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PATENTED MAR. 31, 1908.

J. C. McLAUGHLIN.  
TYPE WRITING MACHINE.  
APPLICATION FILED OCT. 19, 1905.

3 SHEETS—SHEET 2.

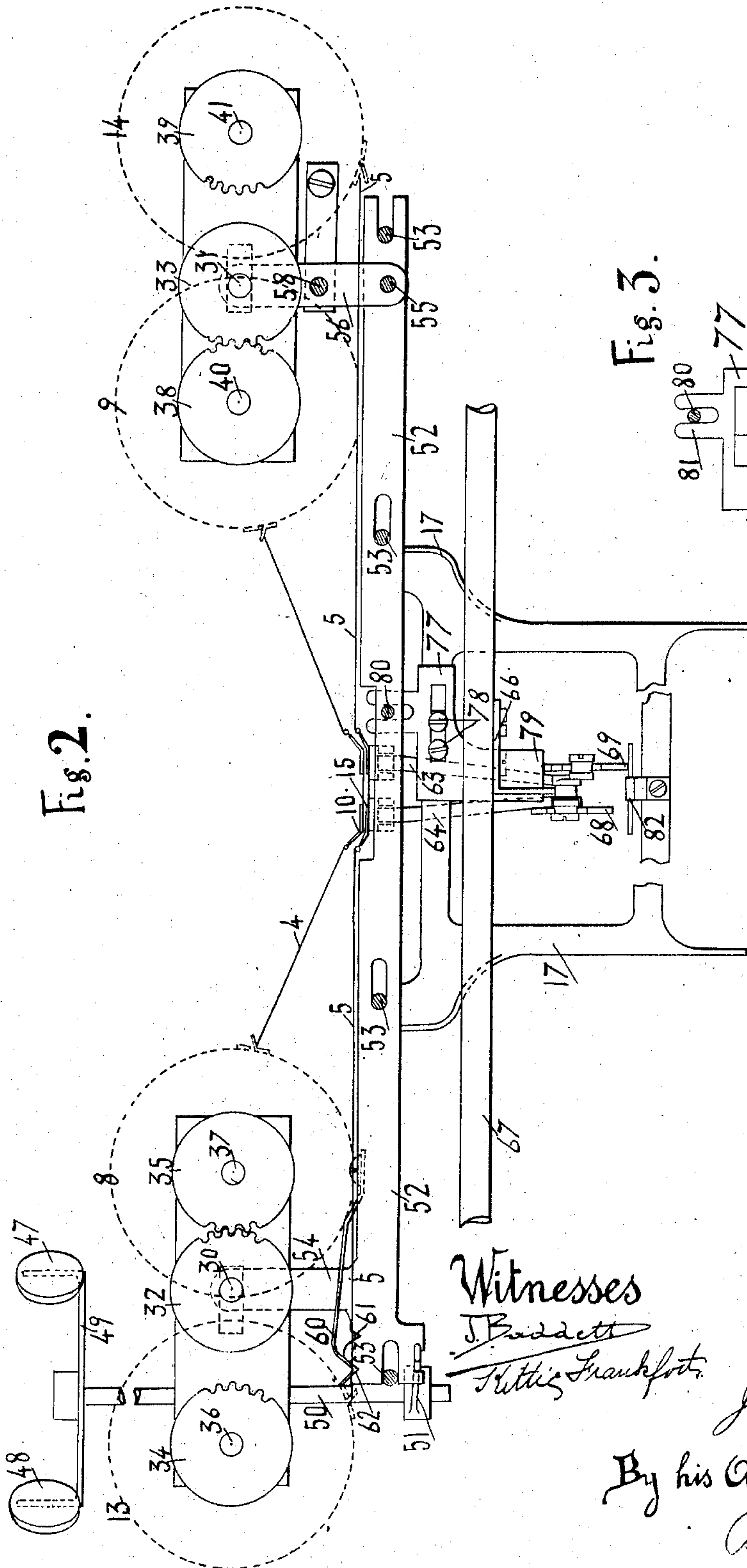
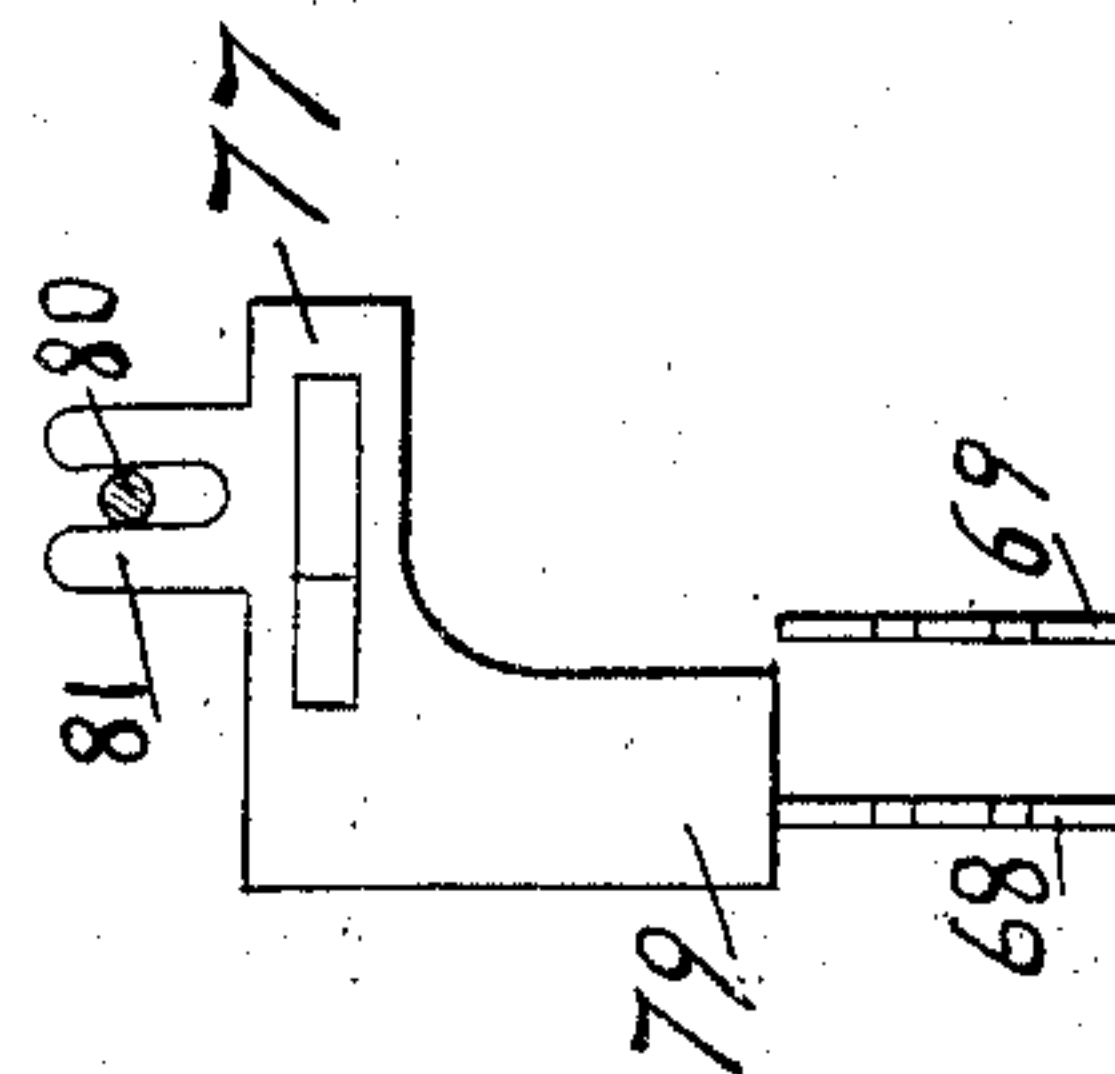


