

Oct. 8, 1940.

J. J. NOONAN

2,217,180

TYPEWRITING MACHINE

Filed Sept. 30, 1937

4 Sheets-Sheet 1

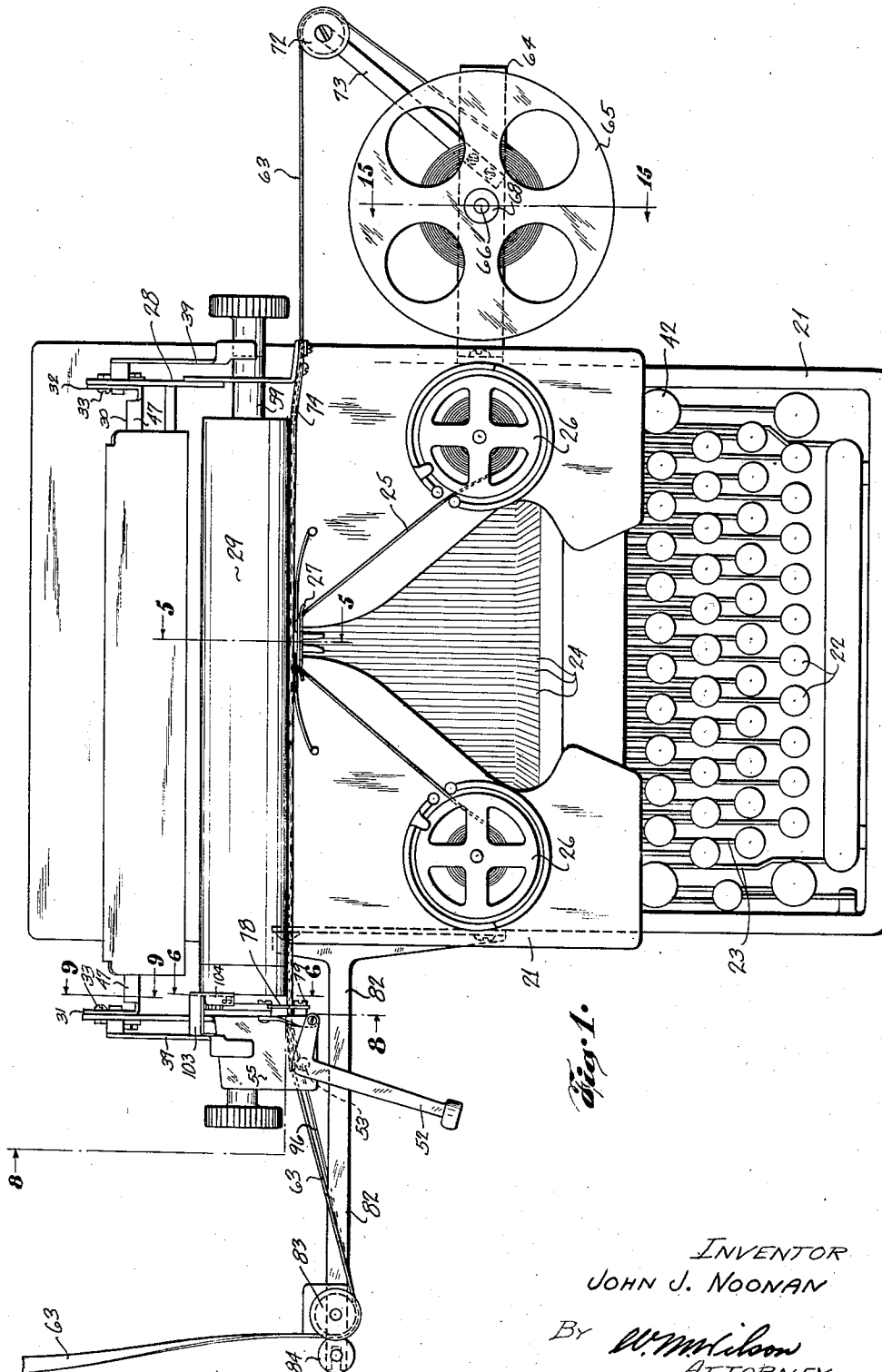


Fig. 1.

