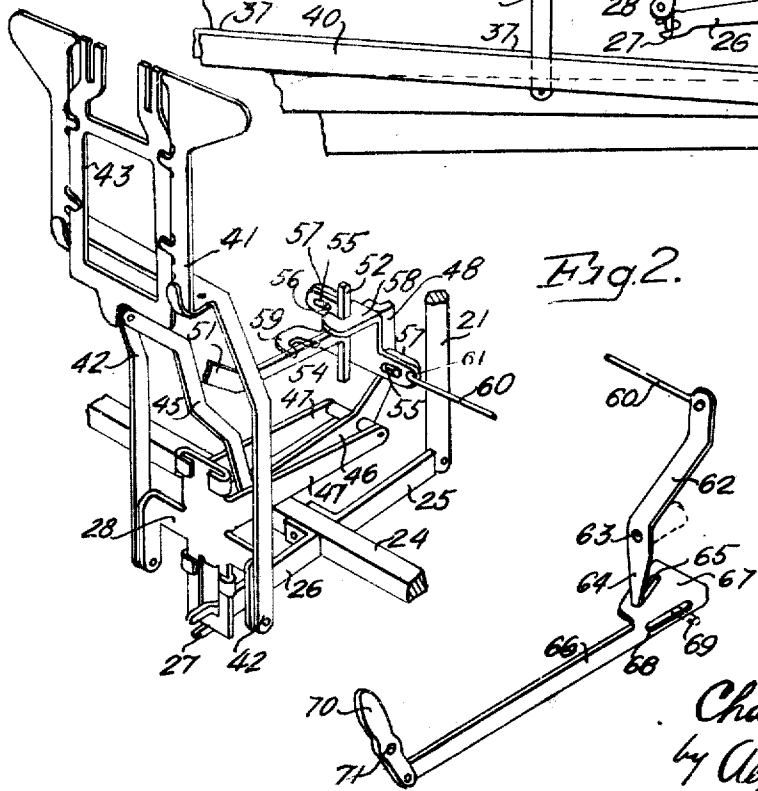
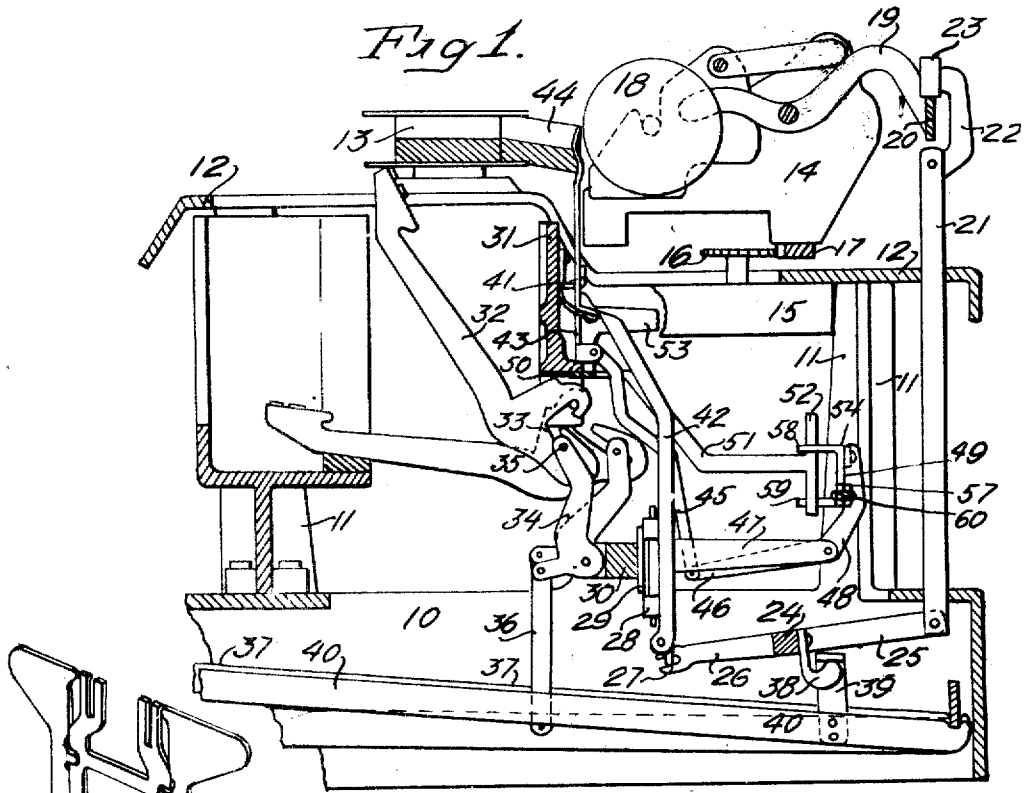


C. SPIRO.
 RIBBON SHIFTING MECHANISM;
 APPLICATION FILED MAR. 8, 1920.

1,383,776.

