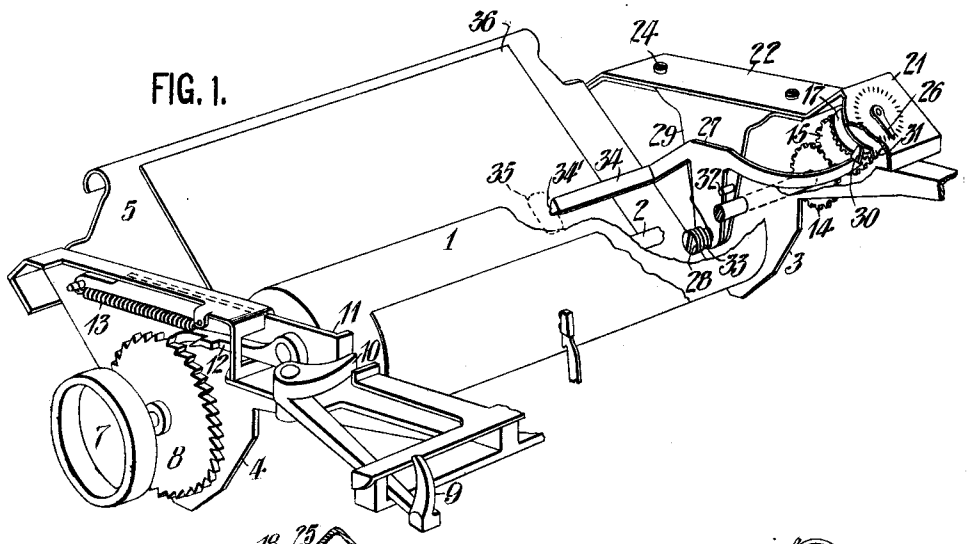
S. T. SMITH.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 8, 1913.

1,102,360. Patented July 7, 1914.

FIG. 1.



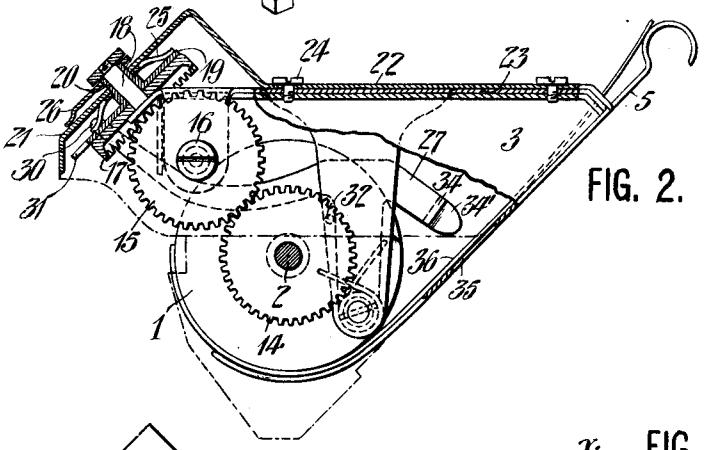


FIG. 2.

FIG. 4.

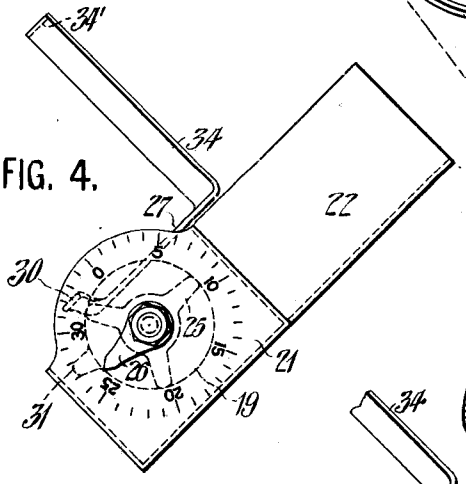
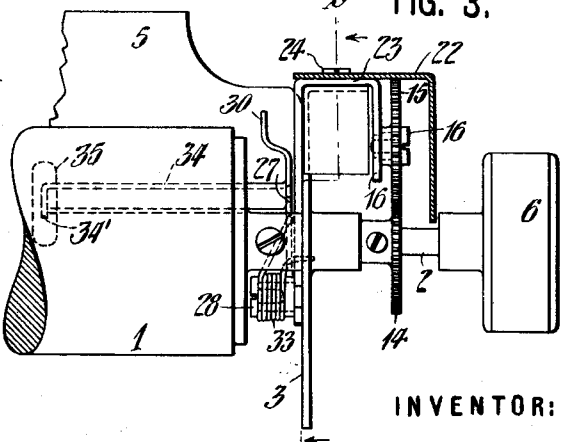


