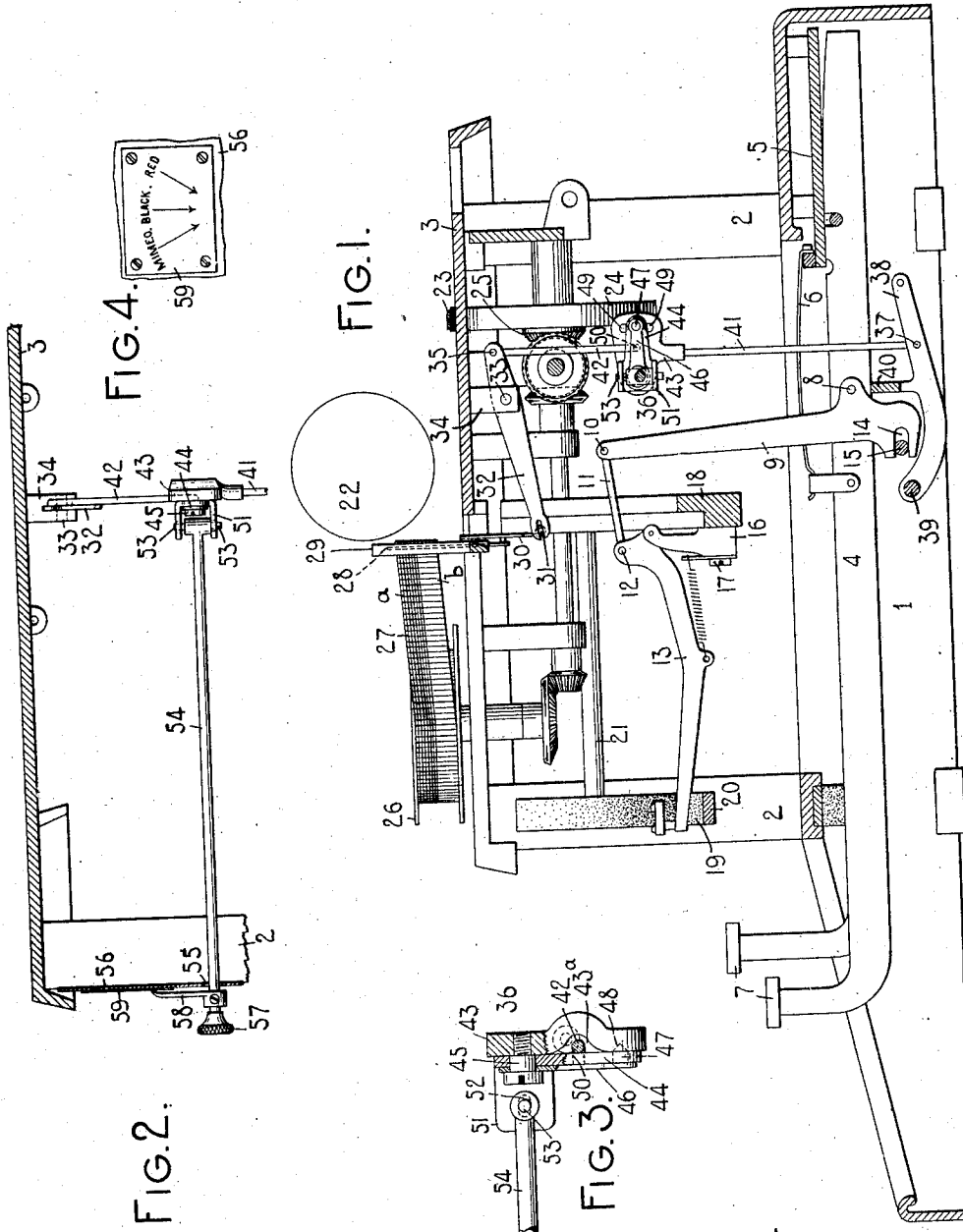


C. E. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED OCT. 29, 1906.

Patented Oct. 18, 1910.

