

No. 868,493.

PATENTED OCT. 15, 1907.

G. A. SEIB.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAY 9, 1906.

2 SHEETS—SHEET 1.

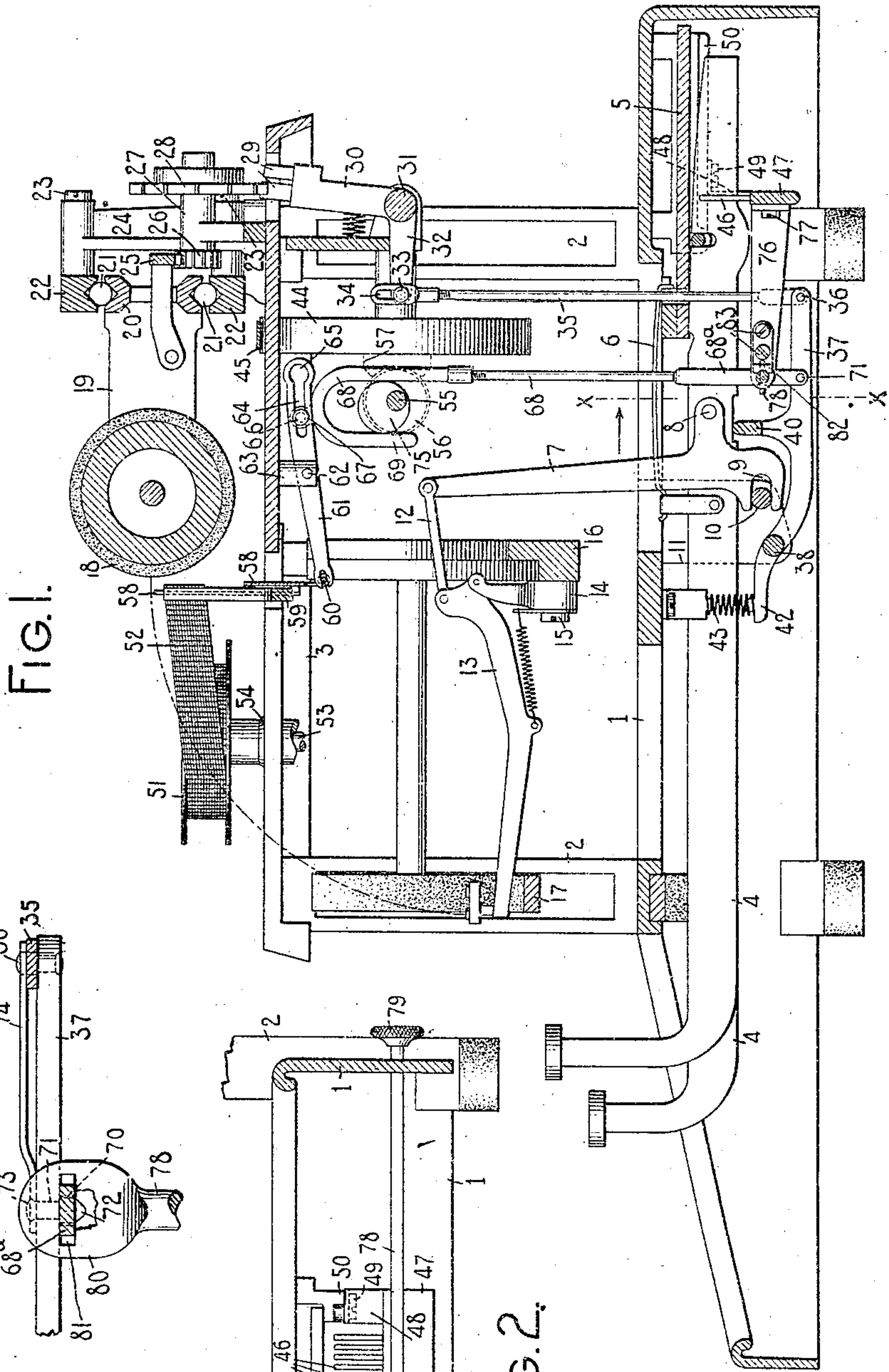
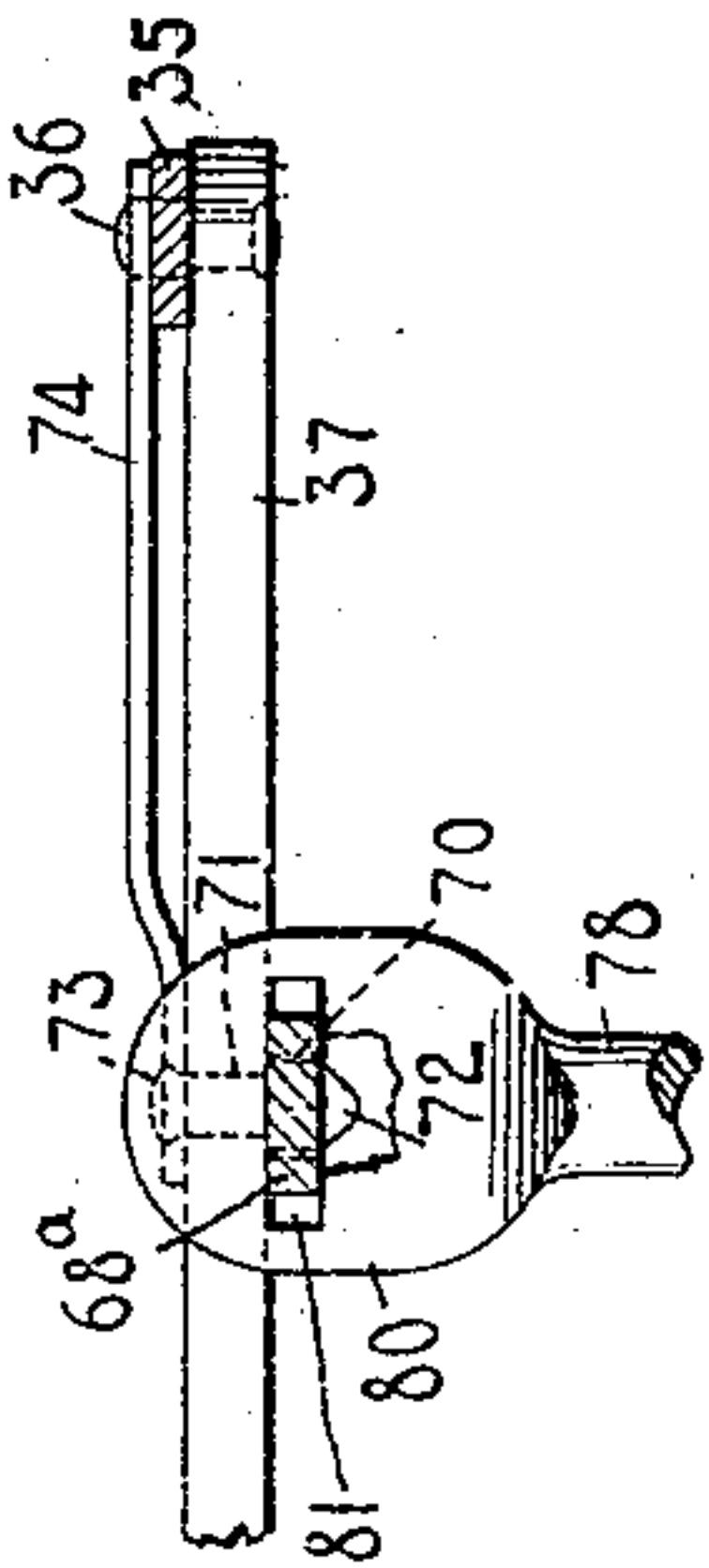


