Dec. 31, 1929. J. A. B. SMITH 1,741,664

TYPEWRITING MACHINE

Filed March 18, 1927 2 Sheets-Sheet 1

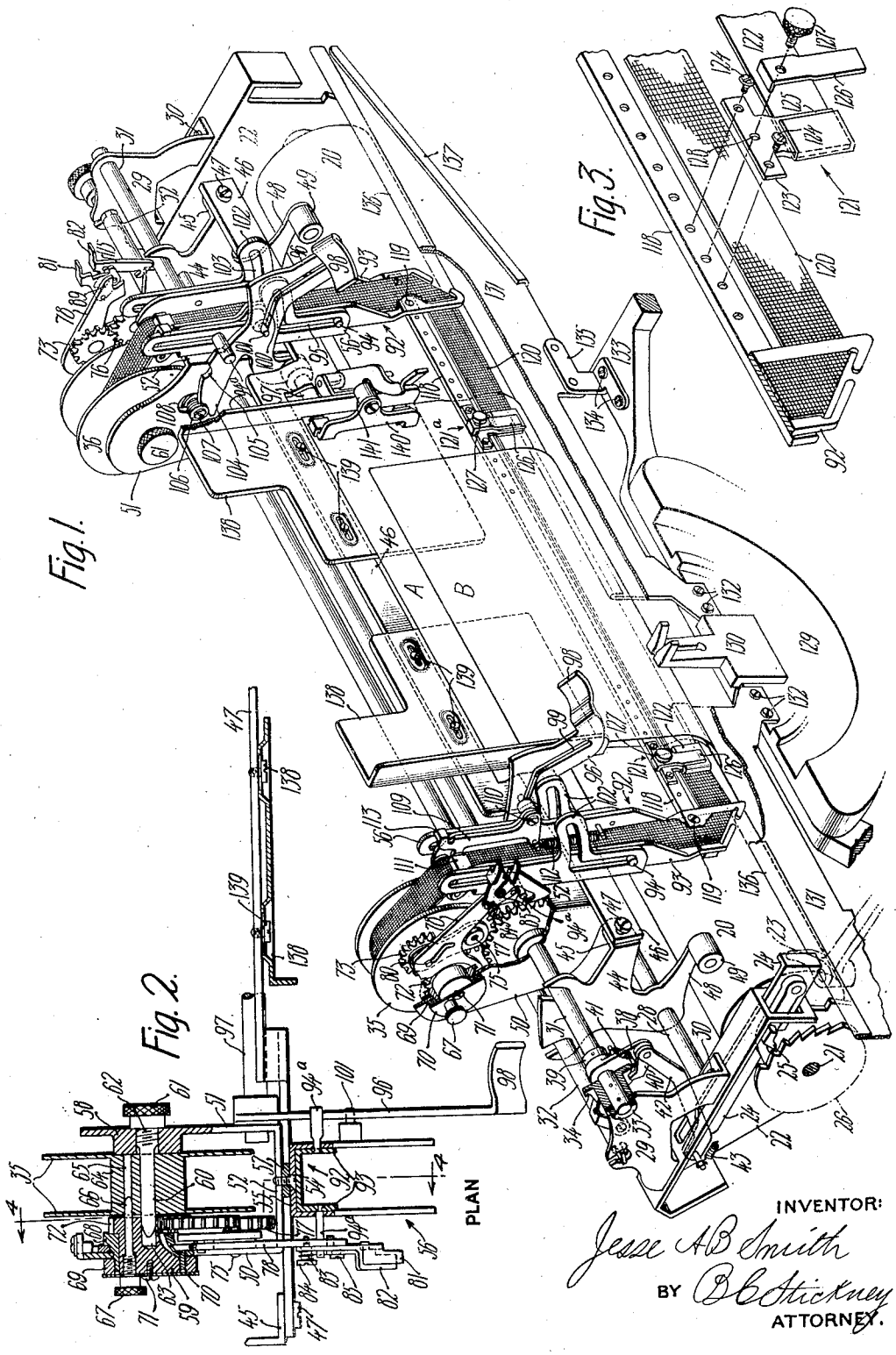

Fig. 1.

Fig. 3.

Fig. 2.

PLAN

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TYPEWRITING MACHINE

Filed March 18, 1927 2 Sheets-Sheet 2

Fig. 4.

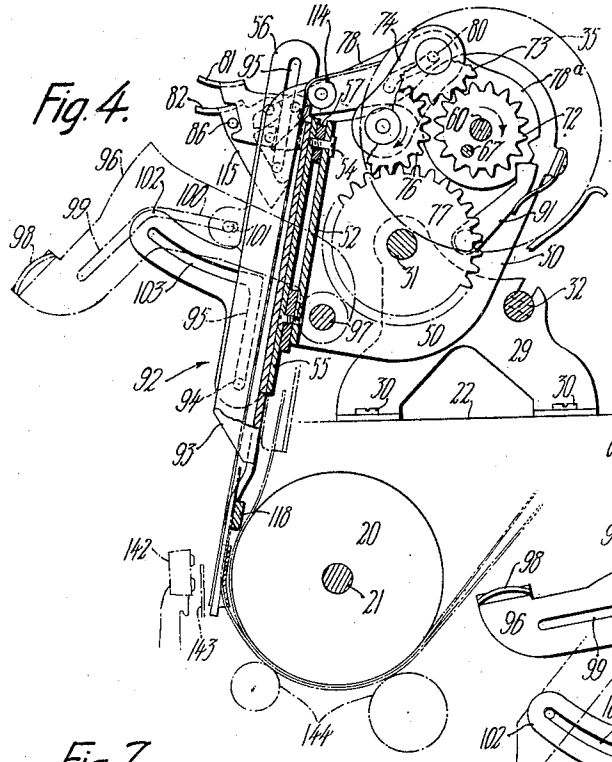


Fig. 5.

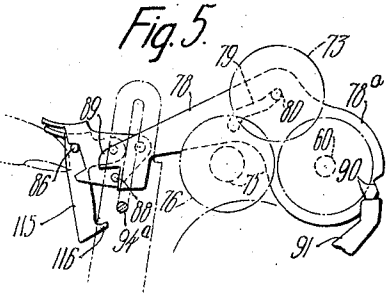


Fig. 6.

