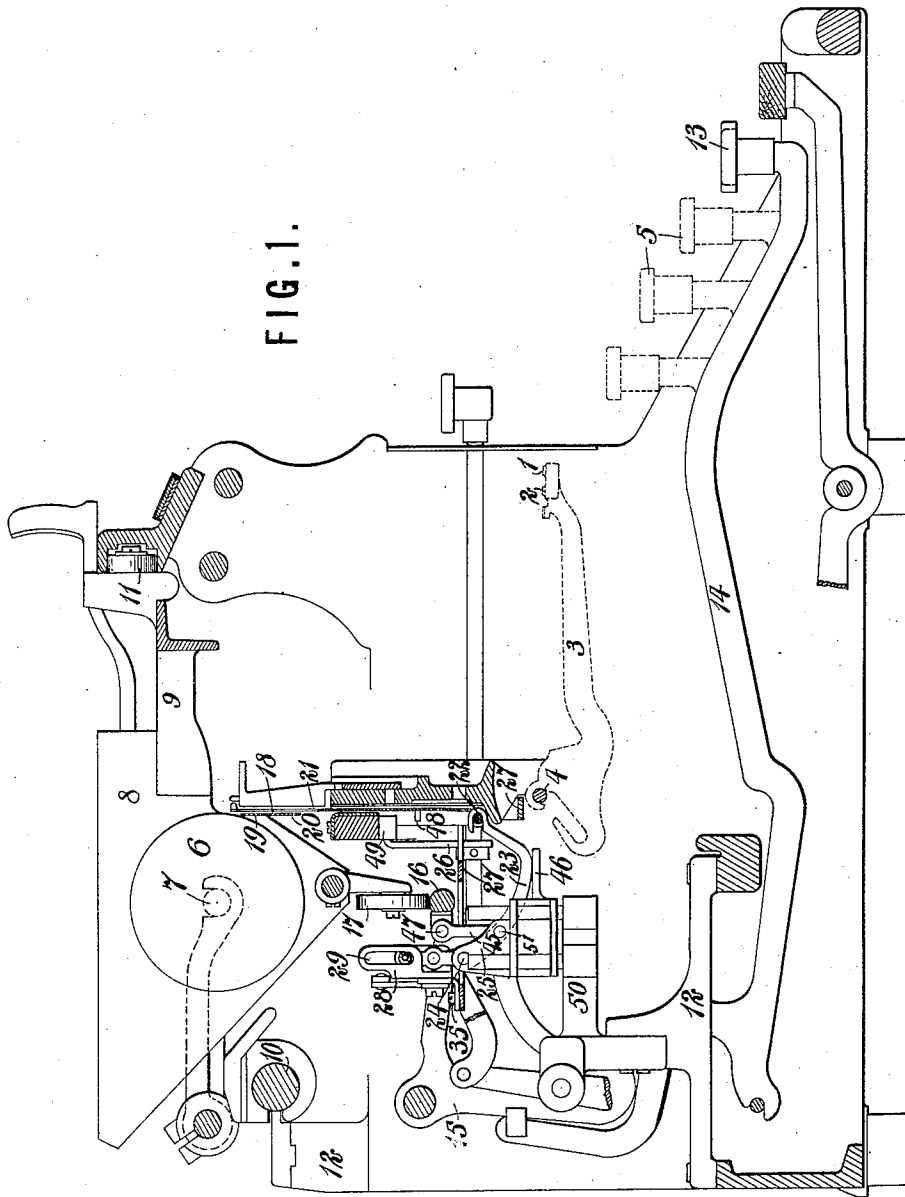


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TYPE WRITING MACHINE.  
APPLICATION FILED JUNE 19, 1911.

1,066,029.

