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Inventor:
Edward F. Kunath
By his Attorney,
D. C. Stearns.

UNITED STATES PATENT OFFICE.

EDWARD F. KUNATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 915,030.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed September 15, 1905. Serial No. 278,571.

To all whom it may concern:

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the ribbon mechanisms of typewriting machines, and particularly to means for bringing into use different colors of ribbon at will.

I provide two or more separate ribbons of different colors and movable independently of one another to cover the printing point. One of the ribbons is wound in the usual manner upon spools mounted on the framework. The other ribbon is mounted upon the carriage and extends from end to end thereof just in front of the platen and just below the printing line upon the platen. The ribbon which is on the carriage may be carried by ribbon spools also mounted on the carriage, but I illustrate the same as consisting merely of a strip which is caught by its ends upon the carriage; this strip of ribbon being usually red or other special color and being unfrequently used, so that one or two strips which are readily attached or detached will last as long as the ordinary ribbon wound upon said framework spools. Means are provided for causing either ribbon to cover and uncover the printing point during the type strokes while the other ribbon remains idle.

I illustrate my invention as applied to the well known "Underwood" front strike writing machine, in which the usual spools for the usual ribbon are mounted upon vertical axes one at each side of the printing point in front of the platen. Behind said ribbon, I stretch a ribbon of red or other special color, which is caught at its ends upon hooks provided upon ends of the carriage so that the ribbon lies on edge just in front of the platen and just below the printing line thereon. It is yieldingly supported at its ends so that it may vibrate freely up to cover the printing point. I provide an individual carrier or vibrator for each of the ribbons, one carrier in front of the other. Said carriers are shown movable up and down by means of levers. The latter may be substantially like those commonly used in the "Underwood" machine, and may be mounted side by side,

either lever being called into operation at the type strokes. The lever-operating mechanism includes the usual universal-bar frame, which reciprocates at each type stroke. Upon said reciprocating member I mount actuators, one for each of said ribbon-vibrating levers; said actuators being shiftable to engage either one or the other lever. Means are provided for detaining the actuators in either shift position. Means are also provided whereby the actuators may be held in such a position that neither lever will be operated, so that neither ribbon is caused to cover the printing point at the type strokes, this being a convenience when making stencils.

In the accompanying drawings, Figure 1 is a perspective view illustrating my invention applied to an "Underwood" front strike writing machine; the rear ribbon being raised to cover the printing point. Fig. 2 is a perspective view of the duplex ribbon actuator. Fig. 3 is a partial plan illustrating the method of attaching the special ribbon to the end of the carriage.

Upon the front side of a revoluble platen seen at Fig. 1 in dotted lines, strike the usual type bars (not shown) operated in the usual manner, as illustrated in U. S. Patent granted to me No. 833,227. In front of the platen is the usual ribbon 6, winding back and forth upon spools 7, 8, the latter mounted on vertical shafts 9, 10, usually journaled on the framework of the machine. Said ribbon 6 is threaded through an upstanding carrier 23 loosely pivoted at 24 to the front end of a lever 25, which is pivoted upon a shoulder screw 26, the latter threaded into the bracket usually fixed upon the rear side of a horizontal shift rail 28. Said lever 25 has an arm 29 extending up from said pivot 26 and provided with a laterally projecting pin 30, whereby the lever is operated during the backward and forward movement of said universal bar frame or table 21, in a manner presently to be explained.

In rear of the main ribbon 6, I stretch a supplemental ribbon 31 of red or other special color, which extends between the ends of the carriage and by means of rubber or other elastic bands or rings 31^a is detachably caught upon hooks 31^b fixed upon the carriage in such position that the ribbon extending therebetween lies on edge just in front of the platen immediately below the printing

line. Said elastic loops 31^a are caught in metal tips 31^c folded over the ends of the ribbon. This ribbon 31 may however, be carried by a pair of small spools one mounted upon each end of the carriage, and it is threaded through a ribbon carrier 40 mounted directly behind the carrier 23, and having ears 41 to embrace the usual fixed vertical type-guiding post (not shown). Said ears 41 it will be understood also confine the carrier 23 against lateral displacement. The carrier 40 is pivoted at its lower end to a lever 45, similar to the lever 25 and alongside thereof, and pivoted upon the shoulder 26 and having an upwardly extended arm 46 provided with a projecting pin 47 whereby it is operated. The ribbon-guiding pins 40^a of the carrier 40 may be set in line with the forked main portion of said carrier, or otherwise; while the pins 23^a of the front carrier 23 are set forward of the fork of said carrier as usual. The pins 40^a are thus well separated from the pins 23^a, and the carriers move freely up and down independently of one another.

