Sept. 10, 1940. J. J. KITTEL 2,214,415

TYPEWRITING MACHINE

Filed April 25, 1938 4 Sheets-Sheet 1

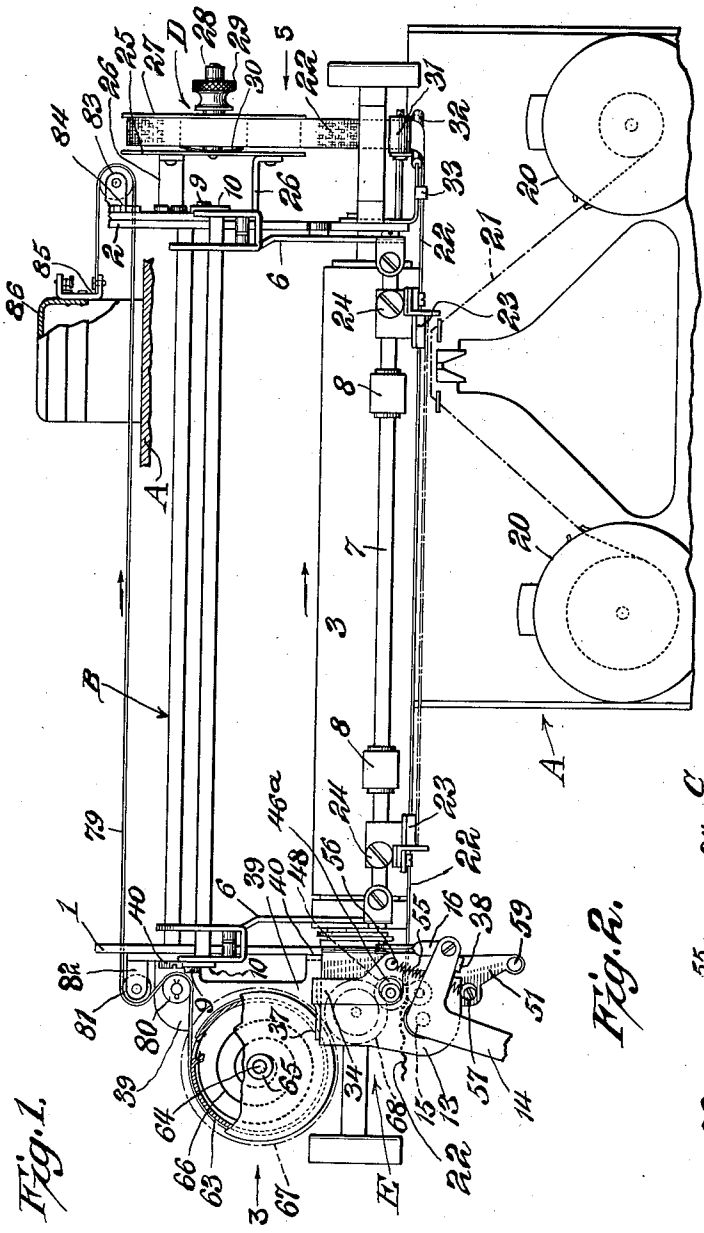

Fig. 1.

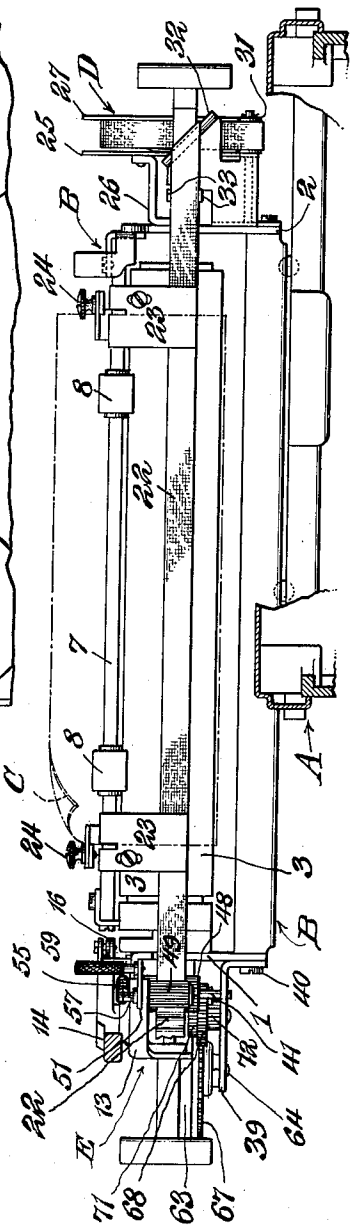

Fig. 2.

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TYPEWRITING MACHINE

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Fig. 3.

