

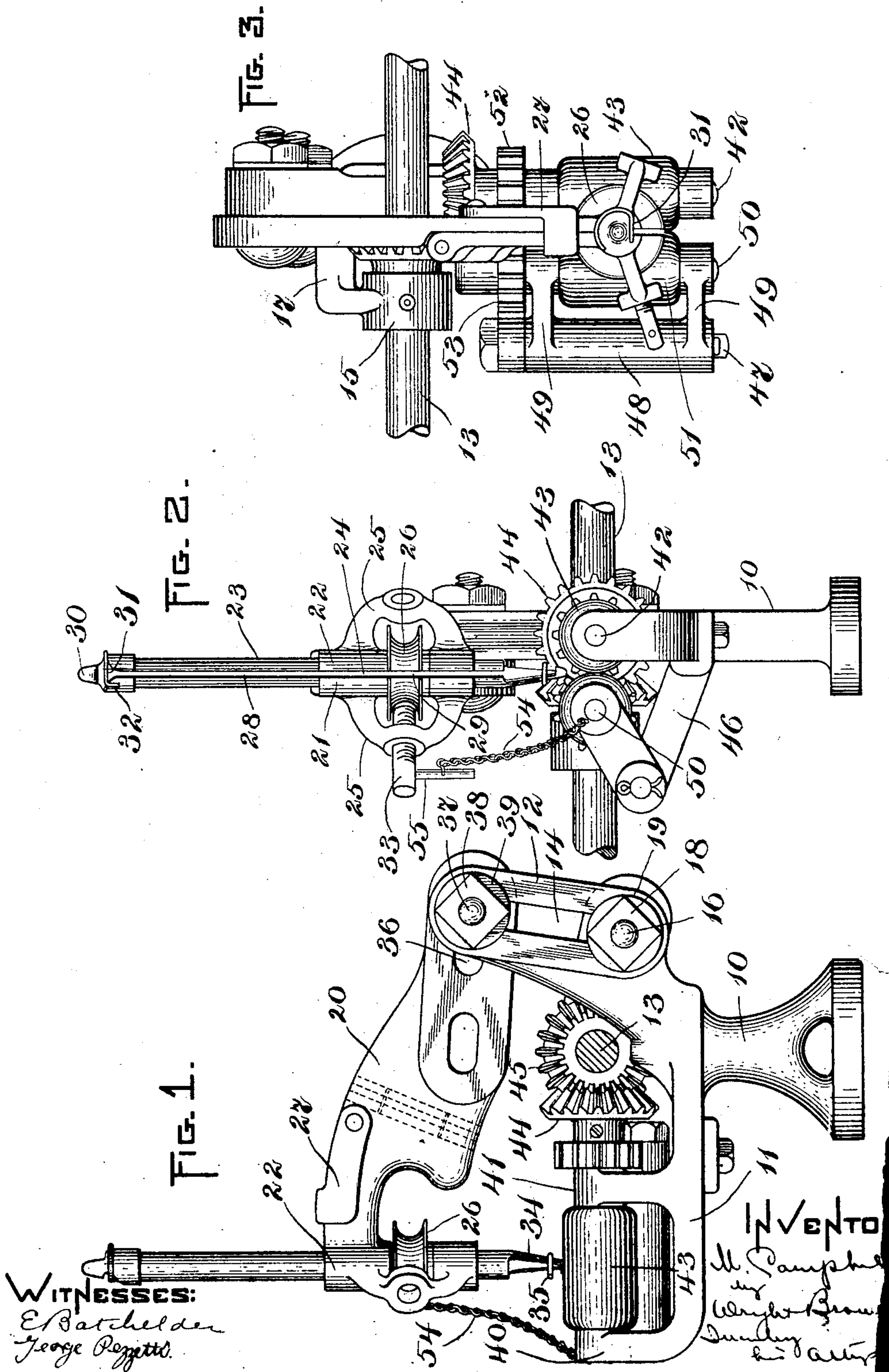
No. 803,665.

PATENTED NOV. 7, 1905.

M. CAMPBELL.
SPINNING OR TWISTING MACHINE.

APPLICATION FILED SEPT. 12, 1901.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 5.

