

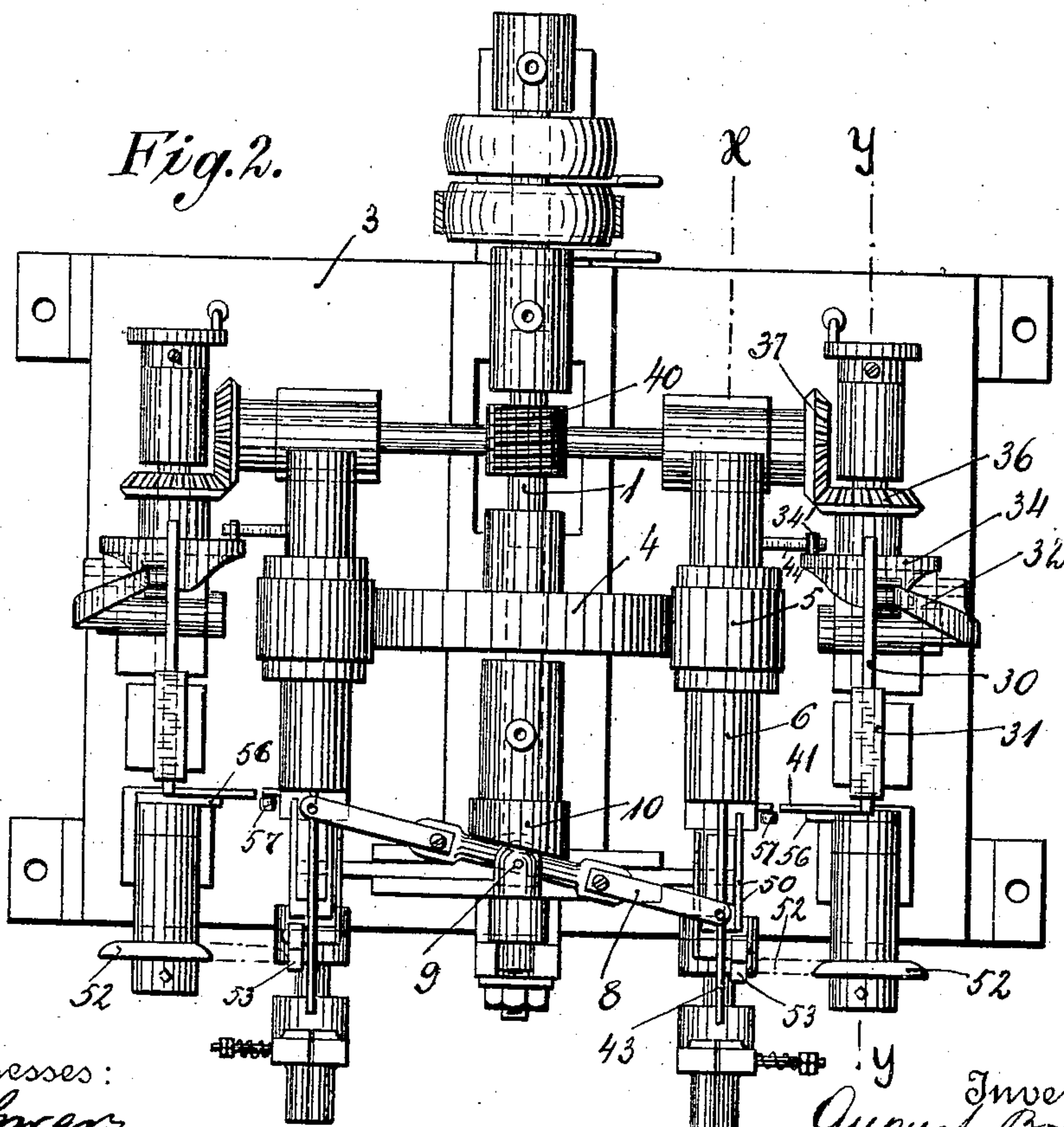
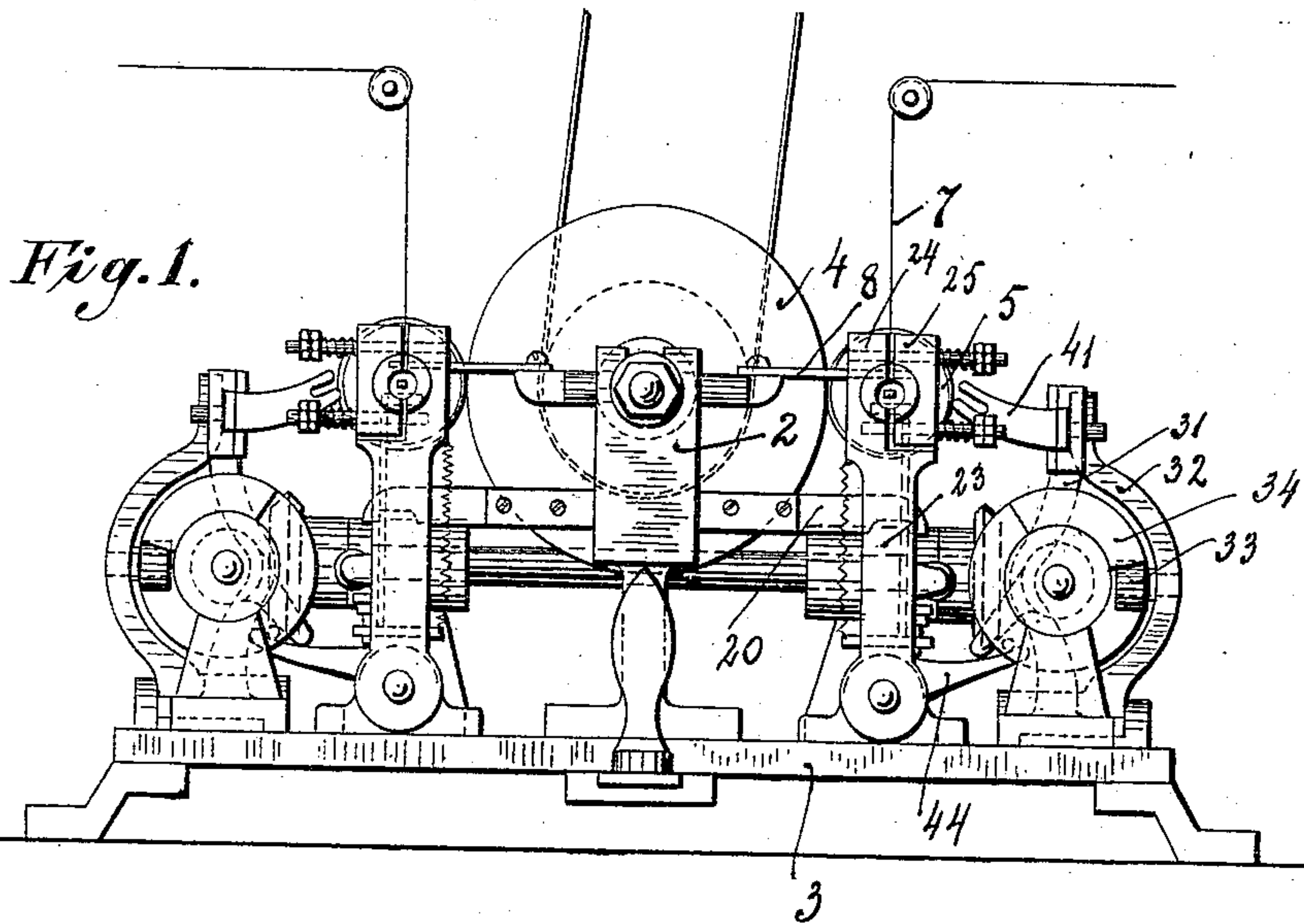
No. 860,631.

PATENTED JULY 23, 1907.

A. BRAUN.  
BOBBIN MACHINE.

APPLICATION FILED MAR. 13, 1907.

4 SHEETS—SHEET 1.



Witnesses:  
*Geoffrey*  
*Michael J. Foley*

Inventor  
*August Braun*  
By his Attorney  
*Max D. Ordman*

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4 SHEETS—SHEET 2.

