C. H. BROWN.

TYPE WRITING MACHINE.

APPLICATION FILED FEB. 9, 1914.

1,216,251.

Patented Feb. 13, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

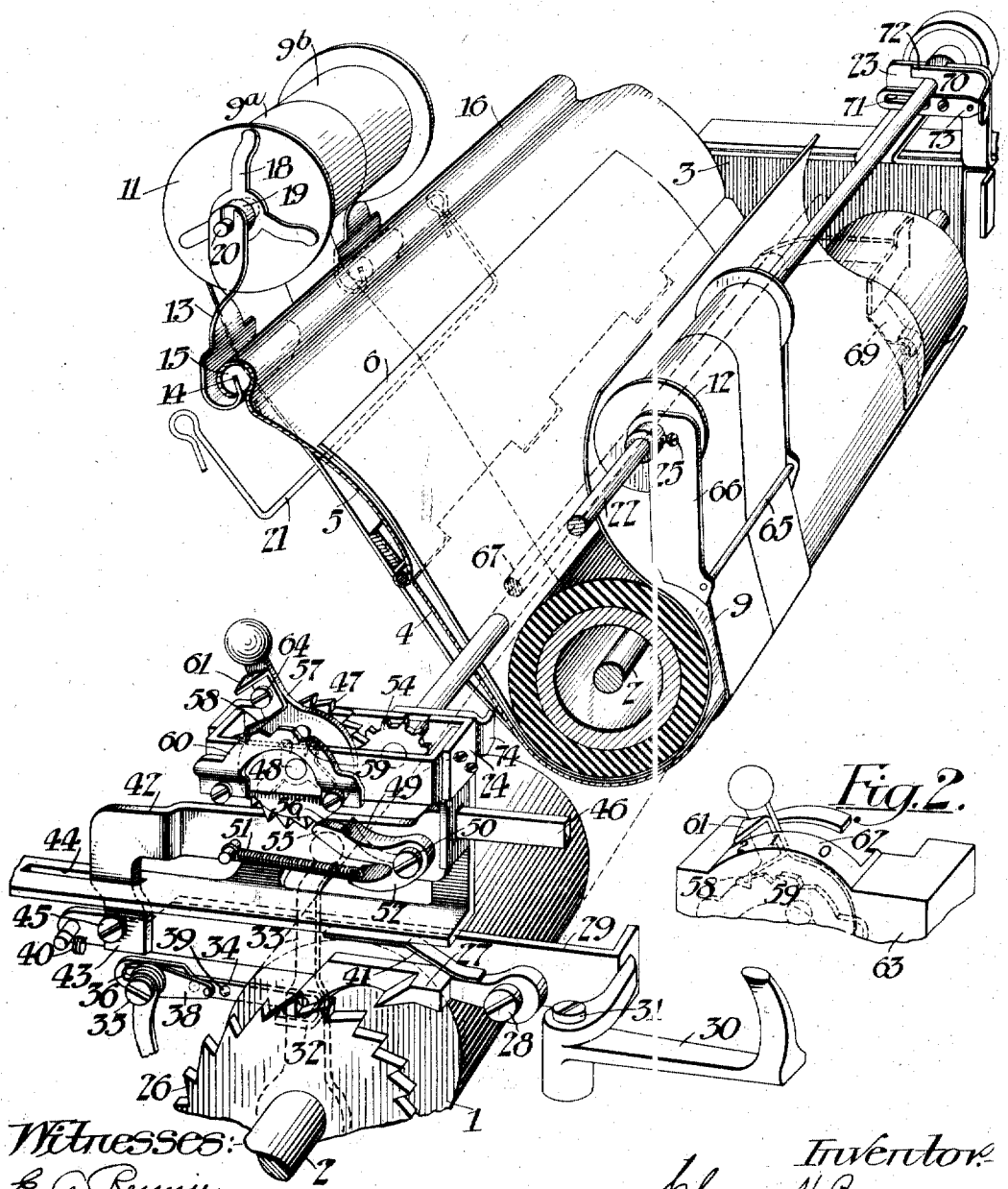


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 9.