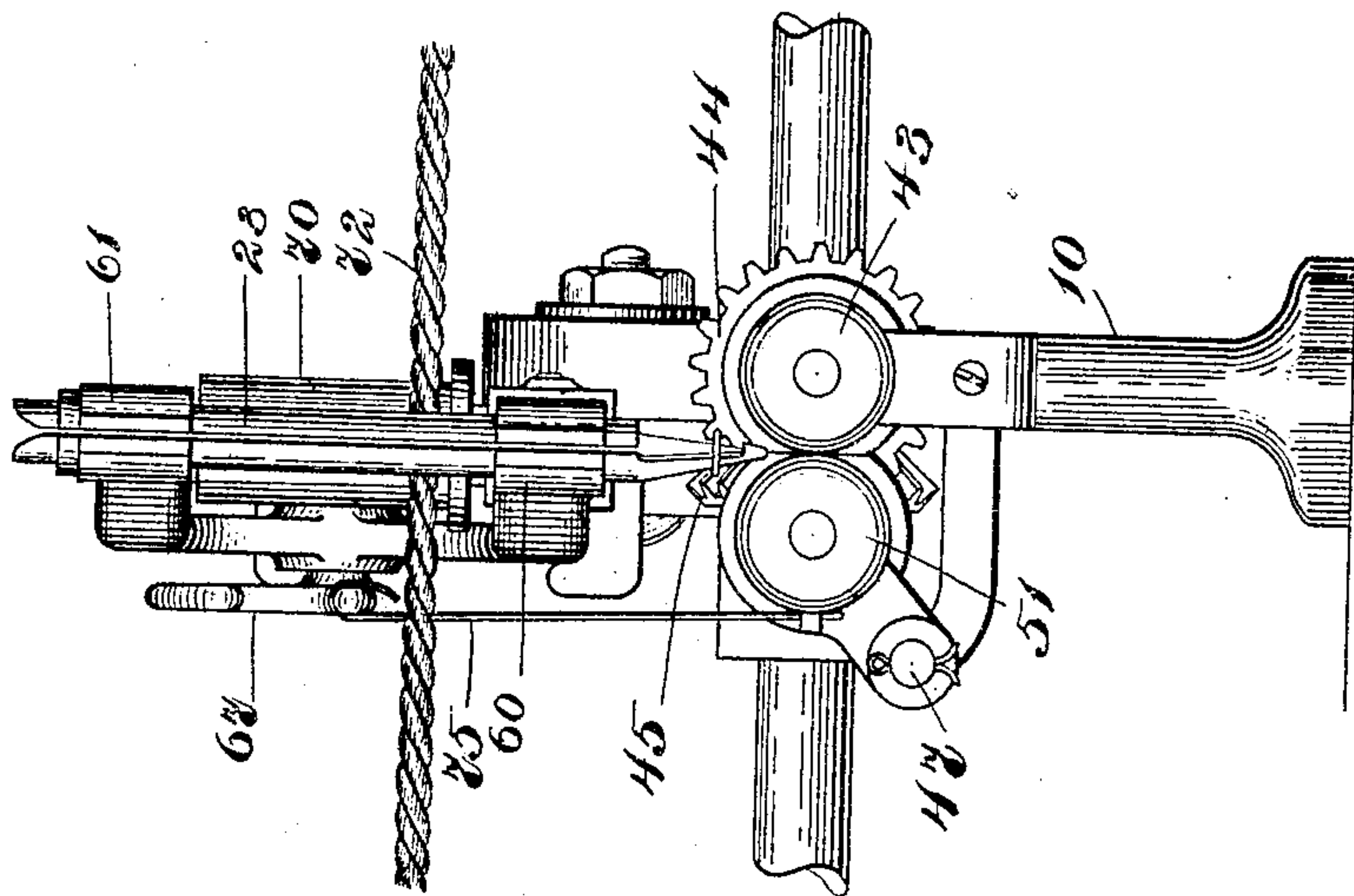
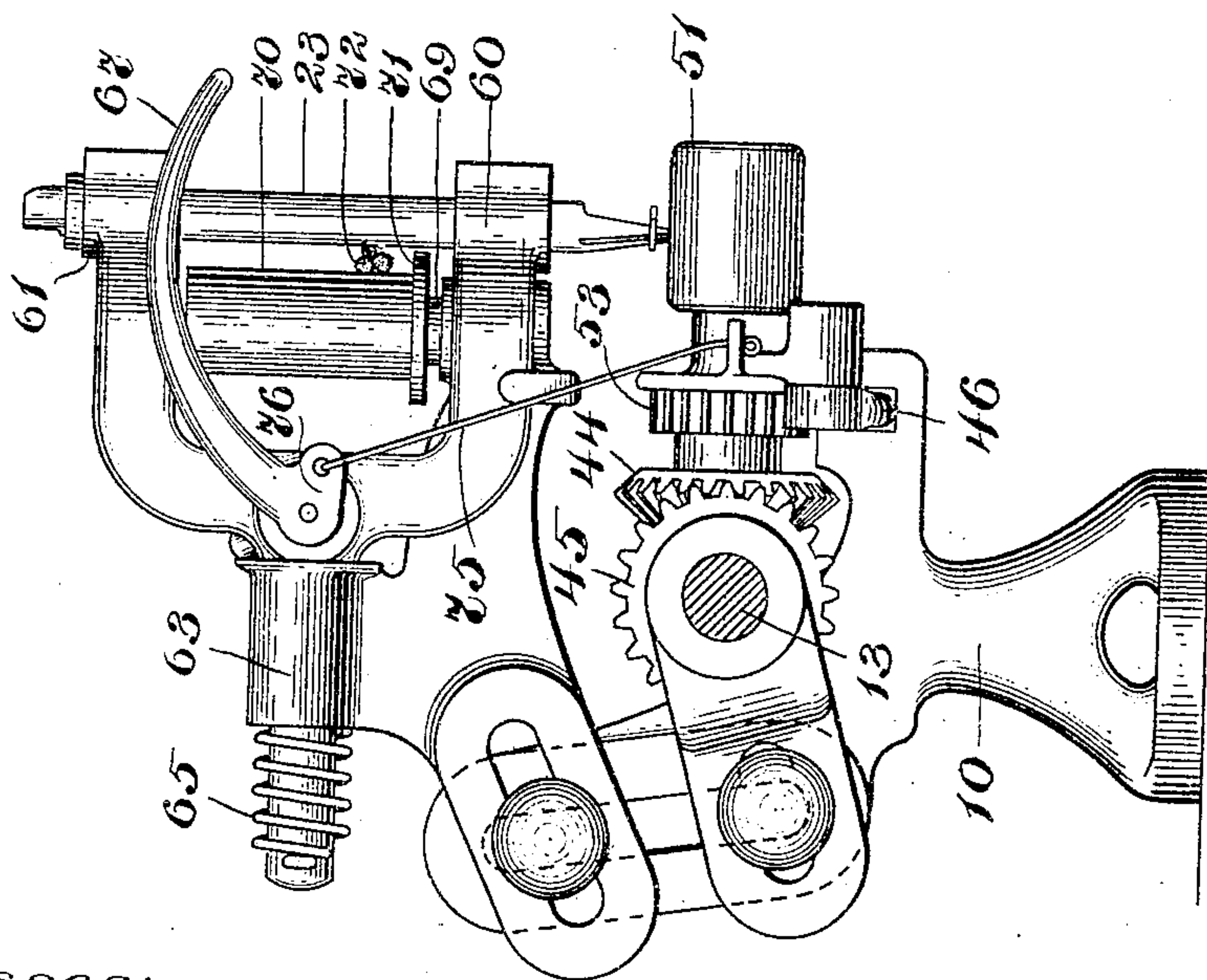


