June 3, 1952 T. BADER 2,599,085

END OF PAGE INDICATOR AND SIGNAL FOR TYPEWRITERS

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Fig. 1

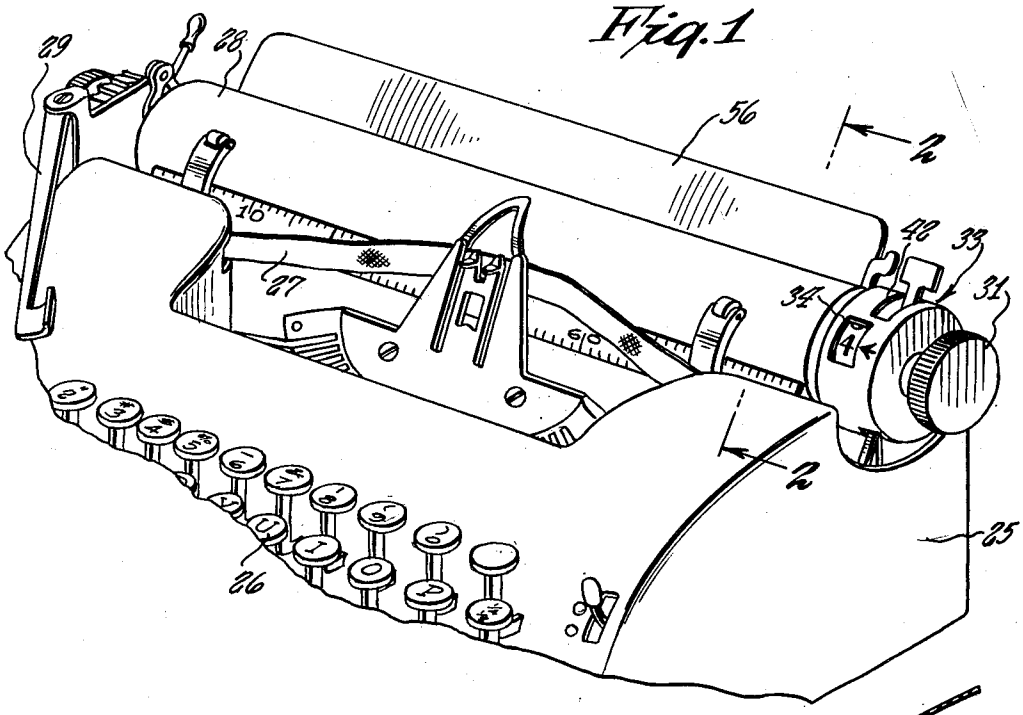


Fig. 2

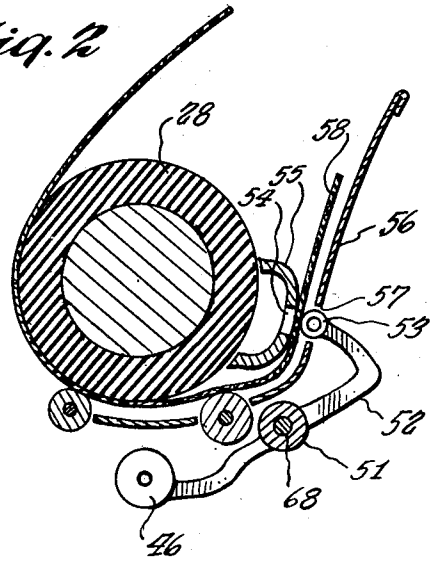
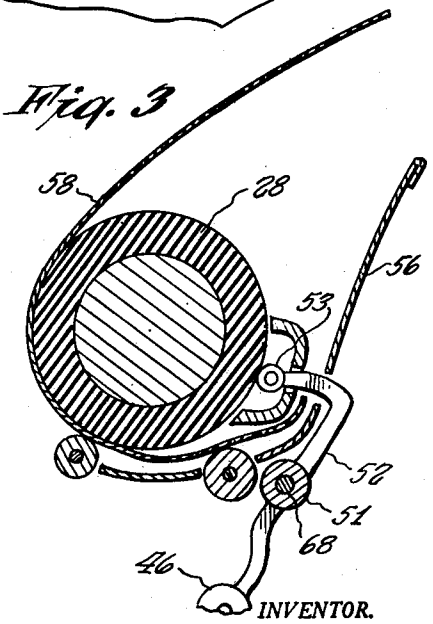


