

No. 858,692.

PATENTED JULY 2, 1907.

E. M. WARING.
ELECTRIC CLOTH CUTTING MACHINE.

APPLICATION FILED AUG. 6, 1905.

2 SHEETS—SHEET 1.

Fig. 2

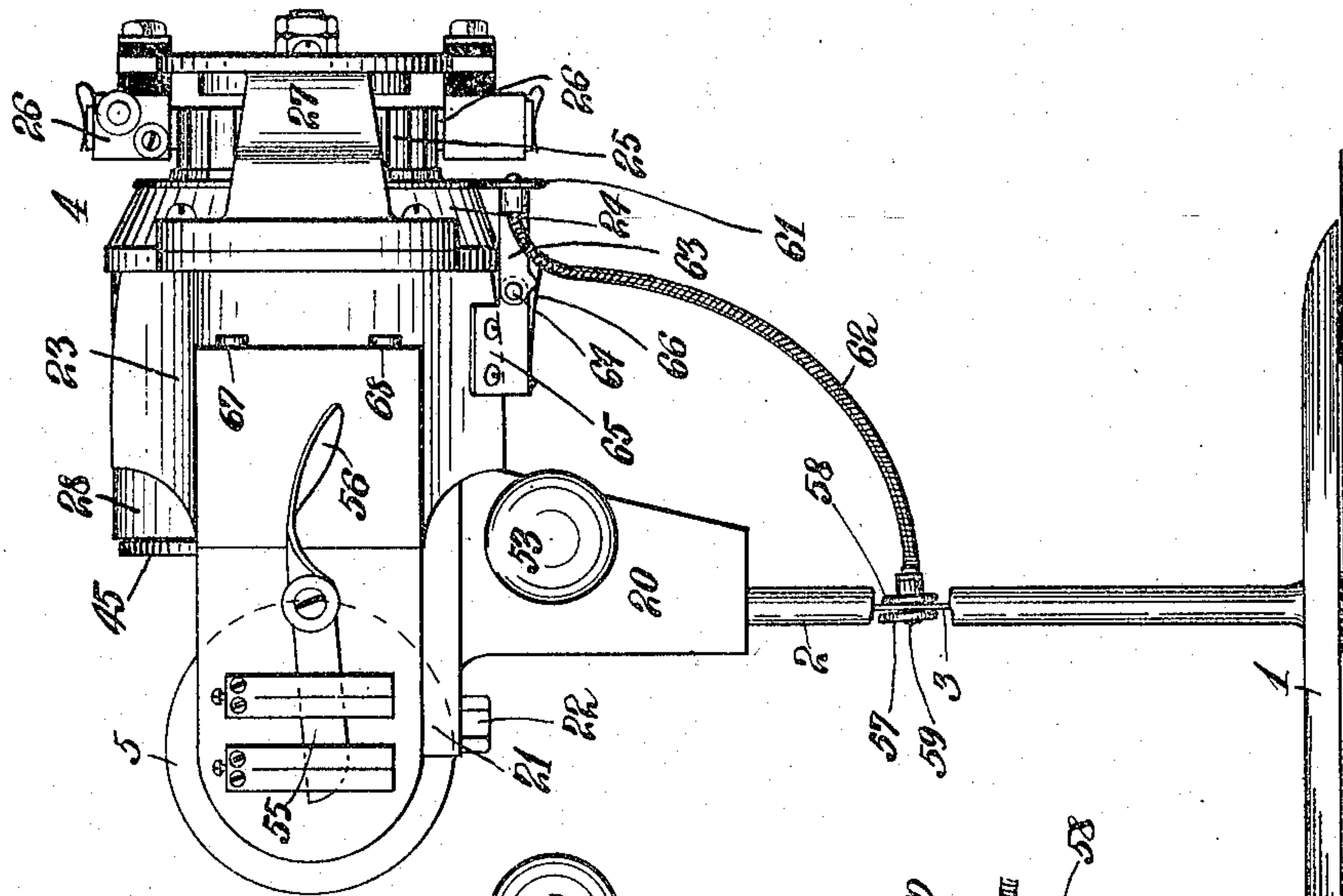
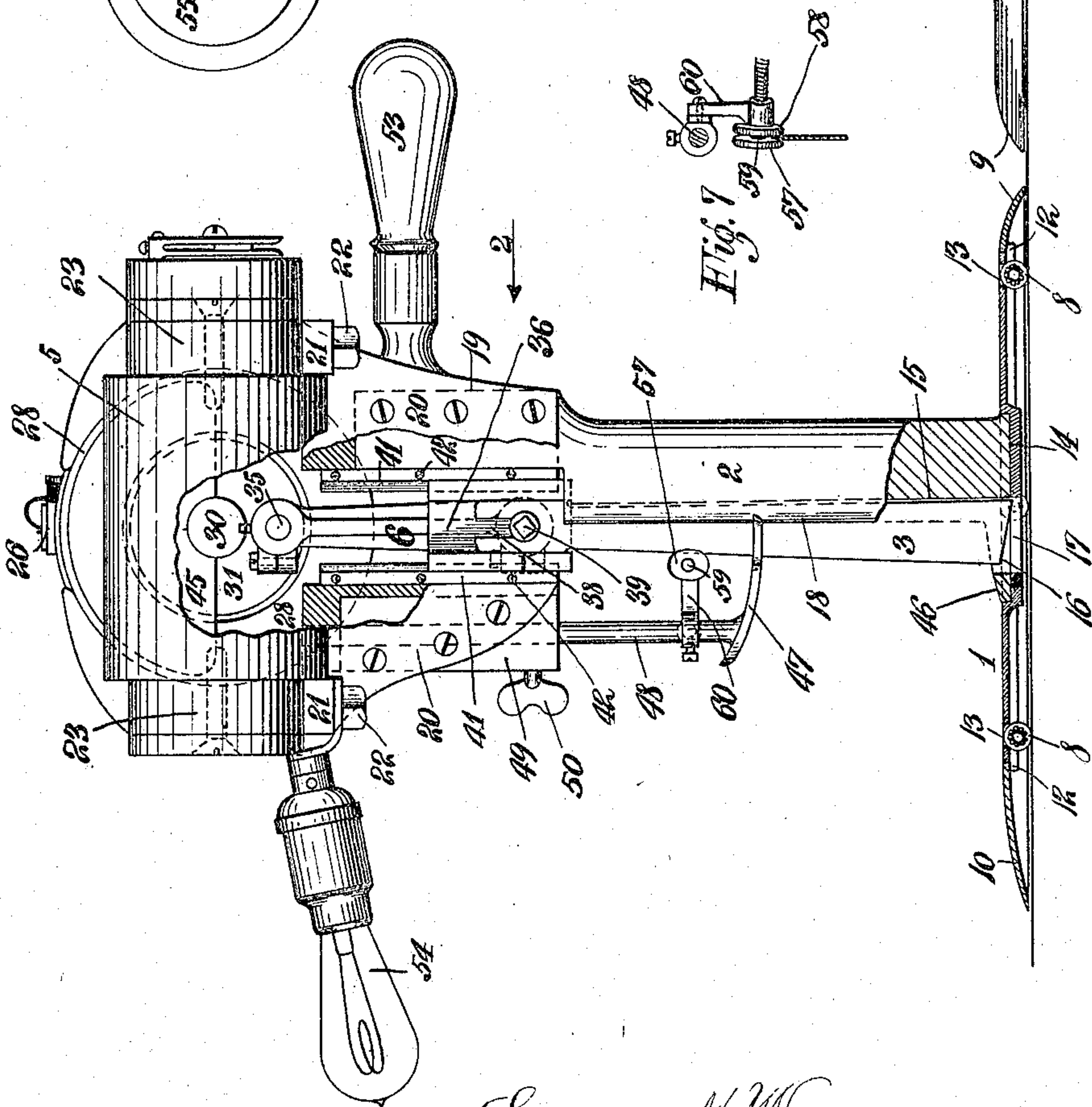


