

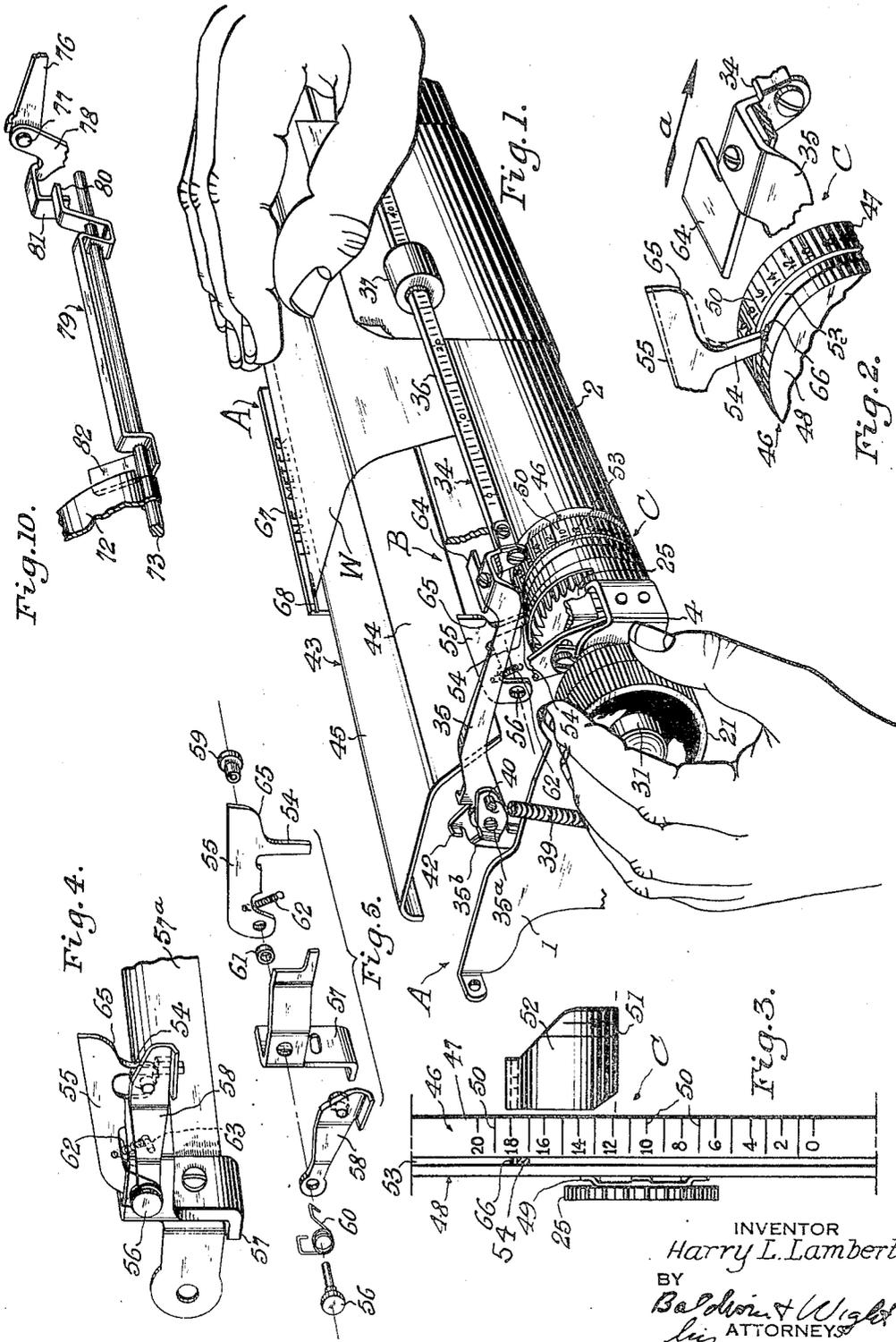
June 28, 1955

H. L. LAMBERT  
WORK SHEET FEEDING AND POSITIONING MECHANISM  
FOR TYPEWRITERS OR LIKE MACHINES

2,711,811

Filed Aug. 11, 1953

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 6.