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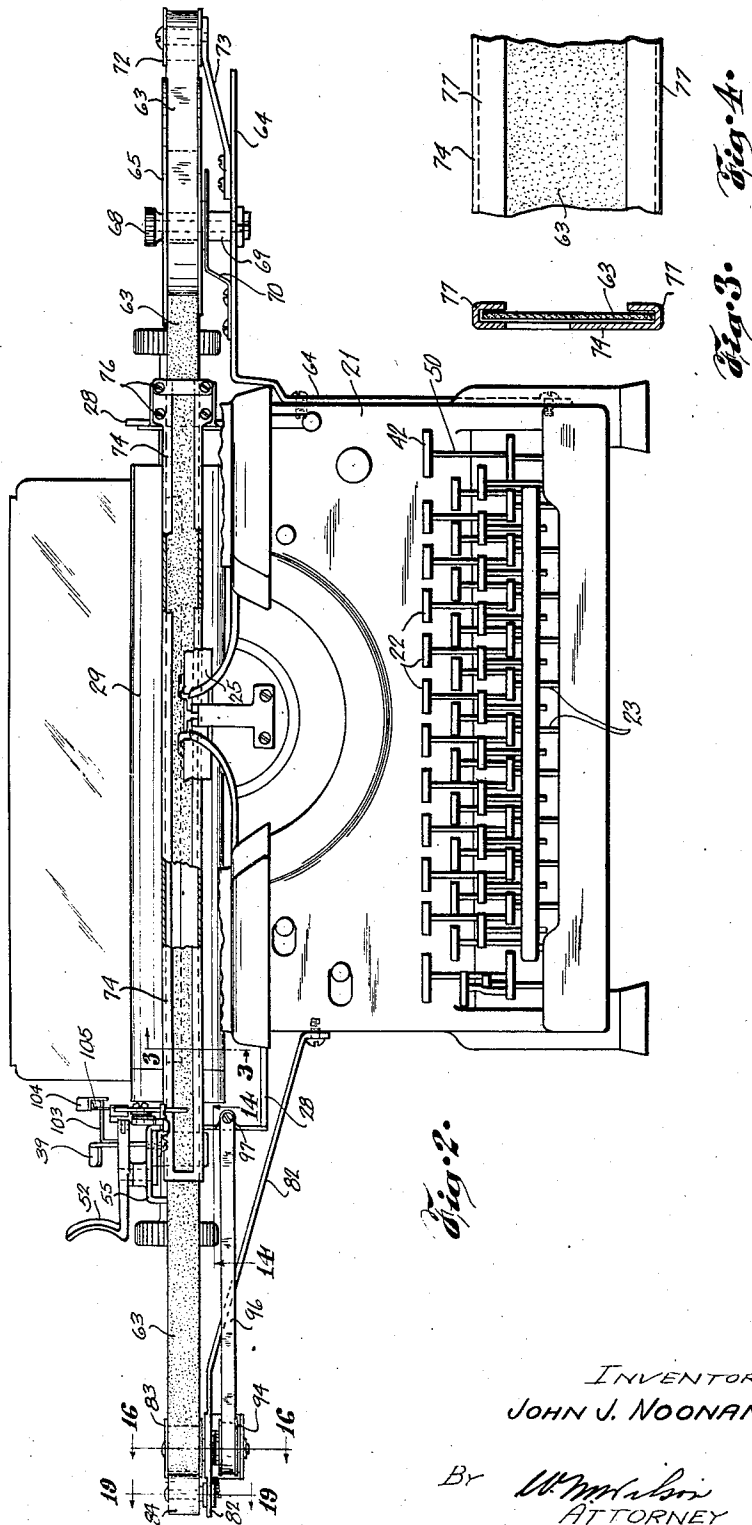
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4 Sheets-Sheet 2



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TYPEWRITING MACHINE

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4 Sheets-Sheet 3

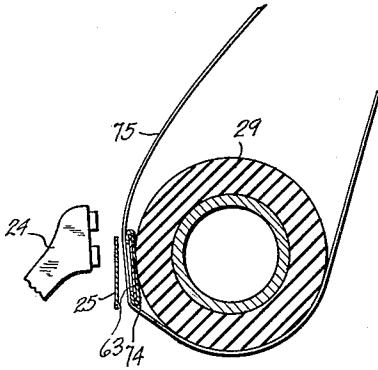


Fig. 5.

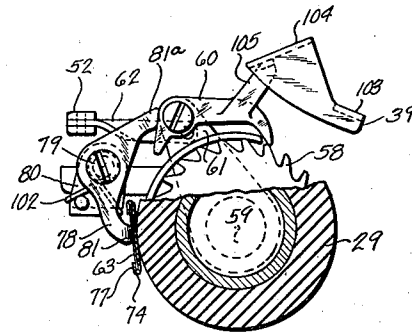


Fig. 6.

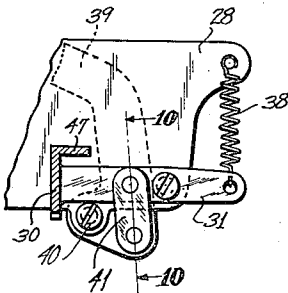


Fig. 9.

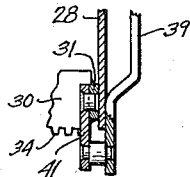


Fig. 10.

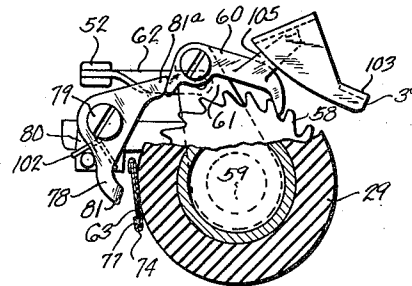


Fig. 7.

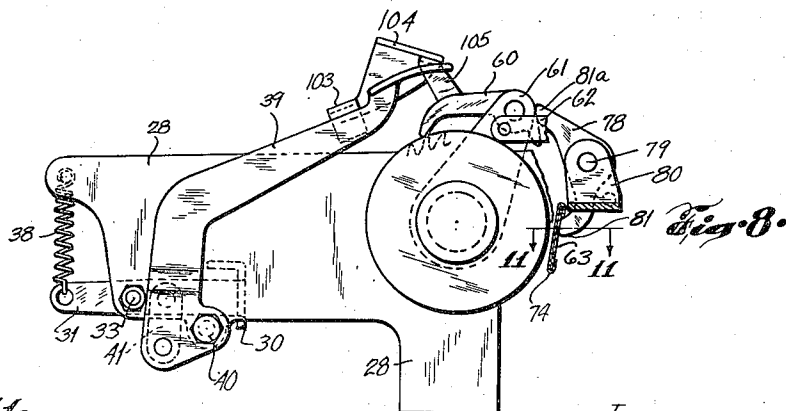


Fig. 8.

