

1,399,480.

Fig.1.

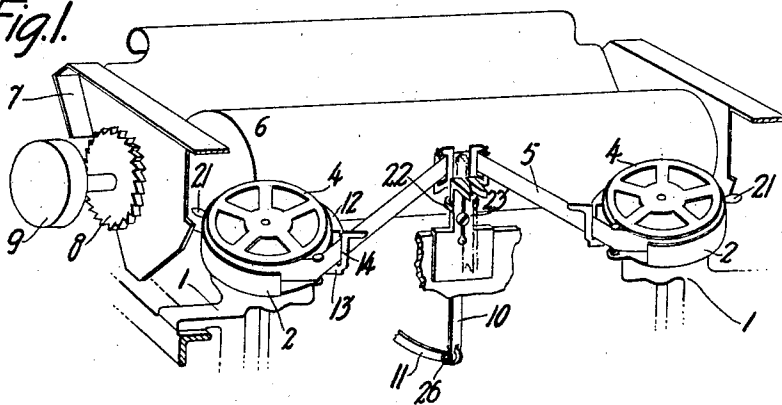


Fig.2.

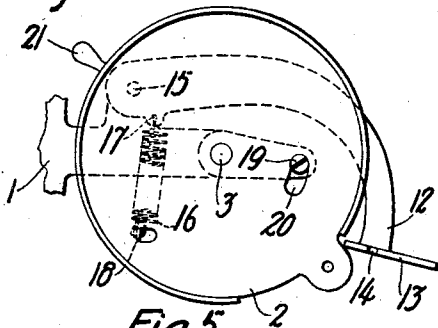


Fig.3

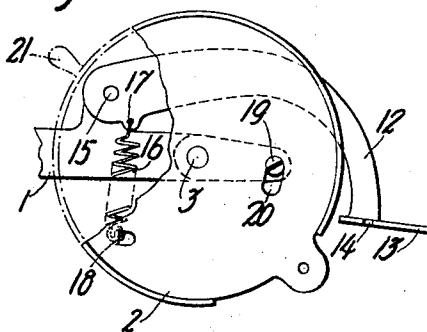


Fig. 5.

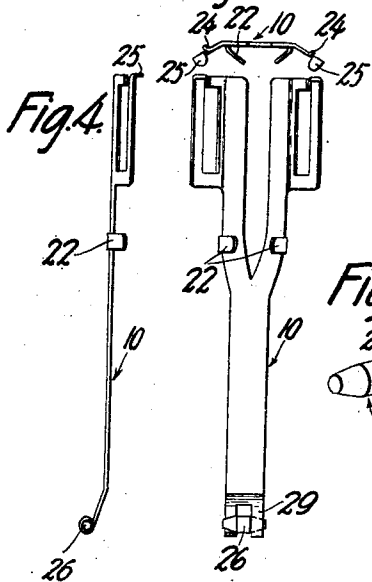
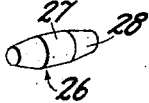


Fig.6.



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UNITED STATES PATENT OFFICE.

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TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING-MACHINE.

1,399,480.

Specification of Letters Patent.

Patented Dec. 6, 1921.

Application filed March 19, 1919. Serial No. 283,500.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Typewriting-Machines, of which the following is a specification.

This invention relates to typewriting machines, and more particularly to the ribbon mechanism thereof; and one of its principal objects is greater simplicity of construction, resulting in improved operation of the parts with lessened cost of manufacture.

A feature of the invention resides in the provision of a single tension spring between each ribbon-tension-arm and the ribbon-spool cup or drum and the arrangement of such spring whereby it gives the required weak tension to the arm, but a relatively strong tension to the cup or drum. I accomplish this by attaching the spring to the pressure arm very near its fulcrum, but to the drum at a relatively great distance from its point of pivotal support.

Another feature of the invention resides in the construction of the ribbon-vibrator, said vibrator having guiding slots and being so formed that the ribbon can be readily inserted within the slots, but will not be accidentally displaced therefrom during the up-and-down movement of the vibrator.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of the upper portion of an Underwood typewriting machine, showing the ribbon and ribbon-supporting means together with the ribbon-vibrator and its actuating arm.

Fig. 2 is a plan view of one of the cups or drums for supporting a ribbon-spool.

Fig. 3 is a similar view, but showing some of the parts in a different position from that depicted in Fig. 2.

Fig. 4 is a detail view of the vibrator.

Fig. 5 is a view in elevation and a view in plan of the vibrator.

Fig. 6 is a detail of the pivot for attaching the vibrator to the operating arm.

Referring to the drawings, the typewriter framework 1 supports ribbon-spool cups or drums 2, pivoted at 3 on the framework, the pivots 3 projecting upwardly and forming studs upon which ribbon-spools 4 are journaled, the said spools carrying the

ribbon 5, which is suitably guided adjacent the platen 6 mounted in the frame of the carriage 7. The platen has the usual spindle, which carries a ratchet 8, the spindle having attached rigidly thereto a thumb-piece 9, whereby the platen may be conveniently rotated.

As is usual in machines of the Underwood type, the ribbon is not normally at the printing point, but is moved to such point during the actuation of any of the typewriter keys to print, the ribbon being moved to the printing point by means of a ribbon-vibrator 10, which supports and guides the ribbon, and which is itself operated from the keys by means of a vibrator-actuator 11; the connections between the keys and said actuator not being shown, they being of the usual type.