Fig. 3



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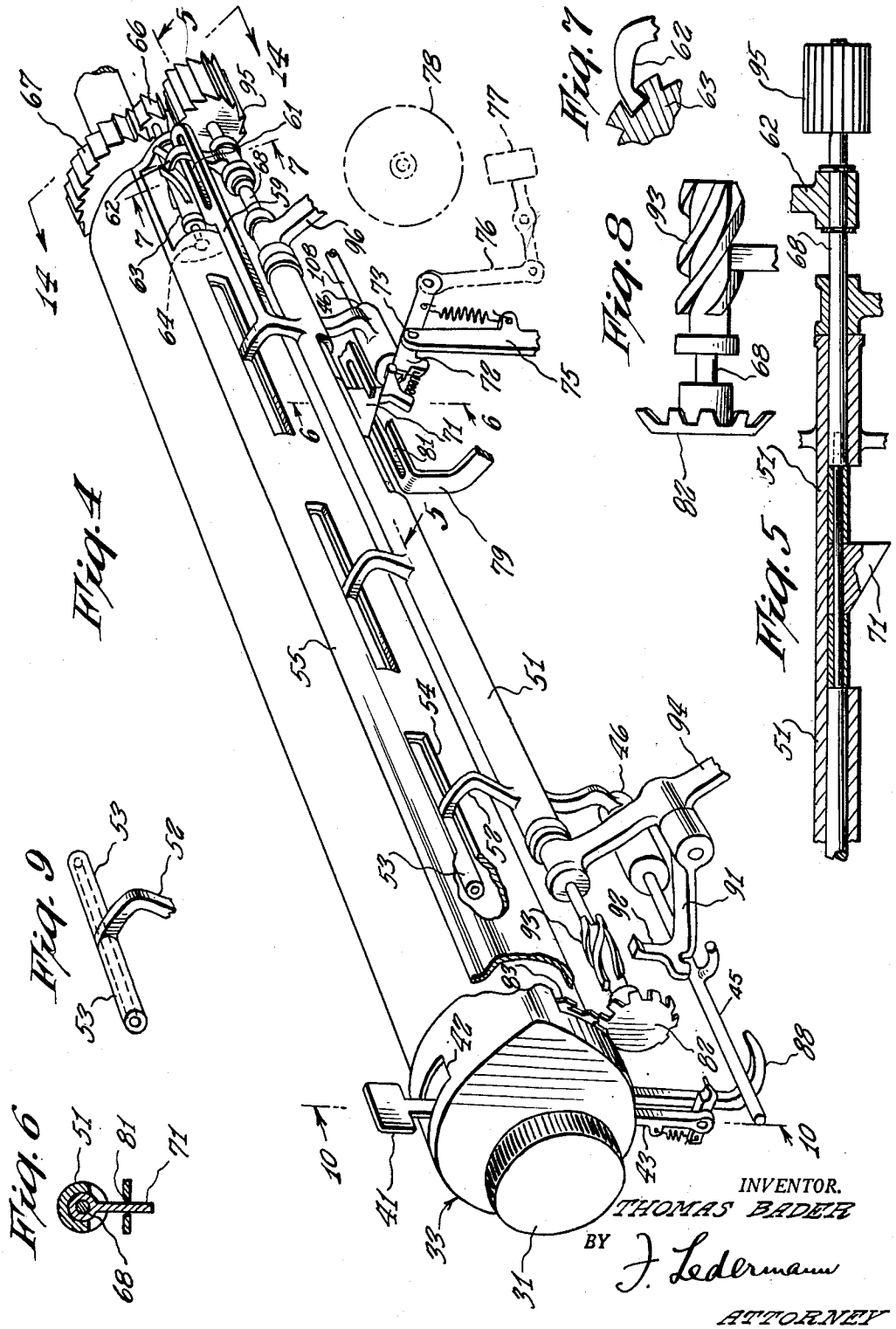


