

J. SCHÄRER-NUSSBAUMER.

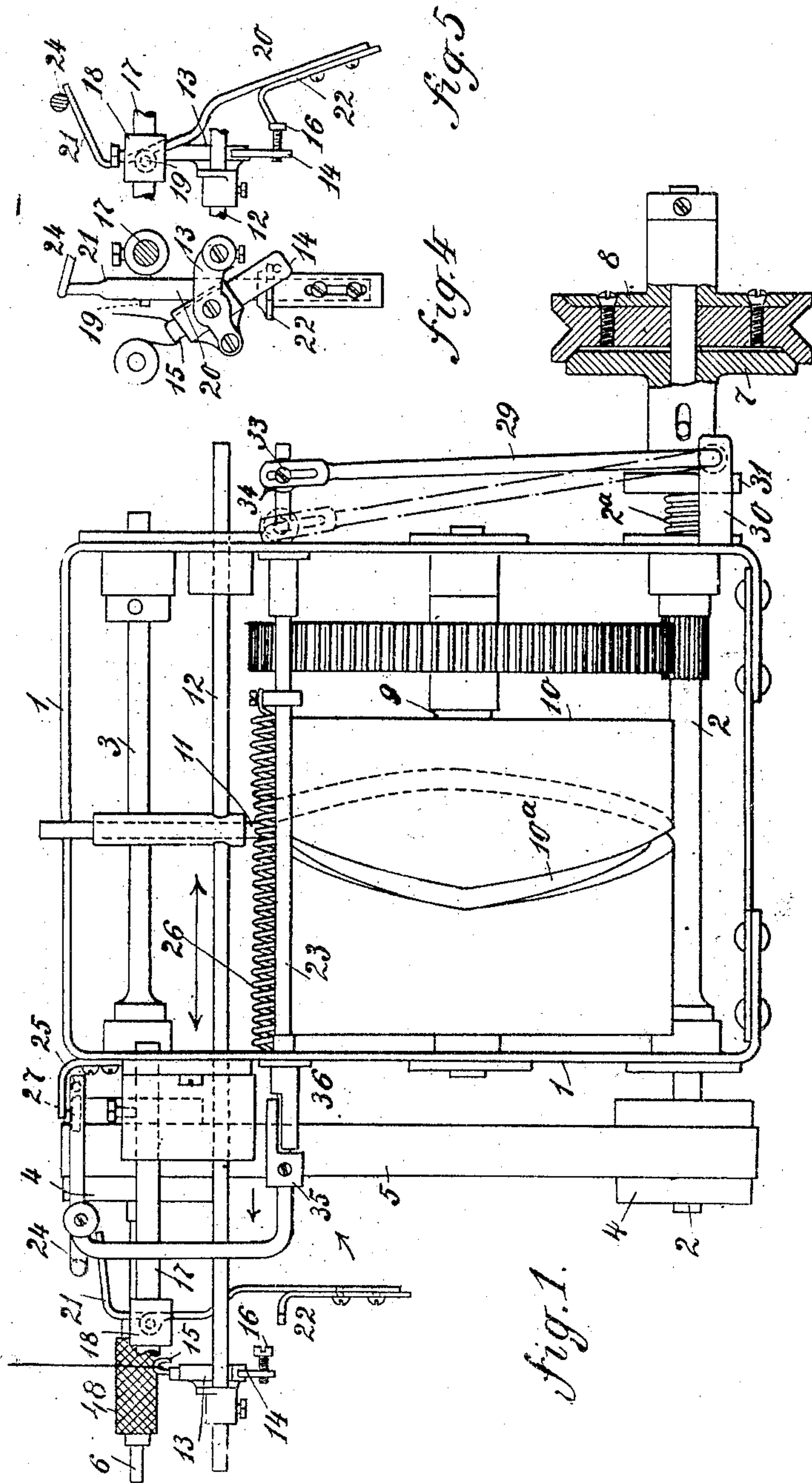
BOBBIN WINDING MACHINE.

APPLICATION FILED JUNE 28, 1904.

919,475.

Patented Apr. 27, 1909.

