

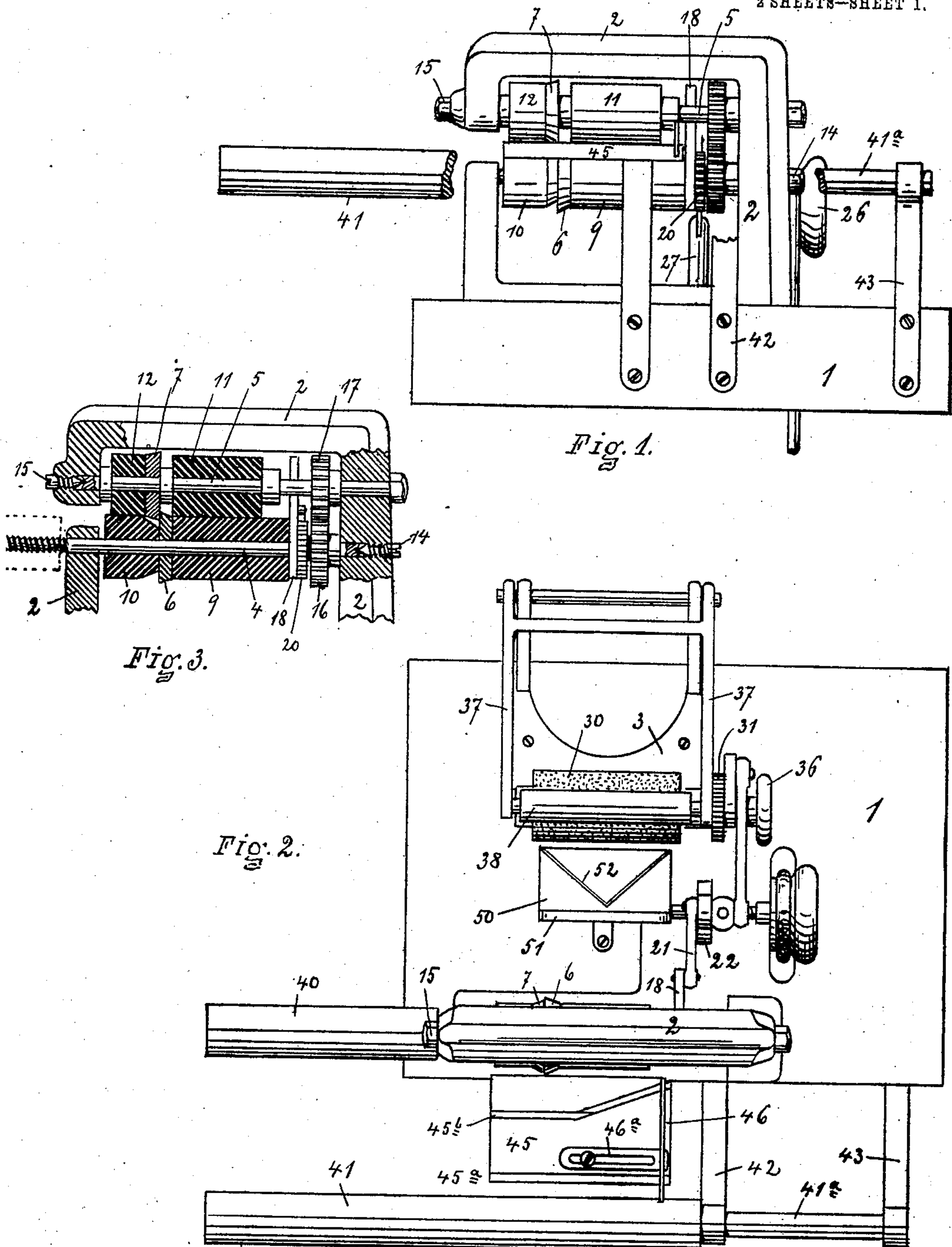
No. 848,614.

PATENTED MAR. 26, 1907.

J. A. FIRSCHING.
MACHINE FOR CUTTING AND WINDING COLLARETS.

APPLICATION FILED MAR. 30, 1905.

