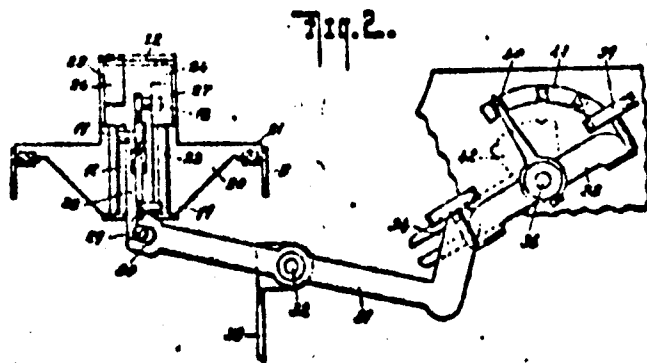
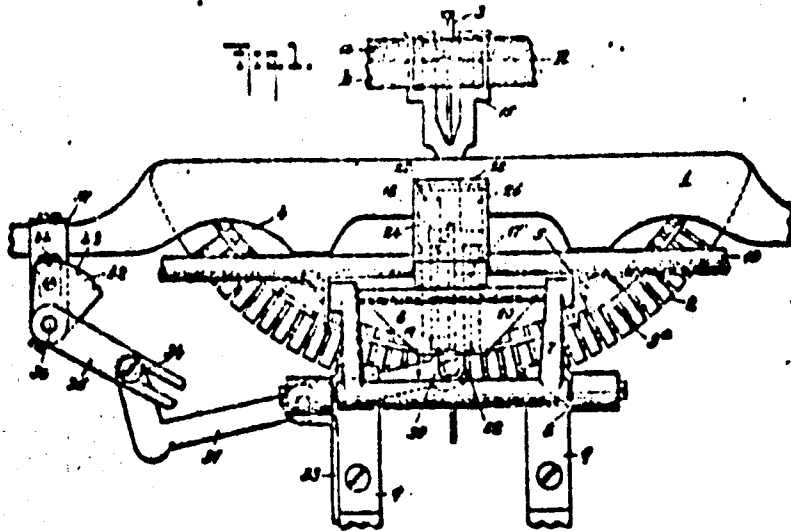


M. H. LOCKWOOD.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 8, 1910.

1,005,245.

Patented Oct. 10, 1911.
SHEET 1 OF 2.



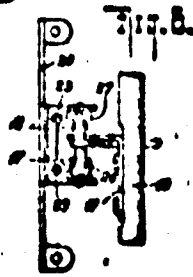
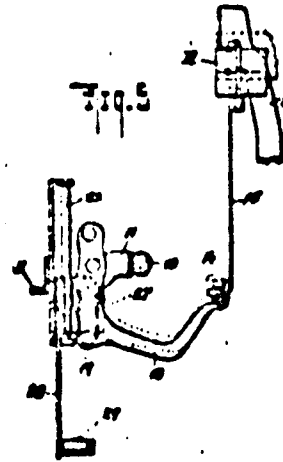
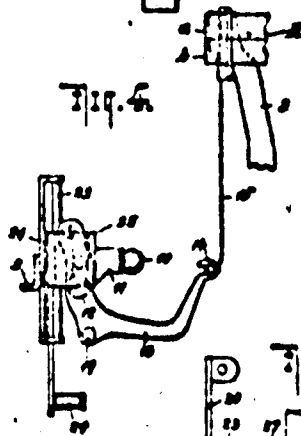
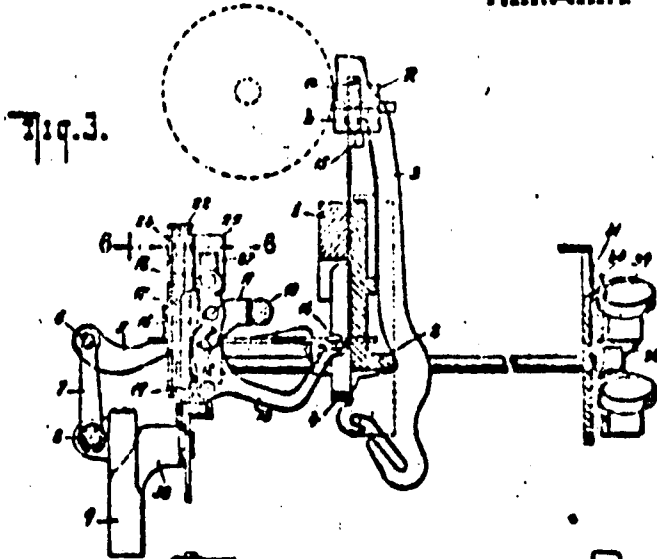
WITNESSES:
L. H. Kimmann
John A. Ferguson