4 SHEETS—SHEET 1.



Witnesses:

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Inventor:

W. H. & A. D. Zerk

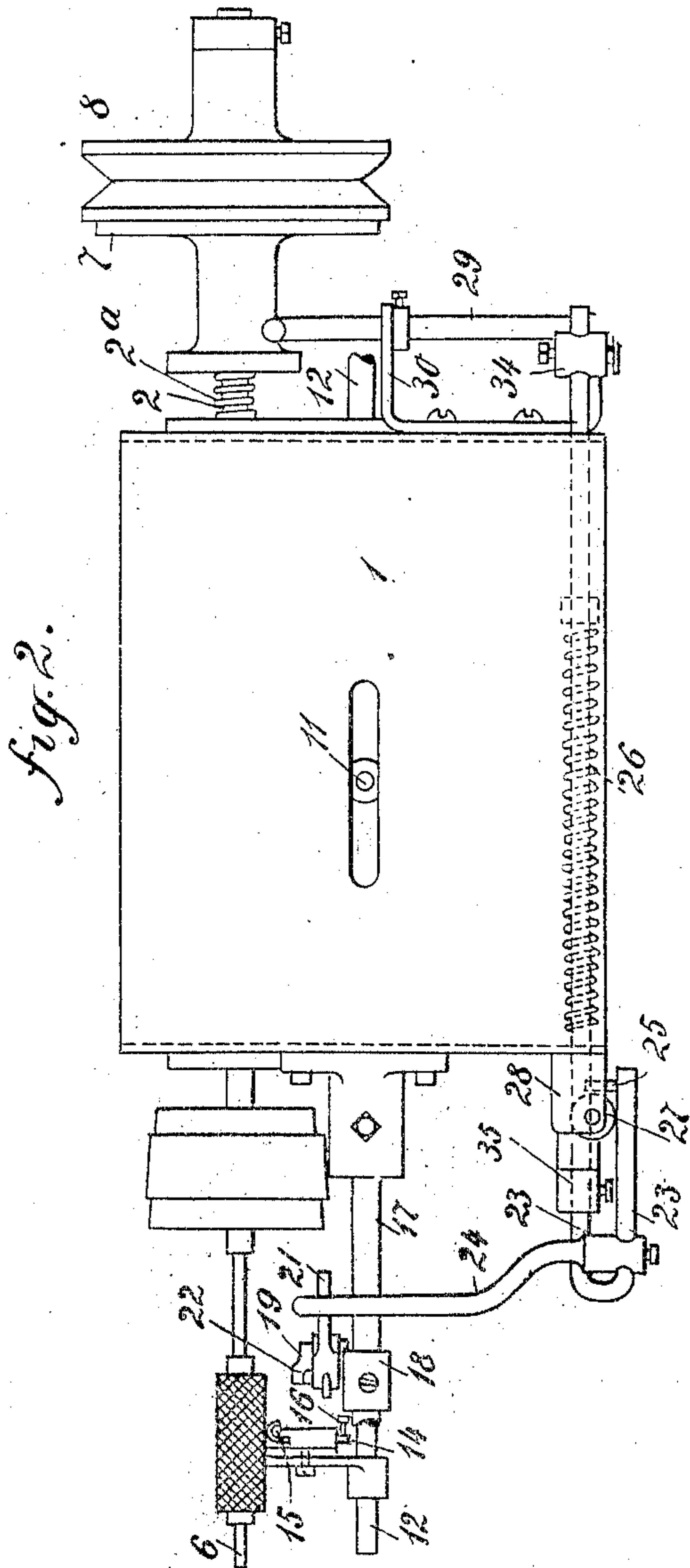
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4 SHEETS—SHEET 2.



Witnesses:

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4 SHEETS—SHEET 3.

