E. A. STEINER.

INDICATOR FOR PAGE ENDS.

APPLICATION FILED SEPT. 24, 1919.

1,359,445.

Patented Nov. 16, 1920.

2 SHEETS—SHEET 1.

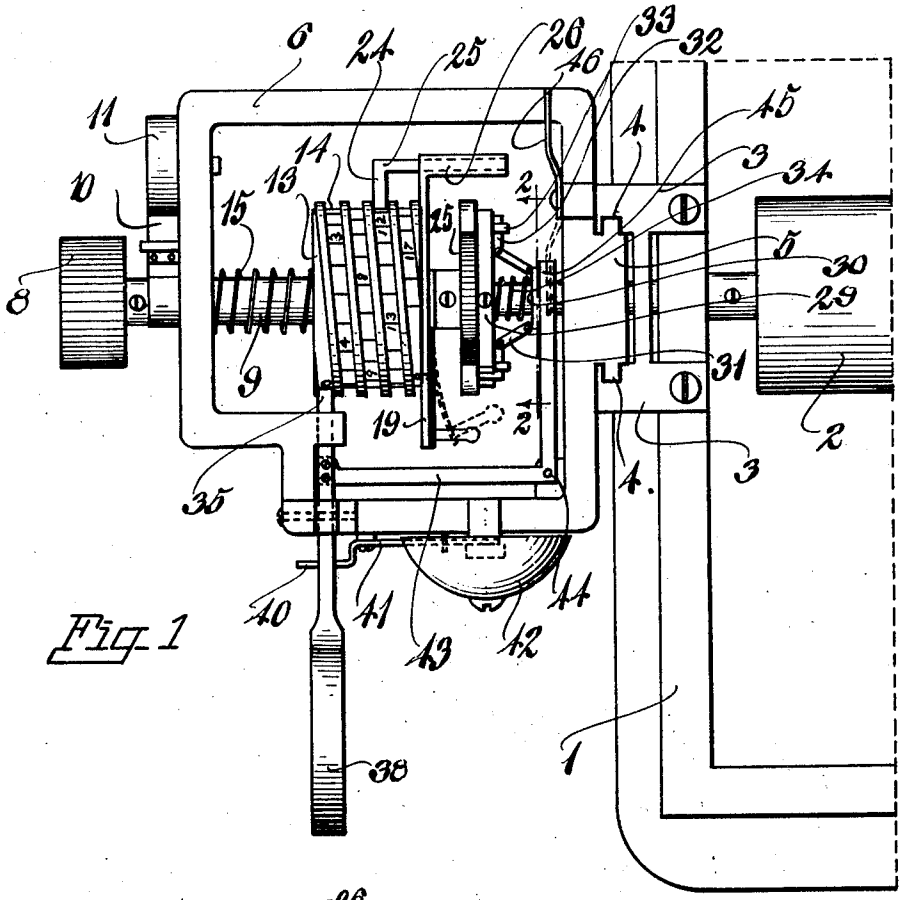


Fig. 1

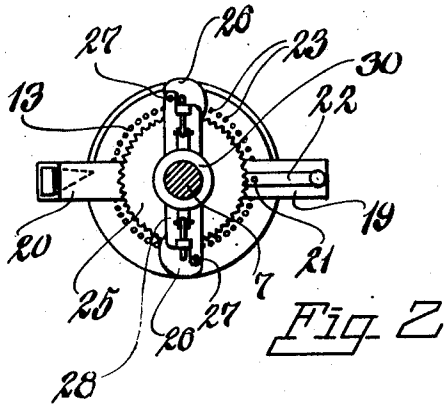


Fig. 2

Inventor

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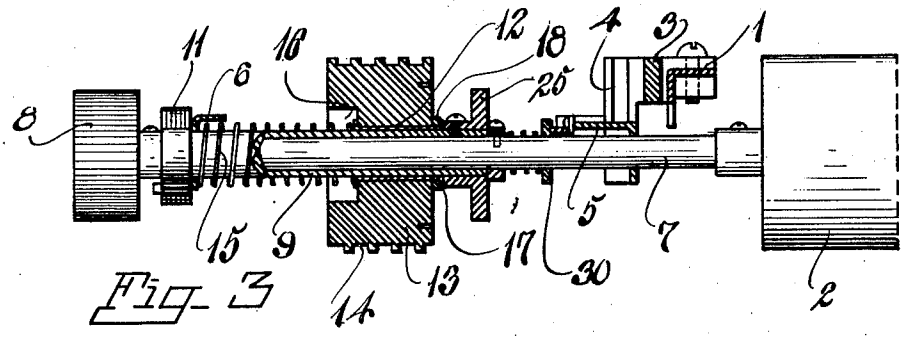