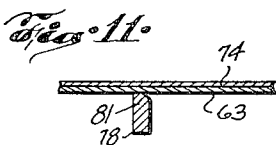


Fig. 11.

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TYPEWRITING MACHINE

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4 Sheets-Sheet 4

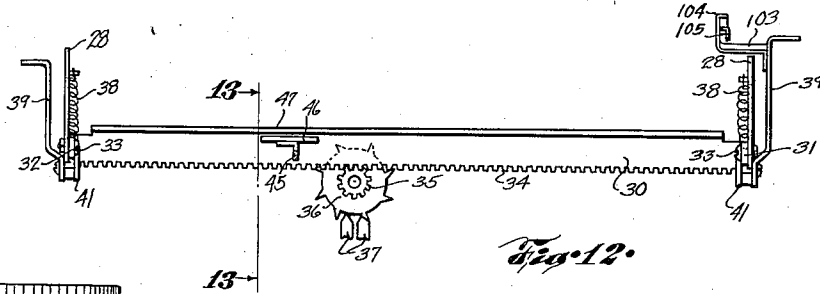


Fig. 12.

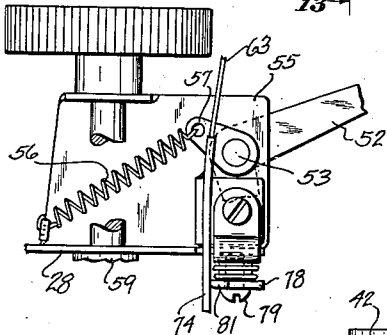
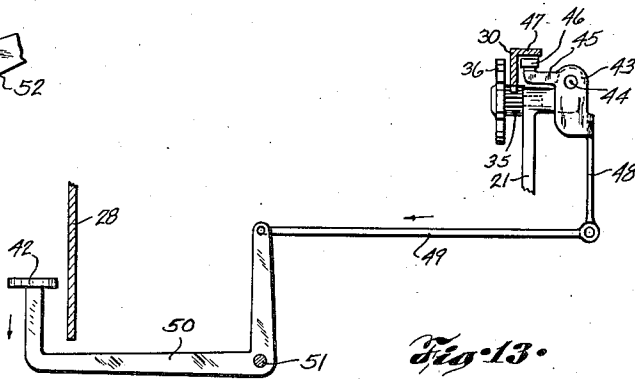


Fig. 14.



UNITED STATES PATENT OFFICE

2,217,180

TYPEWRITING MACHINE

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Application September 30, 1937, Serial No. 166,460

16 Claims. (Cl. 197—153)

This invention relates to typewriting machines, and more particularly to a means for supporting and advancing a strip of copying material, such as a hectograph carbon paper ribbon, during the printing operations of the typewriter.

Hectograph carbon paper is a material impregnated with hectograph ink which may be employed in a typewriter to transfer printing to a sheet of paper. Numerous duplicate copies may thereafter be directly printed from the sheet of paper containing the hectograph printing.

To illustrate one form of the invention, I have shown a typewriter in which a hectograph carbon paper ribbon unwinds from a supply roll and advances in letter spacing steps with a platen carriage during the printing operations of the typewriter. As the printing proceeds, unused portions of the carbon paper ribbon move with the carriage into the path of the type members which perform the printing operations.

In using hectograph carbon paper, it is important for effective copying that an unused portion of the carbon paper be employed during each printing step of the typewriter. Moreover, to obtain an economical operation, it is very desirable to use substantially all of the ribbon passing in the path of the type members.

In addition to the motion imparted to the platen carriage during the printing operations, it may be manually moved by the usual shifting or carriage release members to any desired position. During this manual movement of the carriage, it is undesirable to move the carbon paper ribbon with the carriage, as such movement would return a used portion of the ribbon into the printing zone, or move a relatively large unused portion of the ribbon through said printing zone.

To prevent an undesirable movement of the hectograph carbon paper ribbon during said manual movement of the carriage, a simple release device may be actuated by the usual carriage shifting, or release members, to permit free movement of the carriage independently of the hectograph ribbon.

An object of this invention is to produce a simple attaching device whereby the carbon paper ribbon is secured to the platen carriage, so as to automatically advance therewith during the printing operations of the typewriter.

Another object is to provide an effective releasing means whereby the attaching device which secures the ribbon to the carriage is released to permit movement of the platen carriage independently of the carbon paper ribbon.

Another object of this invention is to provide

a simple tensioning device for holding and preventing retrograde movement of the used portion of the ribbon.

Another object is to provide a guide for holding the carbon paper ribbon between the platen of the typewriter and a work sheet, so that the work sheet may receive printing from the carbon paper in addition to the usual printing of the typewriter.

A further object of this invention is to produce a guide for the hectograph carbon paper ribbon which will normally space the ribbon from the work sheet but permit the work sheet to be forced into contact with the ribbon by the type members of the typewriter.