Fig. 1



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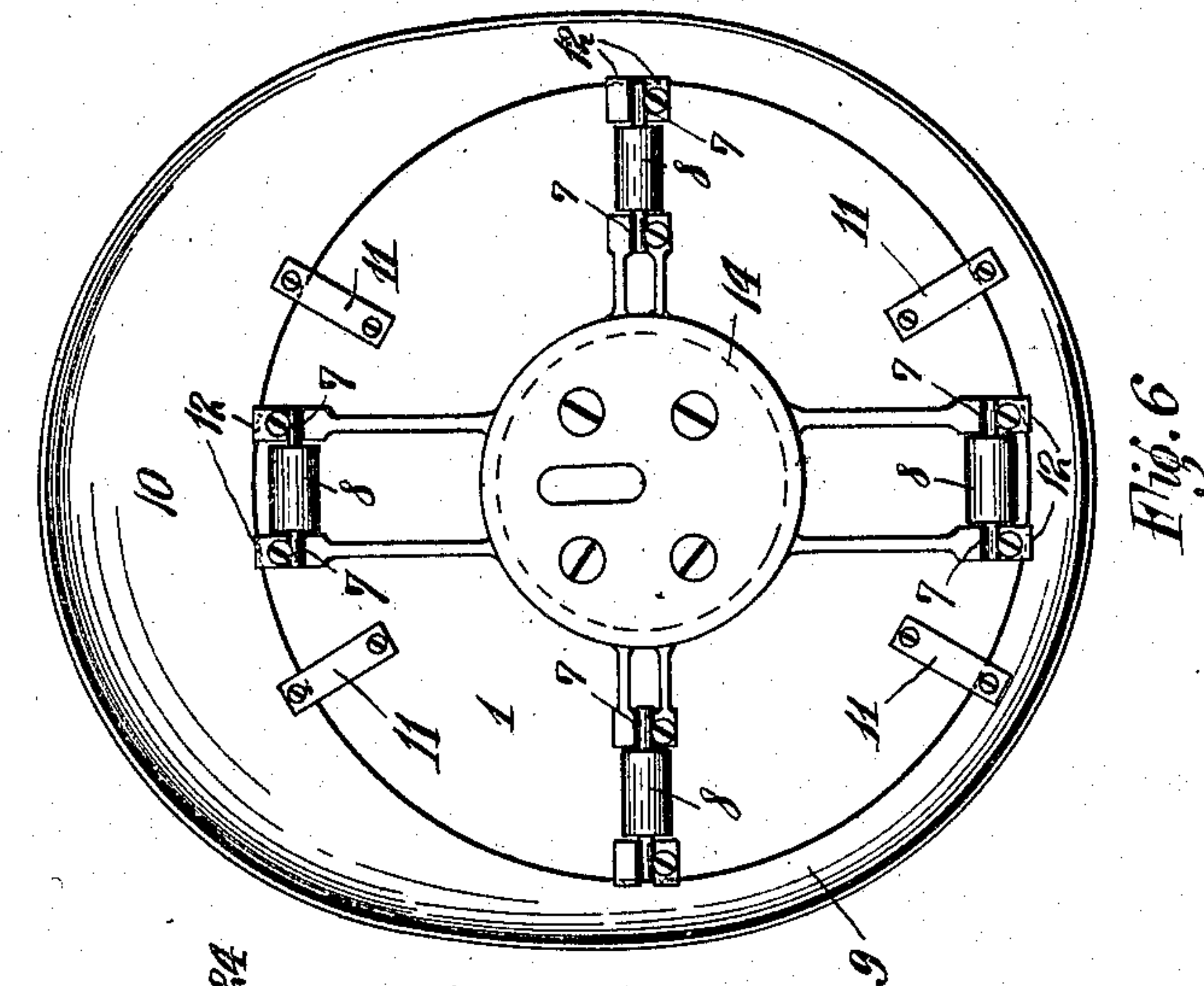