Fig. 4

Fig. 9

Fig. 6

Fig. 7

Fig. 8

Fig. 5

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Fig. 10

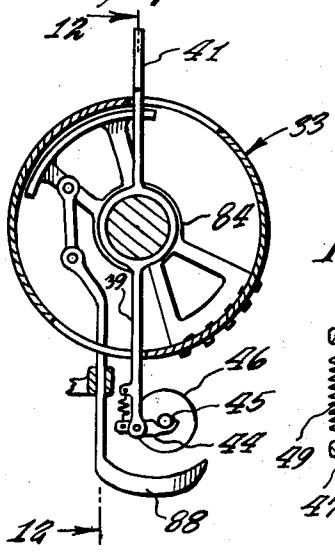


Fig. 13

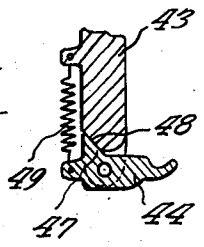


Fig. 11

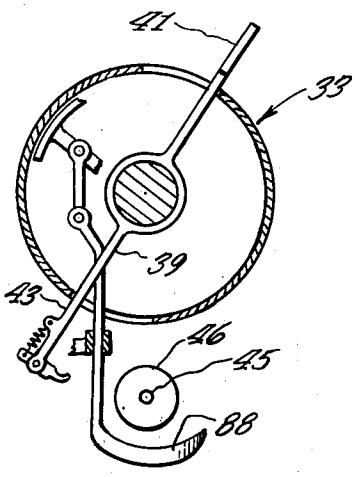


Fig. 12

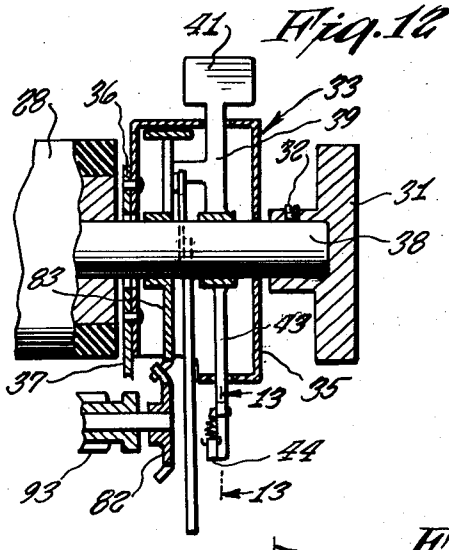


Fig. 14

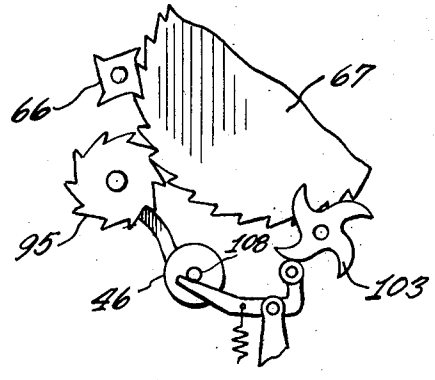


Fig. 16

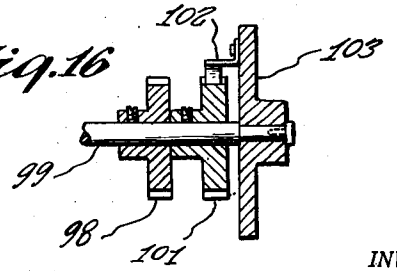
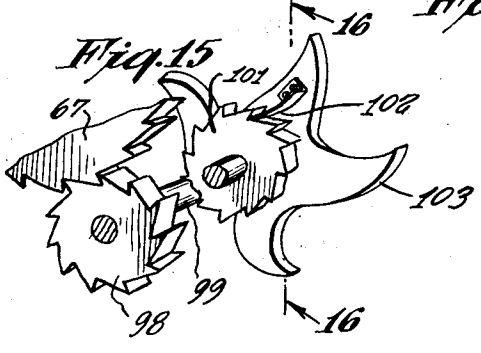


