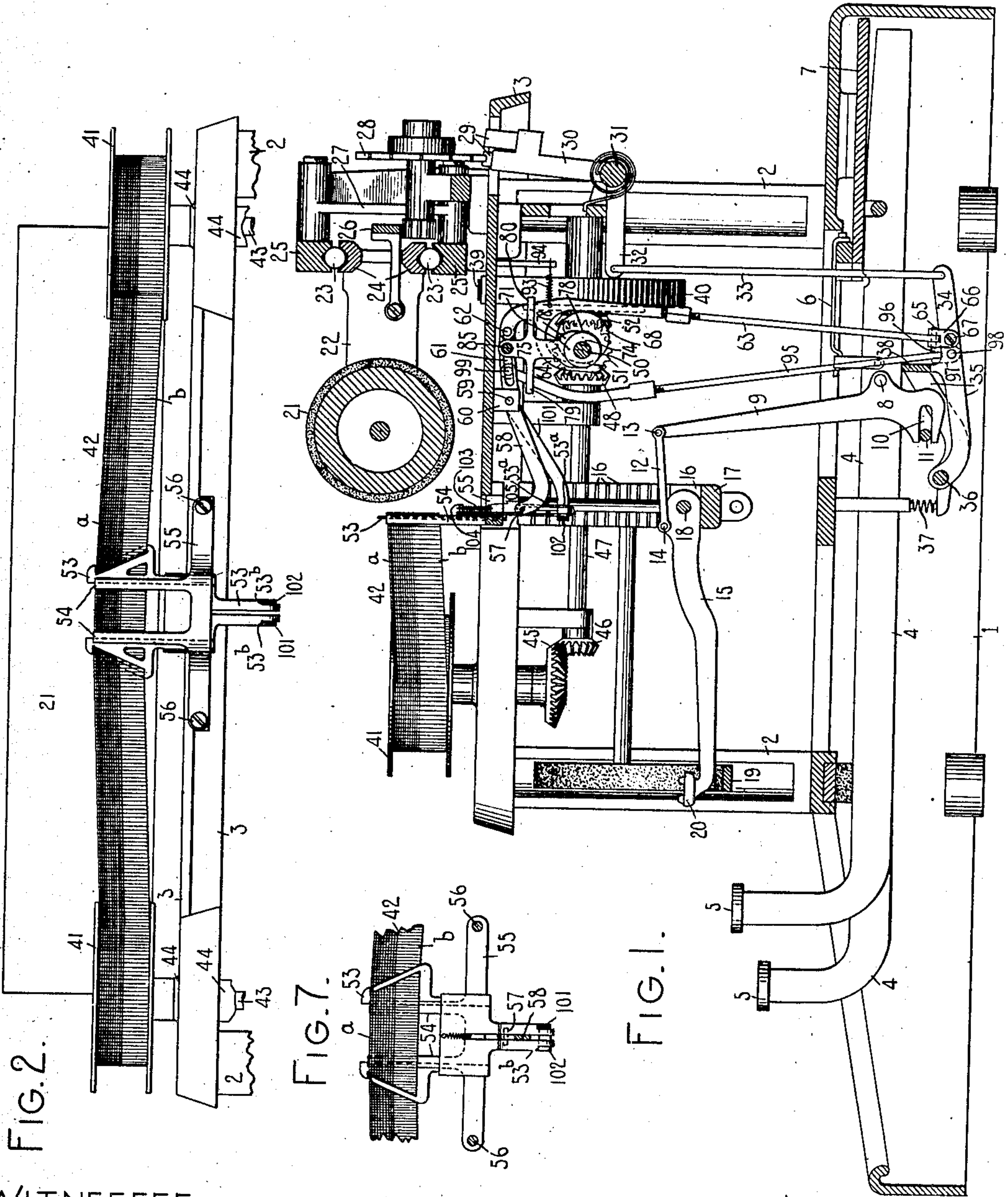


No. 860,361.

PATENTED JULY 16, 1907.

