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998,092.

A. W. HEWITT.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 11, 1907.

Patented July 18, 1911.

6 SHEETS—SHEET 3.

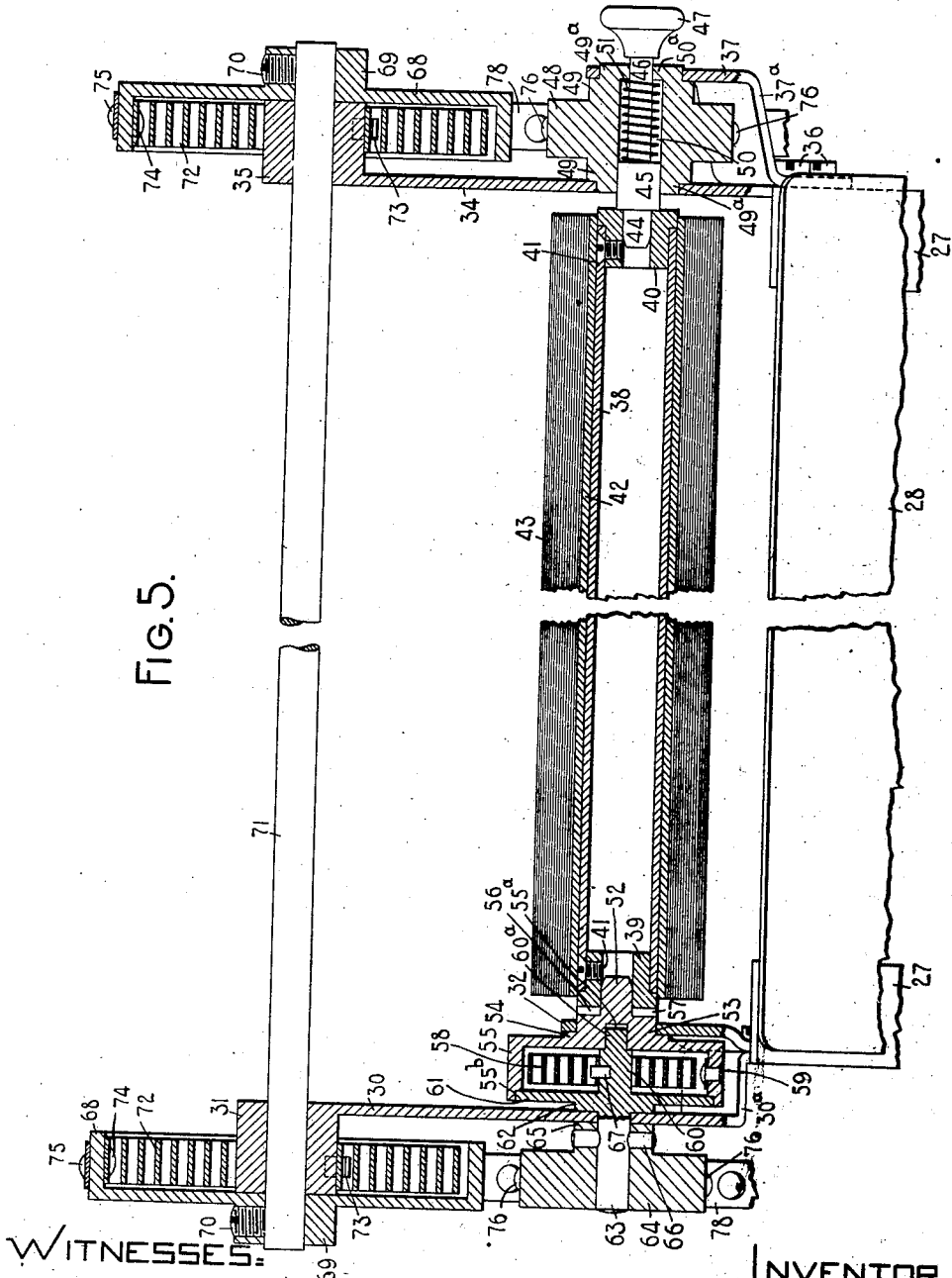


FIG. 5.

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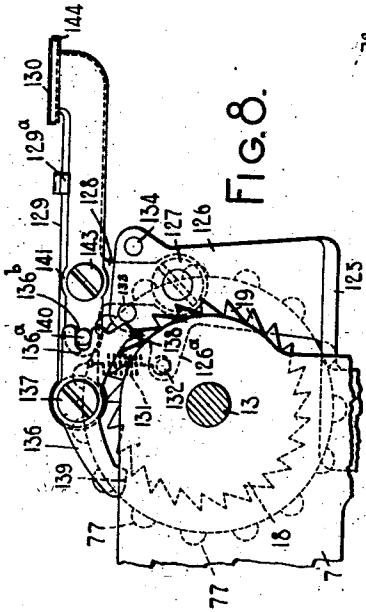
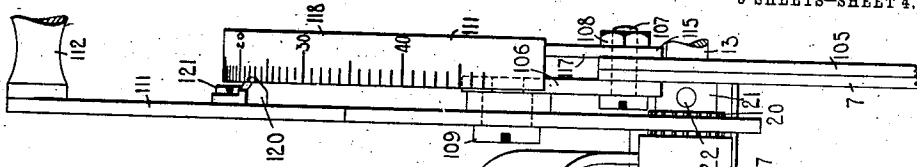


FIG. 8.

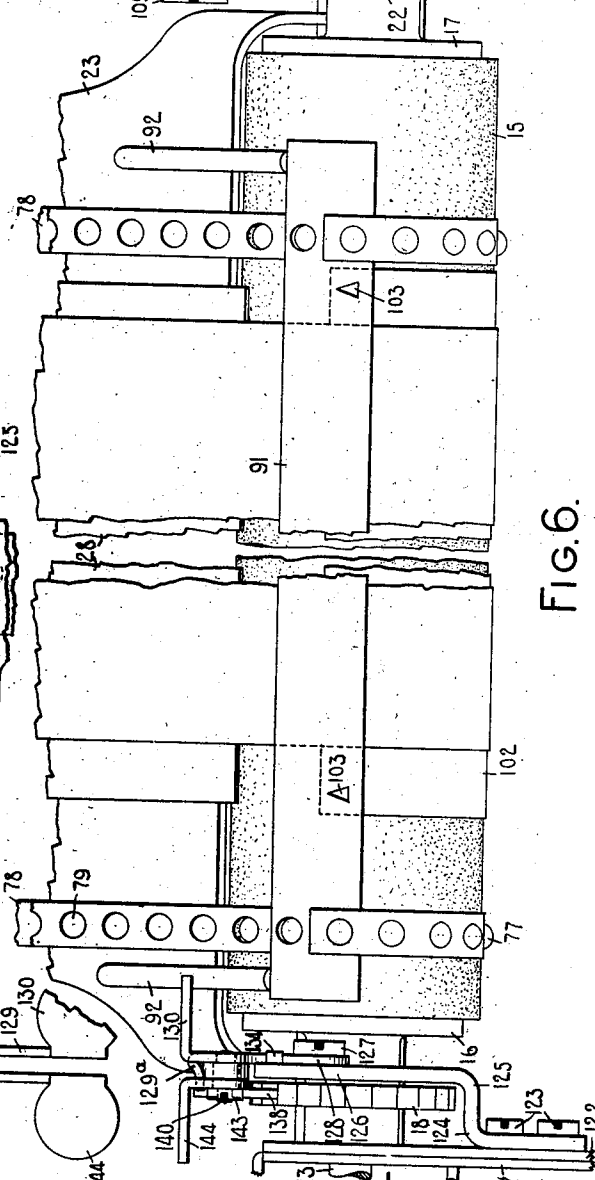


FIG. 6.