Fig. 3

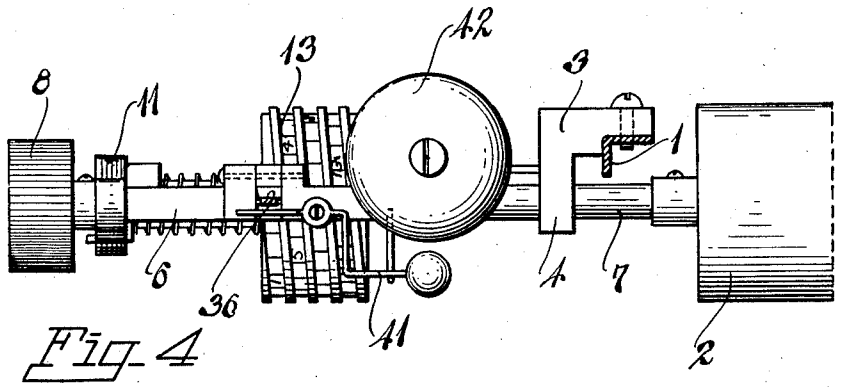


Fig. 4

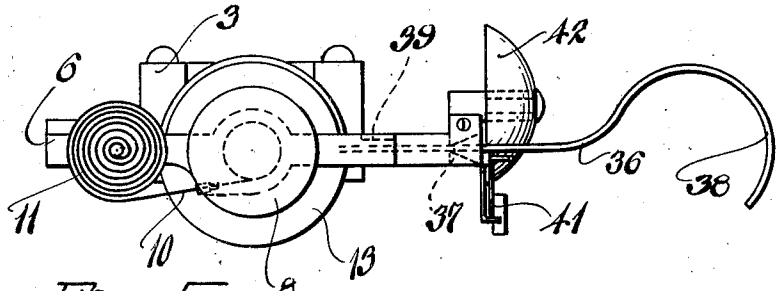


Fig. 5

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UNITED STATES PATENT OFFICE.

EARLING A. STEINER, OF HILLYARD, WASHINGTON.

INDICATOR FOR PAGE ENDS.

1,359,445. Specification of Letters Patent. Patented Nov. 16, 1920.

Application filed September 24, 1919. Serial No. 326,026.

To all whom it may concern:

Be it known that I, EARLING A. STEINER, a citizen of the United States, residing at Hillyard, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Indicators for Page Ends, of which the following is a specification.

The present invention relates to improvements in indicators for page ends in paper feeding in type writing machines, and the primary object of the invention is the provision of means for actuating a signal, as a bell, at a predetermined time to notify the operator of the type writing machine that the last line to be written on the sheet has been reached, thus eliminating the necessity of the operator dividing his attention between his work and the progress of the paper feeding, and also insuring a uniformity in appearance of the sheets or pages covering a certain subject.

The invention consists essentially in providing the platen shaft with a member adapted to rotate therewith, as the line spacing mechanism is operated by the action of the machine, and this rotary member has a spiral or screw channel on its periphery of greater length than the average of customary sheet of type writing paper through which channel an adjustable stop device may be adjusted to determine the length of feed of the type written page before the signal bell is reached and rung. The invention also consists in certain novel combinations and arrangements of parts for coupling this rotary member with the platen shaft and for uncoupling these members, and likewise in the resetting mechanism for the device, all as will be hereinafter more fully pointed out and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention as an attachment for the Remington type of machine in which the rectangular carriage traveling to right and left is utilized and upon which the platen is supported. The platen shaft is elongated at the left end of the machine and the novel combinations and arrangements of parts for accomplishing the purpose of the invention are here provided according to the best mode I have so far devised for the practical application of the principles of the invention.

In this form of typewriting machine the entire carriage is shifted, and therefore provision is made so that the added attachment forming the subject matter of the present invention is not moved bodily as the case shift is made, but remains stationary with the platen shaft.

In the drawings Figure 1 is a top plan view of the attachment, showing also sufficient of the left end of the type writing machine to indicate the relationship thereto of the audible indicator.

Fig. 2 is a transverse sectional view of the mechanism for coupling the platen shaft with the rotary member, the section being taken at line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional longitudinal view of the parts of the attachment along the extended platen shaft.

