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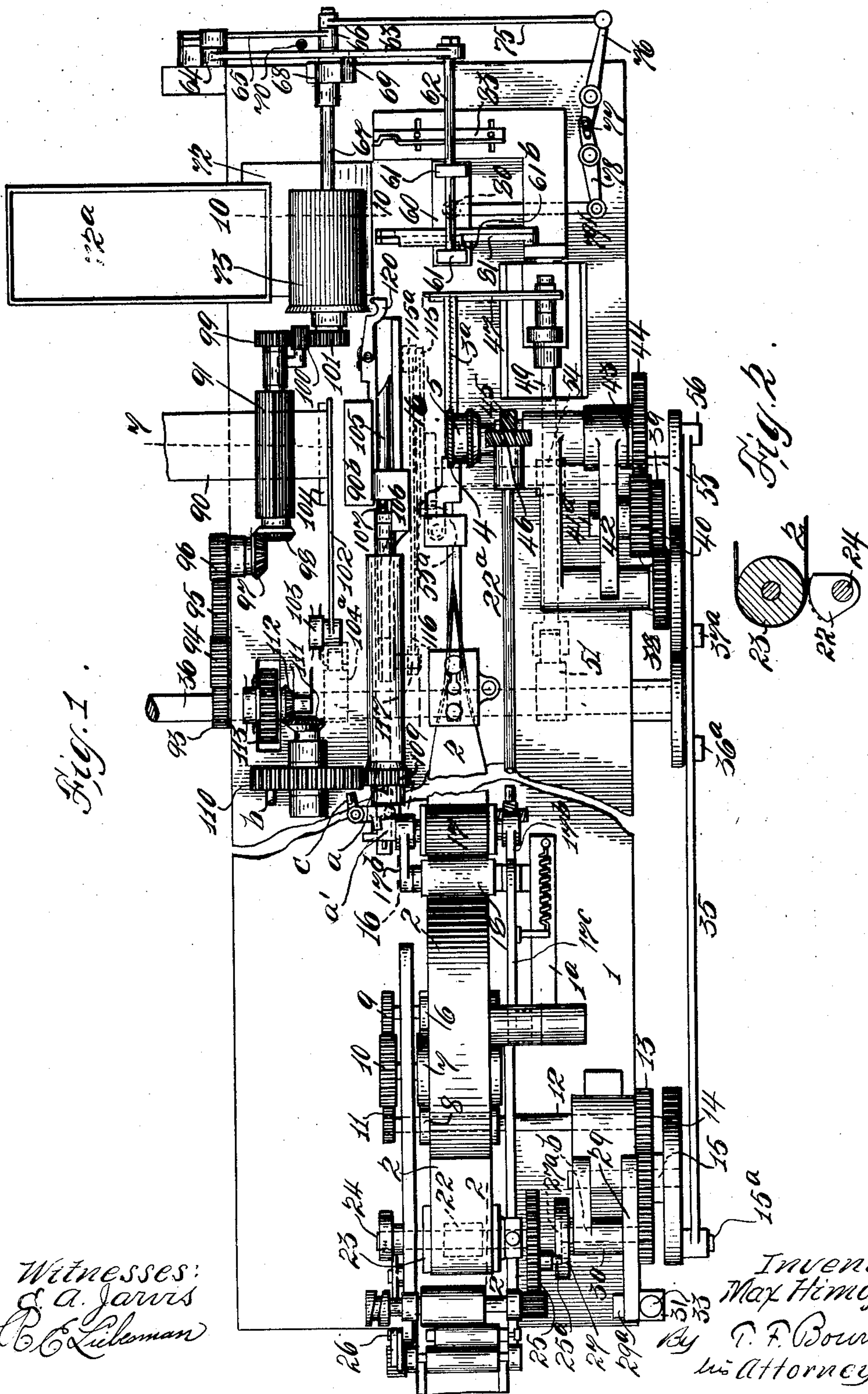
PATENTED AUG. 25, 1908.

M. HIMOFF.

MACHINE FOR MAKING MOUTHPIECE CIGARETTE TUBES.

APPLICATION FILED JAN. 8, 1906.