J. FELBEL.  
TYPE WRITING MACHINE.  
APPLICATION FILED JAN. 31, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

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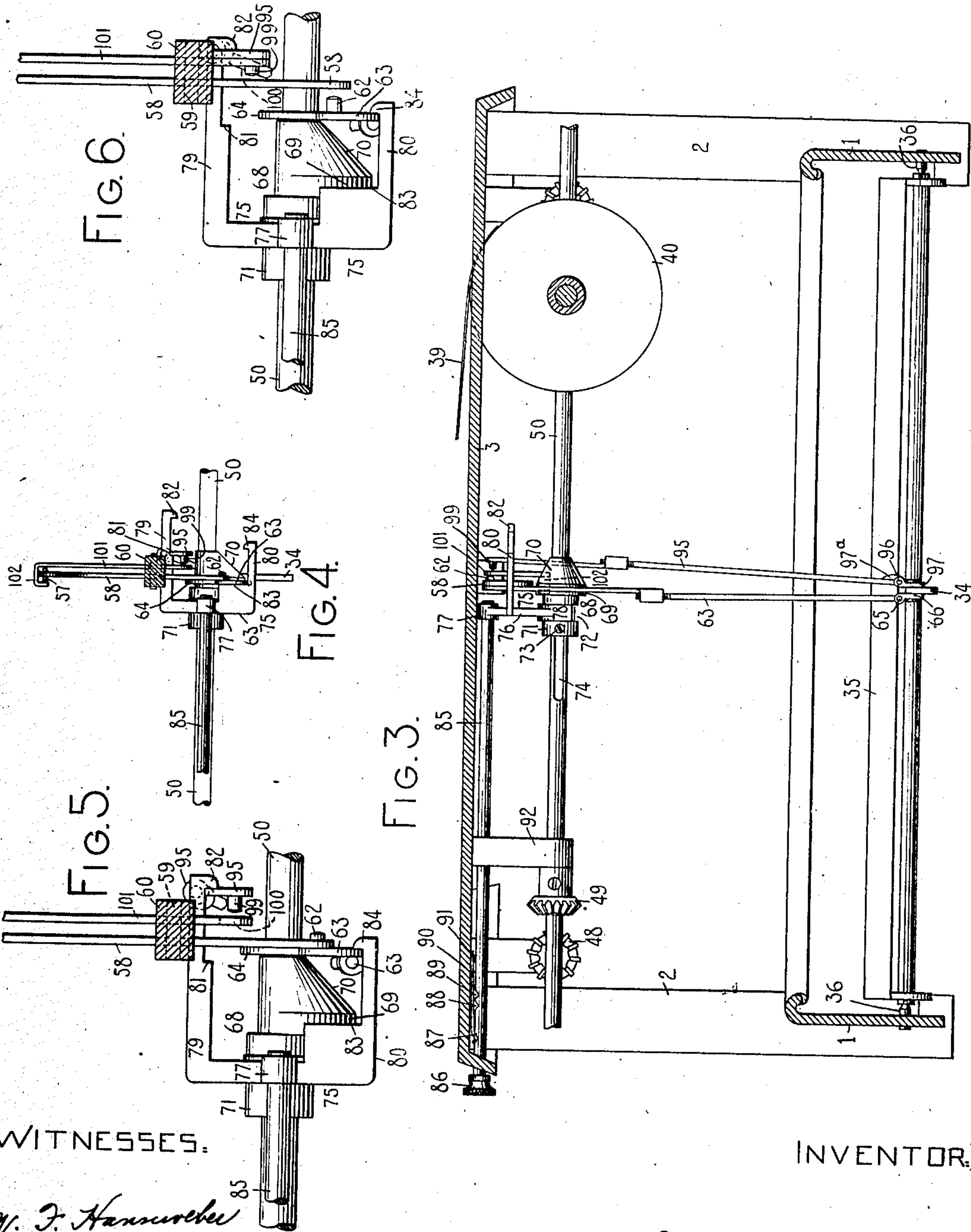
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

FIG. 9.