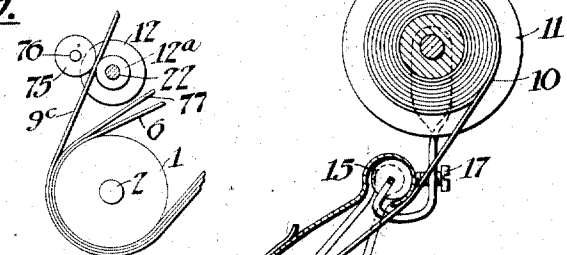
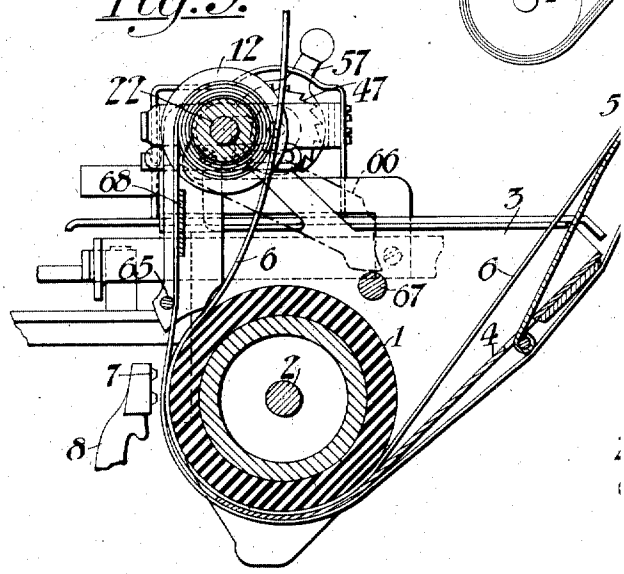


Fig. 3.



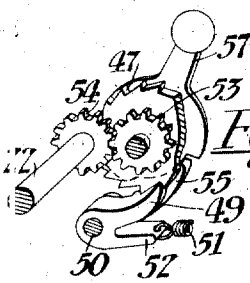


Fig. 4.

Fig. 5.

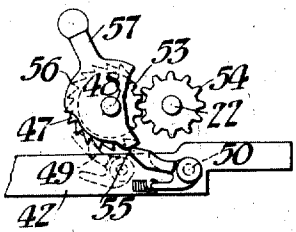


Fig. 6.

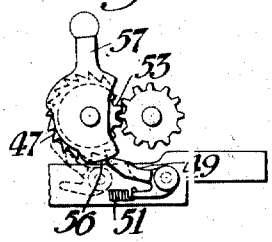


Fig. 7.

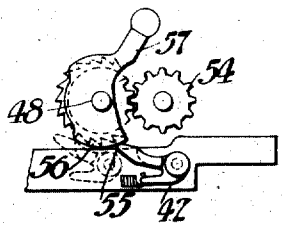
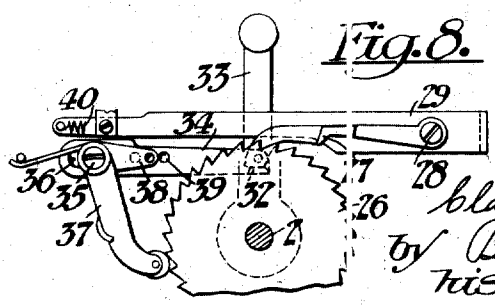


Fig. 8.



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UNITED STATES PATENT OFFICE.

CLARENCE H. BROWN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNDERWOOD COMPUTING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,216,251. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed February 9, 1914. Serial No. 817,473.

To all whom it may concern:

Be it known that I, CLARENCE H. BROWN, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to paper feeding and controlling devices for typewriting machines, and particularly to tally strips and means for feeding the same in conjunction with bills or main sheets. In mechanism of this character, it has been proposed to feed the tally strip around the platen to a receiving spool to which line-spacing rotation is imparted by mechanism operating in conjunction with the line-space mechanism for the platen. As the tally strip is wound on the receiving spool the diameter of the roll on the spool is gradually increased, and as the angular rotations imparted to the shaft carrying said spool remain constant, the spaces between the lines on the tally strip are gradually increased to an undesirable extent.

An object of the present invention is to overcome said objection, and to this end provision is made for adjusting the line-space mechanism for the tally strip so that as the diameter of the receiving spool increases, the line-space mechanism may be adjusted to reduce the distances between consecutive lines and thus secure a practically uniform spacing.