Patented July 5, 1921



Inventor

Charles Spiro
 by *Alfred T. Sage*
 Attorney

UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y., ASSIGNOR TO FEDERAL ADDING MACHINE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

RIBBON-SHIFTING MECHANISM.

1,383,776.

Specification of Letters Patent.

Patented July 5, 1921.

Application filed March 8, 1920. Serial No. 364,180.

To all whom it may concern:

Be it known that I, CHARLES SPIRO, citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Ribbon-Shifting Mechanism, of which the following is a specification.

This invention relates to a ribbon shifting mechanism for typewriters and particularly to a construction for vibrating the ribbon in varied paths and shifting the vibrating means for case shift equalization.

The invention has for an object to provide a novel and improved construction wherein the platen and ribbon vibrator are simultaneously case shifted by independent connections and the vibrator actuated in either of varied paths by means thereon directly engaging a universal bail.

A further object of the invention is to present an improved structure of universal bail having an elongated head to provide for case shifting movement and disposed to contact with a shiftable member carried by an arm of a pivoted vibrator lever and having engaging members disposed at different distances from the axis of said lever.

Another object of the invention is to provide a novel form of vibrator lever mounted for case shifting movement and provided with a slide plate upon one arm thereof adapted to engage a head carried by a universal bail at different distances from the axis of the lever, together with means for shifting said plate from the keyboard of the machine.

A further object of the invention is to provide a novel combination wherein the ribbon case shifting and color shifting devices are mounted independent of the carriage or platen and disposed for the most convenient assemblage and accessibility and detachable connection with cooperating parts of the typewriter mechanism.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawing—

Figure 1 is a vertical section showing the assembled mechanisms;

Fig. 2 is a detail perspective of the ribbon mechanism.

Like numerals refer to like parts in the figures of the drawing.

The numeral 10 designates the base or frame of the machine which may be of any desired construction or configuration, and is preferably provided with standards 11 at each side thereof for supporting the top plate 12 which is detachably secured thereto. This plate unit carries the ribbon spools 13 and supports the carriage 14 at the rear thereof. Upon the under face of the plate 12 an escapement mechanism 15 is secured and the driving pinion 16 therefrom meshes with a rack 17 upon the carriage. The carriage is also provided with the case shifted platen 18 controlled through lever arms 19 which are connected by a shift rail 20 at the rear thereof. This rail may be depressed to shift the platen upward by the vertical shift rod 21 provided at its upper end with a swinging arm 22 carrying a roller 23 which rides upon the upper face of the rail.

The shift rod 21 is reciprocated from a rock shaft 24 pivoted in the base unit 10 and having a rearward arm 25 pivotally connected to the lower end of the rod. This shaft is also provided with a forward arm 26 having a bifurcated end 27 for detachable connection with a slide plate 28 mounted upon a slide block 29 carried by the fulcrum bar unit 30. This unit is detachably assembled upon the base and supports the segment 31 upon which the typebars 32 are pivotally mounted. The slotted pivotal ends 33 of these typebars are connected with sub-levers 34 mounted upon the unit 30 by pins 35. These sub-levers are also connected by a pivoted link 36 with the key levers 37 which are mounted on the base 10 in the usual manner. The rock shaft 24 is formed with a finger 38 disposed to be engaged by a hook member 39 carried by the shift key lever 40 which is mounted in the base similarly to the key levers 37.

The ribbon carrier support 41 is pivotally mounted upon the slide plate 28 for case shifting movement by the depending arms 42, and the ribbon carrier 43 is disposed to vibrate upon this support. The ribbon 44 from the spool 13 is attached to the carrier

in the usual manner. For the purpose of vibrating the carrier a pivoted link 45 depends therefrom and is connected at its lower end to the vibrator lever 46 supported in arms 47 extending rearwardly from the slide plate 28. The vertical arm 48 of this lever has movably mounted thereon the color shift device 49. The vibrator lever is actuated through this device by a universal bail 50 mounted in the segment and having a depending rearward arm 51 provided with a vertically disposed elongated case shifting head 52. The bail is also provided with an upper rearward extension 53 to coöperatively actuate the escapement mechanism.

A desirable form of the color shift device 49 may comprise a slide plate 54 having elongated slots 55 therein traveling upon pins 56 extended laterally from lugs 57 on the arm 48 of the vibrator lever. This plate is also provided with engaging hooks 58 and 59, at the top and bottom edges thereof respectively, disposed to embrace the bail head 52. These hooks being at different distances from the axis of the lever correspondingly vary the extent of vibration thereof.

The plate 54 may be shifted from the key board by any desired connection, a preferable form comprising a pivoted link 60 extending from a lug 61 on the plate to a rock lever 62 pivoted upon the base at 63 and having its depending arm 64 disposed to contact with a cam device 65 carried by the inner end of the slide plate 66. This device is herein shown as comprising a slot formed in a horizontal extension 67 from the plate which is also provided with a guide slot to receive a pin 69 from the frame. This plate may be actuated by a switch lever 70 pivoted at 71 upon the base and also pivotally connected with the plate.