Fig. 4.



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Inventor:
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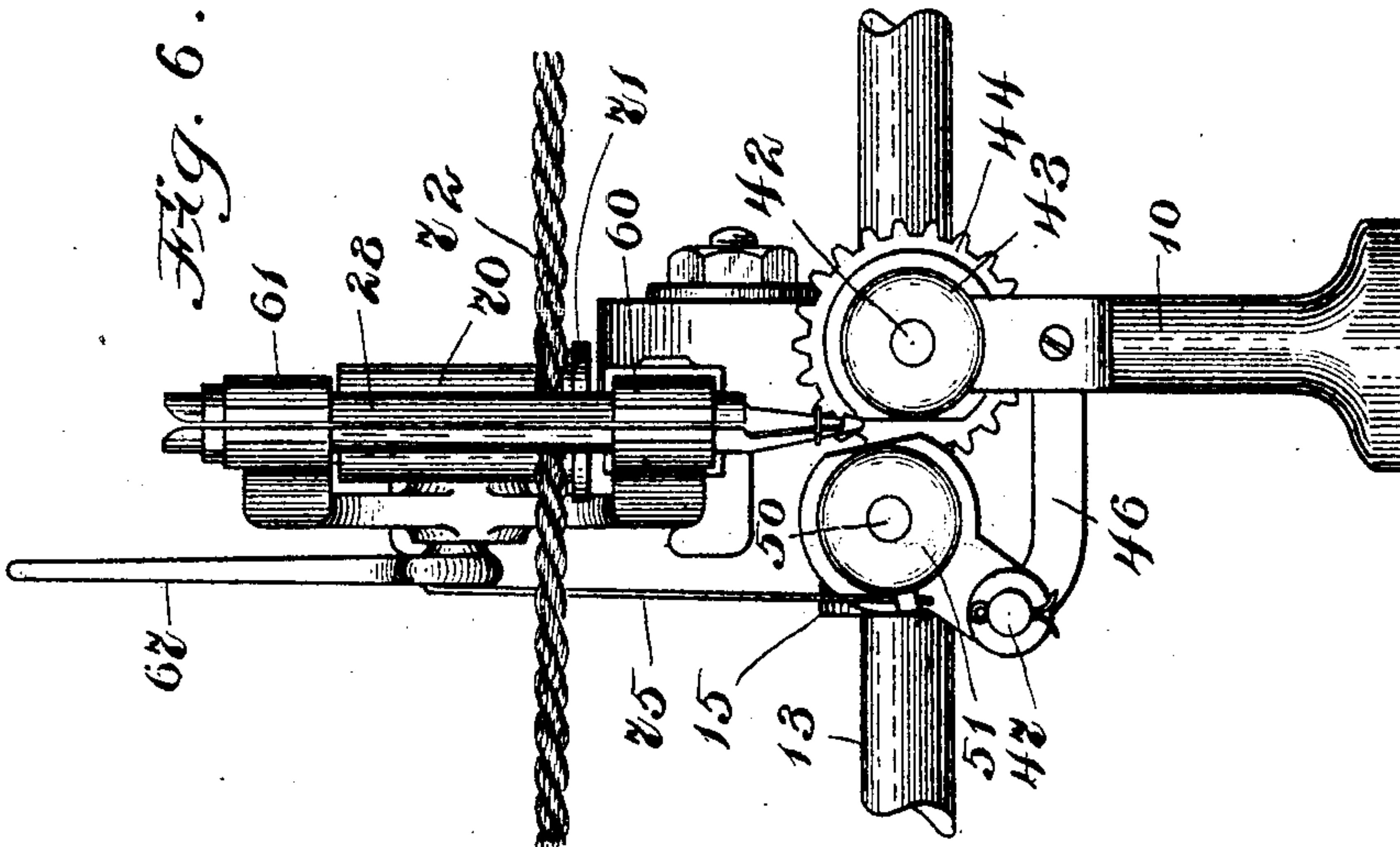
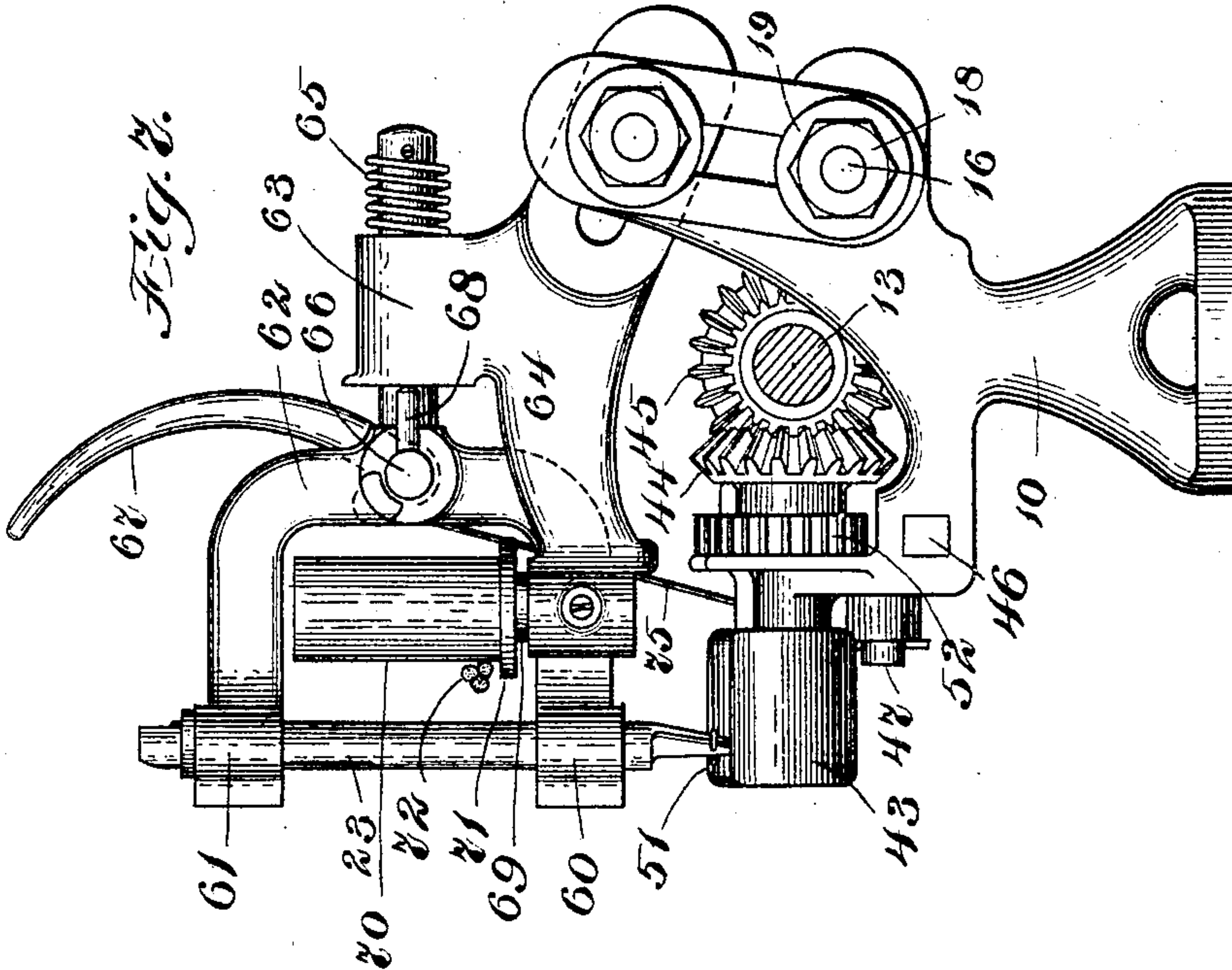
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