Fig. 3.



Witnesses

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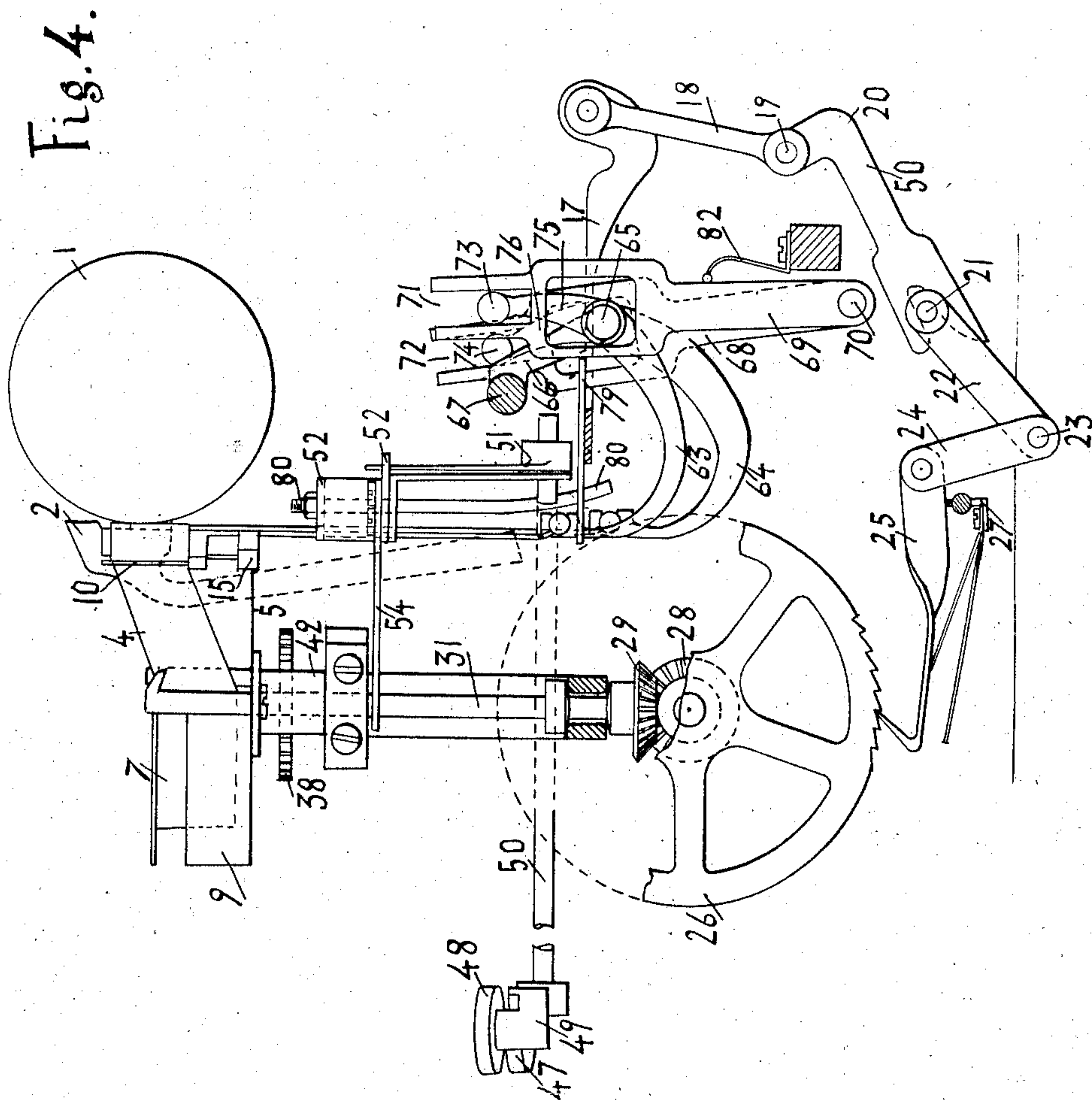
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# UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## TYPE-WRITING MACHINE.

No. 883,470.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed October 19, 1905. Serial No. 283,440.

*To all whom it may concern:*

Be it known that I, JOHN C. McLAUGHLIN, a citizen of the United States, residing in Manhattan borough, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the ink ribbon mechanism of typewriting machines, particularly those in which the ribbon is vibrated to cover and uncover the printing point at the type strokes.