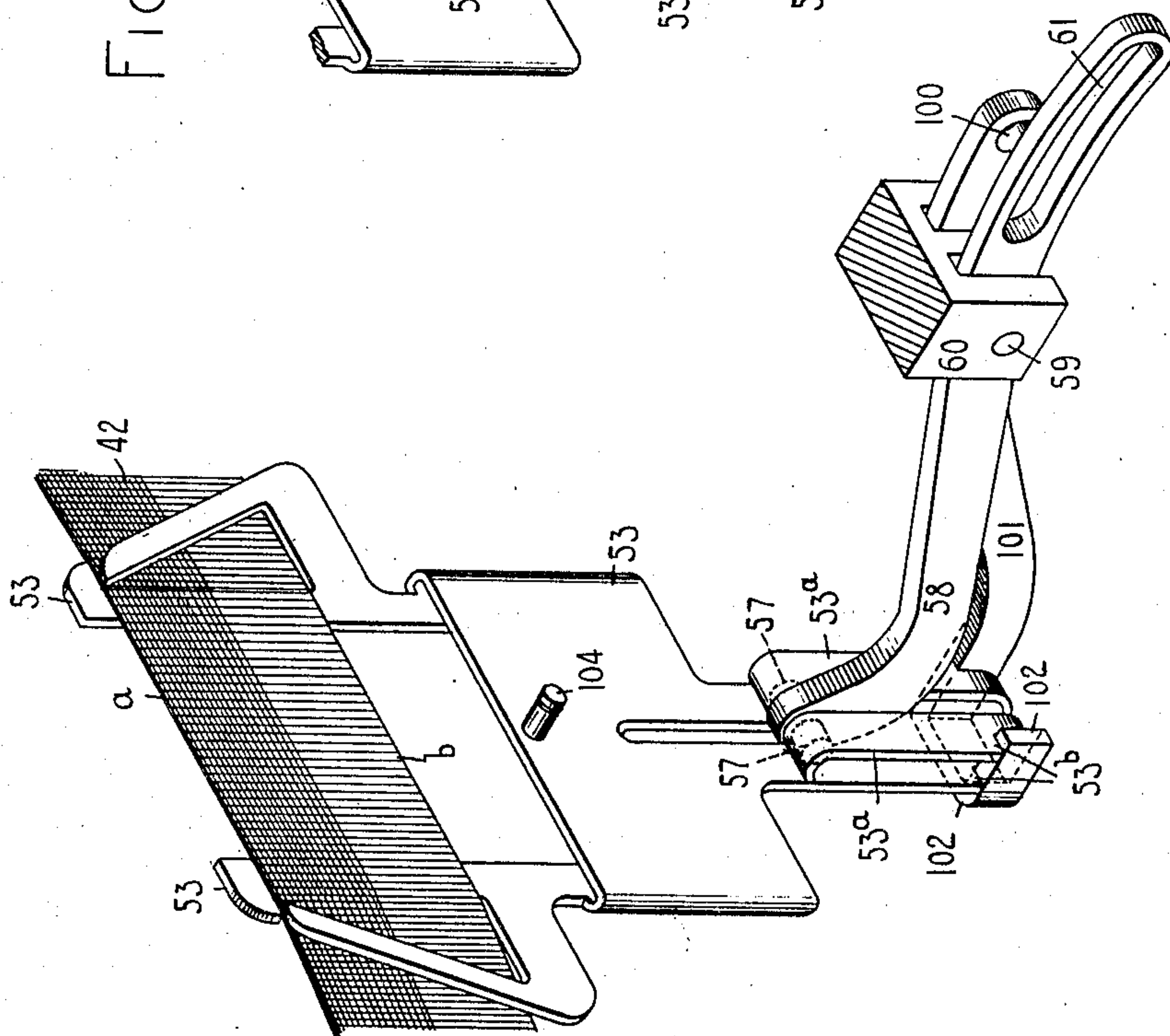
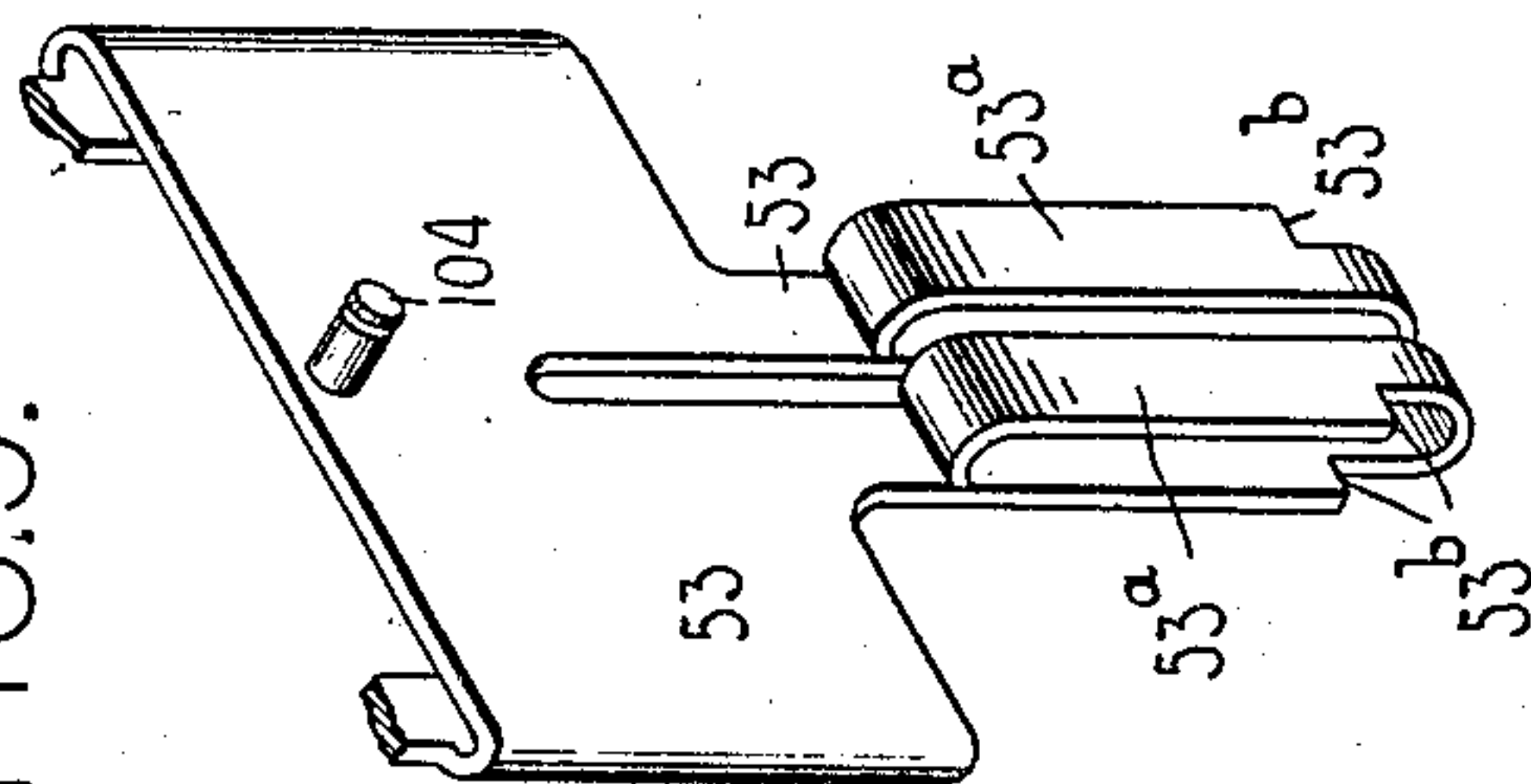


FIG. 8.

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# UNITED STATES PATENT OFFICE.

JACOB FELBEL, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## TYPE-WRITING MACHINE.

No. 860,361.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed January 31, 1905. Serial No. 243,485.

*To all whom it may concern:*

Be it known that I, JACOB FELBEL, a citizen of the United States, and a resident of the borough of Manhattan, 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.

My invention relates to typewriting machines and more particularly to the ribbon mechanism of such machines.

In visible writing machines employing a ribbon, it is common to arrange the latter so that normally it does not cover the printing point, and to provide means to cause said ribbon to move automatically to cover the printing point and thereafter to return to normal position.

One object of my invention is to provide a construction wherein a ribbon having a plurality of fields of different characteristics may during each printing operation be moved to cover the printing point with any desired field of the said ribbon.

Another object is to provide means to dispense at will with the crosswise feed of the ribbon in that class of machines employing a ribbon vibrator and wherein the ribbon has a crosswise and a lengthwise feed.

A further object is to provide means to enable a multi-color ribbon to be employed in the last-named class of machines.

Other objects will subsequently appear.