972,935.



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UNITED STATES PATENT OFFICE.

CHARLES E. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY,
OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

972,935.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed October 29, 1906. Serial No. 341,069.

To all whom it may concern:

Be it known that I, CHARLES E. SMITH, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings 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 more particularly to mechanism in which a ribbon is or may be automatically moved into the path of an approaching type at each printing operation.

One object of my invention is to provide, in a construction of the character specified, simple and efficient means for regulating the mechanism so that any desired field of the ribbon may be presented for coöperation with the printing instrumentalities, this feature of my invention contemplating the use of a ribbon having fields of different characteristics, although it is also useful in connection with a one-color ribbon.

Another object of my invention is to provide means for rendering the mechanism inoperative to move the ribbon (polychrome or otherwise) to the printing point so that the machine may be readily employed for the preparation of mimeograph sheets when desired.

To the above and other ends which will hereinafter appear, my invention consists of the features of construction, arrangements of parts and combinations of devices described in the following specification and set forth in the accompanying claims.

In the drawings, Figure 1 is a vertical, central, front to rear, sectional view of a sufficient number of parts of a typewriting machine to show my invention in its application thereto. Fig. 2 is a detail fragmentary transverse sectional view of the machine showing the adjusting means and the portion of the ribbon vibrator actuating means with which the adjusting means coöperates. Fig. 3 is an enlarged detail fragmentary plan view showing the connection between the two parts of the actuating link and the means for adjusting the same. Fig. 4 is a detail face view of the index plate.

I have shown my invention applied to a Monarch machine in which it may be readily

employed without changing any of the structural features of such machine, though it should be understood that the invention may be applied to other styles of machines.

Certain of the features shown in the present case are claimed broadly in my applications Serial Nos. 337,738 and 337,739, filed October 6th, 1906, the present case being restricted to features not contained or claimed in said companion applications.

The framing of the machine comprises a base 1, corner posts 2 and a top plate 3. Key levers 4 are fulcrumed against a fulcrum plate 5 in the base of the machine and are each provided with a restoring spring 6 and a key 7. Each key lever has pivoted thereto at 8 a sub-lever 9 connected at its upper end as at 10 to a forwardly extending link 11 pivoted at 12 to a type bar 13. The lower end of each sub-lever is slotted at 14 for coöperation with a fulcrum rod 15 which extends beneath the key levers and is secured at its ends in the base of the machine. The type bars 13 are segmentally arranged and are carried by hangers 16 secured by screws 17 to a type bar segment 18. The type bars are supported at their forward ends on a pad 19 mounted on a segmental strip 20, supported by rods 21 which project forwardly from the type bar segment. The type bars strike upwardly and rearwardly against the front face of a platen 22 diagrammatically shown in Fig. 1. The platen 22 is carried by a carriage (not shown) which moves from side to side of the machine over the top plate in the usual manner, said carriage being connected at one end to a strap 23 which has its other end secured to a spring drum 24 to effect a step-by-step letter feed movement of the carriage from right to left in the usual manner when the escapement mechanism (not shown) is actuated. The spring drum actuates a beveled pinion 25 through a pawl and ratchet connection (not shown) which turns said pinion when the carriage is moving in letter space direction but not in the other direction. Said pinion 25 coöperates with the usual mechanism for turning the ribbon spools 26 to effect a longitudinal feed of the ribbon, such mechanism being like that, for instance, usually employed in the Monarch machine.