With the foregoing and other objects in view, the invention comprises the novel construction, combination and arrangement of parts herein-after more specifically described and shown in the accompanying drawings, which illustrate one form of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications within the scope of the claims hereunto appended.

Fig. 1 is a top view of a typewriter, embodying the features of this invention.

Fig. 2 is a front elevation of the typewriter shown in Fig. 1.

Fig. 3 is an enlarged section taken approximately on the line 3—3 in Fig. 2, showing a strip of carbon paper and a guide confining the same.

Fig. 4 is a fragmentary front view of the parts shown in Fig. 3.

Fig. 5 is an enlarged section taken approximately on the line 5—5 of Fig. 1, and includes a work sheet and a type member.

Fig. 6 is an enlarged section taken approximately on the line 6—6 in Fig. 1, showing an attaching member securing the strip of carbon paper to the guide, a portion of the platen being broken away.

Fig. 7 is a section similar to Fig. 6, showing the attaching member released from the carbon paper.

Fig. 8 is an enlarged end view partly in section taken approximately along the line 8—8 of Fig. 1.

Fig. 9 is an enlarged section taken on the line 9—9 of Fig. 1, showing a portion of the carriage release mechanism.

Fig. 10 is a section taken on line 10—10 in Fig. 9.

Fig. 11 is an enlarged section showing a portion of the attaching member securing the carbon paper ribbon to the guide.

Fig. 12 is an enlarged rear view of a rack and an escapement device for the platen carriage.

Fig. 13 is a view partly in section along the line 13—13 in Fig. 12, and includes a tabular release mechanism adapted to disengage the rack from the escapement device.

Fig. 14 is a bottom view looking upwardly from the line 14—14 in Fig. 2, showing a restoring spring for a shifting member, a portion of the platen shaft being broken away.

Fig. 15 is an enlarged section taken on the line 15—15 in Fig. 1, showing a supply holder for the carbon paper ribbon.

Fig. 16 is an enlarged section taken on the line 16—16 in Fig. 2, showing a tensioning device for the carbon paper, including an upper rotary roll, and a lower driving spool from which motion is transmitted through a ratchet and pawl device to the upper rotary roll.

Fig. 17 is a section taken approximately on the line 17—17 of Fig. 16, showing the lower ratchet and pawl device through which motion is transmitted to the upper roll shown in Fig. 16.

Fig. 18 is a section taken on the line 18—18 of Fig. 16 showing a ratchet device to prevent retrograde motion of the upper roll shown in Fig. 16.

Fig. 19 is an enlarged section taken approximately on the line 19—19 in Fig. 2.

Fig. 20 is an enlarged fragmentary front view partly in section on the line 20—20 in Fig. 19, showing the presser member yieldingly holding the ribbon in engagement with the tensioning roll.

To illustrate my invention, I have shown a typewriting machine of ordinary construction which may include a frame or housing 21 containing printing keys 22 carried by key levers 23 adapted to actuate type members 24 in the usual manner. A typewriter ribbon 25 may extend from spools 26 through a ribbon guide 27, as shown in Fig. 1.

The typewriter is provided with a reciprocable platen carriage 28 for a rotatable platen 29. The platen carriage may be moved in a letter spacing direction by any suitable source of power usual in typewriting machines, and its movement in such direction may be controlled by any suitable means, such as an escapement mechanism whereby the carriage is caused to move in letter spacing steps.

As an illustration of a means for controlling the movement of the carriage in letter spacing steps, I have shown in Figs. 1, 9 and 12 a rack 30 provided at opposite ends with arms 31 and 32 which are pivoted at 33 to the carriage 28. The rack, as shown in Fig. 12, is provided with teeth 34 adapted to mesh with a pinion 35, which is controlled by an escapement wheel 36. The movement of the escapement wheel 36 is controlled by the escapement dogs 37 which may be actuated in response to movement of the type keys in a manner well understood in this art.

As shown in Figs. 9 and 12, the rack 30 is normally held in engagement with the pinion 35 by the tension springs 38 which are secured to the pivoted arms 31 and 32 and also to the carriage. To provide for movement of the platen carriage independently of the letter spacing steps provided by the escapement mechanism, the rack 30 may be disengaged from the pinion 35 by a shifting member or carriage release lever 39 which is pivoted to the carriage at 40. As shown in Figs. 8 and 9, the carriage release lever 39 is connected by a link 41 to the pivoted arm 31 on the rack, so that a downward movement of the release lever 39 will raise the rack 30 out of engagement with the pinion 35 of the escapement mechanism.

The rack 30 may also be disengaged from the pinion 35 to release the carriage from the escapement by a tabular key 42 shown in Figures 1, 2 and 13. The rack 30 may be raised out of engagement with the pinion 35 by the tabulator key 42 in any suitable manner. As an illustration of one means, I have shown diagrammatically in Figure 13 a bell crank lever 43 including arms 45 and 48 pivoted at 44 to a portion of the typewriter frame 21. The arm 45 of the bell crank lever is provided with an abutment 46 adapted to strike a lateral extension 47 on the rack 30 to raise the rack out of engagement with the pinion 35 of the escapement mechanism. The arm 48 of the bell crank lever is pivotally connected by a link 49 to a key lever 50 which supports the tabulator key 42. The key lever 50 may be supported by a pivot member 51.