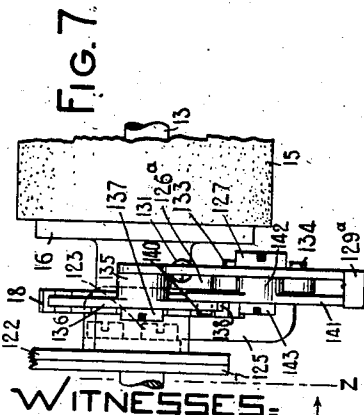
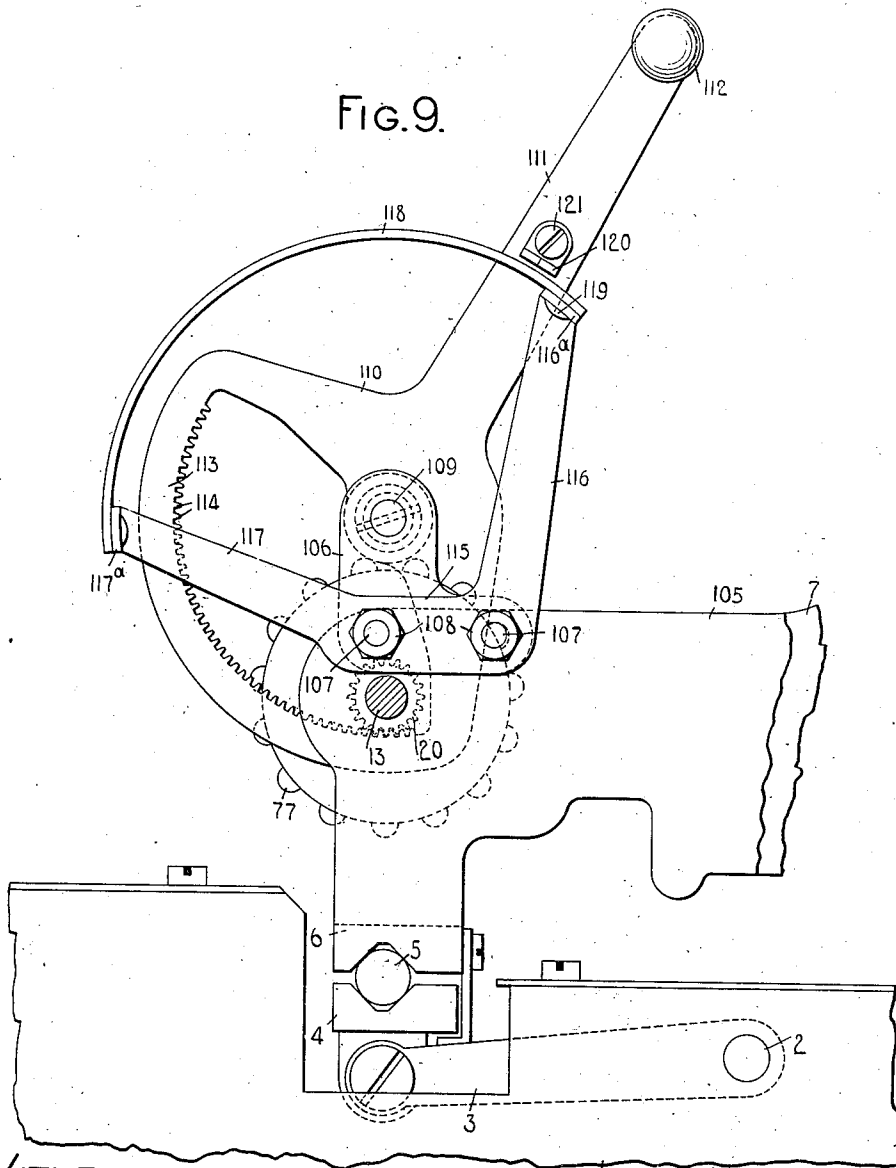


FIG. 7.

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TYPE-WRITING MACHINE.

998,092.

Specification of Letters Patent. Patented July 18, 1911.

Application filed February 11, 1907. Serial No. 356,778.

To all whom it may concern:

Be it known that I, ALLIN W. HEWITT, citizen of the United States, and resident of Bogota, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates more especially to paper supply and paper feeding devices for typewriting machines.

One object of the invention is to provide improved rotary material carrying or roll holder devices. The connections between the roll holder and the platen carry clamping devices which cooperate with the material unwound from the roll holder, and another object of the invention is to provide a tension device for maintaining said material in a taut condition as it is unwound from or rewound on the roll holder.

Another object of the invention is to provide a power device operative to turn the platen and roll holder automatically.

Another object is to provide novel line spacing mechanism including means controlling the action of the power device referred to above.

Another object is to provide improved hand-operated means for imparting a continuous movement of rotation to the platen.

Other objects will appear in the course of the following specification.

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

In the present instance in carrying out my invention I mount on the platen carrier a detachable supporting frame and paper table which extends upwardly and rearwardly from the platen and supports a rotary material carrying device or roll holder. At the ends of the roll holder are arranged a pair of wheels provided with radial pins or sprocket-like teeth which are connected with the platen by a pair of perforated metal bands, the latter cooperating with sprocket-like teeth on the platen, said perforated bands also engaging with pins or teeth projecting radially from a pair of spring drums arranged above the roll holder on the supporting frame. The construction is such that the spring drums tend con-

stantly to turn the platen in one direction and one of said drums acts similarly on the roll holder through one of the wheels arranged at the end of said roll holder. A hand lever is provided operative to turn the platen through a plurality of units of line space distance against the pull of the spring drums and a novel line spacing mechanism operates normally to hold the platen against the tension exerted by said spring drums. The line spacing mechanism may be operated to permit step-by-step turning movements of the platen and roll holder or may be operated to entirely free the platen from the control of the line spacing mechanism so as to permit the platen and roll holder to be turned rapidly in one direction by the spring drums. The roll holder is adapted to carry a roll of carbon paper or other material which passes down over the paper table and is fed over the platen at the front side thereof. Clamps connected at their ends to the perforated endless bands cooperate with the carbon paper to maintain a portion or section of it in a fixed relation with said bands during the operation of the machine, while the roll holder is provided also with a tension device adapted to maintain that portion of the carbon paper between the roll holder and front clamp in a taut condition.

The devices above described may be used advantageously with folded bill sheets which are first arranged to embrace the section of the carbon paper between the clamps, the back part of the bill sheet lying against the paper table. Various alining and holding devices are made use of to properly position and hold the folded bill sheet which is first fed or drawn downward at the front of the platen together with the carbon paper until the first line of the work sheet is in position for receiving the printing. This downward movement of the work sheet and carbon paper is a continuous one and is preferably caused by operating the hand lever above referred to. After the first line has been written the feeding movements are reversed and the bill sheet is fed upwardly a line space distance at a time until the writing on the bill has been completed. Thereafter the line spacing mechanism is operated to free the platen, and the latter together with the roll holder is turned by the spring drums, drawing the bill sheet and the car-

oon paper continuously and rapidly upward until the initial position is reached. It will be understood that imprints on the outer or front part of the bill sheet are made through the usual inking ribbon of the machine while the imprints on the rear part of the bill sheet are made from the interposed portion or section of the carbon paper.

The invention is shown as applied to a Royal typewriting machine, but it is to be understood that the invention is not limited to any particular style or type of machine and may be adapted in whole or in part to forms of writing machines other than the one shown.

In the accompanying drawings, Figure 1 is a front elevation of the platen and platen carrier of a typewriting machine and showing my invention applied thereto, parts being omitted and parts broken away. Fig. 2 is a longitudinal sectional view of the parts shown in Fig. 1 and looking toward the left, said Fig. 2 also showing the mounting of the platen carrier and part of the main frame of the machine, the upper part of the devices shown in Fig. 1 being broken away. Fig. 3 is a fragmentary fore and aft sectional view of the roll holder devices and supporting frame, the left-hand spring drum and its support being also shown in said Fig. 3. Fig. 4 is a fragmentary transverse sectional view taken on planes represented by the line $x-x$ in Fig. 1 and looking in the direction of the arrow at said line. Fig. 5 is an enlarged fragmentary sectional view taken on a plane represented by the dotted line $y-y$ in Fig. 3 and looking in the direction of the arrow at said line. Fig. 6 is an enlarged fragmentary front view of the platen showing the platen and part of the platen carrier and showing parts of my invention associated therewith. Fig. 7 is a fragmentary top plan view showing the platen and my improved line spacing mechanism applied thereto. Fig. 8 is a sectional view taken on a plane represented by the line $z-z$ in Fig. 7 and looking in the direction of the arrow at said line. Fig. 9 is an enlarged fragmentary end view showing the platen and its mounting together with certain features of my invention.