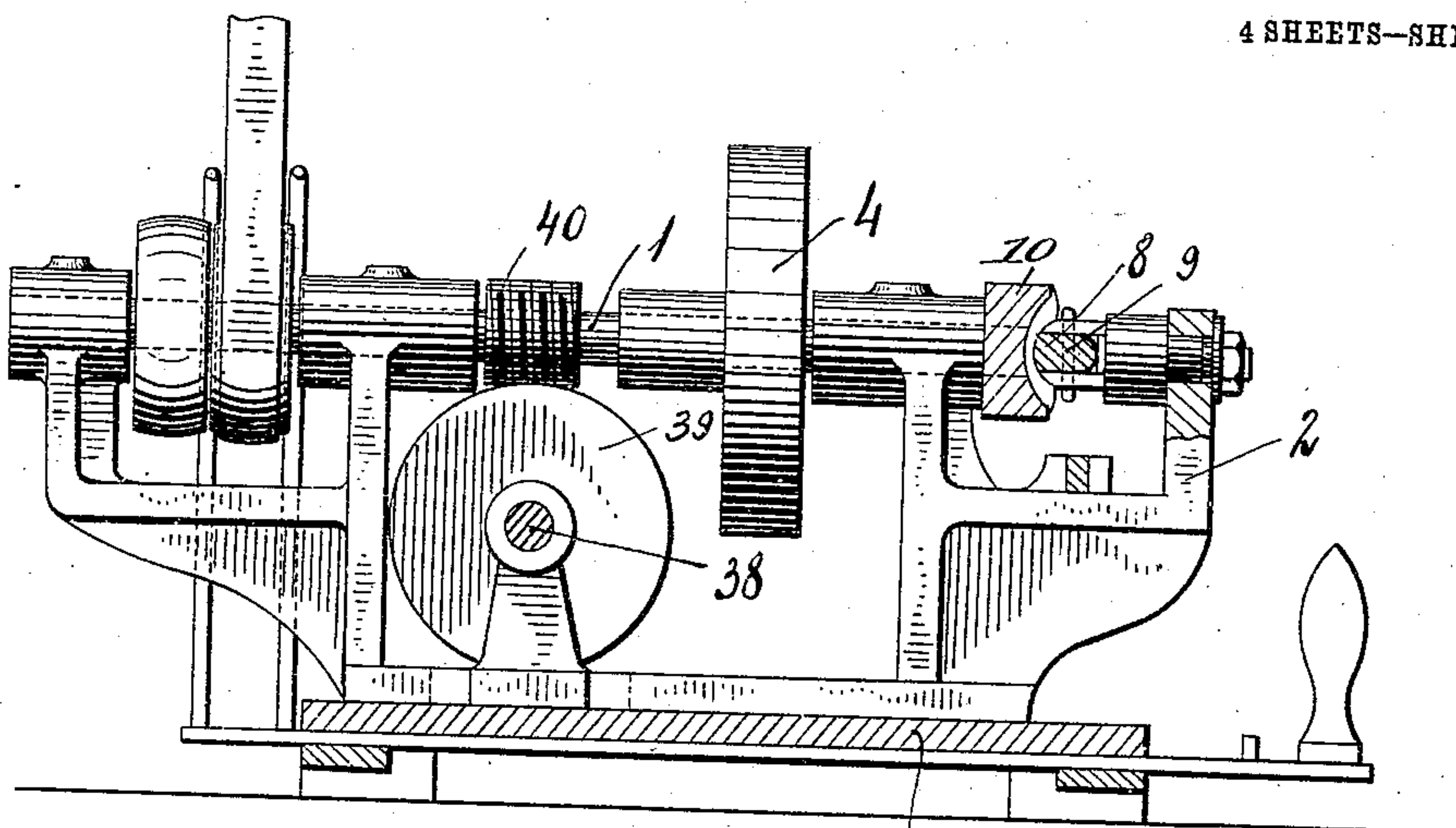


Fig. 3

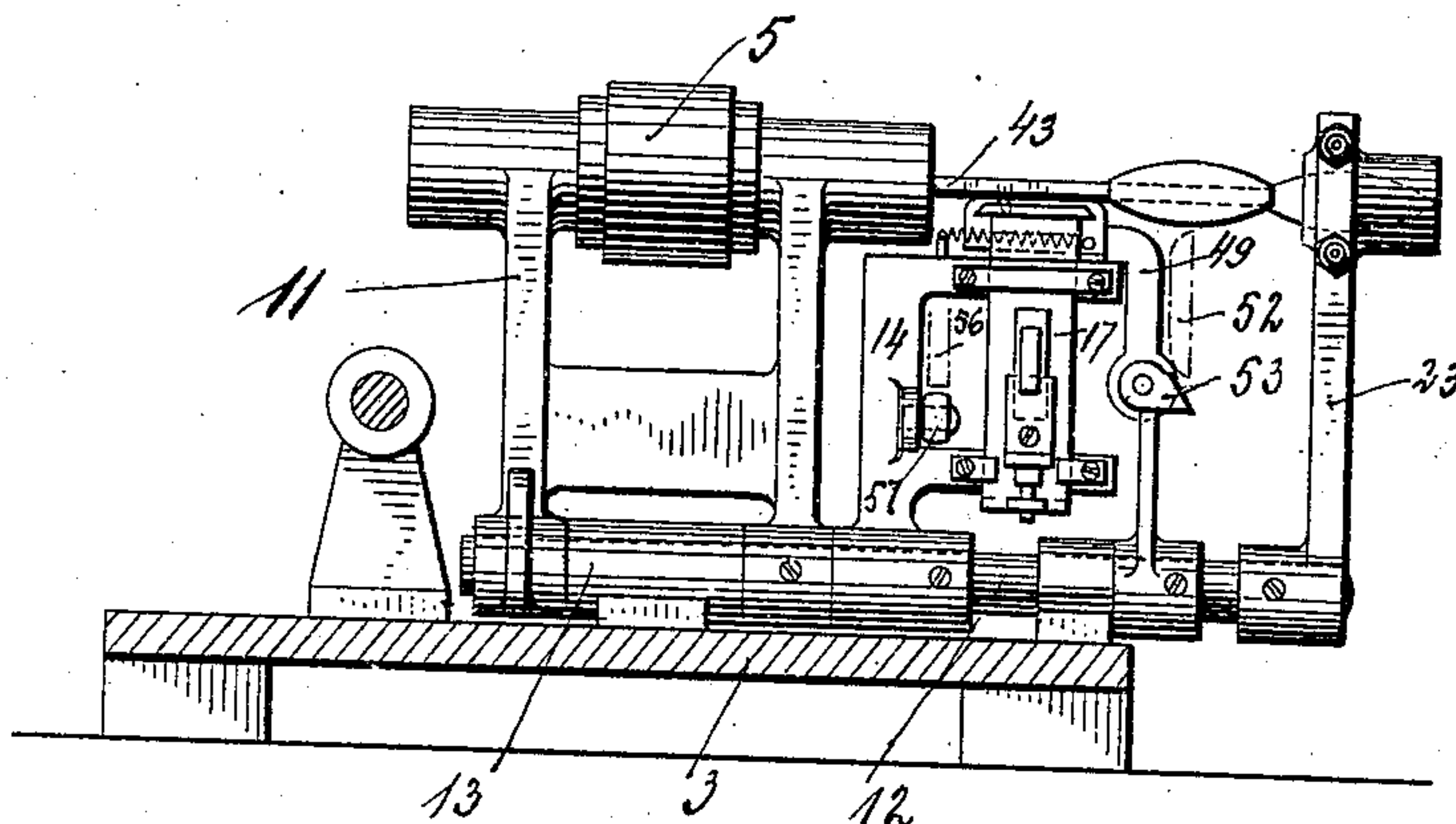


Fig. 4.

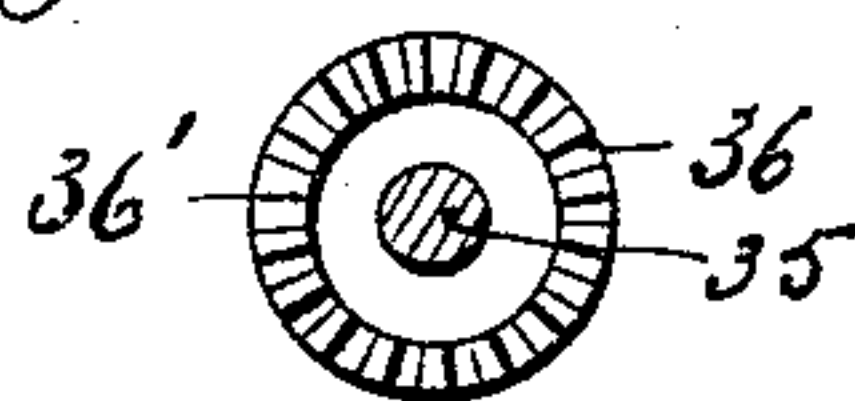


Fig. 9.

