Aug. 27, 1929. J. HOELLRIGL 1,726,487

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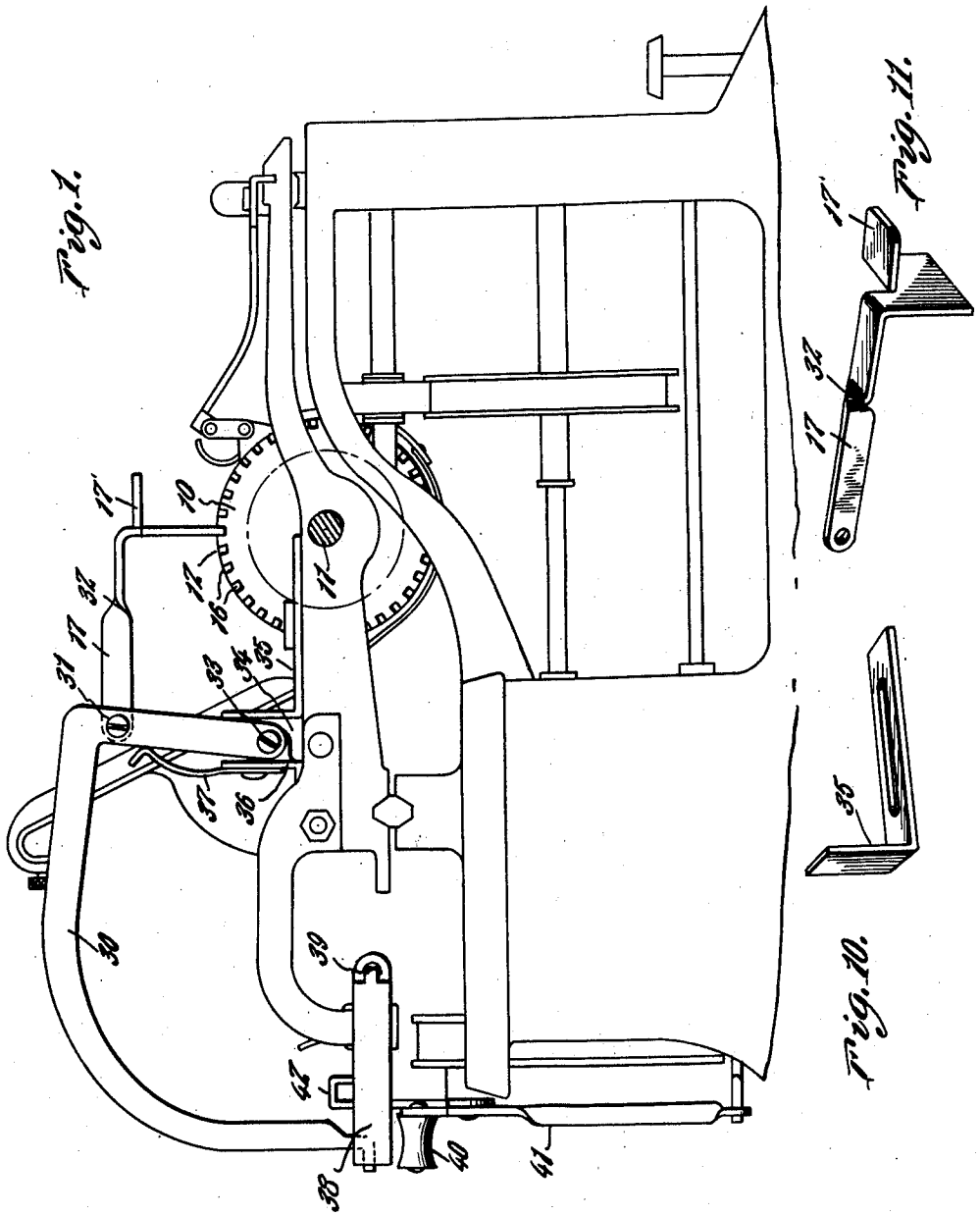


Fig. 1.

Fig. 11.

Fig. 10.