In the drawings (Figs. 2 and 9) the main frame of the machine is shown as comprising side plates 1. A rock shaft 2 is journaled at its ends in said side plates near the rear thereof and carries forwardly projecting horizontally disposed arms 3, said arms supporting a shiftable grooved track-way 4. Anti-friction balls 5 cooperate with the track-way 4 and with a grooved slide bar 6 which forms part of a platen carrier or frame, said platen carrier also comprising side plates 7 connected by a rear plate or bar 8. A guide rod 9 is secured at its ends in the side plates 7 of the platen frame and

coöperates with guide rollers 10 and 11 mounted on a shiftable bracket 12. Journaled in the side plates 7 is a platen axle 13 which supports a platen comprising the usual wooden core 14 and outer sheath 15 of rubber or the like. Suitably secured to the platen and platen axle are the usual platen heads 16 and 17. The boss or hub of the left-hand platen head 16 is connected in the usual way with a line space ratchet wheel 18, the teeth 19 of said ratchet wheel, however, being oppositely inclined from the teeth of the ratchet wheel usually employed (Fig. 8). Mounted on the platen axle 13 and abutting the hub or boss of the right-hand platen head 17 is a small gear wheel 20 provided with a hub 21 which is secured by a pin 22 in a fixed relation with the platen axle (Figs. 1 and 6). The devices which cooperate with the ratchet wheel 18 and the gear wheel 20 will be described later. Secured to the ends of the platen axle are the usual finger wheels (not shown). It will be understood that the platen carrier and platen are adapted to be moved from side to side of the machine for letter spacing and return, the slide bar 6 of said carrier being guided and supported during these movements on the anti-friction balls 5, and the guide rod 9 moving endwise between and cooperating with the guide rollers 10 and 11. It will further be understood that a case shift mechanism is provided which is operative to shift the track-way 4 together with the guide bracket 12 and its rollers 10 and 11 up and down so as to raise and lower the platen carrier and platen.

As shown in Figs. 1, 2 and 6 a combined supporting frame and paper table is mounted on the platen carrier, said frame being adapted to carry certain of the parts of my invention and being similar in construction to the corresponding supporting frame described in detail in my companion application filed of even date herewith. The combined supporting frame and paper table comprises brackets 23 having lateral ears 24 and angularly disposed flanges or lips 25, which latter are secured by screws 26 to angled pieces 27 carrying a plate-like paper table proper 28 suitably secured in place. The ears 24 of the brackets 23 are secured by headed screws 29 to the rear bar 8 of the platen carrier, and the paper table 28 inclines upwardly and rearwardly from the top of the platen and serves to guide and support both the work sheets and the carbon paper or other transfer medium as will subsequently be more fully explained.

Referring to Figs. 1 to 5 inclusive it will be seen that the side portion of the left-hand angled piece 27 is provided at its upper end with an extension 30 which is offset laterally leftward as indicated at 30° and thence extends upward and rearward terminating in a thickened portion or boss 130

31. A bearing plate 32 is secured by screws 33 to the inner face of the side of the left-hand angled piece 27 near its upper end, said bearing plate extending upward and forming a continuation of the side of the angled piece. The side of the right-hand angled piece 27 is continued upward and rearward forming an extension 34 terminating in a thickened portion or boss 35. Screws 36 secure a bearing plate 37 to the outer face of the side of the right-hand angled piece 27 near its upper end, said bearing plate 37 being first off-set rightward, as indicated at 37^a and thence extending upward. The extensions 30 and 34 and the bearing plates 32 and 37 provide supports for a material carrying device or roll holder and a pair of power devices or spring drums operative to automatically turn said roll holder and platen. The roll holder comprises a hollow cylinder or tube 38 provided at its ends with perforated bearing collars 39 and 40 which are secured in place by screws 41. The tube 38 receives a sleeve 42 which carries a roll of material such as carbon paper or the like, said material being designated by the numeral 43. The sleeve 42 carrying the material may be readily slipped on and off the tubular roll holder proper 38, but when in place the friction between the sleeve 42 and the roll holder is sufficient to maintain the two in a fixed relation and cause them to turn together. The opening in the right-hand collar 40 normally receives the bearing end 44 of a spring plunger which further comprises an enlarged cylindrical portion or head 45, a stem 46 and a finger button 47. The plunger is supported on and bears in a rotary member or wheel 48 which is provided with oppositely disposed hubs or bosses 49, the latter being reduced as indicated at 49^a to cooperate with bearing openings formed in the right-hand extension 34 and the right-hand bearing plate 37. The wheel 48 is arranged between the extension 34 and the bearing plate 37 and may rotate freely in its bearings but is prevented from moving axially. The wheel 48 is provided with an axial opening 50 which is shouldered or reduced at its right-hand end as indicated at 50^a, the shouldered part 50^a being provided with an opening through which the stem 46 of the plunger passes. The head 45 of the plunger bears in the opening 50 and is adapted to rotate therein and also to move lengthwise thereof. A coiled spring 51 surrounds the stem 46 of the plunger within the opening 50 and is confined between the head of the plunger and the shouldered portion 50^a of said opening. The spring normally maintains the bearing end 44 of the plunger engaged with the collar 40 of the roll holder as shown in Fig. 5 but by pulling the button 47 outwardly the plunger may be disengaged from the roll

holder so that the latter may be readily removed from the machine. The opening in the left-hand collar 39 of the roll holder receives a bearing projection 52 extending centrally inward from a hub 53 which is connected by a boss 54 of larger diameter with a cylindrical rotary member or spring casing or open-ended box 55. The hub 53 bears in an opening in the right-hand bearing plate 32 and said hub is provided with crown ratchet teeth 56 which normally engage with corresponding crown ratchet teeth 57 on the left-hand collar 39 of the roll holder. A coiled spring 58 is arranged within the casing 55 and is fastened by a rivet 59 at its outer end to the inner wall of said casing. The spring 58 is coiled around a stud 60 projecting centrally inward from a circular plate 61 and having a reduced portion 60^a which is seated in a depression 55^a in the bottom of the casing 55. The circular plate 61 serves as a cover for the casing 55 and also as a bearing for the outer end of the casing which is counter-bored as indicated at 55^b to cooperate with the periphery of the plate 61. The outer face of the plate 61 is formed with a boss 62 which is reduced to form a hub or short shaft 63. The shaft bears in an opening in the left-hand extension piece 30, the boss 62 abutting the inner face of said extension. Outside of or to the left of the extension 30 a rotary member or wheel 64 is secured to the shaft 63, said wheel being provided with a hub portion 65 which receives a pin 66, the latter passing through the shaft 63 and securing the wheel to the shaft. The end of the hub portion 65 abuts against the outer face of the extension 30 and the construction is such that the plate 61, the shaft 63 and the wheel 64 may turn freely together on the bearing in the extension 30 but axial movement of the parts is prevented. It will be apparent that the plate 61, the shaft 63 and the wheel 64 are practically a single piece, that the casing 55 and the plate 61 are adapted to turn relatively to one another, the part 55^b and the periphery of the plate 61 providing cooperating bearing surfaces and the reduced end 60^a of the boss 60 cooperating with the bearing provided by the opening 55^a. The inner end of the spring 58 is fastened by a pin 67 to the stud 60 and it will be apparent that the spring 58 serves as a yielding connection between the wheel 64 and the casing 55. The crown ratchet teeth 56 and 57 which connect the casing 55 with the roll holder are so inclined (see Fig. 1) that when the roll holder is turned in a direction to unwind the roll 43 or in the direction indicated by the arrow in Fig. 3, the casing 55 may be forced to turn with it, the crown ratchet teeth being maintained in engagement by the leftward endwise pressure

which the roll holder receives from the coiled spring 51.