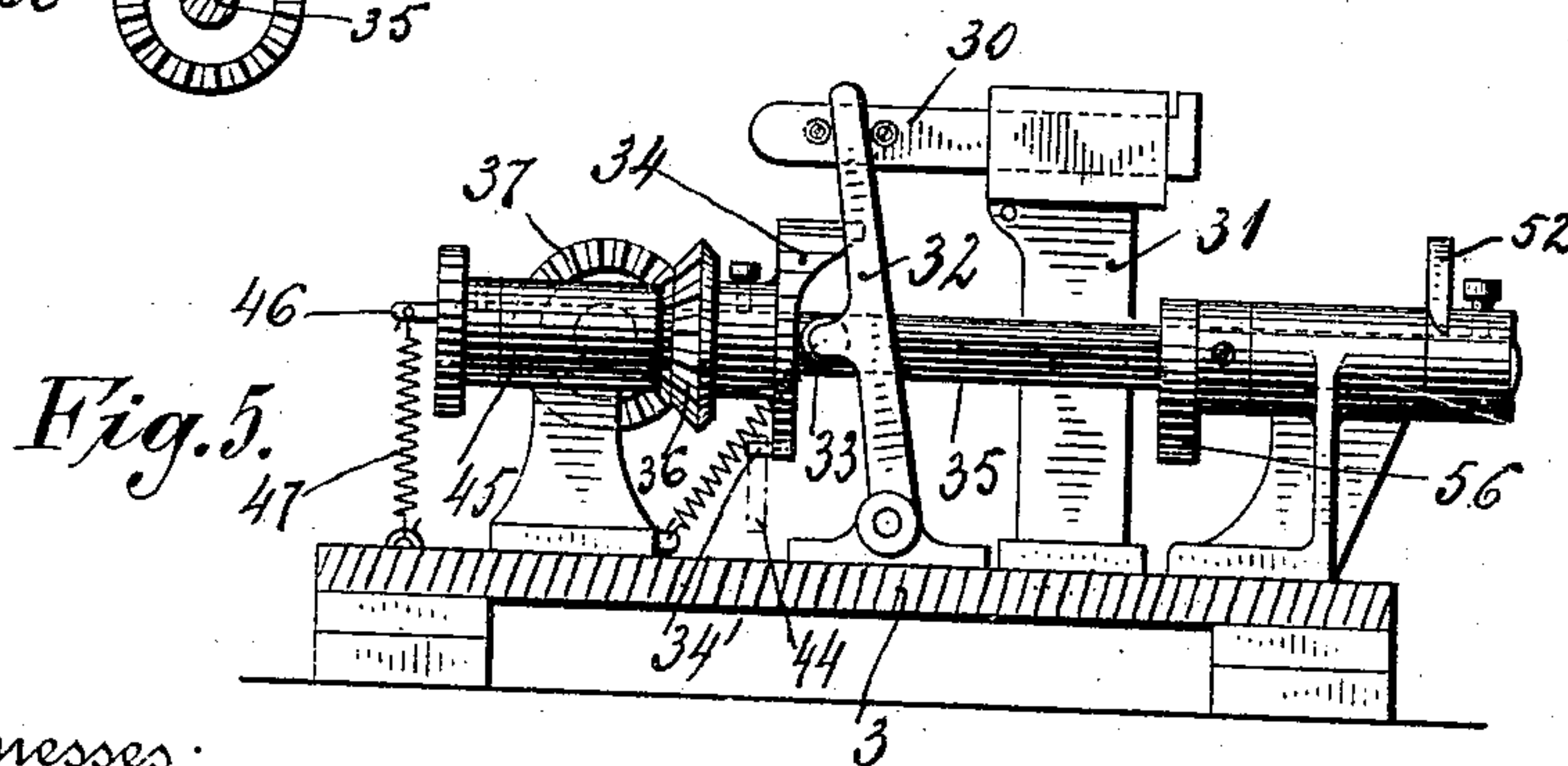


Fig. 5.

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Fig. 6.

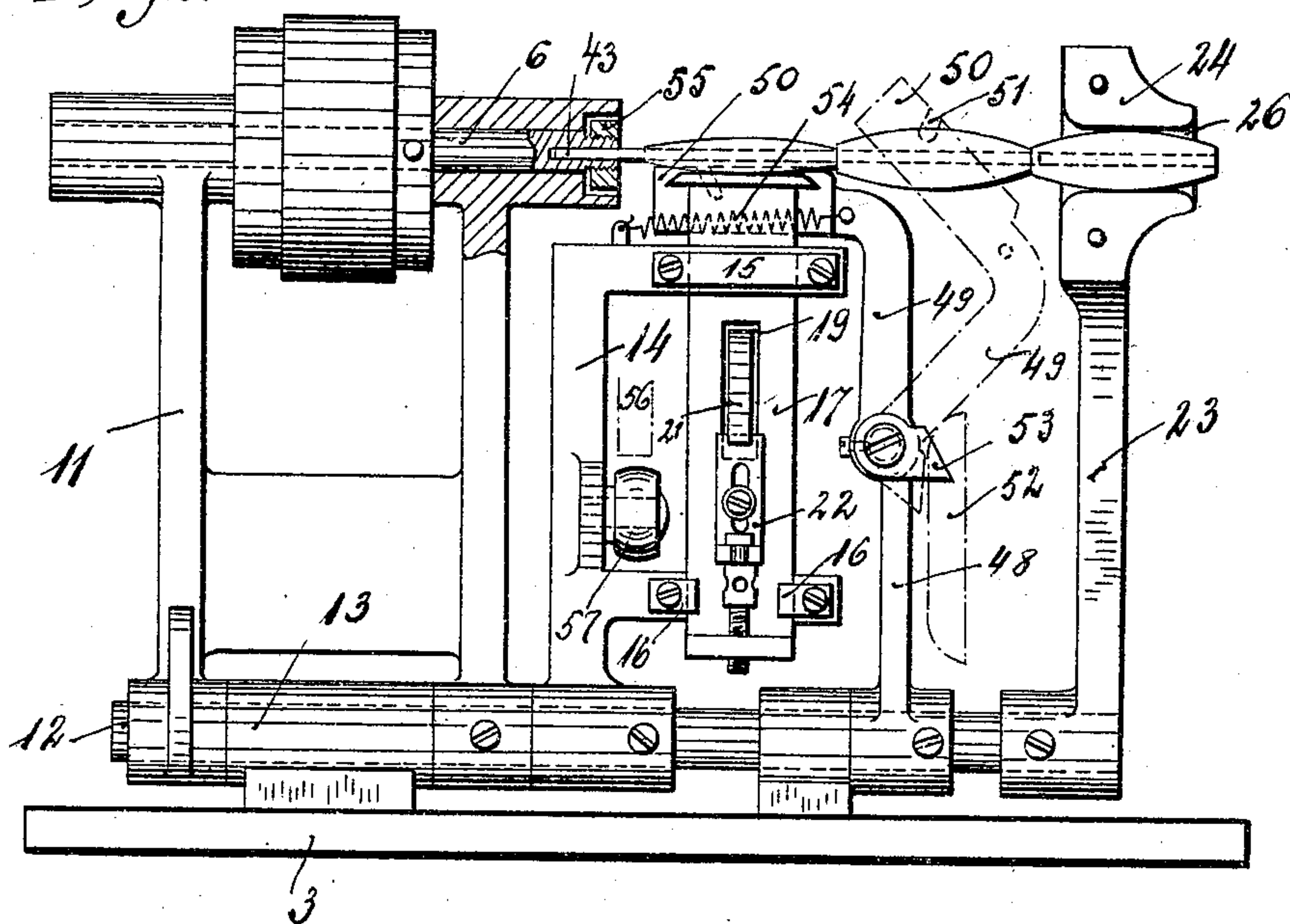
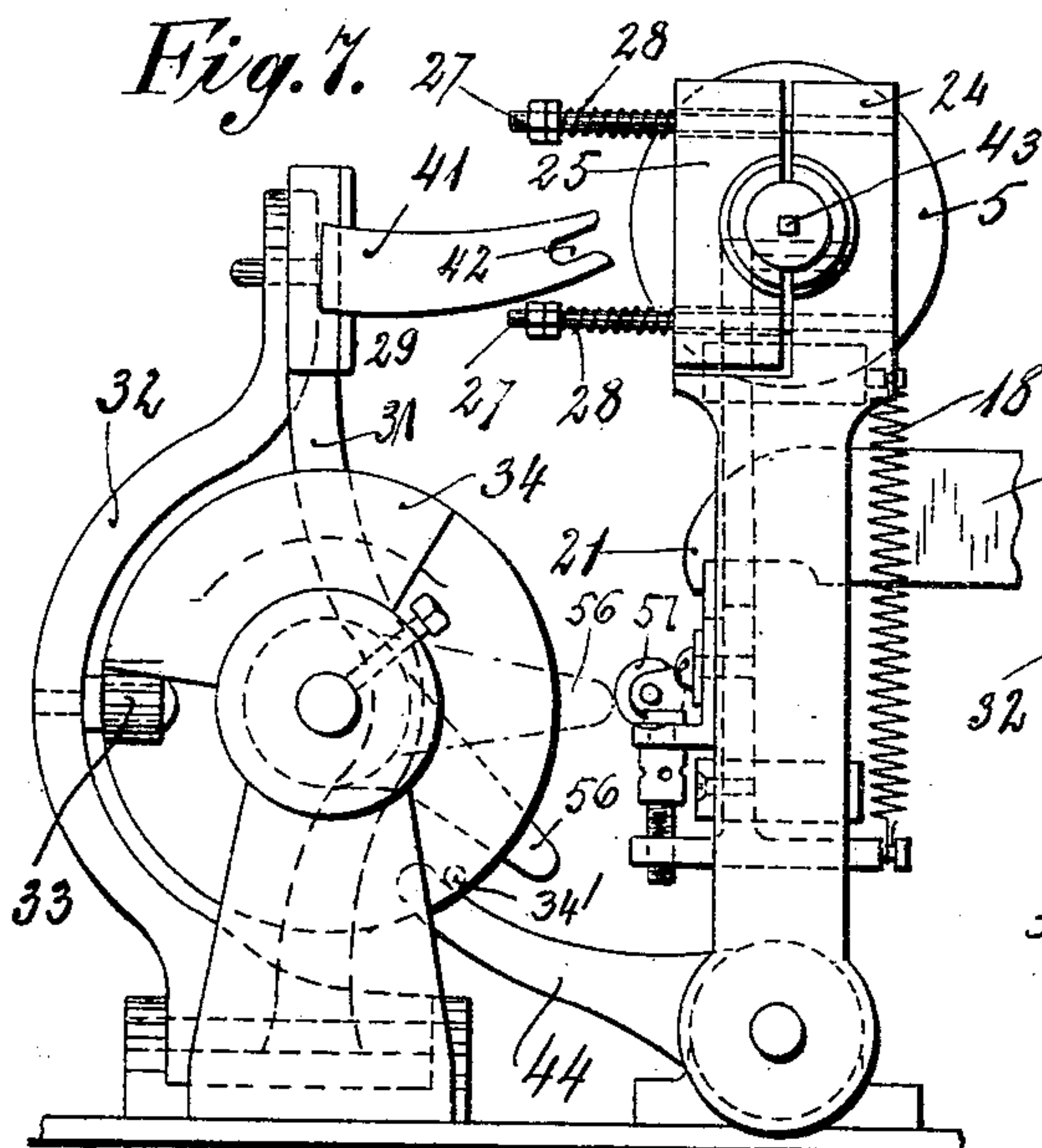