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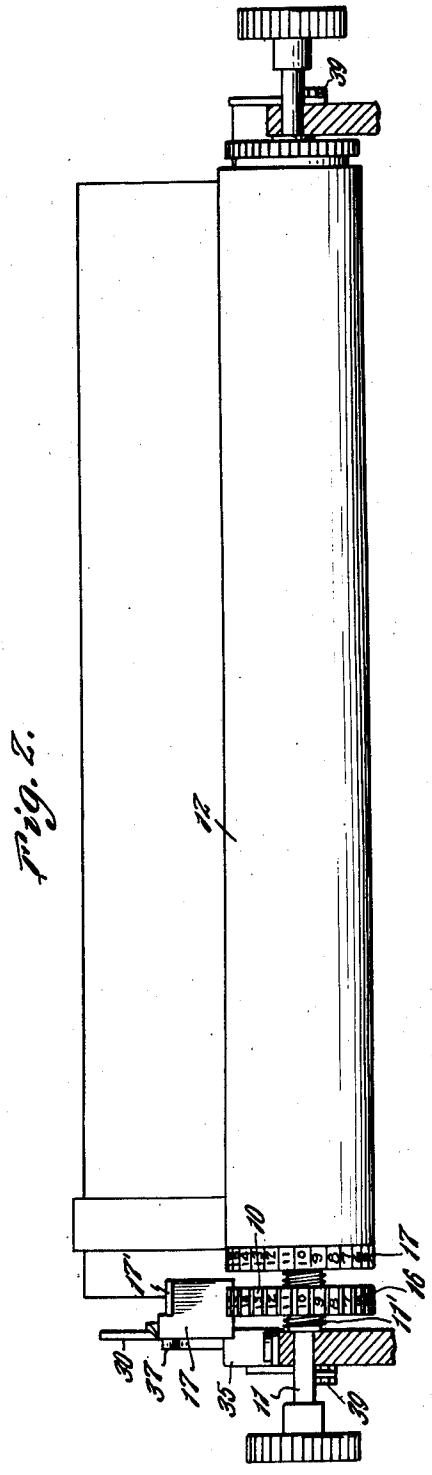


Fig. 7.

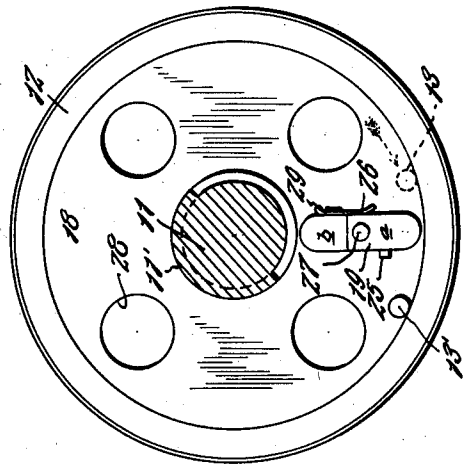


Fig. 8.

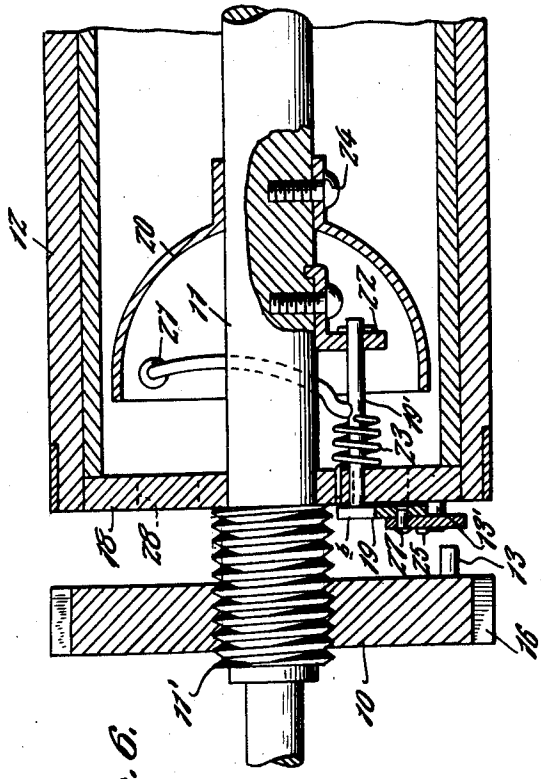


Fig. 9.

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Aug. 27, 1929. J. HOELLRIGL 1,726,487