To the above ends the invention consists in the features of construction, arrangements of parts and combinations of devices, to be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical front to rear sectional view, taken about centrally of one form of typewriting machine embodying my invention. Fig. 2 is a fragmentary front elevation showing the upper portion of the machine. Fig. 3 is a rear view taken on a plane represented by the line x in Fig. 1, various parts being omitted. Fig. 4 is a fragmentary top plan view showing parts of the ribbon mechanism. Figs. 5 and 6 are enlarged top plan views similar to Fig. 4, but showing various parts in different positions from those in which they appear in said Fig. 4. Fig. 7 is a rear elevation partly in section of the ribbon vibrator and some of its associate parts. Fig. 8 is an enlarged perspective view of the ribbon vibrator and the operating levers connected therewith. Fig. 9 is an enlarged fragmentary perspective view of the ribbon vibrator.

My invention is shown as embodied in a Monarch typewriting machine, but it is to be understood that it may be adapted to other forms of writing machines.

In the drawings, 1 indicates the base of the machine supporting corner posts 2 which in turn sustain a top plate 3. Key levers 4, each provided with a key cap 5 and a restoring spring 6, are fulcrumed near their rear ends on a fulcrum plate 7. Pivoted at 8 to each key lever is a sub-lever 9 formed at its lower end with a slot 10 which embraces a fixed fulcrum rod 11, the latter passing from side to side of the machine beneath the series of key levers. A connecting link 12 is pivotally connected at 13 with the upper end of each sub-lever, and the forward end of said connecting link is pivoted at 14 to a type bar 15, which latter is one of a segmentally arranged series. The type bars may be pivoted to a segment in any suitable manner. As here shown, each type bar is seated in a radial slot 16 formed in a segmental type bar support 17. The heel of each type bar is perforated to permit of the passage of a segmental pivot wire 18 contained in a groove cut in the top of the segmental type bar support 17. Instead of this mode of pivoting the type bars on a fulcrum wire, the type bars may be provided with separate hangers and pivots as usual. The type bars are normally supported at their forward ends by a type rest 19 and each bar is provided with a type block 20, the types whereof are adapted to cooperate with a platen 21 when said type bar is suitably actuated.

The platen 21 is mounted in a carriage 22, the latter being guided and supported by anti-friction balls or rolls 23 which are seated in grooved rails 24 on the carriage and in oppositely grooved rails 25 fixedly secured to brackets 25<sup>a</sup> secured to the top plate of the machine. The carriage 22 is provided with a feed rack 26 which normally meshes with a pinion 27, the latter being operatively connected with an escapement wheel 28. Adapted to cooperate with the escapement wheel are feed dogs 29 which are mounted on the upright arm of a pivoted dog-rocker 31, the forwardly extending arm 32 whereof is connected with the upper end of a connecting rod 33, which latter at its lower end is connected with a rearwardly extending arm 34 of a universal bar frame 35 pivoted in the base of the machine at 36 and provided with a restoring spring 37. The frame 35 carries a universal bar 38 which extends from side to side of the machine beneath the spacing levers (not shown) and the series of key levers 4 and is adapted to be actuated by said levers when the latter are depressed, as happens during each printing or spacing operation. The carriage 21 is connected by a strap 39 with a spring drum 40 which constantly tends to draw the carriage to the left so that when the universal bar 38 is actuated the escapement mechanism just described is caused to be operated in a well-known manner and thereby to permit of letter space movements of the carriage.



Ribbon spools 41, arranged above the top plate 3 at each side of the machine and forwardly of the platen, are provided with a ribbon 42 which, as herein shown, is divided longitudinally into fields *a* and *b* of different characteristics; that is to say, the field *a* may be of one color such as black and the field *b* may be of another and different color such as red, or the field *a* may be copying ribbon and the field *b* record ribbon, for example. The ribbon 42 may be fed longitudinally from either spool to the other by any suitable means. A ribbon feed mechanism is illustrated in the drawings, which, generally speaking, is similar to that employed in the Monarch typewriting machine and which is explained in United States patent to Jacob Felbel and Carl Gabrielson, No. 703,339, dated June 24, 1902. Each ribbon spool 41 is carried by an upright shaft 43 which rotates in a fixed bearing 44 and has secured to its lower end a small beveled gear 45. The gear 45 meshes with a beveled pinion 46 secured to the forward end of a horizontal shaft 47, which shaft carries at its rear end a beveled pinion 48 which is adapted to mesh with a beveled driving pinion 49 mounted on a driving shaft 50. Rotatory movement is transmitted to the shaft 50 by beveled pinions 51 and 52, the pinion 51 being operatively connected with the driving shaft and the pinion 52 with the spring drum 40. It will be understood that both ribbon spools are provided with similar gear trains which are adapted to be actuated from driving pinions 49 on the driving shaft 50. As explained in the above cited patent the driving shaft 50 is capable of longitudinal movement, and it is further to be understood that the longitudinal position of said shaft determines which driving pinion 49 will be in mesh with its cooperating pinion 48, and which ribbon spool will be turned to wind the ribbon thereon.

