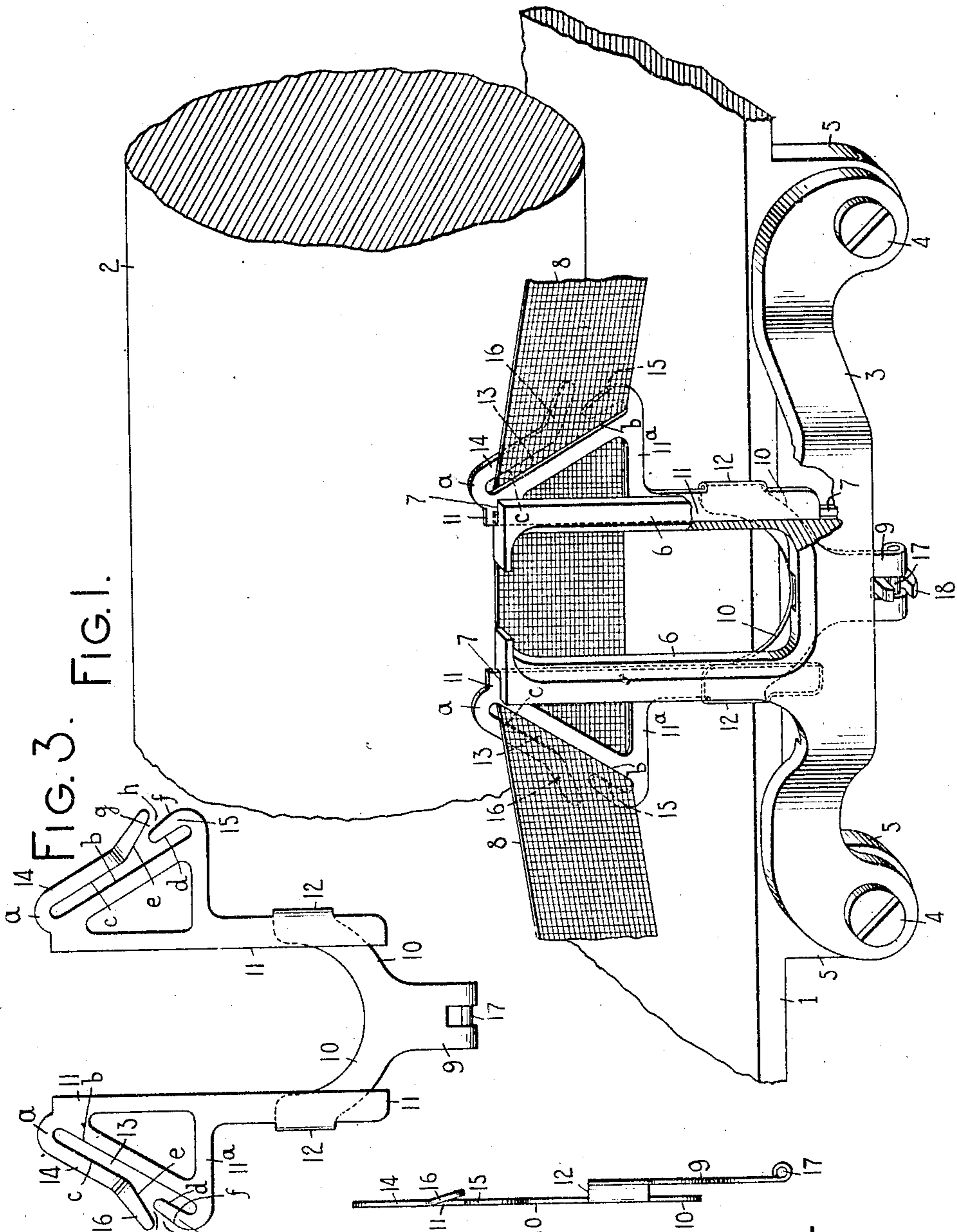


No. 849,450.

PATENTED APR. 9, 1907.

F. A. YOUNG.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 23, 1905.



WITNESSES:

E. M. Wells.

m. w. Pool

FIG. 2.