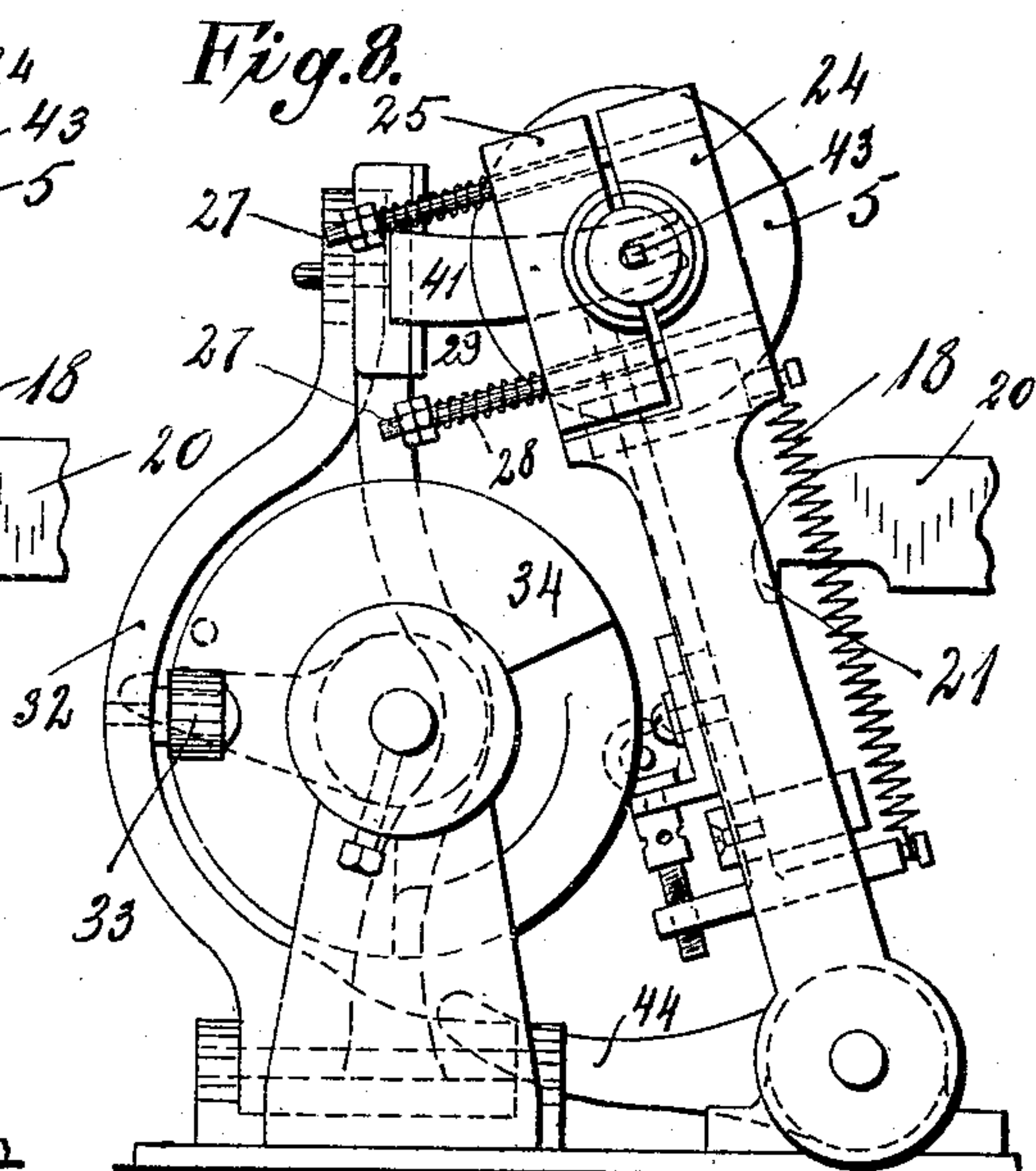
Fig. 7.



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Fig. 8.



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4 SHEETS—SHEET 4.