It will be understood that a downward movement of the tabulator key 42 will cause the key lever 50 to turn on the pivot member 51 and move the link 49 in the direction indicated by the arrow in Fig. 13. The arm 48 of the bell crank lever 43 will move with the link 49 to impart a substantially vertical movement to the arm 45 of the bell crank lever, thereby causing the abutment 46 on the arm 45 to lift the rack 30 out of engagement with the pinion 35.

The platen carriage may be conveniently shifted to the right from the position shown in Fig. 1, by pressure applied to a restoring member in the form of a line space lever 52. This lever 52 is provided with a pivot member 53 extending through a support 55 on the carriage, as shown in Fig. 1 and Fig. 14. The line space lever 52 is normally held in the position shown in Figures 1, 6 and 14 by a tension spring 56 which is secured to the support 55 and also to an arm 57 on the pivot member 53.

During the shifting of the carriage by the lever 52, the platen 29 may be rotated by the usual line-space mechanism, (Figs. 6 and 7) comprising a line-space wheel 58 fixed to the platen axle 59 and adapted to be rotated by a pawl 60 pivoted on an arm 61 which is driven by a link connection 62 extending from the line space lever 52, as shown in Figures 1, 6 and 7.

Since my invention may be applied to any typewriting machine of ordinary construction, many details of the typewriter have not been shown or described. Such details will be apparent to those skilled in the art and are not essential for an understanding of my invention.

Attention is now directed to the means for supporting and advancing a strip of copying paper, such as hectograph carbon paper ribbon 63, during the printing operations of the typewriter.

In Figs. 1 and 2, I have shown a support 64, extending from the frame 21 of the typewriter, for a spool 65 containing hectograph carbon paper ribbon 63. The spool 65 is secured on a shaft 66 between a collar 67 and a removable nut 68, as shown in Fig. 15. The lower portion of the shaft 66 is rotatably mounted in a bearing 69 on the support 64. To prevent undesirable free movement of the spool 65, a spring 70 is secured to the support 64, said spring having an upper portion 71 frictionally engaging the collar 67 on the shaft 66.

The ribbon 63 extends from the spool 65 around an alining roll 72 carried by an arm 73 and then through a guide 74 which holds the ribbon between the platen 29 and a work sheet 75 shown in Fig. 5. The ribbon guide 74 extends

beyond the ends of the platen 29 and is secured to the platen carriage by any suitable attaching means which may include screws 76. As shown in Figs. 3 and 5, the guide 74 has channel shaped portions 77 to confine the ribbon 63 and normally space the ribbon from the work sheet 75. The channel shaped portions 77 are separated from each other to permit the work sheet 75 to be forced into contact with the ribbon 63 by the type members 24.

In the printing operations of the typewriter the work sheet 75 (Fig. 5) may receive printing from the usual typewriter ribbon 25 and also from the hectograph carbon paper ribbon 63 to provide for the printing of duplicate copies directly from the work sheet 75.

During the printing operations of the typewriter, it is desirable that the ribbon 63 move step by step with the carriage so that an unused portion of the carbon paper will be employed during each printing step. To provide for such a movement of the ribbon 63, I have shown an attaching member 78 (Figs. 1, 2, 6 and 8) for securing a portion of the ribbon to the guide 74 so as to unwind the ribbon from the spool 65 and advance said ribbon in response to the step by step movements of the platen carriage 28.

The attaching member 78 is pivotally secured at 79 to a support 80 on the carriage and has a lower portion 81 adapted to frictionally engage the ribbon 63. An extension 81a on the attaching member 78 is engaged by the line-space pawl 60 (Fig. 6) to hold the lower portion 81 of the attaching member in engagement with the ribbon. The pawl 60 is normally held in the position shown in Figs. 6 and 8 by the tension spring 56 (Fig. 14) which is operatively connected to the pawl 60 through the line-space lever 52, link 62, and arm 61 which carries the pawl 60.

In Figs. 1, 2 and 16 to 20, I have shown a tensioning device for holding and preventing retrograde movement of the used portion of the ribbon. The tensioning device, which is carried by a support 82 secured to the typewriter frame 21, includes a driven rotary roll 83 and a presser roll 84 for holding the used portion of the ribbon 63 in contact with the driven roll 83.

The presser roll 84, as shown in Figs. 19 and 20, is rotatably mounted on a shaft 85 carried by a slide member 86 movable in a slot 87 of the support 82. A tension spring 88 secured to the support 82 and slide member 86 tends to force the presser roll 84 toward the driven roll 83 to yieldingly hold the ribbon in contact with said driven roll.

The driven roll 83 for tensioning the ribbon 63 is secured to a shaft 89 which is rotatably mounted in the support 82.

As an illustration of a means for driving the shaft 89, I have shown in Figs. 16 and 17 an arm 91 fixed to said shaft, and provided with a pivoted pawl 92 adapted to be driven by a ratchet 93 on a spool 94 which is loosely mounted on the shaft 89. A coiled spring 95 secured to the spool 94 and support 92 as shown in Fig. 16, provides the power for rotating the ratchet 93 in the direction indicated by the arrow in Fig. 17. The spring 95, therefore, will transmit energy through the ratchet 93 and pawl 92 on the arm 91 to yieldingly drive the roll 83, so as to retain the extended used portion of the ribbon 63 under tension.