FIG. 3.



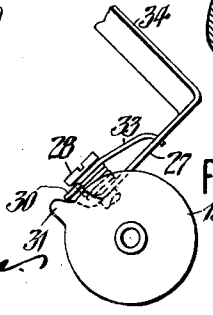


FIG. 5.

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STEPHEN T. SMITH, OF STAMFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,102,360. Specification of Letters Patent. Patented July 7, 1914.

Application filed May 8, 1913. Serial No. 766,308.

To all whom it may concern:

Be it known that I, STEPHEN T. SMITH, a citizen of the United States, residing in Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to an indicating device adapted for use with a typewriting machine to indicate to the operator when the writing nears the lower edge of the work-sheet and when the page has been completed with any predetermined bottom margin.

An object of the invention is to provide in connection with an indicator, means controlled by the work-sheet to set the indicator in operation when the lower edge of the work-sheet has reached a predetermined position, so that the width of the lower margin of the work-sheet will be uniformly indicated regardless of the length of the work-sheet, and without requiring the indicator to be adjusted or reset for work-sheets of different lengths.

As shown, a crown gear is connected through intermediate gears to the platen axle so as to rotate with the platen. Frictionally held in contact with the crown gear is a rotary disk carrying with it a pointer movable over a dial. As the paper is being fed through the machine, said friction disk is held from rotating with the crown gear by means of a lever having a stop in the path of a lug on said disk, the lever being held in position by the work-sheet. As the lower edge of the work-sheet passes beyond the lever or a projecting arm thereon, the friction disk is permitted to rotate with the crown gear, thereby indicating the position of the lower edge of the work-sheet, or its distance from the printing line. With this arrangement, the indicating pointer is only set in operation after the printing of a page is nearly completed, and always when the bottom edge of the work-sheet is at the same distance from the printing line.

The present invention is a modification of the invention disclosed in my co-pending application, Serial No. 731,671, filed November 16, 1912.

Other features and advantages of the invention will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of a paper carriage and platen of an Underwood typewriting machine, with my invention applied thereto. Fig. 2 is a part sectional end elevation view looking from the right-hand end of the carriage, the section being substantially as indicated by the line x—x on Fig. 3. Fig. 3 is a part sectional front elevation view showing the right-hand end of the platen and associated mechanism. Fig. 4 is a detail view of the indicator. Fig. 5 is a detail view of the friction disk and the lever operated thereby.

As herein shown, a rotary platen 1 is fixed to a platen axle 2 journaled in the ends 3 and 4 of the platen frame, said ends being connected by an inclined paper shelf 5 forming part of the frame. Secured to the platen axle are hand wheels 6 and 7 and a line-space wheel 8. A line-space lever 9 has an arm 10 to operate a slide 11 to which is pivoted a detent 12 coöperating with the line-space wheel. The line-space lever and slide bar are returned by a spring 13. The mechanism as above described is that of the commercial Underwood machine, but it is to be understood that my invention may be adapted and applied to other forms of typewriting machines. Secured to the platen axle 2 is a spur gear wheel 14 in mesh with a similar gear wheel 15, journaled on a pivot 16 on a plate 23 secured by screws 24 to the frame end 3. A crown gear wheel 17 in mesh with the gear 15, is mounted on an axle 18 secured to the plate 23. A friction disk 19 resting on the upper face of the crown gear is provided with a hub or sleeve 20 surrounding the axle 18 and extending through an opening in an extension 21 of the cover plate 22. Mounted on the hub 20 beneath the extension plate 21 is a spider-shaped spring 25 having radial arms bearing against the friction disk. The upper surface of the plate 21 is provided with scale markings forming a dial over which travels a pointer 26 fixed to the hub 20 of the friction disk.

