Sept. 11, 1923. 1,467,942

A. G. F. KUROWSKI

TYPEWRITING MACHINE

Filed July 25, 1921

Fig 1

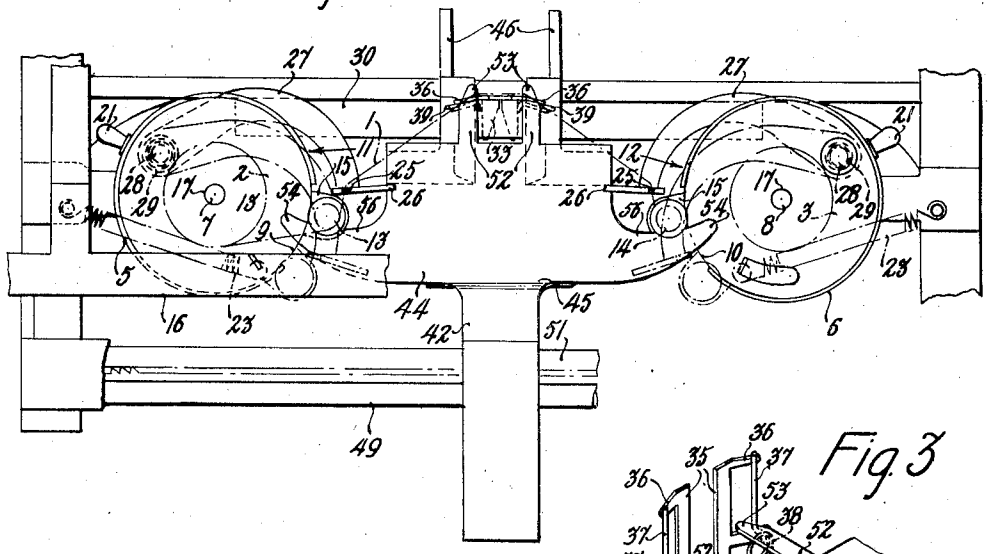


Fig 2

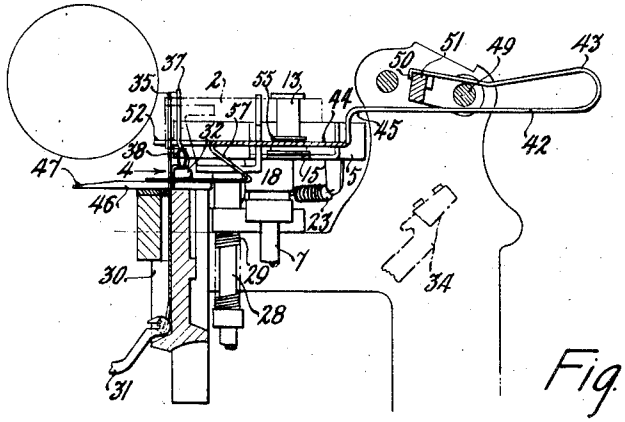


Fig 3

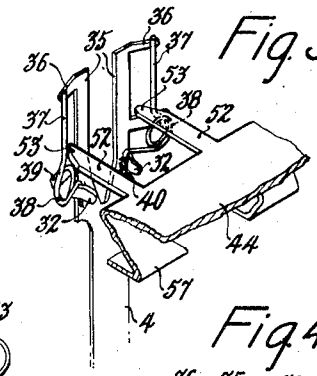


Fig 4

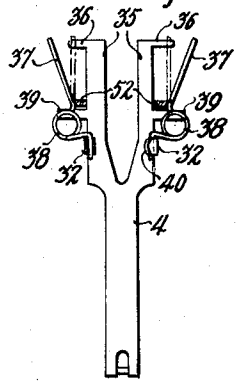


Fig 5

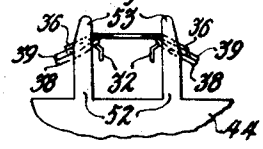
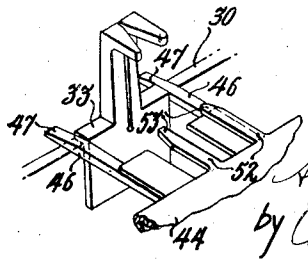


Fig 6



Inventor:
Alfred G F Kurowski
by C B Stickney
Attorney

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UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed July 25, 1921. Serial No. 487,215.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a citizen of the United States, residing in Brooklyn Borough, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

The present invention relates to mechanism for manipulating the ribbon-carrier and other ribbon-guides of a typewriting machine, to facilitate the changing of ribbons.