Other features of this invention are the provision of a simple and compact arrangement of the tally strip mechanism in which the receiving spool is close to the platen, and may be quickly and easily removed or replaced, and in which the tally strip mechanism is further adapted to be readily attached to standard makes of machines.

The tally strip may be supplied from a spool mounted on the paper shelf at the rear of the platen, and the tally strip may extend downward behind and beneath the paper shelf, around the platen and upward over the printing point, and thence to a receiving spool which may be fixed to a shaft located over the platen and extending longitudinally thereof. The platen may be rotated by the usual line-space mechanism of the Underwood typewriting machine, and the receiving spool for the tally strip may have line-space rotation imparted to it by auxiliary line-space mechanism actuated by the platen line spacer. For this purpose the plunger carrying the main or platen line spacer pawl may be connected to a plunger included in the auxiliary line-space mechanism, the latter plunger carrying a pawl to rotate a line-space wheel, said wheel connected to a gear running in mesh with a pinion on the shaft carrying the said receiving spool. The auxiliary line-space mechanism may be adjusted by a lever carrying a cam to hold the pawl off the ratchet wheel, said cam adjustable with the lever to vary the point at which the pawl engages the ratchet. Said adjusting lever may carry a pointer working over a scale to indicate the extent the receiving spool will be rotated by each line-space operation. The adjusting lever may also be set to hold the pawl off the ratchet and prevent the operation of the auxiliary line spacer. The shaft carrying the tally strip receiving spool may be quickly removed from the machine by retracting sliding latches which hold the shaft in its bearings. Both the receiving and supply spools may be adjustable to position the tally strip at any point along the platen.

The auxiliary line-space mechanism is not limited in its use to winding a tally strip on a receiving spool or roll, as such mechanism will drive the roll whether the work-sheet is wound thereon or merely advanced thereby.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view, partly in section, showing the invention applied to an Underwood typewriting machine, the inclosing castings or covers for the line-space mechanisms being removed.

Fig. 2 is a perspective view of the adjuster and indicator for the auxiliary line spacer.

Fig. 3 is a sectional elevation view of the mechanism shown at Fig. 1, but looking in the opposite direction.

Fig. 4 is a detail perspective view of parts of the auxiliary line spacer.

Figs. 5, 6 and 7 are detail views showing the auxiliary line spacer, Fig. 5 showing the adjustable cam positioned to allow the rota-

tion of the line-space wheel through a comparatively wide angle, that is, the distance of two teeth; Fig. 6 showing the cam adjusted for a single tooth rotation; and Fig. 7 showing the cam positioned to hold the pawl off the ratchet wheel and prevent the rotation of the latter.

Fig. 8 is a detail view showing parts of the main line-space mechanism.

Fig. 9 is a diagrammatic view illustrating a modified means operated by the auxiliary line-space mechanism for feeding a work-sheet or web.

The rotary platen 1 may be fixed to the platen shaft 2 journaled in the ends of the platen frame 3, said ends connected by the inclined paper shelf 4 located at the rear of the platen and extending forwardly beneath the platen. Said shelf may be made in one piece, or, as shown, may comprise a hinged section 5 adapted to swing forward to permit ready access to the mechanism behind the shelf. The main work-sheet 6 may be fed forward around the platen by means of the usual feed rolls (not shown), and upward in front of the platen in position to receive impressions from the types 7, on the upwardly and rearwardly swinging type bars 8.

The tally strip or web 9 is normally wound up in the form of a roll 10 upon the supply spool 11, the strip being led downward behind the paper shelf 4, around the platen, and upward over the printing line to the receiving spool 12. The tally strip 9 may have its inner face provided with carbon or other impression material for transferring impressions of the types 7 from the tally strip to the underlying work-sheet 6, and it may comprise two sections 9^a and 9^b provided with impression material of different colors if desired. If preferred, a separate carbon strip or other transfer medium might be wound with the tally strip so as to be interposed between the latter and the main work-sheet.

The supply spool 11 may be supported in brackets or arms 13, the lower ends of which may be secured in a slot 14 in a rod 15 supported in a bead 16 formed on the upper edge of the paper shelf 5. The rod 15 is adjustable longitudinally in the bead 16, and clamping screws 17 threaded through the arms 13 bear against said bead and clamp the parts in adjusted position. A tension spring 18 in the form of a spider is interposed between a flange of the spool 11 and a collar 19 on the shaft 20 of the spool, and forms a friction brake for the spool. The web 9 extends over a guide rod or bail 21 which is supported from the rod 15 and guides the web and prevents undue sagging.