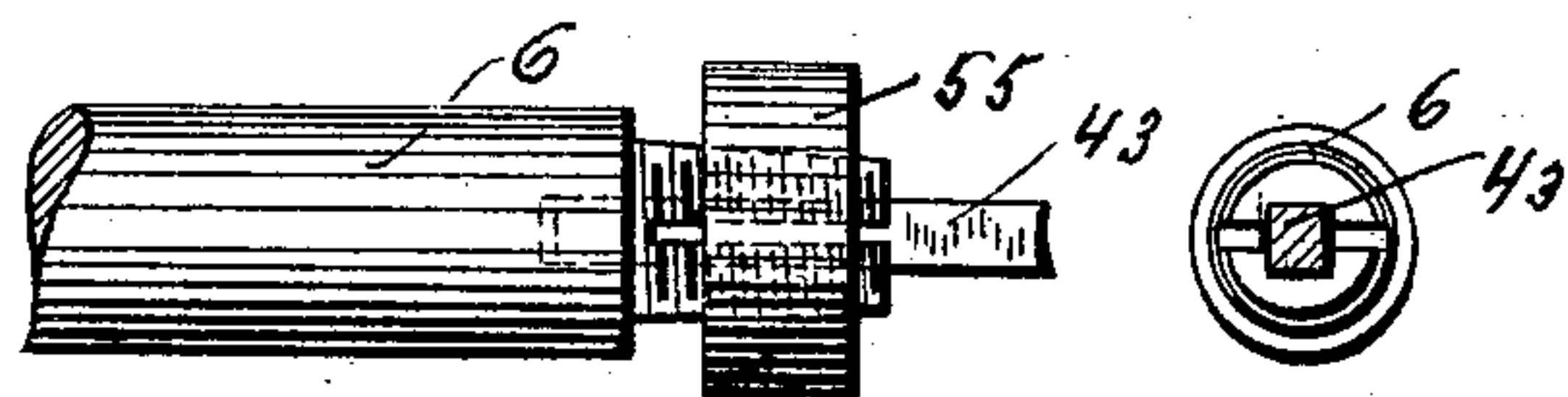
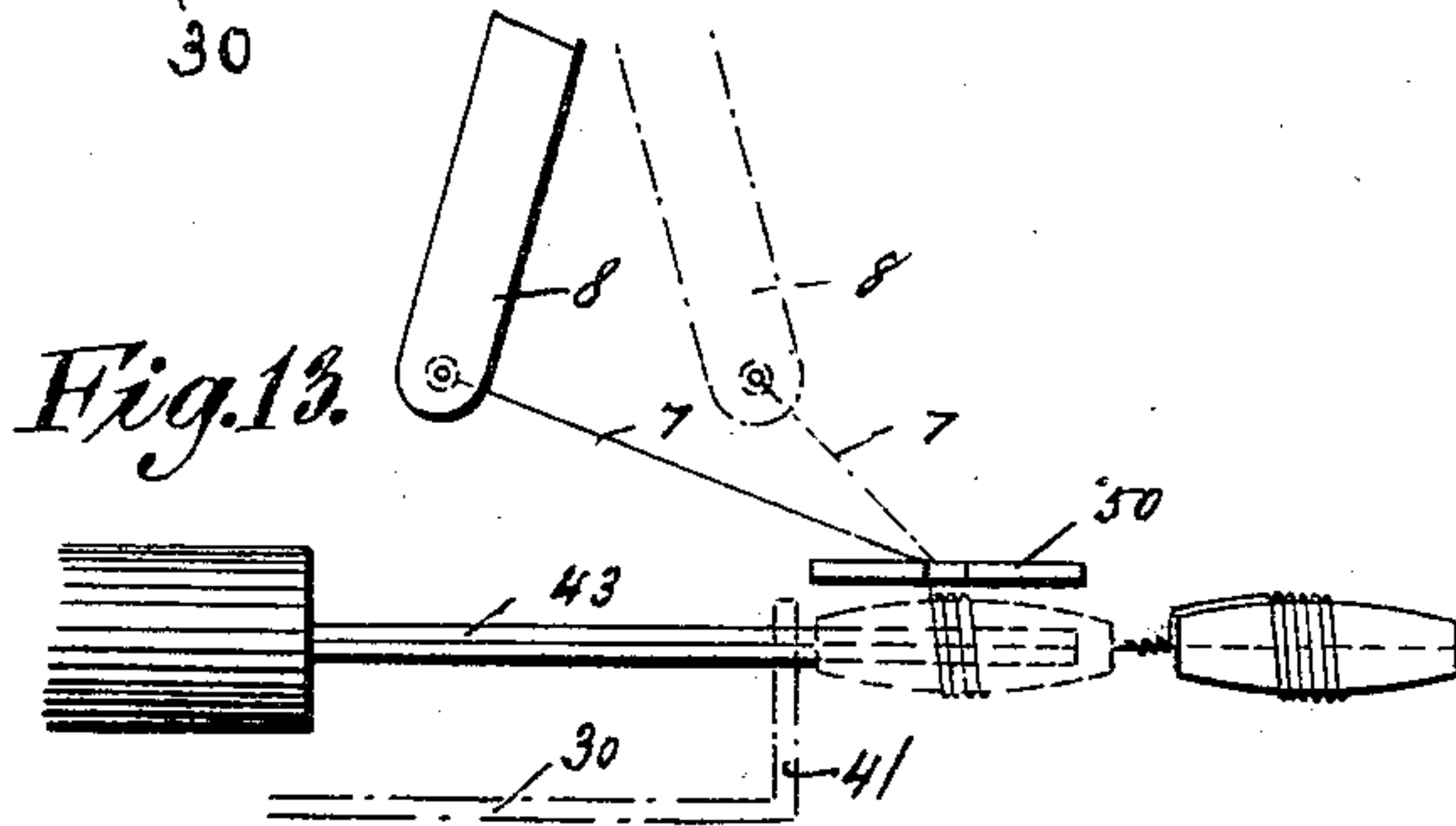
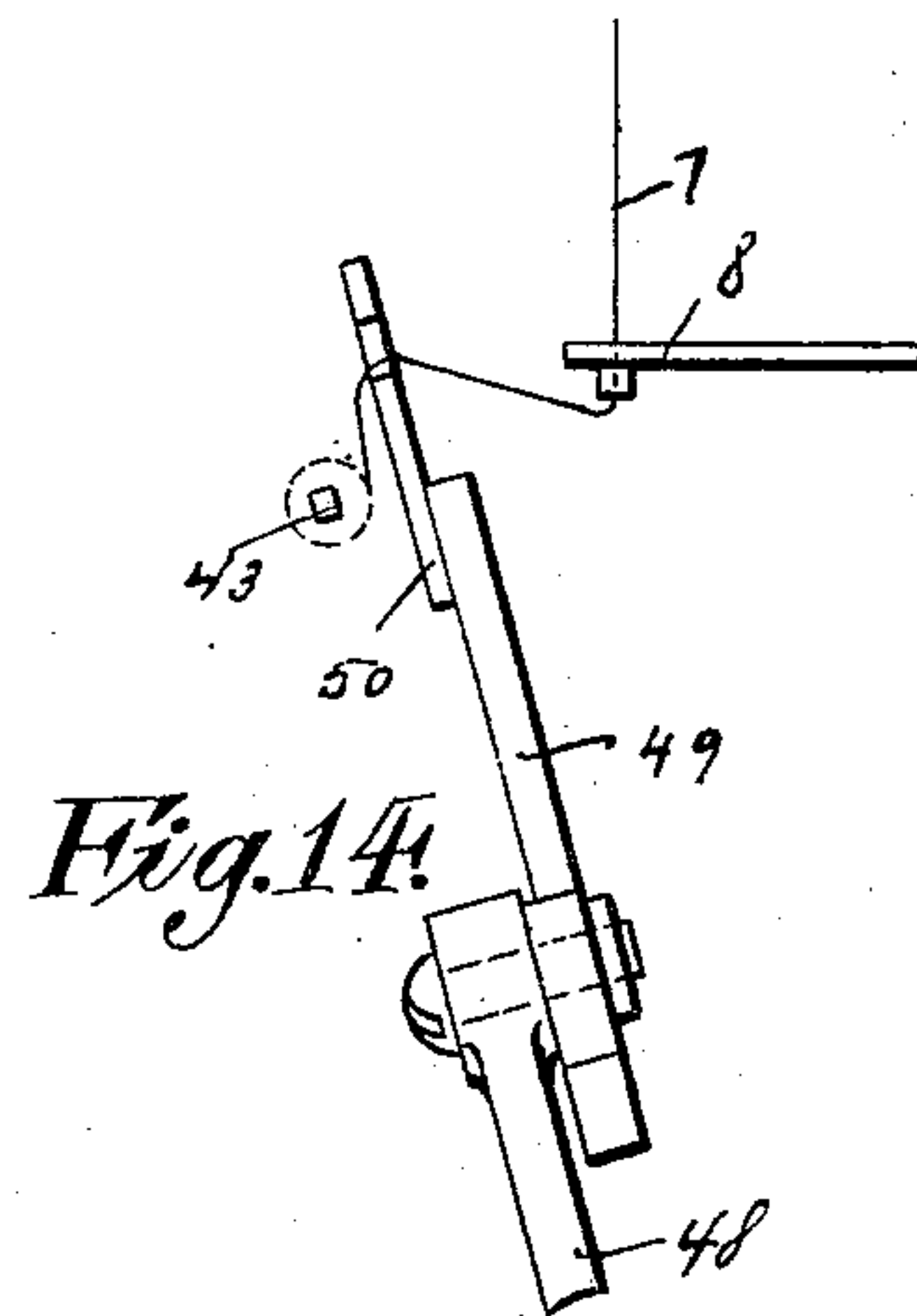