Patented July 1, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

*J. H. Propaluy*  
*F. D. Sweet.*

INVENTOR:

*John C. McLaughlin*  
BY *B. B. Stickney*

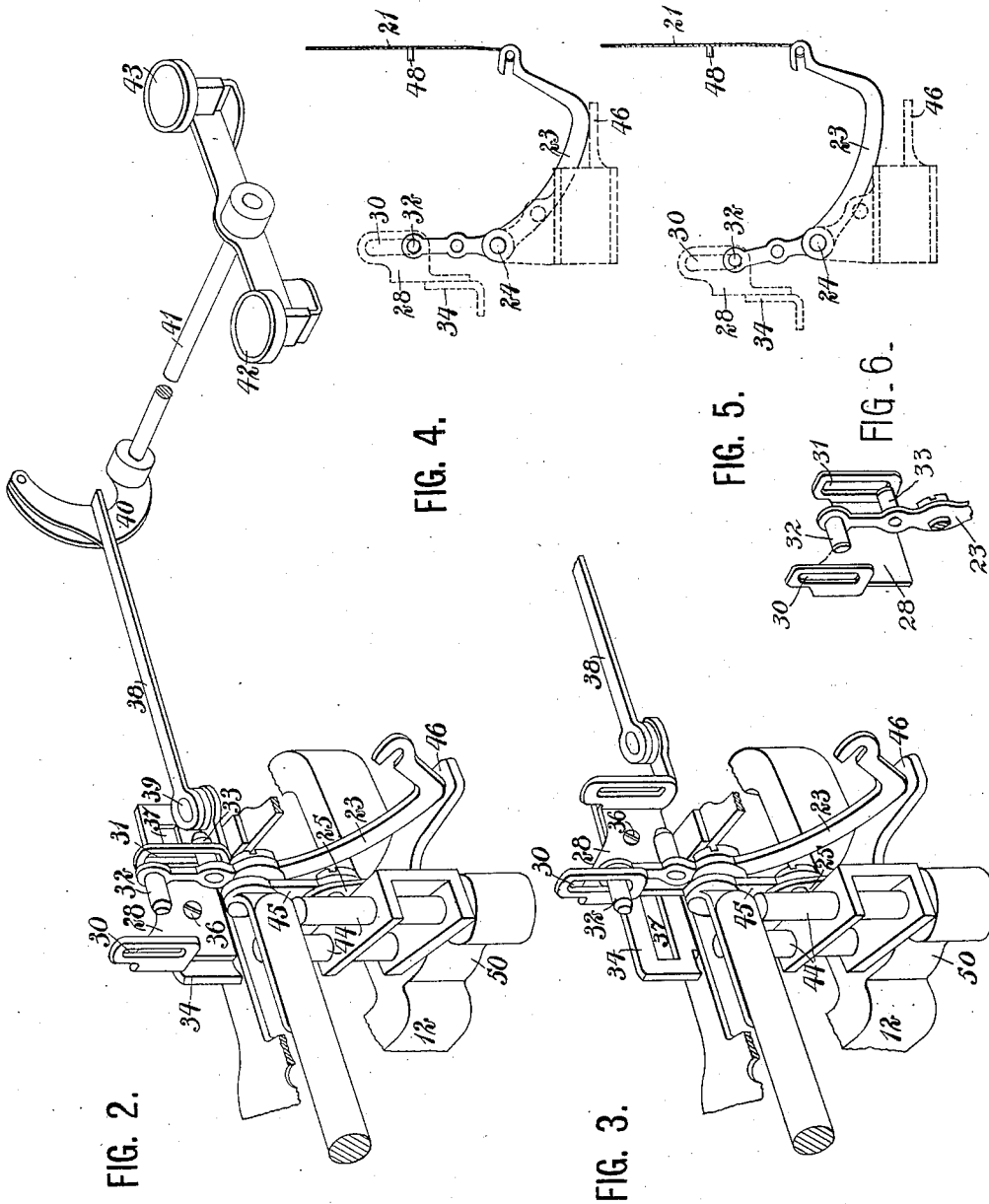
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# UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

## TYPE-WRITING MACHINE.

1,066,029.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed June 19, 1911. Serial No. 634,078.

*To all whom it may concern:*

Be it known that I, JOHN C. McLAUGHLIN, 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 mechanism for vibrating the ribbon to cover and uncover the printing point in visible typewriting machines, and particularly to mechanism that can be adjusted to present different portions of the ribbon at the printing point for writing with various colors.