INVENTOR:

Frank A. Young.

By Jacob F. Felt

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 849,450.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed May 23, 1905. Serial No. 281,864.

To all whom it may concern:

Be it known that I, FRANK A. YOUNG, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga 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 more especially to ribbon vibrators, guides, or carriers; and its main object is to provide a ribbon carrier or vibrator in which the ribbon may be readily and expeditiously threaded or engaged and from which it may be easily and speedily withdrawn or removed.

To the above and other ends the invention resides in the features of construction and combinations and arrangements of parts hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is an enlarged fragmentary perspective view of the upper part of a type-writing machine and showing so much of said machine as is necessary to clearly illustrate my invention, part of the ribbon-guide bracket being broken away. Fig. 2 is an enlarged side elevation of a ribbon-vibrator embodying my invention. Fig. 3 is an enlarged front elevation of the ribbon-carrier detached.

In the drawings, 1 represents the top plate of the machine, above which is suitably mounted a platen 2. A vibrator guide-bracket 3 is secured by headed screws 4 to lugs 5, depending from the top plate, said guide-bracket being provided with two vertically-disposed parallel arms 6, the rear sides whereof are formed with longitudinal grooves or guideways 7. An ink-ribbon 8 has its ends secured to a pair of ribbon-spools, (not shown,) one at each side of the machine above the top plate and forward of the platen, and said spools are designed to be turned by any suitable ribbon-feeding mechanism in order to feed the ribbon back and forth from spool to spool. The central portion of that part of the ribbon which extends across the machine between the spools in front of the platen is preferably normally maintained below the printing-point and is during printing operation moved to cover the printing-point and is thereafter moved back to again uncover the printing-point. This to and fro or vibratory movement of the rib-

bon is controlled by a vibrator, guide, or carrier, which is preferably made of sheet metal and comprises a stem 9, a cross-head 10 at the top of the stem and consisting of arms extending laterally and upwardly from the stem, and a pair of slides 11, carried at the ends of the cross-head. The two side arms composing the cross-head are folded back on themselves at 12, and the slides 11 are thereby turned toward each other and engage the guideways 7 in the guide-bracket 3. The lower portions of the slides extend below and the upper portions above the cross-head.

The ribbon passes behind the vibrator and between it and the platen and is threaded through guiding-slots 13 formed upon the laterally-arranged upper portions or wings 11^a of the slides. The outer side or wall of each guiding-slot 13 is formed by a downwardly and outwardly extending guard-finger 14 and an upwardly and inwardly extending guard-finger 15. The finger 14 is supported from the upper end of the slide 11, the bend or root *a* of the finger 14 being preferably integral with said slide. The downwardly-extending guard-finger 14 is preferably considerably longer than the upwardly-extending finger and is through the greater part of its length substantially parallel with the inner wall or edge of the guiding-slot 13. Near its lower end the finger 14 flares or bends outwardly or sidewise, as indicated at 16, so that its lower end is slightly outside of or beyond the end of the upwardly-extending finger 15, which latter throughout its length is or may be parallel with the inner edge of the slot 13. The flare or offset 16, as best indicated in Fig. 2, is bent or directed rearwardly, so that the lower end of the finger 14 is also slightly offset and is behind the upper end of the finger 15, the front and rear faces of the upper part of the vibrator and those of the finger 15 being in the same planes. The arrangement is such that there is a slight clearance both outwardly or laterally and from front to rear between the free ends of the guard-fingers 14 and 15. The walls of each guiding-slot 13, it will be noted, are composed of members which are in the same transverse plane throughout, save for the offset point or end of the guard or finger 14, and this end 16 is offset outside or beyond the retaining-wall of the slot of which the finger 14 forms a part. It will further be observed that the combined lengths

of each pair of associate guard-fingers exceed the length of the slot 13 of which they form a part. The guiding-slots 13 are shown diagonally arranged, diverging from the top to the bottom, this construction being preferred, since it overcomes the objectionable slack at the lower edge of the ribbon commonly found where vibrators having parallel slots are employed. I do not desire, however, to be limited to the particular arrangement of the slots shown in the drawings. Any other angle of inclination may be used or the slots may be parallel, if desired. The lower end of the stem portion 9 of the vibrator is provided with a pivot-pin 17, which is engaged by the slotted forward end of an operating-lever 18, which is actuated in a known manner to cause the ribbon to cover and uncover the printing-point. The upper ends of the slots 13 are closed by the bends or roots *a* of the downwardly-projecting fingers 14, and hence the ribbon cannot fly or jump out of the vibrator during the operation of the printing-keys.

