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PAGE END INDICATOR FOR TYPEWRITER

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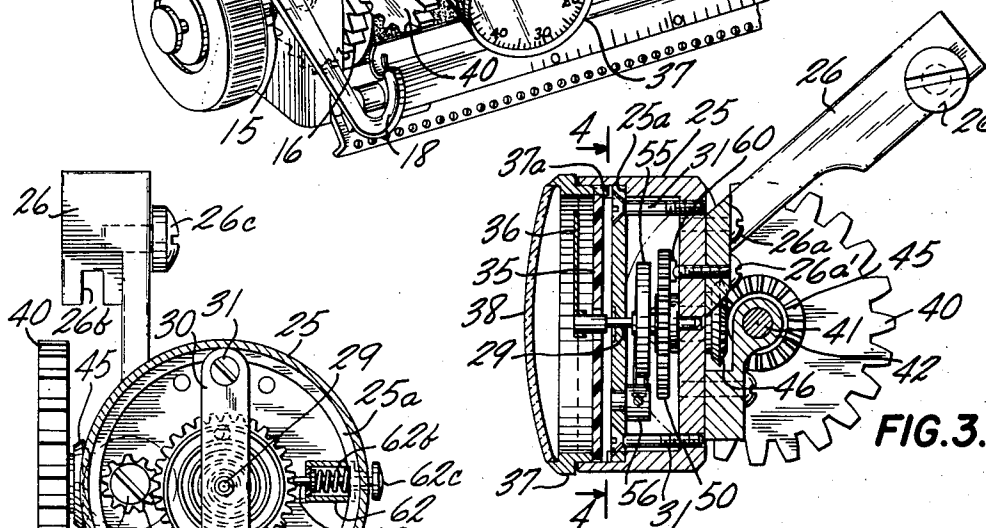
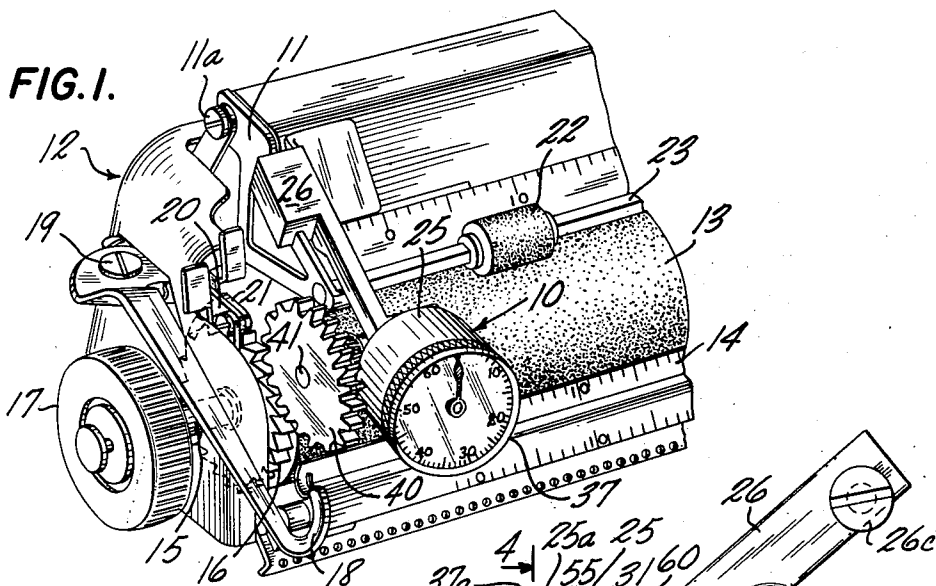


FIG. 4.