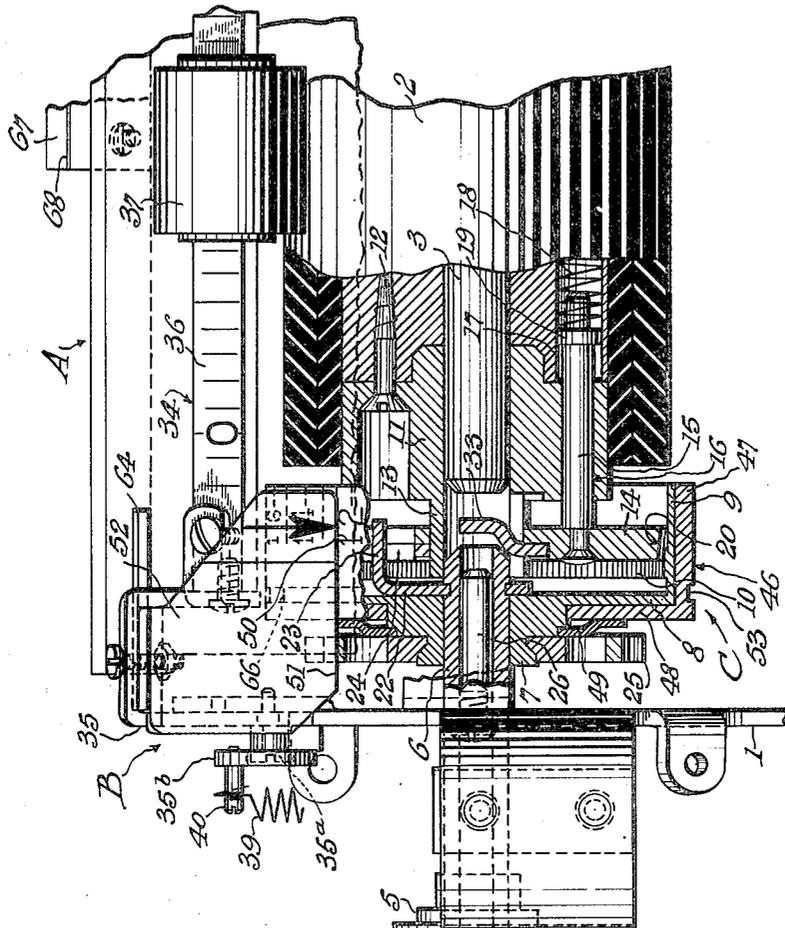
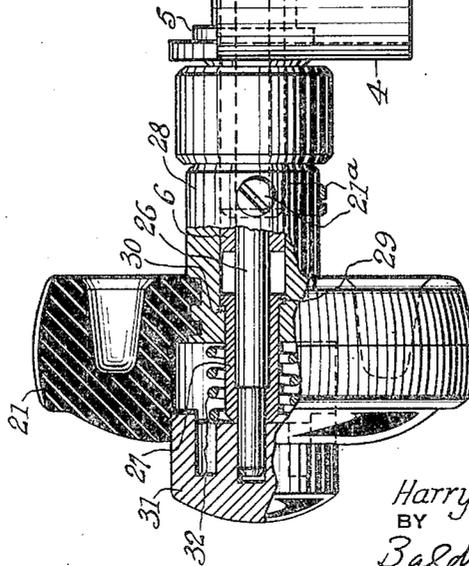
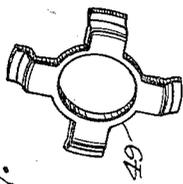


Fig. 7.



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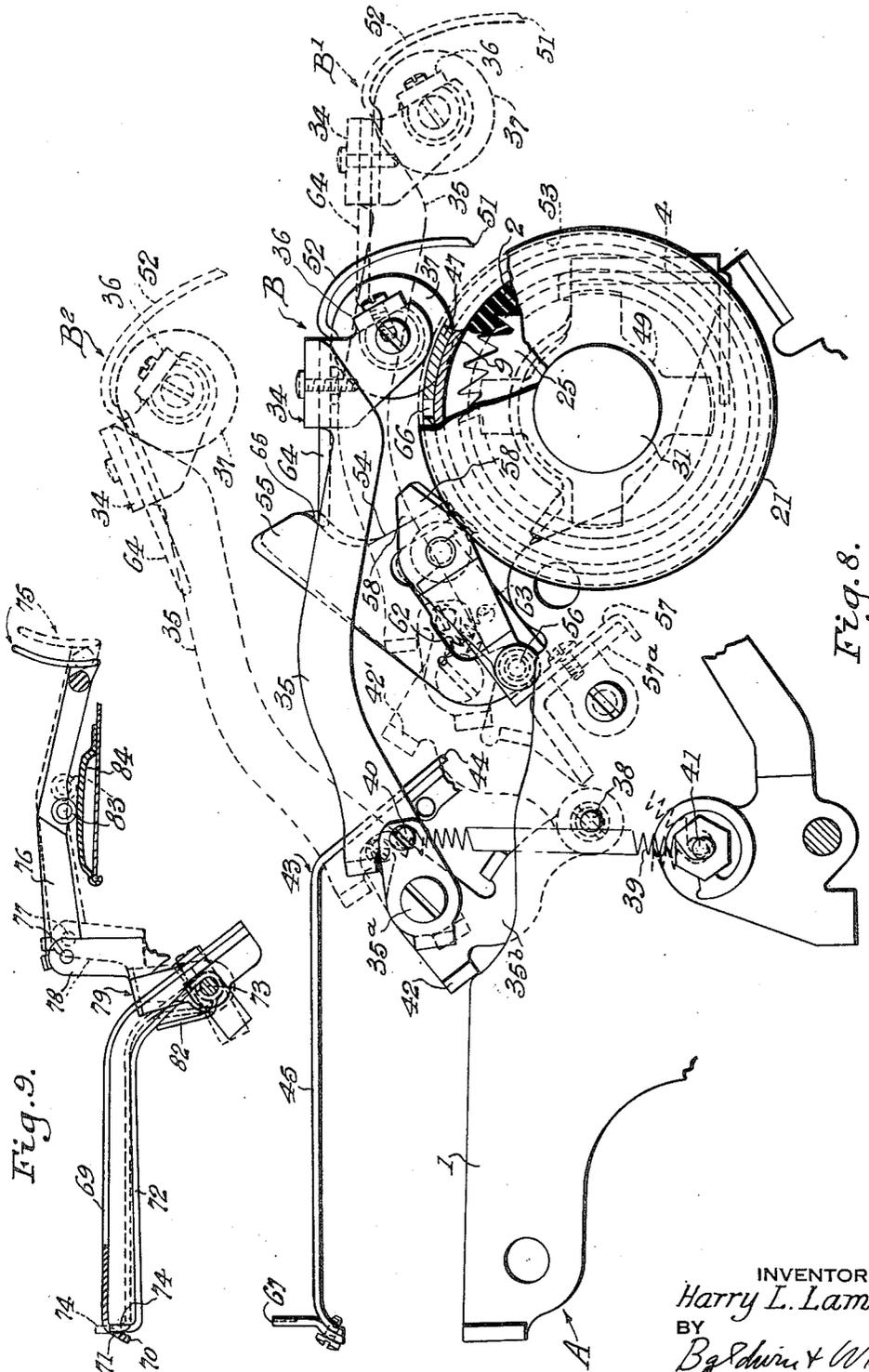