Fig. 15

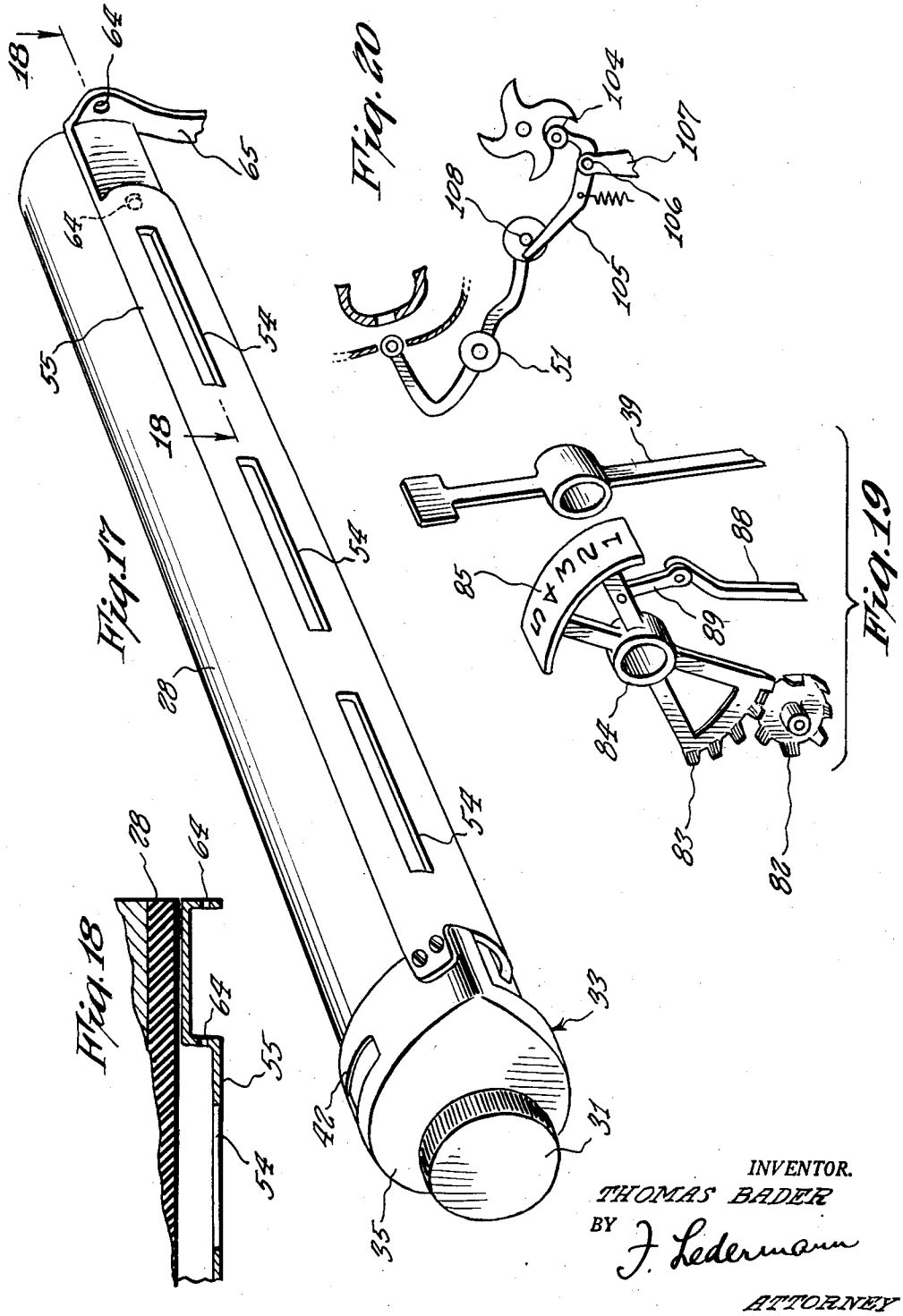


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Patented June 3, 1952

2,599,085

UNITED STATES PATENT OFFICE

2,599,085

END OF PAGE INDICATOR AND SIGNAL FOR TYPEWRITERS

Thomas Bader, South River, N. J.

Application December 18, 1948, Serial No. 66,082

9 Claims. (Cl. 197—189)

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This invention relates to an end of page or sheet signal and indicator for typewriters.

It is an object of the present invention to provide an attachment for a typewriter which is accessible from one side of the roll thereof to indicate to the typist that the bottom or end of the page or sheet is being reached, so that she will not run off the page and the bottom line on the page will be kept straight and parallel to the other lines thereof.