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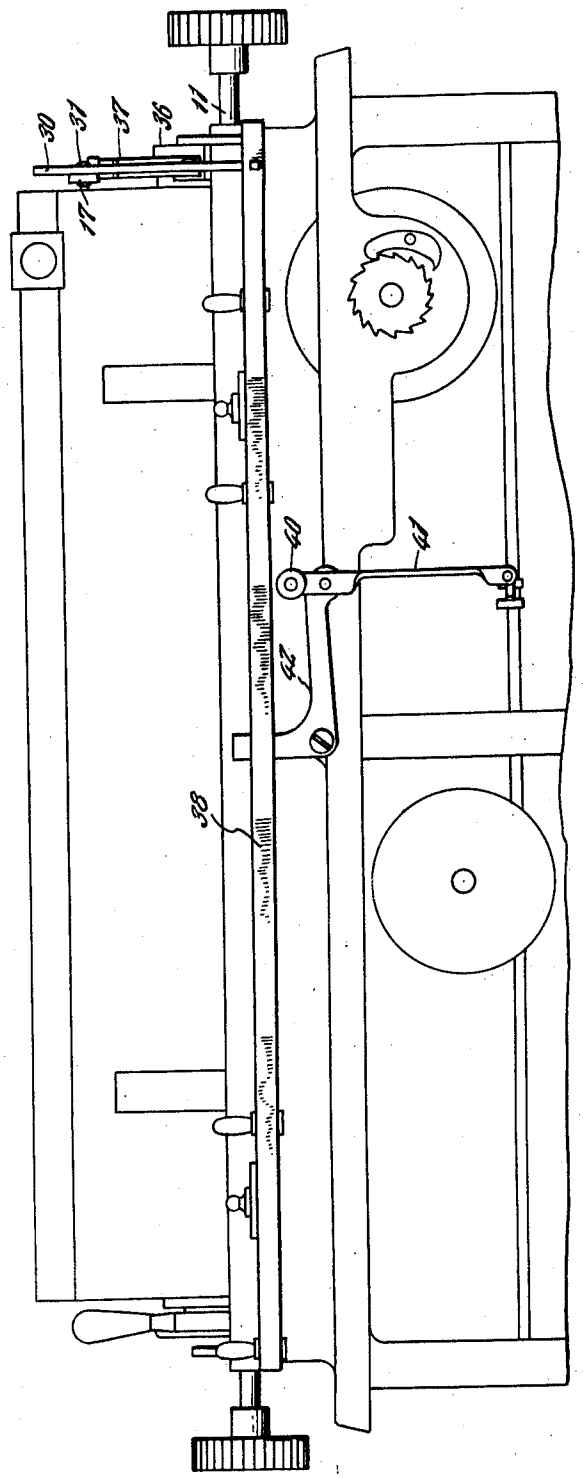


Fig. 3.

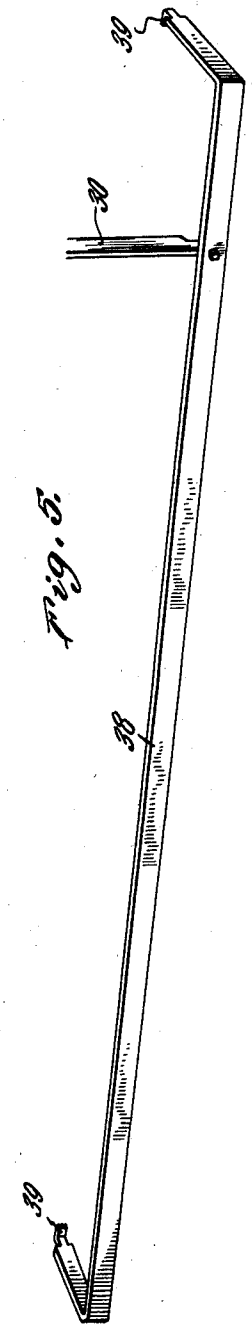


Fig. 4.

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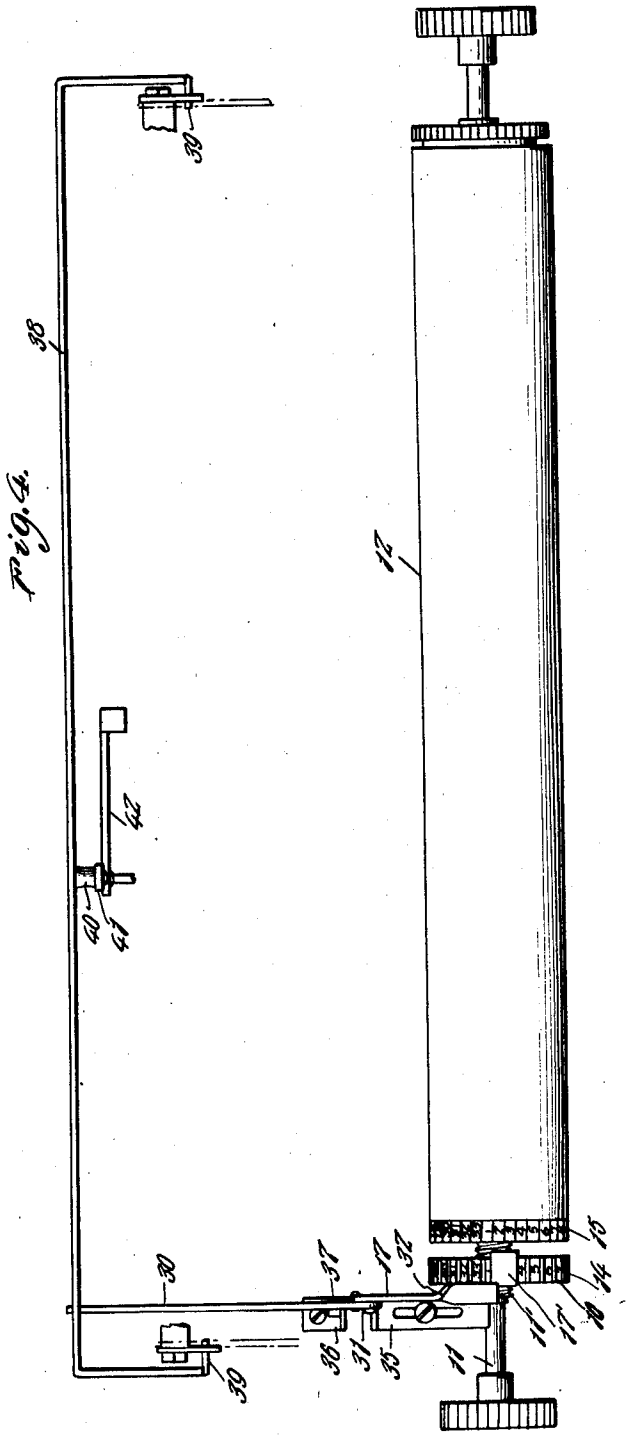


Fig. 6.