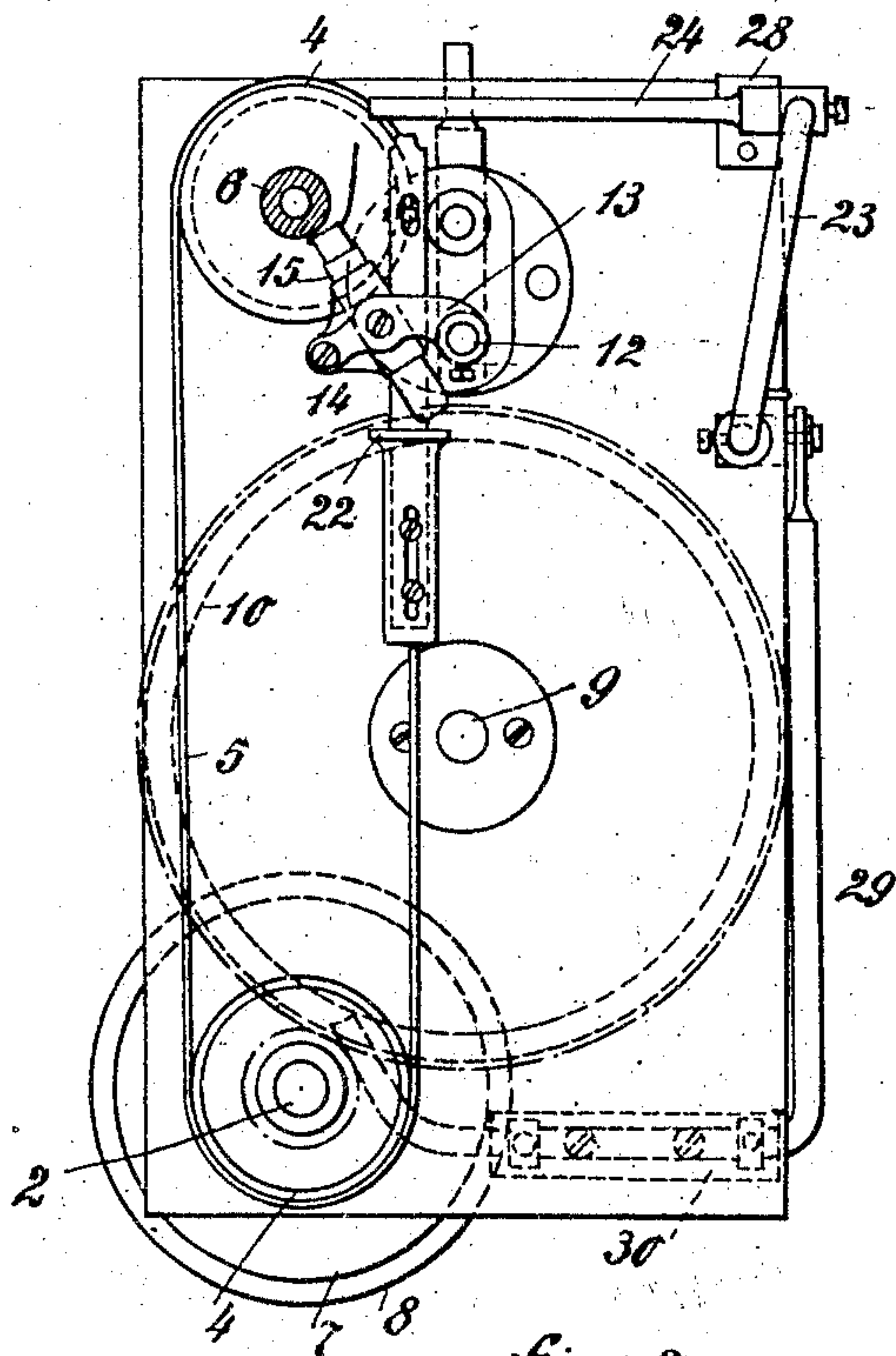