FIG. 3.



WITNESSES:

J. B. Reeves  
m.w. Pool

FIG. 2.

INVENTOR:

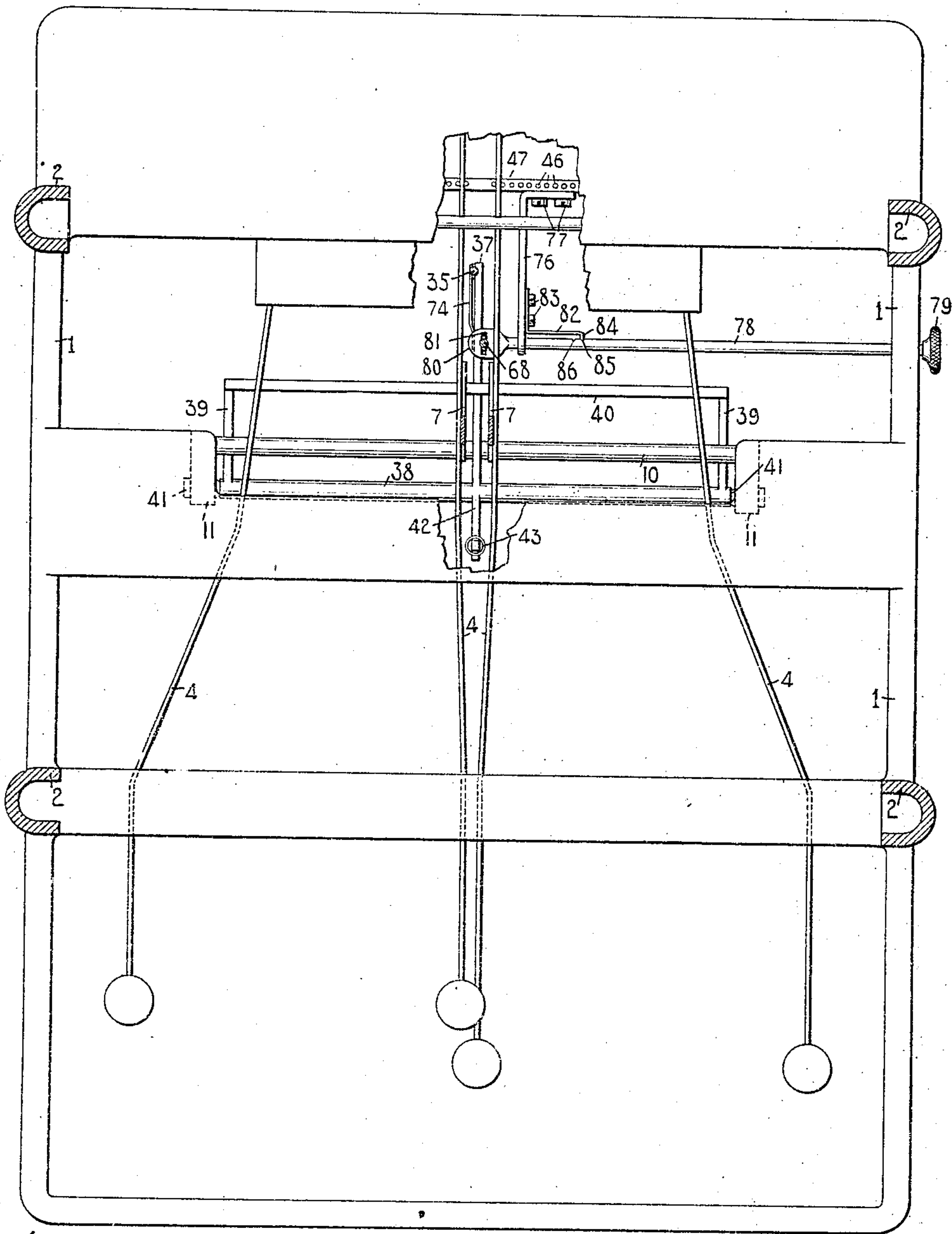
George A. Seib  
By Jacob Seib  
HIS ATTORNEY

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WITNESSES:

FIG. 4.

INVENTOR:

*J. B. Reeves*  
*W. W. Pool*

*George A. Seib*  
*By Jacob Seibel*  
HIS ATTORNEY



# UNITED STATES PATENT OFFICE.

GEORGE A. SEIB, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

No. 868,493.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed May 9, 1906. Serial No. 316,027.