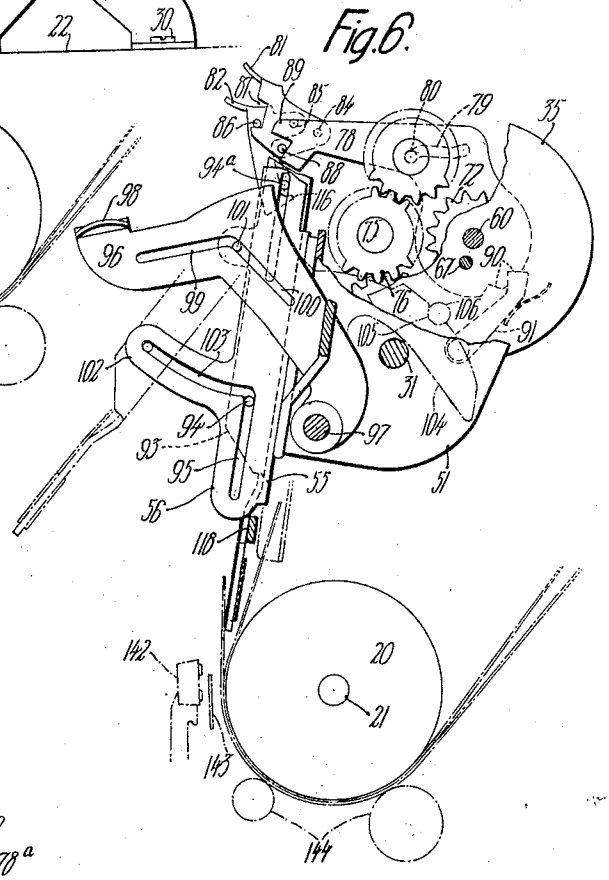


Fig. 7.

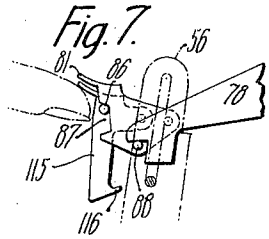
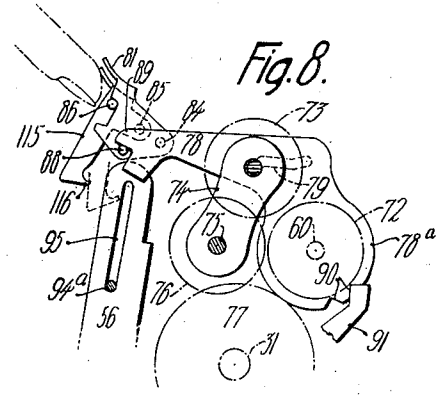


Fig. 8.



INVENTOR

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BY B B Stickney

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Patented Dec. 31, 1929 1,741,664

UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

Application filed March 18, 1927. Serial No. 176,360.

This invention relates to typewriting machines of that class where an auxiliary inking ribbon interposed between the work-sheets is employed to manifold a record-sheet with permanent inked characters, and may be regarded as an improvement upon my pending application, Serial No. 159,046, filed January 5, 1927.

My pending application referred to includes an auxiliary ribbon-mechanism having a pair of frames, one frame mounted at each end of the carriage to support a ribbon-spool, and a spool-feeding mechanism operated by the line-spacing mechanism, each spool-supporting frame provided with a combined ribbon-guide and ribbon-vibrator slidably supported for a straight up-and-down movement, and operative to shift the auxiliary ribbon in a straight line between the work-sheets and between the typing line of the platen and an inoperative position above the typing line. A shifting of the auxiliary ribbon from the typing line towards the spool-position naturally created a slack in the ribbon at both ends, and to prevent this slack being carried to the horizontal stretch between the work-sheets, clamps were arranged to automatically bind the ribbon to the faces of each ribbon-slide, and thus form a slack loop in the ribbon between the clamp at the upper end of the slides and the ribbon-spool. The ribbon-feeding mechanisms include a gear-shifting control automatically operative by the sliding movement of the ribbon-carrying frames, to cut out the feeding of the winding-up ribbon-spool during the interval the ribbon was raised to its inoperative position above the typing line. Means were also provided whereby the manual actuation of the gear-shifting mechanism operated to permanently disconnect both ribbon-spool feeding devices when the auxiliary ribbon was not being used, or a reversal of the direction of the ribbon-feed was desired.

One feature of the present invention includes improved means for manually operating the ribbon-spool gear-shift to shift the driving gears at the feeding or winding-up spool by a positive connection between the ribbon-carrying slide and the gear-shifting lever, rather than rely upon a spring-tension to bring about a re-engagement of the gears to feed the ribbon-spool.

Heretofore it has been the practice to provide the auxiliary ribbon with a shield to prevent offsetting of inked characters upon the back of the other work-sheet. This shield is usually a narrow web or tape of specially-prepared paper with the ends secured to and supported by the ribbon-carrier at each end of the carriage. With the shorter lengths of platens this method has given satisfaction, but where the development of the type-driven ledger-sheet in bookkeeping has gradually demanded increased lengths of platens up to sixteen inches or more, a long stretch of ribbon-shielding web, more or less insecurely held at the ends of the long carriage, caused trouble through the sagging of the web adjacent the center of the typing line, and the operator was not sure that the protective web between the two work-sheets was actually preventing offsetting upon the outside work-sheet. The ledger or record sheet usually covers the whole working length of the platen between the two side edges of the collating table. The outer invoice or similar sheet is much narrower, and when both sheets are collated at the left-hand side wall of the collating table, there is a wide surface of the record-sheet exposed at the right of the overlying outer sheet for sundry records not desired upon the outer sheet, and where the ribbon-shielding tape covers the whole typing line, it is obvious that the section of tape covering the exposed auxiliary ribbon at the right of the outer sheet is useless and reduces the density of the characters typed through the tape on the exposed under work-sheet. This feature together with the sag at the middle of the long tape has rendered a mechanism successfully employed with a short platen practically inoperative when employed on an extremely long carriage.