Midway between the ribbon spools the ribbon 42 is threaded through a ribbon vibrator or carrier 53 which is guided and supported in the upright arms 54 of the supporting bracket 55 secured by screws 56 to the top plate of the machine. The lower end of the vibrator or carrier 53 is bifurcated and formed with a loop 53<sup>a</sup> adapted to receive a pin 57 carried by the forward end of an actuator and operating lever 58 pivoted at 59 in a lug 60 depending from the top plate. The rear arm of the operating lever 58 is formed with a substantially horizontal curved slot 61 which receives a pin or stud 62 secured at the top of a vertically arranged link 63. The link 63 is provided near its upper end with a downwardly bent arm 64, and at its lower end said link is pivoted at 65 in a connecting member 66 which in turn is pivotally connected at 67 with the arm 34 of the universal bar frame. The link 63 is adapted to be swung about the pivot 67 in order to cause the stud 62 to move longitudinally of the slot 61 so as to engage the operating lever 58 at varying distances from its fulcrum 59 and thereby to vary the throw of the ribbon carrier or vibrator 53. As herein illustrated, the means employed to swing the link 63 in order to vary the throw of the ribbon comprises essentially an eccentric controller designated as a whole by the numeral 68 which is slidably mounted upon the driving shaft 50, and which is normally adapted to cooperate with the strap formed by the link 63 and its bent arm 64, as best appears in Figs. 1, 3 and 4.

Assuming that a one color ribbon is in use and it be

desired to employ a two color ribbon, the latter may be substituted either by removing from its spools the one color ribbon and replacing said ribbon with the two color ribbon or by bodily removing both the one color ribbon and its spools from the machine and replacing them by another set of spools carrying a two color ribbon, or otherwise. The eccentric device hitherto employed, is an eccentric with a broad working face and which is fixedly attached to the driving or power shaft 50. The eccentric controller 68 differs somewhat from the former eccentric controller and comprises a comparatively narrow eccentric working face 69, a tapered portion 70 and a sleeve portion 71, which latter is formed with a circumferential groove or depression 72. A screw 73 passes through the sleeve portion 71 of the eccentric member 68 and enters an elongated slot or groove 74 in the driving shaft 50. The eccentric member 68 is thereby slidably connected with the driving shaft 50 and is caused to rotate with said shaft, but may be moved longitudinally of said shaft without affecting the latter. The driving shaft 50 may also be moved longitudinally without affecting the member 68. The longitudinal movement of the eccentric member 68 is controlled by a positioning or switching member or slide 75 which comprises first a vertically disposed arm 76 terminating at the top in a perforated collar portion 77 and at the lower end in a fork 78 which partially surrounds the depression 72 of the member 68, and second, two right-angled arms 79 and 80 which are connected with said arm 76 at opposite sides of the latter and somewhat below the collar portion 77 and extend horizontally and to the right of said arm 76 as viewed from the rear of the machine. The forward arm 79 is formed with a shoulder 81 and terminates in an inwardly projecting lug or hook 82. The rear arm 80, which is somewhat shorter than the arm 79, is formed with a shoulder 83 and terminates in an inwardly projecting lug or hook 84. A pull and push rod 85 has its inner end fixedly secured in the collar portion 77 of the positioning member or slide 75 and bears in the flange of the top plate, passing through the latter and terminating at the outer end exteriorly of the machine in a finger button 86. The rod 85 is formed with notches 87, 88 and 89 with which a locking spring 90 is adapted to engage, said locking spring being secured to the under side of the top plate 3 by a screw 91. The pull and push rod 85 also has a bearing in a lug 92 depending from the top plate, which lug serves also as one of the bearings of the driving shaft 50. A small spiral spring 93 is attached at one end to the link 63 and at the other end to a pin 94 depending from the under side of the top plate, and said spring constantly tends to draw the link 63 rearwardly about its pivot 67. A second link 95 is pivoted at 96 in a connecting member 97, which in turn is pivotally connected at 98 with the arm 34 of the universal bar frame, the pivotal point 98 being slightly forward of the pivotal point 67 of the connecting member 66. The upper end of the forward link 95 is provided with a projecting pin or stud 99 which is adapted to enter a slot 100 formed in the short rear arm of a second actuator or operating lever 101, which like the actuator or operating lever 58 is pivoted at 59 in the depending lug 60. The two actuators or operating levers



58 and 101 are independent of each other. As best appears in Figs. 3 and 4, the stud 99 is normally disengaged from the slot 100 and stands slightly away from the operating lever 101, the link 95 maintaining the stud in this position, the contact of said link with an upstanding lug 97<sup>a</sup>, which is integral with the connecting member 97, preventing further motion of the link rightward about its pivot 96. The second operating lever 101 is bent so as to form a hook 102 around the lower end of the ribbon vibrator 53 and is adapted to engage with shoulders 53<sup>b</sup> formed in the vibrator. A vertically disposed restoring spring 103 is connected at its upper end to a lug 104 projecting rearwardly from the ribbon vibrator and at its lower end said spring is connected to a lug 105 projecting rearwardly from the center portion of the bracket 56.

When positioned as shown in Figs. 1, 3 and 4, the mechanism is adapted to give a variable transverse feed to the ribbon, the stud 62, under the control of the eccentric face 69, moving toward and away from the fulcrum 59 of the operating lever 58 and thereby varying the distance the ribbon vibrator moves upward at each printing operation. The ribbon is fed longitudinally at the same time so that the impressions of the types make a serpentine or wavy path lengthwise of the ribbon and extending from side to side thereof. If the ribbon 42 be substituted for the usual and ordinary ribbon, the variable movement of the ribbon vibrator will cause some of the types to strike on the field *a* of the ribbon 42, others on the field *b* of said ribbon, and others partially on one field and partially on another. If the fields *a* and *b* be of different colors it may be desirable in some cases, as for example, in ornamental or fancy work, to obtain work of this nature. For the usual styles and forms of type-writing, however, it is necessary to prevent the variable movement of the ribbon vibrator when a two color ribbon is used and this is accomplished by means hereinbefore described. When the parts are positioned to feed the ribbon variably, the pull and push rod 85 is in its inward position with the locking spring 90 in engagement with the notch 87 of said rod, as shown in Fig. 3.