In visible writing machines, such as the Underwood, the ribbon is threaded upon a carrier which is connected to a lever that is engaged by an actuator on a universal bar frame, which is reciprocated by the type bars. Said carrier and vibrating lever are shifted bodily with the platen when the latter is shifted for writing upper case letters. Such a construction is shown in the patent to F. A. Cook, No. 926,050. In said patent the ribbon is vibrated into position at the printing point by means of an actuator on the universal bar frame, and the portion of the ribbon presented at the printing point is governed by the throw given the ribbon carrier by said actuator. The ribbon carrier is vibrated from the actuator by a lever, and the slotted actuator on the universal bar frame is shiftable to engage its slots with either one or the other of two wrist pins provided on said lever at different distances from the fulcrum, whereby a variable throw is imparted to the ribbon.

One object of my invention is to provide improved and simplified means whereby the throw of the ribbon will be identical with reference to the platen whether the platen is in its normal position or is in its shifted or upper-case position. I also preferably provide means for preventing the ribbon from being carried too far in its forward stroke, when writing with the upper-case types on the lower of the two color fields.

According to the preferred form of this invention, the vibrating lever is fulcrumed on a support which is slidable upon straight vertical rods, and a link connects said support with the shift-rail by which the platen is shifted. The actuator slots are straight and vertical, and the ribbon vibrating lever

wrist-pins are in line with said slots. The fulcrum of said lever and said pins, as well as the entire lever, are thus raised vertically and rectilinearly by the shift rail, to shift the ribbon and carrier bodily with the platen. Thus the lever when shifted bears the same relation to the actuator, as when in lower-case or normal position; thus assuring accurate and responsive throw of the ribbon. A pin on the carrier may abut against a fixed member to prevent the overthrow of the ribbon. The vibrating lever may rest on an arm of said slidable support to insure steadiness to said lever when shifted.

Other objects and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a general view of an Underwood typewriting machine, to which these improvements are shown as applied, and shows a side view of the invention. Fig. 2 is a perspective view showing the actuator as set to throw the lower part of the ribbon for the types to strike against. Fig. 3 is the same as Fig. 2, but showing the actuator set to throw the upper part of the ribbon. Fig. 4 shows the vibrating lever when at rest. Fig. 5 shows the vibrating lever when actuated. Fig. 6 shows the ribbon vibrator silenced.

Upper types 1 and lower types 2 on type bars 3, pivoted at 4, are operated by keys 5 to strike against the platen 6 which is mounted by its axle 7 in the platen frame 8 seated in the carriage 9, which travels on rails 10 and 11 of the machine frame 12. By depressing a shift key 13, its lever 14 is rocked to actuate the brackets 15 and raise the rail 16 thereon. The roller 17 fixed to platen frame 8 and resting on said rail 16 is thereby raised to shift the platen 6 for the upper case types 1 to print.

A ribbon 18 with color fields 19 and 20 is held on a carrier 21 threaded therein, which is pivoted at 22 to a vibrating lever 23, fulcrumed at 24 on a slidable support 25. A universal bar frame 26 forming a part of the universal bar 27 is vibrated by the type bars 3. An actuator 28, carried on said frame 26, has ears 29 in which are formed vertical slots 30, 31 to engage wrist pins 32 and 33 on lever 23, to actuate it for vibrating the carrier 21 and ribbon 18; the slot 30 engaging the pin 32, which is farther

from the fulcrum, to impart a short swing to lever 23 and a consequent short throw of the ribbon to bring its upper field or color for printing; and the slot 31 engaging the pin 33 which is nearer the fulcrum to impart a greater swing to said lever and a greater throw to the ribbon to present its lower color for printing. To bring either slot into engagement with its cooperating wrist pin, the actuator 28 is shifted, transversely to the movement of frame 26, in a guide 34, secured to said frame by screws 35; said actuator being held to the guide by a screw 36 passing through a slot 37. The actuator 28 is shifted by a link 38, pivoted thereto at 39, connecting with an arm 40 secured on a shaft 41, which is rocked by the color keys 42, 43, marked to indicate the ribbon colors; so that depression of key 42 will engage the slot 31 with pin 33, Fig. 2, and thereby operate the lower color of the ribbon, while depression of key 43 will shift the actuator oppositely to operate the upper color.