The spring 58 acts as a tension spring for the roll holder and its operation in this respect together with the advantages of the construction above described will be understood from explanations to be given later.

Referring now to the devices for automatically turning the platen and roll holder, said devices comprise a pair of spring drums or casings 68 which, as best shown in Fig. 5, are provided with collars 69, the latter receiving set screws 70 which abut against the end portions of a shaft or spindle 71 and serve to secure the spring drums 68 in a fixed relation with said shaft and with each other, the shaft bearing in openings formed in the thickened portions or bosses 31 and 35. Each spring drum contains a coiled spring 72 secured at its inner end to a hook-like pin 73 projecting from the associate boss, each spring being secured at its outer end to the inner wall of its casing by a rivet 74. The periphery of each spring drum is provided with a series of rounded members or pins 75 projecting in a radial direction. The wheels 48 and 64 are provided with corresponding members or pins 76 and the platen is provided near its ends with corresponding members or pins 77. The two sets of pins 77 on the platen are spaced apart a distance equal to the distance between the two sets of pins 76 and to the distance between the two sets of pins 75. The distance between adjacent pins in all the sets is equal. In order to positively connect the platen with the wheels 48 and 64 and with the power or spring drums 68 a pair of endless bands, straps or belts 78 are provided, said bands being made preferably of metal and being formed with holes or openings 79 which are adapted to cooperate with the sets of pins 75, 76 and 77, said pins resembling sprocket-teeth in operation. As will be understood from a consideration of Figs. 1, 2, 3 and 6 each band or belt 78 passes around the platen over one of the sets of pins 77 and extends upwardly passing over the upper side of one of the wheels 48 and 64 and cooperating with the pins 76 at the upper sides of said wheels, said bands thence passing over and around the spring drums 68 cooperating with the pins 75 thereon. It will be apparent from the construction just described that the bands or belts 78 positively connect the platen with the wheels 48 and 64 and with the power or spring drums so that if rotary movement is communicated to the platen, the spring drums, or one or another of the wheels, a corresponding movement will be transmitted to the other members.

The free end of the roll of material 43 on the roll holder, which material will hereinafter be referred to as carbon paper, is

drawn down over the top of the roll passing over the plate-like paper table 28. For the purpose of properly feeding the carbon paper, a pair of holding or clamping devices are provided, said devices being secured at their ends to the bands or belts 78, one of said devices being at the front and the other at the back of the combined supporting frame and paper table, the carbon paper being clamped between said devices. The front clamping device is of the same construction as the corresponding clamping device described in detail in my companion application. Said front clamping device comprises two clamping members or bars 80 and 81. The bar 80 is secured at its ends to the bands 78 by bolts and nuts 82 and 83. The clamping bar 81 has a hinged connection with the bar 80 at the left end and at the right end is detachably secured or clamped to the bar 80 by a bolt and cooperating clamping nut numbered respectively 84 and 85 (Figs. 1 and 2). When the clamping nut 85 is unscrewed the bolt 84 is adapted to be moved to permit the clamping bar 81 to be swung away from the bar 80 so as to permit the carbon paper to be arranged between said bars. From an inspection of Fig. 2 it will be understood that the carbon paper is first passed downwardly behind both clamping bars and is then passed upwardly between the two bars, and thence over the top of the front bar 81 and down over the front face of said bar. It will be apparent that after the carbon paper has been thus arranged between the two bars the tightening of the clamping nut 85 will serve to clamp or hold the carbon paper tightly between the two clamping bars. After being passed between the clamping bars 80 and 81, and prior to the clamping together of said bars, the carbon paper is drawn down over the front bar 81 passing over the paper table and the front of the platen and between the latter and the usual paper feed rollers 15^a and 15^b (diagrammatically illustrated in Fig. 2) which feed rollers are preferably maintained in released or inoperative position. Thence the paper is led or drawn upwardly at the back of the platen and then clamped by the clamping devices at the rear of the paper table, said devices being of the same construction as the corresponding devices shown in my companion application and comprising a pair of clamping bars 86 and 87. The clamping bar 86 is suitably secured to the endless bands 78 and the clamping bar 87 has a hinged connection at one end with the bar 86 and at the other end is detachably secured or locked to said bar 86 by a screw bolt 88 and a cooperating nut 89 (Fig. 2). That portion or section of the carbon paper which is held or clamped between the two sets of clamping bars above described may be

termed the working portion. It will be understood that when this working portion is exhausted and it is desired to replace it with fresh carbon it is necessary only to loosen the clamping devices and draw or unwind a portion of the carbon paper from the roll, enabling a fresh or unused section of said paper to be led through or between the parts of the clamping devices, and then to reclamp said devices and tear off the exhausted section of the carbon paper.

As heretofore stated a folded work sheet or bill sheet is preferably employed with the improved carbon roll device, said work sheet, as illustrated in Fig. 1, being designated by the numeral 90. The bill sheet is adapted to be arranged to embrace between its folds the working section of the carbon paper and in order to properly aline and hold said work sheet in place devices are employed which are the same in construction as those described in my companion application so that it is not deemed necessary to describe them in great detail at this place. Said devices comprise a clamping bar or plate 91 (Figs. 2 and 6) which is suitably secured to the bands 78. When positioned at the front of the platen as illustrated in Fig. 6 the clamping plate 91 is adapted to cooperate with the lower edge portion of the folded bill sheet, said clamping bar at this time contacting with a pair of stop lugs 92 fixed to the brackets 23 and extending downward therefrom at the front of the platen. It will be understood that the power springs 72 acting through the endless bands 78 tend constantly to turn the platen in line spacing direction but the engagement of the clamping plate 91 with the stop lugs 92 prevents the turning of the platen beyond a certain point, said clamping plate thus acting as a stop device. At this time the plate 91 is in position to receive the folded bill sheet 90 and said bill sheet may be passed over the paper table 28, the rear fold of the bill sheet passing between the paper table and the working portion of the carbon paper and the front fold passing over and covering the working portion of the carbon paper so that said working portion is embraced between the two folds of the bill sheet. To cooperate with the side edge of the bill sheet to facilitate its adjustment laterally the side guide described in my pending application may be made use of if desired. After the bill sheet has been brought to the proper lateral position it may be moved downwardly until its lower edge portion passes between the clamping plate 91 and the platen and is finally arrested when the lower edge of the front fold reaches the end of the opening between the carbon paper and the plate 91, which plate serves as a clamping plate for the lower edge portion of the bill sheet and also as an

alining device for said bill sheet. In order to hold the upper left-hand corner of the front fold of the bill sheet against the carbon paper, means are provided which comprise a combined indicating device and holding finger shown in Fig. 1 and designated as a whole by the numeral 93. The member 93 is of the same construction as the corresponding device illustrated in my companion application and comprises a holding finger 94 and a lateral extension 95 having a side-indicating edge 96 and an end-indicating edge 97. The member 93 is adjustably mounted on a supporting bar 98, the latter being frictionally connected at its ends to the endless bands 78 and being adjustable lengthwise of said bands. The supporting bar 98 is provided with a longitudinal slot 99 which receives a screw bolt 100, the latter cooperating with a clamping nut 101 to adjustably secure the member 93 to the supporting bar 98. It will be understood that the member 93 is capable of adjustment both widthwise and lengthwise of the bill sheet and that the finger 94 will hold the upper left-hand corner of the outer fold of said bill sheet against the carbon paper. The side-indicating edge 96 may be made use of as a side guide for the left-hand edge of the front fold of the bill sheet, the operator knowing that when this edge of the bill sheet and the edge 96 are in alinement the proper lateral writing position of the bill sheet has been obtained. In the same way the edge 97 of the member 93 may be used to cooperate with the upper edge of the front fold of the bill sheet to indicate that the latter has been moved downwardly far enough.