*To all whom it may concern:*

Be it known that I, GEORGE A. SEIB, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga, 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 more especially to the ribbon mechanism of that class of typewriting machines wherein a vibrator or carrier is employed to move the ribbon to cover and uncover the printing point during printing operations.

The main object of the invention is to provide improved means for dispensing at will with the vibratory movement of the ribbon so that it may be maintained quiescent and without the printing field on the platen during printing operations.

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

One form of my invention is illustrated in the accompanying drawings, wherein

Figure 1 is a vertical front to rear sectional view of a typewriting machine embodying my invention, parts of said machine being omitted and parts being broken away. Fig. 2 is a sectional view showing the right hand side of the lower part of the machine, parts being omitted and parts being broken away, the section being taken on a plane represented by the line  $x-x$  in Fig. 1 and looking in the direction of the arrows at said line. Fig. 3 is an enlarged fragmentary horizontal detail sectional view showing the connection between the universal bar and the link for actuating the vibrator operating lever. Fig. 4 is a horizontal sectional view taken just above the base of the machine, parts being omitted and parts broken away.

The invention is shown as applied to a machine generally resembling the Monarch typewriter but it is to be understood that said invention may be adapted to other forms of writing machines.

In the drawings, the main frame of the machine is shown as comprising a base 1, corner posts 2 and a top plate 3. Key levers 4 are fulcrumed on a fulcrum plate 5 in the rear of the base, each key lever being provided with a restoring spring 6. A sub-lever 7 is pivoted at 8 to each key lever, said sub-lever at its lower end being provided with a slot 9 which coöperates with a fixed abutment or fulcrum bar 10, the ends whereof are secured in lugs 11 depending from the base near the sides thereof. The upper end of each sub-lever is connected by a link 12 to a type bar 13, said type bar being pivoted in a hanger 14 secured by a

screw 15 to a segmental type bar support 16. The type bars are radially arranged in segments of circles and their type ends which normally rest on a segmental pad 17 are adapted to coöperate with the front face of a rotary platen 18. The platen is supported in side bars 19 of a platen carrier or carriage which is composed of the side bars 19 and a longitudinal rear bar 20 from the ends of which the side bars project horizontally forward. The rear bar 20 is provided at its top and bottom with longitudinal grooves which coöperate with anti-friction balls 21, said balls also coöperating with fixed top and bottom grooved guide rails 22, said guide rails being secured by screws 23 to standards 24 rising from the top plate.

Supported on the carriage is a feed rack 25 which normally meshes with a feed pinion 26 mounted on a shaft which is journaled in a fixed bracket 27. An escapement wheel 28 is operatively connected with the pinion shaft and the pinion 26, and escapement dogs 29 are adapted to coöperate with said escapement wheel, said dogs being mounted at the top of the upright arm 30 of a pivoted vibratory dog carrier or rocker 31, said rocker being provided with a horizontal arm 32 which carries a pin 33. The pin 33 engages in a slot 34 at the upper end of a vertically disposed link 35, the lower end of said link being formed with a hole which engages a pin or rivet 36 projecting laterally from the central rearwardly extending arm 37 of a universal bar frame. The universal bar frame comprises, in addition to the arm 37, a rock shaft 38, side arms 39 and a universal bar 40. The rock shaft 38 is pivoted at its ends in screw pivots 41 secured in the lugs 11, and has forwardly projecting from it near its middle a horizontally disposed arm 42 which coöperates with a restoring spring 43. The universal bar extends from side to side of the machine beneath the series of key levers 4 and when any key lever is operated said universal bar is adapted to be swung down about the pivots 41, operating through the link 35 on the dog rocker 31 and causing the escapement dogs 29 to coöperate in a known manner with the escapement wheel 28. A carriage spring drum 44 is connected by a band or strap 45 with the carriage and tends constantly to draw the carriage leftward across the top plate of the machine. At each operation of a printing key, its associate type bar is swung to and from the printing point, and the escapement devices coöperate to permit the carriage to be drawn a unit's distance in printing direction under the influence of the spring drum 44. During their up and down movements the printing key levers 4 are guided near their rear ends between teeth or reeds 46 projecting upwardly from a comb plate or reed bar 47, which extends from side to side of the machine be-



neath the key levers and is provided at its ends with angular arms 48 which are secured by screws 49 to ribs 50 on the base 1.