Another feature includes a tie-bar between the outer ends of the auxiliary ribbon-carrier to provide a support for a pair of clamping elements, to each of which one end of the ribbon-protecting tape is secured. Each clamping element includes means for adjustably

securing said elements at any longitudinal position on the bar, and in this way provision is made to adjust the clamps to the width and the relative location of the outer work-sheet. The tape is first secured to one clamp, stretched across to the other clamp, drawn taut and then secured. The clamp being secured to a rigid bar, the stretching of the tape has no tendency to stress the ribbon-carrying arms, and the tie-rods serve also to reinforce the ribbon-carrying structure. When the protective tape becomes cut or saturated with ink from the ribbon, the loosening of a thumb-screw secured at each clamp provides for the easy replacement of the tape by the operator.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a view, in perspective, showing the present invention operatively assembled with an auxiliary ribbon feeding mechanism mounted upon the carriage-ends above the platen.

Figure 2 is a full-size sectional top view through the left-hand ribbon-spool.

Figure 3 is an enlarged perspective view of the lower end of the left-hand auxiliary ribbon-carrier, the cross-bar tying the carrier to its companion carrier at the opposite end of the carriage, the manner of securing the clamp to the bar, and the manner of securing the paper-tape to the clamp.

Figure 4 is a vertical section through the platen and ribbon-feeding mechanism, this section being taken on a plane indicated by the line 4—4 in Figure 2, looking in the direction of the arrow.

Figure 5 is a diagrammatic view, showing the first step in manually disconnecting the ribbon-spool fed from the normal position of Figure 4.

Figure 6 shows the ribbon-controlling parts relatively positioned when the auxiliary ribbon is inoperative to manifold, and the spool-feeding mechanism rendered inoperative by the raising of the ribbon-carrier.

Figure 7 shows the next progressive step, while the parts are shifted from the Figure 5 position and before the ribbon-shifting arm has been disturbed from its normal position.

Figure 8 shows the parts moved from the Figure 7 position to the full upward sweep of the finger to effect a manual separation of the ribbon-spool driving gears when the direction of the ribbon-feed is reversed, and the spool of this figure becomes an unwinding spool.

The platen 20 rotates with a platen-shaft 21 having bearings within carriage-ends 22, and provided with a line-spacing mechanism including a line space lever 23, engageable to operate a slide 24, carrying a pawl 25, operative to engage with the teeth of a ratchet-wheel 26 secured to the shaft 21, to rotate the platen a line-space distance on each actuation of the lever 23.

The carriage-ends 22 are joined together at the rear of the platen 20 by a paper-table that curves under the platen to serve as a paper-deflector to guide the work-sheet to the typing line of the platen when inserted at the rear, or to guide the work-sheet under the platen toward the rear when a sheet is collated by a front insertion. The carriage-ends are further tied together by a rod 28 extending parallel to and at the rear of the platen.

Brackets 29 are secured to each carriage-end 22 by screws 30 and provide bearings for each end of a shaft 31 and a rod 32 located parallel to the platen. To prevent endwise movement of the shaft 21 a collar 33 secured thereto bears against the outer face of the left-hand bracket 29, while the hub of a toothed ratchet-wheel 34, secured to the shaft, bears against the inner face of said bracket. The shaft 31 operates to drive a pair of ribbon-spools 35 and 36 to feed an auxiliary inking ribbon by an intermittent rotary movement of the shaft 31 through connections to the line-spacing mechanism of the platen. These connections include a crank-arm 38 mounted to vibrate freely upon the shaft 31 between the ratchet 34 and a collar 39, a pawl 40 carried by the crank-arm 38 and held in operative engagement with the ratchet 34 by a spring 41 and link 42 pivotally connected to the crank-arm 38 and to the rear end of the slide 24. In this manner the swinging of the line-space lever 23 drives the slide 24 and pawl 25 to rotate the platen 20, and the link 42 conveys the movement of the slide 24 to the crank-arm 38, causing the pawl 40 to drive the ratchet 34 and rotate the shaft 31 on the forward stroke of the line-space lever. Both pawls 25 and 40 are idly restored to normal position by a spring 43 connected to the slide 24.

Supporting means for some of the parts of the auxiliary ribbon mechanism include brackets 44 secured to the rod 28 adjacent each carriage-end 22 and interlock with the shaft 31 and the rod 32. Each bracket 44 has an ear 45 bent inwardly at right angles to provide a pad face, to which a bar 46 may be removably secured at each end by thumb-screws 47. Each bracket may also include a forwardly-projecting arm 48 having a paper-feeding roll 49 at the free end thereof to bear against the face of the platen 20.

The construction of both auxiliary ribbon-spools 35 and 36 and their controlling mechanism is identical, except for the right and left hand assembly of the parts, and the description of the left-hand spool, shown in detail in several views, will also be descriptive of the right-hand spool and its connections. Each ribbon-spool may be housed within a U-shaped bracket having side walls

50 and 51, joined together by a front wall 52. The drive shaft 31 penetrates both side walls 50 and 51 and serves to locate and anchor the spool housings in relation to the platen. Each housing may be clamped to the bar 46 by screws 54 passing through the wall 52 and threaded into the rear wall 55 of a long and narrow U-shaped support 56 for a ribbon-carrier and guide, presently to be described. The upper screw 54 has a spacing washer 57 between the two walls 52 and 55.

Each ribbon-spool 35 and 36 may be housed within this casing between a boss 58 secured to the side wall 51 and a sleeve 59 rotatable within the side wall 50, said spools being arranged to rotate upon a spindle 60 forming a part of thumb-screws 61 having a threaded section 62 to thread into boss 58, the free end of the spindle projecting through the spool and entering a hole 63 in the sleeve 59. The core 64 of the ribbon-spool is provided with a hole 65 to receive the end of a dowel-pin 66 forming a part of a thumb-screw 67 threaded into the sleeve 59 and furnishing a means to drive the spool when the sleeve is rotated. To remove a spool both thumb-screws 61 and 67 may be unscrewed and removed from the casing. The sleeve 59 rotates within a bushing 68 threaded exterior of the side wall 50 to receive a check-nut 69 to bind the bushing, between the nut and a suitable shoulder thereon, to the side wall 50. To prevent endwise movement of the sleeve 59 within the bushing 68, a suitable shoulder may be formed on the sleeve to bear against the inner face of the bushing, and a cap 70 secured by a screw 71 to the outer face of the sleeve to overlap and bear against the face of the nut 69. In this manner the sleeve may be rotated, and through the dowel-pin 66 the sleeve will drive and control the rotary movement of the ribbon-spool. To provide a rotary movement for the sleeve 59, said sleeve may include a spool-gear 72 between the inner face of the bushing 68 and the adjoining face of the ribbon-spool.