Upon the usual reciprocating universal-bar frame or table I mount a pair of similar actuators 50, 51 having deep vertical slots, 52, 53 to engage respectively the projecting lever pins 47, 30. Said actuators are preferably integral, being formed upon the ends of a vertical plate 54 shiftable along the bracket 48, in the manner set forth in my co-pending application 268,854, whereby either actuator 50 or 51 may engage its associated lever pin 47 or 30, so as to vibrate either lever 45 or 25, and hence to throw up either ribbon 31 or 6, to cause the same to cover the printing point during the operation of the types, while the other ribbon remains idle. At Fig. 1 the actuator 50 is shown in engagement with the lever pin 47, and the table 21 is in its rear position, and the lever is elevated, so that the ribbon 31 covers the printing point. The arm 29 of the other lever rests against a stop 57 fixed upon the shift rail 58, said stop serving for both levers when they are idle. When the parts are in normal positions, the pins 30 and 47 are coaxial.

The necessary shifting of the actuators is effected by a link 59, pivoted at 60 to an ear formed upon the actuator member, and extending toward the right-hand side of the machine, being pivoted at 61 to a crank 62 and vibrating idly about said pivot 61 in horizontal direction during the backward and forward reciprocations of the table 21, the pivot 61 being sufficiently loose for this purpose. Said crank 62 is mounted on a rock-shaft 63 which extends to the front of the machine and is there provided with a finger lever 64 mounted over the keyboard. Said lever has on its rear face a projection 65 to catch into notches 66 formed in a tablet 67.

Said tablet is colored at 68 to correspond with the color of the main ribbon 6 and at 69 to correspond with the color of the special ribbon 31 so that when the operator desires either color to be printed he simply moves the handle 64 to the corresponding color on the tablet. A blank space 70 is provided upon said tablet between the colored spaces so that when the operator moves the handle 64 opposite said blank space, both ribbons fail to operate at the type strokes, that stenciling may be conveniently done; since when the member 54 is in a midway position neither pin 47 nor 30 can engage with its actuator; the actuators being sufficiently separated, for this purpose. When, therefore, the actuator is in midway position, neither lever is vibrated, and hence the types strike directly upon the platen without an intervening ribbon, as is desired in stencil work. It is usual in said "Underwood" machine to shift the platen up to enable the upper case characters to print. For this purpose a shifting frame is provided, of which the shift rail 28 forms a part. The platen 1 is journaled upon a platen frame, which has a roll to run upon said shift rail 28. The latter is shifted up at the case-shifting operation, and with it rise the bracket 27, the lever 25 and 45, and the ribbon carriers 23 and 40, together with the ribbons carried thereby; the deep vertical slots 52 and 53 in the ribbon actuators accommodating the up and down shift movements of the lever pins 47, 30. Thus the operation of causing either ribbon to cover the printing point at the type strokes is carried on the same whether the platen is shifted up or down. It will be understood that the ribbon 31 is attached to that portion of the carriage which is near the platen frame and shifts up and down with the platen independently of the main portion of the carriage.

Having thus described my invention, I claim:

1. In a typewriting machine having a universal-bar operable at the type strokes, the combination with a carriage, of a ribbon mounted upon the carriage, a ribbon mounted upon the framework, and means for enabling the universal bar to move either ribbon to cover and uncover the printing point independently of the other ribbon.

2. In a typewriting machine, the combination with a carriage provided with means for carrying a ribbon, of means upon the framework for carrying another ribbon, and means for causing either ribbon to cover and uncover the printing point at the type strokes while the other ribbon remains motionless.

