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UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

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To all whom it may concern:

Be it known that I, FRANK A. YOUNG, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the ribbon-vibrating mechanism of typewriting machines.

I provide upon the long arm of the lever which operates the ribbon-carrier or vibrator, an open bearing for the detachable vibrator and a locking projection adjacent to the open bearing. When a type-key is struck a sharp blow, should the vibrator slide along laterally in its bearing, it will abut against the abrupt face of the projection and will be held from disengagement. The projection thus constitutes a lock for holding the vibrator from disengagement with the lever. With this construction of lever it is assured that the vibrator will not become accidentally disengaged from the lever, and that it will receive the movement necessary to raise the ribbon to the proper position over the print-point during the operation of the machine. Although the vibrator when inserted upon the lever is locked from accidental disengagement, it is nevertheless readily removable. The short arm of the lever is fashioned so as to be readily distortible for the purpose of increasing or decreasing its throw to vary the movement of the vibrator. A slight distortion of the short arm will produce considerable variation in the movement of the long arm and hence such slight distortion will suffice for substantially any desired adjustment of the stroke of the vibrator.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a sectional elevation of an Underwood writing machine with the present invention applied thereto. Fig. 2 is a fragmentary perspective view of the improved construction illustrating the lever connected with the vibrator and the actuator. Fig. 3 is a detail view of the lever and its connection with the vibrator.

The type-bars 1 with their heels 2 engage the universal bar 3 connected to the frame 4 on which is mounted an actuator 5 engaging

a wrist 6 on the short arm of a lever 7, which operates the vibrator 8 carrying the ribbon. The lever is mounted upon a bracket 9 fixed to the lift rail 10 of the carriage. These parts are found in the usual types of Underwood writing machine.

To prevent the possibility of the vibrator being accidentally disengaged from the lever, the latter is formed with a depending hook 11 engaging the pin 12 of the vibrator and forming a bearing therefor. Adjacent to said bearing on the upper side of the lever arm is formed an upstanding projection 13 having an abrupt face 14 situated in a substantially vertical plane, intermediate the point and bend of the hook. When a type-key is struck a sharp blow, should the vibrator slip laterally upon its bearing, it will abut against the face 14 before the pin 12 has reached the point of the hook 11. The vibrator is thus locked from accidental disengagement. Should it be desired to remove the vibrator from the lever, the segment is removed and the vibrator can then be swung out, as shown in dotted lines in Fig. 3.

During the assembling of the machine it is often found necessary to make an adjustment for the purpose of varying the movement of the ribbon-carrier or vibrator so as to cause the latter to raise the ribbon the required amount over the print-point. For this purpose the short arm of the lever is fashioned so as to be readily distortible. The short arm is thus formed of two substantially elbow-shaped webs 15 which may be straightened out to increase the length of the short arm and hence decrease the movement of the long arm and the vibrator carried thereon; or the webs may be further bent as by a longitudinal blow to decrease the length of the short arm and the movement of the vibrator accordingly increased. It will be understood that a slight variation in the length of the short arm will result in a correspondingly greater variation in the movement of the long arm and hence the vibrator.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others, as for instance the distortible arm may be employed on levers otherwise connected with ribbon vibrators.

Having thus described my invention, I claim:

1. In a ribbon vibrating mechanism, an actuator, a lever engaged by the actuator, 5 said lever having an open bearing and an upstanding projection adjacent thereto, and a vibrator mounted on said bearing, said projection being adapted to limit the lateral movement of the vibrator to prevent its ac- 10 cidental disengagement.

2. In a ribbon vibrating mechanism, an actuator, a lever engaged by the actuator, said lever having a depending hooked bearing and an upstanding projection adjacent 15 thereto, and a vibrator mounted on said bearing, said projection being adapted to limit the lateral movement of the vibrator to prevent its accidental disengagement.

3. In a ribbon vibrating mechanism, an actuator, a lever engaged thereby, said lever having a depending hooked bearing on one side thereof and a projection on the other side thereof adjacent to said bearing, 25 and a vibrator mounted on said bearing, said projection being adapted to limit the lateral movement of the vibrator to prevent its disengagement.

4. In a ribbon vibrating mechanism, an actuator, a lever engaged thereby, said lever having a depending hooked bearing and a projection above said hook, said projection having an abrupt face disposed in a substantially vertical plane intermediate 30

the point and bend of the hook, and a vibrator mounted on said bearing, said projection being adapted to lock the vibrator in position so as to prevent its disengagement. 35

5. In a ribbon vibrating mechanism, an actuator, a lever having a wrist engaged by the actuator, and a vibrator detachably connected to the lever, said lever being formed adjacent the bearing for the vibrator with a projection to prevent accidental disengagement of the vibrator from the lever. 40

6. In a ribbon vibrating mechanism, an actuator, a lever having a short and a long arm, a wrist mounted on the short arm and engaged by the actuator, a vibrator connected to the long arm, and a projection formed on the long arm adjacent to the vibrator and adapted to prevent disengagement of the latter. 45

7. In a ribbon vibrating mechanism, an actuator, a lever having an arm to be engaged by the actuator and also having a second arm, a depending hooked bearing at the extremity of the second arm, and an upstanding projection formed adjacent the bearing, said projection having an abrupt face in a substantially vertical plane intermediate the point and bend of the hook. 50

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Witnesses:

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