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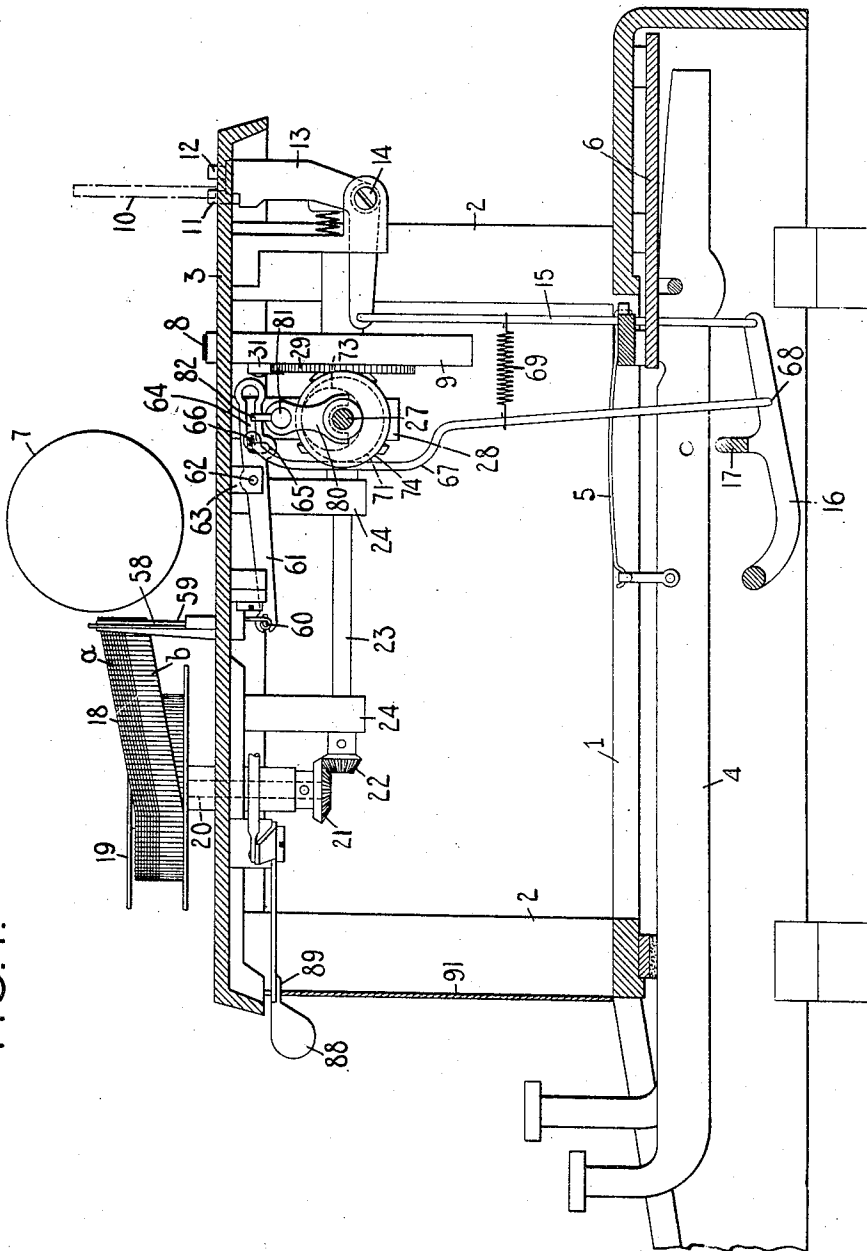
H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 20, 1910.

1,052,020.

Patented Feb. 4, 1913.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

W. W. Pool
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INVENTOR:

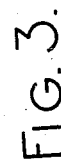
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3 SHEETS—SHEET 2.