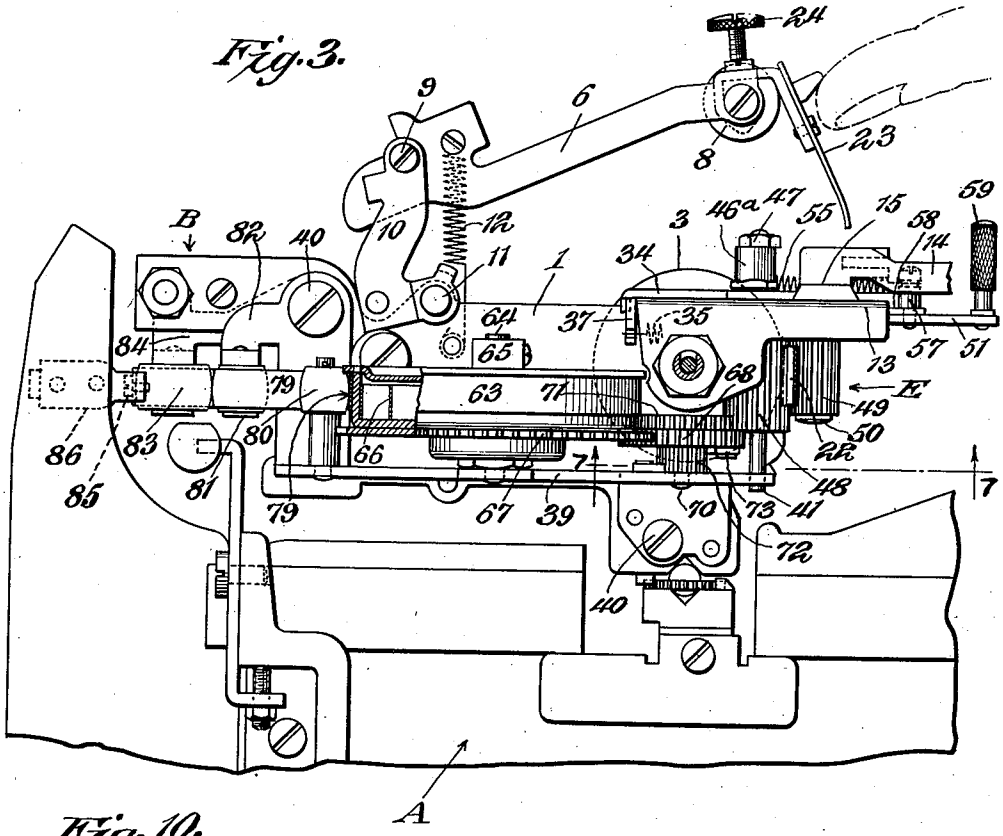


Fig. 10.

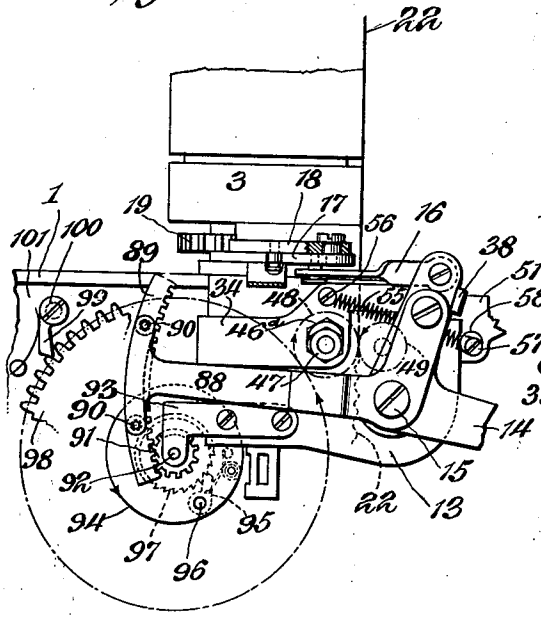
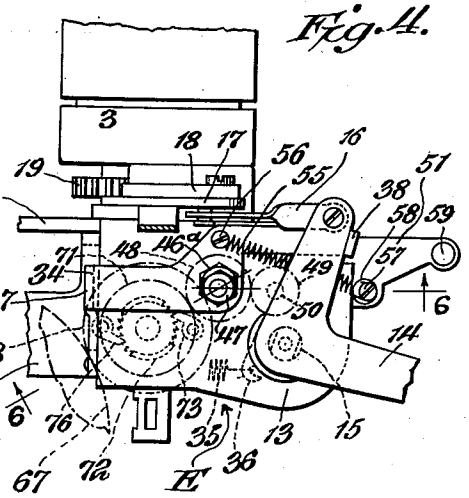


Fig. 11.



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TYPEWRITING MACHINE

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Fig. 5.