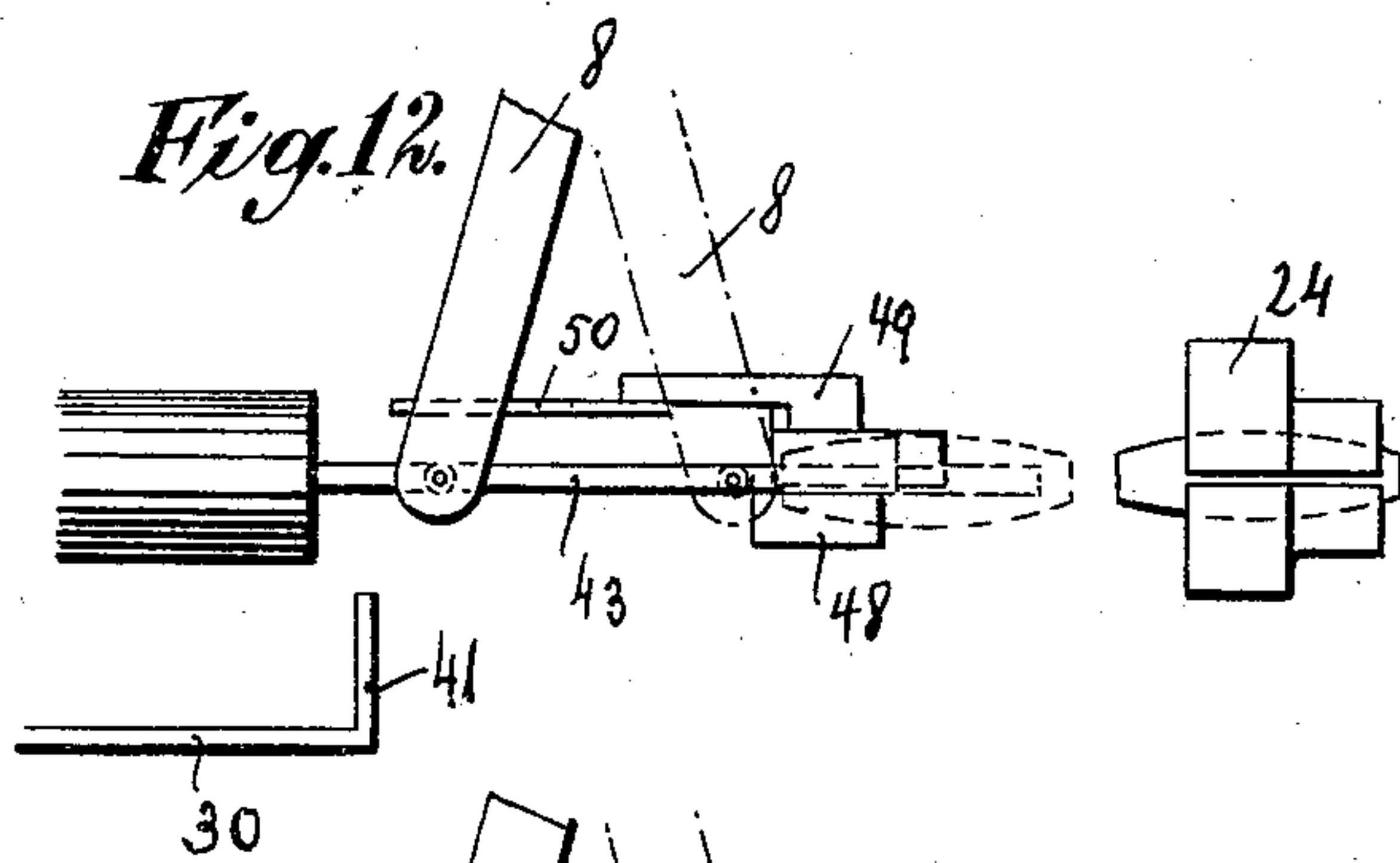
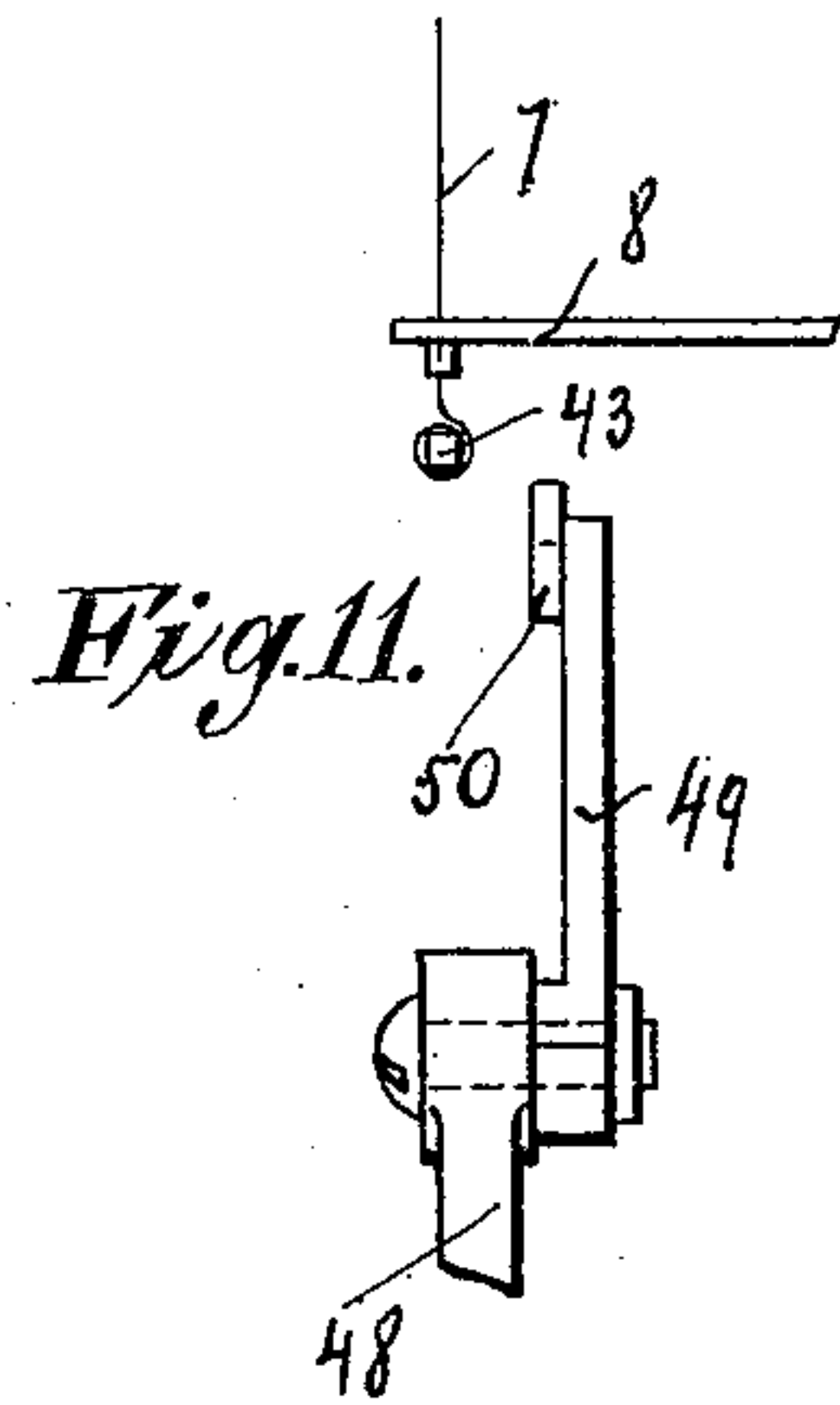
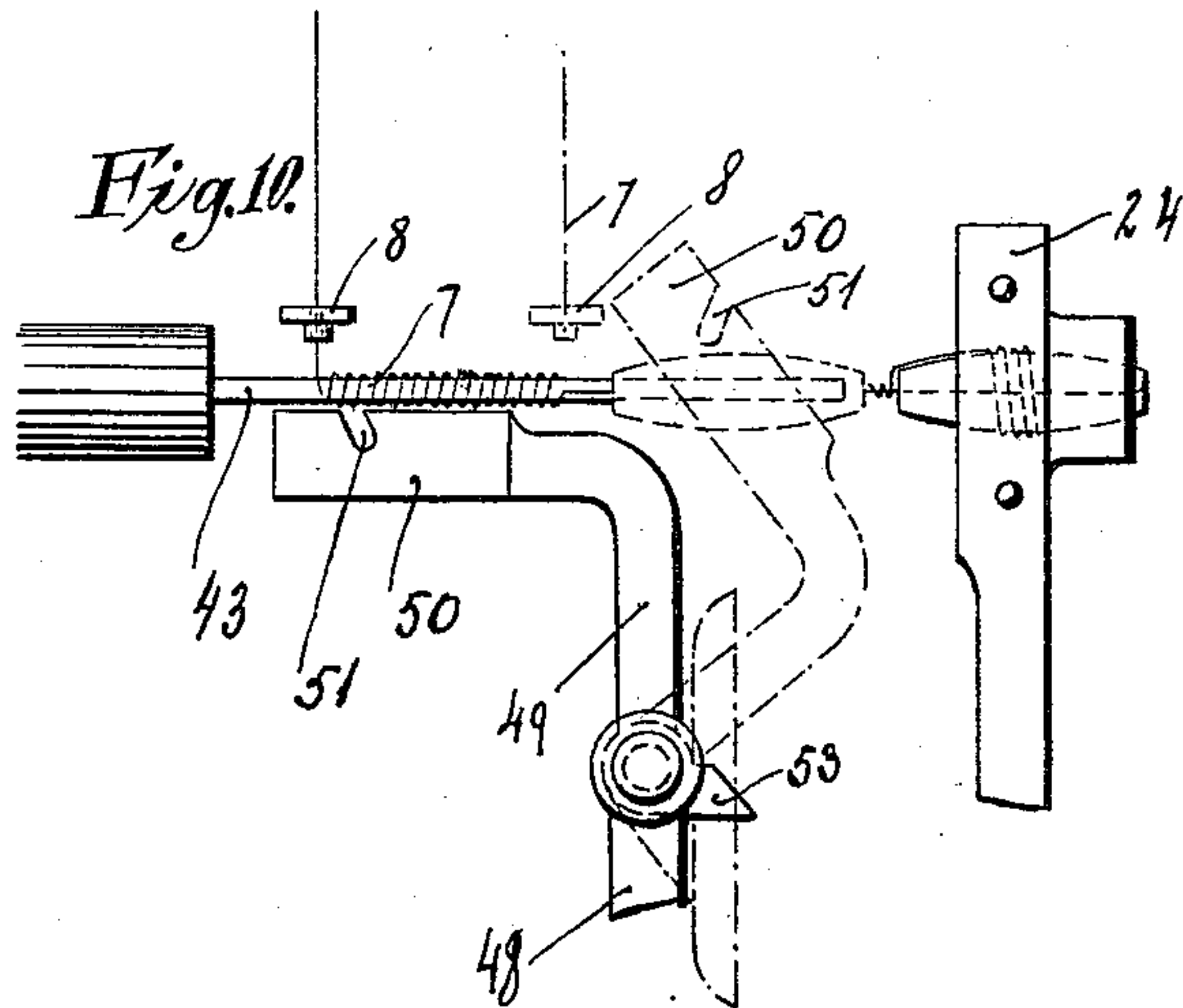