Fig. 9.

Fig. 8.

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## WORK SHEET FEEDING AND POSITIONING MECHANISM FOR TYPEWRITERS OR LIKE MACHINES

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Application August 11, 1953, Serial No. 373,484

18 Claims. (Cl. 197—189)

This invention relates to work sheet feeding and positioning mechanisms for typewriters or like machines, and more particularly to so-called page end indicator mechanisms adapted progressively to apprise the machine operator of the amount of space remaining on a work sheet for receiving typing as the end or bottom edge of the sheet approaches the line of typing while being fed for spacing the lines of typing.

An object of the invention is to provide mechanism of the class referred to which is reliable in operation, can be used with facility and without requiring appreciable special skill on the part of the typist, and which may easily be incorporated in known typewriting or like machines without substantial changing of the basic machine.

Another object of the invention is to provide a mechanism of the kind referred to including or operatively coordinating with a device, which itself may be of a known kind, for operatively associating a work sheet with a sheet feeding member, such as a rotatable platen or cylinder, the arrangement being such that positioning of the sheet associating device relatively to the sheet feeding member controls the initial positioning of an indicator device with reference to a work sheet set in a starting or datum position.

A further object of the invention is to provide mechanism of the character outlined above including a datum device mounted for movement from a retracted position in which it is clear of the path of feeding of a work sheet to a position in which a part or mark on the datum device is disposed in the path of feeding of the work sheet so as readily to be engageable by or registrable with the edge of the sheet.

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

Figure 1 is a fragmentary perspective view of mechanism embodying the invention, showing a work sheet associating member or paper bail in its set-up position for facilitating insertion of a work sheet between a work sheet feeding and positioning member or cylinder and the work sheet associating member;

Figure 2 is a fragmentary perspective view drawn on an enlarged scale and showing a part of an indicator drum and a pawl for locking the drum against rotation in association with a device for controlling the operation of the pawl;

Figure 3 is a fragmentary view showing an indicator drum developed and in association with friction drive mechanism for the drum and an indicator reference plate;

Figure 4 is a detail perspective view drawn on an enlarged scale showing means for mounting a drum locking pawl;

Figure 5 is an exploded perspective view showing the drum locking pawl in association with a mounting bracket therefor and a repeat line spacing preventing device, the latter in itself not constituting part of the present invention;

Figure 6 is a fragmentary longitudinal sectional view

of mechanism embodying the invention, drawn on an enlarged scale;

Figure 7 is a detail perspective view of a friction drive transmitting washer;

Figure 8 is a fragmentary end elevational view of mechanism embodying the invention, showing in full lines the positions of the parts when the mechanism is conditioned for feeding a work sheet, and showing in dotted lines the positions of the parts when the mechanism is conditioned for the insertion of a work sheet, some parts being broken away and others being shown in section;

Figure 9 is a fragmentary end elevational view, with parts shown in section, of a modified construction including a sheet positioning datum device movable into and out of operative position in response to the movement of a work sheet associating member or paper bail to its set-up position and to its working position; and

Figure 10 is a fragmentary perspective view of parts of the mechanism shown in Figure 9.

A preferred embodiment of the invention is illustrated as being incorporated in a typewriter having some of the standard parts and arrangements of parts now known and customarily included in Royal electric typewriters. The drawings show only enough of the known parts to illustrate how mechanism embodying the invention is incorporated in and cooperates with certain of the known parts. The construction shown includes a typewriter carriage, generally designated A, having a left end plate 1 which serves with a right end plate (not shown) to mount a work sheet feeding member or cylinder 2 for rotation. The right end plate (not shown) is provided with a suitable bearing or mounting for a shaft 3 (Figure 6) which extends through the cylinder or platen 2 for mounting the latter for rotation on the right end plate.

The left end plate 1 is formed with an outboard part 4 equipped with a bearing 5 for journaling a hollow shaft 6. Mounted for rotation on the inner end of the shaft 6 is the hub 7 of a coupling or clutch ring 8 having a cylindrical flange 9 formed with an inner ring of serrations 10. The ring 8 normally couples the shaft 6 to the left end of the platen or cylinder 2 and mounts the latter for rotation. In the form shown, the cylinder 2 is provided with a sleeve 11 secured to the left end of the cylinder by screws, one of which is shown at 12. The sleeve 11 is formed with a reduced diameter cylindrical end part 13 which fits over and is slidable with respect to the shaft 6 for maintaining the cylinder 2 aligned coaxially with the shaft 6, for allowing rotation of the cylinder 2 and sleeve 11 relatively to the shaft when the parts are being assembled, and for enabling endwise movement of the platen or cylinder 2 relatively to the shaft 6 during assembling.