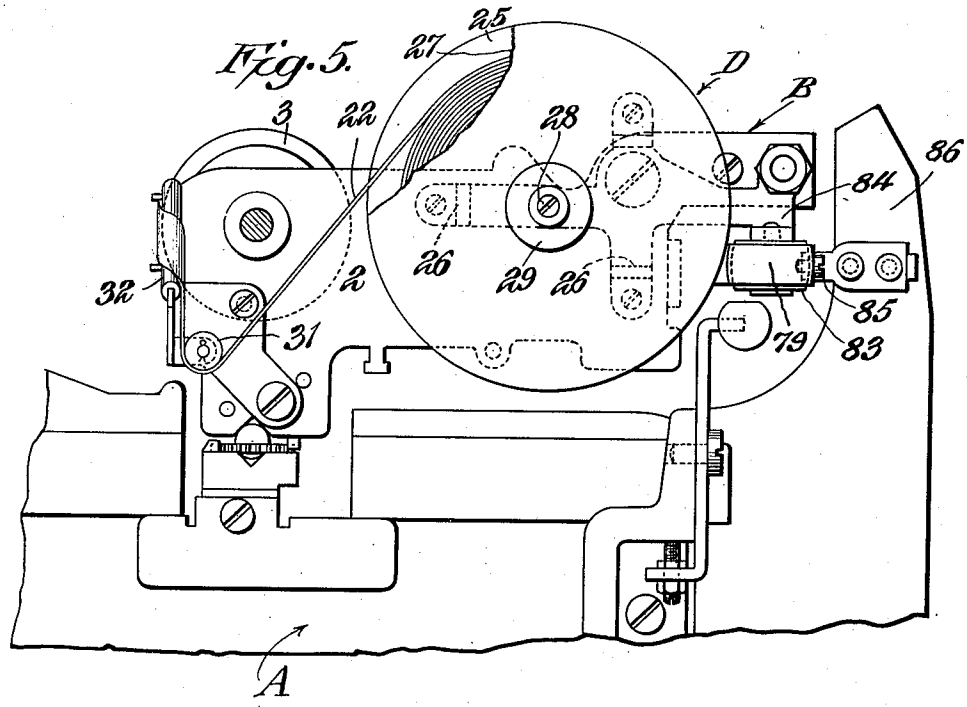
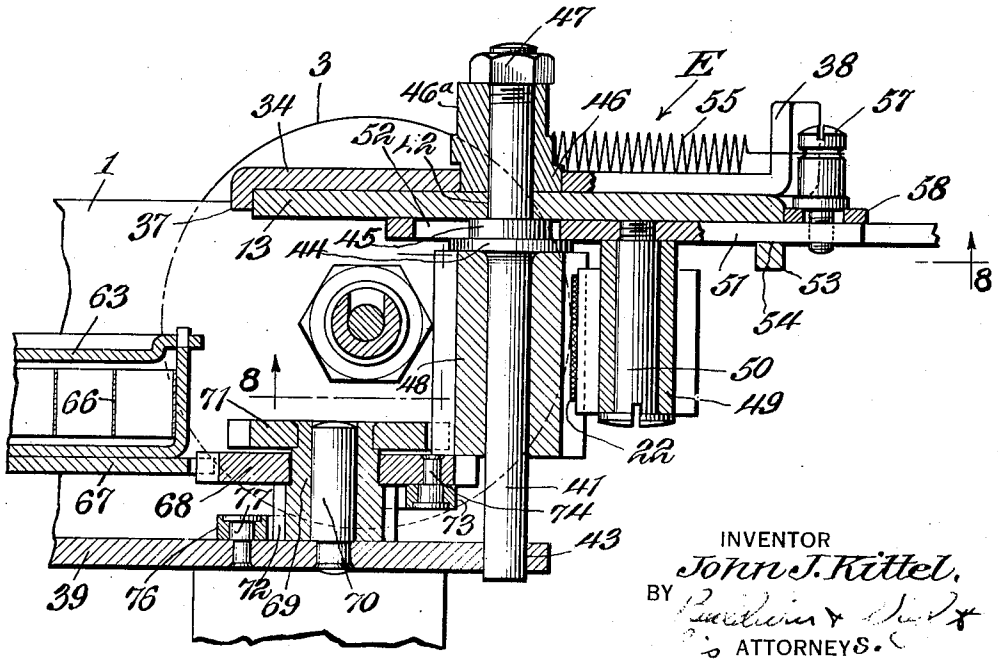


Fig. 6



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TYPEWRITING MACHINE

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Fig. 7.

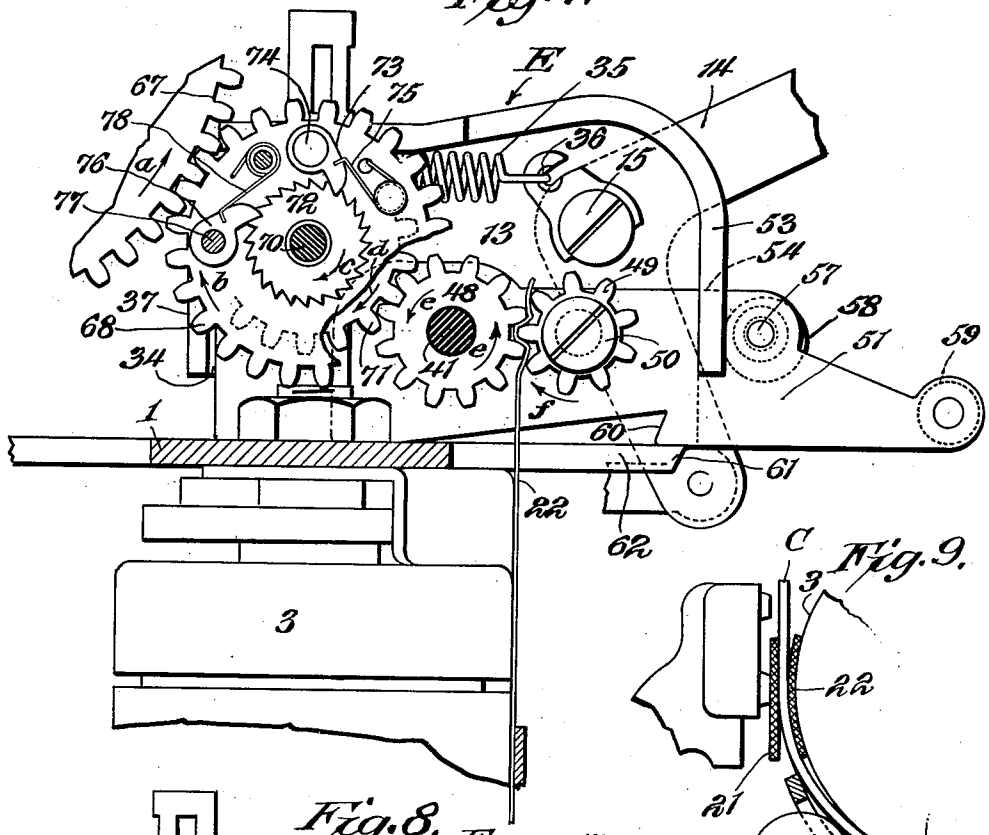
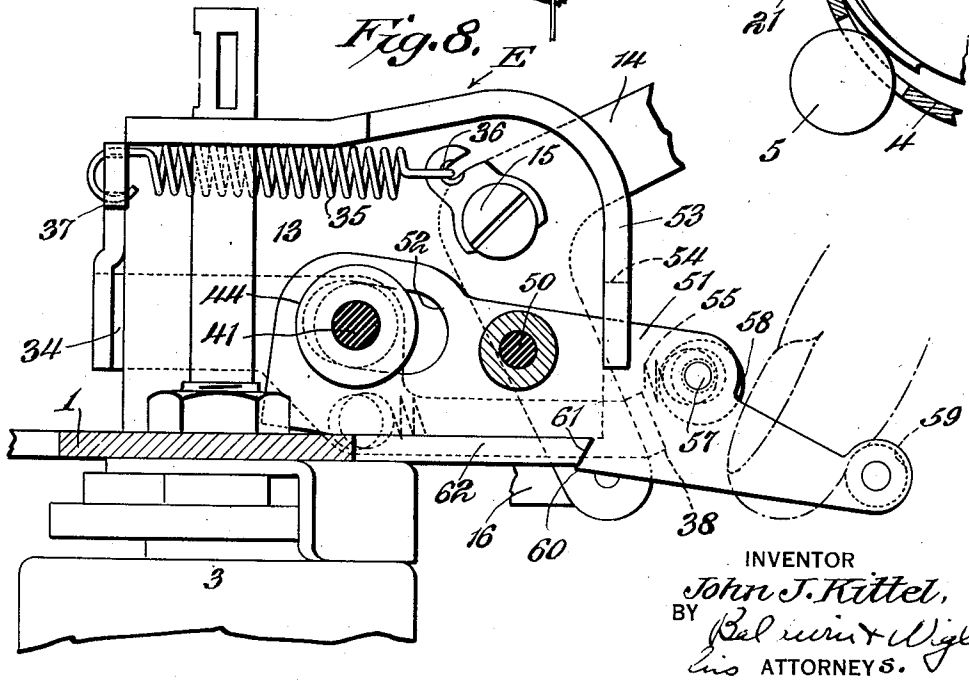