It is another object of the present invention to provide an end of page attachment for typewriters which can be adjusted to indicate the number of lines from the bottom of the page at which it is desired to have the page stop and which will ring a bell or cause a sound to be made when this position has been reached and wherein the parts of the mechanism will automatically readjust themselves in sequence as the operation of typing and the spacing of the lines with the typewriter is effected.

Another object of the present invention is to provide an attachment for typewriters which will give indications of the number of lines that the typist can type before reaching the end of the page, which is of simple construction, adapted for installment on all types of typewriters, inexpensive to manufacture and assemble, compact and consumes little space on the typewriter, adjustable to different line indications, does not interfere with the insertion of the paper into the typewriter, and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which

Fig. 1 is a perspective view of a fragment of the typewriter and of the attachment connected to one end of the typewriter and shown as viewed by the typist from the front of the typewriter.

Fig. 2 is an enlarged transverse sectional view taken on line 2—2 of Fig. 1 with the paper extended into the typewriter and with the weight device engaging therewith.

Fig. 3 is a transverse sectional view similar to Fig. 2 and taken on the same line of Fig. 1, but with the paper having been advanced to permit the weight to drop.

Fig. 4 is an enlarged perspective view of the typewriter roll and of the mechanism as viewed from the rear of the typewriter.

Fig. 5 is an enlarged fragmentary and longitudinal sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a detail transverse sectional view taken on line 6—6 of Fig. 4.

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Fig. 7 is a fragmentary sectional view taken on line 7—7 of Fig. 4.

Fig. 8 is a rear elevational view of one of the cam operating devices and of one of the gear parts.

Fig. 9 is a fragmentary perspective view of one of the paper engaging arms.

Fig. 10 is a transverse sectional view taken through the indicating device forming a part of the attachment and as viewed on line 10—10 of Fig. 4 with the indicator device in one position of adjustment.

Fig. 11 is a view similar to Fig. 10 of the indicator device with the same in another position of adjustment.

Fig. 12 is a fragmentary and longitudinal sectional view taken on line 12—12 of Fig. 10.

Fig. 13 is a fragmentary sectional view taken on line 13—13 of Fig. 12 and of the weight retainer.

Fig. 14 is a sectional view of the mechanism as viewed at the opposite end of the typewriter roller and on line 14—14 of Fig. 4.

Fig. 15 is a fragmentary and perspective view of the ratchet gear mechanism serving in response to reverse rotation of the platen roller to withdraw paper engaging rollers for allowing of reverse rotation of a paper sheet already inserted in the machine.

Fig. 16 is a longitudinal sectional view taken on line 16—16 of Fig. 15.

Fig. 17 is a perspective view of the platen roller and of the paper shield extending along the rear of the roller.

Fig. 18 is a longitudinal sectional view taken through the shield and on line 18—18 of Fig. 17.

Fig. 19 is a collective and perspective view of the indicator parts.

Fig. 20 is a sectional view similar to Fig. 14 showing the return release mechanism in its operative position.

Referring now to the figures, 25 represents a standard typewriter having keys 26, a ribbon 27, a roller 28 and a line spacing device 29. The roller 28 has the usual hand knob 31 which is normally held by a set screw 32, Fig. 12, and which is removed to receive the indicating device 33 forming a part of the attachment embodying the features of the present invention and having a window 34 through which appears a number indicative of the number of lines which the typist may type before reaching the end of the page. This device 33 includes a casing 35 which is secured as indicated at 36 to some part of the typewriter, as shown at 37, Fig. 12, and which houses the several working parts of the device.

Adjustable on a shaft 33 forming a part of the roller 28 is a manually adjustable member 39 having a handle 41 projecting through an opening 42 of the casing 35 and which can be manipulated to effect the initial adjustment of the attachment. This member 39 has a depending arm 43 with a spring biased hook 44 thereon for receiving and retaining a shaft extension 45 of a weight arm 46. This hook 44 can be elevated to permit the shaft extension 45 to be extended thereover and to engage with the upper part of the hook. The hook 44 has an inclined projection 47 engaging with cooperating face 48 on the lower end of the depending arm 43. A spring 49 is connected between the arm 43 and the hook 44.