It is a desirable feature in the ribbon-mechanism to prolong the usefulness of the inking ribbon by providing each ribbon-spool with individual driving or ribbon-feeding means that may be shifted, at will, to change the direction of ribbon-feed or to silence the ribbon-feeding mechanism for both spools when the use of an auxiliary ribbon is not required. To this end, the spool-gear 72 may be driven by a gear 73, pivotally mounted on the free end of a link 74 swingable about a pivot-stud 75 secured to the inner face of the side wall 50 to vibrate the gear 73 into and out of train with said spool-gear 72, the gear 73 being in constant mesh with an idler gear 76 rotatable on the stud 75, and which in turn is in constant mesh with a drive-gear 77 secured to the drive shaft 31. When the shaft 31 is rotated by a line-spacing movement, the gear 77 positively drives the two gears 76 and 73, and should the gear 73 be in train with the spool-gear 72, the ribbon-spool will be rotated, and a corresponding amount of ribbon-surface will be drawn through the typing line in a manner presently to appear.

To manually shift the gear 73 into and out of mesh with the ribbon-spool gear 72, a cam-lever 78 is assembled upon the bushing 68 against the inner face of the side wall 50 for a free swinging movement, and formed with an irregular camming slot 79 to receive a pin 80, projecting from the face of the adjoining link 74. The effect of slot 79 upon the pin 80 when the lever 78 is raised from the position shown at the left-hand spool 35, to the position shown at the right-hand spool 36 in Figure 1, is to swing the link 74 forwardly about the stud 75 and withdraw the gear 73 from its operative mesh with the ribbon-spool gear 72, and thus disconnect the spool from the driving gears rotated by the shaft 31. The cam-levers 78 at their forward ends may be provided with a pair of finger-levers 81 and 82. The lever 81 may be pivoted to the lever 78, and the lever 82 pivoted upon the lever 81. Lever 81 is provided with a spring 83 between the head of its pivot 84 and the side face of the lever to act as a drag to frictionally hold the lever in its normal position of Figure 4 or in its raised position in Figure 8. The lever 82 is pendulously hung upon a pivot 85 and has a free movement about said pivot predetermined by a pin 86 engaging the end walls of a clearance slot 87 formed in the edge of the lever 81. In lifting the lever 82 from the position of Figure 4 to the position of Figure 5, the pin 86 shifts to abut the upper end of the slot 87 and further upward movement of the lever 82 picks up and swings the lever 81 in unison therewith until a stop-pin 88 engages an ear 89 on the end of the cam-lever 78, and, in swinging from the Figure 7 position to the Figure 8 position, the cam-lever 78 moves in unison with both levers 81 and 82 until the movement is arrested by the pin 80 engaging the end of the slot 79 in said lever 78. Upon releasing the lever 82, said lever will swing by gravity about its pivot 85 until the stop-pin 86 engages the lower edge of the slot 87. The gear 73 has been drawn out of train with the spool-gear 72 as shown at Figure 6 and the rotation of the driving gear 77 will idly rotate the two gears 73 and 76.

The cam-lever 78 may be formed with a circular terminal 78a having detent-notches 90 in the edge thereof to engage with a spring-pressed pawl 91 pivoted upon the side frame 50 and operative to prevent accidental displacement of said lever 78 at both the raised and lowered positions.

It will be remembered that the forward part of each ribbon-spool supporting frame

includes a long narrow U-shaped support 56 secured to the front thereof. This support hangs substantially vertical from the spool-frame and provides a housing for a U-shaped ribbon-guide and vibrator 92 that nests therein for an up-and-down sliding movement, each side wall 93 of the vibrator 92 having a pair of outwardly-projecting studs or screws 94 that enter slots 95 in the side walls of the housing 56 to provide for this sliding movement of the vibrator. To raise and lower the vibrator 92 within its housing, there may be provided an actuating lever as 96 for each ribbon-vibrator, said lever being secured to a rock-shaft 97 extending between the two ribbon-spool frames, so that the actuation of one lever 96 at one ribbon-spool will also actuate the other lever at the opposite spool. This construction is provided to enable the operator to actuate the ribbon-vibrator at either end of the carriage or by either hand. Each lever 96 may be formed with a finger-piece 98 and a slot having two angular sections 99 and 100, said slots serving as cams upon a stud 101 carried by one of the side walls of the ribbon-vibrator 92. An upward swing of the lever 96 from the position of Figure 1 to that of Figure 6 forces the stud 101 to ride up the slot section 100, and the ribbon-vibrator 92 to slide upwardly within the housing 56 in a straight line parallel to the plane of the housing 56. A continued upward movement of the lever 96 from the position in Figure 6 forces the stud 101 to pass from the cam-slot section 100 into the slot section 99. The upper pair of studs 94^a in the side walls of the ribbon-vibrator 92, having reached the upper ends of the upper slots 95 in both side walls of the housing 56, further upward movement of the vibrator is arrested and the movement of the lever 96 from this point tends to swing the lower end of the vibrator forwardly, the upper studs becoming fulcrums for the swinging movement. To accommodate this forward swing of the lower end of the vibrator without losing the guiding control of the side walls of the housing 56, each of said side walls is formed with an elongated ear 102, having slots 103 therein radial to the shifted position of the upper studs 94^a and merging with the lower slots 95, and hence when the vibrator 92 swings forwardly to the dotted position of Figure 6, the lower studs 94 will pass from the lower slots 95 into the radial slots 103 until the forward swing of the vibrator is arrested. Thus, either lever 96 is operative to jointly raise both ribbon-vibrators 92 in a straight line to the position of Figure 6, and then swing the vibrators forwardly to the dotted position, each movement being operative for two distinct uses, as will presently appear. To hold the levers 96 at the down, up and forward positions of the vibrators 92, said levers may be formed with a tongue 104 having three depressions 105 formed in one edge thereof to engage with a flange-roller 106 mounted upon the end of a stud 107 that projects through a clearance hole 108 in the side wall 51, from a lever (not shown) fulcrumed to the inside of said wall and spring pressed into engagement with the tongue 104 by a spring.