The object of the invention is to provide commercially practicable means for permitting the type impressions to be made in ink of different colors at will. This feature of operation is desirable not only in cases where it is desired to emphasize a word by writing it in a color which contrasts with the body of the writing, but also in cases where it is desired to carry both record and copying ribbons upon the machine; the former for writing legal documents and the latter for letters.

In carrying out my invention I employ two ribbons and two vibrators, one for each ribbon, whereby it may be caused to cover and uncover the printing point at the type strokes. For each ribbon I provide a pair of spools, and in the case of front strike writing machines, I prefer to place one pair of spools between the spools of the other pair, so that two spools are mounted edge to edge upon each side of the printing point or at each side of the machine. I provide a winding-mechanism which can be connected to either pair of spools at will, and I also provide means for calling into action that vibrator which carries the ribbon that is wound upon that pair of spools which is associated at the time with the winding mechanism, so that when either ribbon is winding, it is also being vibrated to cover the printing point at the type strokes, while the other ribbon is neither winding nor being vibrated.

In the accompanying drawings, in which my improvements are shown applied to the well known "Underwood" front strike writing machine, Figure 1 is a rear elevation of the ribbon mechanism, showing the front ribbon elevated to cover the printing point, and showing the spools which carry said rib-

bon connected to the winding mechanism. Fig. 2 is a plan of parts seen at Fig. 1. Fig. 3 is a plan to illustrate the manner of operating the vibrator that carries the rear ribbon. Fig. 4 is a sectional side elevation of parts seen at Fig. 1.

Upon the front side of a platen 1 strike types 2, carried upon type bars 3 and adapted to strike through either a front ribbon 4 or a rear ribbon 5, which are of different colors or qualities. The front ribbon 4 is wound upon a pair of spools 6, 7 mounted at opposite sides of the printing point and in front of the platen, with their edges to the latter and contained in a pair of cups 8, 9. The ribbon which extends between these spools is threaded through a vibrator 10 standing in front of the platen. The rear ribbon 5 is wound upon a pair of spools 11, 12, carried in cups 13, 14 and threaded through a vibrator 15, which is mounted between the vibrator 10 and the platen. It will be seen that the pair of spools 6, 7 is between the spools 11, 12, so that two spools lie edge to edge upon each side of the printing point; the rear ribbon 5 extending in rear of the cups 8, 9.

In said "Underwood" machines, heels provided upon the type bars press rearwardly a curved universal bar 16, which is fixed upon the front end of a frame or table 17, the latter carried at its rear end upon upright rock-arms 18 pivoted at 19 and operating a slotted arm 20. The latter engages a pin 21, of a crank 22 fixed upon a rock-shaft 23, the latter having at each side of the machine an arm 24 carrying a pawl 25 to engage a ratchet wheel 26 for winding the ribbon. In said machine a shifter bar 27 throws one pawl 25 into action as at the left hand side of Fig. 1, and the other pawl 25 out of action as at the right hand side of said figure, thus reversing the longitudinal travel of the ribbon. By means of said pawl and ratchet mechanism, I rotate at each side of the machine a pair of miter gears 28, 29, the gears 29 fixed upon the lower ends of vertical shafts 30, 31, which at their upper ends carry gears 32, 33. The gear 32 is mounted between gears 34, 35 carried by shafts 36, 37 upon which are mounted the spools 11, 6. The gear 33 is mounted between adjacent gears 38, 39 fixed upon shafts 40, 41 upon which are mounted spools 7, 12. At Fig. 1 the winding gear 32



is being driven by the pawl 25 and is in mesh with the gear 35 to wind the ribbon 4 on the spool 6; while the gear 33 in mesh with 38 turns idly during the delivery of the ribbon from the spool 7; said gear 33 being disconnected from its pawl 25.