Fig. 9.

Fig. 8.



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UNITED STATES PATENT OFFICE

2,214,415

TYPEWRITING MACHINE

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Application April 25, 1938, Serial No. 204,235

8 Claims. (Cl. 197—153)

This invention relates to typewriting machines, and more particularly to ribbon feeding mechanism for typewriting machines. Mechanism embodying the present invention is, however, especially adapted for the feeding of ribbons or strips of "hectograph" or other kinds of transfer medium in the use of which it is desirable to present a complete new or unused portion of the transfer medium, at the printing line, for each new line of typing.

In the co-pending application of George F. Handley, Serial Number 170,451, filed October 22, 1937, there is disclosed and claimed a ribbon feeding mechanism of this general class which is operable during each return movement of the carriage to feed a length of transfer medium or ribbon equal to the length of the line typed during the preceding carriage letter space movement. Other mechanism of this general class is disclosed in the co-pending application of Lewis Cary Myers, Serial Number 194,921, filed March 9, 1938.

An object of the present invention is to provide a typewriter or like machine ribbon feed mechanism which will feed a length of ribbon or strip equal to the length of the previously typed line.

Another object is to provide a ribbon feeding mechanism of simple yet efficient construction and in which the parts are compactly arranged and easily accessible.

A further object is to provide a mechanism of the character referred to and including a ribbon feeding element, spring-urged means mounting it for movement into operative position, and a locking device for holding it in inoperative position.

A further object is to provide a ribbon feeding mechanism including a relatively fixed axis feed roll, and a shiftable axis feed roll mounted for both sliding and pivotal movements with respect to the fixed axis roll.

A still further object is to provide a ribbon feeding mechanism operable in response to actuation of a line-spacing lever in a manner to feed a strip of fresh unused ribbon along the printing line of the platen corresponding substantially in length to the length of an average typed line.

Other objects will become apparent from a reading of the following description, the appended claims, and the accompanying drawings, in which:

Figure 1 is a top plan view of a typewriting machine with some parts omitted and showing mechanism embodying my invention applied thereto;

Figure 2 is a front elevation thereof;

Figure 3 is a view in side or end elevation as viewed when looking in the direction of the arrow 3 in Figure 1, some parts being shown in section, and the view being drawn on an enlarged scale;

Figure 4 is a fragmentary top plan view showing parts in their normal or state of rest positions;

Figure 5 is a fragmentary side or end elevation as viewed when looking in the direction of the arrow 5 in Figure 1, some parts being removed, and the view being drawn on an enlarged scale;

Figure 6 is a sectional view taken on the line 6—6 of Figure 4;

Figure 7 is an inverted section taken on the line 7—7 of Figure 3 with some parts shown in elevation, and drawn on an enlarged scale;

Figure 8 is a view similar to Figure 7 with ribbon pressure regulator means in retracted position, the section being taken on the line 8—8 of Figure 6;

Figure 9 is a fragmentary detail view showing a matrix or work sheet interposed between the usual or conventional typewriter ribbon and a "hectograph" or other ribbon arranged to be fed in accordance with the invention; and

Figure 10 is a fragmentary top plan view of a modified form of feeding mechanism arranged to be operated in response to actuation of the usual line spacing lever.