In front-strike typewriting machines, such, for instance, as the Underwood, the ribbon-carrier or vibrator usually comprises a pair of arms or fingers forming an eye on each side of the printing point, through which eyes the ribbon is threaded. As illustrated in United States patents to Manning, No. 702,447, granted June 17, 1902, and Lockwood, No. 1,027,488, granted May 28, 1912, one arm of each eye is usually rigid, and the other arm movable, the two being normally in contact, above the ribbon, to retain the latter, and being separable by movement of one arm to open the eye for ribbon-inserting and removal.

To insert or remove a ribbon, the operator, with his fingers, has heretofore opened the eyes, placed or removed the ribbon, and then again, with his fingers, closed the eyes. It is an object of the present invention to relieve the operator of certain of this labor, and to expedite the ribbon-changing operation, by the provision of means for mechanically opening the eyes and for causing the eyes to be automatically closed when the ribbon has been inserted or removed.

In effecting these objects of the invention, I employ a tool adapted to be thrust, at will, into the machine on guides provided therefor, and which, in the operation of being thrust home, spreads apart the arms which form the eyes of the ribbon-carrier, thus opening the eyes to permit of insertion or removal of the ribbon. By means of a novel construction, which is a feature of the invention, the movable arm of each eye of the ribbon-carrier is spring-controlled, so as to yield to the tool in opening the eye, and so as automatically to return to normal position, when the tool is withdrawn.

In typewriter-ribbon mechanism, such, for instance, as shown in United States patent to Helmond, No. 931,303, granted August 17, 1909, there are provided ribbon-guides, at or near the ribbon-spools, and from which the ribbon is led to the ribbon-carrier or vibrator at the printing point. These guides have a normal position, but may be movable to a ribbon-changing position, in which they are more accessible, and in which the ribbon is slackened. An object of the invention is the provision of a tool, such as above indicated, for throwing these guides to their ribbon-changing position; and a feature of the invention is the provision of a single tool which effects this throw of these guides and which spreads the arms of the eyes of the ribbon-vibrator, when the tool is thrust into the machine.

A further feature of the invention is the provision of means for automatically locking the tool in place in the machine when it has been thrust to effective position, thus freeing both hands of the operator for the actual ribbon-changing operation.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a top plan view of the ribbon mechanism and certain other parts of an Underwood typewriting machine; the tool of the present invention being shown in place, with the ribbon-guides held thereby in ribbon-threading position.

Figure 2 is a side elevation, partly cross-sectional, of the parts shown in Figure 1.

Figure 3 is a perspective view showing the ribbon-vibrator and the spacing fingers of the tool in the relation assumed just before the ribbon-guiding spring-arms are spread apart by the tool.

Figure 4 is a view, in front elevation, of the ribbon-vibrator, showing the ribbon-guiding arms held in ribbon-threading position by the tool, the fingers of the latter being shown in cross-section.

Figure 5 is a top plan view of the parts shown in Figure 4.

Figure 6 is a detail, in perspective, showing the manner in which the tool is centered and guided by the type-bar guide.

As heretofore stated, the ribbon mechanism indicated in the drawings is of the general type shown in United States patent to William F. Helmond, No. 931,303, granted

August 17, 1909. In this structure, the ribbon 1 is carried upon spools 2, 3, and between the spools is threaded through a vibrator 4. The spools are enclosed in cups 5, 6, upward through which extend vertical shafts 7 and 8, on which the spools are detachably mounted. The usual function of the cups is to secure the coils of ribbon from dropping off the spools and becoming tangled.