INVENTOR
Maurice H. Lockwood
By *James C. Farnham*
ATTORNEY

M. H. LOOKWOOD.
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WITNESSES:
E. T. Kimmann
John A. Ferguson

INVENTOR
M. H. Lookwood
BY *James H. Ferguson*
ATTORNEY

1,005,245. TYPE-WRITING MACHINE.

MARQUIS H. LOCKWOOD, New York, N. Y., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of Delaware. Filed Nov. 5, 1910. Serial No. 590,786.

To all whom it may concern:

Be it known that I, MARQUIS H. LOCKWOOD, a citizen of the United States, and resident of the borough of Manhattan, city, county, 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 a ribbon mechanism for typewriting machines and more particularly to an improvement in the method for varying the throw of the ribbon carrier to bring different zones of the ribbon into use, and in providing means for changing the normal position of the ribbon carrier and its direction of vibration when stencil work is to be done.

My improvement may be applied to any style of typewriting machine wherein the ribbon may be vibrated to cover or to uncover the printing line when the type keys are operated. In the present instance, I have shown the improvement in connection with the well known Underwood typewriter, which at present employs a ribbon mechanism similar to that shown in Patent No. 926,050 to F. A. Cook. In this typewriter, as regularly constructed, the ribbon carrier is shifted as the platen is shifted, so that the throw of the ribbon remains the same for both upper and lower case positions. For stencil work with the construction as at present used, the lever and ribbon carrier are entirely disconnected from the key actuated mechanism. If the platen is shifted while stencil work is being done the ribbon

carrier will be shifted as usual, but if the ribbon should be taut or the carrier is not perfectly free on its guides, the carrier owing to its being free and disconnected is liable to remain in the shifted position when the platen returns to the normal lower case position. If this should occur, the next type brought to the printing point will strike the ribbon, with the result that the imprint on the stencil will not be perfect.

The object of my improvement is to maintain the ribbon carrier connected to and under the control of the key actuated mechanism at all times. This is accomplished by providing the vibrating lever of the Cook construction hereinbefore referred to with an additional actuating pin on the opposite side of the fulcrum, and in such relation thereto that when operatively connected to the vibrating universal bar frame, the ribbon carrier will normally stand above or over the printing line, and when the universal frame is vibrated by the operation of

the type keys the ribbon carrier will be moved away from the printing line so as to completely withdraw the ribbon before the type reaches the platen and thus permit the writing of stencils.

The mechanism here shown and described may be considered as typical of my improvement for it will be understood that various equivalent structures may be employed in adapting the idea to various typewriter constructions.

In the drawings only such parts of the typewriter are shown as are needful in illustrating my improvement.

Figure 1 is a rear elevation showing the device in place; Fig. 2 is a front view of the device with parts in section. Fig. 3 is a sectional view showing the relative position of the parts with a type bar at the printing point, when the upper zone of the ribbon is used. Fig. 4 shows the position of the parts when the lower zone of the ribbon is used; Fig. 5 illustrates the stencil position with a type bar at the printing point, and Fig. 6 shows a section on line 6—6 in Fig. 3.