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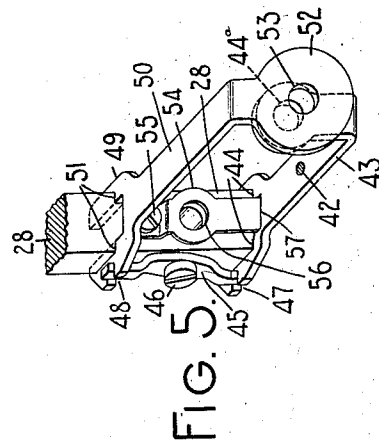
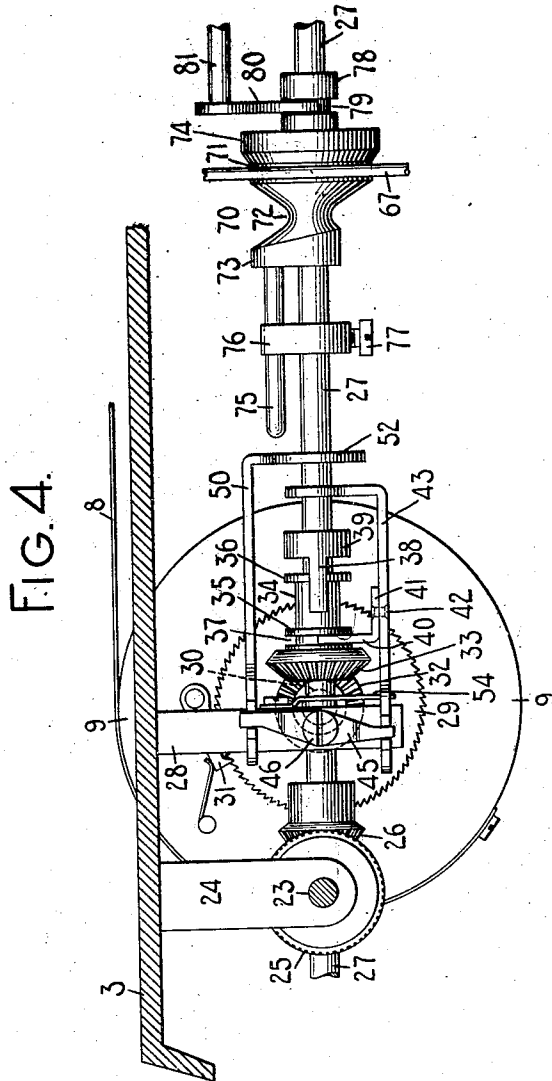
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3 SHEETS—SHEET 3.



WITNESSES:

M. W. Pool
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UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF MARCELLUS, NEW YORK, ASSIGNOR TO THE MONARCH TYPE-
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TYPE-WRITING MACHINE.

1,052,020.-

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed June 20, 1910. Serial No. 567,873.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, 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 to ribbon mechanism for typewriting machines and especially to devices for rendering a vibratory ribbon carrier inoperative to move the ribbon to cover the printing point on the platen and for simultaneously cutting out the mechanism for feeding the ribbon longitudinally so that there will be no waste of the ribbon when stencil work is being done.

The main object of my invention is to provide improved devices of the class specified.

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

My invention is illustrated as applied to a Monarch typewriting machine in the accompanying drawings wherein—

Figure 1 is a fragmentary vertical front to rear sectional view of so much of the machine as is necessary to illustrate my invention. Fig. 2 is a plan view partly in horizontal section of the ribbon feeding mechanism and ribbon devices. Fig. 3 is a fragmentary plan view partly in section and corresponding to Fig. 2 but showing some of the parts in different relationships from those in which they appear in said Fig. 2. Fig. 4 is a view partly in vertical section showing some of the ribbon feeding mechanism and some of the ribbon devices, said figure being drawn to an enlarged scale. Fig. 5 is a perspective view of certain of the novel ribbon devices employed in the present embodiment of my invention.

Referring first to Fig. 1, the main frame of the machine comprises a base 1, corner posts 2 and a top plate 3. Key levers 4, each provided with a restoring spring 5, are adapted to fulcrum on a plate 6 in rear of the base and each key lever is connected with and adapted to operate a type bar (not shown), the set of type bars being arranged below and adapted to cooperate with a platen 7 which is mounted on a carriage (not shown), said carriage being connected by a band or strap

8 with a spring drum 9 pivoted on the frame of the machine. The movements of the carriage and platen in printing direction are controllable by escapement devices comprising a toothed escapement wheel 10 and co-operating escapement dogs 11 and 12 supported at the top of the vertical arm of a dog carrier or rocker 13 pivoted at 14. The horizontal arm of the dog rocker 13 is connected by a link 15 with a universal bar frame 16 which carries a universal bar 17 extending transversely beneath the set of key levers 4 and operative thereby to actuate the escapement mechanism.