In Figs. 2 and 16, I have shown a flexible member 96 through which motion is transmitted to energize the spring 95 by the return movement

of the platen carriage 28. The flexible member 96 is secured to the platen carriage by means of a screw 97 and extends around the spool 94. During said return movement of the carriage 28 the spool 94 is rotated by said flexible member to wind the spring 95. At this time, the pawl 92 which is yieldingly held in contact with the ratchet 93 by a spring 98 (Fig. 17) merely slides over the teeth of the ratchet 93. To prevent retrograde movement of the roll 83 during the winding movement of the spool 94, the arm 91 on shaft 89 is provided with a pawl 99 yieldingly held in engagement with ratchet teeth 100 on the support 82 by a spring 101, as shown in Figs. 16 and 18.

It will be understood that as the platen carriage 28 advances in letter spacing steps the attaching member 78 will secure the ribbon to the carriage, and the tensioning device including the driven roll 83 will hold the used portion of the ribbon under tension and prevent retrograde movement thereof.

In addition to the motion imparted to the platen carriage 28 during the printing operations, said carriage may be manually moved to any desired position by the carriage release member 39, the tabulation key 42, or line-space lever 52. During the movement of the carriage 28 by these usual shifting or release members, it is undesirable to move the carbon paper ribbon 63 with the carriage.

To prevent such undesirable movement of the ribbon 63 during said manual movements of the carriage, the attaching member 78 is released from the ribbon, as shown in Fig. 7, to permit movement of the carriage independently of said ribbon.

As an illustration of a means for releasing the attaching member 78 from the ribbon 63, I have shown a spring 102 (Fig. 6) which tends to disengage the attaching member from the ribbon. The tension of the spring 102 is not sufficient to overcome the pressure applied to the attaching member 78 by the line-space pawl 60. However, upon the line-space pawl 60 being shifted from the position shown in Fig. 6 to the position shown in Fig. 7, the spring 102 will move the attaching member 78 out of engagement with the ribbon. It will, therefore, be understood that the action of the attaching member is controlled by the line-space pawl 60.

Whenever the line-space lever 52 is actuated to shift the platen carriage 28, motion is transmitted through the link 62 to move the pawl 60 to the right from the position shown in Fig. 6. The attaching member is thus released from the ribbon by the action of the line space lever 52, as suggested in Fig. 7, to permit shifting of the carriage independently of the ribbon 63.

As previously described, the platen carriage 28 may be shifted in either direction by imparting a downward movement to the carriage release lever 39, thereby causing the rack 30 to be disengaged from the pinion 35 of the escapement mechanism. To provide for a release of the attaching member 78 during the operation of the release lever 39, said lever is provided with a lateral extension 103 having a cam 104. When the release lever 39 is depressed the cam 104 cooperates with an abutment 105 on the line-space pawl 60 to move the pawl from the position shown in Fig. 6 to the position shown in Fig. 7, thereby releasing the attaching member 78 from the ribbon 63. The platen carriage 28 is then free to be moved by said release lever in either direction independently of the ribbon 63.

The attaching member 78 is also released from the ribbon 63 by the operation of the tabulator key 42. As heretofore pointed out, the tabulator key 42 may be depressed to lift the rack 30 out of engagement with the pinion 35 of the escapement mechanism to permit shifting of the platen carriage 28. When the rack 30 is raised by the tabulator key 42, motion is transmitted through the link 41 (Figs. 8 and 9) to the carriage release lever 39 to move the line-space pawl 60 from the position shown in Fig. 6 to the position shown in Fig. 7. Since the attaching member 78 moves with the pawl 60 to release the ribbon, the carriage 28 is free to move independently of the ribbon in response to the action of the tabulator key 42.

It will be noted that in the operation of the typewriter herein described, the carbon paper ribbon 63 unwinds from the supply roll 65 and advances in letter spacing steps with the platen carriage during the printing operations of the typewriter. However, whenever the platen carriage is shifted by the line-space lever 52, carriage release lever 39, or tabulator key 42, the ribbon 63 is released to permit movement of the carriage independently of said ribbon.

During the time that the member 78 is disengaged from the ribbon, as during a tabulating operation, or when the carriage is moved by hand, the spring 70, engaging the underside of the collar 67, prevents the feed rollers from drawing the tape to the left (Figs. 1 and 2) under the stimulus of spring 95 (Fig. 16). Since the feed rollers 83, 84 merely have to take up the slack in the tape 63, the spring 95 needs only to be strong enough to rotate the feed rollers 83, 84 against the friction of their pivots. Thus spring 70 has to have only a small braking effect on the spool 65 to prevent over-feeding of the ribbon 63.

All of these results are accomplished without any substantial alterations or changes in the structure of the typewriter. The simple attaching member 78 may be actuated by the usual elements of the typewriter, thereby eliminating complex and expensive automatic devices for controlling the action of said attaching member.

To illustrate one form of the invention, I have shown numerous details of construction which may be readily modified by those skilled in the art, without in any way departing from the invention.

I claim:

1. In combination with the carriage of a typewriter, a platen mounted in the carriage, an auxiliary ribbon guide mounted in the carriage and arranged longitudinally of the platen along the writing line thereon, letter spacing mechanism for the carriage, means mounted in said carriage for causing an auxiliary ribbon passing through said guide from a source external to the carriage to advance with the carriage during the letter spacing movement thereof, means on the carriage for releasing the letter spacing means from the carriage to permit the carriage to be moved by hand independently of the letter spacing means, and means whereby the carriage release lever renders the means for causing the ribbon to travel with the carriage ineffective.