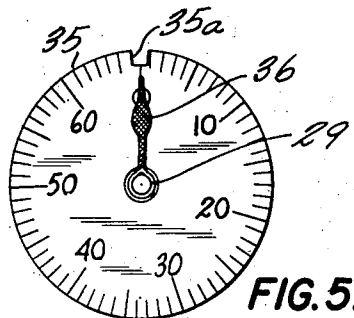
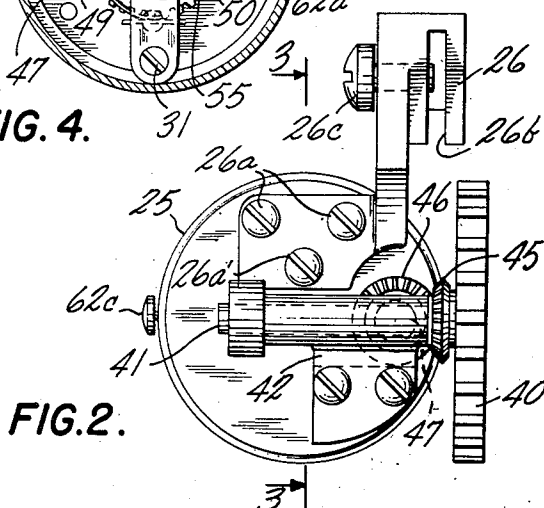


FIG. 5.

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This invention relates to a line indicating or counting device for typewriters which permits the operator to tell at a glance the number of lines typed on a page or the number of the line on the page in position to be typed.

In a conventional typewriter, a rotatable platen roll is supported transversely by the movable carriage, and the sheet of paper to receive the inked impressions is introduced into frictional contact with the lower periphery of the roll. The roll serves not only as a platen for the typewriter printing head as it strikes the front surface of the sheet, but when rotated, serves to advance the sheet longitudinally from line to line. During the typing of a line on the paper sheet, the carriage moves horizontally in step by step fashion transporting the sheet in front of a printing position where the selected typographical characters are printed on the sheet one at a time through the medium of an inked ribbon. When the end of the line is reached, the carriage is returned to the start position for the next line, and the roll is rotated to advance the sheet the predetermined space between lines.

The indicating device of the present invention records each such longitudinal advance of the sheet, so that the operator will know at all times the number of lines thus far typed on a page, or since the last "zero" setting of the indicator. In addition, the indicating device will make it possible for an operator to type the same number of lines on each page without losing time counting lines. The present invention will also facilitate designating the number of the line adjacent the left-hand margin, say, every five lines or so, a practice which has found favor in legal and technical papers.

The operating parts of the line indicating device of the present invention may be built integrally into a conventional typewriting machine, but in the preferred embodiment of the invention, as herein described, the line indicating device is made as an attachment readily clamped to some convenient mounting structure of the movable typewriter carriage, such as one of the arms or frame members which support the floating paper bail.

The line indicating device contains an indicator and a scale or dial relatively movable with respect to each other, but normally spring urged to a position of "zero" reading. The relative movement is imparted to the indicator and scale through a mechanical drive transmission by the rotation of the platen roll, or a driving part associated therewith. Thus, being mechanically connected in this manner, each time the platen roll is actuated to advance the sheet from one line to the next, a unit is registered on the indicating device, and the marking on the dial will permit the operator to read the total number of lines typed since the last "zero" reading.

As mentioned above, one of the arms supporting the paper bail may serve as a convenient mounting for the line indicating device. However, it occasionally becomes necessary for the operator to lift the paper bail, such as for example, when erasures or corrections have to be made on carbon copies, and the raising of the paper bail

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may disconnect the drive transmission of the indicating device from the drive means associated with the platen roll, causing the indicator to be prematurely returned to the "zero" position. To prevent the line count of the indicator from being accidentally lost by such occurrence, the indicating device of the present invention may be provided with a lock or catch device, normally yieldingly engaging the transmission with sufficient pressure to overcome the return action of the spring, but without interfering with the normal operation of the device. Of course, when the lock is deliberately released and the drive transmission disengaged, the indicator is free to return to "zero" reading.