Referring more particularly to Fig. 3 of the drawings, the inner edge of each slot 13 is indicated by the reference-letter *b*; the opposing edges on the fingers 14 and 15 by the letters *c* and *d*, respectively; the lower or inner edge of the laterally-disposed free end of the finger 14 by *e*; the outer edge of the upwardly-projecting finger 15 by *f*; the passage-way between the fingers 14 and 15 by *g*, and the mouth of said passage-way by *h*. It will be noted that the edges *f* of the fingers 15 are directed inwardly toward the center of the vibrator, so that in the preliminary operation of threading the ribbon when the latter is bent around the fingers 15 the ribbon is given a tapering shape by the inclined edges *f*. The flaring end 16 of each finger 14 is so disposed with relation to its associated finger 15 that the edges *e* and *f* of said fingers form a lateral passage-way *g*, which is obliquely disposed to the main slot 13 and has a comparatively wide mouth or entrance *h*. When the ribbon having been drawn taut against the fingers 15 is subsequently moved upward, it is directed toward the main slots 13, which it is caused to enter by the overhanging fingers 14 by reason of the inclined or flaring edges *e* of the latter, which tend to deflect or guide the upper edge of the ribbon easily and smoothly through the passage-way *g* and thence into the slots 13. When the ribbon has once been brought into the comparatively wide mouth *h* of the passage-way *g* and is moved upwardly, it is inevitably guided into its slot 13.

In order to thread the ribbon in the slots in the vibrator, said ribbon is passed down between the platen and the vibrator until the top edge of the ribbon is below the free ends of the guard-fingers 14. The portions of the ribbon just beyond or outside of the guard-fingers are then bent or curved forward until

they are beneath the ends of the fingers 14, considered from the front of the machine. The ribbon may then be moved upwardly and passed readily into the slot 13 between the ends of the guard-fingers 14 and 15, and after its upper edge has contacted with the top of the slot the lower portion of the ribbon may be drawn in and over the lower guard-fingers 15 until the ribbon is completely threaded or engaged in the vibrator-slots. Preferably in inserting the ribbon it is drawn taut against the outer edges of the lower guard-fingers 15 and while maintained in this taut condition is drawn upward between the guard-fingers 15 and 14 and in front of the latter, the clearance between the upper and lower guard-fingers both laterally and from front to rear being sufficient to readily permit the insertion or withdrawal of the ribbon and the opening being too contracted to permit of the accidental disengagement of said ribbon. When completely threaded in the vibrator, the ribbon, it will be noted, passes in front of the guard-fingers 14 and 15 and thence diagonally through the slots 13 and behind the wings 11^a. In order to withdraw the ribbon from the vibrator, it is only necessary to lift the lower edge of said ribbon upward until it is just above the free ends of the fingers 15, whence it may readily be slipped out of the slots through the openings between the ends of the guard-fingers. The fingers or hook-like members 15 are comparatively short, so as to necessitate but slight buckling or creasing of the ribbon when it is threaded or unthreaded. The hooks 15, it will be understood, serve as a support for the lower edge of the ribbon.

To engage or disengage the ribbon with the guide or vibrator has heretofore usually been tedious and difficult and has necessitated a protracted handling of the ribbon, thereby resulting in soiling the fingers of the operator to a considerable extent. By the employment of my present invention, however, the operation of threading or unthreading the ribbon in the vibrator may be readily and expeditiously accomplished with slight handling of the ribbon.