Fig. 6

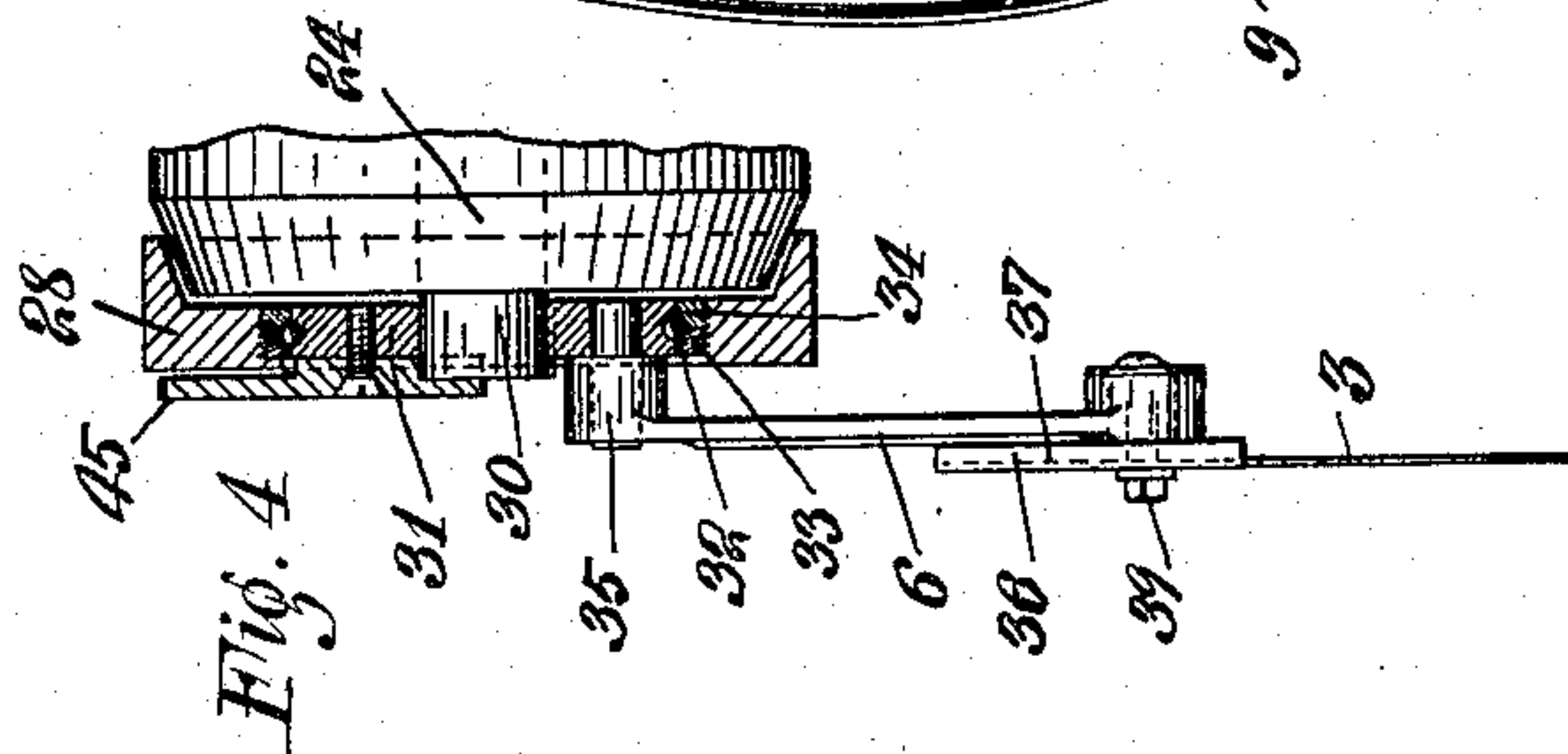


Fig. 4

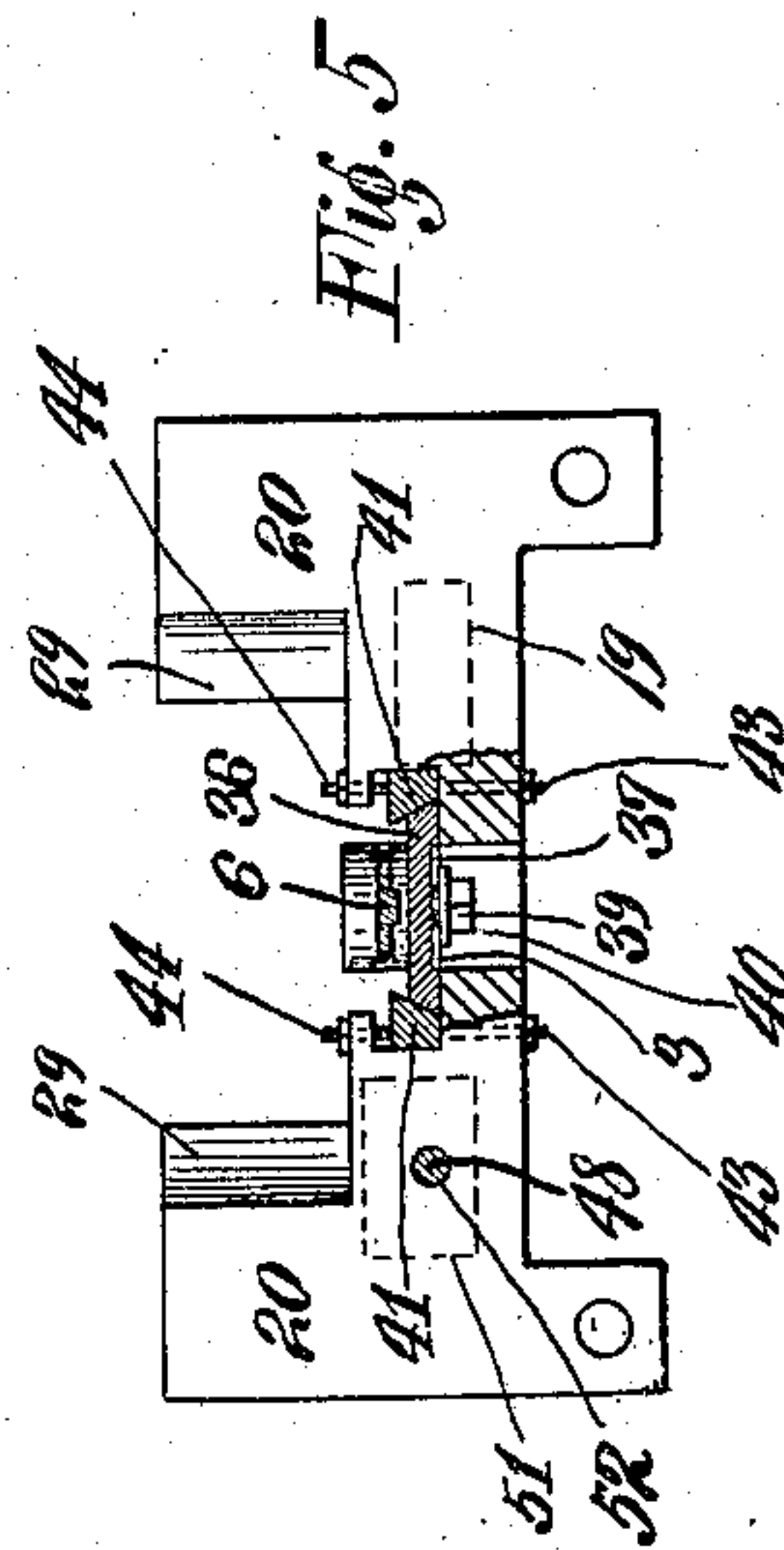


Fig. 5

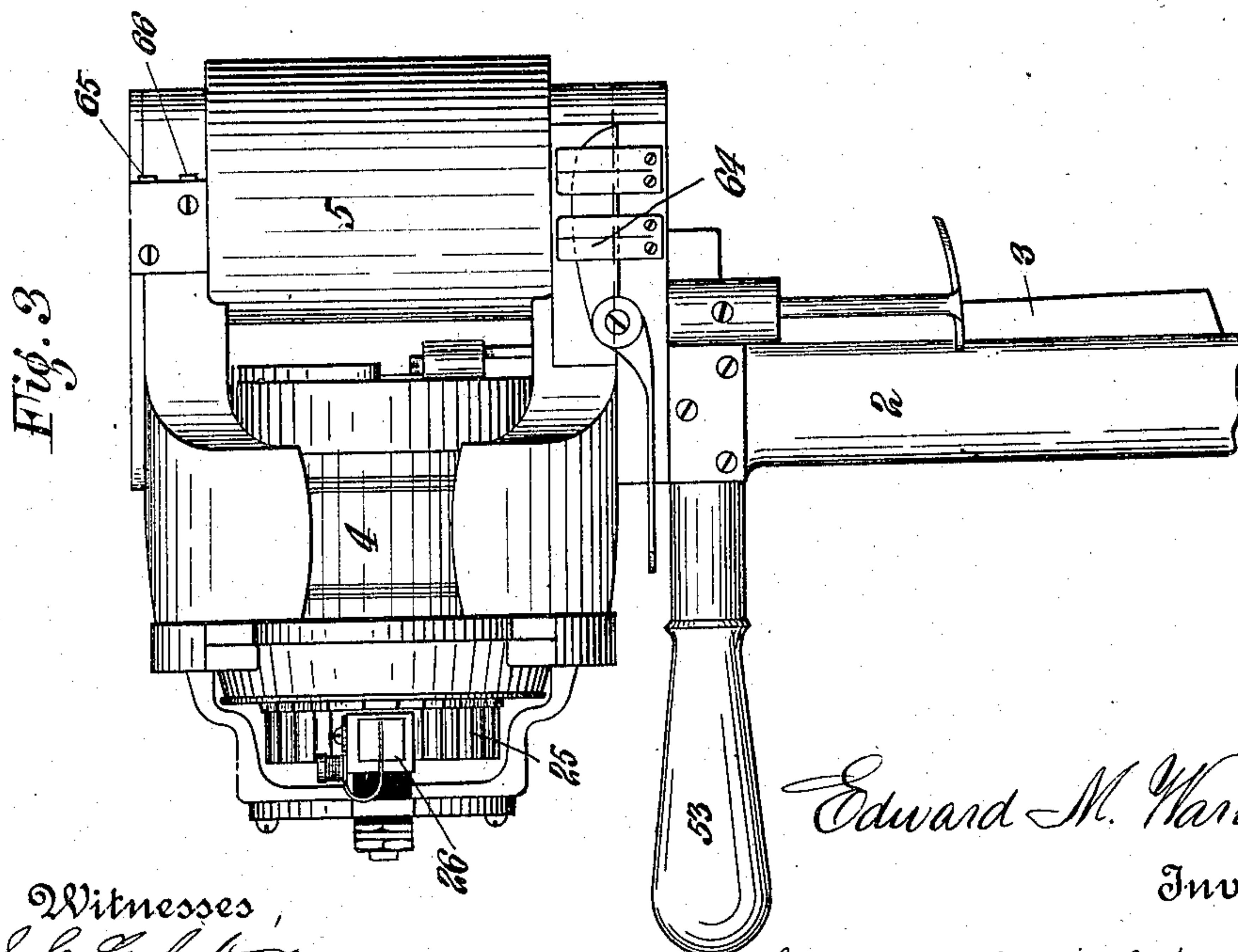


Fig. 3

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UNITED STATES PATENT OFFICE.

EDWARD M. WARING, OF NEW YORK, N. Y.

ELECTRIC CLOTH-CUTTING MACHINE.

No. 858,692.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed August 5, 1905. Serial No. 272,902.

To all whom it may concern:

Be it known that I, EDWARD M. WARING, a citizen of the United States of America, and a resident of the city of New York, county of Kings, and State of New York, in the borough of Brooklyn, have invented certain new and useful Improvements in Electric Cloth-Cutting Machines, of which the following is a specification.

This invention relates to electrically operated cloth cutting machines, and particularly to that class of said machines wherein the cutting is done by a reciprocating knife.