The end part 13 of the sleeve 11 also mounts for sliding movement a coupling disk 14 which is guided for endwise movement relatively to the platen 2 by a plurality of pins, one of which is shown at 15 as extending into and being slidable in a bore 16 in the body of the sleeve 11. The inner end of the pin 15 projects into a larger bore 17 in the core of the cylinder 2. A spring 18 interposed between the bottom or root of the bore 17 and a collar 19 fast on the pin 15 urges the pin and consequently the disk 14 toward the left so as to bring its serrated and tapered peripheral face 20 into engagement with the ring of serrations 10 inside the flange 9 of the clutch ring 8. In this manner, the clutch ring 8 and the cylinder 2 normally are coupled together for conjoint rotation.

The shaft 6 is connected to the coupling disk 14 and hence to the cylinder 2 so that when the shaft is rotated the cylinder will be turned for effecting line spacing movements of a work sheet in contact with the cylinder. In the form shown, the shaft is provided with a manually

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operable knob 21 secured to the shaft 6 by set screws 21<sup>a</sup>. The inner end of the shaft 6 is equipped with an arm 22 having a projection 23 adapted to extend into one of a plurality of openings 24 in the coupling disk 14, the arrangement being such that when the shaft 6 and arm 22 are turned, the disk 14, the sleeve 11 and the platen 2 also will be turned.

Normally, the turning of the shaft 6 and cylinder 2 will be in step-by-step or line spacing increments determined by a ratchet mechanism comprising a ratchet wheel 25 fast with the hub 7 of the coupling ring 8 and a detent (not shown) spring urged into contact with the teeth of the ratchet wheel 25. The line spacing movement of the cylinder 2 may also be effected by operation of power driven means including a pawl or the like (not shown) cooperable with the ratchet wheel 25.

The line spacing mechanism illustrated and described above may be equipped with means for enabling fractional line spacing movements of the cylinder 2, that is movements unaffected by the increment determining ratchet wheel 25. In the form shown, the fractional line spacing mechanism includes a rod 26 which extends through the bore in the hollow shaft 6 and which is equipped with a sleeve or thimble 27 on its outer end arranged to slide in a bore in the hub 28 of the manually operable knob 21. The sleeve 27 is formed with a flange 29 adapted normally to bear against a shoulder 30 in the knob hub 28. A finger button 31 is fixed to the outer end of the rod 26 and is urged outwardly by a spring 32 interposed between the button 31 and the hub 28 of the knob 21, the spring 32 normally maintaining the parts in the relative positions shown in Figure 6. When the button 31 is pressed inwardly, causing the rod 26 to move toward the right in Figure 6, the inner or right end of the rod 26 engages a finger 33 fixed to the coupling disk 14 and extending across the bore in the shaft 6. Continued rightward movement of the rod 26 while in engagement with the finger 33 moves the coupling disk 14 toward the right so as to disengage its serrated periphery 20 from the serrations 10 inside the flange 9 of the coupling ring 8. Thereafter, the knob 21, shaft 6, sleeve 11, and cylinder 2 can be turned fractional line spacing amounts while the coupling ring 8 and ratchet wheel 25 are held against turning by the spring pressed detent (not shown) bearing against the ratchet wheel teeth. Similar mechanism for rotating the sheet feeding cylinder member 2 and for coupling the left end of the cylinder 2 to the line spacing mechanism is described in more detail in the patent to Hart et al., 2,542,868, dated February 20, 1951.

The mechanism illustrated includes a work sheet associating member generally designated B and comprising a bail 34 formed of two side arms, one of which is shown at 35, and a front cross bar 36 equipped with rollers, one of which is shown at 37, adapted to engage a work sheet W passing around the cylinder 2 for causing the work sheet to hug the cylinder. Each arm 35 extends rearwardly from the cross bar 36 and is pivoted at its rear end at 35<sup>a</sup> on the upper end of an arm 35<sup>b</sup> the lower end of which is pivoted at 38 on the adjacent carriage end plate 1. A spring 39 connected between a stud 40 on the arm 35 and a stud 41 on the end plate 1 normally maintains the work sheet associating mechanism in the position shown in full lines in Figure 8 in which a stop ear 42 on the arm 35<sup>b</sup> is pressed against the end plate 1. In order to facilitate insertion of a work sheet, that is extending it from the rear, underneath, and then upwardly in front of the cylinder 2, the bail cross bar 36 may be pulled forwardly to the dotted line position shown at B<sup>1</sup> causing the arm 35<sup>b</sup> to rock clockwise so that the spring 39, normally extending behind the pivot 38, will pass beyond the pivot and extend in front thereof so as to perform an over-centering action and to hold the bail in the set-up position relatively removed from the cylinder 2 as shown in dotted lines at B<sup>1</sup>. The work sheet W may then readily be passed from the rear under the cylinder 2 and upwardly between the cylinder and the rollers 37 on the bail cross bar 36.