The drawings show one embodiment of the invention as applied to a Royal standard typewriting machine, but it is to be understood that mechanism embodying the invention may be applied to other typewriting machines.

The machine shown in the drawings includes a stationary main frame A and a carriage generally designated B mounted on the main frame for reciprocatory movements in the usual manner, viz., an intermittent or step-by-step movement from right to left which is effected by a motor and an escapement mechanism actuated by the key levers or the space bar, and a return movement from left to right. Such an escapement mechanism is shown, for example, in the Patent Number 1,212,939, issued January 16, 1917, to George F. Handley.

The carriage includes the usual end plates 1 and 2 in which is journaled a platen 3, and also mounted on the carriage are the usual apron 4 and rollers 5, only one of which is shown (see

Figure 9), for feeding a master sheet C forwardly in front of the platen and thence upwardly in front of the platen. Mounted on the carriage is a bail including spaced supporting arms 6—6 connected at their forward ends by a bar 7 having journaled thereon pressure rollers 8—8 for directing usual work sheets (when such are used) rearwardly over the platen after they have passed above the printing line. The arms 6—6 extend from the cross bar 7 rearwardly over the platen and are pivotally connected as at 9—9 to the upper ends of arms 10—10 which, in turn, are pivotally mounted as at 11 on the carriage end plates 1, 2. (See Figure 3.) Springs 12 interposed between the arms 6 and the carriage end plates urge the arms downwardly so as yieldably to hold the pressure rollers 8 against usual work sheets, and the latter against the platen. Formed integrally with the end plate 1 is a laterally extending shelf 13 on which a combined line spacing and carriage return lever 14 is pivotally mounted as at 15 and is connected to the platen 3 in the usual manner by means of a link 16 connected to a rock arm 17, the latter carrying a pawl 18 engageable with a ratchet wheel 19 on the platen (see Figure 4). Ribbon spools 20—20 are shown mounted on the main frame in the usual manner, a reversible inking ribbon 21 being adapted to be unwound from one of the spools 20 and wound upon the other, as is customary.

The typewriting machine as thus far described is not claimed per se as constituting the present invention, it being understood that the invention comprises parts to be hereinafter described and combinations of such parts with each other and with the known typewriting machine construction already described.

Although the invention is not necessarily restricted to the use of ribbon feed mechanism adapted to be mounted on or applied to typewriting machines of standard or known construction, it is desirable in many cases to apply the feed mechanism to such machines, and for the purposes of illustration the drawings show an embodiment which may be fitted compactly to a machine of known construction without substantially increasing the over-all size of the machine and without its being necessary to alter the machine structure in any material respect.

In the form shown, a roll ribbon supply generally designated D is mounted at the right hand end of the carriage, and the "hectograph" or other transfer medium ribbon 22 is arranged to be fed from the roll along the printing line of the platen in a manner to be described. In order to protect the master sheet C and to prevent it from being marred by the ribbon 22, a pair of spaced guards 23 is adjustably mounted on the bail bar 7, being held in adjusted position on the bar by means of screws 24, as more fully explained in the co-pending application of George F. Handley, Serial Number 170,451 previously referred to.

The ribbon supply means D includes a mounting bracket comprising a vertically disposed plate 25 supported on the carriage end plate 2 by means of arms 26—26, and a ribbon-carrying spool 27 journaled on a stud 28 fixed to the bracket plate 25. A nut 29 has threaded engagement with the stud 28 and is adapted adjustably to press the spool 27 against a frictional washer 30 for varying the resistance of the spool to rotation, and hence for varying the tension of the ribbon 22.

In the form shown, the spool 27 is mounted in a vertical plane so as to reduce the over-all length of the carriage, and, in order to position the ribbon 22 properly along the printing line of the platen, it must be twisted partially. To this end there is provided a twisting and guiding means comprising a roller 31 rotatable about a horizontal axis and a guide member 32 which is positioned in a vertical plane but which is inclined at an angle of substantially forty-five degrees to the horizontal. The ribbon 22 is led from the spool 27 underneath the roller 31 and thence over the guide member 32, and after leaving the guide member 32 the ribbon passes between fingers 33 which maintain the ribbon properly positioned along the printing line of the platen. It will be observed that the treated surface of the ribbon 22 is disposed upwardly as it passes under the guide member 31. Hence, in order to prevent rubbing of the transfer medium off the ribbon, the guide member 31 preferably is mounted for free rotation, and thereby any harmful rubbing of the treated surface of the ribbon is avoided.

The feeding means generally designated E is mounted at the end of the carriage opposite that at which the ribbon supply means is supported. Some of the parts of the feeding means are mounted on the lower side of the shelf 13 which, as before stated, is formed as an extension of the carriage end plate 1. In the Royal standard typewriting machine, a plate formed with a carriage return lever stop usually is positioned underneath a shelf corresponding to the shelf 13. Positioning of such a plate under the shelf 13 in the construction disclosed herein would interfere with the desired mounting of ribbon feeding parts. Accordingly a combined carriage return lever stop plate and spring tension mount or plate 34 is, in the present construction, supported on top of the shelf 13. This arrangement facilitates mounting of the ribbon feeding parts compactly under the shelf 13. A spring 35 is connected at one end to the line spacing lever as at 36, and is connected at its other end to a downwardly projecting part 37 of the plate 34. The spring 35 tends to move the line spacing lever 14 in a clockwise direction as viewed in Figure 1, and in a counterclockwise direction as viewed in Figures 7 and 8. A stop 38, which extends upwardly from the plate 34, is engageable by the line spacing lever 14 for limiting the movement thereof under the urge of the spring 35.