In order to prevent variable throw of the ribbon vibrator the rod 85 is pulled outward or toward the left, as viewed in said Fig. 3, by means of the finger button 86, until the locking spring 90 engages with the second notch or depression 88. This outward movement of the rod 85 causes the positioning member 75 attached to the inner end of said rod to move also, and the connection between the fork 78 of said positioning member and the sleeve portion 71 of the eccentric member 68 causes said eccentric member likewise to move to the left (as viewed in Fig. 3) to such an extent that the eccentric face 69 passes out of engagement with the link 63. As soon as this disengagement occurs the spring 93 will pull the link 63 back towards the rear end of the slot 61. The leftward movement above referred to of the positioning member 75 causes the arms 79 and 80 of said member to assume the position shown in Fig. 5, wherein, it will be noted, the inner face of the lug or hook 82 is in contact with the upper portion of the forward link 95 and the inner face of the lug or hook 84 is in contact with the upper portion of the rear link 63. When

the locking spring is engaged with the second notch 88 of the rod 85 and the parts connected with said rod (that is the positioning member or slide 75 and the eccentric controlling member 68) have assumed the positions above described, the pin 62 of the link 63 will always be maintained at the rear end of the slot 61 in the operating lever 58 by means of the spring 93. The result is that the ribbon vibrator 53 will be operated by said lever 58 to lift the ribbon at printing operations to a position relative to the printing line which is unvarying. The parts are so adjusted that this unvarying movement or throw of the ribbon vibrator will always bring the printing field *a* of the ribbon 42 into position to receive the impressions of the types, and the path of the type impressions will be in a straight line extending longitudinally of the said field *a*. The vibrator is lifted by the lever 58 by reason of the contact of the pin 57 with the upper end of the loop 53<sup>a</sup> of the vibrator, and said vibrator is restored to normal position by the spring 103. When actuated by the lever 58 the vibrator is lifted away from the lever 101, and the latter remains motionless throughout such actuation. If it be desired to print from the lower field *b* of the ribbon 42 the rod 85 is pulled out still further to the left (as viewed from the rear of the machine) until the locking spring 90 engages with the third and last notch 89 in said rod. This draws the positioning member 75 still further leftward, with the result that the link 63 is caused to swing to the left about its pivot 65 under the influence of the lug 84 of the arm 80, and the link 95 is swung leftward about its pivot 96 by the lug 82 of the arm 79. The parts will now be in the position illustrated in Fig. 6, wherein it will be noted that the stud 62 has been withdrawn from the slot 61, thereby disconnecting the link 63 from the operating lever 58; and the stud 99 has been brought into engagement with the slot 100, thereby connecting the link 95 with the operating lever 101. The link 95 is secured to the universal bar frame somewhat nearer the center of motion 36 of said frame than is the link 63, and consequently the movement of said link 95 at printing operations, is somewhat less than is the movement of the link 63. The link 95, however, acts upon its associate operating lever 101 so much nearer the fulcrum 59 than the link 63 acts upon its associated lever 58, when it is connected therewith in the manner illustrated in Fig. 5, that the forward end of the operating lever 101 moves a greater distance upward when actuated at printing operations than does the forward end of the operating lever 58 when it is actuated at printing operations. The result is that the ribbon vibrator is lifted to a greater height when actuated by the operating lever 101, and the parts are so adjusted in the latter case as to bring the field *b* of the ribbon 42 into printing position at each printing operation. The throw of the lever 101 under the influence of the link 95 does not vary and the path of the type impressions will be in a straight line running longitudinally of the ribbon field *b*. The ribbon vibrator is caused to move upward by the lever 101 by reason of the engagement of the forward bent portion or hook 102 of the latter with the shoulders 53<sup>b</sup> formed at the lower end of the vibrator, and said vibrator is caused to return to normal position by the restoring spring 103.



During the actuation of the ribbon vibrator by the lever 101, the pin 57 of the lever 58, which is normally at the upper end of the loop 53<sup>a</sup> of the vibrator, is not acted upon by the vibrator since the latter reaches the end of its upward movement before the bottom of the loop 53<sup>a</sup> contacts with the pin 57 of the lever 58. Consequently the lever 58 remains motionless during the actuation of the ribbon vibrator by the link 101. If it be desired to again position the parts to cause the ribbon to feed crosswise automatically, the rod 85 is pushed in until the locking spring 90 engages with the notch 87. As this is done the tapered or cam portion 70 of the eccentric member will effect an easy and certain entrance into the space between the link 63 and its bent arm 64 and will thereby insure that the eccentric face 69 will again engage with the strap of the link 63. This return movement of the rod 85 also causes the shoulder 81 of the forward arm 79 of the positioning member 85 to swing the link 95 back towards the right hand, as viewed in Fig. 3, about the pivot 96, and causes the shoulder 83 of the rear arm 80 to swing the link 63 to the right about its pivot 65. The parts are thereby restored to the positions illustrated in Figs. 3 and 4.

Certain broad features herein shown and described are not claimed herein as they form the subject-matter of a separate application, Serial No. 238,588, filed December 28, 1904.

In certain of the appended claims where two actuators are recited as both normally operatively connected with the ribbon carrier, it is to be understood that by this expression is meant that either of the said two actuators (which in this case are the operating levers 58 and 101) may normally be actuated to operate the ribbon carrier without the necessity of first shifting either of said two actuators into operative connection with said ribbon carrier, in contradistinction to the devices shown in my said application Serial No. 238,588, wherein, if the actuating links be considered as actuators, one of said links or actuators is normally cut off or disconnected from the ribbon carrier and cannot be operated to actuate the carrier until after certain switching or shifting devices are operated to operatively connect the normally inoperative actuator with the carrier. In certain other of the appended claims reference is made to one of the actuators remaining at rest or unaffected while the other actuator is in action or in operation. This is for the purpose of more fully distinguishing from the mechanism of my said other application where both of the actuators or links are simultaneously in motion during the operation of the printing keys. Therefore no claim in this case is to be construed so broadly as to cover the construction set forth in my aforesaid application, Serial No. 238,588, wherein my broadest claims appear.