Each vibrator or slide 92 may be formed as heretofore with a lower extension or section without side walls to drop to the position of the printing line and provided with an angular ribbon-turning edge to change the direction of the ribbon from the vertical plane of the vibrator to a horizontal plane extending longitudinally of the platen.

Means have been described for raising the ribbon-vibrators 92 to inoperative positions, and it is obvious that in so raising the vibrators a slack must develop in the ribbon between the spools and the horizontal section that may cause a sag in the latter to interfere with the proper adjustment of the ribbon between work-sheets. It is desirable therefore to clamp the ribbon to each vibrator during the interval the vibrators are raised for any purpose, and any slack formed in the ribbon will appear between the upper ends of the vibrators and the spools. To this end, a lever 109 is secured to the inner face of one side wall of each vibrator 92 by a fulcrum-screw 110, said lever extending upwardly where the free end is provided with a pad 111 to grip the ribbon between the pad and the face of the vibrator by the tension of a spring 112 flexed between a pin on the lever and a pin on the vibrator wall. The upper free end of each lever 109 is formed with a turned-over ear 113 that normally rests upon the edge of the upper rounded edge of the adjacent side wall of the housing 56, to hold the pad 111 from contact with the ribbon. The initial upward movement of the vibrator, however, causes the ear 113 to ride off the edge of the side wall, and, urged by the spring 112, to grip the ribbon between the pad 111 and a roller 114 carried by the vibrator 92.

In some classes of work the vibrators may be raised to positions where the auxiliary ribbon is temporarily raised above the typing line during a line interval, when typing is to be accomplished without manifolding. It is desirable under these circumstances to prevent any feeding of the ribbon, and while the manual manipulation of the lever 78 might be employed to disconnect the two gears 72 and 73, it is desirable to automatically effect this disconnection of the gears without any thought or attention on the part of the operator. Referring to Figure 1, the upper left-hand stud 94^a is elongated, as shown, to engage with the free forward end of the lever 78, so that, when a ribbon-vibrator is lifted by a lever 96, said stud will rise with the

vibrator, pick up the lever 78 at the winding-up spool, and, in vibrating the lever, the cam-slot 79 therein will effect the swinging of the gear 73 out of operative mesh with the spool-gear 72. At the end of the upward sweep of the ribbon-vibrator 92 the parts will assume the positions of Figure 6, where it will be noted that the lever 78 has been shifted above the position of the pin 94a. The pin 94a operates to raise the lever 78 to a point where the spring-pressed detent-pawl 91 operates in seating within a notch 90 to raise the lever above the pin 94a to prevent contact between said pin and lever when the parts are in positions shown in Figure 6 for the unwinding ribbon-spool.

When the ribbon-vibrator slides are moved downwardly to reposition the auxiliary ribbon at the typing line, it is desirable to pull the lever 78 downwardly from its upper detented position of Figure 6 to its normal ribbon-spool-driving position of Figure 4. To this end, the lever 82 may be formed with depending arms 115 formed at the end thereof with a hook 116, which, as in Figure 6, normally underlies the pin 94a. Hence the downward movement of the slide 92 causes said pin to engage the hook 116 and pull the lever downwardly to break the detenting hold of the pawl 91. This movement takes place at each shifting movement of the ribbon-carrying slides at the winding-up spool, and, as the same movement is given to the pin 94a at the opposite or unwinding spool, means are provided whereby the manual shifting of the lever 78 permanently separates the unwinding ribbon-spool from its spool-driving gears. The lever 82, when released by the finger, will swing by gravity to the dotted position of the arm 115, Figure 8, where the hook 116 is positioned out of the path of the pin 94a, and the pin will rise and fall within the slot 95 without engaging the locked-out lever 78.

The lower ends of each ribbon-slide 92 are reinforced by a tie-bar 118 secured by screws 119 to the lower rear face of each slide and positioned close to the platen-face, to deflect the passage of a record-sheet between the bar and the platen. This bar is aligned close to the upper edge of the auxiliary ribbon 120 and is further employed as a support for a pair of clamping elements 121, arranged to stretch a paper tape 122 over the front face of the auxiliary ribbon to prevent fouling or offsetting upon the rear face of the outer work-sheet. The clamping elements include a T-shaped carrier 123 arranged to be adjustably attached to the bar 118 by screws 124, to vary the length of the covering tape, as conditions require. The end of the tape 122 is brought around a tongue 125 of the carrier 123 from the rear, folded around the edge and front face thereof, where a clamp 126 is adjusted over the top and clamped to the carrier by a thumb-screw 127 passing through a hole in the clamp and then into a threaded hole 128 in the carrier. The opposite end of the tape is similarly secured to a similar clamp 121a at the opposite side of the outer work-sheet. By this construction the length of the protective tape 122 can be adjusted to the width of the outer work-sheet and not to the permanent spread of the two ribbon-slides 92, as heretofore.

In making ribbon-devices of this kind, difficulty has been met with in trying to get the lower portion of the ribbon-guides close to the platen, so that the strip of ribbon which lies between the sheets and across the printing line will be close to the platen. To overcome this difficulty, the clamps 121, 121a are offset rearwardly with respect to the ribbon-guides, so as to deflect an intermediate portion of the ribbon closer to the platen, as shown in Figures 1 and 3.

The type-bar-segment 129 supports the type-guide 130 in the usual Underwood manner and at each side of said guide a long straight edge or line-finder section 131 is secured to the segments by screws 132, and further secured at the edge of the top plate 133 where the screws 134 securing a bracket 135 form a part of each section 131. These two sections 131 have the upper edges 136 rolled to reinforce the edges and provide a smooth round edge aligned to the typing line of the platen. These two sections 131 project beyond each side of the machine to insure engagement with the outer work-sheet of all positions of the carriage and the free ends may be tapered to a point, as shown, with the lower edge 137 also rolled to provide a rigid structure not easily bent out of shape.

Sometimes a wide condensed record-sheet is adjusted around the platen from the rear to pass under the auxiliary ribbon, under the bar 118, and under rolls 49 at each end of the platen. The outer sheet may be adjusted around the platen from the front and collated upon a suitable table. The collating means may include two tables 138 of the well-known form and adjustably secured to the angle-bar 46 by screws 139. The right-hand table may include a paper-clamp 140 pivotally hung upon a carrier 141 swingably mounted at the side of the table and operative to clamp a work-sheet to the table under tension.