5 SHEETS—SHEET 1.



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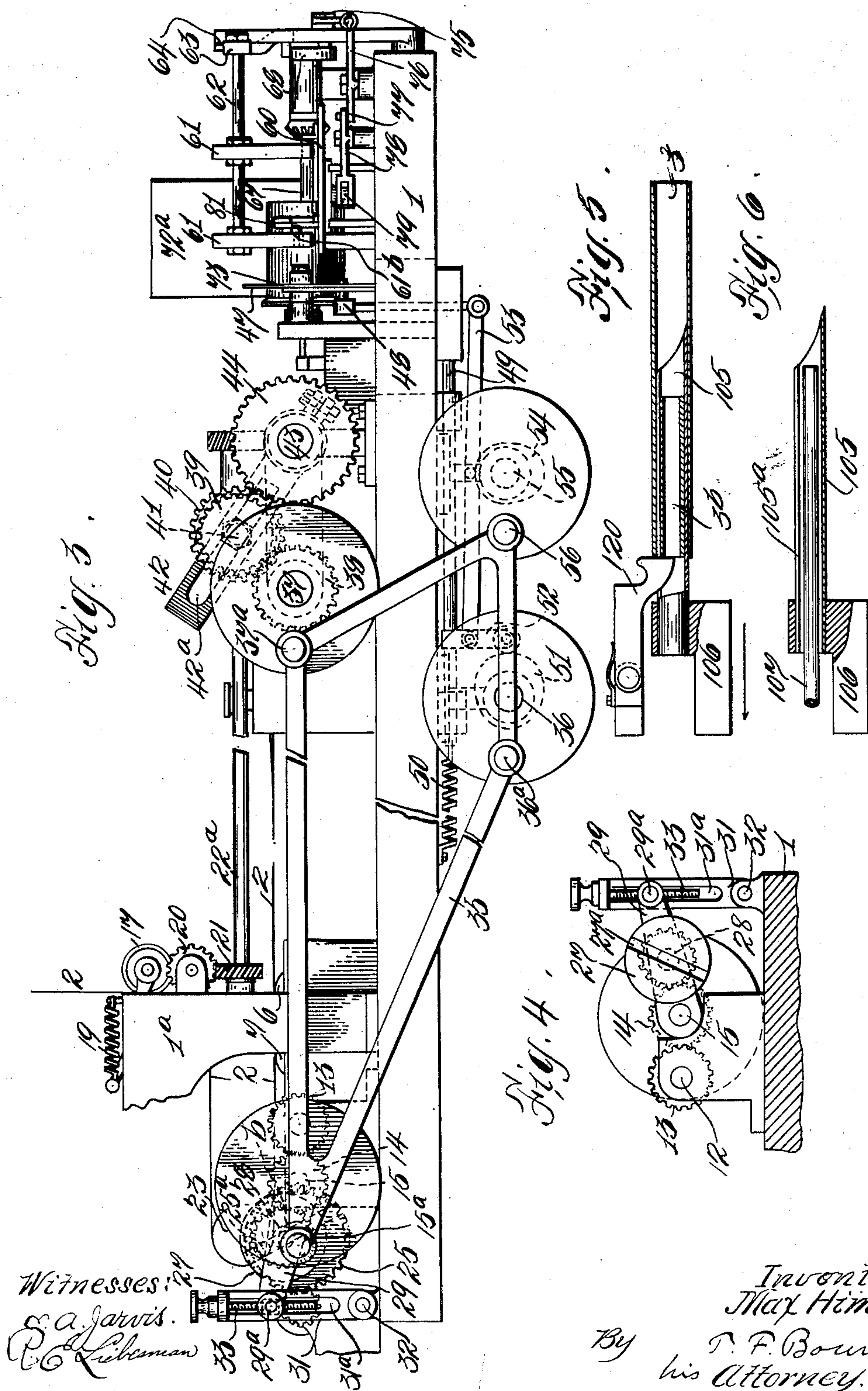
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