Fig. 1 illustrates a ribbon 18 which is shown divided longitudinally into fields *a* and *b* of different characteristics, such as different colors, although it is to be understood that a plain or uniform ribbon may be employed. The ribbon 18 is wound on ribbon spools 19 horizontally disposed, one at each side of the machine above the top plate, and forward of the platen. Each ribbon spool is supported at the top of a vertical shaft 20 mounted on the top plate and carrying at its lower end a beveled pinion 21 which meshes with a beveled pinion 22 carried at the forward end of a horizontal rearwardly extending shaft 23 which bears in lugs 24 depending from the top plate. As shown in Figs. 1 and 2 each shaft 23 carries at its rear end a beveled pinion 25 which is adapted to mesh with a beveled pinion 26 fixed to a ribbon driving shaft 27 which bears in lugs 28 depending from the top plate. The pinions 26 are spaced apart on the shaft 27 so that only one of them at a time is adapted to mesh with its associate pinion 25. Suitable means are preferably provided for automatically shifting the shaft 27 longitudinally back and forth so as to connect with the ribbon spools alternately through the pinions 26 and connected parts, thus reversing the direction of longitudinal feed of the ribbon. The driving or power shaft 27 is connected with the spring drum 9 in such a way as to receive rotary motion therefrom, the connections including a ratchet wheel 29 loosely mounted on a shaft 30 of the spring drum. A spring pressed pawl 31 pivoted on the spring drum casing connects the ratchet wheel 29 and the spring drum so that the ratchet wheel is forced to turn with the spring drum when the latter turns to draw the carriage in printing direc-

tion. During return movements of the carriage and spring drum the pawl 31 slides idly over the ratchet teeth. Projecting forward from the face of the ratchet wheel 29 and integral therewith is a beveled pinion 32 which is adapted to mesh with a beveled pinion 33 slidably mounted on the driving shaft 27. The pinion 33 is provided with a hub 34 extending rightward therefrom and surrounding the shaft 27. The hub has flanges 35 and 36, the left-hand flange 35 being formed with a circumferential groove 37. The right-hand flange 36 is provided with a notch which is constantly engaged by a finger 38 extending laterally leftward from a collar 39 fixed to the shaft 27. The gear 33 is adapted to be slid rightward along the shaft 27 in order to break the connection between the source of power or the spring drum and thereby render inoperative the means for feeding the ribbon longitudinally. The finger 38 engaging the notched flange 36 maintains a constant connection between the gear wheel 33 and the power shaft 27 so that in both the operative and inoperative positions of the gear wheel it will turn with said shaft.

The means for moving the gear 33 back and forth along the shaft 27 comprises a forked arm 40 which engages loosely in a groove 37 and is provided with an angular extension or foot 41 riveted at 42 to a slidable platform or plate 43. The left-hand end of the plate or member 43 is forked or bifurcated to engage with grooves 44 formed oppositely in the front and rear faces of the left-hand lug 28. The right-hand end portion of the plate 43 is bent upright and perforated at 44^a to engage the shaft 27 which provides a bearing for the plate (Figs. 3 to 5). Actuating devices for the arm 40 and plate 43 comprise a vertically disposed lever 45 of the first order pivoted at 46 to the front face of the lug 28 and having its lower end off-set forward from the face of the lug and engaging a notch 47 in the left-hand portion or head of the plate 43. The upper end of the lever 45 is similarly off-set forward and engages in a notch 48 in the left-hand portion or head 49 of a plate-like member 50, the head whereof is bifurcated or forked to cooperate with grooves or slots 51 formed in the front and rear faces of the lug 28. The member 50 terminates at its right-hand end in a circular enlargement 52 which is bent vertically downward and is formed with a hole 53 which bears on the shaft 27 at the right of the bearing opening 44 in the plate-like member 43, said member 43 cooperating with the shaft 27 between the part 52 and the collar 39. A plate-spring 54 is secured by a screw 55 to the right-hand face of the lug 28 and projects downward along said lug, being off-set somewhat from the adjacent face thereof (Figs. 3