Cooperating with the shelf 13 for mounting the feeding mechanism is an extension bracket forming a lower shelf 39 secured to the carriage end plate 1 as at 40—40. A shaft 41 extends through an aperture 42 in the shelf 13 and through an aperture 43 in the lower shelf 39. The shaft is formed adjacent its upper end portion with an enlargement 44, and immediately above this enlargement with another and smaller enlargement 45 which abuts against the bottom face of the shelf 13. A spacing sleeve 46 having an eccentric portion 46a is mounted on the shaft 41 above the plate 13, and is adapted to be clamped against the plate by means of a nut 47 on the extreme upper end of the shaft 41. The sleeve 46 may be rotated about the shaft 41 to cause the eccentric portion 46a to cooperate as a stop with the line spacing lever 14 at selected different positions in order to adjust the extent of movement of the line spacing lever required for proper cooperation with the link 16, the rock arm 17, the pawl 18, and the ratchet 19. In order to effect an adjustment of the eccentric

portion 46a, the nut 47 is loosened and the sleeve 46 is turned, after which the nut 47 is drawn up so as both to lock the eccentric 46 in adjusted position and at the same time to anchor the shaft 41 securely to the shelf 13.

A toothed or serrated feed roll 48 is mounted for rotation on the shaft 41 below the shaft enlargement 44 and meshes with a feed roll 49 which is journaled on a headed pintle 50 secured to an adjustable mount or plate 51 carried by the shelf 13 on the lower side thereof. The ribbon 22 is trained between and gripped by the rolls 48 and 49, and is fed by rotation of the rolls in a manner later to be described.

In order to facilitate placement of the ribbon between the rolls, the plate 51, and hence the pintle 50 and roller 49, are mounted for movements towards and away from the fixed axis roll 48. In accordance with one feature of the invention, the plate 51 is mounted for both sliding and pivotal movements with respect to the axis of the gear 48. As shown, the plate 51 is formed with an elongated slot 52 which receives the enlargement 45 of the shaft 41. The enlargement 44 of the shaft, however, overlaps the slot 52 so as to maintain the inner end of the plate 51 against the lower side of the shelf 13. The front edge 53 of the shelf 13 is slotted as at 54 and receives for sliding movements the outer end portion of the plate 51, thereby maintaining the plate snugly against the bottom surface of the shelf 13. A spring 55 is connected at one end to a stud 56 on the adjustable plate 34, and is connected at its other end to a stud 57, the reduced lower end of which has threaded connection with the plate 51. An eccentric 58 is held in place by the stud 57 and is positioned to engage the adjacent face of the shelf 13 so as to limit movement of the plate 51 under the urge of the spring 55. The eccentric 58 may be turned to any desired position in order selectively to fix the spacing of the rolls 48 and 49 so as to grip the ribbon 22 with any desired pressure. A finger piece 59 is provided on the plate 51 for moving the plate outwardly against the urge of the spring 55 so as to separate the rolls 48 and 49, to facilitate placing the ribbon between them. In order to lock the plate 51 in its retracted position, the plate is formed with a notch 60 adapted to cooperate with a notched edge 61 on an extension 62 of the carriage end plate 1, as shown clearly in Figures 7 and 8. Thus, when it is desired to position the ribbon between the feed rolls, the plate 51 is moved toward the right as viewed in Figures 7 and 8 so as to separate the rolls. After the notch 60 on the plate 51 has been moved outwardly past the relatively fixed notched edge 61, the plate 51 is moved pivotally about the shaft 41 so as to cause the notch 60 to engage with the notched edge 61, which position of the parts is shown in Figure 8. The plate will thus be maintained in its retracted position, and the feed rolls thereby separated. After the ribbon has been placed between the feed rolls, the plate 51 will be moved outwardly and upwardly from the position shown in Figure 8, and will then be permitted to move toward the left as viewed in Figures 7 and 8 under the urge of the spring 55 until the teeth of the rolls 48 and 49 are in mesh, and movement of the plate has been arrested by the engagement of the eccentric stop 58 with the adjacent edge of the shelf 13. The combined sliding and pivotal movement of the plate 51 not only facilitates moving the plate into locked and unlocked retracted positions, but furthermore the pivotal movement during sliding movement of the plate toward its operative or Figure 7 position facilitates meshing of the feed rolls 48 and 49.

In operation, the feed roll 48 is rotated during the return movement of the carriage and drives the idler feed roll 49 with which it meshes, the two cooperating to feed the ribbon 22 along the printing line of the platen. The means for effecting this rotary movement of the roll 48 constitutes an important feature of the invention, and, in the embodiment shown in Figures 1 to 9 inclusive, includes a take-up barrel 63 journaled on a stud 64 fixed to the lower shelf 39, a collar 65 on the upper end of the stud 64 serving to maintain the barrel in place. A helical spring 66 mounted within the barrel biases or urges the barrel in a counterclockwise direction as viewed in Figure 1. The barrel is operatively connected to the feed roll 48 by means of a gear 67 secured to and rotatable in unison with the barrel and meshing with a gear 68 which is mounted for rotation on and relative to a sleeve 69 which is journaled on a pintle 70 fixed to the lower shelf 39. Fast on the sleeve 69 is a gear 71 which meshes with a toothed roll 48. Below the gear 68 the sleeve 69 is formed with a ratchet 72 which is adapted to be driven by a pawl 73 pivotally mounted as at 74 on the gear 68 and is urged into engagement with the ratchet by a spring 75 (see Figure 7). When the barrel 63 and gear 67 thereon are rotated in the direction of the arrow *a* in Figure 7, the gear 68, ratchet 72, gear 71, and feed rolls 48 and 49 will be rotated in the directions indicated by the arrows *b*, *c*, *d*, *e*, and *f*, respectively, the rolls thereby drawing ribbon from the ribbon supply spool 27 and feeding the ribbon along the printing line of the platen.