Fig. 4 is a front view of the attachment, the resetting lever being omitted for convenience of illustration.

Fig. 5 is an end view of the device as seen from the left end of the type writing machine.

To aid in a clear understanding of the invention I have shown a part, as 1, of the reciprocating carriage of the Remington style of typewriting machines, utilizing the platen or roll 2 upon which the paper sheets or pages supported as they are fed through the machine by the usual line spacing mechanism, in the customary step by step movement. At the left end of the carriage are added a pair of brackets 3, 3, having depending, vertically grooved arms 4, 4, in which the tenoned slide plate 5 of the attachment frame 6 may have movement, and due to this construction the carriage 1 may be lifted, free of the attachment frame and also free of the attachment mechanism, when the case shift mechanism is operated in usual manner. In other styles of type writing machines this relative movement of parts need not be considered. The attachment and its frame are supported at the left side or end of the machine, or rather at the left end of the platen shaft 7 which may be elongated or extended at the left beyond the carriage a sufficient distance to accommodate the operating parts of the present device. The rectangular frame 6 is journaled to accommodate the shaft 7, and the shaft is turned by hand through the wheel 8 at the end of the shaft as usual.

In equipping the platen shaft for the operation of the device I utilize a tubular

sleeve 9 near the outer end of the shaft and loose thereon, which sleeve is coupled with the end 10 of a helical or coiled spring 11 supported at the outer end of the frame and designed to rewind the sleeve and the operating parts of the mechanism carried thereby at the end of each sheet or page being written upon. Loosely mounted upon the sleeve is a shorter thimble 12 adapted to slide on the sleeve, and the thimble carries a fixed, wide wheel 13 provided with an annular spiral groove 14 on its exterior, through which the wheel and its thimble or hub may be caused to slide longitudinally of the platen shaft 7 against the tension of the coiled spring 15 surrounding the sleeve and located between the recessed part 16 of the wheel and the frame.

In conjunction with the grooved wheel I employ an index device including the hub 17 loose on the thimble but located and retained between the annular flange 18 on the end of the thimble and the face of the index wheel, and the hub is fashioned with a pair of diametrical arms 19 and 20 extending radially from the shaft 7 and beyond the periphery of the wheel. One of these arms carries an index pin 21 on the flat spring or plate 22, and the index pin is adapted to be engaged in the openings or holes 23 arranged in an annular series on the face of the wheel 13, while the other end of the index device has a pawl 24 engaged in the groove 14 of the wheel while its stem 25 is telescopically supported in the socket member 26 of the arm 20. In Fig. 1 particularly it will be seen that the groove in the periphery of the wheel has gradations therein indicating inches, starting from the end of the groove at zero and progressing in length at least as long as the sheet or page of type writing paper used on the machine. To adjust the device for a certain length or number of lines of writing to the sheet, the pin 21 is entered in one of the holes 23 with the pawl 24 at the space on the groove indicating the length in inches of the written matter to be placed on the page, and this adjusted pawl 24 will be held in place by the spring pin and determine the rotation of the wheel, which as before stated is against the tension of the spring 15.

The grooved wheel is given a step by step motion or rotation as the platen is turned to feed the paper line by line and to effect this movement of the wheel, a ratchet wheel 25 is utilized, fixed on the sleeve 8 and actuated by a pair of pawls 26 pivoted at 27 at the extreme ends of the clutch arm 28 of the clutch hub 29 fixed on the shaft 7 and rotatable therewith. The pawls are actuated on their pivots to engage or be disengaged from the ratchet wheel 25 by movement of the slide collar 30 on the shaft 7, said collar being connected by the pivoted links 31 with the radially arranged slide links 32 that are guided in the bearing brackets 33 and pivoted to the pawls 26 of the clutch device. The collar 30 is held extended from the clutch or the clutch arm and hub 29 by the spring 34 between the collar and hub and when so held the pawls are held in engagement with the rack wheel and the grooved wheel is coupled to revolve with the shaft 7, and does so revolve as the paper is fed, step by step, through the machine, until the pawl 24 encounters the pawl 35, seen at the mark zero in Fig. 1, and at the beginning of the groove in the periphery of the wheel.