As the carbon paper passes downward at the front side of the platen it will be apparent that that face of the carbon paper which contains the carbon will be inward or against the paper table and platen, while the back or wrong side of the carbon paper will be outermost. Consequently as the carbon paper is fed around with the platen to and fro during the writing, that portion of said carbon paper which lies between the plate 91 and the clamping bars 86 and 87 would contact time and again with the face of the platen and soil the latter. In order to prevent the soiling of the platen I prefer to provide a flexible apron or shield of the character described in my companion application. Such a shield is illustrated in Figs. 1, 2 and 6, being designated by the numeral 102, and may be made of linen or some other fabric of close texture. It is hooked at two of its corners over pointed teeth 103 punched out of the metal of the clamping plate 91, the other two corners being secured to ears 86^a on the clamping bar 86 by headed securing screws 104. The distance between the two screws 104 is substantially equal to the distance between the two teeth 103 and

is such that the carbon paper may pass freely between the screws and between the teeth while at the same time it will be apparent that the apron or shield will lie between said carbon paper and platen and will serve as a protector for the latter.

After the initial adjustment of the bill sheet with its lower edge portion cooperating with the clamping plate 91, the platen may be turned backwardly or in a direction opposite to the line space feeding direction until the work sheet has been brought to the proper position for receiving the first line of writing. This backward turning movement may be communicated to the platen by the usual finger wheels but I prefer to employ novel means for imparting a continuous backward movement to the platen, which means are illustrated in Figs. 8 and 9 and will now be described. Preferably a strengthening or reinforcing plate 105 of substantially the same shape and dimensions as the right-hand side plate 7 is suitably secured to said side plate 7. The two plates 7 and 105 provide a support for an L-shaped bracket 106 which is secured in place by a pair of screw bolts 107, said screw bolts passing through the two plates 7 and 105 and being held in place by clamping nuts 108. One arm of the L-shaped bracket 106 is substantially upright and projects above the side plate 7, serving as a support for a headed and shouldered screw 109, the latter providing a bearing for a platen turning member which is in the form of a lever 110 pivoted between its ends and having an upwardly extending arm 111 terminating in a lateral handle or finger piece 112. The lower arm of the lever is shaped like a quadrant of a circle and is cut away to provide a gear segment 113, having internal teeth 114 which mesh with the teeth of the small gear wheel 20 fixed to the platen axle at the right of the platen. Clamped between the nuts 108 and the outer face of the plate 105 is a bracket or support 115 which has an upwardly extending arm 116 and a forwardly extending arm 117. The ends of the arms 116 and 117 are bent outwardly at right angles to the body portions of the arms, the angled end portions being numbered 116^a and 117^a. A segmental scale plate 118 is secured at its ends to the angled portions 116^a and 117^a by rivets 119. As shown the outer face of the scale plate 118 is provided with suitable scale markings cooperative with which is an indicator or pointer 120, the latter being formed of an angled piece of sheet metal and secured to the right-hand face of the lever arm 111 just above the scale plate 118 by a headed screw 121. When the clamping plate 91 is in cooperation with the stop lugs 92 as shown in Fig. 6 the member 110 will be in the position shown in Figs. 6 and 9, at which

time the rear end portion of the gear segment 113 will be engaged with the gear wheel 20 and the pointer 120 will be opposite the zero mark on the scale plate 118. It will be recalled that when the plate 91 is in the position shown in Fig. 6 the folded work or bill sheet is introduced into the machine and arranged in place. After this has been done the operator may grasp the handle 112 and pull it forward, causing the platen to turn in a direction opposite to the line spacing movements thereof and acting through the endless bands 78 to turn the wheels 48 and 64 and the spring drums 68, overcoming the tension of the power springs 72. The action of the wheels 48 and 64 and of the roll holder will be referred to subsequently more at length. At this time it need only be said that the continuous turning movement of the platen and the parts connected therewith by the endless bands may be continued until the bill sheet has been fed backward to the proper position for writing the first line thereof. This position, of course, is known to the operator beforehand and will correspond with one or another of the indicating marks on the scale plate 118. The operator therefore may pull the handle 112 toward him until the pointer 120 is opposite to the proper point on the scale plate 118.

In order to prevent the platen from being turned back automatically by the spring drums 68 acting through the bands or belts 78 to the position from which said platen was started by the pulling forward of the handle 112, I provide detent mechanism for holding the platen in the position to which it has been turned, said detent mechanism being combined with line spacing mechanism for permitting step-by-step movements of the platen in line spacing direction under the power transmitted from the spring drums to the platen through the endless bands 78. Means are also provided for rendering the detent and line spacing mechanism inoperative so that the platen after the writing on the bill has been completed may be automatically restored to the position from which it was started, the platen being arrested in this position by the stop lugs 92 cooperating with the clamping plate 91. The various devices for controlling the automatic movements of the platen in line spacing direction are illustrated in Figs. 6, 7 and 8. The left-hand side plate 7 of the platen frame or carrier is preferably reinforced by a plate 122 of similar shape and dimensions, the plates 7 and 122 being suitably secured together. A supporting bracket is secured to the inner face of the plate 122 by headed screws 123, said supporting bracket comprising a vertical lower end portion 124, a horizontally disposed and forwardly extending intermediate portion

125 and a vertical portion 126 extending upward at right angles from the forward part of the horizontal portion 125. The vertical upper portion 126 of a bracket supports a
 5 headed shouldered screw 127, said screw serving as a pivot or fulcrum for a T-shaped lever, said lever comprising a short vertically disposed arm or stem 128, the lower
 10 end of which is pivoted on the screw 127 and the upper end of which is joined to a horizontally disposed cross arm 129. The forward end portion of the cross arm 129 is off-set laterally rightward and shaped to provide a finger key 130. The rear arm of
 15 the lever is connected by a coiled spring 131 with a pin 132 extending laterally from a rearwardly projecting ear 126^a which ear is integral with the bracket portion or arm 126. The spring 131 tends to maintain the
 20 rear edge of the stem 128 of the T-shaped lever in engagement with a stop pin 133 as shown in Fig. 8, said stop pin projecting laterally inward from the bracket portion or arm 126. The T-shaped lever is adapted to
 25 be rocked on its pivot screw 127 by actuation of the key 130, pressure on said key overcoming the tension of the spring 131 and swinging the lever forward to render inoperative mechanism presently to be described.
 30 The forward motion of the lever is limited by a stop pin 134 projecting inward from the bracket arm 126. The rear end portion of the horizontal arm 129 of the T-shaped lever supports an anchor escapement device
 35 or pawl member or lever comprising a collar portion 135 and a body portion 136. The collar portion is perforated to receive a headed shouldered screw 137, said screw being carried by the arm 129 and serving as
 40 a pivot or fulcrum for the pawl member. It will be seen that the pivot 137 is about midway of the length of the body portion 136, the latter thus comprising two arms. The body portion 136 is arranged in the plane of the line space wheel 18 and its
 45 front and rear arms terminate in teeth numbered 138 and 139, said teeth being adapted to cooperate with the teeth 19 of the line space ratchet wheel 18. The front face of
 50 the tooth 138 lies normally in a plane which is radial of the line space ratchet wheel 18 and said face cooperates with the radial faces of the ratchet teeth 19, serving as a detent for said line space ratchet wheel as
 55 will be clearly understood from an inspection of Fig. 8. The faces of the rear tooth 139 form with each other an obtuse angle and said tooth is not adapted to arrest the teeth 19 of the ratchet wheel but will be
 60 cammed by said teeth out of their path. The forward arm of the body portion 136 is provided with an extension or ear 136^a which is formed with a horizontal open-ended slot 136^b, said slot receiving a pin 140 which
 65 extends laterally outward from the rear arm