2 SHEETS—SHEET 1.



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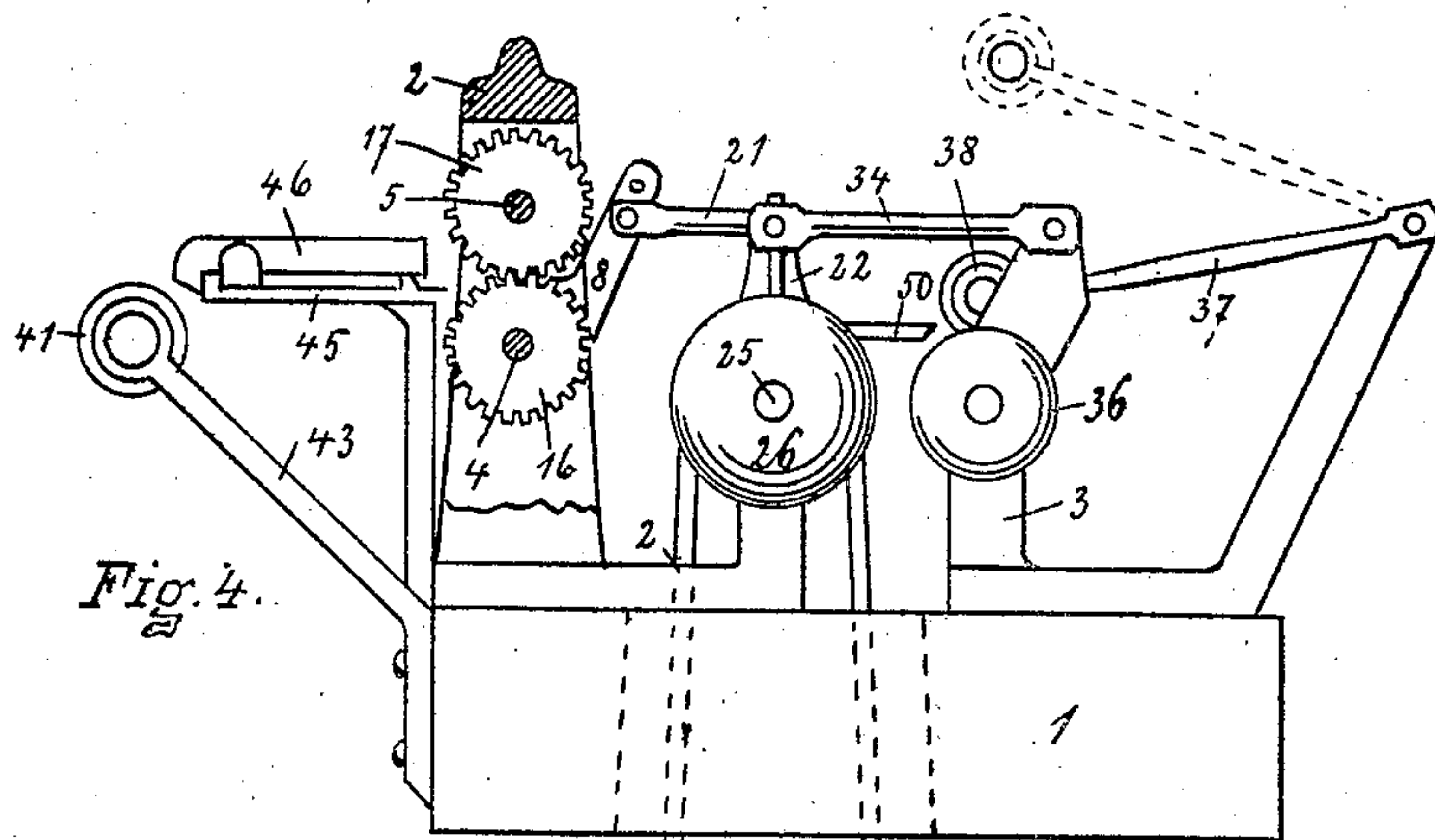


Fig. 4.