A pair of ribbon spools 51 arranged above the top plate and forwardly of the platen, one at each side of the machine, receive a ribbon 52 which may be fed lengthwise from either spool to the other by any suitable means, preferably that employed in the Monarch machine and which is explained in the patent to Felbel & Gabrielson, No. 703,339, dated June 24th, 1902. Only the left hand one of the ribbon spools is shown in the drawings. Each ribbon spool 51 is carried by an upright shaft 53 which rotates in a fixed bearing 54 and is adapted to be connected by a suitable gear train with a driving or power shaft 55, which shaft is connected by beveled pinions 56 and 57 with the carriage spring drum 44. As explained in the above cited patent the driving or power shaft 55 is capable of longitudinal movement and the longitudinal position of said shaft determines which ribbon spool will be turned to wind the ribbon thereon.

Between the ribbon spools the ribbon 52 is threaded through a ribbon vibrator or carrier 58 which is supported and guided in a bracket 59 suitably secured to the top plate of the machine. The lower end of the vibrator carries a cross pin 60 which is embraced by the slotted forward end of an operating lever 61 fulcrumed at 62 in a lug 63 depending from the top plate, the fulcrum 62 being fixed and unalterable.

The rear arm of the operating lever 61 is provided with an elongated slot 64 which terminates at the rear in an enlarged circular opening 65. A pin or stud 66 having a head 67 projects laterally from the upper end portion of a vertically arranged link 68. The upper portion of the link is flattened and besides carrying the stud is provided with a downwardly and forwardly bent arm 69. The lower end portion of the link 68 is flattened as indicated at 68<sup>a</sup> and the flattened portion is provided at its lower end with a hole or opening 70 (Fig. 3) in which engages a pin or rivet 71 projecting laterally rightward from the arm 37 of the universal bar frame. The end of the pin or rivet is rounded as indicated at 72 for ready engagement with the hole or opening 70.

Clamped between the head 73 of the pin or rivet 71 and one side of the arm 37 is the end of a flat securing spring 74, which, as best shown in Fig. 3, is thus connected to and carried by the arm 37. The rear or free end of the spring bears against the link 35 and serves to maintain it in engagement with the pin 36.

The link 68, which is on the opposite side of the arm 37, is adapted to be maintained in engagement with the pin 71 and to be disconnected from and reconnected thereto by means presently to be described. Said link 68 is arranged to be swung fore and aft of the machine about the pin 71 in order to cause the stud 66 to move longitudinally of the slot 64 so that said link may engage the operating lever 61 at varying distances from its fulcrum, thereby varying the power arm of said lever and causing the ribbon vibrator to throw the ribbon varying distances from normal position. The means employed for swinging the link about its pivot 71 in the present instance comprises an eccentric 75 fixed on the power shaft and rotatable with the latter. Said eccentric is embraced between the flattened upper

portion of the link 68 and the arm 69 thereof, the arm 69 and the upper portion of the link 68 constituting a strap for the eccentric and one which affords an up and down independent movement of the link 68 as well as a fore and aft movement thereof when the eccentric is turned.

It will be understood that as the driving shaft is given rotary movement during printing operations, the eccentric 75 will turn or rotate with said power shaft and said eccentric will cooperate with the strap of the link 68 to move the pin 66 back and forth in the slot 64. In assembling the parts the head 67 of the pin or stud 66 is passed through the enlarged opening 65 at the rear end of the slot but during the back and forth movements of the pin 66 under the influence of the eccentric 75 said pin is never moved rearwardly in the slot as far as the enlarged opening 65. The diameter of the head 67 of the pin 66 is greater than the width of the slot 64 so that during the operation of the parts the link 68 is constantly or at all times connected with the operating lever 61 and cannot be accidentally detached from it.