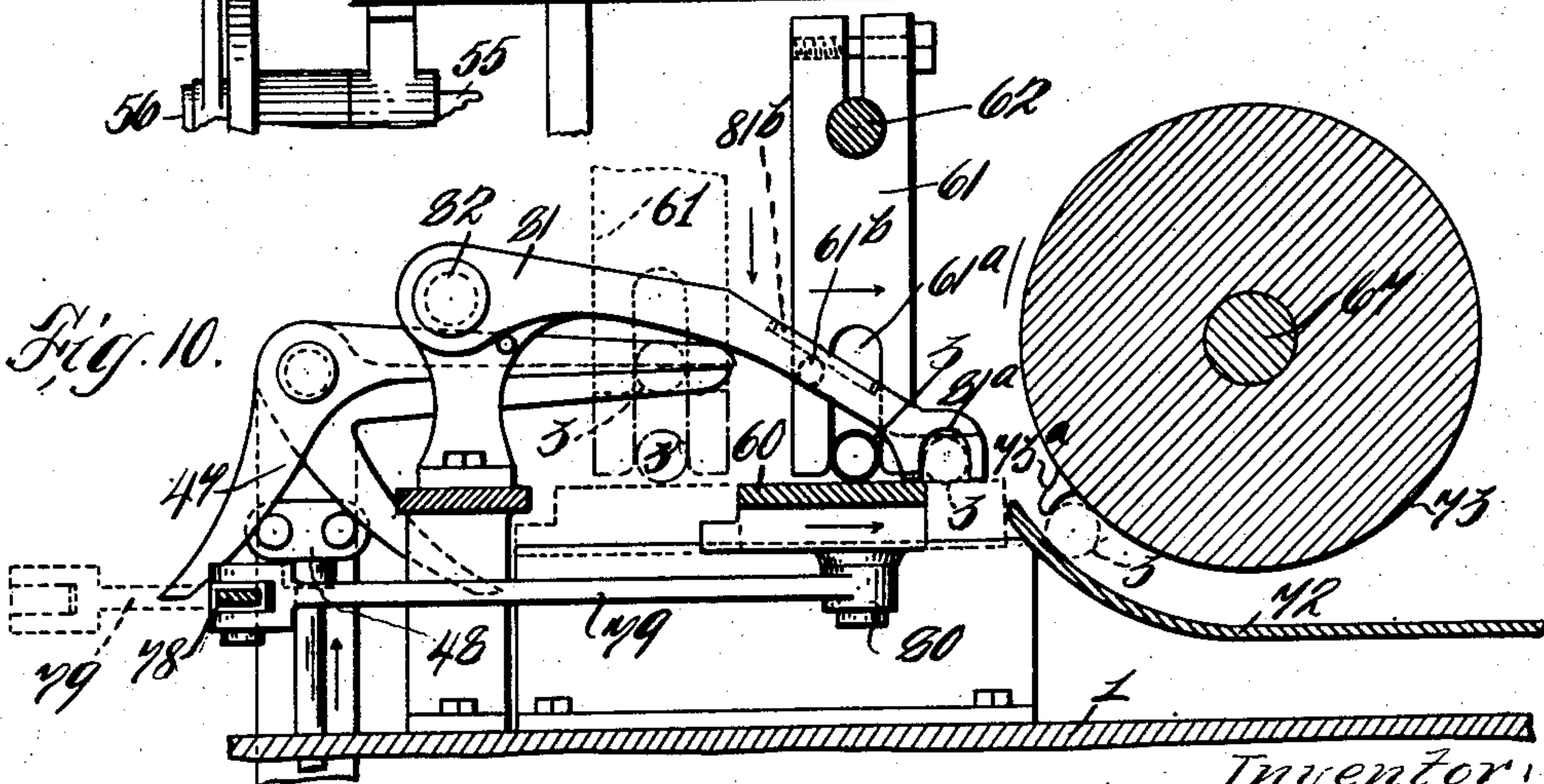
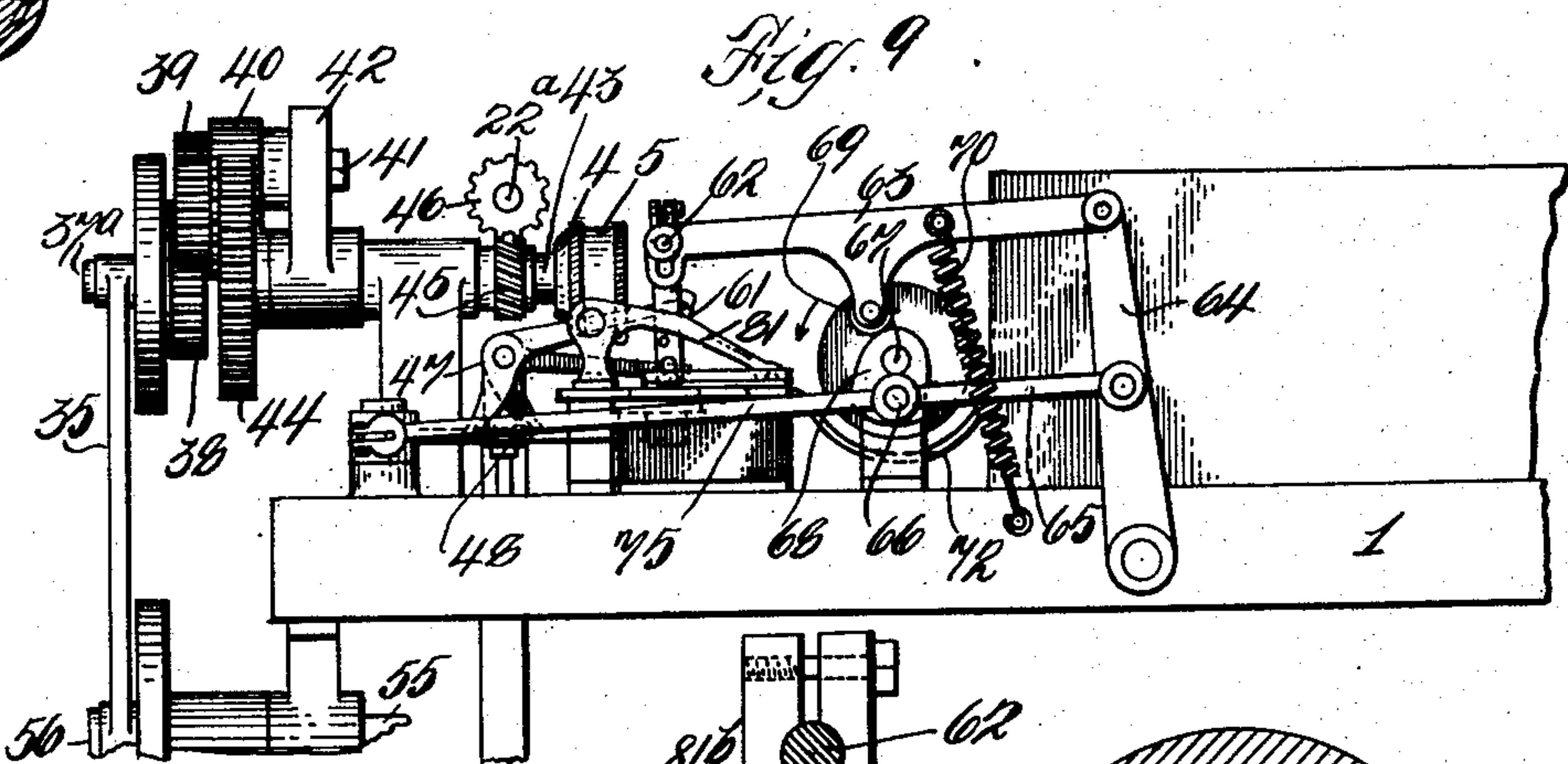
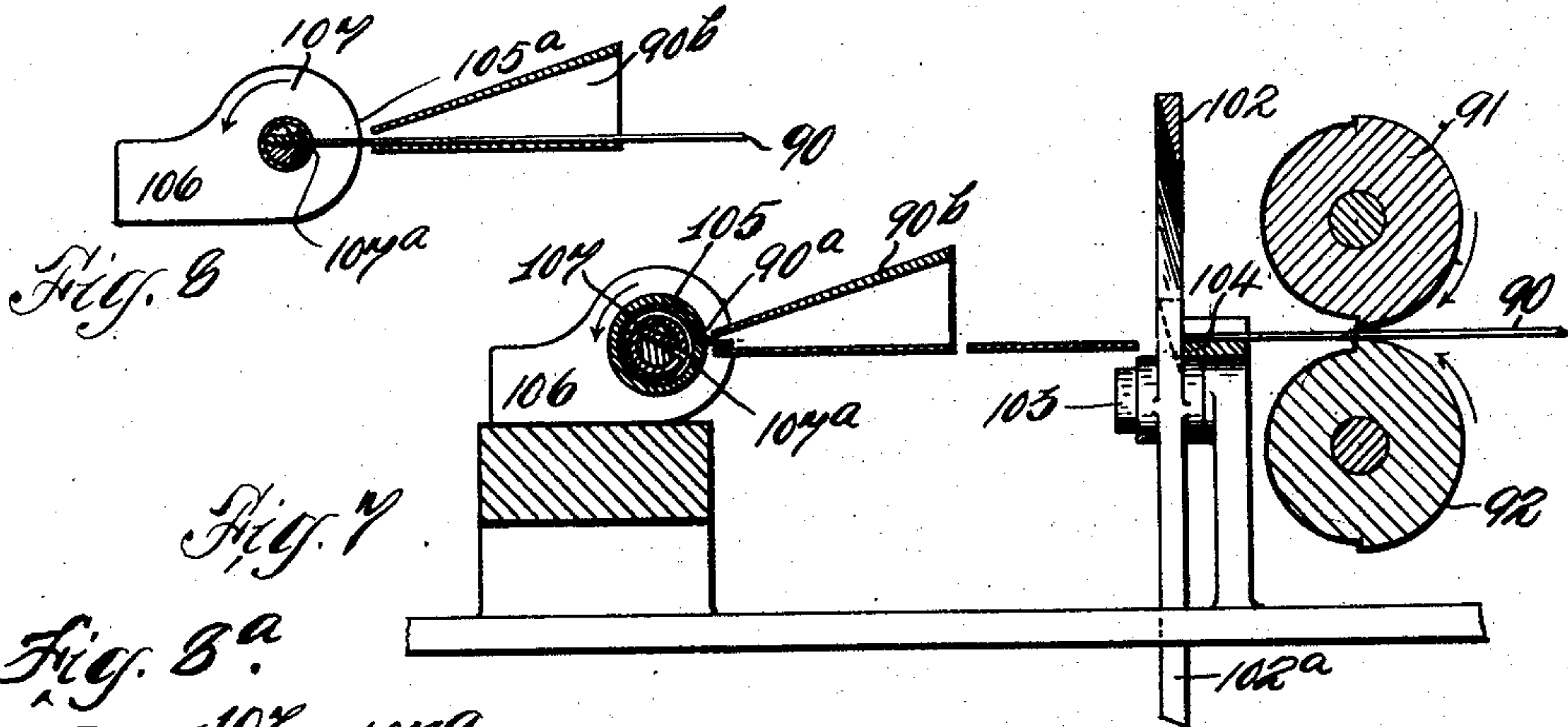