A stop lever 27 is mounted on a pivot pin 28 secured to a depending bracket arm 29 on the plate 23, and has on its forward end a stop 30 in the path of a lug 31 on the friction disk. The lever 27 is normally held forward against a stop pin 32 on the bracket 29 by means of a spring 33. On the rear end of the lever 27 is an arm 34 extending laterally over the paper shelf 5 and having

a depending end 34′ over a slot or opening 35 formed in the paper shelf.

In operation, when a work-sheet is placed on the machine and the platen rotated in a forward direction, the movement of the platen is transmitted through the train of gears and causes the friction disk 19 to rotate with the crown gear until the lug 31 strikes the stop 30 on the lever 27 and swings the latter rearwardly, moving the end 34′ downward till it is stopped by the work-sheet. The friction between the crown wheel and the friction disk is sufficient to overcome the tension on the spring 33 and permit said movement of the lever. The friction disk is now held against further rotation and slips on the crown wheel as the work-sheet 36 is fed forward until the bottom edge of the work-sheet passes beyond the slot 35. The lever 27 being thus released, the friction disk is now permitted to rotate and imparts a further rearward movement to the lever, the end 34′ moving downward through the slot 35. During this movement of the lug 31 on the friction disk is carried beneath the lever and eventually the disk is carried beyond the lever permitting it to be returned by the spring 33. The pointer 26 is preferably set relatively to the scale markings so that it will be at zero when the friction disk is held by the lever 27.

When the work-sheet passes beyond the arm 34, permitting the indicator to rotate, the operator is thereby given notice that the writing has progressed to within a predetermined short distance from the lower margin and by observing the position of the pointer, the number of lines written after the indicator is set in operation is shown so that a bottom margin of any desired width may readily be obtained. As the indicator is set in operation when the lower edge of the work-sheet is at a fixed distance from the printing line regardless of the length of the work-sheet, it is unnecessary to set or adjust the indicator for work-sheets of different lengths. If preferred, the pointer may be adjusted relatively to the scale markings so that the pointer is at zero when the bottom edge of the work-sheet is at the printing line. With this arrangement the width of the bottom margin is directly proportional to the distance of the pointer from zero.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination of a revoluble platen, a gear thereon, a second gear in mesh with said first-mentioned gear, a crown gear in mesh with said second gear, an index revoluble about the axis of the crown gear, a dial to coöperate with said index, a friction device connecting said index to said crown gear, and a lever extending at one end to said friction device to restrain said index and being at its oppositely-extending end restrained by a work-sheet, whereby when the sheet releases the lever, the latter releases the index.

2. The combination of a revoluble platen, an index, a train of connections between the platen and index, said train comprising a pair of frictionally connected members, one of which is positively connected to the platen and the other of which is positively connected to the index, a dial to coöperate with said index, and a lever having an extension at one end to restrain said index and extending at the other end for restraint by a work-sheet in such manner that when the work-sheet releases the lever, the latter releases the index.

3. The combination with a revoluble platen and an index, of frictional means imparting movement to said index from said platen, and a lever having one end operating directly on said index to restrain its movement while the other end of said lever is restrained by a work-sheet, said lever operating to release said index when released by said work-sheet.

4. In a typewriting machine, the combination with a revoluble platen and an index, of frictional means imparting movement to said index from said platen, and a lever fulcrumed in parallelism with the platen axis and having one end operating directly on said index to restrain its movement while its other end is restrained by a work-sheet, said lever releasing said index when released by said work-sheet.

5. In a typewriting machine, the combination with a revoluble platen and an index, of frictional means exterior to the longitudinal zone of the platen for imparting movement to said index, driving means between said frictional means and platen, and a lever having one end operating directly on said index to restrain its movement while the other end of said lever is restrained by a work-sheet, said lever releasing said index when released by said work-sheet.

STEPHEN T. SMITH.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."