A ribbon 27 extends from a ribbon spool 26 at one side of the machine to a like ribbon spool at the opposite side of the machine and is preferably a polychrome ribbon having fields *a* and *b* of different characteristics; thus, the field *a* may be of one color and the field *b* of another color, or the field *a* may be record ribbon and the field *b* copying ribbon. In the passage of the ribbon from one spool to another it passes through guide openings in a ribbon vibrator 28 which is of the usual construction and is guided in its vertical movement by a fixed guide 29. The ribbon vibrator has a depending stem 30 pivoted at 31 to the forwardly extending arm of a ribbon-vibrator actuating lever 32 pivoted on a fixed pivot or fulcrum at 33 to a depending bracket 34 on the top plate of the machine. The rear end of the lever 32 is pivotally connected at 35 to an upright two-part link or two relatively adjustable link members designated as a whole by the reference numeral 36. The lower end of this link is pivoted at 37 to a rearwardly extending arm 38 which projects from and is formed as a part of a rock shaft 39 adapted to turn in bearings in the base of the machine. This arm and the rock shaft constitute parts of a universal bar frame which carries the universal bar proper 40 which extends beneath the key levers 4 and is actuated at each printing operation.

The universal bar frame is operatively connected to the usual restoring spring (not shown) which restores the universal bar and the parts connected therewith to normal position. The two-part link 36 comprises a lower part 41 and an upper part 42. A block 43 is rigidly secured to the upper end of the lower part 41 and has a member or crank arm 44 pivoted thereto by a headed pivot screw 45 (see Fig. 3). The stem of the pivot screw 45 passes through a perforation in a leaf spring 46 to secure one end of the spring to the member 44. The free end of the spring carries a locking projection 47 which is beveled at its free end as at 48 and passes through an opening in the member 44 so that it may cooperate with any one of the three depressions 49 in the inner face of the block 43 so as to lock or hold the members 43 and 44 in a fixed relation and in the position to which the member 44 may be adjusted around its pivot 45. The upper member 42 of the two-part link is pivoted at 50 (Fig. 1) to the member 44 intermediate the ends of the latter and passes through a space 43^a in the member 43. The member 44 has ears 51 struck up therefrom and projecting at right angles to the plane of the body portion of said member. These ears are slotted at 52 (see Fig. 3) for the reception of pins 53. These pins are carried by and project laterally from an ad-

justing rod 54 which extends toward the right and projects through an opening 55 in a side plate 56 of the machine. The outer end of the rod 54 is provided with a knurled head or key 57. A pointer 58 is secured to the rod outside of the side plate 56 for co-operation with an index plate 59, shown in detail in Fig. 4, which is secured to the side plate 56. The construction is such that the ribbon vibrator may be actuated in the usual manner through the two-part link 36 and during the up and down movement of this link the inner end of the rod 54 will partake of such movement. By turning the knurled head 57 an adjustment of the member 44 may be effected around its pivot 45 to raise or lower the upper link section 42 and to lengthen or shorten the actuating link 36 as a whole. The normal positions of the parts when set to write upon the uppermost or black field *a* of the ribbon are those shown in Fig. 1. At this time the pointer 58 will appear at the index opposite the word "Black" to indicate that the parts are set so that the black field of the ribbon will be moved to the printing point at each printing operation.

By turning the rod 54 through the finger piece or key 57 until the pointer registers with the index mark opposite the word "Red" an adjustment of the member 44 will be effected to displace the spring-pressed pin 47 from the center aperture 49 and to seat it in the lowermost aperture 49 in the member 43. This adjustment of the finger piece 57 shortens the link 36 and changes the normal position of the vibrator actuating lever, elevating the ribbon vibrator to a different normal position. An actuation of a printing key at this time will cause the lowermost or red field *b* of the ribbon to be moved to the printing point. By adjusting the finger piece 57 to bring the pointer 58 opposite the indicator at the abbreviation "Mimeo.", the part 44 will be elevated, displacing the spring pressed pin 48 from the aperture 49 in which it was seated and allowing it to become seated in the uppermost aperture 49. This adjustment of the finger piece 57 results in lengthening the two-part link 36, thereby lowering the ribbon vibrator to the lowest normal position which it can attain. If at this time a printing key be actuated it will result in elevating the vibrator but the extent of elevation is insufficient to bring the ribbon to the printing point so that the types may impact directly against the mimeograph sheet on the platen.