It will be understood that with the link 68 connected with the pin 71 on the universal bar as described, said link will be moved downwardly with the universal bar when any of the printing key levers 4 are operated, and the operating lever 61 will be turned on its fulcrum 62 by said link, throwing or moving the ribbon vibrator 58 upward variable distances. The upward movement of the vibrator carries the ribbon from a normal inoperative position below the printing point upward so that said ribbon covers the printing point and the type of the actuated type bar will cooperate with the paper and platen through said ribbon, thereby causing an inked impression to be made on the paper. Sometimes it is desirable, as in preparing stencils for mimeograph work, to cause the types to strike directly against the stencil or other paper without the interpositioning of the ribbon between the types and the paper. By my invention this result is accomplished by means which are operative to disconnect the actuating link 68 from the universal bar frame, so that when the universal bar is operated by the printing keys, the link will not be moved by said universal bar, and the operating lever and the vibrator will remain quiescent and the ribbon will be maintained in normal position below the printing point. The means for disconnecting the actuating link from the universal bar frame will now be described.

A horizontally disposed angled bracket 76 is secured to the comb plate or reed bar 47 by headed screws 77. The forward end of the bracket is provided with a bearing opening which receives a disconnecting member; which, in the present instance, is in the form of a slide rod 78 horizontally disposed and bearing near its left end in the opening in the bracket 76 and near its right end in an opening in the right hand side of the base 1. The outer or right hand end of the slide rod 78 terminates outside the base and is provided with a finger piece or button 79. The inner or left hand end of the slide rod is flattened forming a plate like part 80 which is provided with a slot 81 through which the lower flattened portion 68<sup>a</sup> of the link 68 passes, said slot being elongated so that said link may turn freely on its pivot 71 under the influence of the eccentric 75



and being wide enough to permit free longitudinal movements of the link.

A locking spring or detent 82 is secured to the bracket 76 by headed screws 83, the free end of said spring being bent forwardly as indicated at 84 to cooperate with one or another of two notches or depressions 85 and 86 formed in the rear side of the slide rod 78. When the slide rod is positioned so that the end 84 of the locking spring engages with the right hand notch 85 in the slide rod, the lower end of the link 68 is pressed leftward so that the opening 70 therein engages with the pin 71 on the arm 37 of the universal bar frame as shown in Fig. 3. Consequently when the universal bar frame is turned on its pivots 41 during printing operations, the link 68 will be reciprocated up and down in the slot 81 in the member or slide rod 78, and the vibrator 58 will be reciprocated as previously described.

When it is desired to render the universal bar inoperative on the actuating link in order to maintain the ribbon quiescent in normal position below the printing point, the slide rod 78 is pulled longitudinally rightward by means of the finger piece 79 until the end 84 of the spring or detent 82 disengaging from the notch 85 engages with the notch 86 in the slide rod. By this outward or rightward movement of the slide rod the lower end of the link 68 is swung rightward laterally of the arm 37 of the universal bar frame until the link is disconnected from the pin 71 on said arm 37, as shown in Fig. 2. From an inspection of this figure it will be apparent that the movements of the universal bar frame and its arm 37 will not affect the link 68 and consequently during printing operations, the link and the other parts of the ribbon vibrating mechanism will remain quiescent so that the types may cooperate directly with the paper on the platen.

When it is desired to reconnect the vibrating mechanism with the universal bar frame, the slide rod 78 is pushed inward to the position shown in Fig. 4, thereby causing the link 68 to reengage with the pin 71 as shown in Fig. 3; it being understood that the opening in the lower end of said link will be in a position when at rest to engage the pin 71. This will be the case no matter what the position of the pin 66 longitudinally of the slot 64 may be, since said slot 64 is formed on an arc of which the center is 71, the result being that the lower end of the link 68 when disconnected from the universal bar frame will always move down longitudinally to substantially the same normal position after vibrations of the lever 61. Furthermore, the position of the lower end of the link 68 fore and aft of the machine will vary only slightly with the back and forth movements of the pin 66 in its slot 64, said lower end being restrained in this direction by the ends of the slot 81. As has been stated, the end or top of the pin 71 is rounded or sharpened as shown clearly at 72 (Fig. 3), the parts being so proportioned that the rounded end of the pin will always enter the opening in the lower end of the link 68 in any of the positions which said opening may occupy fore and aft of the machine.