to 5). Said spring 54 is formed with a hole 56 for the free passage therethrough of the shaft 27. The lower end portion of said spring engages in a slot 57 formed in the member 43. Said spring 54 normally maintains the member 43 and connected parts in the normal relationship shown in Fig. 4. It will be understood that if the member 50 be pushed leftward, motion will be communicated therefrom through the lever 45 to the member 43 which will slide in the opposite direction or to the right and will, through the forked device 40, slide the beveled gear 33 rightward and disconnect it from the gear 32, as shown in Fig. 3. This movement will flex the spring 54 so that when the parts are released, said spring will restore them to normal position, which is determined by the engagement of the member 43 with the left-hand face of the lug 28. The means for thus moving the members 50 and 43 to disconnect the gear 33 will be presently described.

Midway between the ribbon spools the ribbon 18 is threaded through slots in the head of a vibratory ribbon carrier or vibrator 58 (Fig. 1), said vibrator being vertically disposed and guided by an upright guide 59 secured to the top plate. The lower end of the vibrator which is or may be of the usual Monarch style is bifurcated and carries a cross pin 60 which is engaged by the slotted forward end of a horizontally disposed operating lever 61 pivoted at 62 to a lug 63 depending from the top plate. The rear arm of the lever 61 is formed with an arcuate horizontally disposed slot 64, the forward end of which terminates in a downward extension 65. The slot, it will be seen, comprises two angularly disposed portions. Cooperating with the slot 64 is a pin 66 extending laterally from the top of a link 67, said link being pivotally connected at its lower end at 68 with the universal bar frame 16. A coiled spring 69 connects the links 67 and 15 and tends constantly to urge the link 67 rearward about its pivot 68. The upper end portion of the link 67 is off-set or bent forward and the off-set portion is adapted to cooperate with a controlling device 70 which is supported on and actuated by the driving shaft 27. Said controlling member comprises circular faces 71, 72, 73 and 74 arranged side by side and connected together. The faces 71, 72 and 74 are concentric with the shaft 27 while the face 73 is eccentric thereto. The face 72 is the smallest in diameter, the face 71 being larger than the face 72 and the face 74 still larger. The short radius of the eccentric face 73 equals the radius of the face 72 while the longer radius equals that of the face 71. The faces are adapted to cooperate at different times with the link 67 to shift the latter and vary the vibrating mechanism, said faces be-

ing brought into operation by sliding the member 70 back and forth along the shaft 27. The connection between the member 70 and said shaft comprises a pin 75 extending laterally leftward from the member and slidably engaging with a collar 76 fixedly secured to said shaft 27 by a set screw 77.

Extending rightward from the member 70 and bearing on the shaft 27 is a hub portion 78 formed with a circumferential groove 79. This hub coöperates with manually operated devices which control the position of the member 70 on the shaft 27. Said devices may be of the usual or any suitable construction and comprise (Figs. 1, 2 and 4) a vertical arm 80, the lower end of which is forked and engages loosely in the groove 79. The upper end of said arm is fixed to the left-hand end of a rod 81 which is slidable through the two right-hand lugs 28 and carries at its right-hand end an upwardly extending pin 82. The pin 82 is engaged by a bell crank 83 having a fixed pivot 84 and connected by a link 85 with a bell crank 86 pivoted at 87 near the front of the machine and having a forwardly projecting arm terminating in a finger piece 88. Said finger piece has an edge 89 which is adapted to coöperate with detent notches 90 cut in the usual front plate 91. When a uniform ribbon is employed the finger piece 88 is manipulated to bring the eccentric face 73 into engagement with the link 67 so that thereafter, during letter space movements of the carriage, the link will be caused to travel automatically back and forth along the slot 64 and thus progressively vary the widthwise portion of the ribbon presented to the types. When a two-color ribbon like 18 is in use on a machine, then the faces 72 and 71 are brought into use to shift the link 67 to the proper points on the operating lever for bringing into play respectively the black field and red field of the ribbon. When it is desired to dispense entirely with the use of the ribbon, the finger piece 88 is manipulated to bring the face 74 into action against the link 67, thereby forcing the link so far forward that the pin 66 is above the vertical slot or angular extension 65. Consequently, during subsequent operations of the printing keys, the downward movement of the link 67 will lower the pin 66 in the slot 65 without affecting the lever 61 and the vibrator will remain inoperative in normal position.