From the foregoing description it will be seen that I have provided simple and efficient means which may be readily applied to existing forms of typewriting machines without changing the structural features of such machines, and by merely replacing the

ordinary link usually employed in the Monarch machine, for instance, with a pair of relatively adjustable links or a two-part link 36 of the character described and connecting it with its adjusting means.

While I have described the ribbon 27 as one having fields of different characteristics it should be understood that the invention is also applicable to a ribbon of a single color or characteristic. When such a ribbon is employed the adjustment of the two-part link may be used to cause the impacts of the type to take place against different parallel longitudinal fields of the ribbon in order to more completely use the width of the ribbon.

From certain aspects of my invention the construction may be employed as a mimeograph device with or without employing it for different fields of the ribbon, or the invention may be employed for using different fields of the ribbon without employing it for mimeograph purposes. It will be understood that in adjusting the device whether for changing the effective field of the ribbon or for mimeograph purposes, there is no connection or disconnection effected between the parts; that there is no lost motion whatever between the parts for either of the purposes stated, the parts for actuating the ribbon vibrator being at all times maintained positively connected; that consequently the touch on the finger keys is uniform at all times irrespective of the adjustment of the member 57, and that there is little liability of the mechanism becoming deranged or broken.

Various changes may be made 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 having fields of different characteristics; a ribbon vibrator; a universal bar; intermediate connections between said universal bar and vibrator, said connections including a pair of links, which links are movable bodily together as one part and which are separate from but are operatively connected to the ribbon vibrator; and means for effecting a relative lengthwise adjustment between said links to determine which field of the ribbon shall be presented to operative position.

2. In a typewriting machine, the combination of a ribbon having fields of different characteristics; a ribbon vibrator; a universal bar; intermediate connections between said universal bar and vibrator, said connections including a pair of links, which links are movable bodily together as one part and which are separate from but are operatively connected to the ribbon vibrator;

and an adjusting device carried by one of said links and coöperative with the other link to effect a shortening or lengthening in the combined length of the links and thereby determining which field of the ribbon shall be presented to operative position.

3. In a typewriting machine, the combination of a ribbon vibrator; a universal bar; intermediate connections between said universal bar and vibrator, said connections including a pair of links, which links are movable bodily together as one part and which are separate from but are operatively connected to the ribbon vibrator; a crank arm forming the connection between said links; and means for effecting an adjustment of said crank arm.

4. In a typewriting machine, the combination of a ribbon vibrator; a universal bar; intermediate positive and constantly maintained connections between said universal bar and vibrator, said connections including a two-part link, the two parts of which are movable together as one part and which are separate from but are operatively connected to the ribbon vibrator; adjusting means for effecting a relative lengthwise adjustment between the parts of said link; and indicating means to assist in effecting the desired adjustment of said adjusting means.

5. In a typewriting machine, the combination of a ribbon vibrator; a universal bar; intermediate positive and constantly maintained connections between said universal bar and vibrator, said connections including a two-part link, the two parts of which are movable together as one part and which are separate from but are operatively connected to the ribbon vibrator; adjusting means for effecting a relative lengthwise adjustment between the parts of said link; and controlling means extending outside the framing of the machine for operating said adjusting means.

6. In a typewriting machine, the combination of a ribbon vibrator; a universal bar; intermediate positive and constantly maintained connections between said universal bar and vibrator, said connections including a two-part link the two parts of which are movable together as one part and which are separate from but are operatively connected to the ribbon vibrator; adjusting means for effecting a relative lengthwise adjustment between the parts of said link; indicating means to assist in effecting the desired adjustment of said adjusting means; and controlling means extending outside the framing of the machine for operating said adjusting means.

7. In a typewriting machine, the combination of a ribbon vibrator, key actuated means for actuating said vibrator, said actuating means including a two-part link, the

two parts of which are movable together as one part and which are separate from but are operatively connected to the ribbon vibrator; and hand actuated means carried by the machine and extending to and operable from outside the machine for effecting a relative adjustment between the members of said link.