3. In a typewriting machine, the combination with a carriage, of means for supporting two ribbons, one upon the carriage and the other upon the framework of the machine, and means for moving either ribbon inde-

pendently of the other to cover or uncover the printing point at the operation of the types.

4. In a typewriting machine having a platen carriage, the combination with a pair of carriers one in rear of the other, of means upon the carriage for supporting a ribbon which is controlled by the rear carrier, means for winding a ribbon which is controlled by the other carrier, and means for causing either carrier to be operated to vibrate its ribbon at the type strokes while the other remains idle.

5. In a typewriting machine having a platen and a carriage therefor, the combination with a plurality of ribbon carriers mounted in front of said platen, of means upon said carriage for supporting a ribbon which is controlled by one of said carriers, winding-spools carrying a ribbon which is controlled by another of said carriers, and means for moving either carrier up to the printing point independently of the other carrier.

6. In a typewriting machine, the combination with a platen carriage, of a plurality of ribbon carriers mounted one in front of the other in front of the platen, a plurality of ribbons controlled by said carriers, one of said ribbons mounted upon the carriage and extending in front of the platen from one end to the other thereof, and means for causing either carrier to cover and uncover the printing point while the other carrier remains idle.

7. In a typewriting machine having a universal-bar operable at the type strokes, the combination with a carriage, of a plurality of ribbons one of which is mounted upon the carriage, and a plurality of ribbon-carriers independently operable by said universal bar, one carrier for each of said ribbons.

8. In a typewriting machine having a platen carriage and a universal-bar mounted upon the framework and operable at the type strokes, the combination with a ribbon mounted upon the carriage, of means for enabling the universal bar to vibrate the ribbon to cover and uncover the printing point at the type strokes.

9. In a typewriting machine having a platen carriage and a universal-bar mounted upon the framework and operable at the type strokes, the combination with a ribbon, of yielding devices whereby said ribbon is mounted upon the carriage, and means for enabling the universal bar to vibrate the ribbon to cover and uncover the printing point at the type strokes.

10. In a typewriting machine having a

platen carriage and a universal-bar operable at the type strokes, the combination of a plurality of ribbons, yielding devices whereby one of said ribbons is mounted upon the carriage, means for supporting the other ribbon, and means for enabling said universal bar to cause either ribbon to cover and uncover the printing point at the type strokes.

11. In a typewriting machine having a platen carriage and a universal-bar vibrating at the type strokes, the combination of a ribbon strip extending along the carriage, yielding devices whereby the ends of said strip are caught upon the carriage, a ribbon vibrator mounted upon the framework, and means for enabling said universal-bar to cause said ribbon to vibrate to cover and uncover the printing point at the type strokes.

12. In a typewriting machine having a platen and a platen carriage, the combination of a ribbon strip extending along the carriage, yielding devices whereby the ends of the strip are detachably caught upon the carriage, a vibrator mounted upon the framework to control said ribbon; a second vibrator mounted in front of the first, spools for winding the ribbon which is controlled by said second vibrator, and means for causing either vibrator to operate at the operation of the types.

13. In a typewriting machine having a platen and a platen carriage, the combination of two ribbons one mounted upon the carriage and the other upon the framework, and means for moving either ribbon at each type stroke to cover and uncover the printing point independently of the other ribbon, or for causing both ribbons to remain idle at the type strokes, at will.

14. In a typewriting machine having a platen and a platen carriage, the combination of two ribbons one of which is mounted upon said carriage, two carriers one for each of said ribbons, and means for causing either carrier to be operated while the other remains idle, or for causing both carriers to remain idle at the type strokes, at will.

15. In combination, a typewriter ribbon strip of a suitable length to extend only once along a typewriter carriage and having yielding means at its ends whereby it may be attached to the carriage, and means for vibrating said ribbon up to cover the printing point at the type strokes.

EDWARD F. KUNATH.

Witnesses:

B. C. STICKNEY,
KITTIE FRANKFORT.