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Thereafter, the cross bar 36 may be pushed rearwardly to the working position shown in full lines in Figure 8, causing the rollers 37 to press the work sheet against the upper part of the cylinder 2 and causing the sheet to hug the cylinder closely to insure proper feeding of the sheet when the cylinder is rotated. If desired, the bail may be swung upwardly to the dotted line position indicated at B<sup>2</sup> to enable typing on the work sheet to be observed readily.

The mechanism illustrated also includes a paper table 43 which may be of known construction comprising a front and downwardly inclined part 44 positioned adjacent the work sheet feeding cylinder 2 and a rear and substantially horizontal part 45 extending from the top of the part 44.

The construction described so far, considered generally or basically, is known, and does not, itself, constitute the present invention. The invention is embodied in other parts to be described, and combinations of such other parts with each other and with the parts already described. One of the advantages of constructions embodying the present invention is that they may be incorporated in known typewriter or like machine constructions with a minimum of changing of the latter.

Work sheet feeding and positioning mechanism embodying the present invention includes sheet end indicator mechanism generally designated C controlled by the positioning of the work sheet associating member B. The mechanism C includes an indicator drum element 46 having a cylindrical flange 47 which fits over the flange 9 of the coupling ring 8. The drum 46 has a web 48 which is pressed against the web of the coupling ring 8 by a frictional drive transmitting washer 49 mounted on the hub 7 of the ring 8 and bearing against the inner face of the ratchet wheel 25 and the outer face of the web 48 of the indicator drum 46. Normally, rotation of the coupling ring 8 and ratchet wheel 25 incidental to rotating the cylinder 2 for effecting sheet feeding or line spacing movements of the work sheet W causes driving effort to be transmitted frictionally through the washer 49 to the indicator drum 46 so as to cause the latter to turn concomitantly with the cylinder 2. The drum 46 is provided with scale markings 50 cooperable with or adapted to be observed in connection with the bottom edge 51 of a reference plate 52 secured to the bail 34. The arrangement is such that when the indicator drum has been set in predetermined starting position, and when the work sheet W has been properly positioned with reference to the indicator drum 46, subsequent rotation of the cylinder 2 and drum 46 will cause the markings 50 on the drum, read in connection with the reference plate 52, to provide an indication of the amount of space remaining for receiving typing before the bottom edge of the work sheet W reaches the line of typing.

In accordance with a particular feature of the invention, control means rendered effective by the positioning of the bail 34 is provided for determining the initial or starting position of the indicator drum 46 and rendering the indicator mechanism temporarily non-operable so as to enable the operator to rotate the cylinder 2 and position the work sheet W properly to insure correct indication of the approaching of the bottom edge of the sheet W as the indicator drum markings 50 move past the reference plate 52 during subsequent typing. The drum 46 is formed with a circumferential groove 53 adapted to receive the nose 54 of a control pawl device 55 pivoted at 56 on a bracket 57 secured to a carriage frame cross member 57<sup>a</sup>. As shown in Figures 4 and 5 the bracket 57 also mounts an anti-repeat line spacing cam plate 58 which is pivoted on the same screw 56 as the control pawl 55. The screw 56 passes through the cam plate 58, the bracket 57 and the control pawl 55, and receives a ferrule 59 which serves as a nut for preventing dislodgment of the screw 56. A wrapped spring 60 urges the cam plate 58 to rock clockwise as viewed in Figures 4 and

5. A spacer sleeve 61 is interposed between the bracket 57 and the control pawl device 55. The anti-line spacing repeat cam plate 58 and spring 60 do not constitute any part of the present invention, but are shown in order to complete the showing of the mounting of the control pawl device 55.

The control pawl 55 is biased to rock clockwise as viewed in Figures 4 and 5 by a spring 62 interposed between the pawl 55 and a stud 63 on the bracket 57. Normally, when the bail 36 is in its working position as shown in full lines in Figure 8, the pawl 55 is held in an upper or inactive position by a cam plate part 64 which engages a cam edge 65 on the bottom of the pawl 55 in front of its nose 54. When the pawl is held in its raised position its nose 54 is disposed clear of or above the bottom of the circumferential groove 53 in the indicator drum 46. When the bail 34 is moved in the direction of the arrow *a* in Figure 2 to its set-up position as shown at B<sup>1</sup> in the lower set of dotted lines in Figure 8, the cam plate 64 moves away from the cam edge 65 on the pawl 55, permitting the spring 62 to swing the pawl 55 downwardly to project its nose 54 into the groove 53 in the indicator drum 46. The groove 53 is provided with a notch or opening 66 into which the pawl nose 54 is adapted to project when the drum 46 has been moved to a predetermined starting position.

In order that during typing and line spacing operations the scale markings 50 on the drum 46 will indicate the amount of space remaining for receiving typing before the end of the work sheet *W* is reached, it is necessary that the work sheet *W* be properly positioned with respect to the cylinder 2 and the drum 46 when the latter is in its starting position determined by projection of the pawl nose 54 into the notch 66. For facilitating the proper preliminary positioning of the sheet *W*, the rear end of the paper table horizontal part 45 is formed with a flange 67 providing or having a datum mark 68. The datum mark is so spaced from the cylinder 2 with relation to the diameter of the cylinder and the scale markings 50 that when the indicator drum 46 is in its starting position, determined by projection of the pawl nose 54 into the notch 66, and the work sheet *W* has been positioned with its bottom edge registering or being in contact with the datum mark 68, subsequent rotation of the cylinder 2 during typing will cause the indicator drum 46 to operate for indicating the space on the work sheet remaining available for receiving typing as the bottom of the work sheet approaches the line of typing.

