D. G. WHITE.

LAST LINE INDICATOR FOR TYPE WRITERS.

APPLICATION FILED DEC. 14, 1918.

1,322,381. Patented Nov. 18, 1919.

Fig. 1.

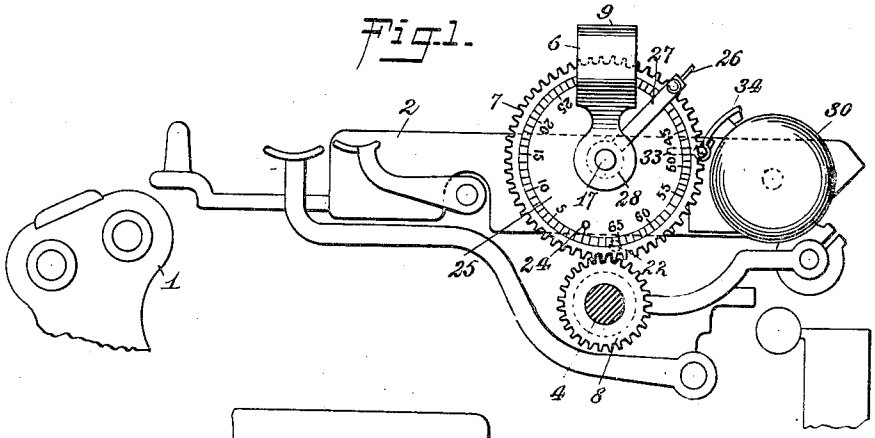


Fig. 2.

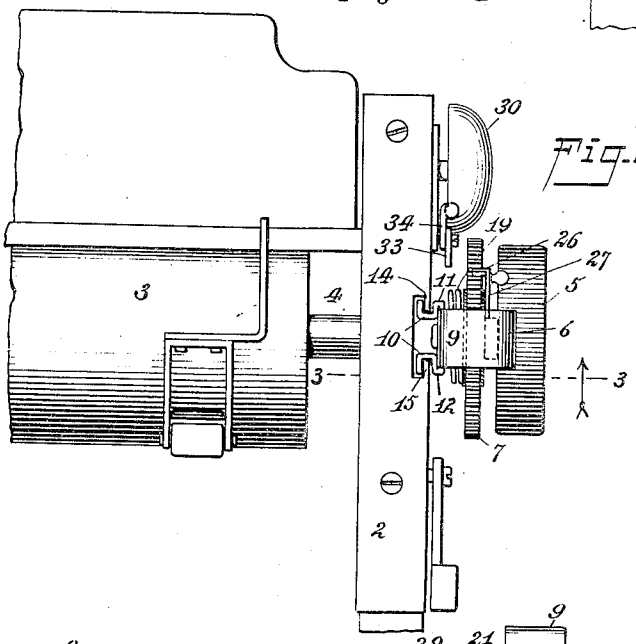


Fig. 3.

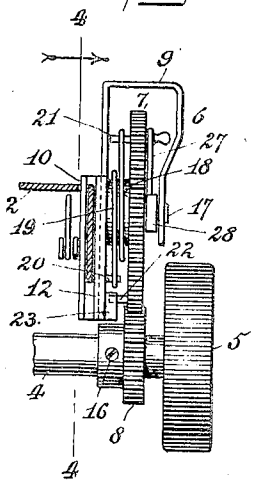


Fig. 4.

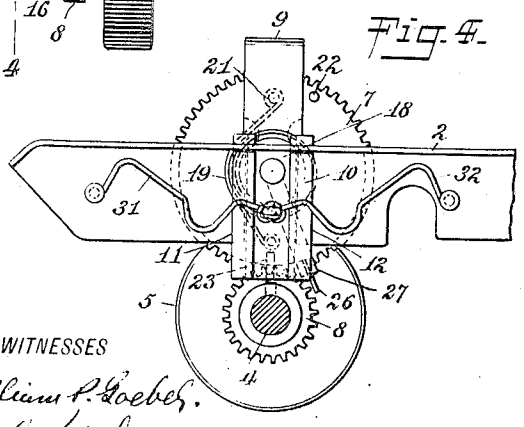
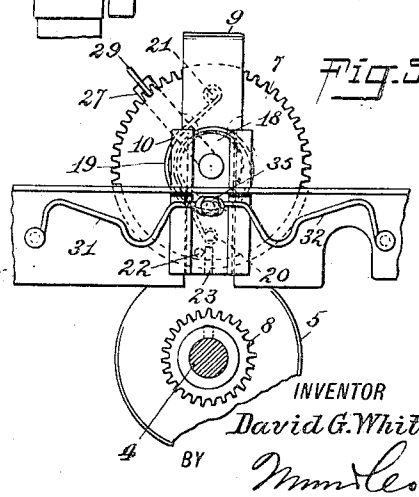