The objects of the invention are to render the machine easily operated, to simplify the number of parts, and to obtain a compact construction well balanced and of a symmetrical and attractive appearance. In order to accomplish these objects, the motor and its field coil are arranged on either side of the mechanism operating the reciprocating knife so that the center of gravity of the entire upper portion of the machine is approximately over the center of a column on which these upper parts rest. Furthermore by this arrangement of the driving mechanism interposed between the armature and the field coil, the machine is made symmetrical in appearance and the operator gets a full view of the edge of the knife when standing in an erect natural position. By this arrangement, a longer stroke of the knife is obtained, and the machine still kept within a desirable height.

Further valuable details in the construction and arrangement of parts will appear as the specification proceeds, and by reference to the accompanying drawings, in which like parts are referred to by like numerals in the several views of which

Figure 1 is a side elevation of a machine embodying my invention, partly broken away and partly in section. Fig. 2 is a view looking in the direction of arrow 2 in Fig. 1. Fig. 3 shows a modification of Fig. 1. Fig. 4 is a detail view, partly in section, of the connection between the motor and knife and adjacent parts. Fig. 5 is a detail view, partly in section, of the guides and adjacent parts. Fig. 6 is a bottom plan view of the base. Fig. 7 is a detail view of the means for sharpening the knife.