The receiving spool 12 is adjustably mounted on a shaft 22 located over the platen and extending parallel therewith, said shaft journaled at its ends in the brackets or supports 23 and 24 mounted respectively on the ends of the platen frame. The spool 12 is fixed to the shaft 22 by set screws 25 which when loosened permit the spool to be adjusted to any position along the shaft 22. The supply spool 11 may likewise be adjusted in the direction of its axis by loosening the set screws 17, so that the tally strip may be placed at any desired position along the platen.

The main line-space mechanism for rotating the platen comprises the line-space ratchet wheel 26, fixed to the platen axle 2 and rotated by a pawl 27 pivoted at 28 to the plunger 29 actuated by a line-space lever 30 mounted on a pivot 31. When the line-space lever is actuated, the plunger 29 is moved rearwardly and the pawl 27 engages the ratchet wheel 26 and rotates the platen. During the initial movement of the plunger, the pawl is held off the ratchet wheel by a ledge 32 on a rod 34 connected to an adjusting lever 33 pivoted on the platen axle. The rod 34 is supported and guided at the rear end by a pin 35 extending through a slot 36 in the rod, and said pin 35 may form a pivot for the usual spring detent 37. The adjusting lever 33 may be moved forward or rearward to permit the pawl 27 to drop into engagement with the line-space wheel at an earlier or later period in the throw of the plunger 29 and thus vary the distance the platen is rotated at each line-space operation. The lever 33 may be held in adjusted position by a spring detent 38 seating in openings or depressions 39 in the rod 34. The plunger 29 and line-space lever 30 are returned by a spring 40. A spring 41 bearing on the pawl 27 insures a positive action of the latter.

The auxiliary line-space mechanism for feeding the tally strip is mounted in the frame or bracket 24 which may be removably attached to the platen frame. Said mechanism comprises a plunger 42 having at its rear end a depending arm 43 working in a slot 44 in the frame 24 and secured to the main plunger 29 by a screw 45. The forward end of the plunger 42 is supported and guided by an arm 46 of the plunger extending forwardly through an opening in the frame 24. A line-space ratchet wheel 47 fixed to a shaft 48 journaled in the frame 24, is driven by a pawl 49 connected by a pivot screw 50 to the plunger 42. The pawl 49 is held in operative position by a spring 51 connected to the plunger 42 and to a tail 52 on the pawl. The movement of the ratchet wheel is imparted to the receiving roll 12 through gearing comprising a gear wheel 53 fixed to the shaft 48 and running in mesh with a pinion 54 fixed on the end of the shaft 22. The pawl 49 is held off the ratchet wheel during a portion of its travel

by an extension 55 of the pawl bearing against a cam surface 56 formed on an adjusting lever 57 journaled on the shaft 48.

With the lever 57 in its rearward position, as shown in Figs. 1 and 5, the extension 55 of pawl 49 rides off the cam surface 56 when the plunger 42 has been moved rearwardly a comparatively short distance, whereby said pawl is permitted to drive the ratchet wheel during the greater portion of its rearward movement, thus rotating the receiving spool 12 through a comparatively large angle during each line-space rotation. In Fig. 5 the pawl 49 is shown by dotted lines at the limit of its rearward throw. It will be noted that with this adjustment, the ratchet wheel at each operation is rotated the angular distance of two teeth. The receiving spool is therefore rotated through a corresponding angle at each line-space operation. If the adjusting lever is moved to the position shown in Fig. 6, the cam 56 is moved rearwardly and holds the pawl 49 off the ratchet wheel for a longer period, so that the ratchet wheel is rotated the distance of only one tooth at each operation. By throwing the adjusting lever forward, as in Fig. 7, the cam 56 is positioned to hold the pawl off the ratchet during the entire throw of the pawl. In other words, the auxiliary line-space mechanism is silenced.