Fig. 5.



WITNESSES

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LAST-LINE INDICATOR FOR TYPE-WRITERS.

1,322,381. Specification of Letters Patent. Patented Nov. 18, 1919.

Application filed December 14, 1918. Serial No. 266,777.

To all whom it may concern:

Be it known that I, DAVID G. WHITE, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Last-Line Indicator for Type-Writers, of which the following is a full, clear, and exact description.

This invention relates to an attachment for typewriters of any kind and which will indicate or signal when the end of the sheet has been reached and has for an object the provision of an improved construction which may be readily adjusted for any length of sheet and for giving the signal or indication at substantially any point between the top and bottom of the sheet.

Another object of the invention is to provide an attachment for a typewriter which is easily operated upon the insertion of each new sheet of paper whereby an indication or signal will be produced when the sheet has passed a predetermined distance through the machine.

A still further object more specifically is the provision of an attachment for indicating when the bottom of a sheet has been approximately reached which is manually set and which automatically assumes an inoperative position.

In the accompanying drawing:

Figure 1 is a side view of an embodiment of the invention the same being shown in operative position on a typewriter.

Fig. 2 is a top plan view of the structure shown in Fig. 1, including part of the typewriter.

Fig. 3 is a fragmentary sectional view through Fig. 2 on line 3—3.

Fig. 4 is a sectional view through Fig. 3 on line 4—4.

Fig. 5 is a view similar to Fig. 4, but showing the parts in a raised or inoperative position.

Referring to the accompanying drawing by numerals, 1 indicates a typewriter of any desired kind, that shown being an Underwood typewriter, though, of course, it is understood that the device may be used in connection with other typewriters without in any way departing from the spirit of the invention. The machine 1 is provided with a carriage 2 which is moved back and forth during the operation of the machine. The platen 3 is rotated as usual, said platen being mounted on the shaft 4 provided with an operating knob or wheel 5. The constructions just described are all old and well known. When operating the typewriter the paper is placed in position and the platen 3 rotated in the usual manner until the inserted paper has reached the desired position after which the keys are operated. This movement of the platen and roller 5 and associate parts will not in any way affect the invention as the parts are in a raised or inoperative position as shown in Fig. 5. However, after the paper has been properly adjusted the operator presses on the top of the frame 6 until the parts move from the position shown in Fig. 5 to that illustrated in Figs. 1 and 4 whereupon the large gear wheel 7 will mesh with the pinion 8. The frame 6 may be constructed in a large number of ways, but is preferably provided with a looped over portion 9 and a guiding portion 10. The guiding portion 10 consists of extensions 11 and 12 bent for forming grooves or ways as shown in Fig. 2 so as to accommodate the webs 14 and 15 formed in part of the frame of the carriage 2. By this construction and arrangement the frame 6 is guided in its up and down movement and the parts are held in proper position so that when the gear 7 is moved downwardly it will engage the pinion 8, which pinion is rigidly secured to shaft 4 in any desired manner, as for instance by a set screw 16. In order to properly support the gear wheel 7 a shaft 17 is provided which may be threaded into the frame 6, or riveted, or otherwise rigidly secured thereto as desired. The gear wheel 7 is rotatably mounted on shaft 17 and carries a hub 18 around which the spring 19 is positioned, said spring having one end bearing against a stationary stop or post 20 and the other end against the movable post or stop 21 secured to the gear wheel 7. Spring 19 is preferably a flat spring provided with one or more turns around the hub 18, though if desired a spring wire, round in cross section, could be used in preference to the flat. This spring is positioned so as to normally hold the stop or pin 22 against the ear or projection 23 extending from the guiding portion 10. These parts are arranged so that when the pin 22 is against ear 23 the zero mark 24 on the dial 25 will be as shown in Fig. 1. As the platen is turned or rotated during the regular operation of the machine pinion 8 will be rotated

and consequently gear 7 will be likewise rotated. This rotation is greater or less according to the size of the sheet of paper and the number of lines desired thereon.