Figure 1 shows a ledger-sheet A and a statement-sheet B in operative positions for receiving impressions from the type-bars 142 through the usual ribbon 143, the types printing upon the sheet B through the ribbon 143 and manifolding the sheet A through the auxiliary ribbon 120. To collate the sheets A and B to the positions shown, the auxiliary ribbon shifting mechanism is shifted to positions in Figure 6. Ledger-sheet A may be inserted at the rear of the platen and fed around under the feed-rollers 144 previously thrown off, the leading-in end of the sheet

drawn up through the typing position to the collating table 138, and the sheet aligned to the edges of the two sections 131 and squared by aligning the right-hand edge of the sheet to the right-hand edge of the table, when the paper-holding clamp 140 is swung to the position shown, to bind the ledger-sheet to the face of the collating table. The statement sheet B is usually adjusted to the platen by a front insertion of one lower corner between the platen and deflector and forced rearwardly under the platen and the sheet then straightened and aligned to the sections 131 and squared against the left-hand wall of the collating table, when the feed-rollers 144 are restored to bind both sheets A and B to the platen, and the clamp 140 is swung sidewise to a raised inoperative position. The end of the sheet B may be bent forwardly, and while held in this position a lever 96 is depressed to first swing the auxiliary ribbon-vibrators 92 from the dotted positions in Figure 6 to those of Figure 4, where the auxiliary ribbon and its protecting web is positioned to cover the typing line under the outer sheet.

It will be particularly noted that the ribbon-slides 92 are reinforced by a cross-bar that preserves the alignment of the slides when stressed by the tension of the ribbon to result in cramping the slides within their guides 56; that the ribbon-shield carriers are adjustable along the bar 118 to accommodate any width of an outer work-sheet regardless of the space between the ribbon-carrying slides; that these carriers may be adjusted to a narrower outer work-sheet regardless of the position of said sheet relative to the wider under work-sheet; that the stressing of the protective tape is borne by the reinforcing bar 118 and not by the frail ribbon-carrying slides 92, as heretofore; and that the adjustability of the length of the protective tape to the width of the work-sheet to be protected from a rubbing contact with the auxiliary ribbon shortens the relative length of the tape to the length of the ribbon and increases the efficiency of the tape in covering the face of the ribbon, by practically eliminating all sag from the tape.

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 a carriage having a platen, a carriage-ribbon to cover the typing line of the platen and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends and mounted upon the carriage and relatively adjustable to accommodate variations in the width of a work-sheet.

2. In a typewriting machine, the combination with a carriage having a platen, a carriage-ribbon to cover the typing line of the platen and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends and mounted upon the carriage and relatively adjustable to vary the length and relative position of the tape to the length of the ribbon.

3. In a typewriting machine, the combination with a carriage having a platen, a carriage-ribbon to cover the typing line of the platen and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends including a bar mounted upon the carriage parallel to the platen and clamps adjustable along said bar to which the ends of the tape are secured.

4. In a typewriting machine, the combintion with a carriage having a platen, a carriage-ribbon to cover the typing line of the platen and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends including a bar mounted upon the carriage parallel to the platen, supports for the tape adjustable along said bar, and means for removably securing the ends of the tape to the adjusted supports.

5. In a typewriting machine, the combination with a carriage having a platen, a carriage-ribbon to cover the typing line of the platen, and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends including a bar mounted upon the carriage parallel to the platen, supports for the tape adjustable along said bar and offset to position the face of the tape close to the face of the underlying inked ribbon, and means secured to the bar effective to bind the ends of the tape to the offset supports.

6. In a typewriting machine, the combination with a carriage having a platen, a carriage-ribbon to cover the typing line of the platen and a shield in the form of a tape superposed over the face of the ribbon, of devices suspending the tape by its ends including a bar mounted upon the carriage parallel to the platen and clamps adjustable along said bar to which the ends of the tape are secured, each clamp including a tape-supporting member, a tape-clamping member having an ear for aligning said clamp to the supporting member and a thumb-screw operative to bring the clamp and tape-supporting member into clamping engagement.

7. In a typewriting machine, the combination with a carriage having a platen, ribbon-spools, ribbon-guides operative to direct the ribbon from the spools to the typing line and thence longitudinally of the platen, and a shield in the form of a tape to prevent the soiling of a superposed work-sheet, of de-

vices carried by the ribbon-guides and operative to support said tape, said devices being relatively adjustable between the guides to vary the length of the tape for any width of superposed work-sheet.

8. In a typewriting machine, the combination with a carriage having a platen, ribbon-spools, ribbon-guides operative to direct the ribbon from the spools to the typing line and thence longitudinally of the platen, and a shield in the form of a tape to prevent the soiling of a superposed work-sheet, of devices carried by the ribbon-guides and operative to support said tape, said devices including clamping members for each end of the tape, one clamping member being relatively adjustable to the other clamping member to vary the length of the tape over the ribbon to correspond to the width of the superposed work-sheet.

9. In a typewriting machine, the combination with a carriage having a platen, ribbon-spools, ribbon-guides operative to direct the ribbon from the spools to the typing line and thence longitudinally of the platen, and a shield in the form of a tape to prevent the soiling of a superposed work-sheet, of devices carried by the ribbon-guides and operative to support said tape, said devices including clamping members for each end of the tape, both clamping members being relatively adjustable to each other to vary the length and relative position of the tape over the ribbon predetermined by the width of the superposed work-sheet and the relative position of said sheet upon the platen.

10. In a typewriting machine, the combination with a carriage having a platen, ribbon-spools, ribbon-guides operative to direct the ribbon from the spools to the typing line and thence longitudinally of the platen, and a shield in the form of a tape to prevent the soiling of a superposed work-sheet, of devices carried by the ribbon-guides and operative to support said tape, said devices including a bar connecting the two guides and a pair of clamps for the ends of the tape that are relatively adjustable along said bar to spaced-off positions predetermined by the width of the superposed work-sheet.

11. In a typewriting machine, the combination with a carriage having a platen, a ribbon-spool mounted above each end of the platen, and a shiftable ribbon-guide in front of each spool for guiding the ribbon from the spools to the typing line and then directing it in a horizontal run parallel with the platen, of anti-fouling means including a tape supported by a sheet-deflecting bar supported by both of said guides adjacent their lower ends for directing a work-sheet rearwardly against the face of the platen, the sheet-deflector serving also as a brace and spacer for said guides at all shift positions thereof.