I have illustrated my invention as applied to a front-strike type-writing machine resembling in its construction the Monarch type-writer and have not, therefore, deemed it necessary to show and describe those parts of the machine which are not necessary to a complete understanding of my invention. It will be understood, however, that the invention may be embodied in other forms of writing-machines employing a ribbon-guide of the class described or of any other description, for it will be understood that in so far as the main features of my invention are concerned it is immaterial whether the ribbon-guiding device vibrates or reciprocates or whether it be normally fixed against such

movement, although I prefer to employ my novel ribbon-guide in a machine wherein it is reciprocated to cover and uncover the printing-point during the operations of the keys and leave the last letter exposed when the parts are in normal position. It is further to be understood that various constructional changes may be effected within the scope of my invention.

10 What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising a downwardly-extending guard-finger offset at its lower end, and an upwardly-extending guard-finger directed toward the first-named finger and terminating at the offset portion thereof.

2. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising an upwardly-extending guard-finger, and a downwardly-extending guard-finger, the latter finger being offset rearwardly from the first-named finger.

3. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising an upwardly-extending guard-finger, and a downwardly-extending guard-finger, the latter finger being offset both outwardly and rearwardly from the first-named finger.

4. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising a downwardly-extending guard-finger, the lower end portion of which finger flares outwardly from the body portion of the finger, and an upwardly-extending guard-finger, the body portions of the two guard-fingers being substantially in line with each other.

5. In a type-writing machine, a ribbon-guide provided with ribbon-guiding slots, the inner edges of said slots being in front of the ribbon and the outer edges in rear of the ribbon, said outer edges comprising downwardly and upwardly extending guard-fingers so arranged that the ribbon is inserted in the vibrator from behind the upwardly-extending guard-fingers and in front of the downwardly-extending guard-fingers, and the walls of the slots being in the same transverse plane.

6. In a type-writing machine, a ribbon-guide having ribbon-retaining slots, the outer walls whereof comprise comparatively long downwardly-extending guard-fingers, and short upwardly-extending guard-fingers arranged so that the ribbon can only be entered in the slots at acute angles to the lengths of the slots.

7. In a type-writing machine, a ribbon-guide having ribbon-retaining slots, the outer walls whereof comprise comparatively long downwardly-extending guard-fingers, and short upwardly-extending guard-fingers,

the short fingers being substantially parallel throughout their lengths with the inner walls of said slots, and the long fingers having outwardly and rearwardly flaring ends.

8. In a type-writing machine, a ribbon-guide formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides formed at opposite ends of the cross-head, said slides being provided with retaining-slots, the outer wall of each slot comprising an upwardly-extending guard-finger, and a downwardly-extending guard-finger, the last-named finger being offset rearwardly from the first-named.

9. In a type-writing machine, a ribbon-guide formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides formed at opposite ends of the cross-head, said slides being provided with retaining-slots, the outer wall of each slot comprising an upwardly-extending guard-finger, and a downwardly-extending guard-finger, the last-named guard-finger being offset laterally from the first-named.

10. In a type-writing machine, a ribbon-guide formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides formed at opposite ends of the cross-head, said slides being provided with retaining-slots, the outer wall of each slot comprising an upwardly-extending guard-finger, and a downwardly-extending guard-finger, the last-named guard-finger being offset both laterally and rearwardly from the end of the first-named.

11. In a type-writing machine, a ribbon-guide formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides formed at opposite ends of the cross-head, said slides being formed with diverging ribbon-retaining slots, the outer wall of each of said slots comprising a downwardly-extending guard-finger having an outward flare near the lower end and an upwardly-extending guard-finger.

12. In a type-writing machine, a ribbon-vibrator formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides at opposite ends of the cross-head, said slides being formed with diverging ribbon-retaining slots, the outer wall of each of said slots comprising a downwardly-extending guard-finger having a lateral flare near the lower end, and an upwardly-extending guard-finger, the end of the upper guard-finger terminating behind the end of the lower guard-finger.