The ribbon passes out through openings 9, 10, formed in the sides of the bodies 11, 12 of the cups, being carried from one cup through the vibrator 4 to the other cup. Upon the cups are provided flanged pulleys 13, 14, opposite the openings 9 and 10 and close thereto, over which pulleys the ribbon runs, whereby it is guided, the flanges on the tops of the pulleys preventing the ribbon from riding up and off. The pulleys are mounted on ears 15 formed on the bottoms of the cups. The pulleys 13, 14 and the openings 9, 10 normally lie below a front bar 16 of the usual Underwood paper-carriage, and, in this position, are not readily accessible to the operator. Each cup has a circular opening 17 in its bottom whereby it has bearing upon a boss 18 secured to the machine frame, to permit the cup to be rotated, so that the pulleys and openings may be turned from the position shown in dotted lines in Figure 1 to the full-line position in that figure, thus causing the pulleys to be brought out from under the bar 16 for ribbon-threading. The cups are provided with finger-pieces 21, whereby this turning movement of the cups may be effected by hand; and springs 23 are connected to the bottoms of the cups and to the frame to return the cups to the normal dotted-line position, and to hold them in normal position against accidental displacement.

In the usual Underwood structure, the ribbon is fed from the pulleys 13 and 14, through vertically-disposed guide-slots 25 in upturned ears 26 on arms 27. The arms 27, under certain conditions, are rocked to effect a reversal of drive of the ribbon, and are fast on vertical shafts 28, which extend to the ribbon-reversing mechanism (not shown). Springs 29 on the shafts 28 hold the arms 27 with the guides 26 normally in the dotted-line position shown in Figure 1, and return the arms and guides to such dotted-line position whenever free to do so. It will be noted that, in the dotted-line, or normal, position of the guides 26, the same are adjacent the pulleys 13 and 14, respectively, so that the ribbon is led directly from the pulleys through the slots 25 in the guides; and that, in this position, the guides, like the pulleys, are under the bar 16 in a more or less inaccessible position. When, however, a ribbon is to be removed or threaded into the machine, the guides 26, as in the case of the ribbon-cups, are moved, as will presently and more fully be explained, to another position, indicated in full lines in Figure 1, where the parts are all accessible.

The ribbon-vibrator 4, shown in Figure 2, slides on the front face of the segment 30, and is vibrated up and down thereon, at type-strokes, by means of a lever 31, in a manner well known in Underwood machines. To hold the vibrator upright and prevent lateral play of the same, it is provided with ears 32, which embrace and slide on a fixed type-bar guide 33. A type-bar 34 is indicated in Figure 2.

The ribbon-guides on the vibrator 4 have been of various styles. Ordinarily, the ribbon-vibrator 4 is forked at its upper end to form arms 35, in front of which the ribbon passes; and the arms 35 have ears 36 at their upper ends to coact with other and movable guiding arms (here represented by the arms 37), so that, when such movable arms engage the ears 36, the ribbon is loosely supported between the arms 35 and the arms 37, and is stopped by the ears 36 from riding up and out of the vibrator. The arms 37 are movable away from the ears 36 to permit insertion or removal of a ribbon.

In Underwood machines heretofore made, arms corresponding in the above function to the present arms 37 have been spring-arms, movable forwardly from the ears 36 to permit of insertion of a ribbon, but normally held by their spring tension backward against the ears 36. In the present construction, however, as illustrated in Figures 3 and 4, the spring-arms 37 are movable, from the normal Figure 3 position laterally outward to the Figure 4 position, from the ears 36, to permit insertion or removal of a ribbon. In the present structure, each arm 37 consists of a spring which has a coil 38 bearing against the front face of an ear 39 on the corresponding arm 35, one end of the spring being soldered or otherwise attached at 40 to the vibrator inside the ear 32, and the other end of the spring being free to be moved to and from the ear 36. The tendency of the spring is to hold it in normal Figure 3 position against the ear 36 and at the front thereof; and the spring is moved against its tension to the Figure 4 or ribbon-threading position.