In order to take up any slight looseness in the ribbon, which would be objectionable, ribbon-tension-arms 12 are provided, these arms having the usual form and including an end portion 13 provided with a slot 14, through which the ribbon passes. Each of the pressure arms is pivoted at 15 to the framework of the machine.

Heretofore it has been customary to provide a light tension spring for the arm and a separate heavier spring for the ribbon-spool-drum. According to my invention, but a single spring 16 is required for both arm and drum, such spring being attached to the arm 12 at the point 17 which is very near the fulcrum 15 of the arm. The other end of the spring is attached to the drum 2 at the point 18, a portion of the metal of the bottom of the drum being struck out for this purpose. Oscillating movement of the drum on its pivot is limited by a stud screw 19 projecting from an arm carried by the typewriter framework, said stud passing through a slot 20 in the drum. It will be noted that the point of attachment of the spring to the drum is at some distance from the point of oscillation thereof, so that when the drum is rotated from normal position, the spring exerts a fair degree of pressure to return the drum. It will further be noted that due to the great leverage that each tension arm 12 exerts, only the required slight tension is given to such pressure arm, so that by this mode of attachment, only a single spring is needed for each arm and drum. Each of the drums is oscillated through means of handles 21 affixed thereto.

The ribbon-vibrator 10, already referred to, is of novel construction, it being formed of a single piece of metal having bent-over lips 22, which embrace a plate 23 for the purpose of guiding the vibrator in its up and down movements. The upper portion of the vibrator is forked as indicated in Fig. 5, the space between the forks enabling the type to strike the platen. Each fork has a slotted enlargement at its end for carrying the ribbon, the slots being open ended. The top wall of each slot is bent over at its end 24, to permit ready insertion of the ribbon, and each side wall is bent over at 25 in such a way as to project over the edge of the ribbon when the ribbon is within the slots, thus effectually preventing the ribbon from being accidentally displaced.

The lower end of the vibrator 10 is engaged by the vibrator-actuator 11 and the pivot 26 joining these two members together has a central cylindrical portion 27 and frusto-conical end portions 28. The lower end of the vibrator may be forked out as at 29 to engage the frusto-conical portions of the pivot to hold the same in place, and the cylindrical portion of said pivot may be engaged by the actuator 11. However, it is obvious that instead the vibrator-actuator may be forked, and its forks engage the frusto-conical ends of the pivot.

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 ribbon mechanism including a pivoted ribbon-tension arm, a pivoted ribbon-spool-supporting drum, and means for limiting the movement of each, of a spring connecting said drum and said arm, said spring serving as means for holding each of said pivoted members in a normal position and for returning each to said position when removed therefrom.

2. In a typewriting machine, the combination with ribbon mechanism including a ribbon-tension arm and a ribbon-spool supporting drum, of a single spring connecting said arm and said drum, so as to give a small degree of tension to said arm, and a relatively large degree of tension to said drum.

3. In a typewriting machine, the combination with ribbon mechanism including a ribbon-tension arm and a ribbon-spool-supporting drum, of a single spring connecting said arm and said drum, and close to the fulcrum of said arm to give a relatively slight tension thereto.

4. In a typewriting machine, the combination with ribbon mechanism including a ribbon-tension arm and a ribbon-spool-supporting drum, of a single spring connect-

ing said arm and said drum, and at a relatively great distance from the fulcrum of the drum, so as to give considerable tension thereto.

5. In a typewriting machine, the combination with ribbon mechanism including a ribbon-tension arm and a ribbon-spool-supporting drum, of a single spring connecting said drum and said arm, and close to the fulcrum point of said arm and at a relatively great distance from the fulcrum point of said drum, whereby a slight tension is given to said arm and a relatively greater tension to said drum.

6. In a ribbon mechanism, a ribbon-vibrator formed of a single piece of metal and having slots, each open at one end within which the ribbon is guided and supported adjacent the platen, the end opening in each of said slots being restricted by a finger projecting from one of its side walls toward the other and having its end curved so as to facilitate the insertion of the ribbon and to overlie the edge thereof when inserted to prevent accidental withdrawal thereof.

7. In a ribbon mechanism, a ribbon-vibrator formed of a single piece of metal and having open-ended slots for guiding and supporting the ribbon, the entrance to each of said slots being restricted by a finger extending substantially thereacross and having its end bent slightly to the rear, so as to permit insertion of the ribbon and to lie directly thereacross when the ribbon is in its normal path, the ribbon-vibrator being also provided adjacent the outer edge of each slot with a finger projecting forwardly therefrom so as to lie across the ribbon as it extends from the slot in its normal path.

8. In a ribbon mechanism, a ribbon-vibrator formed of a single piece of metal and having open slots within which the ribbon is guided and supported, said vibrator having inner and outer upright members forming side walls for said slots, the outer upright member of each slot being bent forwardly at its outer end to overlie the stretch of the ribbon extending from said slot, and the inner upright member thereof having a slot-restricting finger extending substantially across said slot, and bent rearwardly at a point in close proximity to the outer upright member, so as to permit ready insertion of the ribbon but to act to prevent accidental withdrawal of the ribbon from the slot, the ribbon normally engaging the inner side wall of each slot at the rear of the vibrator and the outer side wall of the slot at the front of the vibrator.

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Witnesses:

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