MALCOLM CAMPBELL, OF BOSTON, MASSACHUSETTS.

SPINNING OR TWISTING MACHINE.

No. 803,665.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed September 12, 1901. Serial No. 75,154.

To all whom it may concern:

Be it known that I, MALCOLM CAMPBELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Spinning or Twisting Machines, of which the following is a specification.

This invention has relation to spinning or twisting machinery, and more particularly to that class of machines employed in the spinning of wool or woolen yarn.

The principal object of the invention is to provide a twister-head, in combination with lower drawing-rolls, in which provision is made for the easy introduction of the yarn between said rolls and into the twister-head. With this object in view I have changed the arrangement of the drawing-rolls, and instead of locating them longitudinally of the machine I mount them in bearings with their axes transverse of the machine or from front to rear thereof. According to the illustrated embodiment of the invention I mount one of the rolls in movable bearings, so that it may be swung toward or from its coacting roll, the bearings therefor being such that there is no obstruction to the passage of a thread or yarn longitudinally between the two rolls. Furthermore, the bearing for the twister-head and the spindle are shown as provided with longitudinal slots which may be brought into alinement to permit the lateral insertion of the yarn into the spindle. In addition I provide mechanism for throwing the twister-head out of operation. In one embodiment of the invention this is accomplished by mounting the spindle in movable bearings and by passing the power-transmitting device, such as a belt or cord, around an idler in such proximity to the spindle that when in normal position the spindle will be engaged by the power-transmitting device and rotated. By moving the bearings for the spindle the latter may be disengaged from the power-transmitting device and thrown out of action. These are the principal features of my invention, and reference may be had to the accompanying specification for the features of lesser importance.