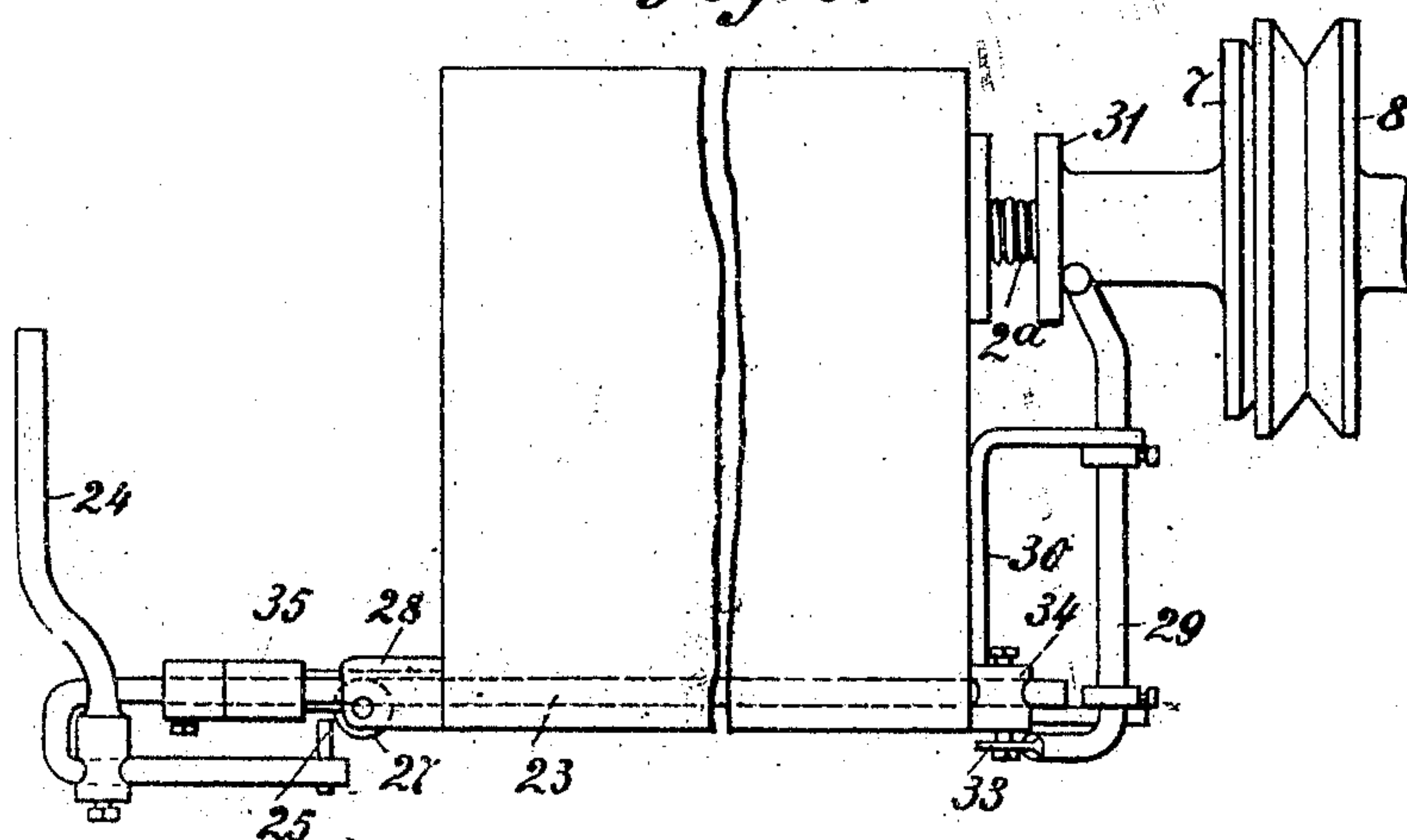