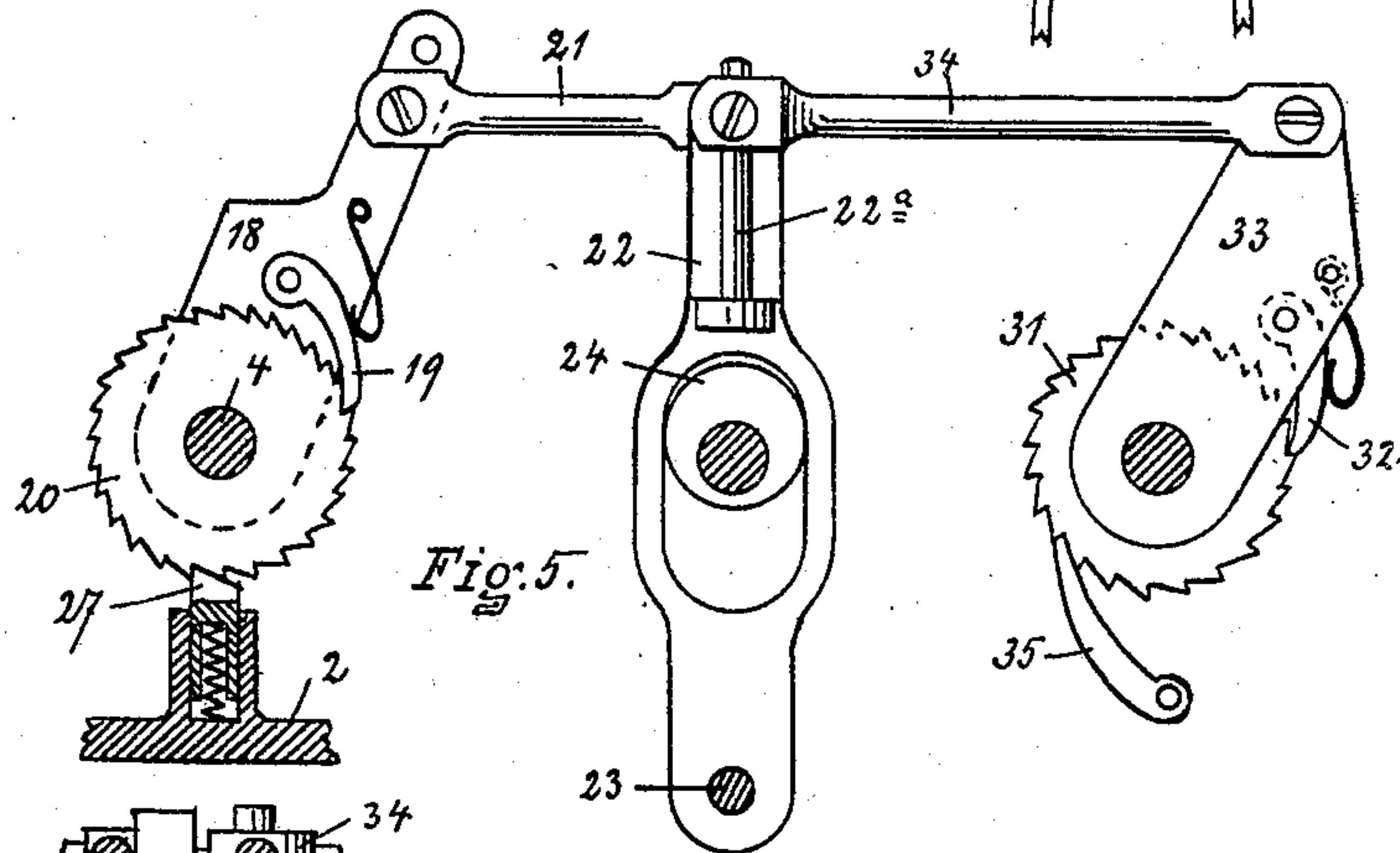


Fig. 5.