Initial positioning of the work sheet *W* properly with reference to the indicator drum 46 when the latter is in its starting position may be facilitated by providing a datum flange or projection which extends vertically and against which the bottom edge of the work sheet may be placed when initially positioning the sheet with reference to the cylinder 2 and drum 46. However, once the work sheet has been placed in its proper relation to the cylinder 2 and the indicator drum 46, it is desirable to retract the vertically extending datum flange so that it will not interfere with smooth feeding of the work sheet during the performance of line spacing operations, or, more particularly, when the cylinder 2 is rotated reversely to feed the work sheet rearwardly, as for example when changing the position of the sheet to enable an erasure to be made. In accordance with the present invention there may be provided a work sheet positioning guide member having a datum portion which may be selectively extended into operative position for cooperation with the bottom edge of a work sheet, or retracted so as not to be in the way of the work sheet after the typing operation has been begun. Preferably, the positioning of the guide member may be effected or controlled by the positioning of the bail in its set-up or working position. Such a construction is shown in Figures 9 and 10 in which the rear part 69 of

a paper table is shown as being provided with a downturned edge 70 formed with a slot 71. A guide member or arm 72 is pivoted on a rod 73 mounted on the carriage frame in any suitable manner. The guide member 72 is formed with an upwardly extending datum edge portion 74. Normally, the guide plate 72 is retracted or in the position shown in full lines in Figure 4 so that the datum edge 74 will be disposed below the paper table 69. When it is desired to use the datum edge part 74 for locating a work sheet, the guide arm 72 is raised or rocked clockwise about its pivot 73 so as to cause the datum edge 74 to project upwardly through the slot 71 and above the paper table 69 as shown in dotted lines in Figure 9.

Mechanism is provided for positioning the guide arm 72 in accordance with the positioning of the work sheet associating bail. As shown in Figure 9 a bail generally designated 75 has an arm 76 pivoted at 77 on a rock arm 78, itself pivoted on the rod 73. Also pivoted on the rod 73 is a lever 79 (Figure 10) formed with a tab 80 extending generally horizontally across and in front of a tab 81 fast with the arm 78. When the bail 75 is moved forwardly the rock arm 78 is rocked clockwise as viewed in Figures 9 and 10, causing the tab 81 to press against the tab 80 on the lever 79 and to rock the latter clockwise. Such rocking of the lever 79 causes a finger 82 on the lever to press upwardly against the bottom of the guide member 72 as shown in Figures 9 and 10 so as to raise the guide member from the position shown in full lines in Figure 9 to the position shown in dotted lines in which the datum edge 74 will be elevated and disposed for cooperation with a work sheet when locating the latter with reference to the cylinder 2 and the indicator drum 46. The bail arm 76 may be equipped with a roller 83 adapted to rest on a fixed track 84 carried by the carriage framework.

#### Operation

In the operation of the construction illustrated in Figures 1 to 8 inclusive, the paper bail 34 is pulled forwardly to its set-up position to facilitate insertion of a work sheet *W* around the cylinder 2 and between the latter and the paper bail rollers 37. The forward movement of the work sheet associating member or bail 34 withdraws the cam plate 64 from engagement with the cam edge 65 of the control pawl 55, and enables the latter to be moved downwardly by the spring 62 to cause the pawl nose 54 to bear against the bottom of the groove 53 in the indicator drum 46. The work sheet *W* having been inserted, the cylinder 2 is rotated to feed the sheet and also to drive the indicating drum 46 through the friction drive transmitting washer 49 until the pawl nose 54 drops into the hole or notch 66 in the bottom of the drum groove 53, thereby immobilizing the drum. The cylinder 2 is then rotated further until the bottom edge of the work sheet *W* registers with the datum mark 68 on the paper table 45. Then the bail 34 will be returned to its normal or working position to hold the work sheet *W* snugly against the cylinder 2. Returning movement of the bail 34 also causes the cam plate 64 to engage the cam surface 65 on the pawl 55 so as to raise the pawl and thereby enable the drum 46 to be driven frictionally when the cylinder 2 is rotated. These operations having been performed, the work sheet will be so positioned in relation to the cylinder 2 and the drum 46 that during subsequent line spacing feeding of the work sheet, the scale markings 50 on the drum, observed in connection with the reference plate 52, will indicate the amount of space remaining for receiving typing before the bottom of the work sheet reaches the printing point.

When the mechanism includes the modified datum or guide member 72 and the associated parts previously described in connection with Figures 9 and 10, the operations performed for placing the work sheet in its proper starting position with reference to the indexing drum 46 will be the same as those just described. However, the movement of the paper bail to its set-up position will per-

form the additional function of moving the guide device 72 to its operative position in which its datum part 74 is disposed above the paper table 69, and movement of the bail to its normal or working position after the work sheet has been properly positioned will cause the guide member 72 to be returned to its retracted position in which its datum part 74 will be out of the path of feeding of the work sheet W.