Referring to the drawings, Figure 1 represents in side elevation a standard which may be secured to a convenient rail of the machine, said standard supporting the twister-head and the lower drawing-roll. Fig. 2 represents a front elevation of the same. Fig. 3

represents a plan view of the same. Figs. 4, 5, 6, and 7 illustrate another embodiment of the invention in which there is a movable bearing or support for the spindle.

As shown in Figs. 1, 2, and 3, there is a standard 10, which is adapted to be secured upon the twister-head rail. This standard has a forwardly-projecting arm 11 and a rearwardly and upwardly projecting arm 12, these arms being so located as not to interfere with the driving-shaft 13, which is arranged longitudinally of the spinning-frame. The upright arm is slotted, as at 14, so that the bearing 15 for the shaft 13 may be adjustably secured to said arm. The securing means may consist of a bolt 16, passed through an aperture in the bracket 17, on which said bearing 15 is formed, and a nut 18 and washer 19, as shown in Fig. 1. To the said arm 12 is likewise secured a support for the twister-head. This support is indicated as a whole at 20. At its front end it is longitudinally divided to form two complementary members 21 22, the latter of which is integral therewith and the former of which is hinged to said support, as indicated in dotted lines in Fig. 1. These two members 21 and 22 form a cylindrical bearing for the spindle 23, but their front edges are separated far enough to leave a slot 24, as is clearly shown in Fig. 2.

Each of the members 21 22 is provided with the bridge 25 for the reception of the whirl 26, which is rigidly secured to the spindle 23. The two parts of the bearing are normally held against relative movement by a latch or locking device 27, which is pivoted to the support and is adapted to slip down over the said members, as shown in Fig. 3. The said latch consists of a metallic plate pivoted on the outside of the member 22 and having a lip adapted to extend down on the outside of the member 21. The spindle 23 is hollow, as ordinarily, and it and the whirl 26 are provided with registering slots 28 29, which may be brought into alinement with the slot 24 in the bearing. The upper end of the spindle is provided with the finger or projection 30 for intermittently engaging and drawing out the yarn and also with the yielding member 31, which extends across the slot 28 to hold the yarn against displacement. The end of the member is bent down, as at 32, to permit the yarn to be slipped thereunder when it is passed laterally into the spindle.

In order to stop the spindle and hold it

with the slot 28 registering with the slot 24, I pass into one of the bridges 25 a screw 33, which may be rotated to cause it to engage the driving-band for the whirl or the whirl itself in case the latter be driven from a band which does not encircle it.

The lower end of the twister-head may be formed in any convenient way. As shown in Figs. 1 and 2, it is cut away to provide a concave nib 34. Across the nib extends a finger 35, which coacts with the end thereof in gripping the yarn at a point relatively near the line of peripheral engagement of the drawing-rolls. The rear end of the support 20 is provided with one or more slots 36, through which a bolt 37 may be passed into the slot 14 of the arm 12. A nut and washer 38 39, respectively, are employed for coacting with the bolt in detachably securing the support 20 to the arm 12. The forwardly-projecting arm 11 is provided with two bearings 40 41, in which is journaled a shaft 42, which carries one of the drawing-rolls 43. This shaft is secured thereto, a bevel-wheel 44 intermeshing with and driven by a similar bevel-wheel 45 on the shaft 13. There are as many bevel-wheels on the said shaft 13 as there are pairs of drawing-rolls. On the same side of the machine to the arm 11 is secured a lateral arm 46, carrying a stud-shaft 47, upon which is journaled a hub or sleeve 48, with arms 49 49, which provide bearings for a shaft 50, parallel to the shaft 42. This shaft carries the drawing-roll 51, which is complementary to that at 43. The said shafts are provided with intermeshing gears 52 53, whereby the rotation of the shaft 42 is imparted to the shaft 50. From this construction it will be seen that the drawing-roll 51 rests against the roll 43, its engagement being effected by the intermeshing rotation of the gears 53 53, so that yarn is gripped with the proper degree of pressure, so as to draw it from the gripper. The roll 50, however, may be moved or swung bodily upward and laterally to leave a free space between the rolls, whereby the yarn may be moved in a direction parallel to the axes of said rolls, so as to insert it between them.