With the adjusting member 39 moved rearwardly and then returned forwardly by the grasping of the handle 41, the weight 46 is released from the hook 44 so that sleeve 51, having arms 52 thereon, can be pivoted as viewed in Fig. 4, to move paper engaging rollers 53 on the arms 52 toward the openings 54 in shield 55 after the paper has been inserted into the typewriter and over the shield 55 and between the shield 55 and the paper supporting plate 56 having openings 57 therein through which rollers 53 are extended. The rollers 53 will then engage with the paper, as shown in Fig. 2. As long as the paper is in place, the rollers will be prohibited from entering the openings 54 of the shield. The paper sheet is indicated at 58. As soon as the sheet has been sufficiently advanced so that the roller 53 will pass over the bottom end of the same, the roller will enter the opening 54 as shown in Fig. 3. The weight 46 will have been lowered and sleeve 51 will rotate forwardly so that a longitudinally extending projection 59 having an elongated slot 61 through which an arm 62 is extended and slidable therein, Fig. 4, will bring the bent end of the arm into engagement with a spiral cam 63 journalled on the shield 55 as indicated at 64. The shield 55 has a depending bracket arm 65 in which cam 63 is journalled and which serves to connect the shield to the typewriter. The cam 63 has a gear 66, Figs. 4 and 14, which is operated by a gear 67 of the roller. The cam 63 is accordingly driven from the roller gear 67 and a shaft 68 to which arm 62 is connected is caused to be moved laterally and to the left as viewed from the rear of the typewriter upon further movements of the sheet through the typewriter and upon the advancement of the roller, so that a projection 71 on the shaft is caused to rock arm 72 about its pivot 73 upon a bracket arm 75 on the typewriter and operate linkage 76 to cause striker 77 to strike bell 78 and give to the typist an indication that the bottom of the page is about to come up. This bell should have a different tone than the regular typewriter bell in order that the typist can distinguish this operation from the end of the line bell of the typewriter.

A bracket 79 has a guide slot 81 for receiving the projection or cam 71 whereby the cam 71 will be prevented from turning. After the bell has been struck, the shaft 68 keeps moving until a bevel gear 82 thereon meshes with a large gear 83 on roller shaft extension 38. This gear 83 is only a fragment of a complete gear, as seen more clearly in Fig. 19, and is connected to a hub 84 which is journalled to the shaft extension 38. This hub 84 has extending from the opposite side thereof a curved plate or indicator device 85 with numerals therein which are observed

through the opening 34, Fig. 1. These numerals tell the typist at a glance how many lines until the end of the sheet is reached. The indicator device 85 is connected by a link 89 (Fig. 19) to a member 88 on which the weight shaft 45 drops when the bottom end of the paper clears the rollers 53 as heretofore described, and as the indicator device is rotated by the gear 82 on the shaft 68, the member 88 is elevated to raise the weight shaft to its initial position above the hook 44 which is heretofore described is pivotally and yieldably mounted to allow the weight shaft to pass thereover during its upward movement. At the same time, arm 91, having a projection 92, enters a cam 93 whereby to cause the shaft 68 to be moved laterally in the reverse direction and to cause the gear 82 to be disconnected from the gear 83. The shaft is adjusted laterally with the arm 62. The gear 66 can rotate freely in the reverse direction. The arm 91 is pivoted on a bracket 94 which is a support for the attachment.

The shaft 68 is constantly rotated by the engagement of a gear 95 meshing with the roller gear 67. A bracket 96 supports the shaft 68 at the right side of the typewriter as viewed from the rear thereof, Fig. 4.

In case the typist desires to make a correction on the sheet and reverses the rotation of the roller to return the paper, gear 98, meshing with big gear 67 on the roller, is rotated and turns through a shaft 99 a ratchet gear 101 engaging with a pawl 102 of a star wheel 103. The star wheel or cam 103 engages a roller 104 on a pivot arm 105 pivotally connected as at 106 to a bracket 107, Fig. 20, and this lever 105 engages with a shaft 108 to cause sleeve 51 to be rotated and the rollers 53 for engaging the paper are withdrawn through the openings 54 of the shield 55 if they happen to be in the openings 54 and also from the openings 57 of the sheet supporting plate 56 whereby to allow the paper to be moved in a reverse direction over the plate 56. Cam 103 does not rise high enough to lock the weight shaft 45 into the hook member 44, Fig. 13.