Various changes in the construction and arrangement of the parts may be effected without departing from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a ribbon carrier, a plurality of levers for operating the same, links for vibrating said levers on their fulcrums, only one or said links and its associate lever being in engagement at a time, a universal bar connected with said links, and means adapted to actuate said universal bar:

2. In a typewriting machine, the combination of a ribbon carrier, a plurality of levers for operating the same, separate means operative upon each of said levers to vibrate on its fulcrum, and means for shifting said separate means alternately into and out of engagement with their associated levers.

3. In a typewriting machine, the combination of a ribbon carrier, a pair of levers for operating the same, a key actuated universal bar, and a pair of links connected with said universal bar; one of said links being operative upon one of said levers at one time to vibrate it on its fulcrum and throw said carrier a predetermined distance and the other of said links being operative upon the other of said levers at another time to vibrate it and throw said carrier a different predetermined distance.

4. In a typewriting machine, the combination of a ribbon carrier, a pair of levers for operating the same, a key actuated universal bar, a pair of links connected with said universal bar, one of said links being operative upon one of said levers to vibrate it on its fulcrum and throw said carrier a predetermined distance and the other of said links being operative upon the other lever to vibrate it and throw said carrier a different predetermined distance, and hand actuated means for throwing one link into engagement with its associated lever and the other link out of engagement with its associated lever.

5. In a typewriting machine, the combination of a ribbon carrier, levers for operating the same, a link, means for causing said link to operate on one of said levers at progressively increasing and decreasing distances from the fulcrum of said lever, means for actuating said link to vibrate said lever, a separate link adapted to be connected with and to vibrate the other of said levers but normally disconnected therefrom, and means for throwing out of operative relation the means for moving said first named link progressively, whereby the said two links are adapted to act alternatively on their associate levers.

6. In a typewriting machine, the combination of a ribbon carrier, a slotted lever for operating the same, a link provided with a pin adapted to move back and forth in the slot of said lever, an eccentric adapted to cooperate with said link and thereby to control said movement, a second carrier operating lever, a link adapted to operate said lever, and means adapted to disconnect the eccentric from its associate link and also adapted to disconnect said link from the first named lever, and further adapted to connect the second named link with its associate operating lever.

7. In a typewriting machine, the combination of a ribbon carrier, a pair of levers adapted to operate the same, independent means for vibrating said levers one at a time to throw said carrier different distances, a crosswise ribbon feed mechanism operative in connection with one of said means, and hand actuated means whereby first the crosswise feed mechanism may be rendered inoperative, then one of said lever vibrating means may be rendered inoperative, and finally the other of said lever vibrating means may be rendered operative.

8. In a typewriting machine, the combination of a ribbon carrier, a pair of operating levers therefor, a pair of links for vibrating said levers one at a time, said links being adapted to be moved transversely of said levers for alternative engagement and disengagement therewith, a crosswise ribbon feed mechanism connected with one of said links, and hand operated means adapted successively to throw out of operation said crosswise feed mechanism and one of said links and to throw into operation the other of said links.

9. In a typewriting machine, the combination of a ribbon carrier, a pair of operating levers for moving said carrier up and down different distances, a pair of links each of which is adapted to vibrate one of said operating levers on its fulcrum, a slide adapted to disengage one link and engage the other link, and means operative exteriorly of the machine for controlling said slide.

10. In a typewriting machine, the combination of a ribbon carrier, a pair of levers for operating the same, a pair of links for alternately operating said levers, each link being adapted to vibrate one of said levers on its fulcrum, a slide provided with a device for controlling said links so as to disengage one and engage the other, and a hand device for operating said slide.