These and other features of the present will be more fully described in the detailed description of the invention which follows and in the accompanying drawing in which:

Fig. 1 is an isometric broken away representation of a typewriter carriage equipped with the present invention;

Fig. 2 is a rear view of the indicating device of the present invention;

Fig. 3 is a cross-section view taken along the line 3—3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is a cross-section view taken along the line 4—4 of Fig. 3, looking in the direction of the arrows; and

Fig. 5 is a view of the dial face and indicator of the present invention.

Referring to Fig. 1 of the drawing, the line indicating device of the present invention, generally represented by the reference symbol 10, is shown attached to a pivotal arm or frame 11 of the typewriter carriage 12. A friction roll 13, which serves to advance the paper (not shown) longitudinally from line to line, is rotatably mounted in the carriage on a shaft 15, and as the carriage moves transversely in front of a printing position, type is impressed upon the paper by a movable printing head through the medium of an inked ribbon (not shown), the roll serving as a platen for the printing head.

The shaft 15 carries a notched wheel 16, and the spacing of the teeth thereof determines the spacing between typed lines. The end of the shaft 15 carries a knob 17 by means of which the friction roll may manually be adjusted or rotated. A forwardly extending lever 18, permitting limited movement about a pivot 19 of the carriage 12, can be employed to return the carriage at the completion of a typewritten line to the start position, corresponding to the left-hand margin, in preparation for the typing of the subsequent line, and the lever is mechanically connected by a link 20 to a pawl 21 which engages the notched wheel 16, thereby also rotating the platen roll 13 to advance the sheet to the next line.

As the sheet of paper is advanced from line to line, it is guided beneath a plurality of rollers 22 supported on a transverse bar or paper bail 23, and the paper bail 23 is supported at both ends between arms 11 (only one of which is shown in Fig. 1) pivotally mounted to the carriage at 11a to permit the paper bail 23 to be raised away from the platen roll 13, such as when a new sheet of paper is to be inserted or when erasures are to be made.

The typewriter parts and the operation thereof, as thus far described, are conventional, except for the indicating device 10, and form no part of the present invention.

As explained above, the operating parts of the indicating device of the present invention may be made as integral parts of the typewriter, or, as in the preferred embodiment illustrated, they may be enclosed within a cylindrical housing 25 which may be mounted to the machine as a separate attachment by a clamp 26, the clamp 26 being connected by screws 26a to the rear of the housing 25. In the embodiment shown in the drawing, the clamp 26 is formed with a slot 26b which is adapted to fit upon the

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upper edge of the arm or frame member 11. A locking screw 26c may be tightened against the frame member 11 to secure the indicating device firmly thereto, and at the same time to make it easy to detach the device from one typewriter machine and attach it to another.

The cylindrical housing 25 accommodates a fore-and-aft rotatable shaft 29 centrally therein. The rear end of the shaft 29 is journaled in a bearing formed in the back of the housing, and the shaft is given additional support by a bearing formed in a cross member 30. The ends of the member 30 abut a circular shoulder 25a formed around the inside periphery of the housing 25, and the member 30 is held in contact with the shoulder by screws 31 connected to the back wall of the housing.

A circular dial 35 is accommodated at the front of the housing 25, the dial having a central hole therein to receive the forward end of the shaft 29. An indicator hand 36 is fitted on the extreme front end of the shaft 29, and the hand rotates with the shaft relatively to the dial. A circular rim 37 having a glass piece 38 fits tightly into the front end of the housing 25, and the rim is provided with a projection 37a (see Fig. 3) which engages a slot 35a (see Fig. 5) in the rim of the dial to permit the dial to be adjusted initially at the "zero" position with respect to said dial and to maintain the dial stationary irrespective of the rotation of the shaft 29 and the indicator hand 36.

The shaft 29 is connected by a drive transmission to the platen roll 13, and as the platen roll is rotated to move the paper from one line to the next, an additional unit will be indicated by the movement of the hand 36 relative to the dial.