The pawl 35 performs the function of a latch and is the end of the re-setting lever 36 which is fulcrumed at 37 in the frame of the attachment for vertical movement, and may be given longitudinal movement *i. e.* may be pulled away from or toward the grooved wheel by the hook handle 38, a stop 39, being provided to limit the vertical movement of the lever. Now it will be apparent that when the parts are clutched, the grooved wheel will revolve with the platen shaft and the adjusted index pawl 24 will revolve with the wheel until the screw action of the pawl 35 at the end of the lever causes the wheel to slide to the left in Fig. 1 and until the pawl 24 reaches and comes up under the latch pawl 35. When the index pawl encounters the latch pawl the lever arm is lifted on the fulcrum causing the arm 36 to bear down upon the arm 40 of the bell clapper 41 causing the latter to strike the bell 42 thus indicating that the predetermined line has been written on the type written sheet.

The re-setting lever is now pulled out with the left hand on the hook 38 which action releases the pawl 35 from the grooved wheel and releases the coupling between the platen shaft and the grooved wheel so that the re-winding spring 11 returns the wheel to initial position and the protractile spring may push the wheel to the right on the sleeve carrying with it the still adjusted and fixed index device. The pull on the lever 38 swings the release or bell crank lever 43 on its pivot 44 and the arm 45 of the lever pushes the slide collar 30 to the left on the platen shaft, with the result that the links and slide links 31 and 32 operate as described. If desired a pivoted detent 46 may be turned to dotted position in Fig. 1 to hold the clutch out of engagement and the latch or pawl 35 out of the grooved wheel when the indicator is not being used, as on short letters or short length papers or pages.

In actual use, assuming a sheet or page of typewriting paper say eleven inches long is being used and it is desired to stop the writing of lines two inches from the bottom of the sheet of paper and also leave a space of two inches from the top of the

sheet. The vertical dimension of the "sight" to be written upon is thus seven inches and it will be necessary to adjust the index pawl 24 at a distance of nine inches from the latch 35, in order to allow for the two inches at the top of the page and then to permit the sheet to be fed through the machine, step by step, for the next seven inches before the bell is rung by the action caused by the contact of the index pawl 24 with the latch 35 of the release lever.

What I claim is—

1. The combination with the platen shaft, a loose sleeve thereon, and a slide thimble on the sleeve and a spirally grooved index wheel fixed on the thimble, of a clutch member on the shaft and a complementary member on the sleeve, an adjustable index pawl engaging the grooved wheel, an indicating device actuated from said pawl, and means for re-setting the index mechanism.

2. The combination with the perforated index wheel having an exterior spiral groove, and its shaft, of an index arm having an index pin for the perforated wheel, a socket member on the arm, and an adjustable pawl seated in said socket and engaged in the grooved wheel, for the purpose specified.

3. The combination with the platen shaft and frame, a loose sleeve on the shaft and a slide thimble on the sleeve, a spirally grooved index wheel fixed on the thimble, a re-winding spring connecting the frame and sleeve, a protractile spring between the wheel and thimble, a clutch member on the shaft to engage the sleeve, an adjustable index pawl engaging the wheel, and an indicating device actuated from said pawl.

4. The combination with the platen shaft, a loose sleeve thereon, and a slide thimble on the sleeve, and a spirally grooved index wheel fixed on the thimble and provided with perforations, an index arm having an index pin for said perforations, a clutch device, a socket member on the arm, an adjustable index pawl in said socket member and engaged in the grooved wheel, and means for re-setting the index mechanism.

5. The combination with the perforated index wheel having an exterior spiral groove, and its shaft, an index arm rotatable on the shaft and an index pin thereon to engage said perforated wheel, a tubular socket member carried on the arm, and an L-shaped pawl adjustably seated in the socket member having one portion engaged in the grooved wheel.

6. The combination with the shaft and a sleeve loose thereon of a ratchet wheel fixed on the sleeve, a hub fixed on the shaft and a pair of arms arranged on said hub, pawls pivoted at the ends of the arms, and means operatively connected with said pawls for engaging them with said wheel.

7. The combination with the shaft and loose sleeve thereon, of a fixed ratchet wheel on the sleeve, a clutch hub fixed on the shaft and a pair of clutch arms on said hub, pawls pivoted on the ends of said arms, a slide collar on the shaft, and means actuated by said collar for causing engagement of the pawls of said wheel.

8. The combination with the shaft and loose sleeve thereon, of a ratchet wheel fixed on the sleeve, a hub on the shaft and a pair of arms on said hub, pawls pivoted on said arms, a slide collar on the shaft, radial links carried by the arms and pivoted to the pawls, and links pivotally connected said radial links and said collar.

In testimony whereof I affix my signature.

EARLING A. STEINER.