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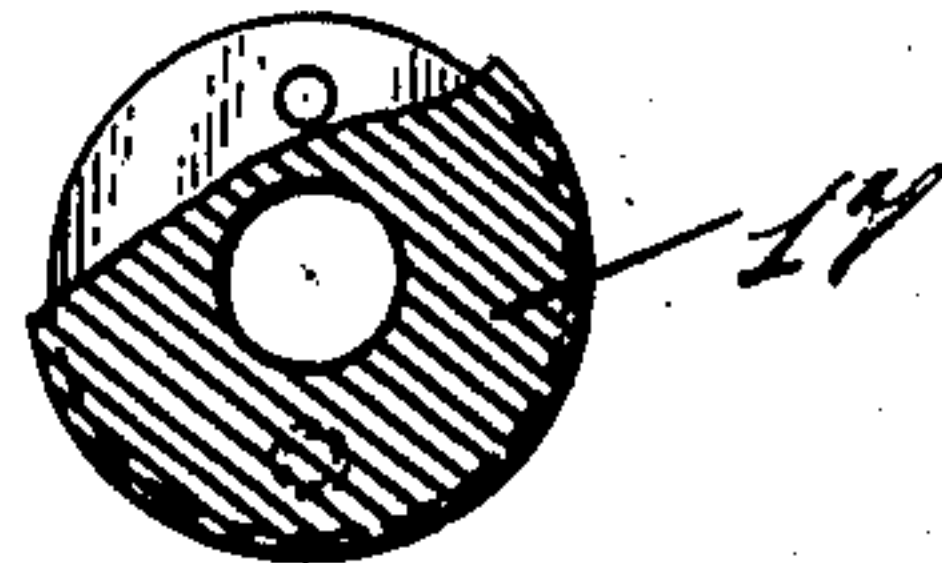
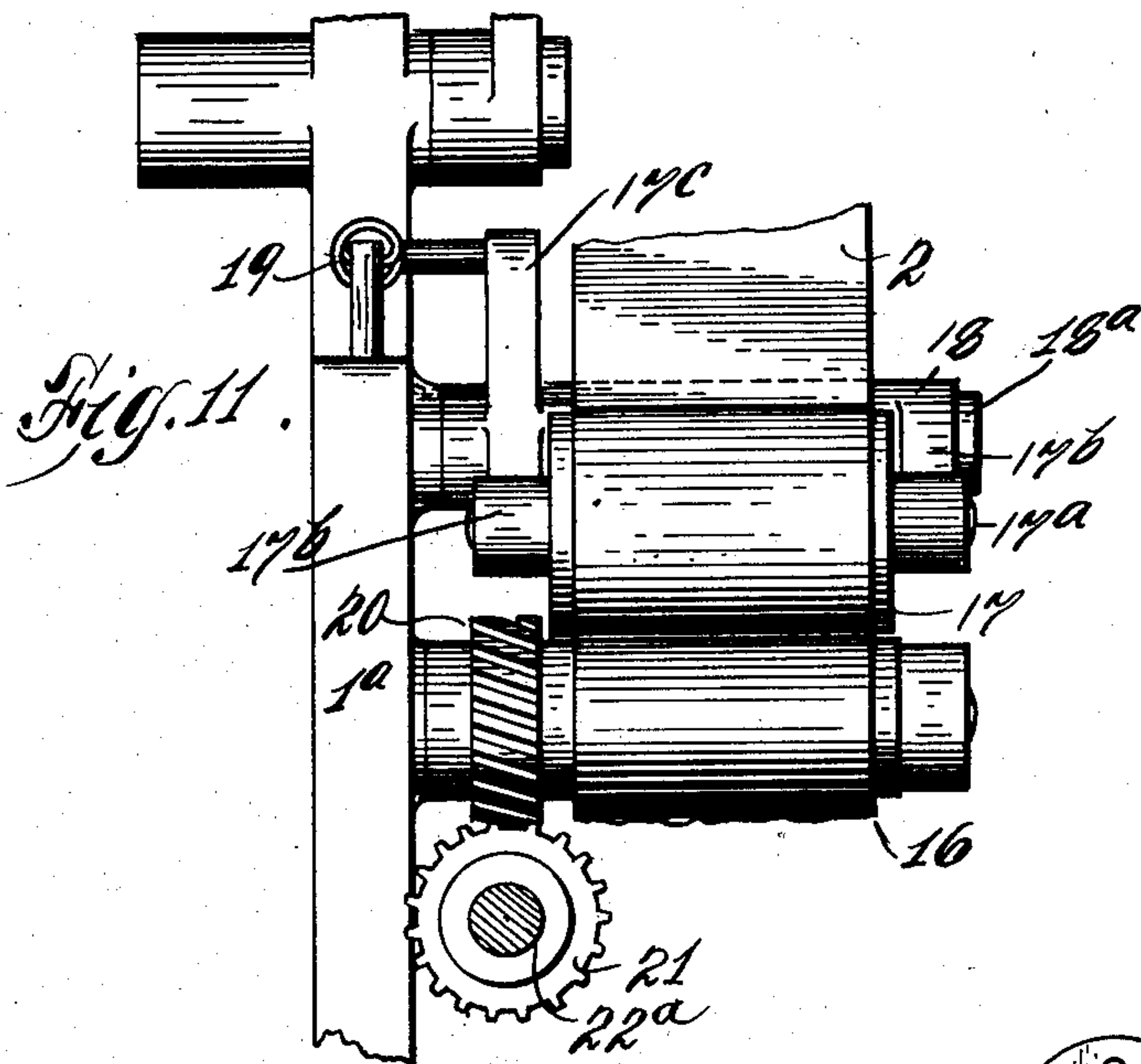
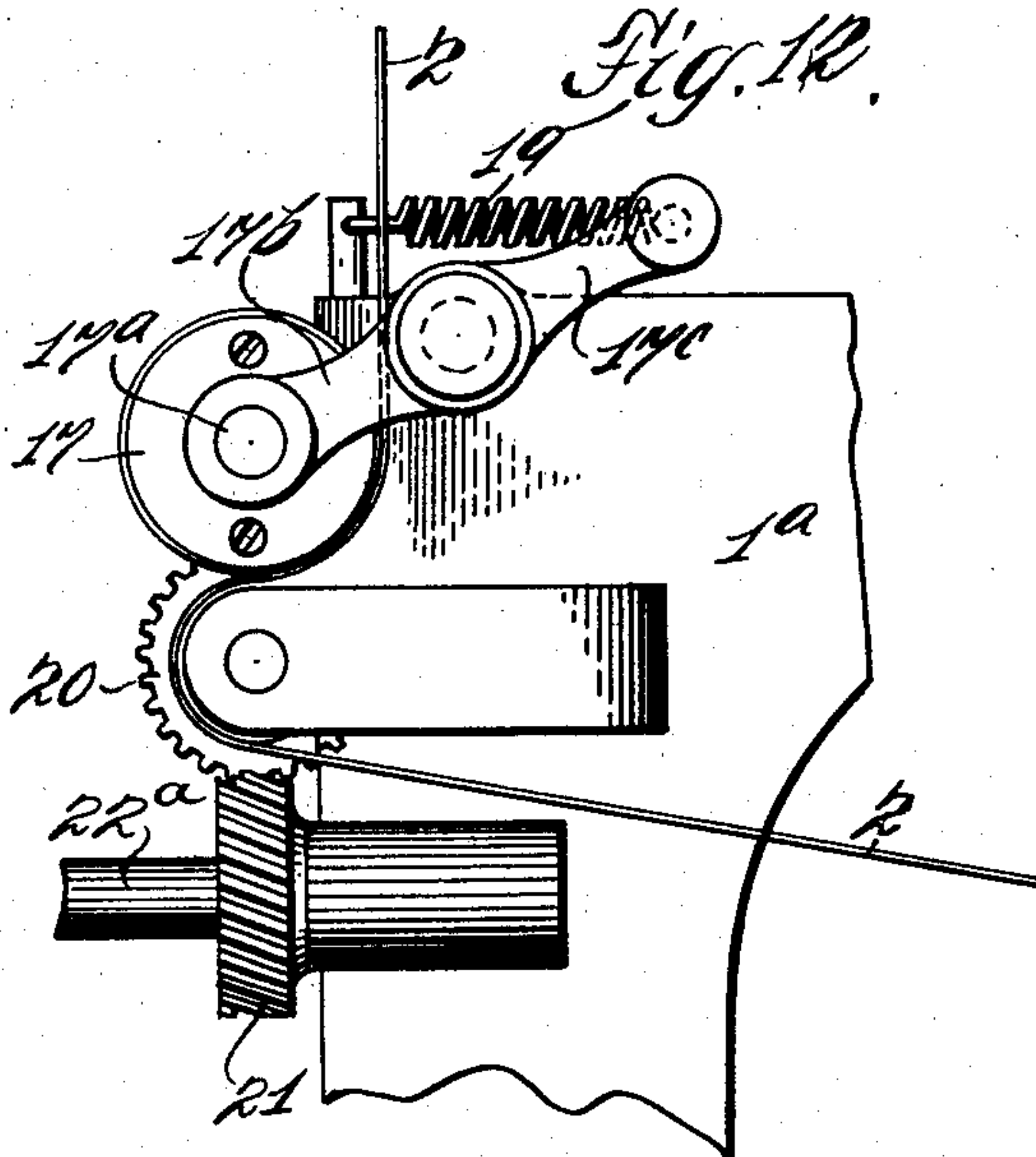