The link 67 with its actuating pin 66 constitutes a connection or device variably settable or shiftable to different positions to vary the throw of the vibrator, and also to yet another position to render inoperative the train of actuating devices by which the vibrator is vibrated; and this settable device is set or shifted by means which include a positioning member or device 70, said

positioning member being adapted to render inoperative the mechanism for feeding the ribbon longitudinally. Thus it will be observed that the face 74 is at the right of the member 70, so that to bring said face into action it is necessary to shift said member to its extreme left-hand position. As a result of this extreme shift, the end of the pin 75 is brought into engagement with the face of the portion 52 of the slidable member 50 and will force said member leftward. The leftward movement of said member will act as above explained through the lever 45 to force the slidable member 43, forked device 40 and gear 33 rightward, thus disconnecting the ribbon driving shaft from the source of power. In other words, whenever the ribbon vibrating mechanism is rendered inoperative, as for mimeographing or like purposes, the longitudinal ribbon feeding mechanism is at the same time automatically rendered inoperative so that there is no useless feeding or waste of the ribbon when it is not being vibrated for co-action with the types.

It will be observed that I provide improved and simplified mechanism for obtaining the ends sought and which may be applied to existing types of machines without materially altering the structure thereof. Various changes may be made without departing from the spirit and scope of the invention.

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

1. In a typewriting machine, the combination of ribbon feeding mechanism, a ribbon vibrator, an operating lever, means for actuating the same including a link, means for changing the normal position of said link to render it when actuated inoperative to move said lever and said vibrator, and means connected with said changing means to render said ribbon feeding means inoperative.

2. In a typewriting machine, the combination of ribbon feeding mechanism, a ribbon vibrator, an operating lever therefor, a universal bar, a link connected directly to said universal bar and to said operating lever, means for changing the position of said link to disconnect it from said operating lever, and means connected to said means for rendering said ribbon feeding means inoperative.

3. In a typewriting machine, the combination of ribbon feeding mechanism, a ribbon vibrator having a single normal position, a train of actuating devices connected to said vibrator and comprising a universal bar, a lever and an intermediate connection, means for shifting said connection to vary the throw of the vibrator and also to render said train inoperative to move said vibrator, said shifting means including a

manually shiftable positioning device, and means operative by said positioning device for rendering said ribbon feeding mechanism inoperative.

4. In a typewriting machine, the combination of ribbon feeding mechanism, a ribbon vibrator, printing key levers, a universal bar underlying said key levers and having a single normal position, connections between said vibrator and said universal bar, means for varying said connections to vary the throw of the vibrator and also for breaking said connections independently of movement by said universal bar and said vibrator, and means connected with said last named means for rendering said ribbon feeding mechanism inoperative.

5. In a typewriting machine, the combination of ribbon feeding mechanism, a ribbon vibrator, an operating lever therefor provided with a slot having angularly disposed portions, key controlled actuating devices for said lever, said devices comprising a link operative when arranged at one portion of said slot and inoperative when arranged at the other angularly disposed portion thereof, means for switching said link to the latter position, and means connected with said switching means for rendering the ribbon feeding means inoperative.

6. In a front-strike typewriting machine, the combination of ribbon feeding mechanism, an upright ribbon vibrator, a horizontally disposed operating lever connected therewith and provided with a slot having a horizontal portion and a vertical portion, actuating devices for said lever including a vertically disposed link, means for switching said link opposite the vertically disposed portion of said slot, and devices operative at the same time that said link is so switched for rendering said ribbon feeding mechanism inoperative.

7. In a typewriting machine, the combination of ribbon feeding mechanism, ribbon vibrating devices including a universal bar, a lever and an intermediate connection, and manual means for shifting said connection to vibrate the ribbon variably from a single normal position, said manual means also being operative to switch said connection to inoperative position and at the same time to render said ribbon feeding means inoperative.