1 indicates the base, 2 the column upon which the machine is mounted, 3 the cutting member or knife, 4 the motor, and 5 the field coil of the same.

6 indicates the pitman connecting the motor and the knife.

The base 1 is in the shape of a thin circular plate provided with the pockets 7 for the reception of the ball bearing rollers 8 upon which it rests. In order to render the insertion of the base under the cloth easy and to prevent the edges of the same from catching, the base is surrounded by a supplemental frame 9 in which it is eccentrically located. This supplemental frame is preferably of oval contour and provided with a rounded

edge so as not to present any obstacle while being led under the cloth, and in order to "gather" the layers of the cloth more readily the greater width of this frame is in front as indicated at 10.

The connection between the base and the frame is formed by means of the flat springs 11, which are located radially from the center of the base, and as will be seen from Fig. 6, placed near the forward and rear parts of the same. This arrangement together with the fact that the base is of a slightly less diameter than the opening in the frame allows of a slight vibration of the base and the structure thereon, and as the frame barely touches the cutting table, but does not rest thereon, the "leading" of the machine is rendered very smooth and easy.

It will be observed that the ends 12 of the lugs forming the pockets 7 protrude under the edge of the frame, thus acting as stops for any upward movement of the base.

13 indicates openings for the friction rollers and 14 is a recess for the reception of the column 2, which is fastened to the base by means of screws.

The column supports the upper parts of the machine and acts as a guide for the knife 3, having a groove receiving the same. The lower part of the column is provided with a raised portion 46 to facilitate the cutting of the lowermost layers of cloth and an aperture 16 for the passage of the knife, to which corresponds the aperture 17 in the base, and is made as thin as practicable with its forward edges 18 beveled off to insure ready passage through the cloth.

The upper end of the column enters a recess 19 in the supporting bracket 20 to which it is screwed. The said bracket is provided with lugs as 21, through which pass the bolts 22 for the fastening of the pole pieces 23 of the field coil 5.

24 indicates the armature, 25 the commutator, 26 the brushes carried by the bracket 27, in which the one end of the motor shaft is journaled, while the other end to which the pitman 6 is connected is journaled in the yoke 28. The said yoke is carried by the pole pieces and the bracket 20 is provided with cut-out portions 29 (see Fig. 5) for the same.

I will now describe the connection between the motor and the knife, which is best seen in Figs. 1, 4 and 5.

To the armature shaft 30 is keyed the crank disk 31 forming the inner race way for the ball bearing 32, and carrying the counter weight 45, the outer race way being in two parts 33 and 34 and screwed into the stationary yoke 28. The one end of the pitman 6 is connected to the crank disk at 35, while the other end is connected to the cross head 36, which is provided with a recess 37 for the reception of the knife 3, which is adjustably connected to the cross head by means of slot and bolt 38 and 39. Fig. 5 shows an opening 40 in the bracket 20, through which the position of the knife

may be adjusted. The cross head moves vertically and is guided by means of the guides 41, which are held in position by pins 42 (see Fig. 1) and adjusted by means of the bolts 43 and 44.

5 The above described construction renders the reciprocating motion of the knife very smooth and noiseless, as is also the rotation of the crank disk by reason of the ball bearing. It will be noted that comparatively few parts are employed to accomplish the desired result.

10 Surrounding the knife and guided by the beveled forward edges of the column, is the pressure foot 47 for the pressing down of the cloth, the stem 48 of the said pressure foot passes through the block 49 and is vertically adjustable by means of the thumb-screw 50. The block 49 enters a recess 51 in bracket 20, which is provided with an aperture 52 for the passage of the stem 48.

20 53 is the handle of the machine and 54 a lamp for illuminating purposes. In close proximity to the said handle is located the switch 55, which, when closed, permits the current to pass to the motor and start the same. The current may be taken from any convenient source of power and the wires attached at 67, 68. The switch handle 56 is so located that the operator can readily close or open the switch with the hand grasping the handle.