Fig. 15. Fig. 16.  
Inventor  
August Braun  
By his Attorney  
Max S. Ordman

Witnesses:  
Geoffrey  
Michael J. Foley



# UNITED STATES PATENT OFFICE.

AUGUST BRAUN, OF WEST HOBOKEN, NEW JERSEY.

## BOBBIN-MACHINE.

No. 860,631.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed March 13, 1907. Serial No. 362,249.

*To all whom it may concern:*

Be it known that I, AUGUST BRAUN, a subject of the German Emperor, and a resident of West Hoboken, county of Hudson, State of New Jersey, have invented  
5 certain new and useful Improvements in Bobbin-Machines, of which the following is a specification.

The present invention pertains to bobbin winding machines and has for its object to provide means for enabling the automatical separation of the ends of the  
10 yarn of two individual bobbins while the machine is in operation, and a new bobbin is being wound.

Hitherto, for this purpose, the operator has had to use scissors or a knife to cut through the ends of two individual bobbins, by which act, however, it frequently happened that the finished bobbin was destroyed, the yarn being unwound.

Another object of my invention is to arrange the spindle on which the bobbin is wound, such that in case of breakage, the same can be easily and readily  
20 removed and replaced with less expense than in the now used machines.

My invention also relates to the arrangement, construction and combination of parts which will hereinafter be fully specified.

25 In order to make my invention more clear, the same is illustrated in the accompanying drawing, in which similar reference numerals denote corresponding parts, and in which

Figure 1 is an elevation; Fig. 2 a plan view; Fig. 3 a central cross section of Fig. 2; Fig. 4 a vertical section through line  $x-x$  of Fig. 2; Fig. 5 a vertical cross section through line  $y-y$  of Fig. 2; Figs. 6, 7 and 8 are enlarged detail views; Fig. 9 is a front elevation of the recessed cog wheel; Figs. 10 to 14 are diagrammatic  
30 views illustrating the mode of operation of the machine and Figs. 15 and 16 are an enlarged side view and a cross section of the spindle attachment, respectively.

The machine illustrated in the drawing is a double  
40 machine, that is, the machine has on each side of the driving shaft, the same working parts symmetrically arranged. It will therefore suffice to describe only one half of the machine, the same reference numerals that denote the corresponding parts on one side of the machine applying also to those on the other side thereof.

1 denotes the driving shaft supported in a frame 2 secured on the base 3 of the machine. This shaft, as in ordinary bobbin machines, carries a wheel, circular disk, or roller 4, that by frictional contact with the  
50 roller 5 mounted on the spindle shaft 6 is adapted to revolve the latter whereby the yarn 7 is caused to wind around the square spindle and form the bobbin. The yarn 7 is carried through a guide bar 8 that is pivoted at 9 in the frame 2 and by a cam disk 10 mounted  
55 on the driving shaft 1 is caused to swing to and fro to

distribute the yarn on the spindle as the latter revolves.

The shaft 6 carrying the friction roller 5 is mounted in a swinging frame 11 borne upon the shaft 12 which is journaled in a bracket 13 projecting from the base 3. 60 Alongside with this swinging frame 11 and below the spindle a second swinging frame 14 is arranged that is provided with guide pieces 15, 16 in which a vertical slide 17 is capable of moving up and down. Normally, this slide is forced in upward position by a coil spring 18 (Figs. 7 and 8). The slide is provided with a vertical recess or slit 19 through which the free end of a locking bar or dog 20 is allowed to pass and to grasp with its nose shaped portion 21 the upper edge of an adjustable block 22 secured to the said slide. The  
65 locking bar is rigidly secured to the frame 2 of the machine and normally is adapted to engage the slide 17 and to hold the swinging frame 14 and consequently the swinging frame 11 in upright position, in which the friction roller 5 is in contact with the driving roller or  
70 disk 4. In its normal position, the slide 17 projects so far upwards that the distance between its enlarged upper portion and the spindle is equal to one half of the desired thickness of the bobbin. When the latter has assumed the desired thickness it will depress the slide  
75 17 that hereby will become disengaged from the locking bar 20 permitting the frames 14 and 11 to swing laterally as shown in Fig. 8.

Alongside with the frame 14 is a bar or arm 23 that is rigidly secured to the shaft 12 and is capable of swinging therewith, and with the frames 14 and 11. The upper end of said bar is enlarged to form a head that lies in front of the spindle and is provided with an aperture large enough to receive the finished bobbin. As the bobbins may be of different thicknesses, I construct the head of two sections 24, 25 (Figs. 6, 7 and 8) of which each is provided on its inner surface with a semicylindrical groove 26. The two sections are held together by screw bolts 27 secured in the section 24 and by coil springs 28 borne on the outwardly projecting ends of said bolts 27 and pressing against the removable section 25. The head receiving the bobbin is thus expandible to comply with bobbins of different thicknesses.

After the swinging frames 14 and 11 are released from the nose 21 of the locking bar 20 by the pressure of a finished bobbin, the same, as already mentioned, together with the holder 24, 25 will swing sideways towards a slide mechanism 29 adapted to displace the bobbin on and expel it from the spindle into the holder 24, 25. This slide mechanism consists of a horizontal slide 30 movable in a bracket 31 projecting from the base 3. The rear end of this slide is engaged with a semi-circular lever 32 pivoted to the base 3 and carrying a roll 33. This lever is operated by a cam disk  
100 110



34 borne upon a shaft 35 that is driven by cog wheels 36, 37 from the shaft 38 carrying a worm wheel 39, that meshes with a worm 40 on the driving shaft 1 (Fig. 3). The forward end of said horizontal slide 30 is provided with a laterally extending arm 41 that is slightly curved upwards (Figs. 7 and 8) and at its end is provided with a split 42 adapted to engage the square spindle 43 at the rear of the finished bobbin, when the frame 11 carrying the friction roller 5 and the spindle 43 are swung sideways, as heretofore mentioned. At a certain moment, when the spindle is brought into engagement with the split 42 the cam disk 34 will act upon the roll 33 of the lever 32, swinging the latter and thereby moving the slide 30, that with its notched arm 41 will shift the bobbin forward. By a subsequently completed new bobbin, the first will be expelled from the spindle into the sectional holder 24, 25 in which it will be held stationary until expelled therefrom by the succeeding second bobbin.