13. In a type-writing machine, a ribbon-vibrator formed of sheet metal and comprising a stem, a cross-head carried thereby, and slides at opposite ends of the cross-head, said slides having downwardly-diverging slots, the inner edges of said slots being in front of the ribbon and the outer edges in rear of the ribbon, said outer edges each being formed

by a downwardly - extending and an upwardly-extending guard-finger, said guard-fingers being so arranged that the ribbon is inserted in the vibrator from behind the upwardly-extending guard-finger and in front of the downwardly-extending guard-finger.

14. In a type-writing machine, a ribbon-guide formed of sheet metal and comprising a stem, a cross-head carried thereby and slides formed at opposite ends of the cross-head, said slides being provided with retaining-slots, the outer wall of each of said slots comprising a comparatively long downwardly-extending and a short upwardly-extending guard-finger, the short guard-finger being parallel throughout its length with the inner wall of the retaining-slots, and the longer finger being parallel therewith through a portion of its length and having an outwardly and rearwardly flaring bend.

15. In a type-writing machine, a ribbon-guide provided with ribbon-guiding slots, the outer walls of said slots each comprising a downwardly-extending guard-finger, and an upwardly-extending guard-finger, the lower end of the upper guard-finger terminating behind the plane in which the lower finger lies and the lower finger being arranged in the general plane of the vibrator.

16. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising an upwardly-extending guard-finger and a downwardly-extending guard-finger, the upwardly-extending fingers being directed inwardly so as to give a tapering effect to the ribbon when the latter is drawn taut against said fingers.

17. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising an upwardly-extending guard-finger and a downwardly-extending guard-finger, the upwardly-extending fingers being directed inwardly so as to give a tapering effect to the ribbon when the latter is drawn taut against said fingers, and the ends of the downwardly-extending fingers flaring laterally so that when the taut ribbon is moved upwardly its upper edge will contact with and be deflected inwardly by said flaring ends.

18. In a type-writing machine, a ribbon-guide provided with guiding-slots, the outer wall of each slot comprising an upwardly-extending guard-finger and a downwardly-extending guard-finger, the ends of the two fingers being so arranged in respect of each other as to form a lateral passage-way at an angle to the guiding-slot and between the

ends of the latter, such that the ribbon is necessarily directed into the slot at an acute angle to the length thereof.

19. In a type-writing machine, a ribbon-guide having a slot, said guide comprising a downwardly-disposed guard or finger terminating in an outwardly-disposed portion at an angle to the body of said finger.

20. In a type-writing machine, a ribbon-guide having a slot, said guide comprising a downwardly and outwardly disposed guard or finger terminating in an angle to the body of said finger, the angular termination of said finger being outside of and serving as an entrance to the slot proper.

21. In a type-writing machine, a ribbon-guide having a slot comprising a downwardly-disposed guard-finger terminating in an outwardly-disposed portion at an angle to the body of said finger, the lower end of the slot being constructed to provide a support for the ribbon.

22. In a type-writing machine, a ribbon-guide having a slot comprising a downwardly-disposed guard-finger terminating in a hook-like member arranged at an angle to the general direction of said guard-finger.

23. In a type-writing machine, a ribbon-guide provided with slots and comprising a downwardly-extending guard or finger the main portion of which forms part of the wall of a slot, said finger having a flaring end formed with an inclined edge, said edge being outside the slot but serving to guide the ribbon into one of the slots.

24. In a type-writing machine, a ribbon-guide provided with slots the walls whereof are in a single plane transverse of the machine, the outer wall of each slot comprising two guard-fingers the combined lengths of which exceed the length of the slot.

25. In a type-writing machine, a ribbon-guide cut out at the sides to form ribbon-guiding slots, the entrances to said slots being at the sides farthest from the center of the guide and the upper edge of the mouth of each entrance extending farther from the center of the guide than the lower edge of the mouth, each entrance having a wide or flaring mouth and being disposed obliquely to the guide-slot proper.

Signed at Syracuse, in the county of Onondaga and State of New York, this 20th day of May, A. D. 1905.

FRANK A. YOUNG.

Witnesses:

H. A. AUMENT,
W. C. HAY.