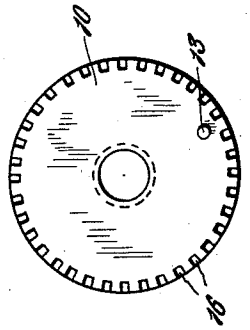


Fig. 7.

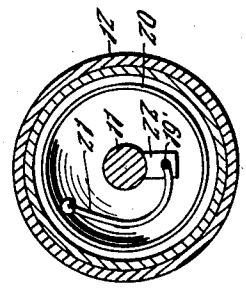


Fig. 8.

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Patented Aug. 27, 1929. 1,726,487

UNITED STATES PATENT OFFICE.

JOSEPH HOELLRIGL, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO UNDERWOOD ELLIOTT FISHER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

PAGE-END LOCK.

Application filed January 27, 1928. Serial No. 249,938.

This invention relates to a line index and page end lock for typewriters, the general object of the invention being to provide means for locking the platen against rotary movement after the platen has been moved to position the sheet in the typewriter at any predetermined point so that the typist will be prevented from writing too many lines on a page.

Another object of the invention is to provide means for sounding an alarm a few lines before the platen locking means come into operation so as to warn the typist that she is nearing the end of the page or the point where the written lines are to end.

A still further object of the invention is to provide means for operating the key locking mechanism of the typewriter after the platen locking means come into operation so as to prevent the keys being operated after the last line has been printed on the page.

Another object of the invention is to so arrange the platen locking means that the platen can be rotated in a reverse direction without interference on the part of the locking means and to cause this reverse movement of the platen to reset the locking means.

A further object of the invention is to provide indicating means whereby the operator can easily ascertain the number of lines written on a page and the number of lines to be written.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a side view of a typewriter to which the invention is attached.

Figure 2 is a front view of the platen and its associated parts, with portions of the typewriter frame in section.

Figure 3 is a rear view of the upper portion of a typewriter.

Figure 4 is a plan view of the platen and the parts of the invention.

Figure 5 is a view of the pivoted bar carried by the carriage for operating the key locking mechanism.

Figure 6 is an enlarged sectional view through one end of the platen and showing portions of the invention.

Figure 7 is an end view of the platen, with its shaft in section.

Figure 8 is a sectional view through the platen, showing the alarm means.

Figure 9 is a face view of the locking wheel.

Figure 10 is a view of the adjustable stop for the transmission lever.

Figure 11 is a view of the locking arm for the locking wheel.

In these drawings, the numeral 10 indicates a notched and numbered wheel which has a threaded opening therein for receiving a threaded portion 11′ of the platen shaft 11. Between the wheel 10 and the platen 12 a space is left for the operation of a trip lever and of two little stops 13 and 13′, one near the circumference of the wheel 10 and the other near the circumference of the platen 12. The wheel 10 is divided to correspond to the ratchet wheel of the line space regulator. If one revolution of the platen writes thirty-three lines in single space, then the wheel 10 is divided into thirty-three single line spaces, and the numbers, indicated by the numeral 14, from 1 to 33 are stamped successively upon these spaces on the circumference of the wheel 10. These numbers serve as indicators and as a scale to determine the number of lines which may still be written before reaching the locking point, which number is found with the help of the corresponding scale 15 at the end of platen 12. Between the line spaces or numerals 14 on the numbered wheel 10 there are cuts or notches 16 to engage an arm 17 pivoted to the lever 30 on the typewriter. This arm 17 holds wheel 10 in position and its edge serves as a rail or guide along which the wheel 10 slides as the writing proceeds. It also serves as a pointer for the two scales. The stop 13 on the wheel 10 is opposite number 1 on scale 14 and stop 13′ on the platen is opposite number 1 on scale 15, and it is there stop 13 comes in contact with and interlocks with the corresponding stop 13′ on the platen 12.

The end plate 18 of platen 12, besides

carrying stop 13′, also carries trip lever 19 which is tripped off two lines before the lock by stop 13 in wheel 10. This trip lever 19 is attached to a shaft 19′, which passes through the plate 18 and has a hammer 21 connected thereto for striking a bell 20 in the platen. This shaft is journaled in plate 18 and in a bracket 22 fixed to the platen shaft 11.