The mechanism disclosed embodies the invention in a preferred form but it is intended that the disclosure be illustrative rather than definitive. The invention is defined in the appended claims.

I claim:

1. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism; a frictional drive transmitting connection between said work sheet feeding member and said work sheet end indicator mechanism adapted normally to operate in response to operation of said work sheet feeding member for driving said work sheet end indicator mechanism; and control means rendered effective by positioning of said work sheet associating member in its set-up position for immobilizing said work sheet end indicator mechanism against being driven by said frictional drive transmitting connection in response to operation of said work sheet feeding member.

2. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including an indicator element adapted to be driven concomitantly with said work sheet feeding member during work sheet feeding operation of the latter, and a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element and to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means including a part operable by said work sheet associating member upon movement thereof to its working position for moving said control device to its first position, and for moving said control device to its second position when said work sheet associating member is moved to its set-up position.

3. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with

said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including an indicator element adapted to be driven concomitantly with said work sheet feeding member during work sheet feeding operation of the latter, and a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element and being biased to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means operable by said work sheet associating member upon movement thereof to its working position for moving said control device to its first position.

4. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including an indicator element adapted to be driven concomitantly with said work sheet feeding member during work sheet feeding operation of the latter; a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element, and a spring biasing said control device to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means on said work sheet associating member operable upon movement of the latter from its set-up position to its working position for engaging said control device and moving it from its said second position to its said first position against the bias of said spring.

5. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a rotatable work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including a rotatably mounted indicator element, frictional drive transmitting means adapted to rotate said indicator element when said work sheet feeding member is rotated during work sheet feeding operation of the latter, and a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element and to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means including a part operable by said work sheet associating member upon movement thereof to its working position for moving said control device to its first position, and for moving said control device to its second position when said work sheet associating member is moved to its set-up position.

6. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a rotatable work sheet feeding member movably mounted on said frame; a work sheet associating mem-

ber mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including a rotatably mounted indicator element, frictional drive transmitting means adapted to rotate said indicator element when said work sheet feeding member is rotated during work sheet feeding operation of the latter, and a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element and being biased to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means operable by said work sheet associating member upon movement thereof to its working position for moving said control device to its first position.

7. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a rotatable work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including a rotatably mounted indicator element, frictional drive transmitting means adapted to rotate said indicator element when said work sheet feeding member is rotated during work sheet feeding operation of the latter, a pawl mounted for movement to a first position in which it is operatively disassociated from said indicator element, and a spring biasing said pawl to a second position in which it is operatively associated with said indicator element for preventing rotation of the latter; and means on said work sheet associating member operable upon movement from its set-up position to its working position for engaging said pawl and moving it from its said second position to its said first position against the bias of said spring.

8. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a rotatable work sheet feeding member movably mounted on said frame; a work sheet associating member mounted on said frame for movement to a set-up position in which it is relatively removed from said work sheet feeding member for facilitating associating a work sheet with said work sheet feeding member and to a working position in which it is relatively close to said work sheet feeding member for engaging said work sheet and effecting more intimate association of said work sheet with said work sheet feeding member; work sheet end indicator mechanism adapted normally to be operated in response to operation of said work sheet feeding member and including a rotatably mounted indicator element formed with a notch, frictional drive transmitting means for rotating said indicator element when said work sheet feeding member is rotated, a pawl mounted for movement to a first position in which it is disengaged from said notch whereby to enable said indicator element to be rotated by said drive transmitting means, and a spring biasing said pawl to a second position in which it is engageable by said notch when said

indicator element is in a predetermined position for preventing rotation of said indicator element; and means on said work sheet associating member operable upon movement from its set-up position to its working position for engaging said pawl and moving it from its said second position to its said first position against the bias of said spring.

9. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism; a frictional drive transmitting connection between said work sheet feeding cylinder and said work sheet end indicator mechanism adapted normally to operate in response to rotation of said cylinder for driving said work sheet end indicator mechanism; and control means rendered effective by positioning of said bail in its set-up position for immobilizing said work sheet end indicator mechanism against being driven by said frictional drive transmitting connection in response to rotation of said cylinder.

10. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder and including a rotatably mounted indicator element adapted to be driven concomitantly with said cylinder during sheet feeding rotation thereof, and a control device mounted for movement to a first position in which it is operatively disassociated from said indicator element and to a second position in which it is operatively associated with said indicator element for preventing driving of the latter; and means including a part on said bail and operable upon movement of said bail to its working position for moving said control device to its first position, and for moving said control device to its second position when said bail is moved to its set-up position.

11. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder and including a rotatably mounted indicator element adapted to be driven concomitantly with said cylinder during sheet feeding rotation thereof, a pawl mounted for movement to a first position in which it is operatively disassociated from said indicator element, and a spring biasing said pawl to a second position in which it is op-

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eratively associated with said indicator element for preventing rotation thereof; and a part on said bail engageable with said pawl by movement of said bail to its working position for moving said pawl to its first position, said part being disengageable from said pawl upon movement of said bail to its set-up position for enabling said spring to move said pawl to its second position.

12. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder and including a rotatably mounted indicator element formed with a notch, frictional drive transmitting means for rotating said indicator element when said cylinder is rotated, a pawl mounted for movement to a first position in which it is incapable of engaging said notch whereby to enable said indicator element to be rotated by said drive transmitting means, and a spring biasing said pawl to a second position for engagement with said notch when said indicator element is in a predetermined position for preventing rotation of said indicator element; and a part on said bail engageable with said pawl by movement of said bail to its working position for moving said pawl to its first position, said part being disengageable from said pawl upon movement of said bail to its set-up position for enabling said spring to move said pawl to its second position.

13. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder; control means rendered effective by positioning of said bail in its set-up position for rendering said work sheet end indicator mechanism non-operable in response to rotation of said cylinder; and means providing a datum mark so spaced from the axis of said cylinder in relation to the diameter of said cylinder that when said work sheet indicator mechanism is in a predetermined starting position and is operable in response to rotation of said cylinder, and said cylinder has been rotated to bring the bottom edge of the work sheet into registration with said datum mark, subsequent rotation of said cylinder will cause said work sheet indicator mechanism to operate for indicating the space on the work sheet remaining available for receiving typing as the bottom of the work sheet approaches the line of typing.

14. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cyl-

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inder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder and including a rotatably mounted indicator element formed with a notch, frictional drive transmitting means for rotating said indicator element when said cylinder is rotated, a pawl mounted for movement to a first position in which it is incapable of engaging said notch whereby to enable said indicator element to be rotated by said drive transmitting means, and a spring biasing said pawl to a second position for engagement with said notch when said indicator element is in a predetermined position for preventing rotation of said indicator element; a part on said bail engageable with said pawl by movement of said bail to its working position for moving said pawl to its first position, said part being disengageable from said pawl upon movement of said bail to its set-up position for enabling said spring to move said pawl to its second position; and means providing a datum mark so spaced from the axis of said cylinder in relation to the diameter of said cylinder that when said indicator element is prevented from rotating by engagement of said pawl with said notch and said cylinder has been rotated to bring the bottom edge of said work sheet into registration with said datum mark, subsequent movement of said bail to its working position with consequent disengagement of said pawl from said notch followed by rotation of said cylinder will cause said work sheet indicator mechanism to operate for indicating the space on the work sheet remaining available for receiving typing as the bottom of the work sheet approaches the line of typing.

15. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder; control means rendered effective by positioning of said bail in its set-up position for rendering said work sheet end indicator mechanism non-operable in response to rotation of said cylinder; a work sheet positioning guide member so spaced from the axis of said cylinder in relation to the diameter of said cylinder that when said work sheet indicator mechanism is in a predetermined starting position and is operable in response to rotation of said cylinder, and said cylinder has been rotated to bring the bottom edge of the work sheet into engagement with said guide member, subsequent rotation of said cylinder will cause said work sheet indicator mechanism to operate for indicating the space on the work sheet remaining available for receiving typing as the bottom of the work sheet approaches the line of typing; and means mounting said guide member for movement selectively to an extended position in which it is engageable by the bottom edge of the work sheet and to a retracted position in which it is not engageable by the work sheet.

16. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame; a work sheet feeding cylinder rotatably mounted on said frame; a bail having means engageable with a work sheet for causing the latter to hug said cylinder; means mounting said bail on said frame for movement to a set-up position in which said sheet engageable means is relatively removed from said cylinder for facilitating insertion of a work sheet between said bail and said

cylinder and to a working position in which said sheet engageable means is relatively close to said cylinder for causing the work sheet to hug said cylinder; work sheet end indicator mechanism adapted normally to be operated in response to rotation of said cylinder; control means rendered effective by positioning of said bail in its set-up position for rendering said work sheet end indicator mechanism non-operable in response to rotation of said cylinder; a work sheet positioning guide member so spaced from the axis of said cylinder in relation to the diameter of said cylinder that when said work sheet indicator mechanism is in a predetermined starting position and is operable in response to rotation of said cylinder, and said cylinder has been rotated to bring the bottom edge of the work sheet into engagement with said guide member, subsequent rotation of said cylinder will cause said work sheet indicator mechanism to operate for indicating the space on the work sheet remaining available for receiving typing as the bottom of the work sheet approaches the line of typing; means mounting said guide member for movement selectively to an extended position in which it is engageable by the bottom edge of the work sheet and to a retracted position in which it is not engageable by the work sheet; and mechanism including means operable by said bail for moving said guide member to its extended position when said bail is moved to its set-up position and for moving said guide member to its retracted position when said bail is moved to its working position.

17. A construction as set forth in claim 16 including a paper table mounted on said frame adjacent said cylinder, said guide member having a work sheet engageable part positioned below said paper table when said guide member

is in its retracted position, and extending above said paper table when said guide member is in its extended position.

18. In a work sheet feeding and positioning mechanism for a typewriter or like machine, the combination of a frame, a work sheet feeding member movably mounted on said frame; a paper table mounted on said frame adjacent said work sheet feeding member; work sheet end indicator mechanism operable in response to operation of said work sheet feeding member; a work sheet positioning guide member having a part engageable by the bottom edge of a work sheet for so co-relating said work sheet, said work sheet feeding member, and said work sheet end indicator mechanism that operation of the latter causes indication of the space on the work sheet remaining available for receiving typing as the bottom of the sheet approaches the line of typing; and means mounting said guide member under said paper table for movement selectively to a position in which said part of said guide member is extended above said paper table for engagement by the bottom edge of said work sheet and to a retracted position in which said part of said guide member is below said paper table.

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