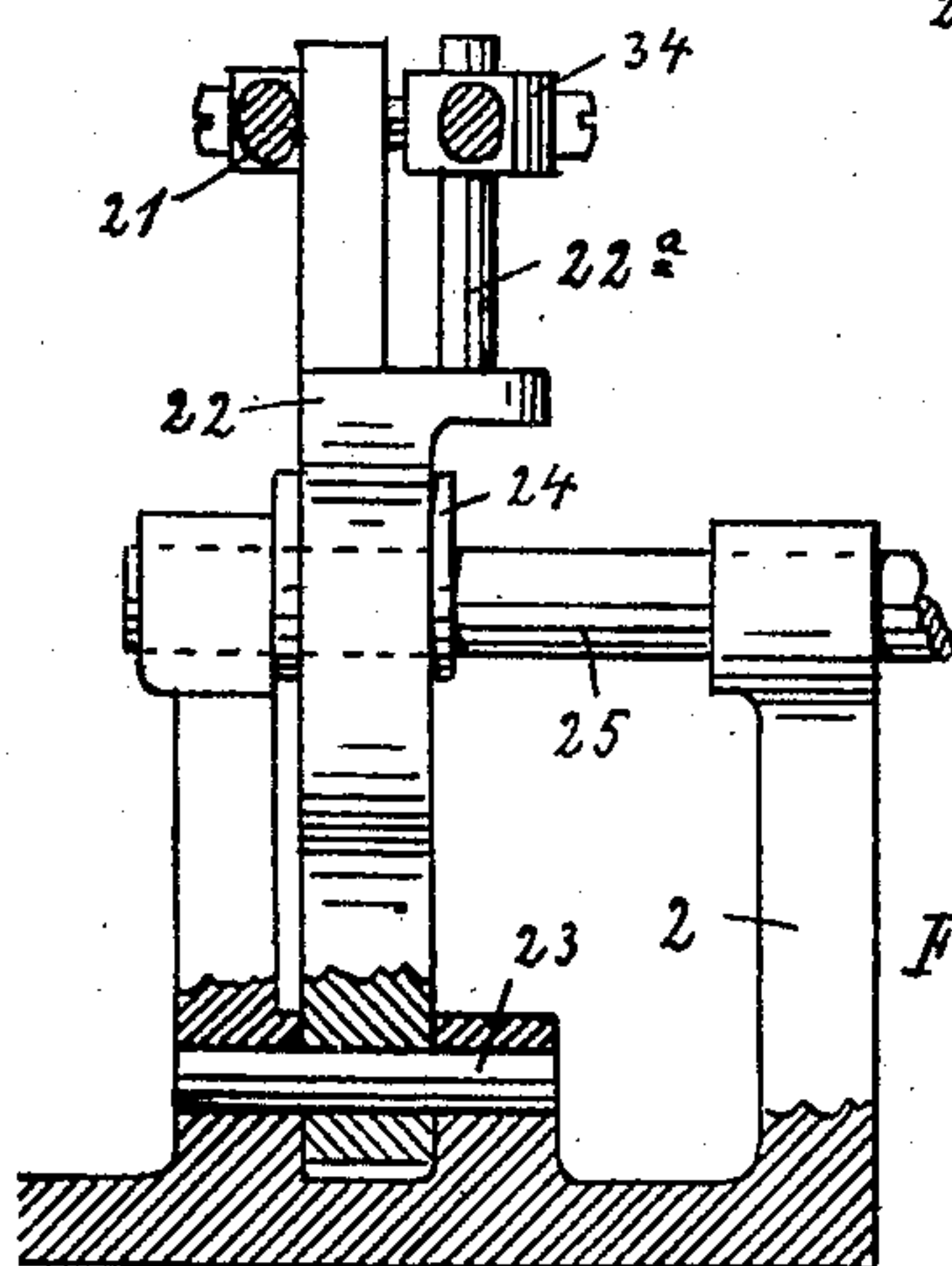


Fig. 6.