It is evident from this description that in order to engage the yarn with the drawing-rolls and twister-head the roll 51 is moved laterally to separate it from its complementary roll, and the spindle is stopped with its slot registering with the slot 24 in the bearing therefor. The yarn is then passed between the rolls and laterally into the slot in the spindle, being passed under the members 31 and 35.

In order to simultaneously stop the spindle and move the drawing-roll 51 to inoperative position, the bearing for the shaft 50 is connected by a chain or other flexible connection 54 with a pin 55 on the screw 33.

Consequently when said screw is rotated the chain is wrapped around the screw and the drawing-roll 51 is moved to inoperative position.

In Figs. 4 to 7, inclusive, the slotted spindle 23 is mounted in bearings 60 61, which are upon the ends of a bifurcated support 62. The said support is slidably mounted in a lug 63 on the arm 64. The arm 64 corresponds to the arm or support 20 in the apparatus shown in Figs. 1, 2, and 3. A helical spring 65 tends to hold the support 62 in an operative position, and in order to move said support against the tension of the spring I provide a rock-shaft 66, journaled in the support and having on one end a handle 67 and on the other end a cam 68 to engage the front face of the lug 63. By moving the handle from the position shown in Fig. 4 to the position shown in Fig. 7 the support 62 will be advanced or moved to inoperative position. The arm 64 is provided with an upright pin 69, on which is loosely journaled an idler-roll 70, having at its lower end a flange 71. The driving or power-transmitting device, which in this instance consists of a cord 72, passes around or against the idler, as clearly shown. Ordinarily with the handle 67 in its lowered position, as shown in Fig. 4, the spindle is held by the spring 65 yieldingly against the cord 72, whereby as the cord travels it causes the rotation of the spindle. By moving the handle upwardly to the position shown in Fig. 7, however, the spindle is moved into inoperative position out of contact with the driving-cord, and its rotation immediately ceases. The cam 68 in the illustrated embodiment of the invention consists of a pin which engages the face of the lug 63 when the handle is moved upward and cams or forces the bifurcated support 62 forward. It is evident that any other cam may be employed in lieu of the one shown.

There is a connection between the handle 67 and the bearing for the roll 48, this connection consisting of a rod or wire 75, attached to the bearing and also attached to a short arm 76 on the handle. By this construction the movement of the handle to upward position moves the roll away from its coacting roll at the same time that the spindle is carried to inoperative position.

The apparatus which I have described may be employed upon a machine illustrated in my copending application, Serial No. 65,818, filed June 24, 1901, to which reference may be had.

I claim—

1. A spinning or twisting machine having a twister-head, and lower drawing-rolls, with provisions whereby the yarn may be passed laterally into operative relation to said twister-head and said lower drawing-rolls.

2. A spinning or twisting machine having

a twister-head with provisions for the lateral insertion of the yarn, and drawing-rolls having separated bearings for permitting the lateral insertion of the yarn between said rolls.

5 3. A spinning or twisting machine having a slotted twister-spindle in combination with separable drawing-rolls arranged therebelow.

10 4. A spinning or twisting machine having a pair of peripherally-coacting drawing-rolls, intermeshing pinions carried by said rolls, and separated bearings for said rolls, the bearings of one roll being mounted in a swinging member of a laterally-arranged support, whereby

said rolls and pinions are held in engagement by gravity.

15 5. A spinning or twisting machine having separable drawing-rolls, a slotted twister-spindle, and means for simultaneously putting the said rolls and the said spindle out of action.

20 In testimony whereof I have affixed my signature in presence of two witnesses.

MALCOLM CAMPBELL.

Witnesses:

M. B. MAY,

E. BATCHELDER.