Fig. 3.

fig. 6.



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4 SHEETS—SHEET 4.

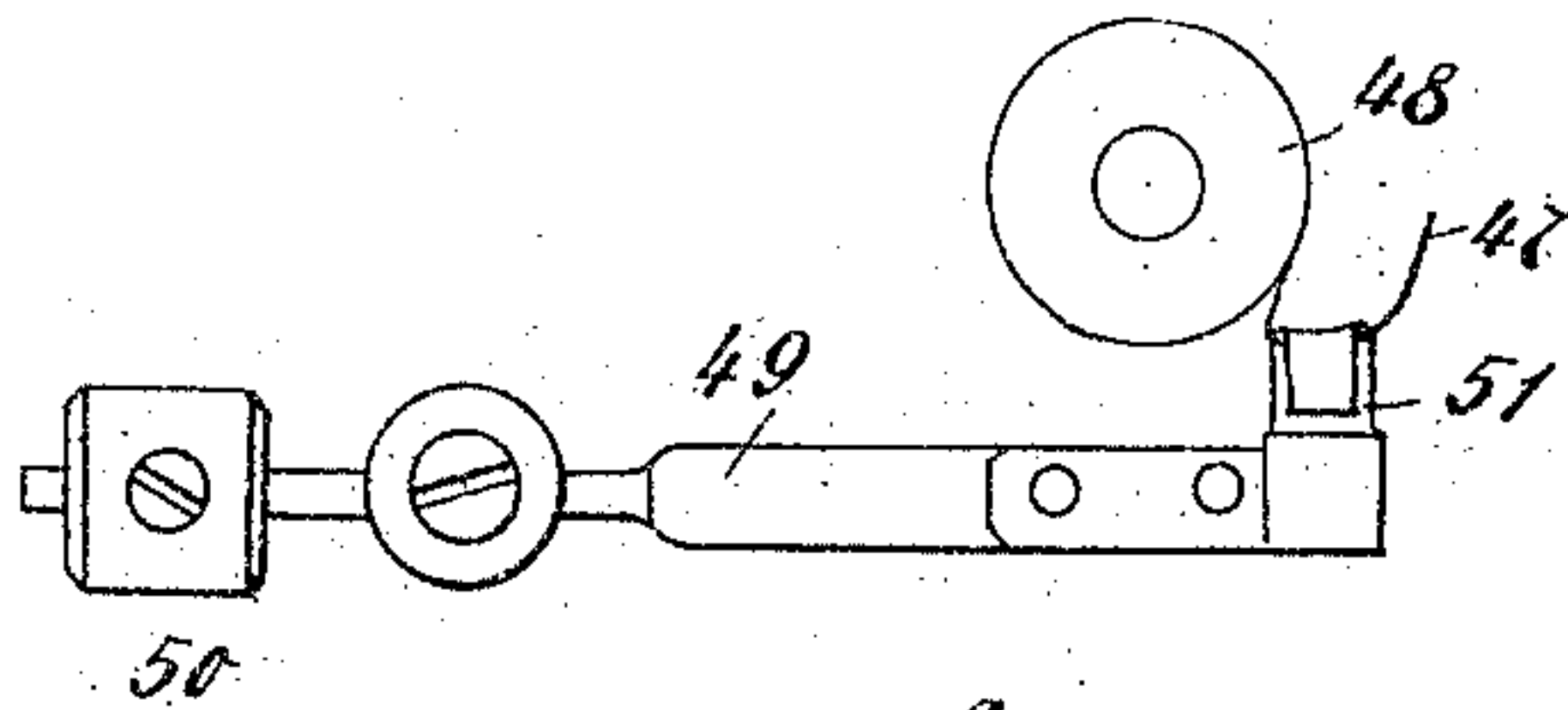
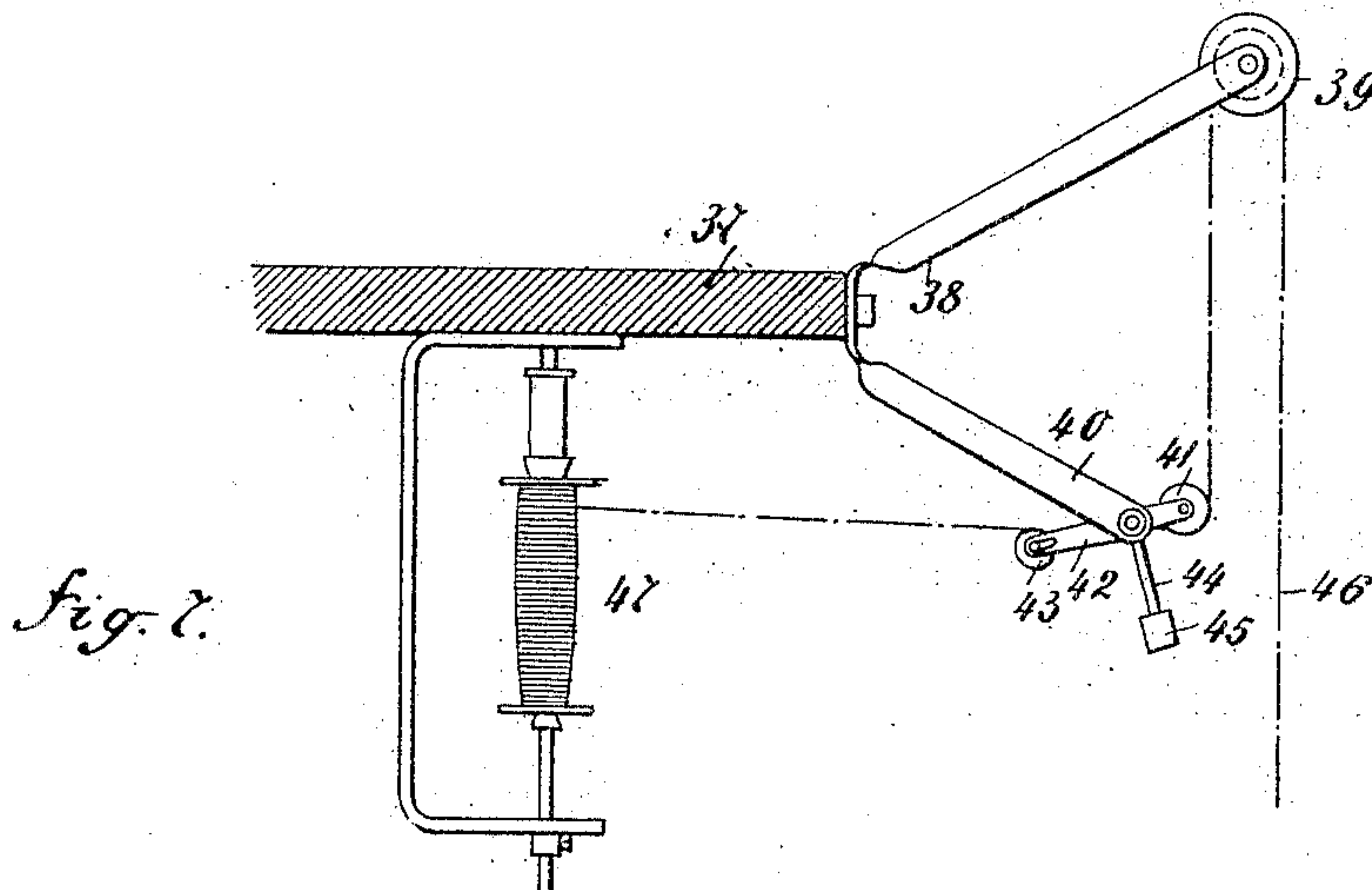