Fig. 15.



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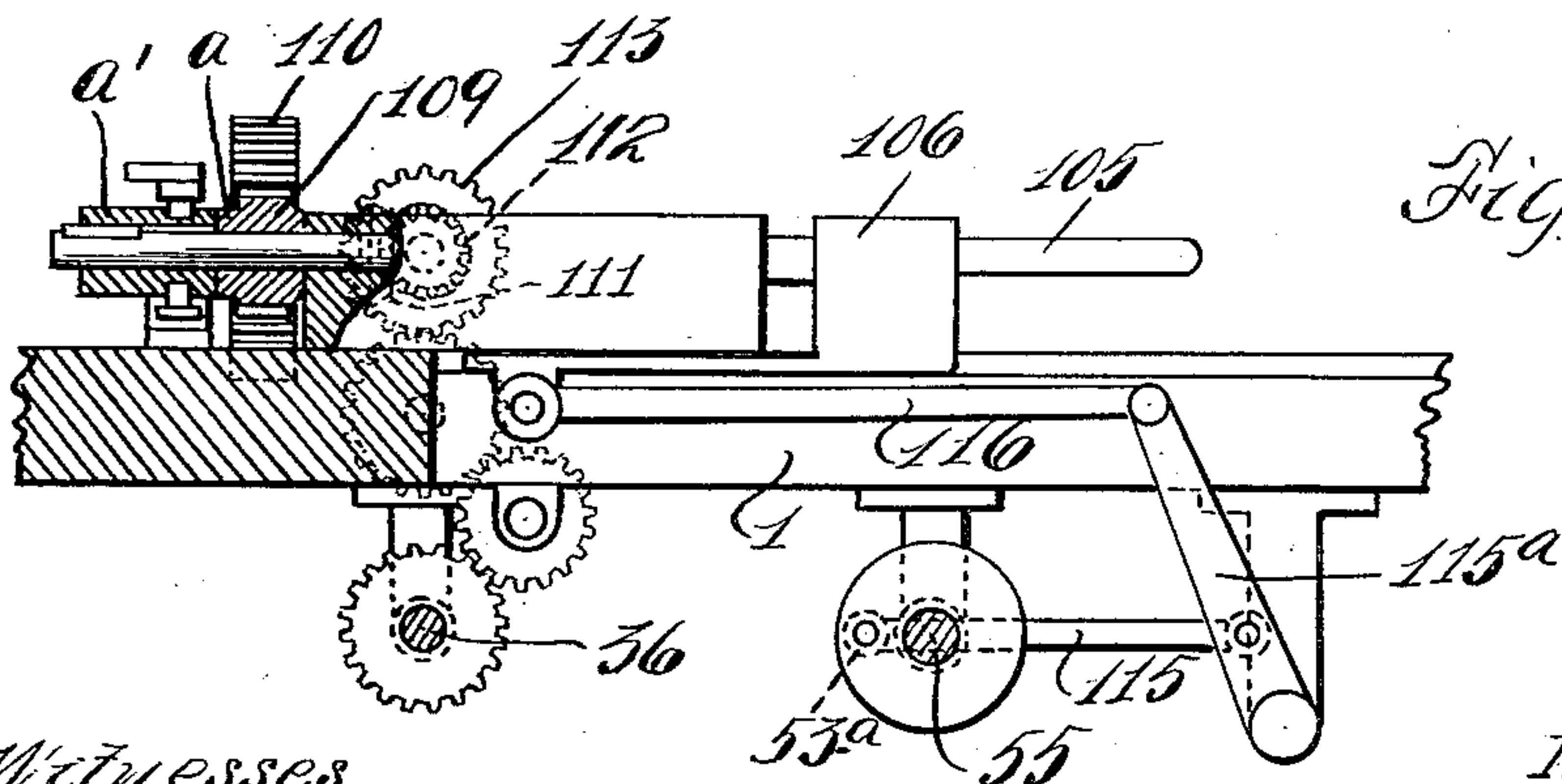
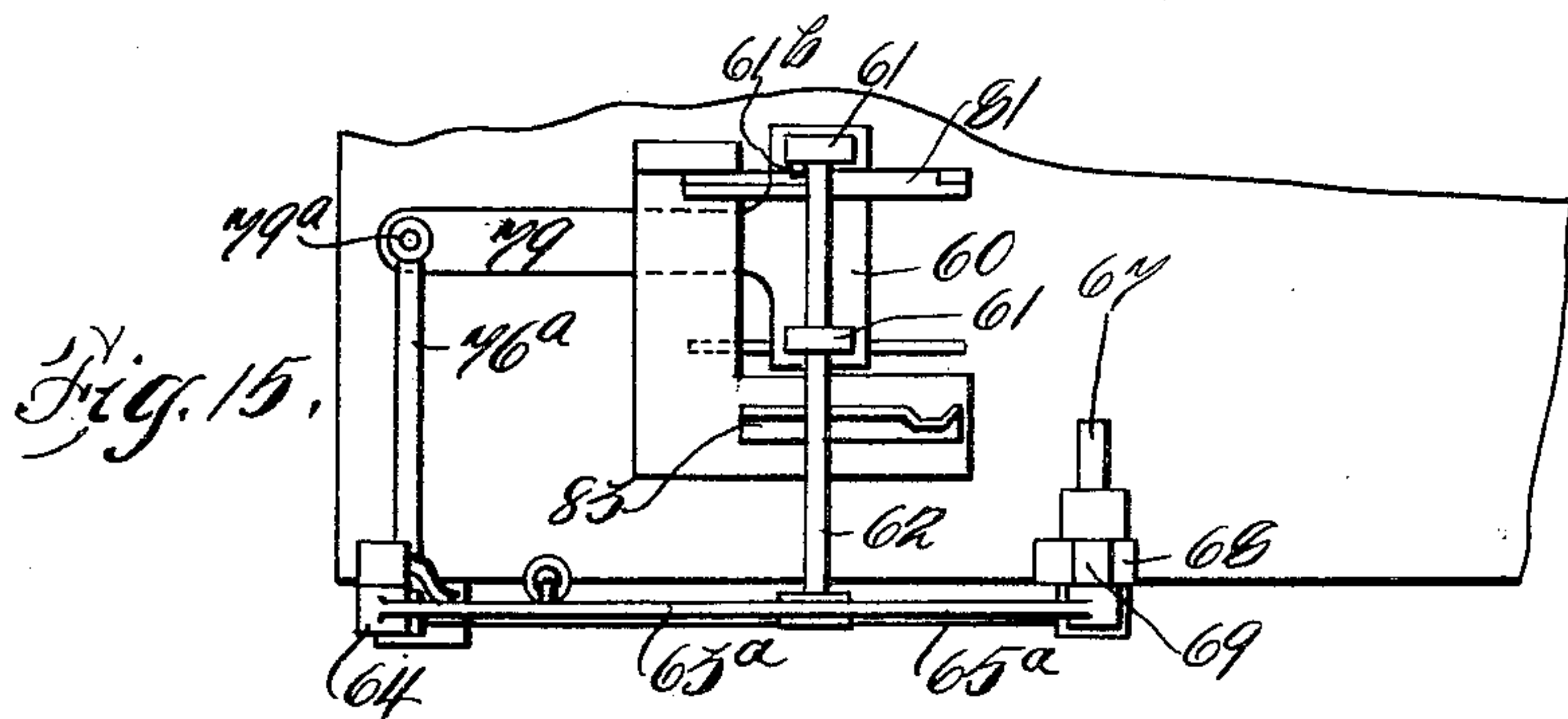
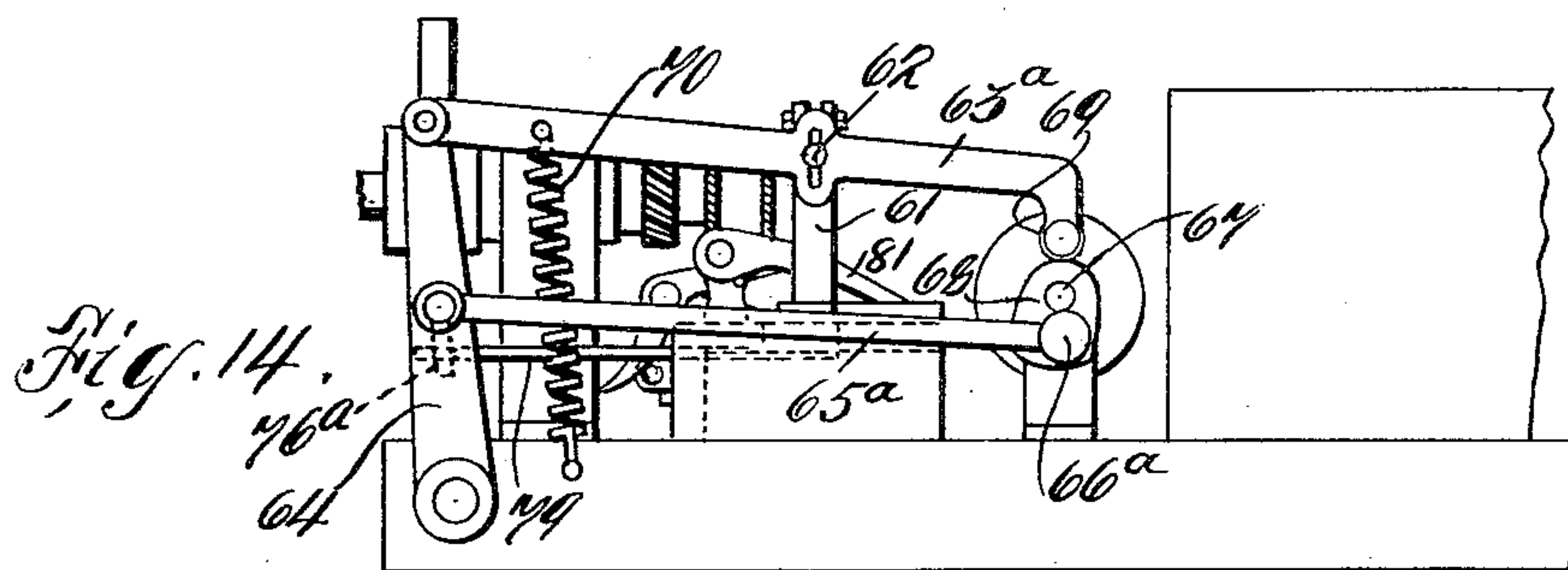
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MACHINE FOR MAKING MOUTHPIECE CIGARETTE TUBES.