In order that, in moving back the Figure 4 to the Figure 3 position, the arms 37 may not fall behind the ears 36 and thus jam the ribbon, the coiled portions 38 have bearings on the front faces of the ears 39, and these bearings serve to guide the free ends of the springs 37 into proper normal position in front of the ears 36 when the springs are released. The ears 39 are parallel with the ears 36, so that the arms 37, in following the guiding surfaces of ears 39 at their coiled portions 38, may more surely come to correct

position at their free ends, on the ears 36. The ears 39 may be the usual supporting ears for the lower edge of the ribbon.

The novel style of movement of the spring-arms 37 is for adaptation of the same to the tool, now to be described, embracing the principal features of the invention. This tool has a variety of functions. One of its functions is quickly and conveniently to spread the vibrator-arms 37 from the Figure 3 to the Figure 4 position, to permit insertion or removal of a ribbon without necessitating handling of the parts immediately associated with the ribbon. Another of its functions is to force back the ribbon-cups, with the pulleys 13 and 14, and guide-plates 26, from the dotted-line Figure 1 position to the full-line Figure 1 position, thereby providing accessibility of these parts during the ribbon-changing process.

As shown in the drawings, the tool comprises a sheet-metal plate having a handle-piece 42, bent upon itself in U-shaped formation at 43. The tool proper consists of a plate 44, offset at 45 from the handle 42 and having a guide or supporting member 46, offset from the plate 44. The guide or supporting portion 46 of the tool comprises two fingers, preferably tapered off at 47 for easier insertion thereof into position.

In positioning the tool (see Figure 6), the fingers 46 are introduced horizontally over and against the top of the segment-piece 30, one on each side of the type-bar guide 33; the guide-fingers being spaced the width of the type-bar guide, and the operative position of the tool laterally of the machine being thus determined. As the instrument is forced horizontally into operating position, the open end of the U-shaped handle 42 thereof passes over the front marginal stop-rod 49, the bottom of which latter, by engagement with the straight bottom part of the handle, serves as a further guide for the instrument at the front thereof.

Thus guided, the tool is forced in until a bent-over portion or hook 50 at the end of the upper part of the handle strikes, and snaps over, the rear marginal stop-bar 51. The U bend in the handle gives the necessary spring for this snap action. When the hook 50 is in Figure 2 position on the bar 51, the tool or instrument is fixed and held in place; and the operator is free to use both hands in the ribbon-removing and inserting operations. Before the tool comes to rest in Figure 2 position, however, it has effected certain movements of parts of the ribbon mechanism, and, to effect these movements, the tool is provided with the following devices.

The plate 44 of the tool carries two fingers 52, which are preferably integral with, and stamped out of, the sheet-metal body of the tool. These fingers 52 are directed horizontally inward, and are so guided by the guide-fingers 46 as to be aligned with the openings between the vibrator-arms 35 and 37 (see Figures 1 and 3). The fingers 52, except at the ends thereof, are slightly wider than the distance, laterally measured, between the vibrator rear guiding arms 35 and the front guiding arms 37; but are tapered at their ends at 53 to enter the spaces between the guide-members 35 and 37. The taper 53 at the end of each finger 52 acts as a cam or wedge whereby, as the instrument continues to be forced home, the movable or spring arm 37 of the eye of the vibrator is finally thrown out to Figure 4 position. Each finger 52 acts upon that spring arm 37 which lies on its respective side of the printing point. So long as the tool is in Figure 2 position, the spring-arms 37 on the ribbon-vibrator will be held by the fingers 52 in Figure 4 position.

In addition to the fingers 52, the plate 44 is provided, on either side thereof, with a prong 54. These prongs 54 project laterally a sufficient distance to strike the shafts of the pulleys 13, 14 on the movable ribbon-cups, when the tool is forced home. In order that the prongs 54 may strike the pulley-shafts, and not the pulleys or the ribbon thereon, each pulley is so supported on its shaft that its lower flange 55 (see Figure 2) is sufficiently elevated to permit engagement of the corresponding prong 54 with the pulley-shaft under such lower flange 55 of the pulley. After the prong 54, upon inward thrust of the tool, has engaged its respective pulley-shaft, further inward movement of the tool causes the prong 54 to carry with it the pulley-shaft, and the ribbon-cup, to which the pulley-shaft is connected by the ear 15, thus turning the ribbon-cup on its axis against the tension of the spring 23, from the Figure 1 dotted position to Figure 1 full position, the pulley-shaft sliding along the inner edge 56 of the prong 54 as the cup rotates. This edge 56 may be of any suitable curvature, to give an easy movement to the cup and connected parts.