The lever 57 is yieldingly held in its several normal positions of adjustment by a spring detent 58 which seats in notches 59 formed in a holding plate 60. An index or pointer 61 carried by the lever 57 moves over a scale or dial 62 having characters indicating the position of the lever, or the distance through which the receiving spool will be rotated. Said dial may be formed on a cover plate or casing 63 which incloses the auxiliary line-space mechanism. The detent 58 and pointer 61 may be formed of a single piece secured to the lever 57 by a screw 64. When the line-space lever 31 is operated for returning the platen for a new line and imparting a line-space rotation to it, the auxiliary line spacer is simultaneously operated to rotate the spool 12. The distance through which the platen is rotated is determined by the adjustment of the lever 33 and is entirely independent of the auxiliary line-space mechanism. The adjustment of the latter is likewise independent of the main line spacer and does not affect the operation of the latter. When the winding of the tally strip on the spool 12 is commenced, the diameter of the roll thereon is comparatively small, and the peripheral movement correspondingly slow. The adjusting lever 57 is therefore preferably set, as in Fig. 5, to secure sufficient space between the consecutive lines of writing on the tally strip. As the storage roll on the spool 12 increases in diameter, there is a corresponding increase in the distance between each two consecutive lines on the tally strip. In order to compensate for this increase or widening of the line-spacing, the lever 57 is set to effect a smaller angular rotation of the line-space wheel, and thus secure the proper spacing of the lines. By decreasing the size of the ratchet teeth on the wheel 47 and increasing the number of positions to which the lever 57 may be adjusted, a greater refinement of adjustment may be obtained.

The tally strip 9 may be guided and held against the platen along the printing line by means of a guide frame which comprises a rod 65 connected to arms 66 mounted to swing on the shaft 22 whereby said guide frame may be swung upwardly and then rearwardly to the dotted line position indicated in Fig. 3 where it rests on a tie-rod 67 of the platen frame. Said guide frame may also comprise a plate 68 extending between the arms 66 and which may be used as a support or backing for the tally strip in making erasures. The usual paper guide fingers 69 for the main work sheet may be adjustably mounted on the rod 67.

The shaft 22 with the receiving roll and guide frame 65, 66 thereon, is removably held in its bearings at one end of the platen by a sliding latch 70, having a slot and pin connection 71 with the bracket 23 and formed with a nose 72 which extends over the shaft. The slide 70 is yieldingly held by a spring detent 73 and may be drawn forward to release the shaft and permit it to be lifted from its bearings. The left hand end of the shaft 22 is releasably held in like manner by a sliding latch 74.

Fig. 9 illustrates a modification in which a work-sheet or other form of work member may be fed over the platen by means of the auxiliary line-space mechanism and spool or roll. The feeding means in this instance may resemble, for example, that shown in the patent to Kurowski, 1,063,887, dated June 3, 1913. Such feeding mechanism may comprise a spool or feed roll 12^a mounted on the shaft 22 in place of or forming the body of the receiving spool 12, lengthened to accommodate a work sheet of any desired width, said feed roll 12^a corresponding to the feed roll 16 of said patent. A pressure roll 75 on a shaft 76 coöperates with the spool or roll 12^a to feed a work sheet 9^c over the platen, and may be confined between the end flanges of the spool so that when the latter is adjusted along the shaft the pressure roll will move with it. With this arrangement the supply spool 11 may or may not be omitted as desired. Different widths of sheets may be advanced by the auxiliary rolls 12^a, 75. A carbon sheet 77 may be placed between the work members 6 and 9^c.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen frame and a platen journaled therein, of a shaft located over the platen, a spool on said shaft to receive a tally strip extending around the platen and upward to said spool, and a swinging guide depending from said shaft and holding the tally strip against the platen along the printing line.

2. In a typewriting machine, the combination with a platen frame and a platen journaled therein, of a shaft located over the platen, a spool on said shaft to receive a tally strip extending around the platen and upward to said spool, and a swinging guide depending from said shaft and holding the tally strip against the platen along the printing line, said guide mounted to swing upwardly over the said shaft and rearwardly to a position behind said shaft.

3. In a typewriting machine, the combination with a rotary platen, of a receiving spool for a tally strip, and a guiding frame for said strip comprising a plate forming a backing against which the strip may be held to permit erasures.

4. In a typewriting machine, the combination, with a rotary platen; of a shaft located over the platen; a spool on said shaft to receive a tally strip extending around the platen and upward to said spool; and a guiding frame for said strip depending from said shaft and holding said strip against the platen along the printing line, said frame comprising a plate forming a backing against which the strip may be held to permit erasures.