Fig. 8.

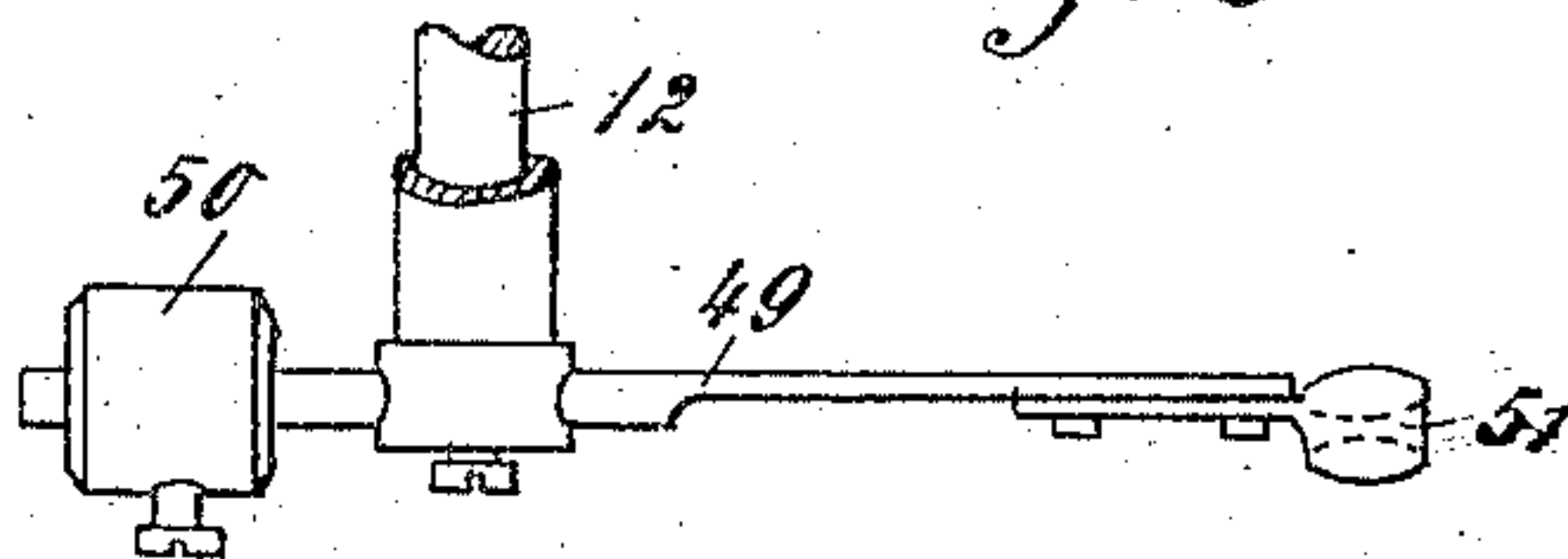


Fig. 9.

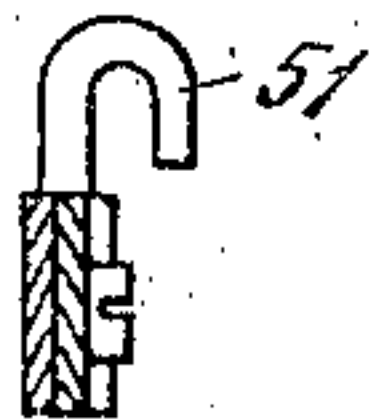


Fig. 10.