Although the shaft 29 may be driven by direct frictional contact with the platen roll 13, or the sheet of paper in contact therewith, in the preferred embodiment of the invention the shaft is connected through a gear transmission with the notched wheel 16. As best shown in Figs. 2 and 3, a shaft 41 is transversely mounted by means of a bracket 42 to the rear of the housing 25, and the shaft 41 carries a gear wheel 40 thereon which meshes with the notched wheel 16. The shaft 41 is mechanically connected to drive the shaft 29 by a gear transmission which includes a bevel gear 45 mounted on the shaft 41, a bevel gear 46 meshing therewith and supported at the rear end of a fore-and-aft shaft 47 disposed parallel to the shaft 29, a small pinion 49 (see Fig. 4) supported at the front end of the shaft 47, and a gear 50 of the shaft 29 which meshes with the pinion 49.

The shaft 29 and the indicator 36 are normally maintained in a "zero" position by a coil spring 55 connected at one end to the shaft and at the other end to an anchoring device 56 (see Fig. 3) mounted behind the member 30. The "zero" position is determined by the engagement of a projection 60 (see Fig. 3) of the gear wheel 50 with the shank of a screw 26a which serves as a stop. The shaft 29, is, of course, driven via the gear transmission against the return pressure of the spring.

It is understood that as the platen roll 13 is rotated step by step to advance the paper the distance between lines, the indicator will "count" the line. The operator can, therefore, tell at a glance the number of lines typed on a page or the number of the line in position to be typed. In this connection, it is obvious that if it should be necessary for the operator to back up the paper, such as to make a correction in a line which has been previously typed, the indicator will back up accordingly and the number of the line in position for correction will be shown.

When the transverse paper bail 23 is lifted, the gear wheel 40 and the notched wheel 16 become disengaged, and the spring 55 would, if not otherwise prevented, return the indicator hand 36 to the "zero" position. However, it occasionally becomes necessary to lift the paper bail 23, such as to make erasures and corrections when it is not desirable to lose the reading and return the indicator to "zero." Accordingly, a lock device 62 is

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provided to prevent accidental return of the indicator to "zero," the lock 62 comprising a pawl 62a, a spring 62b normally urging the pawl 62a into operative engagement with the gear wheel 50, and a stem 62c connected to the pawl for retracting the pawl to inoperative position. The coil spring 55 is not strong enough to return the indicator to "zero" position, although the pawl 62a will yield to permit the rotation of the gear 50 in response to the advance of the platen roll from one line to the next. Of course, the pawl 62a can be moved out of contact with the gear wheel merely by pulling out the stem 62c when it is desired to permit the return of the indicator to "zero" position upon the raising of the paper bail 23.

The invention has been shown in a single preferred form and by way of example only, and obviously many variations and modifications may be made therein without departing from the spirit of the invention. The invention, therefore, is not to be limited to any specified form or embodiment, except insofar as such limitations are expressly set forth in the claims.

I claim:

1. A line indicating device for a typewriter comprising a driven member adapted to be coupled in power transmitting relationship with the platen roll of a typewriter, an indicator, a scale, a transmission coupling driven by said driven member for imparting relative movement to the said indicator and scale, whereby the rotation of the platen roll is translated into relative movement between the indicator and the scale, and locking means engageable with the transmission coupling before the power transmitting relationship between the driven member and the platen roll is uncoupled, thereby maintaining the relative position of the indicator and scale.

2. A line indicating device for a typewriter comprising a driven member coupled in power transmitting relationship with the rotatable platen roll of a typewriter, an indicator, a scale, means for mounting said indicator and scale for relative movement, a stop determining a fixed relative position between said indicator and scale, pressure applying means for normally urging said indicator and scale to said fixed relative position, a transmission coupling for imparting relative movement to said indicator and scale from said driven member against the action of said pressure applying means, whereby the rotation of the platen roll is translated into relative movement between the indicator and the scale, yieldable means engageable with the transmission coupling to maintain the relative position of the indicator and the scale upon uncoupling the power transmitting relationship between the driven member and the rotatable platen roller of the typewriter, and means for releasing said means engageable with the transmission coupling to permit the pressure applying means to return the indicator and scale to the relative position determined by the stop.