Referring to the drawings, 1 represents the frame of the typewriter to which the type bar hanger segment 2 is secured. The type bars 3 are pivoted at 3^a in the segment in the well known manner, and are key actuated in the usual way. The universal bar 4, in position to be actuated by the heel of the type bar 3, is secured to the frame 5 which is pivotally connected at 6 to the rock arms 7 which are pivoted at 8 to the bracket 9 extending upward from the base of the machine at the rear thereof. Extending transversely of the machine, above the vibrating frame 5 is the shift rail 10 which is adapted for vertical movement to shift the platen from lower to upper case position. Near the center of the shift rail is secured an arm bracket 11, upon the rearwardly extending arm of which at 12, is pivotally mounted a lever 13 having a forwardly extending arm pivotally connected at 14 to the vertically slidable ribbon carrier 15. Thus far the parts described are of the regular Underwood construction and operation.

The lever 13 in the bichrome ribbon mechanism, as regularly used, is provided with an arm 16, extending upwardly from the pivot or fulcrum 12 and carrying two actuating pins 17, 18, one projecting from each side of the lever, the pins being arranged substantially in a radial line from the fulcrum, but the pin 17 is located closer to the fulcrum than the pin 18, so that when the lever is vibrated by actuation of the pin 17 the throw of the ribbon carrier will be greater than when the lever is vibrated by the pin 18. By thus vibrating the lever from one or the other of the pins 17, 18, the zones, *a*, *b* of the ribbon *R* are brought to the printing line as desired. In addition to the actu-

ating pins above mentioned I have provided the lever with another actuating pin 19, located below the fulcrum or on the opposite side of the pivot 12, in such relation thereto that when this pin is brought into operative position, the lever will be moved to the position indicated by dotted lines in Fig. 5, thereby bringing the ribbon carrier up so that the ribbon covers the printing line when the type keys are at rest. It will thus be seen that the normal position and direction of vibration of the ribbon carrier will be changed so that at each operation of a type key the ribbon will be drawn down to expose the printing line and permit the writing of stencils.

Any suitable mechanism may be employed to make operative connection between the vibrating frame 5 and any one of the actuating pins of the lever 13 to actuate the ribbon carrier in the desired manner. The mechanism here shown comprises a bracket 20 secured to the vibrating frame 5 in any suitable manner as by screws 21 and provided with forwardly extending lugs or ears 22, located above and below the vibrating frame 5, between which extend two vertically disposed slide rods 23, upon which the slide block 24 is arranged to slide. The slide block as constructed is something like an open rectangle having the sides or wings 25 projecting forwardly; and to the inside thereof are secured the U-shaped pieces 26, 27 which project laterally or transversely to the lever 13, and are folded to form a slot or groove to fit over the actuating pins 17, 18, 19 (see Fig. 6).

The grooves of the U-shaped pieces 26, 27 are disposed parallel to the slide rods 23. It will be seen that the pins 17, 18, 19, of the lever 13 will pass into or out of the respective grooves of the U-shaped pieces when the block 24 slides up or down the rods 23; the length and location of the U-pieces with relation to the pins being such that only one pin at a time is in operative position in one of the U-pieces.

When the slide block 24 is in the position shown in Figs. 2 and 3, the U-piece 27 will be in operative position with respect to the actuating pin, 18, of the lever 13; while when in the position shown in Fig. 4 the U-piece 26 will be in operative position with respect to the pin 17, and in the position shown in Fig. 5 the U-piece 27 will be in operative connection with the pin 19. It will be noted that the positions shown in Figs. 3, 4 and 5 represent the positions of the ribbon and carrier when the type bar is at the printing point with the respective pins 17, 18 and 19 in operative position. Suitable mechanism is provided for sliding the block and retaining it in one or another of the above mentioned operative positions.