2. In combination with the carriage of a typewriting machine, a platen mounted in the carriage, ribbon feeding mechanism including a pair of feed rollers mounted independently of the carriage and a flexible operating connection between the carriage and the feed rollers for operatively connecting the feed rollers to the carriage, a ribbon supply spool mounted independently of the

carriage, a ribbon guide extending longitudinally of the platen along the writing line thereof for receiving the ribbon from the supply spool and guiding said ribbon to said feed rollers, letter spacing mechanism for the carriage, manually controlled means for releasing the letter spacing means to permit the carriage to move freely, means on the carriage to compel the ribbon to travel therewith thereby tending to create a slack in the stretch of ribbon from the carriage to said feed rollers which take up the slack as the carriage moves in a letter spacing direction, and means interconnecting the manual means and the compelling means for freeing the carriage from the ribbon to permit the carriage to be moved in either direction without moving the ribbon.

3. A typewriter having a platen carriage provided with a platen, a guide secured to said platen carriage, an auxiliary ribbon in said guide, said ribbon being arranged longitudinally of said platen, an attaching device securing said auxiliary ribbon to said platen carriage so as to advance the ribbon with the carriage during the printing operations of the typewriter, and a releasing member whereby said attaching device is released to permit movement of the platen carriage independently of said auxiliary ribbon, the platen carriage being provided with a restoring device to return said platen carriage, and said releasing member being actuated by said restoring device, so as to release said auxiliary ribbon in response to the operation of said restoring device.

4. A typewriter having a platen carriage provided with a platen, a guide secured to said platen carriage, an auxiliary ribbon in said guide, said ribbon being arranged longitudinally of said platen, an attaching device securing said ribbon to said platen carriage so as to advance the ribbon with the carriage during the printing operations of the typewriter, a releasing member whereby said attaching device is released to permit movement of the platen carriage independently of said auxiliary ribbon, an escapement permitting step by step movements of said platen carriage and auxiliary ribbon, and a carriage releasing device whereby the carriage is released from said escapement to permit free movement of the carriage in either direction, said releasing member being actuated by said carriage releasing device to release said auxiliary ribbon in response to the operation of said releasing device.

5. A typewriter having a platen carriage provided with a platen, a guide secured to said platen carriage, an auxiliary ribbon in said guide, said ribbon being arranged longitudinally of said platen, an attaching device securing the auxiliary ribbon to said platen carriage so as to advance the ribbon with the carriage during the printing operations of the typewriter, a releasing member whereby said attaching device is released to permit movement of the platen carriage independently of the ribbon, an escapement permitting step by step movements of said platen carriage and ribbon, and a tabulating key whereby the carriage is released from said escapement to provide for relatively long movements of said carriage, said releasing member being actuated by the tabulating key to release the auxiliary ribbon in response to the operation of said tabulating key.

6. In a typewriting machine, a carriage, a platen mounted thereon, letter spacing mechanism for said carriage, manually controlled means for releasing the letter spacing mechanism from the carriage to permit the carriage to be moved in-

dependently of the letter spacing mechanism, means independent of the carriage for mounting an auxiliary ribbon spool; a guide for said ribbon mounted on the carriage along the writing line, said auxiliary ribbon extending from said spool to said guide; a tensioning device mounted independently of the carriage and receiving the ribbon from said guide, said tensioning device including a pair of feed rollers and a flexible band interconnecting said feed rollers and said carriage for causing the feed rollers to advance the ribbon in step with the movement of the carriage in a letter spacing direction; means on the carriage for gripping a portion of the auxiliary ribbon to cause the ribbon to remain fixed in relationship to the carriage while it is moving in a letter spacing direction and to thereby become unwound from said spool, and means controlled by the manually controlled means for rendering the gripping means ineffective whereby to permit movement of the carriage by hand without feeding the ribbon.

7. A typewriter having a platen carriage movable step by step, a platen carried by said carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, said guide being at the front of the platen, the auxiliary ribbon being extended from said spool and through said guide, a tensioning device receiving the extending portion of said ribbon at a point beyond said guide, said tensioning device being supported independently of said carriage, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, a releasing member to release said attaching member from the auxiliary ribbon and thereby permit movement of the carriage independently of said ribbon, a restoring device to return said carriage, and means for transmitting movement from said restoring device to said releasing member to permit return of the carriage independently of said auxiliary ribbon.

8. A typewriter having a platen carriage movable step by step, a platen carried by said carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, said guide being at the front of the platen, the auxiliary ribbon being extended from said spool and through said guide, a tensioning device receiving the extended portion of said ribbon at a point beyond said guide, said tensioning device being supported independently of said carriage, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, a releasing member to release said attaching member from the auxiliary ribbon and thereby permit movement of the carriage independently of said ribbon, an escapement permitting step by step movements of said platen carriage and auxiliary ribbon, and a carriage shifting device whereby the carriage is released from said escapement to permit free movement of the carriage in either direction, said releasing member being actuated by said carriage shifting device to release said auxiliary ribbon in response to the operation of said shifting device.