The springs 29, on which the ribbon-reversing and guide-plate arms 27 are mounted, normally tend to hold the arms 27, with the guide-plates 26 at the ends thereof, against the ears 15 on the ribbon-cups, as shown in Figure 1. Consequently, when the cups are turned from dotted-line to full-line Figure 1 position, the pulley-ears 15 thereon cause the arms 27, and also the guide-plates 26, to be forced back from dotted-line to full-line Figure 1 position.

The tool, therefore, serves not only as a means for opening the ribbon-guides on the vibrator, but also to bring the ribbon-pulleys 13 and 14 and guides 26 from their somewhat inaccessible position under the bar 16 to an accessible position clear of that

bar. In thus moving the ribbon-cups 5 and guides 26, a slack is created in the ribbon between the two spools, which may assist in the ribbon-changing operation.

When the arms 37 of the vibrator have been brought to Figure 4 position, and the pulleys 13 and 14 and guides 26 to Figure 1 position, by inward thrust of the instrument, and are held in such positions by the hook 50 of the handle of the tool, the ribbon is lifted over the top flanges of the pulleys 13 and 14; out of the vertical slots 25 in the guide-plates 26; and out from between the arms 35 and 37 of the vibrator. This may be accomplished by simply lifting the ribbon-spools. With the parts in this same position, the spools of another ribbon are slipped down over their shafts 7 and 8; the ribbon between the spools slipped into position between the open arms 35 and arms 37 of the vibrator; over the top flanges of the pulleys 13 and 14, and into the vertical slots 25 in the guide-plates 26. The tool or instrument is then withdrawn.

In this tool-withdrawing operation, a slight downward pressure is first applied to the U-shaped handle-part 42, which, by reason of the resiliency and shape of the handle and of its contact with the front marginal stop-rod 49, causes the hook 50 to be sprung up over and off of the rear marginal stop-bar 51. An outward pull on the tool is then all that is necessary to remove the same.

As the tool is withdrawn, the springs 23 turn the ribbon-cups 5, 6 with their pulleys 13 and 14, to normal position; and the springs 29 on the guide-arms 27 cause the guides 26 to follow the movement of the ribbon-cups to the dotted-line Figure 1, normal, position of the parts. As the tool is thus withdrawn, the fingers 52 thereof leave their Figure 4 position, between the arms 35 and 37 of the ribbon-vibrator, and the arms 37 are returned, by the tension of the coils 38, to Figure 3 position. As hereinbefore stated, during this return motion of the arms 37, the ears 39, by contact with the coiled portions 38, serve to guide the free ends of the arms 37 into position in front of the ears 36. The shape of the arms 37 is such that, when in this position, they bear against the front faces of the ears 36, to completely enclose the ribbon.

It will be noted that the offset between the tool-plate 44 and its guides 46 is of Z formation, as indicated at 57, Figures 2 and 3. This formation permits the spreading fingers 52 to be punched up from the material of the tool, without weakening the support of the guide-fingers 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 of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, and normally in contact with each other beyond the edge of the ribbon to embrace the latter, said contact being severable for ribbon insertion and removal, by movement of one of said arms from the other, means for effecting such arm-separating movement, comprising a spreader adapted to be inserted between the arms, and means for guiding the spreader to operative position and guides in the machine for co-operating with said spreader-guiding means.

2. In a typewriting machine, the combination of a guide for the ribbon, comprising a pair of arms on each side of the printing point, the arms in each pair being spaced to define ribbon-guiding opening therebetween, and being normally in contact with each other beyond the edge of the ribbon to embrace the latter, and means engageable with one arm of each pair to move the arms so engaged to sever the contact of the same with the other arm in each pair for ribbon insertion and removal, consisting of a plate having two arm-spreading fingers and a slide for guiding the plate in the arm-spreading operation to cause the arm-spreading fingers to enter the ribbon-guiding openings at the lower extremities thereof.