It is desirable that no reverse rotation of the rolls 48 and 49 be permitted. To prevent such reverse rotation, a check pawl 76 is pivotally mounted as at 77 on the lower shelf 39 and is urged into engagement with the ratchet 72 by means of a spring 78. Hence reverse rotation of the sleeve 69, the gear 71, and roll 48 will be prevented by the check pawl 76. Reverse rotation of the gear 68 will have no driving effect, since the pawl 73 will merely ride over the teeth of the ratchet 72 while the ratchet is held stationary by the check pawl 76.

As previously stated, the take-up barrel is urged in a counterclockwise direction as viewed in Figure 1 by means of the spring 66. In order to rotate the barrel in the opposite direction during return movement of the carriage, a flexible tape or draw band member 79 anchored to and peripherally engaging the barrel 63 extends from the barrel around an idler 80 on the shelf 39, thence around an idler 81 on a bracket 82 secured to the carriage end plate 1, and thence passes longitudinally of the carriage and to the rear of the platen and around an idler 83 mounted on a bracket 84 secured to the carriage end plate 2. The flexible member 79 is then turned upon itself and extends back in the opposite direction for connection at 85 to a fixed frame part such as the tabular finger cover 86. Movement of the carriage relative to the main frame will cause the band or tape 79 to be wound upon or unwound from the barrel 63, thereby effecting rotation of the barrel, and with it the gear 67, so as to operate the feed rolls in the manner already described.

In operation, the ribbon 22 first is trained under the guide roll 31, over the guide 32, between the fingers 33, and thence along the printing line of the platen so as to lie between the

platen and the master sheet C as shown in Figure 9. The plate 51 is then moved to the position shown in Figure 8 in order to separate the feed rollers. The ribbon 22 is then positioned between the rollers, and the plate 51 is returned to the Figure 7 position, wherein the ribbon will be gripped by the rollers. Assuming that the carriage is at the right hand end of its travel, as viewed in Figure 1, typing of a line will be performed in a known manner, causing the carriage to move to the left relative to the frame. During such movement, the tape 79 will be wound up on the barrel 63, permitting rotation of the barrel in a counterclockwise direction as viewed in Figure 1, which, as previously stated, will not effect rotation of the feeding rolls. When the typing of the line has been completed, the carriage will be moved to the right, which will cause the tape or band 79 to be unwound from the barrel 63, thereby rotating the barrel in a clockwise direction as viewed in Figure 1, and this rotation of the barrel will effect driving of the rolls 48 and 49 through the medium of the gear 67, the gear 68, the pawl 73, the ratchet 72, the sleeve 69, and the gear 71 in the manner already described. This rotation of the feed rolls of course will draw the ribbon off the supply spool 25, feeding it along the printing line of the platen. It is desirable that, after the typing of a line, a length of ribbon bearing a fixed ratio to the length of the line just typed be fed along the platen, and it is preferable that the length of ribbon fed be equal to the length of the line just typed. Accordingly, the peripheral extent of the barrel 63 and the diameters of the several feed roll driving gears are such that the length of ribbon fed by the rolls will be just equal to the length of the platen travel during the preceding letter space movement of the carriage. In order to maintain such a fixed ratio, the peripheral extent of the barrel 63 is so related to the carriage travel that there never will be more than a single convolution of the band 79 surrounding the barrel, because, if more than one convolution were wound upon the barrel—in other words, if the band were wound first upon the periphery of the barrel and then upon itself—the drive ratio would vary, depending upon the number of convolutions, and this, as previously stated, is not desirable. The proportioning of the parts in accordance with the present invention assures the presentation of a completely new and unused portion of the transfer medium ribbon along the line of typing before the start of each new line, and the quality of reproduction upon the master sheet C therefore is enhanced.

Figure 10 shows a feeding mechanism in which the feed rolls 48 and 49 are arranged to be operated when the carriage return lever 14 is actuated to move the carriage to the right after the typing of a line has been completed. In this construction, the carriage return lever 14 is formed with a rearwardly projecting extension 88, the extreme rear end of which is T-shaped, and serves to mount a gear segment 89 which is secured as at 90 to the arm 88 of the carriage return lever. The segment 89 is arranged to mesh with a small pinion 91 mounted on a pintle 92 supported by a bracket 93 secured to the shelf 13, and a disc 94, also rotatable about the pintle 92, is secured to the pinion 91 so as to rotate in unison therewith. A driving pawl 95 is pivotally mounted on the disc 94 as at 96, and is arranged to engage the teeth of a ratchet 97 which is fast with a large gear wheel 98 rotatable about the pintle 92. The arrangement is such that, when the pinion 91 and disc 94 are rotated in a counterclockwise direction as viewed in Figure 10, the gear 98 will be driven in the same direction through the medium of the pawl 95 and the ratchet wheel 97. The gear 98 is in constant mesh with the feed roll 48, so that the counterclockwise movement of the gear 98 will drive the feed rolls 48 and 49 in a direction to effect feeding of the ribbon or strip 22. In order to prevent rotation of the gear wheel 98 in the reverse direction, a check pawl 99 is pivotally mounted as at 100 on an extension 101 of the carriage end plate 1.