APPLICATION FILED JAN. 8, 1906.

5 SHEETS—SHEET 5.



UNITED STATES PATENT OFFICE.

MAX HIMOFF, OF NEW YORK, N. Y., ASSIGNOR TO HIMOFF MACHINE COMPANY,
A CORPORATION OF NEW YORK.

MACHINE FOR MAKING MOUTHPIECE CIGARETTE-TUBES.

No. 896,911.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed January 8, 1906. Serial No. 295,014.

To all whom it may concern:

Be it known that I, MAX HIMOFF, a citizen of the United States, residing in New York city, borough of Manhattan, New York, have invented certain new and useful Improvements in Machines for Making Mouthpiece Cigarette-Tubes, of which the following is a specification.

My invention relates to machines for making paper tubes and inserting therein rolled paper mouthpieces, which tubes are to be charged with tobacco for cigarettes, and my invention contemplates the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein

Figure 1, is a plan view of a machine embodying my invention, Fig. 2, is a detail section on the line 2, 2, in Fig. 1, Fig. 3, is a side view of the machine, partly broken, Fig. 4, is a detached detail view of part of the printing mechanism, Fig. 5, is an enlarged detail sectional view of the devices for inserting the mouthpieces in the cigarette tubes, Fig. 6, is a detail sectional view of part of said devices, Fig. 7, is a cross section on the plane of the line 7 in Fig. 1, through the mouthpiece rolling devices, Fig. 8, is a detail view showing a different position of the devices for receiving a mouthpiece, Fig. 8^a indicates gripping devices for paper strip 90^a, Fig. 9, is an end view of the machine looking from the right in Fig. 1, Fig. 10, is a cross section on the plane of the line 10 in Fig. 1, Fig. 11, is an enlarged detail view of devices for feeding the paper for the tubes, Fig. 12, is a side view thereof, Fig. 13, is a detail of a paper feeding roll, Fig. 14, is an end view, Fig. 15, is a plan view, showing modified means for operating support 60 and fingers 61, and Fig. 16, is a detail of parts 53^a, 115, 115^a, etc.

Similar numerals of reference indicate corresponding parts in the several views.

In the drawings the numeral 1 indicates a suitable frame or table carrying the mechanism described below.

2 indicates a suitable paper strip for making the cigarette tubes 3, mechanism for forming said paper strip into tubular form by means of a lock-seam being indicated generally at 4, 5, which mechanism may be of

any suitable or well known construction operated in any suitable manner, 5 indicating the crimping wheel of said mechanism. The paper strip 2 is taken from a reel supported in any well known manner, and is carried around guiding and feeding rollers for directing the strip to the tube forming devices 4, 5, and when desired across bronzing devices. In the example illustrated the bronzing rolls are indicated at 6, 7, 8, operated by gears 9, 10, 11, the shaft 12 of gear 11, having a gear 13 that meshes with a gear 14, on a shaft 15, for operating said rolls at the proper speed, and the feeding rolls for strip 2 are shown at 16, 17, 18 mounted upon suitable shafts carried upon a support 1^a. The shaft 17^a of roll 17 is shown carried by lever arms 17^b, supported to rock upon shaft 18^a, an arm 17^c connected by a spring 19 with support 1^a serving to hold roll 17 upon the strip 2 under the desired tension.

Under certain atmospheric conditions the paper strip 2 when in contact with metal rolls adheres thereto, the effect of which is to prevent a proper free travel of the paper strip to the tube forming devices, and in order to counteract such tendency of the paper to adhere to its roll I make the roll 17, or its surface part that engages the paper strip, of non-magnetic material, such as fiber, wood, or the like, so that when the paper strip engages such roll its quality to adhere to metal will be destroyed, whereby the paper 2 in its passage to the tube forming devices, from roll 17, will not adhere to any interposed metal rolls. A gear 20 connected with roll 16 and meshing with a gear 21 on a shaft 22^a rotates roll 16 for drawing the paper strip 2 from its reel to take strain from the seam crimping roll 5 in drawing the strip through the tube forming devices, which may be of well known form adapted to form a lock-seam tube.

I have shown means for printing words or the like upon the paper strip for each cigarette tube, and the die or type 22 that co-acts with the roll 23 over which the paper strip 2 passes, is carried by a shaft 24 that has a gear 25 for operating the inking devices 26, of any well known construction (see Figs. 1, 2). As tubes 3, for cigarettes may be made of different lengths on my machine, means are provided for regulating the space between

impressions of the die 22 on the paper strip according to the lengths of cigarettes desired, and as the paper strip 2 will be drawn faster through the forming devices 4, 5, for a long tube 3 than for a shorter tube, the movement of the die 22 while in contact with strip 2 must be varied correspondingly. To this end I provide a disk 27 having a groove 27^a across its center, said disk being mounted upon a shaft 28 that is carried by a swinging arm or frame 29, shown journaled upon shaft 15, the shaft 28 having a gear 30 that meshes with gear 14 so that disk 27 will be rotated with the inking, printing, bronzing and paper strip feeding rolls. Gear 25 carries a pin 25^a that works in the groove 27^a of disk 27 (see Fig. 1) so that as said disk rotates the parts 22, 23, 24, 25, and 26 will be rotated thereby. The arm or frame 29, is adjustable to vary the position of pin 25^a in groove 27^a of disk 27, and for this purpose I have shown the arm 29 provided with a nut 29^a located in a slot 31^a in an arm 31 pivotally supported upon table 1, as at 32, the arm 31 carrying a screw 33 that receives nut 29^a. By rotating screw 33, the arm or frame 29 will be adjusted up or down, the pivoted arm 31 allowing for such adjustment, and thereby the disk 27 will be adjusted more or less across the plane of the axis of shaft 24, and thereby the time of contact of die 22 with the paper strip 2 can be regulated according to the speed of travel of said paper strip and corresponding with such speed, so that the strip will not drag across the surface of the die, whereby proper printing of the die upon the paper strip can be effected, caused by the eccentric relation of shaft 30 to shaft 24.