The support 25 on which the vibrating lever 23 is fulcrumed is mounted on vertical guide rods 44, fixed in a bracket 50 on machine frame 12, and a link 45 connects the support at 51 with the shift rail 16, at 47, so that the support 25 is raised and the lever 23 moves the ribbon bodily with the platen 6, when the latter is shifted for writing with the upper-case types 1. The rods 44 guide the fulcrum 24, and wrist pins 32, 33, as well as the entire lever 23, in a vertical and rectilinear direction, so that the lever always bears the same lateral relation to the actuator, thereby resulting in an accurate throw of the ribbon when in every position, notwithstanding the curvilinear motion of the usual shift frame 15 to which the lever 23 is connected to raise and drop with the platen. The lever 23 preferably always rests when idle on an arm 46, fixed to support 25, which arm also serves to steady said lever when it is shifted.

A pin 48 on ribbon carrier 21 is arrested by an abutment 49 to prevent overthrow of the ribbon in writing with the lower color field 20 of the ribbon when the mechanism is shifted to write in the upper case.

The actuator may be arrested at an intermediate point, as described in the aforesaid Cook patent, in which position the actuator will engage neither of the wrist pins 32 and 33. In such position the actuator vibrates idly and the lever 23 rests on the arm 46.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon car-

rier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a rectilinearly guided support, said lever fulcrumed thereon between its ends, a link connecting said platen support with said lever support for shifting said lever rectilinearly when the platen is shifted, and an actuator for said lever fixed on said frame, said actuator being adjustable for engaging the lever at a variable distance from its fulcrum to impart a variable throw to said carrier.

2. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a rectilinearly guided support on which said lever is fulcrumed, means connecting said platen support with the lever support to shift said lever rectilinearly when the platen is shifted, and an actuator for said lever fixed on said frame being stationary when said lever is shifted, and vibrating rectilinearly in the same direction as the frame.

3. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of means for guiding the fulcrum of said lever rectilinearly, a link depending from said platen support to shift said lever when the platen is shifted, and an actuator for said lever on said frame being stationary when the lever is shifted, and vibrating rectilinearly with the frame.

4. In a typewriting machine, the combination with a shiftable platen, a frame moving in a curved path to shift said platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a fulcrum for said lever, said fulcrum connected to said shift frame, means to guide said fulcrum rectilinearly to shift said lever rectilinearly when the platen is shifted, and a shiftable actuator on said universal bar frame.

5. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a support for said lever, guides for said support to guide it rectilinearly, a link connecting said lever support with said platen support for shifting said lever rectilinearly when the platen is shifted, and an actuator on said universal bar frame.

6. In a typewriting machine, the combination with a shiftable platen, a frame moving in a curved path to shift said platen, a ribbon carrier, a lever to vibrate said carrier, said lever connected to said shift frame, and a key-operated universal bar frame, of means for shifting the lever rectilinearly

when the platen is shifted, and a shiftable actuator on said universal bar frame.

7. In a typewriting machine, the combination with a platen, a shiftable support therefor moving in a curvilinear path to raise the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of means for raising the lever vertically and rectilinearly when said support is shifted to raise the platen, and a shiftable actuator on said frame vibrated by said universal bar frame.

8. In a typewriting machine, the combination with a platen, a shiftable support therefor to raise the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a support for said lever, guides for said lever support to guide it vertically, a link connecting said lever support with said platen support for raising said lever vertically when the platen is raised, and an actuator on said universal bar frame.

9. In a typewriting machine, the combination with a platen, a shiftable support therefor moving in a curvilinear path to raise the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a fulcrum for said lever adapted to be guided vertically and rectilinearly to raise said lever vertically when said support is shifted to raise the platen, and a shiftable actuator on said universal bar frame.

10. In a typewriting machine, the combination with a platen, a shiftable support therefor to raise the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a fulcrum for said lever adapted to be guided vertically, a link depending from said platen support connecting therewith for raising the lever vertically when the platen is raised, and an actuator on said universal bar frame.

11. In a typewriting machine, the combination with a platen, a ribbon, a carrier therefor, and key-operated mechanism to vibrate said carrier, of a pin on said carrier abutting against a member to limit its movement for preventing overthrow of the ribbon, means for disengaging said carrier from the vibrating mechanism, and a rest on which the carrier is supported when disengaged.

12. In a typewriting machine, the combination with a platen, a ribbon, a carrier therefor, key-operated mechanism to vibrate said carrier, of a stop on said carrier abutting against a member to limit its movement for preventing overthrow of the ribbon, means for disengaging said carrier from the vibrating mechanism, and a rest on which the carrier is supported when disengaged.