11. In a typewriting machine, the combination of a ribbon carrier, a pair of operating levers therefor, a pair of links adapted alternately to engage with said levers, each of said links being adapted to engage only one of said levers and one of said links having a strap, a power shaft, an eccentric adapted to slide on said shaft, a slide adapted to move said eccentric, devices carried by said slide and adapted to control said links, and means for controlling said slide. 80
12. In a typewriting machine, the combination of a ribbon carrier, a pair of levers adapted to operate the same, a universal bar, links connected at one end to said universal bar and adapted to be connected at their other ends by pin and slot connections with their associate operating levers to vibrate the latter on their fulcrums, a positioning member provided with arms adapted to engage said links, a pull rod connected with said positioning member, and means for actuating said rod to cause the arms of said positioning member to actuate said links and thereby to make and break the pin and slot connections between said links and their respective operating levers. 85
13. In a typewriting machine, the combination of a ribbon carrier, a plurality of operating levers, a plurality of links one for vibrating each of said levers, means for connecting one or another of said links at will with its associate lever, and means for actuating said links to vibrate the levers and throw the carrier different distances. 90
14. In a typewriting machine, the combination of a ribbon carrier, a pair of operating levers, a pair of links each of which is adapted to engage with and to vibrate one of said operating levers, means for varying the position of one of said links with relation to its associate operating lever, means for fixing the relation between said last named link and its lever, means for disengaging said link from said lever, means for causing an engagement between the second link and its associate lever, and means for actuating said links. 95
15. In a typewriting machine, the combination of a ribbon carrier, a pair of operating levers adapted to actuate said carrier, a universal bar, a pair of links connected with said universal bar, each of said links being adapted to be connected with one of said operating levers, an eccentric member for varying the relation between one of said links and its associate lever, and a positioning member which is adapted to disengage said eccentric member from said last named link and thereafter to disconnect said link from its associate lever and to connect the other link with its associate lever. 100
16. In a typewriting machine, the combination of a ribbon carrier, levers adapted to operate the same, a universal bar, a pair of links connected with said universal bar, each of said links being adapted to be connected with one of said levers, an eccentric member for varying the relation between one of said links and its associate lever, a positioning member, and a rod connected with said positioning member and adapted to be moved to different extents and thereby to cause said positioning member to disengage said eccentric member from said last named link and thereafter to disconnect said link from its associate lever and to connect the other link with its lever. 105
17. In a typewriting machine, the combination of a ribbon carrier, a plurality of independently movable operating levers, each adapted to operate said carrier, and means for actuating one or another of said levers. 110
18. In a typewriting machine, the combination of a ribbon carrier, two independently movable operating levers, each adapted to operate said ribbon carrier, and means for actuating one of said levers to impart a comparatively short throw to the carrier, or for actuating the other lever to impart a longer throw to the carrier. 115
19. In a typewriting machine, the combination of a ribbon carrier, a plurality of independently movable operating levers, each adapted to operate said carrier, means for actuating one of said levers to impart a comparatively short throw to said carrier or for actuating another of said levers to impart a longer throw to said carrier, and means for causing one of said levers to operate said carrier through varying distances. 120
20. In a typewriting machine, the combination of a ribbon carrier, two independent actuators both normally operatively connected thereto, and means for operating at will either of said actuators and said carrier. 125
21. In a typewriting machine, the combination of a ribbon carrier and two independent actuators both normally operatively connected directly thereto, one adapted to throw the carrier one distance and the other adapted to throw the carrier a greater distance. 130
22. In a typewriting machine, the combination of a ribbon carrier, two independent levers loosely connected thereto, and means for operating either of said levers at will to throw the ribbon carrier. 135
23. In a typewriting machine, the combination of a ribbon carrier, and two independent actuators both normally operatively connected thereto at different points and adapted to throw the ribbon carrier. 140
24. In a typewriting machine, the combination of a ribbon carrier, and two independent actuators, both normally operatively connected to said ribbon carrier, said ribbon carrier being constructed to be moved by either of said actuators without affecting the other actuator. 145
25. In a typewriting machine, the combination of a ribbon carrier having a loop or slot, and two independent actuators connected directly to said carrier at different points and adapted each to operate said carrier without at the same time affecting the other actuator. 150
26. In a typewriting machine, the combination of a ribbon carrier, two levers connected thereto so as to independently operate said carrier, each lever having a different throw, a universal bar, and means between said levers and said universal bar connecting the latter with said levers. 155
27. In a typewriting machine, the combination of printing keys, a ribbon carrier, a plurality of separate operating levers for throwing or vibrating the ribbon carrier, each operative by all of said printing keys, and means for causing either of said levers to throw the ribbon carrier when a printing key is actuated. 160
28. In a typewriting machine, the combination of printing keys, a ribbon carrier, two separate actuators therefor, and means for causing at will either of said actuators to throw said carrier when the printing keys are operated, both said actuators being operable by all the printing keys and one actuator remaining at rest in normal position while the other is operating. 165
29. In a typewriting machine, the combination of printing keys, a ribbon carrier, two independent actuators loosely connected thereto, and means for operating either of said actuators at will to throw the ribbon carrier, both of said actuators being operable by all of said printing keys, and one actuator remaining at rest in normal position while the other is operating. 170
30. In a typewriting machine, the combination of printing keys, a ribbon carrier, and two independent actuators both normally operatively connected thereto at different points and adapted to throw the ribbon carrier, both of said actuators being operable by all of said printing keys. 175
31. In a typewriting machine, the combination of printing keys, a ribbon carrier, and two independent actuators, said ribbon carrier being constructed to be moved by either of said actuators, the other then remaining at rest, and both of said actuators being operable by all of said printing keys. 180
32. A ribbon vibrator in combination with two separately movable levers for operating the same variable extents, the same printing keys of the machine operating both levers. 185
33. In a typewriting machine and in ribbon vibrating mechanism, the combination of printing keys, ribbon carrying means, two operating levers therefor, both movable by all the printing keys, and means for rendering either one of said levers operative at will, one lever being rendered inoperative when the other is rendered operative. 190
34. In a typewriting machine and in ribbon vibrating mechanism, the combination of two relatively movable operating levers, a key-actuated universal bar, and means for connecting at will either of said levers with said universal bar. 195
35. In a typewriting machine and in ribbon vibrating



mechanism, the combination of two relatively movable operating levers, a key-actuated universal bar frame, and means mounted on said universal bar frame and operative at will to render either of said operating levers operative.

- 5 36. In a typewriting machine and in ribbon vibrating mechanism, the combination of a pair of ribbon throwing levers, a pair of pivotally mounted members for operating said levers alternately, and means including a hand-controlled slide for bringing one or another of said mem-  
10 bers into operation.

37. In ribbon vibrating mechanism for a visible writing machine, the combination of two relatively movable rib-

bon throwing levers, a key-actuated universal bar frame, and means attached to said universal bar frame for rendering operative either of said levers at will, one lever 15 remaining motionless while the other lever is operating.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 28th day of January, A. D. 1905.

JACOB FELBEL.

Witnesses:

ETHEL M. WELLS,  
MARIE F. HANSUREBER.