8. In a typewriting machine, the combination of a ribbon vibrator; key actuated means for actuating said vibrator, said actuating means including a two-part link, the two parts of which are movable together as one part and which are separate from but are operatively connected to the ribbon vibrator; and key actuated means for lengthening and shortening said link.

9. In a typewriting machine, the combination of a ribbon vibrator; key actuated means for actuating said vibrator, said actuating means including a two-part link separate from but operatively connected with said ribbon vibrator; and hand actuated means for lengthening and shortening said link and for maintaining the parts in the adjusted position during the actuation of the machine and thereby changing the normal position of the vibrator.

10. In a typewriting machine, the combination of a ribbon having fields of different characteristics, a ribbon vibrator, key actuated means for moving said vibrator at each printing operation, said key actuated means including a two-part link separate from but operatively connected with said ribbon vibrator, the two parts of said link being movable together as one part; and hand actuated adjusting means for lengthening or shortening said link to bring any desired field of the ribbon to the printing point when the vibrator is actuated.

11. In a typewriting machine, the combination of a ribbon vibrator, and key actuated means for actuating said ribbon vibrator, said actuating means comprising a two-part link separate from but operatively connected with said ribbon vibrator, two members pivoted together, each of said pivoted members having a part of the link connected thereto, and hand actuated means for effecting a relative movement between said pivotally united members to effect a lengthening and shortening of said link.

12. In a typewriting machine, the combination of a ribbon vibrator, an actuating lever therefor, a universal bar, an intermediate two-part link between said lever and universal bar, hand actuated adjustable means that extend to the outside of the machine for lengthening and shortening the link, and means for holding the parts of the link in a fixed relation in any one of three positions that they may be adjusted to relatively to each other,

one adjustment of the parts affording a writing on one field of the ribbon, another adjustment affording a writing on another field of the ribbon and a third adjustment rendering the means inoperative to move the ribbon to the printing point.

13. In a typewriting machine, the combination of a ribbon vibrator, an actuating lever therefor that vibrates on a fixed fulcrum, a universal bar, a link between said universal bar and actuating lever, said link being made up of a plurality of sections and having constantly and positively maintained connections with said universal bar and lever at all times, and adjustable means associated with said link sections and extending outside the machine for changing the normal position of the vibrator.

14. In a typewriting machine, the combination of a ribbon vibrator, an actuating lever therefor that vibrates on a fixed fulcrum, a universal bar, a link between said universal bar and actuating lever, said link having constantly and positively maintained connections with said universal bar and lever at all times, and adjustable means associated with said link and extending outside the machine for lengthening and shortening the link and thus changing the normal position of the vibrator.

15. In a typewriting machine, the combination of a ribbon vibrator, and key actuated means for actuating the vibrator, said actuating means comprising a lever and a two-part member for actuating said lever, and means that extend outside of the machine for increasing or decreasing the length of said two-part member.

16. In a typewriting machine, the combination of a ribbon vibrator; key actuated means for actuating the vibrator; means for determining whether one or another field of the ribbon shall be presented to the printing point or whether said actuating means shall be rendered ineffective to move the ribbon to the printing point, said determining means comprising a two-part member included as a part of the actuating means, means that extend outside of the machine for increasing or decreasing the length of said two-part member, and means whereby the lengthening or shortening of said two-part member changes the throw of the vibrator and thereby determines which field shall be presented or renders the actuating means inoperative to move the ribbon to the printing point.

17. In a typewriting machine, the combination of a ribbon vibrator; key actuated means for actuating the vibrator, said actuating means comprising an actuating device, an actuated device, and an intermediate two-part member pivotally connected to the actuating and actuated devices, the two

parts of said two-part member being movable bodily together as one part; adjusting means that extend outside of the machine for increasing or decreasing the length of said two-part member; and indicating means co-

operating with said adjusting means.