5. In a typewriting machine, the combination, with a rotary platen; of a shaft located over the platen; a spool on said shaft to receive a tally strip extending around the platen and upward to said spool; and a swinging guide depending from said shaft and holding the tally strip against the platen along the printing line, said guide mounted to swing upwardly over the said shaft and rearwardly to a position therebehind and comprising a plate forming a backing against which the strip may be held to permit erasures.

6. In a typewriting machine, the combination, with a platen frame having a tie rod connecting the ends thereof, and a rotary platen mounted in said frame; of a shaft located over the platen in front of said tie rod; a spool on said shaft to receive a tally strip extending around the platen and upward to said spool; and a swinging guide depending from said shaft and holding said strip against the platen along the printing line, said guide mounted to swing upwardly over the said shaft and rearwardly behind the same to a position where it rests upon said tie rod.

7. In a typewriting machine, the combination, with a rotary platen, and a shaft supported thereabove; of a receiving spool for a tally strip mounted on said shaft; and a depending guiding frame for said strip pivoted to said shaft, said frame comprising side members arranged adjacent the ends of said spool, and a guide rod connecting the free ends of said side members and extending transversely across the strip.

8. In a typewriting machine, the combination, with a rotary platen, and a shaft supported thereabove; of a receiving spool for a tally strip mounted on said shaft; and a depending guiding frame for said strip pivoted to said shaft, said frame comprising side members arranged adjacent the ends of said spool, a transversely-arranged plate connecting said side members intermediate their ends and disposed behind the strip, said plate forming a backing against which said strip may be held to permit erasures, and a guide rod connecting the free ends of said side members and extending transversely across and in front of said strip.

9. The combination, with a rotary platen, and a platen frame comprising a paper shelf formed at its upper edge with a bead or curl; of a rod adjustable longitudinally in said bead; a pair of vertical arms having curled lower ends projecting into said bead and anchored to said rod; a spool carried by said arms at their upper ends; and means for rigidly retaining said rod in adjusted position.

10. The combination, with a rotary platen, and a platen frame comprising a paper shelf formed at its upper edge with a bead or curl; of a rod adjustable longitudinally in said bead; a pair of vertical arms having curled lower ends projecting into said bead and anchored to said rod; a spool carried by said arms at their upper ends; and clamping screws threaded through said arms and bearing against said bead for rigidly retaining said rod in adjusted position.

11. The combination, with a rotary platen, and a platen frame comprising a paper shelf formed at its upper edge with a bead or curl; of a rod adjustable longitudinally in said bead; arms secured to said rod for adjustment therewith; a paper spool carried by said arms and adjusted thereby; means for rigidly retaining said rod in adjusted position; a shaft supported upon said frame parallel with said rod; a paper spool adjustable along said shaft in conformity with the position of the first-named spool, whereby a work-strip leading from

one spool around the platen to the other spool may be adjusted to different positions upon said platen; means for retaining the second-named spool in adjusted position; and means for feeding said strip in the direction in which it is led.

12. In a typewriting machine, the combination with a platen and a tally-strip mechanism including a winding spool, of mechanism for winding said spool and turning the platen including a reciprocating driver common to the platen and the winding spool, pawl and ratchet mechanism operated by said driver to impart uniform step-by-step angular rotations to said spool, whereby as the spool fills, the spacing of the lines written upon the tally-strip is increased, manually settable means for decreasing the angular motions of the spool at the operations of said driver, whereby excessive line-spacing of the items written upon the tally-strip is avoided, and a pawl and ratchet mechanism also actuated by said driver for line-spacing said platen and including a line-space regulator adjustable independently of said manually settable means.

13. In a typewriting machine, the combination with a revoluble platen upon which to carry a work-sheet, and a second revoluble member upon which to carry a work-sheet, said work-sheets being superposed upon the platen, of a common driver, a pawl and ratchet mechanism actuated by said common driver for rotating the platen, a second pawl and ratchet mechanism also actuated by said driver, for rotating said second sheet-carrying member, and line-space regulating mechanism for each of said pawl and ratchet mechanisms, each line-space regulating mechanism being settable independently of the other.

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