of a horizontally disposed lever 141. The lever 141 is provided with a collar portion 142 which is perforated to receive a fulcrum or pivot screw 143, the latter screwing
 70 into the T-shaped lever at the junction of the stem 128 with the horizontal arm 129 thereof. The forward end portion of the lever 141 is bent laterally and shaped to provide a finger key 144. The normal position of the parts is shown in Fig. 8.
 75 When the handle 112 is pulled forwardly to turn the platen in reverse direction, the backs of the ratchet teeth 19 cooperate alternately with the back faces of the pawl teeth 138 and 139, vibrating the pawl member
 80 136 on its fulcrum, the rotary movement of the platen not being interfered with. As soon as the handle 112 is released the power devices will tend to automatically return the platen or rotate it in line spacing direction,
 85 but this movement will be prevented by the cooperation of the front radial face of the tooth 138 with the radial face of the ratchet tooth 19 which is immediately in front of it. If it be desired to advance the
 90 platen in line spacing direction a step at a time the finger key 144 may be operated. The depression of the finger key causes the pin 140 to swing upward about its pivot 143, thereby lifting the forward arm of the lever 136 and causing the tooth 138 to disengage from the ratchet teeth 19. Prior to the disengagement of the tooth 138, however, the tooth 139 is swung downward into the path of the ratchet teeth, and, as soon as the ratchet wheel is free to turn, the point of the ratchet tooth 19 just ahead of the tooth 139 will engage the front face of the tooth 139 and will cam said tooth out of the path of said ratchet tooth. This camming movement, of course, forces the tooth 138 back into the path of the ratchet tooth 19, and pressure having been withdrawn from the finger key 144, said tooth 138 will engage with the ratchet tooth 19 next succeeding the ratchet tooth with which it (tooth 138) has just previously engaged, and will arrest the ratchet wheel after it and the platen have rotated through a distance equal to the space between two of the
 110 ratchet teeth 19, which space corresponds with a unit of line space distance. When- ever, therefore, it is desired to space between the lines of writing the operator strikes a staccato blow on the key 144, causing
 115 the parts to operate as just described. After the writing has been completed and it is desired to restore the platen rapidly to the position from which it started after the bill or work sheet has been initially adjusted,
 120 the operator may press steadily on the key 130, rocking the T-shaped lever on its fulcrum 127 until the arm 128 is arrested by the stop pin 134. The lever arm 129 has an ear 129^a bent off therefrom and lying over
 125 130

the lever 141, so that, when the key 130 is depressed, said lever 141 will be depressed with it. This swinging movement of the T-shaped lever therefore carries with it all the parts mounted thereon, the construction being such that the member or lever 136 is swung bodily upwardly and forwardly about the pivot 127 and the teeth 138 and 139 are both moved out of the path of the ratchet teeth 19. The result is that the platen is free to turn automatically under the influence of the spring drums until arrested by the engagement of the clamping or stop plate 91 with the stop lugs 92.

The operation of the roll holder and the parts closely associated therewith including the wheels 48 and 64 when the handle 112 and the keys 130 and 131 are actuated will now be considered.

When the handle 112 is pulled forward the endless bands 78 operate to turn the wheels 48 and 64 in the direction of the arrow in Fig. 3, and at the same time said bands through the clamping devices pull the carbon paper downwardly over the paper table and turn the roll holder in the same direction as said wheels. When the diameter of the roll of carbon paper is substantially the same as that of the wheels 48 and 64 as shown in Fig. 5, the roll holder will turn at about the same speed as the wheels so that the tension of the spring 58 will not be affected to any extent; but when nearly all of the carbon paper has been unwound the roll holder will turn somewhat faster than the wheels and this relative turning movement will increase slightly the tension of the spring 58, the outer end of the spring turning more rapidly than the inner end as will be understood from a consideration of Fig. 4. At this point it may be said that the tension of the spring 58 is initially adjusted by turning the casing 55 to which the outer end of said spring is secured, the peripheral surface of the casing being knurled as shown in Fig. 1 to facilitate this manual turning or hand adjusting operation. If it is desired to decrease the tension of the spring 58 this may be done by holding the casing 55 and pressing the roll holder endwise rightward against the spring 51 until the crown ratchet teeth 56 and 57 disengage, whereupon the casing 55 may be turned backward until the tension of the spring 58 is decreased to the desired extent. Thereafter the endwise pressure on the roll is withdrawn, permitting the reengagement of the crown ratchet teeth 56 and 57. Of course to increase the tension it is only necessary to turn the casing forward.

From what has been said it will be understood that the tension of the spring 58 may vary to some extent during the turning movement of the parts under the actuation of the handle 112. During the intermittent

step-by-step return movements of the parts under the actuation of the key 144 which may be called the line spacing key and during the rapid continuous return movements of the parts when the key 130 is actuated, the wheels 48 and 64 will be turned backward by the restoring springs 72 operating through the endless bands while at the same time that portion of the carbon paper between the roll holder and the upper clamping device will be maintained under tension by the spring 58. When the roll of carbon is of substantially the same diameter as the wheels 48 and 64 and the key 130 is actuated, the carbon paper will be rewound rapidly and the tension of the spring 58 will remain substantially unaltered during the return movements of the parts. But when the roll of carbon has been used up to a considerable extent and the diameter of the remaining portion is considerably less than the diameter of the wheels 48 and 64, then during the return movements of the parts the carbon paper above the uppermost clamping device will be pushed upward more rapidly in proportion than the roll holder could turn to rewind it if my tension device or its equivalent were not employed. Any slackening of the carbon paper between the roll and the clamping device will, however, in the present instance be immediately taken up by the spring 58 which is tending constantly to turn the roll holder and roll backwardly relatively to the spindle 52 and the wheel 64 which latter two parts are, in effect, integral. It will be understood that the tension of the spring 58 will be transmitted to the roll holder through the casing 55 and the crown ratchet teeth 56 and 57, which teeth will be maintained in engagement by the end pressure of the spring 51. It will be apparent that at no time is there a positive connection between the wheel 48 and the roll holder. This wheel 48 may be termed an idler and serves only to properly guide the right-hand endless band 78 and to maintain said band at the same tension and cause it to pull in the same way as the left-hand band 78, thereby tending to cause said bands to operate or pull equally on the parts with which they are connected.

It will be noted that by my invention I combine with a rotary platen and a rotary material carrying device or roll holder, a rotary member, viz., the wheel 64, which has a yielding, resilient connection with the roll holder and is positively connected with said platen by means which in the present instance consists of the left-hand endless band 78; that said endless band further serves to positively connect the platen with a rotary power device or spring drum, the positive connecting means comprising the perforations in the endless band and the sets of radial projections, pins or teeth which are

shown arranged on the platen and on the spring drum, although it will be apparent that this particular arrangement may be varied within my invention, which in its broader aspects contemplates the employment of any means operating positively to connect the parts and prevent one from moving without a corresponding movement of the other or others; that through the endless bands, the power device or spring drum tends constantly to rotate or turn the platen in one direction, *i. e.*, in line spacing direction, and that hand actuated means comprising the lever 110 are provided which means are operative to effect a continuous motion of rotation of the platen in the opposite direction from that in which the power device tends to turn it; that means are provided for holding the platen from being rotated by said power device after the lever 110 is operated, said means comprising the pawl member 136; that the last named means is operative at will to permit step-by-step turning movements of the platen; and that means are provided for rendering said last named means inoperative so that the power device is effective to continuously turn or rotate the platen, the turning movements of the platen continuing until the stop device or bar 91 coöperates with the stop lugs 92.

Some of the parts and devices herein described are also found in my companion application filed herewith and are therefore not claimed *per se* herein but only in such combinations as are not found in my said companion application.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, positively operating connecting means between said platen and said rotary member, and means connecting said last described means with the material carried by said roll holder.

2. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, positively operating connecting means between said platen and said rotary member, and a device fixed to said last described means for holding the material carried by said roll holder.

3. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed

over said platen, a wheel yieldingly connected with said roll holder, positively operating connecting means between said platen and said wheel, and a clamping device fixed to said last described means and operative to clamp the material drawn from said roll holder, whereby said material is positively connected with said means.

4. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, positively operating connecting means between said platen and said rotary member, and a pair of clamping devices fixed to said last described means and spaced apart, said clamping devices coöperating with a portion or section of the material carried by said roll holder.

5. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, a positively operating connection between said platen and said rotary member, a device fixed to said connection and operative to clamp said material, and a paper controlling device fixed to said connection and coöperative with a work sheet which is separate from the material carried by said roll holder.

6. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, a positively operating connection between said platen and said rotary member, a device fixed to said connection and operative to clamp said material, and a clamping plate fixed to said connection and operative to aline and hold a work sheet separate from said carbon paper.

7. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, a positively operating connection between said platen and said rotary member, a device fixed to said connection and operative to clamp said material, and means fixed to said connection for alining a work sheet separate from said material.

8. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, a positively operating connection between said platen and said rotary member, and means fixed to said connection for alining the work sheet.

9. In a typewriting machine, the combination of a rotary platen, a roll holder carrying material adapted to be unwound and fed over said platen, a rotary member yieldingly connected with said roll holder, a positively operating connection between said platen and said rotary member, and a clamping and alining plate fixed to said connection and cooperative with the platen to align and hold a work sheet separate from the material carried by said roll holder.
10. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel having a spring connection with said roll holder, means positively connecting said wheel with said platen, and a power device connected with said means.
11. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a spring connection between said wheel and said roll holder, means for adjusting the tension of said spring connection, and a positive connection between said wheel and said platen.
12. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a spring casing connected with said roll holder, a coiled spring within said casing and fixed at one end thereto, the other end of said spring being fixed to said wheel, a positive connection between said wheel and said platen, and a power device for turning said platen.
13. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a spring casing having an adjustable toothed connection with said roll holder, a coiled tension spring connected at one end to said casing and at the other end to said wheel, and a positive connection between said wheel and said platen.
14. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a spring casing, a toothed connection between said spring casing and said roll holder, means for maintaining the parts of said spring connection in operative engagement, a coiled tension spring connected at one end with said casing and at the other end with said wheel, and a positive connection between said wheel and said platen.
15. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a spring controlled part, a toothed connection between said spring controlled part and said roll holder, means for maintaining the parts of said spring connection in operative engagement, a coiled tension spring connected at one end with said spring controlled part and at the other end with said wheel, and a positive connection between said wheel and said platen.
16. In a typewriting machine, the combination of a rotary platen, a roll holder provided at one end with crown ratchet teeth, a device having crown ratchet teeth cooperating with those at one end of the roll holder, a spring plunger cooperating with the other end of the roll holder to maintain the ratchet teeth in engagement, a wheel, a tension spring connecting said device with said wheel, and a positive connection between said wheel and said platen.
17. In a typewriting machine, the combination of a rotary platen, a roll holder provided at one end with crown ratchet teeth, a spring casing having crown ratchet teeth cooperating with those at one end of the roll holder, a spring plunger cooperating with the other end of the roll holder to maintain the ratchet teeth in engagement, a wheel, a tension spring connecting said casing with said wheel, and a positive connection between said wheel and said platen.
18. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel having a resilient connection with said roll holder, and an endless band or belt between said wheel and said platen and positively connecting them.
19. In a typewriting machine, the combination of a rotary platen, a roll holder, a wheel, a tension spring connecting said wheel with said roll holder, and an endless band or belt between said wheel and said platen and positively connecting them.
20. In a typewriting machine, the combination of a rotary platen provided with radial projections, a roll holder, a wheel yieldingly connected with said roll holder and also provided with radial projections, and an endless band or belt between said wheel and said platen, said band cooperating with said projections to positively connect said wheel with said platen.
21. In a typewriting machine, the combination of a rotary platen provided with a set of radial teeth or pins, a roll holder, a wheel yieldingly connected with said roll holder and also provided with a set of radial teeth or pins, and an endless band or belt connecting said wheel to said platen and provided with perforations cooperating with the sets of teeth or pins.
22. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, an endless band connecting said platen and said power device, and paper controlling means operative to engage the paper independently of said platen and said band.
23. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, an endless band operating positively to connect said platen and said power device, and paper controlling means operative to engage

the paper independently of said platen and said band.

24. In a typewriting machine, the combination of a rotary platen, a spring drum, an endless band connecting said platen and said spring drum and through which said spring drum tends constantly to rotate said platen, and paper controlling means operative to engage the paper independently of said platen and said band.

25. In a typewriting machine, the combination of a rotary platen provided with radial projections, a spring drum also provided with radial projections, and an endless band connecting said spring drum with said platen and cooperating with the radial projections to positively connect said platen and said spring drum.

26. In a typewriting machine, the combination of a rotary platen provided with a set of radial pins or teeth, a spring drum provided with a set of radial pins or teeth, and an endless band or belt connecting said spring drum with said platen and formed with holes or perforations cooperative with the pins or teeth on the spring drum and platen.

27. In a typewriting machine, the combination of a rotary platen, sets of radial pins or teeth arranged one set near each end of the platen, a pair of spring drums, sets of radial pins or teeth operatively connected with said spring drums, and a pair of endless bands or belts formed with holes or perforations cooperative with said sets of pins or teeth.

28. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, sets of radial pins arranged one near each end of the platen, a supporting frame on said platen frame, a shaft rotatable on said supporting frame, a pair of spring or power drums fixed to said shaft, sets of radial pins operatively connected with said spring drums, and a pair of perforated endless bands cooperative with said sets of pins whereby said spring drums are positively connected with said platen.

29. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, an endless band connecting said platen and said power device through which said platen is constantly urged in one direction by said power device, and stop means for preventing the rotation of the platen in said direction.

30. In a typewriting machine, the combination of a rotary platen, a spring or power drum, a positive connection between said spring or power drum and said platen whereby the platen is constantly urged in one direction, a stop device fixed to said connection, and a relatively fixed cooperative

ing stop device, said stop devices cooperating to prevent rotary movement of said platen under the influence of said spring drum.

31. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, sets of radial pins arranged one near each end of the platen, a supporting frame on said platen frame, a shaft rotatable on said supporting frame, a pair of spring or power drums fixed to said shaft, sets of radial pins operatively connected with said spring drums, a pair of perforated endless bands cooperative with said sets of pins whereby said spring drums are positively connected with said platen and whereby said platen is constantly urged to turn in one direction, a stop device on said band, and cooperative stop devices on said supporting frame for preventing rotary movements of said platen in said direction.

32. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, means positively connecting said device with said platen, a roll holder, and a rotary member having a yielding connection with said roll holder, said rotary member being connected with said means.

33. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, a band connecting said device with said platen, a roll holder, and a wheel having a yielding connection with said roll holder, said wheel being connected with said band.

34. In a typewriting machine, the combination of a rotary platen, a power spring for automatically rotating said platen, an endless band connecting said spring with said platen, a roll holder, and a wheel having a spring connection with said roll holder, said wheel being connected with said endless band.

35. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, a movable band connecting said device with said platen, a roll holder, and a wheel having a yielding connection with said roll holder and a positive connection with said band.

36. In a typewriting machine, the combination of a rotary platen, a power device for automatically rotating said platen, an endless band connecting said device with said platen, a roll holder, and a wheel having a yielding connection with said roll holder and a positive connection with said band.

37. In a typewriting machine, the combination of a rotary platen, a set of radial pins or teeth arranged near one end of said platen, a power device for automatically rotating said platen, a set of radial pins or

teeth concentric with said power device and operatively connected therewith, a perforated endless band cooperative with said sets of teeth, a roll holder, and a rotary member
5 having a yielding connection with said roll holder and provided with a set of teeth cooperative with said endless band.