The block 24 is provided with a downward extension or arm 28, which carries a pin or roller 29 adapted to fit in the slotted end 30 of the lever 31 which is pivoted at 32 to the bracket 33 secured to the frame bracket 9. The pin or roller 29 is made long enough to permit the vibratory motion of the vibrating frame 5 to take place without disconnecting the slide block from the lever slot 30. The opposite end of the lever 31 is pivotally connected by a slot and pin connection at 34 with a rock arm 35 secured to the rear end of the rock shaft 36, which extend through the front of the machine and has a rear bearing in the depending bracket 37 secured to the frame of the machine. The front end of the shaft 36 carries a double armed lever 38 fixed to the shaft and provided with finger pieces 39 adapted to rock the shaft in either direction. In addition, the front end of the shaft is provided with a pointer 40 adapted to cooperate with an indicating arc 41, secured to the front of the machine, and indicating by colors or letters the position of the slide block 24, thus informing the operator whether the ribbon vibrating mechanism is in position for writing, black, red or stencil. In order to properly position the slide block 24 and retain it in the adjusted position an arc-shaped arm 42 is secured to the shaft 36 near the bracket 37. The outer circular portion of the arm is provided with V-shaped notches 43 into which the V-shaped end of the detent spring 44 is adapted to drop, and thus position and hold the slide block 24 in the desired operative position with relation to the actuating pins 17, 18 and 19 of the lever 13.

It will readily be apparent that other suitable devices may be employed to slide the block 24 and locate the same and also to indicate the position thereof to the operator. It will also be apparent that other means than the slide block and pins might be employed to carry out my idea, and therefore the claims herewith are not intended to be limited to the specific structure shown.

I claim:—

1. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, means for vibrating the lever and carrier and means for reversing the direction of vibration.

2. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated either to the printing line or away from it, a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, means operatively related to the key levers for vibrating the lever and carrier in either

direction each time a key is operated and means for reversing the direction of vibration.

3. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, means for vibrating the lever and carrier in either direction and means for varying the throw of and for reversing the direction of vibration of said lever and carrier.

4. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, the operating length of one of which may be varied, for vibrating the carrier, means operatively related to the key lever for vibrating said lever and means cooperating with the operating arms of said lever for varying the throw of and for reversing the direction of vibration of the lever.

5. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, key actuated mechanism, including a lever provided with an arm connected with the carrier and an operating arm on each side of the fulcrum of said lever, for vibrating the carrier either to cover or to uncover the printing line according to adjustment, means cooperating with the operating arms of said lever for adjusting the relation between the carrier and its actuating mechanism so that the normal position of the ribbon may be either away from the printing line or over it.

6. In a typewriting machine the combination of a ribbon carrier arranged to normally hold the ribbon away from the printing line, key actuated means, including a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, for vibrating the carrier and means cooperating with the operating arms of said lever for changing the normal position and reversing the direction of vibration of said carrier.

7. In a typewriting machine the combination of a ribbon carrier arranged to normally hold the ribbon away from the printing line, key actuated means, including a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, the operating length of one of which may be varied, for vibrating the carrier to move the ribbon to cover or uncover the printing line, means for varying the operative length of one of the operating arms of said lever for varying the throw of the carrier when the normal position is away from the printing line and means for bringing into operation the other operating arm of said lever for changing the normal position and reversing

the direction of vibration of said carrier.

8. In a typewriting machine the combination of a ribbon carrier which is arranged to hold the ribbon either normally away from or normally over the printing line according to adjustment, key actuated means, including a lever provided with an arm connected to the carrier and an operating arm on each side of the fulcrum of said lever, the operating length of one of which may be varied, for vibrating the carrier to move the ribbon either to cover or uncover the printing line and adjustable means cooperating with the operating arms of said lever for predetermining the normal position, the throw and the direction of vibration of said carrier.

9. In a typewriting machine, the combination of a ribbon carrier arranged to normally hold the ribbon away from the printing line, a lever provided with an arm pivotally connected to the carrier and an operating arm on each side of the fulcrum of said lever, key actuated means for vibrating said lever to move the ribbon to the printing line and means for adjusting the relation between the operating arms of the lever and its vibrating means for changing the normal position of the carrier and reversing the direction of vibration of said lever.