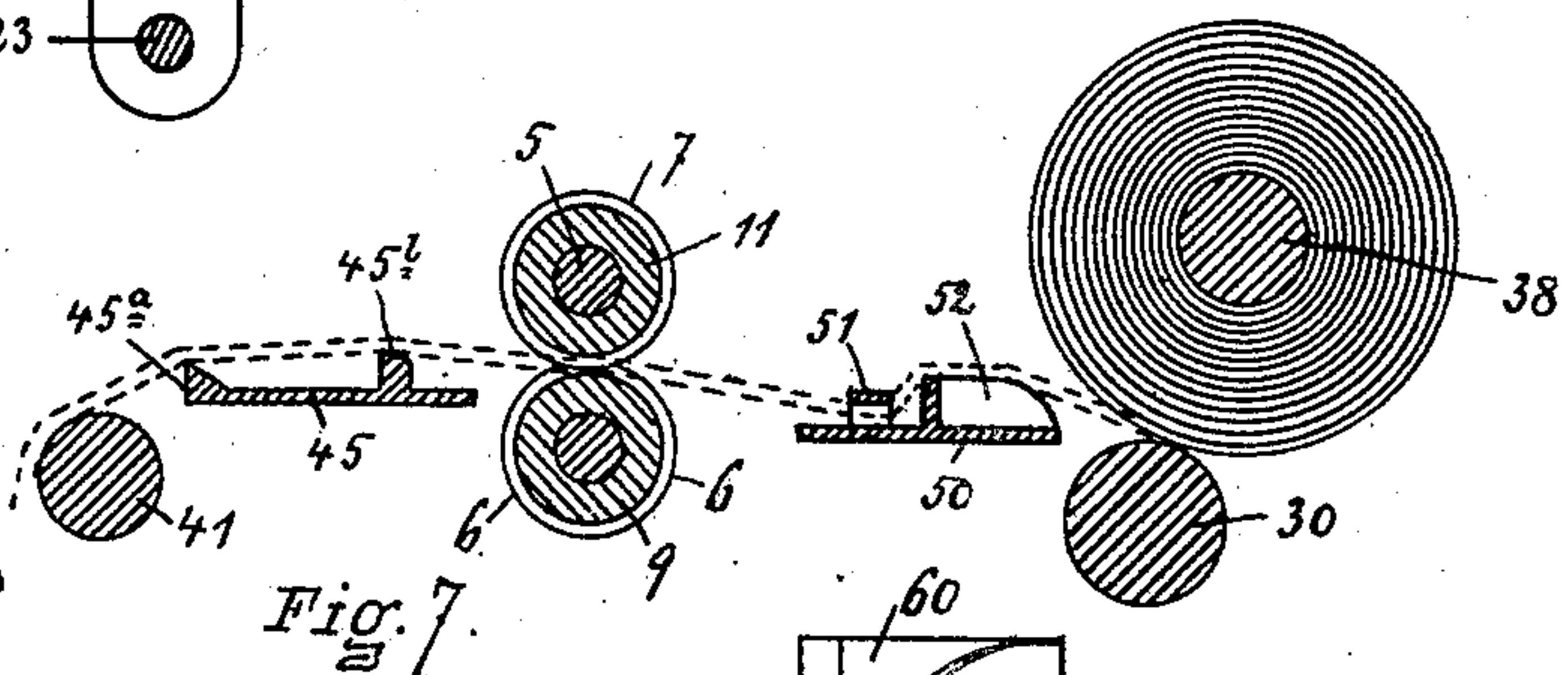


Fig. 7.