3. A line indicating device for a typewriter comprising a housing, means for clamping said housing to a typewriter, a rotatable driven member mechanically coupled with the platen roll of the typewriter, an indicator and scale visibly mounted in said housing, a transmission coupling for imparting relative movement to the indicator and scale from said driven member, whereby the rotation of the platen roll is visibly indicated by relative movement of the indicator and scale, a glass supporting rim engageable with the housing, and interlocking means between the rim and the scale, whereby the rotation of the rim will permit adjustment between the scale and the indicator.

4. A line indicating device for a typewriter comprising a housing, a rotatable driven member mechanically coupled with the platen roll of the typewriter, an indicator, a scale, a rotatable shaft for moving relatively the indicator and the scale, a stop determining the normal position of the shaft, spring means urging said shaft to the starting position, a transmission coupling between the driven member and the shaft, whereby the rotation of the

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platen roll is translated into relative movement between the indicator and the scale, means normally preventing retrogressive movement of said shaft by said spring means but yieldable to permit the shaft to be driven through said transmission coupling, and manually operable releasing means to permit the spring means to return the shaft to starting position.

5. For attachment to a typewriter having a platen roll rotatably mounted in a movable carriage, a notched rotatable wheel associated with the platen roll, a pair of arms pivotally mounted to the movable carriage and a paper bail disposed parallel to the platen roll and supported between the pivotal arms, a line indicating device comprising a housing, an extension attached to the housing, a slot formed in said extension adapted for engagement with one of the arms supporting the paper bail, means for anchoring the extension to one of said arms, a dial face disposed within said housing, an indicating hand, a rotatable shaft for moving relatively the dial face and the indicator hand, a stop determining the normal position of said shaft, spring means urging said shaft to the normal position, a rotatable gear wheel adapted to mesh with the notched wheel of the typewriter, and a gear wheel transmission coupling between the said gear wheel and the said shaft, whereby the shaft is rotated against the return pressure of the spring, thereby relatively moving the dial face and indicator hand, as the platen roll is rotated to advance a sheet from one line to the next.

6. An indicating device as set forth in claim 5 wherein the housing is cylindrical and wherein the indicator hand is connected to the said shaft, and including a glass supporting rim engageable with the housing, the glass covering the dial, and mating means associated with the rim and the dial face, whereby the dial face can be adjusted with respect to the normal position of the indicator hand.

7. An indicating device as set forth in claim 5 including means to prevent retrogressive movement of the shaft under the spring pressure without interfering with the normal operation of the indicating device, and manually

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operable means to permit retrogressive movement of the shaft to normal position by the spring pressure.

8. An indicating device as set forth in claim 5 including a frame member mounted in spaced relation to a rear wall of said housing, the said shaft being rotatably supported in bearings of the rear wall and the frame member.

9. An indicating device as set forth in claim 8 wherein the spring which urges the shaft to normal position is a coil spring with one end connected to the shaft and the other end anchored to the said frame member.

10. In a typewriter having a moving carriage, a paper bail and arms pivotally mounted to the moving carriage for supporting the paper bail, a line indicating device comprising a housing, a rotatable driven member mechanically coupled with the platen roll of a typewriter, an indicator and scale visibly mounted in said housing, a transmission coupling for imparting relative movement to the indicator and scale from said driven member, whereby the rotation of the platen roll is translated into relative movement between the indicator and scale, an extension arm attached at one end to said housing and removable clamping means at the other end of said extension arm engageable with one of the pivotally mounted arms which support the paper bail for attaching the indicator in operative position on the movable carriage of a typewriter, whereby the raising of the paper bail away from the platen roll uncouples said transmission coupling.

11. A line indicating device as set forth in claim 10 including locking means normally operable to maintain the relative position of the indicator and scale even though the housing is detached from the typewriter carriage.

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