A spiral spring 23 on shaft 19′ has one end attached to the shaft and its other end is attached to the back of plate 18. This spring holds the trip lever 19 against a stop pin 29 on the plate 18. The bell 20 is fixed to the shaft by pin 24. The trip lever 19 is in two parts, the outer part *a* being pivoted at 27 on the inner part *b* and the part *a* is held against stop pin 25 on part *b* by spring 26 also fixed to the inner part *b*. The trip lever 19 thereby causes the hammer 21 to strike the bell 20 when stop 13 of wheel 10 operates forwardly against said lever, but to give way when pin 13 on the wheel 10 is operated backwardly against it. Thus the movement of the outer part *a* around pivot 27 insures unobstructed backward operation of the platen. The plate 18 has openings or perforations 28 therein so that the warning signal of the bell 20 may be distinctly heard, when stop 13 on wheel 10 trips over trip lever 19 two lines before the parts lock.

The arm 17 is movably attached to the transmission lever 30, as shown at 31, and said arm may be swung back to rest upon the lever 30 by means of a shoulder 32 provided for this purpose. The transmission lever 30 moves on the pivot screw 33 on the support 34 which is attached to the carriage. This support 34 is provided with adjustable front stop 35 and back stop 36 to limit the action of the lever 30. The back stop 36 has attached to it a small flat steel spring 37 to hold the lever 30 in raised or inoperative position. The transmission lever 30 is at the other end movably attached to a line lock bar 38 which extends along the whole length of the carriage and is pivoted to both sides of the carriage as at 39. This line lock bar 38, when pressed down, will engage a roller 40 on the line lock link 41 fastened to the line lock lever 42, this link 41 being connected with the key locking means for locking the keys against movement at the end of each line.

As will be seen, when the bar 38 is in raised position, it will not touch the roller 40. The spring 37 holds the bar 38 and transmission lever 30 in inoperative position. The arm 17 is provided with a finger piece 17′ for permitting it to be raised and lowered.

The operation of this combined platen and keylock is as follows: The wheel 10 is locked by the arm 17 at number 33 on the wheel representing the O point, and the platen turned until it locks at the same point by bringing the two stops 13 and 13′ together. Then the platen is turned back for about 12 spaces. The paper is then inserted and the platen turned forwardly with the paper until the two stops 13 and 13′ come together and lock the platen against further movement. The paper is then set so that the top edge is even with the line gauge as usual.

Suppose now, we wish to stop writing at the thirty-third line. The arm 17 is lifted and the wheel 10 is turned once completely around and locked by the arm 17 at number 33. As the writing proceeds, the threaded portion of the platen shaft 11 screws into the wheel 10 which slides along the edge of arm 17 and brings the two stops 13 nearer together. At number 31 or two lines before the lock, stop 13 on the wheel 10 trips over the lever 19, which causes the hammer 21 to be raised and then released, and the bell 20 will be struck a blow against its edge which warns the operator that he has but two more lines to write. At the thirty-third line, the platen movement is blocked by the stop 13 on the wheel 10 engaging stop 13′ on the platen and only one more single line can be turned off which will lock the keys, for when the stops 13 and 13′ come together, the wheel 10 is caused to turn with the platen and this movement of wheel 10 exerts pressure on arm 17 which is communicated to lever 30 and bar 38, which causes said bar to throw the key lock mechanism into operation. When the lever 30 strikes member 36, further movement of the parts is prevented and this arm 17 locks the wheel 10 and the platen against further rotary movement.

Suppose we are writing on a sheet eleven inches long and wish to leave a lower margin of five single lines. Then we intend to write sixty-one lines, if there are six single lines to the inch, and the wheel 10 is locked at number 28, because 33 plus 28 equals 61. This time the wheel 10 is locked after it has been set in the second revolution, because the first revolution gives only thirty-three lines. Or suppose we are writing on a sheet thirteen inches long, and wish to leave a lower margin of one inch. Then the wheel is locked at number 6 in the third revolution, because 66 plus 6 equals 72.

It is not at all necessary, however, always to start with number 33 and to lock the wheel 10 at the O point before inserting the paper, although this method is best for starting a manuscript, for example, where one setting will be sufficient for a whole book. The paper may, however, be inserted and adjusted to the line gauge in the usual manner without giving any attention to the numeral position of the wheel 10. In that case, the wheel is turned in until the two

stops meet after the paper has been inserted and adjusted. The arm 17 will then fall on any number from 1 to 33. Suppose we wish to stop writing at the eighteenth line to leave an open space on the sheet which is to be filled in later with a list of names or with the items of a bill, etc., and after the paper has been inserted and adjusted and the wheel turned in until it locks, the arm 17 falls on number 3. Then this first lock number 3 is added to the number of lines we wish to write, in this case 18 plus 3 equals 21, and the wheel 10 is locked at number 21. If in adding the first lock number to the number of lines we wish to write the sum is above 33, the number 33 is subtracted from the sum to obtain the second lock number, and the wheel 10 is set in the second or third revolution. While a description of this operation sounds somewhat complicated, the method is in fact very rapid and extremely simple, and does away with the use of a larger and separate wheel for this purpose which would contain the higher numbers. For those not used to any mental figuring, a table may be provided with the numbers 34—99 along the second lock number which will show the second lock number at a glance.