It will be seen that I have provided a simple and efficient disconnecting means for the ribbon vibrating mechanism which means may be readily adapted to existing forms of typewriting machines, necessitating few changes in the usual construction of the latter.

Various changes may be effected within the 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 vibrator, an operating lever therefor, a key operated universal bar, a link connected directly with both said universal bar and said operating lever, and means for wholly disconnecting said link from said universal bar.

2. In a typewriting machine, the combination of a ribbon vibrator, an operating lever therefor, a key operated universal bar, a link connecting said universal bar and said operating lever, means for varying the point of connection between said link and said lever, and means for disconnecting said link from said universal bar.

3. In a typewriting machine, the combination of a ribbon vibrator, a slotted lever connected therewith, a link adapted to move back and forth in the slot of said lever and to operate on said lever, an eccentric for controlling the back and forth movements of said link, a universal bar to which said link is connected, printing key levers operative on said universal bar, and means for disconnecting said link from said universal bar.

4. In a typewriting machine, the combination of a ribbon vibrator, a lever connected therewith, a link having a pin and slot connection with said lever and provided with a strap, a driving shaft, an eccentric thereon cooperating with said strap, a universal bar to which said link is connected, printing key levers operative on said bar, and means for disconnecting said link from said universal bar.

5. In a typewriting machine, the combination of a ribbon vibrator, a lever for operating the same, a key operated universal bar, a link connected at one end with said lever and at the other end to said universal bar, and a hand operated member adapted to disconnect said link from said universal bar.

6. In a typewriting machine, the combination of a ribbon vibrator, a slotted lever connected therewith, a link adapted to move back and forth in the slot of said lever and to operate on said lever, an eccentric for controlling the back and forth movements of said link, a universal bar to which said link is detachably connected, and a hand operated member adapted to disconnect said link from said universal bar.

7. In a typewriting machine, the combination of a ribbon vibrator, an operating lever therefor, a key actuated universal bar, a depending rigid link connecting said universal bar and said operating lever, and a slide rod slidably connected with said link and having a finger piece whereby said rod may be operated to connect said link to or disconnect it from said universal bar.

8. In a typewriting machine, the combination of a ribbon vibrator, a slotted lever connected therewith, a link adapted to move back and forth in the slot of said lever and to operate on said lever, an eccentric for controlling the back and forth movements of said link, a universal bar to which said link is detachably connected, and a slide rod slidably connected with said link at one end and having a finger piece at the other end, whereby said rod may be operated to connect said link to or disconnect it from said universal bar.

9. In a typewriting machine, the combination of a ribbon vibrator, an operating lever therefor, said lever having a fixed unalterable fulcrum with which said lever is at all times connected, a depending rigid link constantly connected with said lever, printing keys, a universal bar actuated by said printing keys and with which said link is connected, whereby the ribbon vibrator is caused to carry the ribbon from normal to printing position when the printing key is actuated, and means for maintaining the ribbon in normal position when the printing keys are actuated.

10. In a typewriting machine, the combination of a ribbon vibrator, an operating lever therefor, said lever having a fixed unalterable fulcrum with which said lever is at all times connected, means for varying the power arm of said lever, a link constantly connected with said



lever, printing keys, a universal bar actuated by said printing keys and with which said link is connected, whereby the ribbon vibrator is caused to carry the ribbon from normal to printing position when the printing key  
 5 is actuated, and means for maintaining the ribbon in normal position when the printing keys are actuated.

11. In a typewriting machine, the combination of a ribbon vibrator, printing instrumentalities, printing keys therefor, a universal bar controlled by said keys, inter-  
 10 mediate actuating devices between said universal bar and

ribbon vibrator, said actuating devices including a depending rigid link movable by said universal bar, and hand actuated means operable at will to effect a connection or disconnection between said link and the universal bar.

Signed at Syracuse, in the county of Onondaga, and 15  
 State of New York, this 7th day of May A. D. 1906.

GEORGE A. SEIB.

Witnesses:

H. A. CLEMENT,  
 W. J. LOGAN.