3. In a typewriting machine, the combination of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, and normally in contact with each other beyond the edge of the ribbon to embrace the latter, means engageable with one of said arms to move the same to sever said contact for ribbon insertion and removal, said arm-engaging means having parallel slides on which it is movable to and from operative position and thereby held against lateral rocking and guides in the machine for controlling the movement of the arm-engaging means to and from operative position.

4. In a typewriting machine, the combination of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, and normally in contact with each other beyond the edge of the ribbon to embrace the latter, a tool insertable at will into the machine to engage one of said arms to move the same to sever said contact for ribbon insertion and removal, guides in the machine for controlling the movement of the tool therein to and from operative position, and means for locking the tool in effective position in the machine.

5. In a typewriting machine, the combi-

nation of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, and normally in contact with each other beyond the edge of the ribbon to embrace the latter, a tool insertable at will into the machine to engage one of said arms to move the same to sever said contact for ribbon insertion and removal, and guides in the machine for controlling the movement of the tool therein to and from operative position, said tool having a spring-latch whereby it is automatically locked to the machine on reaching effective arm-separating position.

6. In a typewriting machine, the combination of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, and normally in contact with each other beyond the edge of the ribbon to embrace the latter, a tool insertable at will into the machine to engage one of said arms to move the same to sever said contact for ribbon insertion and removal, and guides in the machine for controlling the movement of the tool therein to and from operative position, said tool having a spring-handle with a hook thereon for automatically locking the tool on arrival of the latter in effective arm-separating position, said handle acting, upon depression of the same, to release the hook to permit withdrawal of the tool.

7. In a typewriting machine, the combination of a guide for the ribbon at the printing point, comprising a pair of arms, spaced to receive the ribbon therebetween, one of said arms being resilient and normally bearing upon the other of said arms above the ribbon, said resilient arm being displaceable, by reason of its resiliency, in the plane of ribbon-feed from the other arm, to disconnect the two arms above the ribbon for ribbon insertion and removal, and means for guiding said resilient arm to its normal position in engagement with said other arm when said resilient arm is released to its spring action.

8. In a typewriting machine, a guide for the ribbon at the printing point, comprising two arms spaced to receive the ribbon therebetween, but normally in contact above the ribbon, one of said arms being fixed, and the other of said arms being movable angularly from normal position, in substantially the plane of the ribbon, to sever such contact for ribbon insertion and removal, a spring for holding said movable arm in normal position and for returning it to normal position when the arm is unrestrained, and a guide for directing the movable arm to normal position when the movable arm is released to its spring action.

9. In a typewriting machine, a guide for the ribbon at the printing point, comprising two arms spaced to receive the ribbon therebetween, one of said arms being fixed and having an ear thereon to overlie the upper edge of the ribbon and another ear parallel with said first ear to support the lower edge of the ribbon, and the other of said arms being normally in contact with said ear overlying the ribbon and being movable angularly from normal position, in substantially the plane of the ribbon, to sever such contact for ribbon insertion and removal, and a spring for holding said movable arm in normal position and for returning it to normal position when such arm is unrestrained, said spring bearing against said lower ribbon-supporting ear on the fixed arm to guide the movable arm to normal position when the movable arm is released to its spring action.

10. In a typewriting machine, a guide for the ribbon at the printing point, comprising two arms spaced to receive the ribbon therebetween, but normally in contact above the ribbon, one of said arms being fixed, and the other of said arms being movable angularly from normal position, in substantially the plane of the ribbon, to sever such contact for ribbon insertion and removal, a spring for holding said movable arm in normal position and for returning it to normal position when the arm is unrestrained, a guide for directing the movable arm to normal position when the movable arm is released to its spring action, and means insertable between said fixed and said movable arm to move the movable arm from a normal position to a ribbon-inserting position against the action of said spring.

11. In a typewriting machine, a revoluble ribbon-cup having a ribbon passage in the side thereof, an abutment on said cup, means movable into engagement with said abutment to revolve the cup to move the ribbon passage thereof from a normal position to a ribbon-inserting position, and co-operating means for locking said abutment-engaging means, with the cup in ribbon-inserting position.