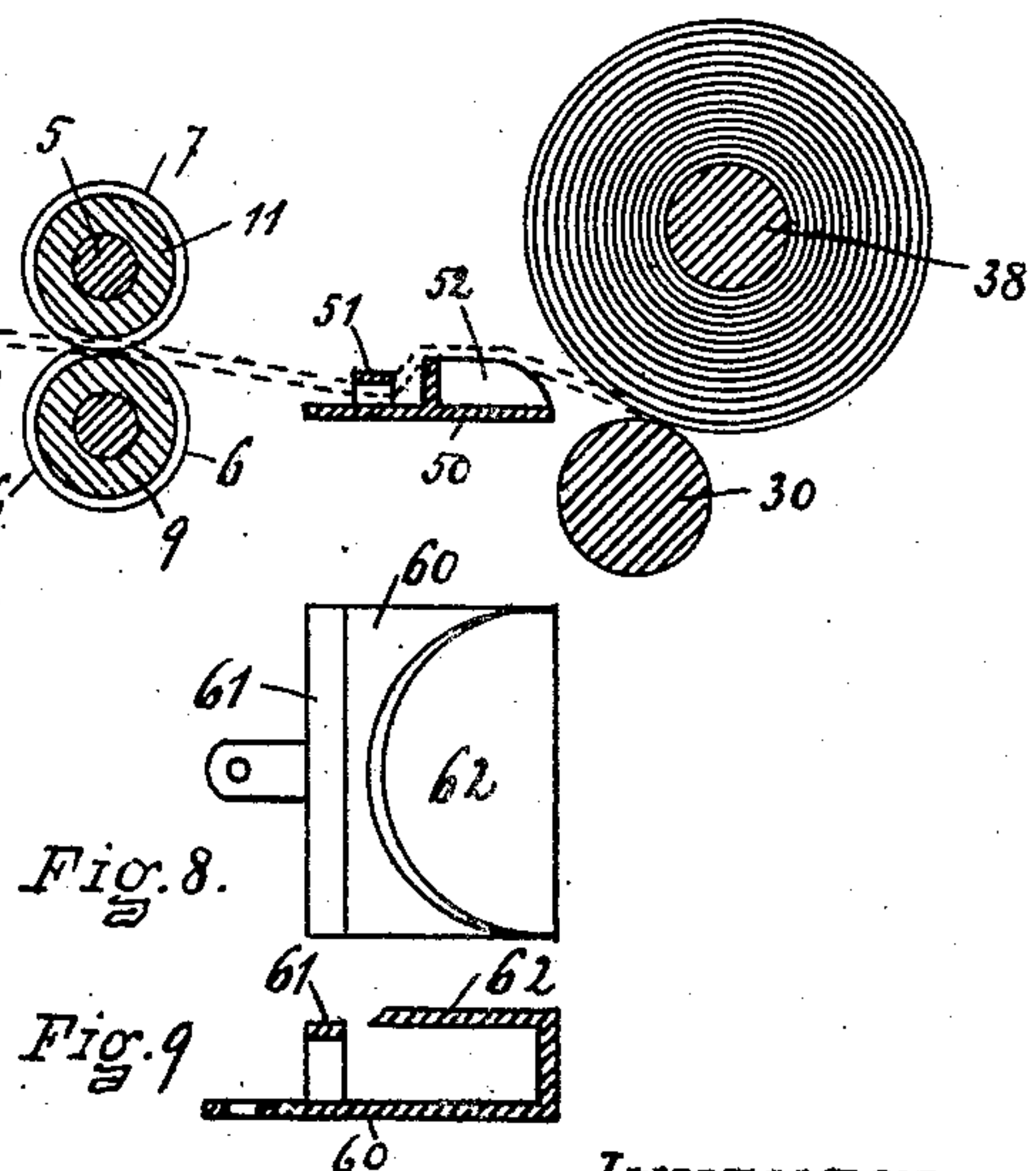


Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

JOSEPH A. FIRSCHING, OF UTICA, NEW YORK, ASSIGNOR TO JOHNSTON
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MACHINE FOR CUTTING AND WINDING COLLARETS.

No. 848,614.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed March 30, 1905. Serial No. 252,895.

To all whom it may concern:

Be it known that I, JOSEPH A. FIRSCHING, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Machines for Cutting and Winding Collarets; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The object of my present invention is to provide an improved cutting-machine for slitting and winding collaret material. The collaret material referred to is knitted fabric cut into strips about three inches wide usually and intended for a kind of binding on knitted underwear. The material to be used or cut into the collaret material is ordinary knit fabric from a tubular-knitting machine and frequently of a very light and slazy quality.

In the drawings, Figure 1 shows the front elevation of a machine of my construction, a portion of a front roller being broken out to better exhibit the construction. Fig. 2 is a plan view of the whole machine. Fig. 3 is a sectional view through the cutters and rollers. Fig. 4 is a side elevation. Fig. 5 shows, on an enlarged scale, certain of the working parts of the machine in their relative arrangement. Fig. 6 shows, partially in section, other details of the construction on about the scale of Fig. 5. Fig. 7 shows a sectional view of the rollers with cloth guides and spreaders, showing the relative positions and the manner in which the material to be operated on passes through the machine. Fig. 8 shows a modified form of spreading-guide employed in the construction. Fig. 9 is a sectional view of the part shown in Fig. 8.

Referring to the reference-letters and figures in a more particular description, 1 indicates a base on which the mechanism of the machine is mounted. On the base 1 is secured the roller or cutter frame 2 and the winding-frame 3, supporting the cutting and winding mechanisms, respectively, and suitably arranged with reference to each other and secured on the bases. The frame 2 in its lower portion carries or supports the lower shaft 4