The operation of the invention will be apparent from the foregoing description from which it will be seen that the extent of movement of the vibrator lever is determined by the hook thereof which engages the bail head, and when neither hook is engaged with the head the ribbon is not vibrated. This adapts the ribbon for vibration in varied paths as in bichrome work and the arresting of the vibration thereof for stenciling or other purposes. The connection between the vibrator lever and universal bail head provides for case shifting the lever and maintaining the same degree of vibration in either case shifted position. The construction presents a ribbon controlling unit adapted to be assembled before application to the machine and for convenient location therein so that the parts are readily accessible for adjustment or repair.

By locating the color shift device upon the vibrator lever its weight is removed from the bail and the resistance to the typebar ac-

tion reduced thus affording a lighter touch and clearer impression. The independent case shifting connections for the ribbon and platen relieves the latter of all of the ribbon mechanism and affords a much easier shifting action thereof. The devices for case shifting and color shifting the ribbon are much simplified and disposed where they are most readily assembled and adjusted. The slide plate carrying the ribbon mechanism can be disposed upon the fulcrum bar after it is in position and quickly connected with the rock shaft arm and bail which actuate the parts thereof.

While the details of the invention have been specifically shown and described, still it is not confined thereto as changes and alterations may be made therein without departing from the spirit of the invention.

What I claim is—

1. In a typewriter, a ribbon shifting mechanism comprising a ribbon carrier, a vibrator lever therefor, a color controlling device shiftable upon said lever to vary the extent of vibration thereof, and a universal bail having a fixed head to engage said device whereby the bail is relieved of the weight thereof.

2. In a typewriter, a ribbon shifting mechanism comprising a ribbon carrier, a vibrator lever therefor, a color controlling device slidably mounted upon said lever and having oppositely disposed connecting means in different horizontal planes, and a universal bail having a vertical fixed head to engage said means whereby the bail is relieved of the weight of said device.

3. In a typewriter, a carriage, a ribbon carrier, a vibrator lever therefor having a vertically disposed arm, a universal bail having means to actuate said lever, and a color shift plate carried by said lever arm and having contacts at different distances from its axis disposed to be engaged by said means.

4. In a typewriter, a carriage, a ribbon carrier, a vibrator lever therefor, a universal bail having means to actuate said lever, a color shift device carried by said lever and having contacts at different distances from its axis disposed to be engaged by said actuating means, a switch member mounted upon the frame, and a pivoted link connection between said member and device.

5. In a typewriter, a carriage, a ribbon carrier, a vibrator lever therefor, a color shift device carried by said lever, a sliding switch member having a cam device at its inner end, a rock lever connected to said cam device, a pivoted link between said rock lever and shift device, and means at the key board of the typewriter to reciprocate said switch member.

6. In a typewriter, a ribbon shifting mechanism comprising a vibrator lever, a

ribbon carrier connected thereto, a sliding color shift device mounted upon said lever, a lever member pivoted upon a fixed part, a pivoted link extending therefrom to said shift device, a slide member having a cam slot at its inner end engaging said lever member, and means disposed at a key board to actuate said slide member.

7. In a typewriter, a ribbon shifting mechanism comprising a vibrator lever, a ribbon carrier connected thereto, a sliding color shift device mounted upon said lever, a rock lever having a horizontal arm and a depending vertical arm, a link pivoted to said shift device and horizontal arm, a horizontally disposed slide member having a cam slot engaging said vertical arm, and a switch lever disposed at a key board to actuate said slide member.

8. In a typewriter, a ribbon shifting mechanism comprising a ribbon carrier, a vibrator lever therefor, a color control plate slidingly mounted upon said lever and having oppositely disposed hooked members in different horizontal planes, and a universal bail having a vertical fixed head to engage said members.

9. In a typewriter, a ribbon shifting mechanism comprising a ribbon carrier, a vibrator lever therefor having a vertically disposed arm, a color control plate mounted to slide in a horizontal plane on said arm, a universal bail having a vertical head in

alignment with said arm, and means upon said plate to engage said head at different distances from the axis of said lever.

10. In a typewriter, a ribbon shifting mechanism comprising a universal bail having an actuating head, an angular vibrator lever, a ribbon carrier connected to one arm thereof, and a slide plate mounted upon the other arm of said lever and having contacts at its opposite ends to engage said head at different distances from the axis of the lever.

11. In a typewriter, a ribbon shifting mechanism comprising a universal bail having an actuating head, an angular vibrator lever having one arm parallel with said head, a ribbon carrier connected to the other arm thereof, and a slide plate mounted upon said parallel arm and having hooked contacts at its upper and lower edges to engage said head at different distances from the axis of the lever.

12. In a typewriter, a ribbon shifting mechanism comprising a universal bail having an actuating head, a bell-crank vibrator lever having a vertical arm provided with a lug and pin extending therefrom, a slotted slide plate mounted upon said pin and having lateral engaging hooks at the upper and lower edges thereof to embrace said head selectively, and means for shifting said plate.

In testimony whereof I affix my signature.

CHARLES SPIRO.