In operation, and assuming that the typing of a line has just been completed, the line spacing lever 14 will be actuated in the usual manner to effect line spacing movement of the platen 3 and also to return the carriage to its right hand position preparatory to typing a new line. This will result in rocking of the line spacing lever in a counterclockwise direction about the pivot 15, whereby the pinion 91 will be driven in a counterclockwise direction by the gear segment 89 so as to drive the feed rolls 48 and 49 through the medium of the disc 94, the pawl 95, the ratchet 97, and the gear wheel 98. In the construction shown in Figure 10, the oscillatory segment 89 and other gears are so proportioned as to provide speed multiplying gearing between the line spacing lever and the feed roll 48, whereby operation of the line spacing lever effects a plurality of revolutions of the feed roll. The relative pitch diameters of the gear segment 89, the pinion 91, the gear wheel 98, and the feed roll 48 are such that this operation will result in the feeding of a relatively long strip of ribbon 22 corresponding substantially in length to the length of an average typed line so as to present a fresh portion of transfer medium ribbon along the line of typing before the start of each new line.

The typewriting machine disclosed herein embodies the invention in a preferred form, but it will be understood that various changes may be made in the construction and relative arrangement of the parts without departing from the invention as defined in the claims.

I claim:

1. In a typewriting machine, a support; a first feed roll journaled on said support; a member mounted on said support for sliding movements with respect to said first feed roll and for pivotal movements about the axis of rotation of said first feed roll as a center; a second feed roll journaled on said member; a spring for urging said member in a direction to effect operative connection between said rolls; and a notch on said member engageable with said support for retaining said member against the urge of said spring in a position wherein the second roll is free from operative connection with the first feed roll.

2. In a typewriting machine, a support; a shaft thereon; a first feed roll rotatable on said shaft; a plate mounted on said support for sliding movements with respect to said shaft and for pivotal movements about the axis of the shaft as a center and being formed with an elongated slot receiving said shaft, said shaft constituting a guide for such movements of said plate; and a second feed roll mounted on said plate and being selectively engageable and disengageable with said first feed roll by movement of said plate.

3. In a typewriting machine, a platen; means for directing a ribbon along the writing line of the platen; a support; a toothed first ribbon-engaging feed roll journaled on said support; a

member mounted on said support for both sliding and pivotal movements with respect to said first feed roll; and a toothed second ribbon-engaging feed roll journalled on said member, sliding movement of said member in opposite directions respectively effecting intermeshing engagement and disengagement of said rolls adjacent an end of the writing line of the platen, engagement of said rolls serving to grip ribbon for feeding it therebetween, and pivotal movement of said member facilitating registration of the teeth of the rolls.

4. In a typewriting machine, a platen; means for directing a ribbon along the writing line of the platen; a support; a first ribbon-engaging toothed feed roll journaled on said support; a member mounted on said support for both sliding and pivotal movements with respect to said first feed roll; a second ribbon-engaging toothed feed roll journaled on said member; a spring for urging said member in a direction to effect operative meshing connection between said rolls adjacent an end of the writing line of the platen, engagement of said rolls serving to grip ribbon for feeding it therebetween; and stop means other than said feed rolls for limiting movement of said member and movement of said second roll towards said first roll.

5. In a typewriting machine, a support; a first toothed feed roll journaled on said support; a member mounted on said support for both sliding and pivotal movements with respect to said first feed roll; a second toothed feed roll journaled on said member; a spring for urging said member in a direction to effect operative meshing connection between said rolls; and adjustable stop means other than said feed rolls for limiting movement of said member and movement of said second roll towards said first roll.

6. In a typewriting machine, a relatively fixed support member; a first toothed feed roll journaled thereon; a relatively movable member mounted on said relatively fixed member for both sliding and pivotal movements; a second toothed feed roll journaled on said relatively movable member; a spring for urging said relatively movable member in a direction to effect operative meshing connection between said rolls; and an adjustable eccentric stop mounted on one of said members and being engageable with the other said member for limiting movement of the relatively movable member under the urge of said spring and movement of said second roll towards said first roll.

7. In a typewriting machine, the combination of a frame; a carriage mounted for letter spacing and return movements thereon; a platen mounted on the carriage for rotary line spacing movements; a horizontally extending shelf at one end of the carriage; a plate mounted on the top of the shelf; ribbon feed roll mechanism mounted underneath said shelf and including a feed roll shaft extending through and upwardly beyond said shelf and through said plate; a sleeve mounted for turning adjustment on the portion of said shaft above said shelf; a line spacing lever mounted on said shelf and being operatively connected to the platen; an eccentric stop portion on said sleeve engageable by said line spacing lever when the lever is moved in one direction; and a stop on said plate cooperable with said line spacing lever when the lever is moved in the opposite direction.

8. In a typewriting machine, the combination of a frame; a carriage mounted thereon for letter-spacing and return movements; a platen mounted on the carriage; a ribbon spool, means on said carriage mounting said spool beyond one end of the carriage; a rotary ribbon feeding device, means on said carriage mounting said device beyond the opposite end of the carriage and in line with the front face of the platen; a ribbon extending from said ribbon spool along the printing line of the platen and cooperatively engaging said feeding device; a barrel; means on said carriage journalling said barrel beyond said opposite end of the carriage and to the rear of said ribbon feeding device; driving connections between said barrel and said device; a flexible band peripherally engaging said barrel and being anchored thereto; and means guiding the band to a point behind the carriage and thence in rear of the carriage in the direction of carriage movement, the end of said band being connected to said frame.

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