It is not necessary to re-set the wheel 10 with the arm 17 every time that a new sheet is inserted. By drawing the paper out of the machine in an opposite direction from that in which it was inserted, the lock re-sets itself, so that any number of sheets of equal size and with the same purpose in mind may be written without touching the arm 17 at all. Upon removal of the written sheet, the mechanism releases the platen and the keys for use on the next sheet, and when the new sheet is inserted, the scale 15 on the cylinder 12 is used. The number on the scale 15 which is in line with the arm or pointer 17 when the upper edge of the paper is even with the line gauge, is the number at which the counting is usually begun. This scale 15 indicates at any time the number of lines written, and when the two scales coincide both the platen and the keys are locked.

This method of connecting the platen lock with the typebar lock prevents writing over the last line twice, which might happen in rapid touch typewriting. The connection of the two locks requires different methods for different typewriters, and the present method is adapted to machines which have the line lock lever in the back of the machine such as the Royal Typewriter. For the Remington and the Underwood machines, the connection would be even simpler, because they have the line lock mechanism in front. The operation, however, is practically the same in all. After the two stops 13 have come together after warning the operator with a bell signal, he may still turn off one single line before the platen movement is completely blocked. This last movement of the platen 12 carries the wheel 10 with it and the wheel 10 presses the arm 17 back. This movement is transferred by means of the transmission lever 30 to the line lock bar 38 which presses down and slides over the pulley 40 of line lock link 41, and thereby locks the keys, so that when the operator starts on the next line, he can no longer press down the keys.

After the wheel 10 has been set, it needs no further attention like a pencil mark on the paper or a page end indicator. The lock is absolutely accurate and positively prevents the unintentional writing below a predetermined line. It will be seen that the device can be used for many different purposes, and that the writing in single, double, triple, and variously spaced lines is equally controlled. It will also be apparent that when the lock is not required, the operator has only to swing back the arm 17 to let the wheel 10 turn with the platen.

When the device is installed on the right side of the platen, a left thread must be used on the shaft. This device supplies the operator with indicating means whereby he is able at any time to inform himself of the portion of his advancing sheet, so that he may know the extent of the matter completed on his sheet and also the extent of the uncompleted portion of his sheet. It shows him by means of line indicators or scales the decreasing distance from his current printing point to a predetermined point on the sheet such as the page end. It indicates for him at any time the number of lines written, counting from the top edge of the sheet, from the first line printed, or as otherwise desired, and it also indicates for him the number of lines that he may still write before reaching the predetermined stopping point on the sheet. It makes it possible to set and use each indicator or scale independently of the other, or to use them both in conjunction, and the scales can be connected with or disconnected from the locking mechanism by the mere touch of a lever. It permits the reversing of the platen from any position without affecting the indicating. It supplies the operator with an automatic bell signal to warn him that he has only one more line to write before reaching the predetermined line position. It automatically locks both the cylinder and the keys against use, when he has written the predetermined number of lines. Upon backward removal of the sheet, the mechanism releases the platen and the keys for use on the succeeding page and automatically re-sets, and when the new sheet is inserted, the device resumes its indicating duties. The invention is adaptable to all machines using a platen and a line lock.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

It is to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. In combination with a typewriter having key locking mechanism and a platen, an adjustable member, means for moving the member toward the platen when the platen is rotated in a forward direction, means for locking the member to the platen after the platen has been turned a predetermined degree, means for locking the member against rotary movement after it has become locked to the platen, and means associated with the last mentioned means for actuating the key locking mechanism of the typewriter.

2. In combination with a typewriter having key locking mechanism and a platen, an adjustable member, means for moving the member toward the platen when the platen is rotated in a forward direction, means for locking the member to the platen after the platen has been turned a predetermined degree, means for locking the member against rotary movement after it has become locked to the platen, means associated with the last mentioned means for actuating the key locking mechanism of the typewriter, and means for sounding an alarm shortly before the member becomes locked to the platen.

3. In combination with a typewriter and its platen, the shaft of which has a threaded part, a wheel having a threaded opening therein for receiving the threaded portion, a pivoted member engaging parts of the wheel for holding the same against rotary movement so that it will be moved toward the platen or away therefrom by the threads when the platen is turned, a projection on the platen, a projection on the wheel for engaging the projection on the platen when the wheel has moved within a certain distance of the platen to cause the wheel to rotate with the platen on the forward rotation of the platen and means for causing the pivoted member to lock the wheel and platen against rotary movement after the wheel has become locked to the platen.