Shaft 15 has a crank pin 15^a from which a connecting rod 35 extends, which rod is connected with a crank pin 36^a on a driving shaft 36 journaled upon table 1, whereby shaft 15 and the parts connected therewith are rotated.

The paper feeding rolls and the printing and bronzing devices should work in speed relation to the tube forming devices 4, 5, and to this end I connect the rod 35 with a crank pin 37^a carried by a shaft 37 having a gear 38 that meshes with a gear 39 connected with a gear 40, both carried by a shaft 41 supported by an arm 42, that is mounted upon a shaft 43 having a gear 44 meshing with gear 40, the shaft 43 carrying the crimping roll 5. Shaft 41 is adjustable in a slot 42^a in arm 42 and held in position by nut 41^a, whereby the gears 39 and 40 may be changed as required for changing the speed of rotation of crimping wheel 5 with respect to the desired speed of the paper feeding rolls and the printing devices, shaft 43 having a gear 45 that meshes with a gear 46 on shaft 22^a to drive the rolls 16, 17, 18 at the proper relative speed.

The continuously formed tube for the cigarette as it passes from the forming rolls

4, 5 is to be cut off to the proper lengths for the cigarettes, which may be done by a pair of scissors 47 having suitable actuating devices 48 constructed and operated in any well known manner. Said scissors are shown carried by a reciprocative shaft 49 guided in bearings on table 1, and moved back and forth by a spring 50 co-acting with a cam 51 on shaft 36 acting on an arm 52 carried by shaft 49, a link 53 connected with arm 52 and with the scissors operating devices 48, and rocked by a cam 54, causing said scissors to be reciprocated and opened and closed as required to cut off the paper tube into lengths for cigarette tubes 3. The cam 54 is carried by a shaft 55, suitably journaled on table 1 and connected by a crank 56 with connecting rod 35 for operation in proper relation to the devices previously described.

The paper tubes 3 as they are cut off by the scissors 47 are to be brought and held in alinement with devices that form rolled-paper mouthpieces and insert them in the tubes 3. It is desirable that the outer ends or edges of the rolled paper mouthpieces should terminate under or close to the seam 3^a of the cigarette tubes, 3 so as not to cut through the cigarette tube or raise a ridge, particularly beneath the printing upon the tube. One of the features of my invention comprises means for receiving the paper tube cut off by the scissors 47 and carrying such tubes without rolling or rotating them into alinement with the mouthpiece forming devices so as to assure that the outer end of the mouthpiece, when it unrolls within the tube 3 will, with substantial uniformity, terminate adjacent to the seam 3^a of the tube 3. To this end I provide a reciprocatory support or carrier 60, which in one position rests under the tube projecting from the scissors 47, and receives the tube when cut off by said scissors, and in another position will hold the tube in line with the mouthpiece forming and inserting devices. The tube support or carrier 60 is mounted upon table 1, or in suitable guides, to reciprocate transversely with respect to the tube passing from the tube forming devices, and to hold the tube 3 upon support 60 while the tube is being carried from the scissors to alinement with the mouthpiece forming and inserting devices, I provide a pair of fingers 61, carried by a rod 62 that is given a to-and-fro and an up-and-down, or over stepping, motion, the fingers 61 having slots or recesses 61^a at the ends to receive the tube 3 (see Fig. 10). The rod 62 is carried by an arm 63 connected with a rock-arm 64, pivoted upon table 1 and connected by a link 65 with a crank 66 on a shaft 67 journaled on table 1, rotated by suitable means, and arm 63 is actuated up and down by a cam 68 shown engaging a roller 69, a spring 70, connected with arm 63 and with table 1, acting with said cam. Thus,

as shaft 67 rotates in the direction of the arrow in Fig. 9, arm 63 will be lifted and simultaneously moved to the left to cause fingers 61 to pass over the tube projecting from scissors 47 and down over table 60, and then will be moved to the right conjointly with table 60 to hold the tube 3 in line with the mouthpiece forming and inserting devices until the mouthpiece has been inserted in the tube, whereupon the fingers 61 will rise and release the mouthpiece which will thereupon pass to a way or guide 72. Drum 73 on shaft 67 having fingers 73^a then engages the tube 3 and causes it to feed into the way or a receptacle 72.

To cause the support 60 to reciprocate conjointly with the fingers 61, I have shown a rod 75 connected with crank 66 and with a rock arm 76 pivoted upon table 1, and pivotally connected, as by a pin and slot connection 77, with a rock arm 78 that is pivotally connected with a rod or extension 79 that is shown pivotally connected, as at 80, with the support 60, (see Fig. 1), the relation of these parts being such that the support 60 and fingers 61 will move uniformly back and forth while the fingers 61 also have an up-and-down or over-stepping motion with respect to support 60.

At 81 is an arm pivotally supported upon table 1, as at 82, and provided with a recess 81^a in its free end (see Fig. 10) adapted to receive the cigarette tube 3 when it is in position for the mouthpiece to be inserted therein, (as shown in dotted lines in Fig. 10). A finger 61 has a pin 61^b adapted to engage an inclined face 81^b on arm 81 (Fig. 10) to lift said arm as tube 3 passes to the recess 81^a to hold the tube in position to receive the mouthpiece. After the mouthpiece has been inserted in the tube the table 60, which together with the finger 61 paused in their movement to the right while the mouthpiece was inserted therein, then move farther to the right and raise arm 81 to release the tube from the recess 81^a so that the tube will slide down into the way 72 to be pushed by drum 73 into a receptacle 72^a, and then the support 60 and fingers 61 again move to the left to receive another tube 3.

At 83 is an adjustable stop against which the end of tube 3 rests as an abutment to receive the thrust of the mouthpiece devices as the mouthpiece is inserted in the tube.

In Figs. 14 and 15 I have shown a modified arrangement of parts for operating the support 60 and fingers 61. In this case the arm 64 is at the left hand side of shaft 67, instead of at the right hand side as in Fig. 9, arm 63^a and links 65^a being connected with arm 64 and being correspondingly reversed in position with respect to Fig. 9, and instead of using the parts 75, 76, 77 and 78 as in Figs. 1, 3, 9, and 10, I connect an arm 76^a rigidly with arm 64 and also with the extension 79,

as by a pivot at 79^a, whereby as arm 64 is rocked by crank 66^a, the support 60, and arm 63^a and fingers 61 will be correspondingly and conjointly reciprocated. The construction of these parts shown in Figs. 14 and 15 somewhat simplifies the construction of the corresponding parts shown in Figs. 1, 3, 9 and 10.