and in its upper position the shaft 5. The upper part is supported from one side only. The shaft 4 carries the lower rotary cutter 6, while the upper shaft carries a similar cutter 7, and these cutters face each other in the manner shown particularly in Fig. 3 and are adapted to make the shearing cut on the goods or material. At either side of the lower cutter 6 there are arranged elastic cushion-rollers 9 and 10, preferably of rubber, while at either side of the upper cutter 7 there are provided similar cushion-rollers 11 and 12. In order to adjust the shafts 4 and 5 laterally, so as to make the cutters 6 and 7 fit closely together and so as to produce a shearing cut in a satisfactory way, there is provided at the right-hand end of the shaft 4, as shown in Fig. 3, an adjusting-screw 14, having a point in the nature of a lathe-center engaging with the end of the shaft 4, while on the opposite end of the upper shaft 5 is provided a similar adjusting-screw 15. In order to cause the shafts 4 and 5 to rotate together, there are provided thereon, respectively, the intermeshing gear-wheels 16 and 17. For driving the shafts 4 and 5 with their attached parts there is provided pivoted on the shaft 4 a ratchet-lever 18, having a pawl 19, engaging with the ratchet-wheel 20 on the shaft 4. A connecting-rod 21 connects the swinging end of the ratchet-lever with the upper swinging end of the cam-lever 22. The cam-lever 22 is hinged on a pin 23 at its lower end and is provided intermediate of its length with an eye or opening which receives the cam 24. The cam 24 is secured on the driving-shaft 25, mounted in suitable bearings in the frame 2, and is provided on the outer end with a combined band-wheel and hand-wheel 26. The band to this band-wheel is preferably brought up through openings in the base 1. For securing the ratchet-wheel 20 with connected parts against backward movement following the retracting movement of the ratchet-lever 18 there is provided a catch 27, supported on the frame.

Mounted in bearings in the winding-frame 3 is the drawing-roller 30, which is preferably provided with a rough surface—for instance, a wood roller covered with glue and rolled in emery. For driving this roller 30 there is provided on the shaft thereof a ratchet-wheel 31, engaged by a pawl 32 on the rocking

ratchet-lever 33, which lever is hinged to the shaft of the roller 30 and connected at its upper end by a connecting-rod 34 with the swinging end of the cam-lever 22, before mentioned. For preventing a back or reverse movement of the roller 30 there is provided a catch-pawl or dog 35, engaging also with the ratchet-wheel 31. On the outer end of the shaft of the roller 30 there is provided a hand-wheel 36, by means of which it can be operated by hand. Hinged to the rear extension of the frame 3 is a swinging frame, which in the main consists of the arms 37, carrying in their free or swinging ends the winding-roller 38. On this winding-roller 38 accumulates the strip of collaret material severed by the cutting-machine, and the same is driven by friction with the roller 30. The arrangement and angular position of the frame 37 is such that a comparatively large quantity or roll of material can be accumulated on the roller 38.

On one end of the lower shaft 4 of the cutting mechanism, and which is extended for that purpose, there is provided a material-supporting roller 40, which of course is driven at uniform speed with the lower cutter 6, and it is adapted to supplement the rollers 9 and 10. In advance of the front side of the machine is provided another material-supporting roller 41, which is supported in the brackets 42 and 43 by means of its extended shaft 41^a. It will be noted that the rollers 41 and 40 are supported at the one end free, so that tubular material may be slipped longitudinally on these rollers and brought up in proper position to the cutting mechanism. In advance of the cutters and rollers there is provided a small feed-table at 45, which has along its front edge the rib 45^a and adjacent to the other edge the angular rib 45^b, both adapted to spread and hold in spread position the material to be cut. As above stated, this material is frequently very thin and slazy and has a tendency to curl, but which curling tendency must be constantly prevented or forestalled. At one end the table 45 is provided with an adjustable edge guide 46, having a slotted shank 46^a, secured by a screw to the table.

Between the cutting and winding mechanisms is introduced a spreading and holding mechanism, consisting of a plate-like piece 50, having a keeper 51, arranged on its front edge, through or underneath which the strip of material is passed, and to the rear a V-shaped upwardly-standing rib 52, adapted to spread and keep the curl out of the severed strip.