10. In a typewriting machine the combination of a ribbon carrier arranged to normally hold the ribbon away from the printing line, a lever provided with an arm pivotally connected to the carrier and an operating arm on each side of the fulcrum of said lever, the operating length of one of which may be varied, key actuated means for vibrating said lever to move the ribbon to the printing line, means for varying the throw of the carrier by adjusting the relation between the lever operating arm of variable length and its vibrating means and for changing the normal position of the carrier and reversing the direction of vibration of said lever.

11. In a typewriting machine, the combination of the ribbon carrier arranged to hold the ribbon either normally away from or normally over the printing line according to adjustment, a lever provided with an arm pivotally connected to the carrier and an operating arm on each side of the fulcrum of said lever, the operating length of one of which may be varied, key actuated means for vibrating said lever to move the ribbon either to or away from the printing line when the keys are operated and adjustable means cooperating with the operating arms of said lever for predetermining the normal position, the throw, and the direction of vibration of said carrier.

12. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, a lever pivotally connected to the carrier and provided with actuating pins

located at different points on each side of the fulcrum, key actuated means for vibrating said lever and adjustable means for connecting with one or another of the actuating pins on said lever and determining the normal position, the throw and direction of vibration of said carrier.

13. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, a lever pivotally connected to the carrier and provided with actuating pins located at different points on each side of the fulcrum, a key actuated universal bar frame arranged to be vibrated when the keys are operated and an adjustable slide upon said universal frame for connecting with one or another of the actuating pins on said lever and determining the normal position, the throw and direction of vibration of said carrier.

14. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, a lever pivotally connected to the carrier and provided with means for varying the relative length and position of the arms thereof, a key actuated universal bar frame arranged to be vibrated when the keys are operated, and adjustable means upon said universal frame to cooperate with the arms of said lever and determine the normal position, the throw and direction of vibration of said carrier.

15. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever, provided with an arm pivotally connected to the carrier and an operating arm on each side of the fulcrum of said lever, one of said operating arms being provided with means for varying the operative length thereof, a key actuated universal bar frame arranged to be vibrated when the keys are operated, adjustable means upon said universal frame to cooperate with the operating arms of said lever and determine the normal position, the throw and direction of vibration of said carrier, and means located on the frame of the machine for positioning the adjustable means on said universal frame.

16. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, a lever provided with an arm pivotally connected to the carrier and an operating arm on each side of the fulcrum of said lever, one of said operating arms being provided with means for varying the operative length thereof, a key actuated universal bar frame arranged to be vibrated when the keys are operated, adjustable means upon said universal frame to cooperate with the operating arms of said lever and determine the normal position, the throw and direction of vibration of said carrier, means located on the frame of the machine for positioning the adjustable means on said universal frame, and means for indicating the

position of said adjustable means.

17. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever connected to said carrier, a pivot for said lever located at a point intermediate of its ends, a universal bar and an operating connection between the lever and said universal bar adjustable to one side or the other of said pivot.

18. In a typewriting machine, the combination of a ribbon carrier arranged to be vibrated, a lever connected to said carrier, a pivot for said lever, two operating arms on said lever, one on each side of said pivot, a universal bar, a connection between the lever and said universal bar adapted to connect with one or the other of said operating arms and means for adjusting said operating connection to connect the arm on one side or the other of said pivot.

19. In a typewriting machine the combination of a ribbon carrier arranged to be vibrated, a lever connected to said carrier, a pivot for said lever, two operating arms on said lever, one on each side of said pivot, the operating length of one arm being variable, a universal bar, a connection between the lever and said universal bar adapted to connect with one or the other of said operating arms and adapted to vary the operative length of the variable arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARQUIS H. LOCKWOOD.

Witnesses:

JOHN A. KEHLENDECK,
JOHN H. HILLIARD.