8. In a typewriting machine, the combination of ribbon feeding mechanism including separable gears, ribbon vibrating mechanism including a link, and means including a key controlled positioning member for switching said link to vary the action of said vibrating mechanism, said positioning member in one of its positions operating to separate said gears.

9. In a typewriting machine, the combi-

nation of ribbon feeding mechanism, disconnecting devices for rendering the same inoperative, ribbon vibrating mechanism including a variably settable device, and a key controlled member for variably setting said device to present different widthwise portions of the ribbon to the types when said vibrating mechanism is actuated, said member being operative to set said settable device to render said vibrating mechanism inoperative without changing the normal position of the printing portion of the ribbon and at the same time to actuate said disconnecting devices.

10. In a typewriting machine, the combination of ribbon feeding mechanism, disconnecting devices for rendering the same inoperative, ribbon vibrating devices including a shiftable link, and a key controlled positioning member comprising a plurality of faces separately coöperative with said link to vary the action of said vibrating devices, one of the faces of said member being operative on said link to hold the same in inoperative position, said member being adapted at this time to operate said disconnecting devices.

11. In a typewriting machine, the combination of ribbon feeding mechanism including a driving shaft and also a gear slidable thereon and connecting the same with a source of power, ribbon vibrating devices including a link, a key-controlled positioning device slidable on said driving shaft and co-acting with said link, and devices operative to transmit motion from said positioning device to said gear to disconnect said gear from the source of power.

12. In a typewriting machine, the combination of ribbon feeding mechanism, disconnecting devices for rendering the same inoperative, ribbon vibrating devices including a shiftable element, a key controlled positioning member having a circular face operative to hold said element in inoperative position and having also a finger adapted to operate said disconnecting devices when said circular face is moved into operative position.

13. In a typewriting machine, the combination of ribbon feeding mechanism including a pair of separable gears, ribbon vibrating devices, a key controlled positioning member for varying said vibrating devices, and means controlled by said positioning member for disconnecting said gears, said last named means comprising a pair of oppositely movable members, and connections between the same.

14. In a typewriting machine, the combination of ribbon feeding mechanism including a pair of separable gears, ribbon vibrating devices, a key controlled positioning member for varying said vibrating devices without changing the normal posi-

tion of the printing portion of the ribbon, and means controlled by said positioning member for disconnecting said gears, said last named means comprising a slidable member, a second slidable member and a pivoted device for transmitting movement from one member oppositely to the other member.

15. In a typewriting machine, the combination of ribbon feeding mechanism including a pair of separable gears, ribbon vibrating devices, a key controlled positioning member for varying said vibrating devices without changing the normal position of the printing portion of the ribbon, and means controlled by said positioning member for disconnecting said gears, said last named means comprising opposite slidable plates and a lever of the first order connecting said plates.

16. In a typewriting machine, the combination of ribbon feeding mechanism including a pair of separable gears, ribbon vibrating devices, a key controlled positioning member for varying said vibrating devices without changing the normal position of the printing portion of the ribbon, means controlled by said positioning member for disconnecting said gears, said last named means comprising a slidable member, a second slidable member, devices for transmitting movement from one member oppositely to the other member, and a spring adapted to maintain said members in a predetermined normal position.

17. In a typewriting machine, the combination of ribbon feeding mechanism including a power shaft and also a pair of disconnectible gears, ribbon vibrating mechanism including a shiftable link, a key controlled positioning member having a face adapted to hold said link out of operation and having also a lateral finger, a fork operative on one of said gears to disconnect it from the other gear, a slidable spring controlled member supporting said fork, a second slidable member operative by said finger, and a lever connecting said slidable members.

18. In a typewriting machine, the combination of ribbon feeding mechanism; a ribbon vibrator having a single normal position; a train of actuating devices connected to said vibrator, said train including a variably shiftable device; means for shifting said device to different positions to vary the throw of the vibrator and also to another position to render said train inoperative to move said vibrator, said shifting means including a manually controlled positioning device; and means operative by said positioning device for rendering said ribbon feeding mechanism inoperative.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 17th day of June, A. D. 1910.

HERBERT H. STEELE.

Witnesses:

WILLARD C. HAY,
CLARENCE A. DELAND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."