4. In combination with a typewriter and its platen, the shaft of which has a threaded part, a wheel having a threaded opening therein for receiving the threaded portion, a pivoted member engaging parts of the wheel for holding the same against rotary movement so that it will be moved toward the platen or away therefrom by the threads when the platen is turned, a projection on the platen, a projection on the wheel for engaging the projection on the platen when the wheel has moved within a certain distance of the platen to cause the wheel to rotate with the platen on the forward rotation of the platen, means for causing the pivoted member to lock the wheel and platen against rotary movement after the wheel has become locked to the platen, an alarm, a trip lever on the platen operated by the projection on the wheel and means for sounding the alarm when the trip lever is operated.

5. In combination with a typewriter having key locking mechanism and its platen, the shaft of which has a threaded part, a wheel having a threaded opening therein for receiving the threaded portion, a pivoted member engaging parts of the wheel for holding the same against rotary movement so that it will be moved toward the platen or away therefrom by the threads when the platen is turned, a projection on the platen, a projection on the wheel for engaging the projection on the platen when the wheel has moved within a certain distance of the platen to cause the wheel to rotate with the platen on the forward rotation of the platen, means for causing the pivoted member to lock the wheel and platen against rotary movement after the wheel has become locked to the platen, and means operated by the pressure exerted on the pivoted member by the wheel for actuating the key locking mechanism of the typewriter.

6. In combination with a typewriter having key locking mechanism and its platen, the shaft of which is provided with a threaded portion, a wheel having a threaded opening therein receiving the threaded portion, the circumference of the wheel having spaced notches therein, a projection on the platen, a projection on the wheel for engaging the first mentioned projection when the wheel has been moved within a certain distance of the platen for causing the wheel to turn with the platen when the platen is turned in a forward direction, a transmission lever pivoted to the typewriter, an arm pivoted to the lever and having its free end engaging any one of the notches in the wheel to prevent rotary movement of the wheel while permitting it to move toward the platen, a stop for limiting the rearward movement of the transmission lever and thus causing the arm to lock the wheel and platen against rotary movement when the projection on the wheel is in engagement with the projection on the platen, a spring for holding the transmission lever in its forward position, a bar pivoted to the carriage of the typewriter and connected to the transmission lever, a roller carried by the link which is connected with the key locking mechanism of the typewriter so that the rearward movement of the transmission lever, under the pressure exerted by the wheel on the arm

will cause the bar to engage the roller and thus throw the key locking mechanism into operation.

7. In combination with a typewriter having key locking mechanism and its platen, the shaft of which is provided with a threaded portion, a wheel having a threaded opening therein receiving the threaded portion, the circumference of the wheel having spaced notches therein, a projection on the platen, a projection on the wheel for engaging the first mentioned projection when the wheel has been moved within a certain distance of the platen for causing the wheel to turn with the platen when the platen is turned in a forward direction, a transmission lever pivoted to the typewriter, an arm pivoted to the lever and having its free end engaging any one of the notches in the wheel to prevent rotary movement of the wheel while permitting it to move toward the platen, a stop for limiting the rearward movement of the transmission lever and thus causing the arm to lock the wheel and platen against rotary movement when the projection on the wheel is in engagement with the projection on the platen, a spring for holding the transmission lever in its forward position, a bar pivoted to the carriage of the typewriter and connected to the transmission lever, a roller carried by the link which is connected with the key locking mechanism of the typewriter so that the rearward movement of the transmission lever, under the pressure exerted by the wheel on the arm will cause the bar to engage the roller and thus throw the key locking mechanism into operation, a trip lever on the platen adapted to be engaged by the projection on the wheel before the projection strikes the projection on the platen and an alarm operated by the trip lever.

8. In combination with a typewriter having key locking mechanism and its platen, the shaft of which is provided with a threaded portion, a wheel having a threaded opening therein receiving the threaded portion, the circumference of the wheel having spaced notches therein, a projection on the platen, a projection on the wheel for engaging the first mentioned projection when the wheel has been moved within a certain distance of the platen for causing the wheel to turn with the platen when the platen is turned in a forward direction, a transmission lever pivoted to the typewriter, an arm pivoted to the lever and having its free end engaging any one of the notches in the wheel to prevent rotary movement of the wheel while permitting it to move toward the platen, a stop for limiting the rearward movement of the transmission lever and thus causing the arm to lock the wheel and platen against rotary movement when the projection on the wheel is in engagment with the projection on the platen, a spring for holding the transmission lever in its forward position, a bar pivoted to the carriage of the typewriter and connected to the transmission lever, a roller carried by the link which is connected with the key locking mechanism of the typewriter so that the rearward movement of the transmission lever, under the pressure exerted by the wheel on the arm will cause the bar to engage the roller and thus throw the key locking mechanism into operation, a trip lever on the platen adapted to be engaged by the projection on the wheel before the projection strikes the projection on the platen, an alarm operated by the trip lever, said trip lever being formed of two parts pivotally connected together, a stop on one part engaging the other part for causing the projection on the wheel to operate the lever when the wheel is turned in one direction but permitting the projection to pass the lever without operating the alarm when the wheel is turned in another direction and a spring for normally holding one part against the stop on the other part.