9. A typewriter having a platen carriage movable step by step, a platen carried by said carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide

for said ribbon secured to said carriage, said guide being at the front of the platen, the auxiliary ribbon being extended from said spool and through said guide, a tensioning device receiving the extended portion of said ribbon at a point beyond said guide, said tensioning device being supported independently of said carriage, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, a releasing member to release said attaching member from the auxiliary ribbon and thereby permit movement of the carriage independently of said ribbon, an escapement permitting step by step movements of said platen carriage and ribbon, and a tabulating key whereby the carriage is released from said escapement to provide for relatively long movements of said carriage, said releasing member being actuated by the tabulating key to release the auxiliary ribbon in response to the operation of said tabulating key.

10. A typewriter having a reciprocable carriage for a platen, the carriage being movable step by step in a letter spacing direction, a manually operated member for returning the carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, the auxiliary ribbon being extended from said spool through said guide, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, and a tensioning device supported independently of said carriage for holding the used portion of the ribbon, said tensioning device comprising a rotary roll, a presser member yieldingly holding the used portion of the ribbon in contact with the roll, and means for rotating said roll in one direction so as to retain the extended used portion of the ribbon under tension.

11. A typewriter having a reciprocable carriage for a platen, the carriage being movable step by step in a letter spacing direction, a manually operated member for returning the carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, the auxiliary ribbon being extended from said spool through said guide, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, and a tensioning device supported independently of said carriage for holding the used portion of the ribbon, said tensioning device comprising a rotary roll, a spring tending to rotate the roll in one direction so as to retain the extended used portion of the ribbon under tension, a ratchet device to prevent retrograde movement of the roll, and means to energize said spring.

12. A typewriter having a reciprocable carriage for a platen, the carriage being movable step by step in a letter spacing direction, a manually operated member for returning the carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, the auxiliary ribbon being extended from said spool through said guide, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to

the step by step movements of said carriage, a tensioning device supported independently of said carriage for holding the used portion of the ribbon, said tensioning device comprising a rotary roll, a spring tending to rotate the roll in one direction so as to retain the extended used portion of the ribbon under tension, a device to prevent retrograde movement of the roll, and means operated during the return movement of the carriage to energize said spring.

13. A typewriter having a reciprocable carriage for a platen, the carriage being movable step by step in a letter spacing direction, a manually operated member for returning the carriage, a spool of auxiliary ribbon rotatably supported independently of said carriage, a guide for said ribbon secured to said carriage, a guide roll for aligning the ribbon with said guide, the auxiliary ribbon being extended from said spool around said guide roll and through said guide, an attaching member securing a portion of said auxiliary ribbon to said carriage, so as to unwind and advance said ribbon in response to the step by step movements of said carriage, a releasing member to release said attaching member from the ribbon and thereby permit movement of the carriage independently of said ribbon, said releasing member being actuated by said manually operated member for returning the carriage, and a tensioning device supported independently of said carriage for holding the used portion of the ribbon, said tensioning device comprising a rotary roll, a presser member yieldingly holding the used portion of the ribbon in contact with the roll, a spring tending to rotate the roll in one direction so as to retain the extended used portion of the ribbon under tension, a ratchet device to prevent retrograde movement of the roll, and a flexible member through which motion is transmitted to energize said spring by the return movement of the carriage.

14. In combination with the carriage of a typewriter, a main ribbon mechanism, an auxiliary ribbon mechanism including an auxiliary ribbon supply spool mounted independently of the carriage, ribbon guiding means mounted on the carriage to support a stretch of the auxiliary ribbon along the writing line, said stretch of ribbon being transported by the carriage, means to cause the ribbon to travel in step with the car-

riage in its letter spacing movements and operative to maintain the auxiliary ribbon stationary with respect to the carriage, means to take up the slack in the auxiliary ribbon, tabulating mechanism including a tabulating key, and means controlled by the tabulating key for rendering ineffective the means for causing the ribbon to feed in step with the carriage during tabulating operation.

15. In combination with the carriage of a typewriter, a main ribbon mechanism, an auxiliary ribbon mechanism including an auxiliary ribbon supply spool mounted independently of the carriage; ribbon guiding means mounted on the carriage to support a stretch of the auxiliary ribbon along the writing line, said stretch of ribbon being transported by the carriage; means to compel the ribbon to travel with the carriage in its letter spacing movements and operative to maintain the auxiliary ribbon stationary with respect to the carriage, means to take up the slack in the auxiliary ribbon, carriage feeding mechanism, carriage release mechanism for freeing the carriage from the carriage feeding mechanism including a carriage release lever mounted on the carriage, and means controlled by said release lever for rendering the compelling means ineffective when the carriage is released from the feed mechanism.

16. In combination with the carriage of a typewriter, a main ribbon mechanism, an auxiliary ribbon mechanism including an auxiliary ribbon supply spool mounted independently of the carriage; ribbon guiding means mounted on the carriage to support a stretch of the auxiliary ribbon along the writing line, said stretch of ribbon being transported by the carriage; means to compel the ribbon to travel with the carriage in its letter spacing movements and operative to maintain the auxiliary ribbon stationary with respect to the carriage, means to take up the slack in the auxiliary ribbon, carriage feed mechanism, means to release the carriage from the feed mechanism, and means controlled by the releasing means for rendering the compelling means ineffective whereby to enable the ribbon to remain immovable when the carriage is released from the feed mechanism.

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