To control the movement of the slide, that is, to allow of the latter starting and stopping at the proper time, the cog wheel 36 has a notched portion 36' formed by the omission of a few teeth, as shown in Fig. 9, so that, while this notched portion registers with the cog wheel 37 no movement will be transmitted unto the shaft 35 and the slide 30 will be at rest. The cam 34 has a projection or pin 34' with which normally a nose 44 engages that is secured at a suitable point to the swinging frame 11, the nose serving to arrest the cog wheel 36 and to prevent the latter from involuntarily coming into meshing connection with the cog wheel 37. At the rear of the hub 45 of the cog wheel 36 an eccentric pin 46 is provided which is connected to a spring 47 that tends to turn the cog wheel 36 so as to throw the latter into gear with the cog wheel 37. When the frame 11 is swung towards the slide 30, the nose 44 disengages the pin 34' and releases the cog wheel 36 which by its spring 47 will be thrown into gear with the wheel 37 and bring the slide 30 into operation.

While the frames 11 and 14 are in the inclined position (Fig. 8) and the finished bobbin is being displaced on the spindle, it is necessary to carry the yarn toward the end of the spindle along with the finished bobbin to prevent it from becoming twisted around. For this purpose, a bar 48 is provided that is rigidly secured to shaft 12 and has an upper arm 49 which is capable of swinging longitudinally of the spindle. The free end of said upper arm is formed to a guide 50 which is provided with an inclined slit 51 and which extends somewhat sideways and parallel to the spindle. This upper arm is adapted to be operated from a cam disk 52 which is borne on the shaft 35 and which acts against a nose or projection 53 arranged at the lower end of the arm 49. At the moment when the frames 11 and 14 are swung towards the slide mechanism 29 and the finished bobbin is being displaced on the spindle by slide 30, the cam disk 52 causes the arm 49 to swing forward, whereby its guide portion 50 will grasp the yarn and carry it to the forward end of the spindle. A spring 54 secured with one end to the frame 14 and with its other end to the arm 49 tends to draw the latter into initial position. The shaft 6 borne in the swinging frame 11 is split at its forward end to receive the square spindle 43,

which is secured in position in said shaft by a nut 55 screwed on said split end that is reduced in diameter and threaded on the outside (Figs. 6, 15 and 16), said nut and split end of the shaft forming a clamp.

The mode of operation of this machine is as follows: When a bobbin is completed, the frames 11 and 14 are swung towards the slide mechanism 29 in the above described manner, so that the slide 30 can shift the bobbin towards the end of the spindle (see Fig. 13) while at the same time the arm 49 will swing forward and carry the yarn to the center of the displaced bobbin (Figs. 10, 12, 13, 14) that continues to revolve causing the yarn to wind around the center of the said bobbin a few more times (Fig. 13) before the frames are returned into initial position, and the yarn brought back to the rear of the spindle to start a new bobbin. After the second bobbin is completed, the same is shifted by the slide mechanism 29 towards the end of the spindle in the aforesaid manner, thereby expelling the bobbin ahead of it and pressing the same into the holder 24, 25 (Figs. 4, 6 and 10). Here this first bobbin is held stationary while the second bobbin that is still carried by the spindle, continues to revolve. Owing to the great number of revolutions of the spindle and of the second bobbin thereon, that part of the yarn that connects the stationary first bobbin and the revolving second bobbin becomes twisted and finally breaks through, thus separating the two bobbins from one another. As the work continues, the second bobbin is removed by the succeeding one and is pressed into the holder 24, 25 expelling the first bobbin which falls then into a suitable receptacle (not shown) to be ready for use. To move the swinging frames 11 and 14 into initial position after the displacement of the bobbin, the shaft 100 carries a cam disk 56 that is adapted to act on a roller 57 secured to the frame 14.

What I claim and desire to secure by Letters Patent is:

1. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a spindle shaft, a friction roller on said spindle shaft adapted to be driven by the driving roller and capable of being thrown out of contact with the latter, means for holding the friction roller in contact with the driving roller, means for swinging the said roller and spindle shaft sideways from the driving roller, means for displacing the finished bobbin to the forward end of the spindle and for expelling it therefrom, means for receiving the expelled bobbin and for holding the same stationary while a new bobbin is being wound and until expelled by the succeeding bobbin, and means for returning the spindle shaft and friction roller into initial position, substantially as and for the purpose specified.

2. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a swinging frame, a spindle shaft rotatively borne in said frame, a friction roller on said spindle shaft adapted to be driven by the driving roller, means for holding the swinging frame in upright position, means for swinging the same sideways from the driving roller to bring the friction roller out of contact with the driving roller, means for displacing the finished bobbin to the forward end of the spindle and for expelling it therefrom, means for receiving the expelled bobbin and for holding the same stationary while a new bobbin is being wound, and until expelled by the succeeding bobbin and means for returning the spindle shaft and friction roller into initial position, substantially as and for the purpose specified.

3. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a swinging



frame, a spindle shaft rotatively borne in said frame, a spindle removably secured in said shaft, a friction roller mounted on said shaft and adapted to be driven by the driving roller, means for holding the swinging frame in upright position, means for swinging the same sideways from the driving roller to bring the friction roller out of contact with the driving roller, means for displacing the finished bobbin to the forward end of the spindle and for expelling it therefrom, means for receiving the expelled bobbin and for holding the same stationary while a new bobbin is being wound, and until expelled by the succeeding bobbin, and means for returning the spindle shaft and friction roller into initial position, substantially as and for the purpose specified.

4. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a swinging frame, a spindle shaft rotatively borne in said frame, a friction roller on said shaft adapted to be driven by the driving roller, a spindle removably secured in the said spindle shaft, a spring actuated vertical slide connected with the said swinging frame and arranged below the spindle to be operated by the bobbin when the latter assumes the desired thickness, a locking bar engaging said slide to hold the swinging frame in upright position and to release the same upon the downward movement of the said vertical slide, means for displacing the finished bobbin to the forward end of the spindle and for expelling it therefrom, means for receiving the expelled bobbin and for holding the same stationary while a new bobbin is being wound and until expelled by the succeeding bobbin, and means for returning the spindle shaft and friction roller into initial position, substantially as and for the purpose specified.

5. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a swinging frame, a spindle shaft rotatively borne in said frame, a friction roller on said shaft adapted to be driven by the said driving roller, a square spindle removably secured in said spindle shaft, a horizontal slide capable of moving

longitudinally of the said spindle, a notched arm secured to said slide and extending transversally to the spindle, said notched arm being adapted to engage the spindle at the rear of the finished bobbin thereon, and to displace the latter as the slide is being moved forward, a swinging arm arranged in front of the spindle and adapted to swing simultaneously with the swinging frame of the latter, an expandible holder formed at the upper end of the said swinging arm, to receive the finished bobbin when expelled from the spindle shaft, substantially as and for the purpose specified.

6. In a bobbin winding machine, the combination with a yarn guiding mechanism, of a driving roller, a swinging frame, a spindle shaft rotatively borne in said frame, a friction roller mounted on said shaft and adapted to be driven by the driving roller, a spindle removably secured in said spindle shaft, an automatically working slide capable of moving longitudinally of the spindle, a notched arm at the forward end of said slide extending transversally to the spindle and adapted to engage the latter at the rear of the finished bobbin and to displace the latter, a swinging lever adapted to swing simultaneously with the swinging frame, a spring actuated guide piece pivotally secured to said swinging arm to swing longitudinally of the spindle, said guide piece having a notch adapted to grasp the yarn as the bobbin is being displaced on the spindle, to carry it to the forward end of the latter, an expandible holder in front of the spindle, said holder being capable of swinging simultaneously with the latter and adapted to receive and hold the finished bobbin stationary while a new bobbin is being finished and until expelled by the same, substantially as and for the purpose specified.

Signed at New York this 11 day of March, 1907.

AUGUST BRAUN.

Witnesses:

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MAX D. ORDMANN.