The strip or paper 90 for producing the rolled mouthpieces 3^b (see Fig. 5) is fed to the mouthpiece forming devices by rolls 91, 92, from a reel which rolls are journaled upon table 1, and may be rotated at the proper speed by suitable gearing. I have shown gearing 93, 94, 95, 96, 97, 98, connecting the driving shaft 36 with roll 91, and gears at 99 may connect the rolls 91, 92, for rotating them in unison, as indicated by the arrows in Fig. 7. I have also shown gearing 100, 101 connecting gear 99 with shaft 67 for rotating the latter and the feeding drum 73, thereby also operating the devices controlling the support 60 and fingers 61 in unison with rolls 91 and 92. Said rolls feed the strip 90 intermittently to suitable devices adapted to roll suitable lengths cut from strip 90 into mouthpiece form and insert such mouthpiece in the tube 3. I have shown rolls 91, 92 as partly cut away to feed strip 90 intermittently.

A cutter 102, which may be in the form of a knife blade, cuts the strip 90 into suitable lengths, and said cutter is shown pivotally supported upon table 1, at 103, and may be operated to co-act with the stationary part 104 (see Figs. 1 and 7) by means of a cam 104^a (Fig. 1) operating on the arm 102^a, said cam being carried upon shaft 36 and timed to cut off lengths from strip 90 when the forward end of the latter has been pushed into the mouthpiece rolling devices.

The mouthpiece rolling devices I have shown, are arranged as follows:—A tube 105, having a reduced end and provided with a longitudinal slot 105^a, is carried by a reciprocative slide or block 106 and adapted to be brought into alinement with strip 90 to permit the end of the latter to pass into the tube, (see Fig. 8) and at 107 is a rod adapted to pass into tube 105, and said rod is provided with a longitudinal recess or groove 107^a adapted to receive the end of strip 90 so as to crimp or grip the end of strip 90 after the mouthpiece length 90^a has been cut off by cutter 102, and then roll the piece 90^a within tube 105 to form the rolled mouthpiece 3^b (Fig. 5). The tube 105 is given a to-and-fro motion, as from the position shown in Fig. 1, where the mouthpiece strip 90^a is received in tube 105, to carry the rolled mouthpiece into the paper tube 3 that is held in line with tube 105 by the support 60 and fingers 61. The rod 107 is rotated intermittently by suitable gearing and a clutch which, as shown in Fig. 1, comprises a gear 109 loose on shaft 107 and attached to part *a* of the clutch, the other

part *a'* of the clutch being attached to rod 107, said gear meshing with a gear 110 driven by gears 111, 112, 113, operated from shaft 36 in well known manner. A cam or pin *b* operating arm *c* of the clutch shifts the clutch member to give rod 107 an intermittent rotary motion, so that its groove 107^a will always come to rest in line with strip 90, as in line with a guide 90^b through which said strip may pass, all in any well known manner. The block 106 is reciprocated by means of a crank 53^a connected by a link 115 with a rock arm 115^a that connects by a link 116 with an arm 117 connected with block 106.

At 120 is a spring-dog pivotally supported in line with the slot 105^a in tube 105 so as to pass therethrough into said tube behind the mouthpiece 3^b therein, when the mouthpiece has been carried forward into the cigarette tube 3 by the tube 105, so as to abut against the mouthpiece and retain it within tube 3 when tube 105 is withdrawn from tube 3 (see Fig. 5). When the mouthpiece strip 90^a has been pushed forward into the groove 107^a of rod 107, the latter rotates and winds the strip within tube 105 (see Figs. 7 and 8), and then tube 105 moves toward and into paper tube 3 then held by the support 60 and fingers 61 in line with tube 105, and during such movement of tube 105 the rolled mouthpiece passes from rod 107 and the dog 120 enters slot 105^a of tube 105, resting on mouthpiece 3^b, and then drops behind said mouthpiece as the latter is carried slightly beyond the end of the dog within tube 3; and then when tube 105 is drawn back from within tube 3 the latter and the mouthpiece 3^b will abut against dog 120 and be stripped from tube 105, the mouthpiece 3^b being left within tube 3, and the tube 3 thus having the mouthpiece inserting within it will pass from support 60 to the way 72. When tube 105 leaves the mouthpiece 3^b within tube 3 the mouthpiece will unroll within tube 3 and its outer end will then rest adjacent to the seam 3^a of tube 3, as said seam is held upon support 60 by fingers 61 in a position with respect to the mouthpiece to effect such result.

The parts are so timed in operation that as paper strip 2 is fed through the tube forming devices 4, 5, the die 22 will print thereon at suitable distances for each cigarette, the bronzing devices (when used) will apply bronze powder upon the ink, support 60 and fingers 61 will receive each tube 3 cut off from the continuously made tube by the scissors 47 and carry the tube 3 into line with tube 105 and there rest temporarily, and during such time the strip 90 will be fed to the mouthpiece rolling devices, be cut off by the cutter 102, the rod 107 will roll the strip within tube 105, and thereupon the mouthpiece will be inserted within tube 3 and tube 105 will be withdrawn, the tube 3 having a mouthpiece then being deposited in way 72, the support

60 and fingers 61 then moving back to receive another tube 3 cut off by the scissors, and so on.

Having now described my invention what my claim is:—

1. The combination of means for forming a tube, and means for rolling a mouthpiece and inserting it in said tube, with a movable support for the tube, and means for moving said support from a position in which it receives the tube to a position in line with the mouthpiece forming devices, and for holding the tube in the latter position while a mouthpiece is inserted in the tube.

2. The combination of means for forming a tube, and means for forming a mouthpiece and inserting it in said tube, said tube and mouthpiece forming devices being located in parallel relation at a distance apart, with a reciprocative support adapted to receive the tube, and means for moving said support transversely of the plane of the tube for holding the tube in line with the mouthpiece forming devices to receive the mouthpiece from said devices.

3. The combination of means for forming tubes, and means for forming mouthpieces and inserting them in said tubes, with a support to receive said tubes, fingers opposed to said support to hold the tubes thereon, and means for simultaneously reciprocating said support and fingers and for releasing the tubes from said support.

4. The combination of means for forming tubes, and means for forming mouthpieces and inserting them in said tubes, with a support to receive said tubes, fingers opposed to said support to hold the tubes thereon, a crank, devices connecting said crank with said support for reciprocating the latter, an arm connected with said fingers, and means for reciprocating said arm coincidently with said support and for raising and lowering said fingers.

5. The combination of means for forming tubes, and means for forming mouthpieces and inserting them in said tubes, with a support to receive said tubes, fingers opposed to said support to hold the tubes thereon, a crank, devices connecting the support with said crank for reciprocating said support, an arm connected with said fingers and also operatively connected with said crank to reciprocate coincidently with said support, and a cam to raise and lower said fingers with respect to said support.

6. The combination of means for forming tubes, and means for forming mouthpieces and inserting them in said tubes, with a support to receive said tubes, fingers opposed to said support to hold the tubes thereon, a crank, a rock-arm connected with said crank, means connecting said rock-arm with said support for reciprocating the latter, an arm connected with said fingers and also with

said rock-arm, and a cam connected to rotate with said crank and arranged to operate said arm to raise and lower said fingers with respect to said support.

5 7. The combination of means for forming tubes, a reciprocative support to receive said tubes, fingers above said support adapted to hold the tubes upon the support with the seams of the tubes in a predetermined position, means for reciprocating said support
10 and fingers coincidently, mouthpiece rolling devices comprising a tube having a slot in one side and adapted to enter the tube on said support, a paper-rolling rod within said slot-

ted tube and provided with means to grip a 15
paper strip, means for rotating said rod within the slotted tube, means for advancing the slotted tube and its contained paper roll into the tube upon said support, and a dog arranged to abut against the outer end of the 20
paper strip and its contained mouthpiece to hold the same upon the support while the slotted tube is withdrawn therefrom.

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