It should now be apparent that there has been provided an attachment for a typewriter which will be useful to prevent the typist from typing off the end of the page and which is automatic in operation so that if it is desired to reverse the movement of the sheet through the typewriter the interlocking parts can be moved to a position to permit the bottom edge of the sheet to be returned upwardly over the supporting plate 56. It should also be apparent that a bell ringing device has been provided which will operate automatically when the roller 53 is free to pass into the shield 55 and wherein automatically the rotating bevel gear 82 can come into engagement with the gear 83 so that a numeral indication will be given to the typist as to how many lines the typist can advance the sheet before actually reaching the end of the same.

It should be further apparent that the attachment takes up little space and can be adapted for use on any typewriter. The indicating device can be carried by the roller shaft extension and the shield can be carried from a bracket and from the indicator device casing at the opposite side of the typewriter.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope

of the present invention as defined by the appended claims.

What is claimed is:

1. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, and indicating device to indicate the number of lines before reaching the end of the page, and connected to the shaft extension of the platen roller, means engageable with the paper and releasable upon reaching the end of the paper, said means containing a constantly driven shaft operable by the typewriter roller gear, and means associated with said paper engageable means to laterally shift the constantly driven shaft for engagement with the indicator device, said indicator device being operable to indicate the number of lines which the typist can type before ending the page.

2. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, a line indicator device attached to one end of the platen roller and having manually operable adjusting means, a shield connected to the typewriter to extend along the back of the platen roller and having an opening therein, means supported on the back of the typewriter and having an arm with a member adjustable into and out of the opening of the shield, said manually adjustable means of the indicator device being operable to adjust said arm means out of the opening in the shield to permit the extension of a sheet of paper into the typewriter and over the shield and releasable from the arm means to permit the arm means to engage with the sheet of paper, said arm means being weighted and pivoted so as to be urged toward the opening, and a signal indicating means responsive to the release of the arm means into the opening of the shield as the bottom edge of the paper is advanced thereunder to indicate to the typist that the end of the page is being reached, said signal means including a laterally shiftable member, cam means operable by the gear of the platen roller for shifting the laterally shiftable member, a bell striking linkage and a bell adapted to be operated thereby and a cam element upon the laterally shiftable member engageable with the bell striker linkage to effect its operation.

3. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, a line indicator device attached to one end of the platen roller and having manually operable adjusting means, a shield connected to the typewriter to extend along the back of the platen roller and having an opening therein, means supported on the back of the typewriter and having an arm with a member adjustable into and out of the opening of the shield, said manually adjustable means of the indicator device being operable to adjust said arm means out of the opening in the shield to permit the extension of a sheet of paper into the typewriter and over the shield and releasable from the arm means to permit the arm means to engage with the sheet of paper, said arm means being weighted and pivoted so as to be urged toward the opening, and a signal indicating means responsive to the release of the arm means into the opening of the shield as the bottom edge of the paper is advanced thereunder to indicate to the typist that the end of the page is being reached, said signal means including a laterally shiftable shaft, cam means adapted for engagement with the platen roller gear for shifting the laterally shiftable shaft, a bell striking linkage and a bell adapted to be operated thereby, a cam element upon the laterally shiftable shaft engageable with the bell striker linkage to effect its operation, and means for effecting the constant rotation of said shaft, said indicator device having a member with numerical indications for informing the typist the number of lines to go after the signal has been struck, said constantly driven shaft having means engageable with the numerical indicating member to operate the same.

4. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, a line indicator device attached to one end of the platen roller and having manually operable adjusting means, a shield connected to the typewriter to extend along the back of the platen roller and having an opening therein, means supported on the back of the typewriter and having an arm with a member adjustable into and out of the opening of the shield, said manually adjustable means of the indicator device being operable to adjust said arm means out of the opening in the shield to permit the extension of a sheet of paper into the typewriter and over the shield and releasable from the arm means to permit the arm means to engage with the sheet of paper, said arm means being weighted and pivoted so as to be urged toward the opening, a signal indicating means responsive to the release of the arm means into the opening of the shield as the bottom edge of the paper is advanced thereunder to indicate to the typist that the end of the page is being reached, and means operable by the platen roller gear for effecting the release of the arm means from the shield upon the reverse turning movement of the platen roller and to allow the paper to be extended through the typewriter in the reverse manner.

5. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, a line indicator device attached to one end of the platen roller and having manually operable adjusting means, a shield connected to the typewriter to extend along the back of the platen roller and having an opening therein, means supported on the back of the typewriter and having an arm with a member adjustable into and out of the opening of the shield, said manually adjustable means of the indicator device being operable to adjust said arm means out of the opening in the shield to permit the extension of a sheet of paper into the typewriter and over the shield and releasable from the arm means to permit the arm means to engage with the sheet of paper, said arm means being weighted and pivoted so as to be urged toward the opening, a signal indicating means responsive to the release of the arm means into the opening of the shield as the bottom edge of the paper is advanced thereunder to indicate to the typist that the end of the page is being reached, said signal means including a laterally shiftable shaft, cam means adapted for engagement with the platen roller gear for shifting the laterally shiftable shaft, a bell striking linkage and a bell adapted to be operated thereby, a cam element upon the laterally shiftable shaft engageable with the bell striker linkage to effect its operation, means for effecting the constant ro-

tation of said shaft, said indicator device having a member with numerical indications for informing the typist the number of lines to go after the signal has been struck, said constantly driven shaft having means engageable with the numerical indicating member to operate the same, and means operable by the platen roller gear for effecting the release of the arm means from the shield upon the reverse turning movement of the platen roller and to allow the paper to be extended through the typewriter in the reverse manner.

6. An end of page attachment for typewriters comprising in combination with a typewriter having a platen roller, a shaft extension of the platen roller, and a platen roller gear, a manually adjustable arm attached to the typewriter shaft extension and pivotable thereover, a shaft extending along the rear of the typewriter and journal brackets connecting the shaft to the typewriter, a sleeve journalled on said shaft and having vertically extending arm projections, weight means extending from said sleeve adapted to urge the vertically extending projections through the paper supporting plate of the typewriter and toward the roller, a shield having an opening adapted to receive the projections on the sleeve and adapted to be mounted on the typewriter so that the paper to be typed upon may extend between the shield and the paper supporting plate of the typewriter, said weight urging said arm projections into contact with the paper and upon the paper being advanced sufficiently through the typewriter entering the opening in the shield, cam means on the sleeve operable by the platen roller gear, means on the sleeve engageable with said cam means upon the arm projections entering the opening of the shield to cause said axially extending shaft to be laterally shifted, a gear on one end of said laterally shiftable shaft, an indicating arm having numerical indications thereon and having a gear portion engageable with the gear on the laterally shiftable shaft whereby to give the indication of the number of lines which the typist has reached after the arm projections have moved over the bottom edge of the sheet, and gear means on said laterally shiftable shaft adapted for connection with the platen roller gear to constantly drive said shaft.

7. An end of page attachment as defined in claim 6 and said shaft having a spiral cam thereon, said attachment also comprising arm means

extendable from said sleeve and engageable with said cam whereby to cause said laterally shiftable shaft to be shifted in the reverse direction and cause its gear to be taken out of engagement with the gear portion of the numerical indicating arm.

8. An end of page attachment as defined in claim 6 and said shaft having a spiral cam thereon, said attachment also comprising arm means extendable from said sleeve and engageable with said cam whereby to cause said laterally shiftable shaft to be shifted in the reverse direction and cause its gear to be taken out of engagement with the gear portion of the numerical indicating arm, and a reverse release device comprising gear means operatable by the platen roller gear and engageable with said sleeve to rotate the same and its arms out of the openings of the shield and out of engagement with the paper to permit the reverse movement of the paper between the shield and the paper supporting plate.

9. An attachment for typewriting machines comprising in combination with a machine including a platen shaft having an extension, an indicating device mounted on said extension, releasable rollers engageable with a work sheet in the machine, a turnable tubular shaft carrying said rollers, a relatively long endwise movable shaft revolvably mounted in the hollow of said tubular shaft, said sheet adapted automatically to release said rollers when the end of said sheet reaches said rollers whereby to turn said tubular shaft, means rendered effective upon turning of said tubular shaft for moving said long shaft endwise, said device including means for indicating the number of line spaces on said sheet between said roller release location and the end of said sheet, and means carried by said long shaft and effective on endwise movement thereof for operating said number indicating means, substantially as set forth.

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