12. In a typewriting machine, a revoluble ribbon-cup having a ribbon passage in the side thereof, an abutment on said cup, a tool insertable at will into the machine and movable therein into engagement with said abutment to revolve the cup to move the ribbon passage of the latter from a normal position to a ribbon-inserting position, and means for guiding the tool to operative position.

13. In a typewriting machine, ribbon-spools; ribbon-guides adjacent the spools movable between a normal position and a ribbon-inserting position; a ribbon-carrier at the printing point comprising two arms at each side of the printing point between

which the ribbon is fed, one arm of each pair being movable from the other to permit threading of the ribbon therebetween; and a tool insertable at will into the machine for moving said ribbon-guides at the spools, as well as the movable arms of the carrier at the printing point, from their normal to their ribbon-threading positions.

14. In a typewriting machine, ribbon-spools; ribbon-guides adjacent the spools movable between a normal position and a ribbon-inserting position; a ribbon-carrier at the printing point comprising two arms at each side of the printing point between which the ribbon is fed, one arm of each pair being movable from the other to permit threading of the ribbon therebetween; a tool insertable at will into the machine for moving said ribbon-guides at the spools and the movable arms of the carrier at the printing point, from their normal to their ribbon-threading positions; and means for locking the tool with said movable ribbon parts in their ribbon-threading positions.

15. A ribbon-threading tool for typewriting machines, comprising a wedge for spreading the arms of a ribbon-carrier at the printing point of the machine upon forward thrust of the tool, a guide for co-operation with the machine to control the direction of thrust of the tool, and a handle for manipulating the tool.

16. A ribbon-threading tool for typewriting machines, comprising a wedge for spreading the arms of a ribbon-carrier at the printing point of the machine upon forward thrust of the tool, a guide for co-operation with the machine to control the direction of thrust of the tool, a handle for manipulating the tool, and a lock on the tool for holding the same in effective position in the machine.

17. A ribbon-threading tool for typewriting machines, comprising a wedge for spreading the arms of a ribbon-carrier at the printing point of the machine upon forward thrust of the tool, a guide for co-operation with the machine to control the direction of thrust of the tool, and a handle for manipulating the tool, said handle being bent upon itself to have a detent for engaging with a convenient abutment on the machine to lock the tool in effective position.

18. A ribbon-threading tool for typewriting machines, comprising a wedge for spreading the arms of a ribbon-carrier at the printing point of the machine upon the forward thrust of the tool, and laterally-disposed prongs for shifting ribbon-guides at the ribbon-spools from normal position to ribbon-threading position.

19. A ribbon-threading tool for typewriting machines, comprising a wedge for spreading the arms of a ribbon-carrier at the printing point of the machine upon the forward thrust of the tool, laterally-disposed prongs for shifting ribbon-guides at the ribbon-spools from normal position to ribbon-threading position, and guiding means for co-operation with the machine to control the direction of thrust of the tool in both a horizontal and a vertical plane.

20. A sheet-metal ribbon-threading tool for typewriting machines, comprising a body having an offset which serves as a guide for the tool, and a pair of wedge-shaped fingers cut and bent out of the offset portion and continuous with the body portion for spreading ribbon-retaining arms of a ribbon-carrier in the machine at the printing point of the latter when the tool is thrust on the offset guide into the machine.

21. A sheet-metal ribbon-threading tool for typewriting machines, comprising a body having an offset which serves as a guide for the tool, a pair of wedge-shaped fingers cut and bent out of the offset portion and continuous with the body portion for spreading ribbon-retaining arms of a ribbon-carrier in the machine at the printing point of the latter, when the tool is thrust on the offset guide into the machine, and a pair of prongs shaped in the sides of the body part of the tool for shifting ribbon-guides at the ribbon-spools of the machine from normal to ribbon-threading positions, upon such thrust of the tool.

ALFRED G. F. KUROWSKI.

Witnesses:
MARION R. MCCAFFREY,
EDITH B. LIBBEY.