30 In order to be able to sharpen the knife without removing it from the machine, I provide a sharpening means as the two abrasive wheels 57 and 58, one on each side of the knife mounted on the shaft 59 carried by the support 60, adjustably fastened on the stem of the pressure foot and adapted to be swung into and out of contact with the knife. The two wheels are set at an angle to the knife, and are rotated positively from the driving wheel 61, which, in turn, is rotated by friction with the armature. The shaft 59 is driven from the wheel 61 by means of the flexible shaft 62.

40 The friction wheel is carried by the arm 63 which is hinged at 64 to the bracket 65, a spring 66 on the said bracket normally keeping the wheel in contact with the armature. When it is desired to stop the abrasive wheels from rotating while the machine is in operation, the operator will turn the arm 63 down and out of frictional contact with the armature.

45 It will be noted that in the above described construction of a machine of this type, the upper parts of the machine take up but little space vertically, hence a longer stroke of the knife can be obtained and the machine still be kept within a desirable height. If, however, it is desired to decrease the width of the machine in order that the operator might get a better view of his work, and where a shorter stroke of the knife is permissible, the type of machine illustrated in Fig. 3 may be preferred. In this figure I have shown the motor and field coil turned at 90° from the position shown in Fig. 1, and 90° in the vertical plane, thus increasing the height of the machine and making it narrower in width. The number of parts in the machine
60 and their position in the structure is but little changed.

In this view 64 indicates the switch, while the current is led in at 65, 66; the base is not shown in this figure, neither is the sharpening device, as both of these elements are of the same construction as shown in Fig. 1.

It will of course be understood that while I have 65 shown and described a concrete construction of the machine, I do not wish to be understood as limiting myself to the exact structure shown, as changes may of course be made without departing from the spirit of the invention. 70

What is claimed is:

1. In an electric cutting machine, the combination of a vertically reciprocating knife, an electric motor having an armature and a field coil for driving said knife, abrasive wheels, means for driving the said abrasive wheels at 75 will by friction with the armature of said motor.

2. In an electric cutting machine, the combination of a base and vertical column with straight knife partly projecting therefrom, a pressure foot, abrasive wheels driven by a flexible shaft and adjustably carried by the said 80 pressure foot.

3. In an electric cutting machine, the combination of a base and vertical column arising therefrom, a straight knife partly projecting from said column, and a pressure foot vertically adjustable about said knife and column, 85 abrasive wheels adapted to sharpen said knife and vertically adjustable on said pressure foot.

4. In an electric cutting machine, the combination of a base and vertical column arising therefrom, a straight knife partly projecting from said column, a pressure foot 90 vertically adjustable about said knife and column, abrasive wheels adapted to sharpen said knife and vertically adjustable on said pressure foot, and means for driving said abrasive wheels at will.

5. In an electric cutting machine, the combination of a flat base and vertical standard arising therefrom, a motor, a vertical knife partly projecting from said standard, 95 abrasive wheels adapted to sharpen said knife, and a flexible shaft for driving the said abrasive wheels, receiving power from the said motor.

6. In an electric cutting machine, the combination with a circular base, an outer supplemental frame, the said base being located eccentrically in the said frame in the rear part of the same. 100

7. In an electric cutting machine, the combination with a circular base, an outer supplemental frame, the said base being located eccentrically in the said frame, toward the rear part of the same, yielding means connecting the said base and frame allowing of a slight vibration of the former, the said yielding means being located radially 110 near the forward and rear portions of the said base.

8. In an electric cutting machine, the combination with a circular base, an outer supplemental frame of oval contour, the said base being located eccentrically in the said frame in the rear part of the same, yielding means connecting the said base and frame in such manner as to 115 prevent the latter from touching the operating table.

9. In an electric cutting machine, the combination with a motor, a column supporting said motor, a circular base eccentrically located in an oval supplemental frame, having a centrally located recess for the reception of the said column, radially located springs on the said base connecting the same to the said supplemental frame in such a manner as to prevent the latter from touching the operating table, the said springs being located near the 120 forward and rear portions of the said base.

Signed at New York city this 4th day of August, 1905.

EDWARD M. WARING.

Witnesses:

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ANNA WISSEMAN.