Various means may be adopted for effecting relative shifting movements between the winding gears 32, 33, and the two pairs of spool gears. That illustrated is in the nature of a contrivance, whereby the winding gears are shifted either towards or away from each other so as to mesh either with the pair of spool gears 35, 38 as at Fig. 1, or with the other pair 34, 39. To this end, the winding gear shafts 30, 31 are preferably mounted for vibratory or lateral movements, each shaft being for this purpose mounted loosely in its bracket 30<sup>a</sup>, near its lower end, so that the vibration may be effected without altering the relation of the miter gears. These shafts are vibrated towards and from each other to effect shifting of the winding gears. Such movement is effected by means of a pair of keys 47, 48 mounted upon the ends of a lever 49, which between its ends is fixed upon a rock shaft 50, extending rearwardly and having upon its rear end an upstanding arm 51, which by the depression of said keys is caused to vibrate transversely in the machine. At the upper end said arm 51 loosely engages a bar 52, which extends across the machine and is guided by studs 53. Said bar 52 has an arm 54, through which passes the vertical winding gear shaft 30, so that the vibration of said arm 51 causes the shifting of said winding gear between the spool gears 34 and 35. The other end of the shifter bar 52 is pivoted at 55 to one end of a lever 56. The winding gear shaft 31 passes through the front end of said lever, which is pivoted midway between its ends at 58 upon the framework. By this means the shafts 30, 31 together with their gears 32, 33 are caused to move either towards each other or away from each other to mesh with either pair of spool gears. A yielding detent 60 working in notches 61 and 62 in said bar 52 holds the slides with their connections in either of the positions in which they are thus shifted. When the parts are at the other extreme from that seen in the figures, the outer spools 11 and 12 are connected to the winding mechanism, while the inner spools are disconnected therefrom.

The ribbon vibrators 10 and 15 are operable by means of the universal bar frame 17 so as to carry up one ribbon or the other during the printing strokes of the type bars. To the lower end of the vibrator 10 is pivoted the front end of a lever 63; and to the lower end of the vibrator 15 is connected a lever 64. Both levers are pivoted at 65 upon a bracket 66 carried by the usual vertically

shiftable platen supporting rail 67 of the "Underwood" machine, so that the levers together with the vibrators are shifted up and down at the platen shifting movements of said machine. Said levers are operated by means of a pair of upstanding levers 68, 69 pivoted at their lower ends at 70, upon some fixed portion of the machine and having at their upper ends vertical slots 71 and 72 to engage pins 73, and 74 provided upon upstanding arms 75 and 76 of the levers 63 and 64; said slots accommodating the up and down movements of the levers at the case-shift operation. By vibrating either lever 68 or 69, its associated lever 63 or 64 is caused to throw up its attached ribbon vibrator 10 or 15.

These levers 68, 69 are actuated by the universal bar frame 17, but only one lever can be actuated at a time; said frame carrying a slide 77 guided by studs 78 and having a toe 79 to engage either lever 68 or 69 according to the adjustment of the slide. At Figs. 1, 2 and 5, said toe is shown in position to engage the lever 68; while at Fig. 4 it is shown in position to engage the lever 69. When it engages either lever the other lever stands idle, so that only one vibrator at a time is called into action. The shifting of said slide 77 is effected by a vertical pin 80, extending up to the shift bar 52 and fixed to the latter. The movement of said bar 52 for connecting the winding mechanism to either pair of spools, is also effective through the pin 80 to shift the slide 77 upon the frame 17 so that the toe 79 will operate that lever 68 or 69 which controls the ribbon vibrator carrying the ribbon, which is wound upon the active spools. The pin 80 is loosely connected to the slide 77 by means of a fork 81, so as to accommodate the backward and forward movements of the slide at the operation of the universal-bar frame. Springs 82 mounted upon the frame 17 bear lightly against the rear edges of the levers 68 and 69 to restore them to normal position after actuation.

Variations may be resorted to within the scope of my invention, and portions of my improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination of two pairs of spools, each spool provided with a gear, two winding gears for said spools, and means for vibrating said winding gears to engage with either pair of spool gears.

2. In a typewriting machine, the combination of two pairs of spools, each spool provided with a gear, two winding gears for said spools, and means for vibrating said winding gears to engage with either pair of spool gears, and means for reversing the direction of winding of the ribbons.



3. In a typewriting machine, the combination with two pairs of spools, each provided with a gear, of two winding gears, shafts upon which said winding gears are mounted, means for vibrating said shafts so that their gears may mesh with either pair of spool gears, means for rotating said shafts, and means for reversing said shaft rotating means so as to reverse the direction of winding of the ribbons.