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UNITED STATES PATENT OFFICE.

JACOB SCHÄRER-NUSSBAUMER, OF ERLENBACH, SWITZERLAND.

BOBBIN-WINDING MACHINE.

No. 919,475.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed June 28, 1904. -Serial No. 214,449.

To all whom it may concern:

Be it known that I, JACOB SCHÄRER-NUSSBAUMER, a citizen of the Swiss Confederation, and resident of Erlenbach, Switzerland, have invented new and useful Improvements in Bobbin-Winding Machines, of which the following is a specification.

This invention relates to a bobbin winding machine and more particularly to the construction of the thread guide which is improved in such a manner that the thread is continuously tensioned and further that the thread guide is automatically lifted and slightly pressed against the bobbin as soon as the machine is started while it automatically drops away from the bobbin when the thread breaks whereby the machine is automatically stopped.

In the accompanying drawings the improved winding machine is shown in Figure 1 in a front view. Fig. 2 is a plan view. Fig. 3 is a side view of the same. Figs. 4 and 5 show details of construction. Fig. 6 shows in plan a part of Fig. 1, the several parts in the position when the machine is stopped. Figs. 7, 8, 9 and 10 show devices for tensioning the thread, and a modified construction of the thread guide.

The machine is constructed as follows:

In the bottom end of the upright frame 1 the main driving shaft 2 is rotatably mounted, and connected by pulleys 4 and belt 5 with a horizontal bobbin spindle 3 which is rotatably mounted in the upper end of the frame 1. The left hand end of the bobbin spindle is formed by the bobbin prong holder 6.

On the right hand end of the main driving shaft 2 which projects from the upright frame 1 a friction coupling device is arranged which consists of the coupling sleeve 7 movable on said shaft but not rotatable on the same and of the loose rotatable flange disk 8 which is provided with a cord groove on its rim. The sleeve 7 is continuously pressed against the cord disk 8 by means of a spiral spring 2* surrounding the main shaft 2.

An axle 9 is rotatably mounted in frame 1 between the main shaft and the bobbin spindle, which is connected with the main shaft 2 by suitable toothed gearing. On said axle 9 the guide drum 10 is keyed, which is provided on its surface with a curved guide groove 10*. Between said guide drum 10 and the bobbin spindle 3 a horizontal shaft 12 is mounted in frame 1 adapted to move to

and fro in its bearings. On said movable shaft 12 the vertical guide pin 11 is fixed which is adapted to engage with the groove 10* of the guide drum.

On the left hand end of the movable shaft 12 which projects from the frame 1, the thread guide is arranged. The thread guide consists of the adjustable support 13 in which the inclined arm 14 of the thread guide proper 15 is loosely guided. Into the end of said arm 14 a screw pin 16 is screwed the head of which serves as an abutment.

An arm 17 projecting from the left hand side of frame 1 parallel with the shaft 12 has a collar 18 mounted on it which is provided with a laterally projecting stud 19 serving as pivot for a two-armed lever. The end of the upwardly extending arm 21 is bent backward toward the frame 1 and to the lower arm 20 of said lever an angle iron 22 is fixed.

Below the movable shaft 12 a horizontal rod 23 is movably and rotatably mounted in the frame, the left hand end of which rod projects somewhat from the frame and is first bent upward and then back toward the frame. On the end of said rod 23 an arm 24 is movably fixed which projects over the upper arm 21 of the two armed lever pivoted on collar 18. A pin 25 is fixed in the end of the rod 23 projecting inwardly and reaching behind a roller 27 which is mounted at the left hand side of frame 1 by means of a bracket 28. The rod 23 is influenced by a traction spring 26 which, on the one hand, is fixed to the left hand side of frame 1 and on the other hand to a collar fixed on said rod 23.

At the right hand side at the bottom horizontal portion of frame 1 a rod 29 is fixed. Both ends of said rod 29 are bent upward. The shorter outer end portion of rod 29 rests beside a flange 31 of sleeve 7 of the friction coupling while the slotted head at the other longer end of rod 29 is linked by means of a screw 33 to a cross piece 34 fixed on the right hand end of rod 23. On said rod 23 outside the left side of the frame of the machine a sleeve 35 is fixed a nose of which projects over the projection of a sleeve 36 which is rigidly fixed to the frame of the machine. The projections of the two sleeves 35, 36 lie one over the other and are a short distance apart.