12. In a typewriting machine, the combination with a carriage having a platen, a ribbon-spool mounted above each end of the platen, and a ribbon-guide in front of each spool for guiding the ribbon from the spools to the typing line and then directing said ribbon in a horizontal run in front of the platen, of anti-fouling means including a sheet-deflector operative to deflect a work-sheet rearwardly against the face of the platen, a ribbon-shield in the form of a tape stretched in front of the ribbon, and means mounted on said deflector for supporting said shield in taut condition, said deflector serving also as a brace and spacer for said guides.

13. In a typewriting machine, the combination with a carriage having a platen, a ribbon-spool mounted above each end of the platen, and a ribbon-guide in front of each spool for guiding the ribbon from the spools to the typing line and then directing said ribbon in a horizontal run in front of the platen, of anti-fouling means including a sheet-deflector operative to deflect a work-sheet rearwardly against the face of the platen, a ribbon-shield in the form of a tape stretched in front of the ribbon, and means mounted on said deflector for supporting said shield in taut condition, said deflector serving also as a brace and spacer for said guides, said last-mentioned means including clamps engaging the ends of said shield and adjustably mounted on said deflector to accommodate said shield to the width and position of a superposed statement-sheet.

14. In a typewriting machine having a carriage and a platen operable to feed a wide work-sheet and a narrow superposed work-sheet, the combination with a carriage-carried ribbon-mechanism including a pair of spaced-off ribbon-spools, ribbon-carrying guides operative to direct the ribbon from the spools to the typing line and establish a fixed typing length therefor, and manual means operable to vibrate said guides to shift the ribbon to or from the typing line and between the work-sheets, of a protective shield in the form of a tape supported by means connecting the guides and relatively adjustable between the guides to cover a portion of the ribbon predetermined by the width of the narrow work-sheet.

15. In a typewriting machine having a carriage and a platen operable to feed a wide work-sheet and a narrow superposed work-sheet, the combination with a carriage-carried ribbon-mechanism including a pair of spaced-off ribbon-spools, ribbon-carrying guides operative to direct the ribbon from the spools to the typing line and establish a fixed typing length therefor, and manual means operable to vibrate said guides to shift the ribbon to or from the typing line and between the work-sheets, of a protective shield

in the form of a tape supported by means joining the two guides and relatively adjustable between the guides to cover that portion of the ribbon predetermined by the width and relative position of the narrow worksheet.

16. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, a ribbon-feeding mechanism operative to feed the ribbon from spool to spool, a ribbon-feed control-lever, slidable ribbon-carriers for each spool operative to direct the ribbon to the typing line, actuating mechanism to vibrate the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feeding control-lever to silence the ribbon-feed to the winding-up spool, of means carried by said control-lever and engageable with the downward movement of the ribbon-carrier in restoring the ribbon to the typing line, to simultaneously shift the ribbon-feeding mechanism into re-engagement with the winding-up ribbon-spool.

17. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, a ribbon-feeding mechanism operative to feed the ribbon from spool to spool, a ribbon-feeding control-lever, slidable ribbon-carriers for each spool operative to direct the ribbon to the typing line, actuating mechanism to vibrate the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feeding control-lever to silence the ribbon-feed to the winding-up spool, of a hook hanging pendent from the end of the control-lever and engageable with the ribbon-carrier to positively shift the ribbon-feeding mechanism into re-engagement with the winding-up ribbon-spool when the ribbon-carrier is shifted to present the ribbon to the typing line.

18. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, a ribbon-feeding mechanism operative to feed the ribbon from spool to spool, a ribbon-feeding control-lever, slidable ribbon-carriers for each spool operative to direct the ribbon to the typing line, actuating mechanism to vibrate the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feeding control-lever to silence the ribbon-feed to the winding-up spool, of a hook hanging pendent from the end of the control-lever and engageable with the ribbon-carrier to positively shift the ribbon-feeding mechanism into re-engagement with the winding-up ribbon-spool when the ribbon-carrier is shifted to present the ribbon to the typing line, and means carried by the control-lever and operatively connected to the pendent hook, to swing said hook to an inoperative position relative to the movement of the ribbon-carrier when the control-lever is manually raised to permanently silence the ribbon-spool.

19. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, a ribbon-feeding mechanism operative to feed the ribbon from spool to spool, a ribbon-feeding control-lever, slidable ribbon-carriers for each spool operative to direct the ribbon to the typing line, actuating mechanism to vibrate the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feeding control-lever to silence the ribbon-feed to the winding-up spool, of a hook hanging pendent from the end of the control-lever and engageable with the ribbon-carrier to positively shift the ribbon-feeding mechanism into re-engagement with the winding-up ribbon-spool when the ribbon-carrier is shifted to present the ribbon to the typing line, and a finger-lever frictionally mounted upon the control-lever and operative to swing and hold the hook at an inoperative position relative to the movement of the ribbon-carrier when the control-lever is manually raised to permanently silence the ribbon-spool.

20. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, a ribbon-feeding mechanism operative to feed the ribbon from spool to spool, a ribbon-feeding control-lever, slidable ribbon-carriers for each spool operative to direct the ribbon to the typing line, actuating mechanism to vibrate the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feeding control-lever to silence the ribbon-feed to the winding-up spool, of a hook hanging pendent from the end of the control-lever and engageable with the ribbon-carrier to positively shift the ribbon-feeding mechanism into re-engagement with the winding-up ribbon-spool when the ribbon-carrier is shifted to present the ribbon to the typing line, a finger-lever frictionally mounted upon the control-lever and operative to swing and hold the hook at an inoperative position relative to the movement of the ribbon-carrier when the control-lever is manually raised to permanently silence the ribbon-spool, and a spring-pressed detent cooperative with positioning notches formed in the control-lever to hold said lever at either of its shift-positions against displacement.

21. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, driving means for said spools, an interruptive connection interposed between said driving means and each of said spools, control-levers for said connections for connecting either of said spools to said driving means, slidable ribbon-carriers for said

spools operative to direct the ribbon to the typing line, and manually operated means for vibrating the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feed control-lever of the driven spool to temporarily silence the latter, of means automatically positioned upon said silencing of the driven spool to effect the positive engagement of the associated control-lever by the co-operating ribbon-carrier to reconnect the spool to the driving means when the ribbon is returned to operative position.

22. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools, driving means for said spools, an interruptive connection interposed between said driving means and each of said spools, control-levers for said connections for connecting either of said spools to said driving means, slidable ribbon-carriers for said spools operative to direct the ribbon to the typing line, and manually operated means for vibrating the ribbon-carriers to raise the ribbon to an inoperative position above the typing line and simultaneously actuate the ribbon-feed control-lever of the driven spool to temporarily silence the latter, the control-lever of the driven spool extending into the path of movement of its associated ribbon-carrier to be moved thereby to temporarily silence said last-mentioned spool when the ribbon is raised to inoperative position, of means for manually permanently disconnecting the driven spool from said driving means or for automatically connecting the same when said carrier is lowered from inoperative position to operative position to place the ribbon at the printing line, said last-mentioned means including a finger-lever frictionally and pivotally mounted on said control-lever, a hook-member pivoted on said finger-lever, said finger-lever capable of occupying two positions, in one of which, upon manual operation of said finger-lever to permanently silence the associated spool, said hook is removed from the path of movement of said carrier, and in the other of said positions, when said control-lever is operated by said carrier, said hook is automatically positioned in the path of the downward movement of said carrier, whereby said control-lever is automatically actuated to connect the winding-up spool to said driving means when the ribbon is returned to manifolding position.

23. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools mounted above the platen, driving means for said spools, an interruptive connection interposed between each spool and the driving means, a control-lever for each connection to connect its associated spool to or disconnect it from the driving means, and a ribbon-guide in front of each spool to guide the ribbon from the spools to the printing line and direct the same in a horizontal run in front of the platen, said guides being movable vertically to shift said ribbon to operative position at the printing line or to inoperative position above the printing line, of means for operating the control-lever of the driven spool to disconnect the latter from the driving means simultaneously with the movement of the ribbon-guides to inoperative position, and means for positively connecting said last-mentioned control-lever to its associated ribbon-guide when the latter is returned to manifolding position to operate said lever to connect its spool to the driving means.

24. In a typewriting machine, the combination with a carriage having a platen, a pair of ribbon-spools mounted above the platen, driving means for said spools, an interruptive connection interposed between each spool and the driving means, a control-lever for each connection to connect its associated spool to or disconnect it from the driving means, a ribbon-guide in front of each spool to guide the ribbon from the spools to the printing line and direct the same in a horizontal run in front of the platen, said guides being movable vertically to shift said ribbon to operative position at the printing line or to inoperative position above the printing line, and means for operating the control-lever of the driven spool to silence the latter simultaneously with the movement of the ribbon-guides to non-manifolding position, of means for positively connecting said last-mentioned control-lever to its associated ribbon-guide when the latter is returned to manifolding position to operate said lever to connect its spool to the driving means, said last-mentioned means including a coupling member attached to the control-lever and automatically positionable in the return path of the ribbon-guide to be moved thereby, and manually operated means for holding said member out of said return path to permanently silence its associated spool.

25. In a typewriting machine, the combination with a pair of ribbon-guides for directing a carriage-carried ribbon in a horizontal run in front of the platen, said ribbon being spaced forwardly of the platen, of ribbon-deflectors mounted between said guides and offset rearwardly with respect thereto to deflect an intermediate portion of said ribbon nearer to the platen.

26. In a typewriting machine, the combination with a carriage having a platen, a ribbon-spool mounted above each end of the platen, and a ribbon-guide in front of each spool for guiding the ribbon from the spools to the typing line and then directing said ribbon in a horizontal run in front of the platen, of anti-fouling means including a sheet-deflector operative to deflect a work-sheet rearwardly against the face of the platen, a ribbon-shield

in the form of a tape stretched in front of the ribbon, and means mounted on said deflector for supporting said shield in taut condition, said deflector serving also as a brace and spacer for said guides, said last-mentioned means including clamps engaging the ends of said shield and adjustably mounted on said deflector to accommodate said shield to the width and position of a superposed statement-sheet, said clamps being offset rearwardly with respect to said ribbon-guides and serving as ribbon-deflectors to deflect an intermediate portion of the ribbon nearer the platen.

27. In a typewriting machine, the combination with a carriage having a platen and a pair of stationary ribbon-spools, one spool at each end of the carriage and above the platen, of a ribbon-carrier mounted upon the carriage for upward motion and including a ribbon-guide in front of each spool to direct the ribbon from one spool to the guide at the opposite spool, and both guides joined by a cross-bar, making an upwardly movable unit to lift the ribbon and ribbon-guides to and from the typing line of the platen between a pair of work-sheets, and means supported by the cross-bar of said ribbon-carrier and effective in covering one face of the ribbon to prevent inking contact against the face of one work-sheet when typing or when rising with the ribbon between the work-sheets.

28. In a typewriting machine, the combination with a carriage having a platen, a pair of stationary ribbon-spools, one spool at each end of the carriage and above the platen, and a ribbon-carrier mounted upon the carriage and including a ribbon-guide in front of each spool to direct the ribbon from one spool to the guide at the opposite spool, and both guides joined by a cross-bar as an upwardly movable unit to lift the ribbon and ribbon-guides to and from the typing line of the platen between a pair of work-sheets, of means adjustable along said cross-bar of said ribbon-carrier and operative at all lifted positions of the carrier to support a non-ink tape to cover the outer face of the ribbon to protect the outer work-sheet from contact with the ribbon.

29. In a typewriting machine, the combination with a carriage having a platen, a pair of stationary ribbon-spools, one spool at each end of the carriage and above the platen, and a ribbon-carrier mounted upon the carriage and including a ribbon-guide in front of each spool to direct the ribbon from one spool to the guide at the opposite spool, and both guides joined by a cross-bar as an upwardly movable unit to lift the ribbon and ribbon-guides to and from the typing line of the platen between a pair of work-sheets, of a pair of hangers adjustable along said cross-bar of the ribbon-carrier to support and suspend a ribbon-protecting tape along the front face of the ribbon to prevent the soiling of the outer work-sheet, said hangers also including means to hold the ribbon and tape in longitudinal alignment at all lifted positions of the ribbon-carrier.

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