38. In a typewriting machine, the combination of a rotary platen, a set of radial
10 pins arranged near one end of said platen, a spring drum, a set of radial pins operatively connected with said spring drum, a perforated endless band connecting said sets
15 of pins, a roll holder, and a wheel concentric with said roll holder and having a spring connection therewith, said wheel being provided with a set of radial pins cooperative with said band.

39. In a typewriting machine, the combination of a rotary platen, sets of radial
20 teeth arranged one near each end of the platen, a pair of spring or power drums, sets of radial teeth operatively connected with said spring drums, a pair of endless
25 bands each connecting two of said sets of teeth, a roll holder, a pair of wheels concentric with said roll holder and provided with sets of radial teeth cooperative with
30 said endless bands, and a yielding connection between one of said wheels and said roll holder.

40. In a typewriting machine, the combination of a rotary platen, a power device
35 for automatically rotating said platen, means positively connecting said device with said platen, a roll holder, a rotary member having a yielding connection with said roll
40 holder, said rotary member being also connected with said means, and a clamping device fixed to said means and cooperative with the material carried by said roll holder.

41. In a typewriting machine, the combination of a rotary platen, a power device
45 for automatically rotating said platen, an endless band connecting said device positively with said platen, a roll holder, a rotary member having a yielding connection with said roll holder, and a positive connection
50 fixed to said band and cooperative with the material carried by said roll holder.

42. In a typewriting machine, the combination of a rotary platen, a set of radial
55 pins or teeth arranged near one end of said platen, a power device for automatically rotating said platen, a set of rotatable pins or teeth concentric with said power device and operatively connected therewith, a perforated endless band cooperative with said sets
60 of teeth, a roll holder, a rotary member having a yielding connection with said roll holder and provided with a set of teeth cooperative with said endless band, and a clamp fixed to said endless band and co-

operative with the material carried by said
65 roll holder.

43. In a typewriting machine, the combination of a rotary platen, a set of radial
70 teeth arranged near one end of said platen, a spring drum, a set of rotary radially arranged teeth operatively connected with said spring drum, a perforated endless band connecting said sets of teeth, a roll holder,
75 a wheel concentric with said roll holder and having a spring connection therewith, said wheel being provided with a set of radial teeth cooperative with said band, and a clamping device fixed to said endless band and cooperative with the material carried
80 by said roll holder.

44. In a typewriting machine, the combination of a rotary platen, sets of radial
teeth arranged one near each end of the platen, a pair of spring or power drums, sets of radial teeth operatively connected
85 with said spring drums, a pair of endless bands each connecting two of said sets of teeth, a roll holder, a pair of wheels concentric with said roll holder and provided with sets of radial teeth cooperative with said
90 endless bands, a yielding connection between one of said wheels and said roll holder, and a clamping device carried by said endless bands and cooperative with the material carried by said roll holder.
95

45. In a typewriting machine, the combination of a rotary platen, a power device,
a connection between said device and said platen through which said power device
100 tends constantly to rotate the platen in one direction, a gear wheel fixedly related to the platen and concentric therewith, a segmental gear meshing with said gear wheel, and a finger piece for operating said gear
105 wheel to turn the platen in a direction opposite to that in which the power device tends to turn it.

46. In a typewriting machine, the combination of a rotary platen, a power device
110 that tends constantly to rotate the platen in one direction, a segmental gear geared to the platen, and a finger piece for operating said segmental gear to turn the platen in a direction opposite to that in which the power device tends to turn it.
115

47. In a typewriting machine, the combination of a rotary platen, a power device,
a connection between said device and said platen through which said power device
120 tends constantly to rotate the platen in one direction, a gear wheel fixed to the platen axle, and a lever provided at one arm with a gear segment meshing with said gear wheel and at the other arm with a finger
125 piece, said lever being operative to effect a continuous motion of rotation of the platen in a direction opposite to that in which said power device tends to turn it.

48. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, a power device, a connection between said device and said platen through
5 which said power device tends to rotate the platen in one direction, a gear wheel fixed to the platen axle, a supporting bracket fixed to the platen frame, and a gear segment pivoted on said bracket and meshing with said
10 gear wheel, said segment being operative by hand to effect a continuous motion of rotation of the platen against the pull of said power device.

49. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, a power device, a connection between said device and said platen through
15 which said power device tends constantly to rotate the platen in one direction, a gear wheel fixed to the platen axle, a supporting bracket fixed to the platen frame, and a lever
20 fulcrumed on said bracket and provided at one arm with a gear segment having internal teeth meshing with said gear wheel, said
25 lever being provided at the other arm with a finger piece whereby said lever may be operated to turn the platen in opposition to said power device.

50. In a typewriting machine, the combination of a rotary platen, a power device, a connection between said device and said
30 platen through which said power device tends constantly to rotate the platen in one direction, a hand actuated lever operative
35 to turn the platen in the opposite direction, and cooperating scale and pointer elements to indicate the extent of movement of said lever.

51. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, a power device, a connection between said device and said platen through
40 which said power device tends constantly to rotate the platen in one direction, a gear wheel fixed to the platen axle, a supporting bracket fixed to the platen frame, a lever
45 fulcrumed on said bracket and provided at one arm with a gear segment having internal teeth meshing with said gear wheel, said lever being provided at the other arm
50 with a finger piece whereby said lever may be operated to turn the platen in opposition to said spring drum, a curved scale plate supported on the platen frame, and a
55 pointer fixed on said lever and cooperative with said scale plate.

52. In a typewriting machine, the combination of a carriage adapted to move across the machine for letter spacing, a platen
60 mounted on said carriage and adapted to rotate for line spacing, a spring power device mounted on said carriage and tending to turn said platen in line space direction, and an escapement device for controlling

the line-spacing movements of said platen 65 under the impulse of said spring power device.

53. In a typewriting machine, the combination of a carriage adapted to move across the machine for letter spacing, a platen
70 mounted on said carriage and adapted to rotate for line spacing, a spring power device mounted on said carriage and tending to turn said platen in line space direction, an escapement device for controlling the
75 line-spacing movements of said platen under the impulse of said spring power device, and means for releasing said platen from the control of said escapement to permit a free turning of said platen by said
80 power device.

54. In a typewriting machine, the combination of a carriage adapted to move across the machine for letter spacing, a platen
85 mounted on said carriage and adapted to rotate for line spacing, a spring power device mounted on said carriage and tending to turn said platen in line space direction, an escapement device for controlling the
90 line spacing movements of said platen under the impulse of said spring power device, means for releasing said platen from the control of said escapement to permit a free turning of said platen by said power
95 device, and means for arresting said platen in normal position.

55. In a typewriting machine, the combination of a rotary platen, a line space ratchet wheel operatively connected with
100 said platen, means constantly tending to turn the platen, a pawl member having two teeth alternately cooperative with said ratchet wheel, and key controlled means operative to actuate said pawl member to
105 permit step-by-step turning movements of the platen.

56. In a typewriting machine, the combination of a rotary platen, a line space ratchet wheel operatively connected with
110 said platen, means constantly tending to turn the platen, a pawl member having two teeth adapted to alternately engage with the teeth of said ratchet wheel, and a key controlled lever having a pin and slot connection with said pawl member.
115

57. In a typewriting machine, the combination of a rotary platen, a line space ratchet wheel operatively connected with
120 said platen, means constantly tending to turn the platen, a pawl member having two teeth adapted to alternately engage with the teeth of said ratchet wheel, a key controlled lever having a pin and slot connection with said pawl member, and a key controlled spring-pressed lever on which said
125 pawl member is mounted, said key controlled spring-pressed lever being operative to render said pawl member inoperative.

58. In a typewriting machine, the combination of a platen, a power device, connecting means which connect said platen with said power device, a material-carrying device, and means connecting said material carrying device with said first named connecting means.

Signed at the city of New Orleans, in the parish of Orleans and State of Louisiana, this fourth day of February A. D. 1907.

ALLIN W. HEWITT.

Witnesses:

MICHAEL IRWIN,
W. H. WRIGLEY.