The device for tensioning the thread is fixed to an extension 37 at the upper end of

the frame 1 of the machine contiguous to the thread guide 15 and consists of a two-armed bracket 38, 40 rigidly mounted to said extension 37. In the end of the upper arm of said bracket 38 a guide roller 39 is rotatably mounted and in the end of the lower arm 40 of the bracket a three armed lever is pivoted, in which a tensioning roller 41 is rotatably mounted. In the end of arm 42 of the three-armed lever a roller 43 is mounted and on the end of the arm 44 a weight 45 is removably fixed.

The machine operates as follows: When the machine is started pin 25 grips behind the roller 27. The rod 29 is placed by the operator in such a position that the spring 2^a presses sleeve 7 against the cord disk 8 (Figs. 1, 2 and 3). The bobbin spindle 3 as well as the guide drum 10 are rotated from the main shaft. The shaft 12 for the thread guide is moved to and fro in consequence of its guide pin 11 sliding in the curved groove of the guide drum. The thread 46 comes from bobbin 47 and is guided over the guide roller 39 to the bobbin 48. Any slackening of the tension of the thread is balanced by the tensioning roller 41 which tends to swing downward in consequence of the weight 45. In consequence of the tension of the thread 46 the thread guide is lifted and slightly pressed against the bobbin. When the bobbin becomes thicker the thread guide sinks accordingly until the head of screw 16 comes into the way of the angular piece 22 of arm 20. The head of screw 16 now abuts against said angular piece 22 in consequence of the to and fro movement of the thread guide whereby the two-armed lever 20, 21 is turned and brought into the position shown in Fig. 5. The arm 21 of the lever lifts the arm 24 whereby the rod 23 is somewhat rotated due to the lapped contact faces of the parts 35, 36. In consequence of the rotation of rod 23 the pin 25 is moved and rod 23 is released so that it is moved by spring 26 (Fig. 6) causing rod 29 to swing and to pull the sleeve 7 out of the flanged disk 8 thus stopping the machine. The moment of the stopping of the machine can be regulated by adjusting the position of the angular piece 22 of arm 20. The machine is further automatically stopped when the thread breaks as in such a case the thread guide drops by its own weight into the position just described.

The construction of the thread guide can be modified as shown in Figs. 8 to 10 as follows: The thread guide consists of a two-armed lever 49 which is pivoted on the spindle 12. At the shorter end of the two-armed lever 49 a weight 50 is fixed. To the other end of lever 49 a glass eye 51 is removably fixed through which the thread is guided.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. A bobbin winding machine comprising a frame, a main driving shaft, frictional means for driving said shaft a bobbin spindle, means for rotating the same from the main shaft, a reciprocating shaft, means for actuating the same from the main shaft, a thread guide support carried by said reciprocating shaft, a thread guide in said support, a screw pin in the bottom end of said guide, a two arm lever carried by the frame, an adjustable portion on one of said arms adapted to be engaged by the screw pin, a rod slidably and rotatably mounted in the frame, means for connecting said rod with the frictional driving means, a spring for holding said rod in a position whereby the frictional driving means will be in an inoperative position, catch means for normally holding said rod in a position whereby the frictional driving means will be in an operative position and means actuated by the two arm lever for releasing said catch lever to allow the spring to move the rod to throw the frictional driving means out of operative position.

2. A bobbin winding device comprising a frame, a rotating bobbin spindle, a reciprocating shaft, a common driving means for said spindle and shaft, a controlling clutch in connection with said driving means, a thread guide on the reciprocating shaft, a screw pin on said guide, a two arm lever pivotally connected to the frame, an adjustable portion on one arm of said lever adapted to be engaged by said screw pin, a slidably and rotatably mounted rod, means for connecting said rod with the clutch, a spring for holding said rod in a position whereby said clutch will be disconnected, said rod having the end near the thread guide bent, a movable arm on said bent end adapted to be engaged by the two arm lever, a pin on said bent end, a catch on the frame adapted to engage with the said pin to hold the rod against the tension of the spring whereby the clutch will be connected, a sleeve on the rod near the bent end thereof having a nose, a sleeve on the frame also having a nose, the said noses extending one over the other at some distance apart whereby when said screw pin engages the two arm lever said lever will cause the rod to rock so as to release the catch and allow the spring to move the rod to disconnect the clutch.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JACOB SCHÄRER-NUSSBAUMER.

Witnesses:

A. LIEBERKNECHT,
G. C. ROTH.