4. In a typewriting machine, the combination with a platen and types mounted to strike thereon, of two pairs of spools mounted edge to edge, one pair of spools between the spools of the other pair, so that two spools are at each side of the printing point, gears upon all of said spools, two winding gears one at each side of the printing point, and means for vibrating said winding gears simultaneously either towards, or away from each other, so as to engage either pair of spool gears.

5. In a typewriting machine, the combination with a platen, of two pairs of spools mounted edge to edge, one pair of spools between the spools of the other pair, so that two spools are at each side of the printing point, gears upon all of said spools, winding gears one at each side of the printing point, shafts whereon said winding gears are mounted, means for vibrating said shafts so as to cause said winding gears to mesh with either pair of spool gears, means for rotating said shafts, and means for changing the direction of rotation of said shafts so as to cause the direction of travel of the ribbon to reverse.

6. In a typewriting machine, the combination with a platen, of two pairs of spools, gears for all of said spools, two winding gears, shafts whereon said winding gears are mounted, means for rotating said shafts, a bar having a finger piece, and means controlled by said bar for shifting said winding gears into mesh with either pair of spool gears.

7. In a typewriting machine, the combination with a platen, of two pairs of spools, gears for all of said spools, two winding gears, a shifter bar having a finger piece, and engaging one of said winding gears, and a lever operated by said bar and engaging the other winding gear, so that a movement of the shifter bar will cause the winding gears to mesh with either pair of spool gears.

8. In a typewriting machine, the combination with two pairs of spools, of gears for said spools, two winding gears, a shifting device for moving said winding gears into mesh with either pair of spool gears, and means for causing either ribbon to cover and uncover the printing point at the type-strokes.

9. In a typewriting machine, the combination with two pairs of spools, of gears for

said spools, two winding gears, a shifting device for moving said winding gears into mesh with either pair of spool gears, means connected to said shifting device for causing to cover and uncover the printing point at the type strokes that ribbon which is carried by the spools which are connected to the winding mechanism.

10. In a typewriting machine, the combination with a platen and types mounted to strike thereon, of two pairs of spools mounted edge to edge, one pair of spools between the spools of the other pair, so that two spools are at each side of the printing point, gears upon all of said spools, two winding gears, each winding gear being mounted between adjacent spool gears, and means for shifting said winding gears either towards or away from each other so as to connect with either pair of spool gears.

11. In an ink-ribbon mechanism, the combination of spools for two ink-ribbons; independent vibrators for said ribbons; means for operating either of said vibrators singly; ribbon driving mechanism connectible with a spool of either ribbon; a finger-lever, and connections from said lever for shifting the vibrator operating means from one to the other vibrator and for shifting the driving mechanism from one to the other set of ribbon spools.

12. In an ink-ribbon mechanism, the combination of sets of spools for two ribbons; independent vibrators for said ribbons; vibrator operating mechanism provided with a member shiftable to connect said mechanism with either vibrator singly; and ribbon driving mechanism provided with members shiftable to connect said mechanism with either set of spools singly.

13. In an ink-ribbon mechanism, the combination of sets of spools for two ribbons; independent vibrators for said ribbons; vibrator operating mechanism provided with a member shiftable to connect said mechanism with either vibrator singly; ribbon driving mechanism provided with members shiftable to connect said mechanism with either set of spools singly; and hand operated means for simultaneously moving the shiftable members of said vibrator operating and ribbon driving mechanisms.

14. In an ink-ribbon mechanism, the combination of separate sets of spools for different ribbons; independent vibrators for said ribbons; a to and fro moving member for actuating said vibrators; means for connecting said member with and disconnecting it from said vibrators to operate them singly; a ribbon driving mechanism provided with members shiftable to connect the same with said sets of spools singly; and a key for operating said shiftable members and said connecting and disconnecting means.



15. In a typewriting machine, the combination with two pairs of ribbon spools, of actuating means for winding said spools, means movable independently of said spools for operatively connecting said pairs of spools alternately to the actuating means and means for causing either ribbon to cover and uncover the printing point at the type strokes.

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Witnesses.

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