18. In a typewriting machine, the combination of a ribbon vibrator, and key actuated means for actuating the vibrator, said actuating means comprising a two-part member, adjusting means that extend outside of the machine for increasing or decreasing the length of said two-part member, said adjusting means comprising a hand-actuated rod that is adapted to be turned and which is connected to said two-part member and moves therewith during printing operation.

19. In a typewriting machine, the combination of a ribbon vibrator, and key actuated means for actuating the vibrator, said actuating means comprising a two-part member, a pivotally united device which connects the parts of said two-part member, adjusting means that extend outside of the machine and which are connected to said device for increasing or decreasing the length of said two-part member, said adjusting means comprising a hand-actuated rod that is adapted to be turned and which moves with the two-part member during the actuation of the vibrator but is adapted to be turned to effect an adjustment between the parts of said member through said device.

20. In a typewriting machine, the combination of a ribbon vibrator, and key actuated means for actuating the vibrator, said actuating means comprising a two-part member, adjusting means that extend outside of the machine for increasing or decreasing the length of said two-part member, said adjusting means comprising a hand-actuated rod that is adapted to be turned and which is connected to said two-part member and moves therewith during the actuation of the vibrator but is adapted to be turned to effect an adjustment between the parts of said member, a pointer carried by said rod, and an index cooperating with said pointer.

21. In a typewriting machine, the combination of a ribbon vibrator, means for actuating the ribbon vibrator, said actuating means comprising a two-part member separate from but operatively connected with said ribbon vibrator, means for lengthening and shortening said member, and a spring catch for holding the two parts of said member together in any one of a plurality of relative positions to which they may be adjusted.

22. In a typewriting machine, the combination of a ribbon having fields of differ-

ent characteristics, a ribbon vibrator, a universal bar, and intermediate connections between said universal bar and vibrator, said connections being separate from but operatively connected with said vibrator and including a lever and a pair of links, and means for effecting a relative lengthwise adjustment between said links to determine which field of the ribbon shall be presented to operative position.

23. In a typewriting machine, the combination of a ribbon having fields of different characteristics; a ribbon vibrator; a universal bar; intermediate connections between said universal bar and vibrator, said connections including a lever mounted to turn on a fixed fulcrum, a pair of links; and an adjusting device carried by one of said links and cooperating with the other link to effect a shortening or lengthening in the combined length of the links and thereby determining which field of the ribbon shall be presented to operative position.

24. In a typewriting machine, the combination of a ribbon vibrator, a universal bar, intermediate positive and constantly maintained connections between said universal bar and vibrator said connections including a two-part link, a lever intermediate said link and vibrator and to which lever the two-part link is connected, adjusting means for effecting a relative lengthwise adjustment between the parts of said link, and indicating means to assist in effecting the desired adjustment of said adjusting means.

25. In a typewriting machine, the combination of a ribbon vibrator, a universal bar, intermediate positive and constantly maintained connections between said universal bar and vibrator, said connections including a lever mounted to turn on a fixed fulcrum, a two-part link for actuating said lever, adjusting means for effecting a relative lengthwise adjustment between the parts of said link, and controlling means extending outside the framing of the machine for operating said adjusting means.

26. In a typewriting machine, the combination of a ribbon vibrator, key actuated means for actuating said vibrator, said actuating means including a lever, a two part link for actuating said lever, and hand actuated means for lengthening and shortening said link.

27. In a typewriting machine, the combination of a ribbon vibrator and key actuated means for actuating the vibrator, said actuating means comprising a lever and a two-part member connected with said lever; and means that extend outside of the machine for increasing or decreasing the length of said two-part member to any of three different lengths, the lengthening

or shortening of said two-part member
changing the throw of the vibrator and de-
termining whether one or another field of
the ribbon shall be presented to the print-
ing point or whether said actuating means
shall be rendered ineffective to move the
ribbon to the printing point.

Signed at the borough of Manhattan, city

of New York, in the county of New York
and State of New York, this 26th day of 10
October, A. D. 1906.

CHARLES E. SMITH.

Witnesses:

E. M. WELLS,
J. B. DEEVES.