13. In a typewriting machine, the combination with a shiftable platen, a ribbon car-

rier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a support, a fulcrum for said lever mounted on said support adapted to be guided rectilinearly to shift said lever rectilinearly when the platen is shifted, an arm on said lever support on which said lever rests when shifted for steadying the lever, and an actuator on said universal bar frame.

14. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon carrier, a lever to vibrate said carrier, and a key-operated universal bar frame, of a support for said lever, guides for said lever support to guide it rectilinearly, and a link connecting said lever support with said platen support for shifting said lever rectilinearly when the platen is shifted, an arm on said lever support on which said lever rests when shifted for steadying the lever, and an actuator on said universal bar frame.

15. In a typewriting machine, the combination with a shiftable platen, a ribbon carrier, and key-operated mechanism, of a vibrating lever for the carrier, means for shifting the lever rectilinearly when the platen is shifted, an actuator for said lever vibrated by said mechanism rectilinearly and being stationary when said lever is shifted, means for disengaging said carrier from the actuator, and a rest on which the carrier is supported when disengaged.

16. In a typewriting machine, the combination with a platen, a shiftable support therefor to shift the platen, a ribbon carrier, and key-operated mechanism, of a vibrating lever for the carrier having its fulcrum adapted to be guided rectilinearly, a link depending from said platen support for shifting the lever rectilinearly when the platen is shifted, and an actuator for said lever vibrated by said mechanism rectilinearly and being stationary when said lever is shifted.

17. In a typewriting machine, the combination with a platen, a shiftable support to shift the platen, a ribbon carrier, and key-operated mechanism, of a slidable support, a vibrating lever for said carrier fulcrumed between its ends on said slidable support, a link connecting said slidable support with said platen support to shift the lever rectilinearly when the platen is shifted, and an actuator for said lever vibrated by said mechanism rectilinearly and being stationary when said lever is shifted; said actuator being adjustable to engage said lever at a variable distance from its fulcrum by means of slots and pins.

18. In a typewriting machine; the combination with a shiftable platen, a ribbon carrier, and key-operated mechanism, of a lever for vibrating the carrier, means for shifting said lever rectilinearly when the

platen is shifted, an actuator for said lever vibrated by said mechanism rectilinearly, and being stationary when said lever is shifted, and a stop on said carrier abutting  
 5 against a member to limit its movement for preventing overthrow of the ribbon.

19. In a typewriting machine, the combination with a shiftable platen, of a ribbon carrier, a lever for vibrating said carrier, an arm on which one end of said lever may rest, a guide for the fulcrum of said lever, and means for shifting said arm and the fulcrum of said lever together on said guide with the shifting platen.

20. In a typewriting machine, the combination with a shiftable platen, and a ribbon carrier, of a lever for vibrating said carrier, pins on said lever at varying distances from its fulcrum, an actuator comprising slots to engage said pins to vibrate it, means for shifting said actuator transversely of said lever to cause it to engage a selected pin, a guide on which the fulcrum of said lever slides with the shifting  
 20 platen, and a pitman joining said fulcrum to the shifting platen.

21. In a typewriting machine, the combination with a shiftable platen, and a ribbon

carrier, of a lever for vibrating said carrier, an actuator arranged to engage  
 30 said lever at varying distances from its fulcrum, means for shifting said actuator transversely of said lever to cause it to selectively so engage the lever, a guide on which the fulcrum of said lever slides with  
 35 the shifting platen, and a pitman joining said fulcrum to the shifting platen.

22. In a typewriting machine, the combination with a shiftable platen, and a ribbon carrier, of a lever for vibrating said  
 40 carrier, an actuator arranged to engage said lever at varying distances from its fulcrum, means for shifting said actuator transversely of said lever to cause it to selectively so engage the lever, a guide on  
 45 which the fulcrum of said lever slides with the shifting platen, a pitman joining said fulcrum to the shifting platen, and an arm on which said lever normally rests arranged to shift with said fulcrum and  
 50 preserve the relation of the carrier to the platen.

JOHN C. McLAUGHLIN.

Witnesses:

GLENTFIELD S. YOUNG,  
 K. FRANKFORT.