9. In combination with a typewriter having key locking mechanism and its platen, the shaft of which is provided with a threaded portion, a wheel having a threaded opening therein receiving the threaded portion, the circumference of the wheel having spaced notches therein, a projection on the platen, a projection on the wheel for engaging the first mentioned projection when the wheel has been moved within a certain distance of the platen for causing the wheel to turn with the platen when the platen is turned in a forward direction, a transmission lever pivoted to the typewriter, an arm pivoted to the lever and having its free end engaging any one of the notches in the wheel to prevent rotary movement of the wheel while permitting it to move toward the platen, a stop for limiting the rearward movement of the transmission lever and thus causing the arm to lock the wheel and platen against rotary movement when the projection on the wheel is in engagement with the projection on the platen, a spring for holding the transmission lever in its forward position, a bar pivoted to the carriage of the typewriter and connected to the transmission lever, a roller carried by the link which is connected with the key locking mechanism of the typewriter so that the rearward movement of the transmission lever, under the pressure exerted by the wheel on the arm will cause the bar to engage the roller and thus throw the key locking mechanism into operation, a trip lever on the platen adapted to be engaged by the projection on the wheel before the

projection strikes the projection on the platen, an alarm operated by the trip lever, said trip lever being formed of two parts pivotally connected together, a stop on one part engaging the other part for causing the projection on the wheel to operate the lever when the wheel is turned in one direction but permitting the projection to pass the lever without operating the alarm when the wheel is turned in another direction, a spring for normally holding one part against the stop on the other part, a scale on the platen and a scale on the periphery of the wheel, the numbers of which are arranged between the notches, said scales indicating the number of lines written on a sheet placed in the typewriter and the number of lines to be written before the last line is printed.

10. In combination with a typewriter and an adjustable member on the shaft of the platen, means for moving the member toward and away from the platen when the platen is turned in one direction or the other, said member having spaced notches in its periphery, a pivoted arm having a part adapted to engage any one of the notches to hold the member against rotation but permitting it to have sliding movement on the platen shaft, a projection on the member, a projection on the platen with which the first projection engages when the member has moved within a certain distance of the platen and a scale on the member for facilitating the adjustment of the member in relation to the platen and for indicating the number of lines written on a sheet in the typewriter and the number of lines to be written before a predetermined number of lines have been written.

11. In combination with a typewriter and an adjustable member on the shaft of the platen, means for moving the member toward and away from the platen when the platen is turned in one direction or the other, said member having spaced notches in its periphery, a pivoted arm having a part adapted to engage any one of the notches to hold the member against rotation but permitting it to have sliding movement on the platen shaft, a projection on the member, a projection on the platen with which the first projection engages when the member has moved within a certain distance of the platen and a scale on the member for facilitating the adjustment of the member in relation to the platen and for indicating the number of lines written on a sheet in the typewriter and the number of lines to be written before a predetermined number of lines have been written, and a second scale on the platen, the numeral "1" on each scale being opposite the projection.

12. In combination with a typewriter and an adjustable member on the shaft of the platen, means for moving the member toward and away from the platen when the platen is turned in one direction or the other, said member having spaced notches in its periphery, a pivoted arm having a part adapted to engage any one of the notches to hold the member against rotation but permitting it to have sliding movement on the platen shaft, a projection on the member, a projection on the platen with which the first projection engages when the member has moved within a certain distance of the platen and a scale on the member for facilitating the adjustment of the member in relation to the platen and for indicating the number of lines written on a sheet in the typewriter and the number of lines to be written before a predetermined number of lines have been written, a second scale on the platen, the numeral "1" on each scale being opposite the projection, and means for sounding an alarm shortly before the projection on the member comes into contact with the projection on the platen.

13. In combination with a typewriter and an adjustable member on the shaft of the platen, means for moving the member toward and away from the platen when the platen is turned in one direction or the other, said member having spaced notches in its periphery, a pivoted arm having a part adapted to engage any one of the notches to hold the member against rotation but permitting it to have sliding movement on the platen shaft, a projection on the member, a projection on the platen with which the first projection engages when the member has moved within a certain distance of the platen and a scale on the member for facilitating the adjustment of the member in relation to the platen and for indicating the number of lines written on a sheet in the typewriter and the number of lines to be written before a predetermined number of lines have been written, a second scale on the platen, the numeral "1" on each scale being opposite the projection, means for sounding an alarm shortly before the projection on the member comes into contact with the projection on the platen, and means for operating the key locking means of the typewriter after the member is locked to the platen.

In testimony whereof I affix my signature.

JOSEPH HOELLRIGL.