of the well-known "Union-Special" construction and not necessary to be hereinafter or particularly referred to, and it, with the feed-shaft, rocking eccentric, and means for sliding the looper-shaft, is located in the enlarged part 12. The end cap 35 of the cylindrical casing or bed-plate may be of the usual construction.

In Fig. 9 another arrangement for operating the looper-shaft is shown. In this the pitman 5 is also directly connected by ball connection with the rear end of the looper-shaft A, which latter slides in journals formed on the yoke 36, which yoke has formed with it a fork 37, embracing the eccentric on the main shaft, said yoke being pivoted at its opposite ends upon pins 37, secured in lugs 38 on the wall of the bed-plate or casing.

A machine of this character possesses many advantages, being especially useful where it is desired to sew small articles, as gloves and the like, on a horn-machine, and while I deem the construction herein shown and described to be the most practical one for crowding into a cylinder of minimum dimensions it will be understood that I do not wish to be restricted in all the claims to the precise details of construction, as various minor modifications and changes in the device may be made without departing from the spirit of my invention.

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

1. In a sewing-machine, a driving-shaft, a second shaft parallel therewith with connections between the two for oscillating the latter, a feed-dog carrier pivotally supported on the oscillating shaft, so as to be raised and lowered as the shaft oscillates, and a crank or eccentric carried on the forward end of the driving-shaft, which engages the feed-dog carrier and swings it on its pivot to give the forward and backward movements to the feed-dog; substantially as described.

2. In a sewing-machine, a driving-shaft, a second shaft parallel therewith, with connections between the two for oscillating the latter, a feed-dog carrier pivotally supported on the oscillating shaft, so as to be raised and lowered as the shaft oscillates, and provided with a forked downward extension, a crank or eccentric carried on the forward end of the driving-shaft, and which is embraced by the forked extension; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LANSING ONDERDONK.

Witnesses:
J. H. HOWELL,
R. S. OSWALD.