As before suggested, the machine is adapted to sever from a piece of tubular knit fabric a strip or band and wind same in a roll. The material on which the machine is adapted to operate might be a piece of tubular fabric a foot or more in diameter, for instance, and

several yards long. This is slipped onto the projecting ends of the roller 40 and 41 and brought up into position in front of the rollers 9 and 10, 11 and 12 with the cutters 6 and 7, and it would be preferable to have the piece cut with a shears prior to bringing it to the machine to adapt the machine to start on an end. When started through the rollers, the strip severed by the cutters is conducted by hand by the operator through the keeper 51 and over the spreader 52 and engaged with and started on the winding-roller 38. While performing this part of the operation the machine can be operated by hand, if desired, by using the hand-wheel 26, and the right tension can be secured on the severed piece by operating the roller 38 by the hand-wheel 36. When placed in running condition, power may be applied to the machine, and as the piece is severed it will be conducted to and wound nicely on the winding-roller 38. The tubular material during the cutting operation passes around and around the rollers 40 and 41, and the fact that the upper part of the frame 2 has a support on the farther side only is material, in that there is nothing to interfere with the movement of and manipulation of the uncut portion of the tubular material.

Those classes of material which are provided with a figure running spirally in the knitted material are preferably guided to the cutter by the operator following the stripe or design in the material. When there is no such stripe or design, the gage 46 will be adjusted to secure the desired width of goods and the edge will be conveyed to the gage 46. The angular operation of the rib 45^b will serve to carry out and keep out the edge of the material until it gets within the grasp of the rollers 9 and 11. The tubular material, as the stripe is severed therefrom, will roll over and over on rollers 40 and 41, which aid the operator very materially in handling the piece of material being cut up. When the stripe passes beyond the rollers 9 and 11, the same will be prevented from curling up before reaching the winding-roller by passing under the keeper 51 and over the V-shaped spreader 52, as shown particularly in Fig. 7. The edge of the material outside of the knives is forcibly carried along by the rollers 10 and 12, so that there is no danger of cross-draws of the strands which would detrimentally affect the band being cut. It will be noted that as the cam 24 swings around the shaft 4, giving a vibratory motion to the cam-lever 22, the motion is simultaneously transmitted to the feeding and cutting mechanism and to the drawing and winding mechanism. As it is important that the strip of material after being severed be not stretched and still necessary to wind it as fast as severed, then is provision made for an accurate adjustment, as between the ratchet-levers 18 and 33. To

this end the forward end of the connecting-rod 34 is vertically adjustable on a pin or post 22^a, consisting of a portion of the cam-lever 22.

In lieu of the spreading and holding plate 50, with its attached parts, there may be used the modified form of construction shown in Figs. 8 and 9, which consists, essentially, of a plate 60, carrying the keeper 61, similar to 51, before mentioned, and immediately following and standing, preferably, somewhat above the plane of the keeper, a spreading-plate 62 presenting a rounded or circular edge to the band of material whereby it may be effectually spread and held in a band of its full width free from curls or winds.

It is evident that modifications and changes may be made in and from the construction herein described without departing from the spirit of my invention.

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

1. In a cutting and winding machine of the character described, a rotary cutter mounted and arranged to receive the end of a tubular fabric as described and sever a strip therefrom, a drawing and winding mechanism for the severed strip, and a guide and spreader for the strip arranged between the cutting and the drawing and winding mechanisms, substantially as set forth.

2. In a cutting and winding mechanism of the character described, forwarding-rollers arranged for the reception of the end of a tubular fabric as described, coöperating circular cutters in said rollers, respectively, a drawing and winding mechanism arranged to operate on the severed strip, and a guide and spreader for the severed strip arranged

between the said cutting and the drawing and winding mechanisms, substantially as set forth.

3. In a cutting and winding machine of the character described, a frame and forwarding-rollers arranged in the frame for the reception of the end of a tubular fabric as described, coöperating circular cutters in said rollers, respectively, rollers for supporting said tubular fabric, drawing and winding mechanism arranged to operate on the severed strip, and a guide and spreader for the severed strip arranged between said cutting and winding mechanisms, substantially as set forth.

4. In a cutting and winding machine of the character described, the combination of an open-sided frame in which are mounted the forwarding-rollers 9, 10, 11 and 12 arranged to receive the end of a tubular fabric as described, circular cutters 6 and 7 arranged in said sets of rollers, a cloth-guide in advance of said rollers, supporting-rollers for said tubular fabric, one of which is provided with means for driving a drawing and winding mechanism arranged to operate on the severed strip, and a guide and spreader for the severed strip arranged between said cutting and winding mechanisms substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 27th day of March, 1905.

JOSEPH A. FIRSCHING.

Witnesses:

S. I. DEVINE,
EMMA S. HESSE.