In order to release the wheel 7 so it may move upwardly as shown in Fig. 5 when the last line has been written near the bottom of the sheet, or at any other place desired, a release catch 26 is provided. This catch consists of a flat spring strip 27 having an apertured hub section 28 and a tooth 29 which normally fits in between certain of the teeth of the gear wheel 7. The catch 26 is sprung to one side so as to release the tooth 29 and then turned to the point where it is desired to have the bell 30 ring for indicating that the bottom of the sheet has been reached. For instance, in Fig. 1 it is arranged to show that when the fortieth single space has been reached the bell will ring. During the operation of the machine the gear wheel 7 will rotate with the platen until the tooth 29 engages the pinion 8. A further rotation of the platen will cause the shaft 17 and associated parts, including the gear wheel 7 to be raised until it has passed a given point (Figs. 4 and 5) whereupon the springs 31 and 32 will act to raise the parts to the position shown in Fig. 5. Ordinarily after the parts have been moved downwardly manually the springs 31 and 32 automatically hold the parts in their lowered position and gear 7 in constant mesh with the pinion 8. The tooth 29 is sufficiently long to cause a sufficient rise to accomplish this result. As soon as the gear wheel 7 has been raised the spring 19 will cause a reverse rotation of this gear wheel and consequently a reverse movement of the catch 26. This reverse movement is stopped by the pin 22 striking against the ear 23 so that the zero mark 24 will assume its original position. In moving back to the position against the ear 23 the pin 22 strikes against the extension 33 of the hammer 34 and raises the hammer as it passes. The hammer, by its own weight moves back and strikes the bell 30 for producing the signal for indicating that the bottom of the page has been reached. During the first rotation of the wheel 7 the pin 22 merely moves past the extension 33 without producing any sound or changing any of the parts.

When the signal has been thus produced the operator may remove the sheet or may first place a number at the bottom and then remove the same. A second operation will be merely a repetition of the first and so on for as long as the device is in use. It is, of course, evident that in case it should not be desired to use the device the operator will merely refrain from pressing down on the frame 6. It will also be noted that the construction is such that the paper may be turned forwardly or backwardly for erasures or other purposes without affecting the proper operation of the attachment. The springs 31 and 32 are provided with eyelets in the ends through which the pin 35 extends, said pin fitting into the sliding portion or section 10 of the frame 6.

The attachment has been described in connection with an Underwood typewriter, but it is, of course, understood that it may be used with any of the usual makes now on the market or any special make of typewriter. The sliding section or portion 10 is shown as pressed out of sheet metal, but it is evident that these members could be made of castings, or in any desired way without departing from the spirit of the invention provided the same arrangement is maintained and easy operation of connecting the gear wheels 7 and 8 and the automatic release of the gear wheel 7.

What I claim is:

1. The combination with a type-writer provided with a platen of means connected with said platen and operated thereby for indicating when any point on the sheet has been reached, means for automatically disengaging the parts at any predetermined point, and means for returning automatically the several parts to their initial position when disengaged.

2. The combination with a typewriter provided with a platen for receiving a sheet in the usual manner of typewriters of an attachment connected to the carriage of said typewriter provided with a gear wheel connected with said platen and revolved therewith, a second gear wheel movable into mesh with said first mentioned gear wheel, means for automatically disengaging the second mentioned gear wheel from the first mentioned gear wheel when the predetermined line has been reached during the operation of said typewriting machine, and a signal member operated by the second mentioned gear wheel upon its release.

3. A line indicator for typewriting machines comprising a pinion adapted to be secured to the platen of a typewriting machine, a gear wheel, reciprocating means supporting said gear wheel, said reciprocating means guiding the gear wheel into and out of mesh with said pinion, a dial carried by said gear wheel provided with a scale thereon corresponding to the spaces of the platen, an adjustable catch adapted to be arranged adjacent any part of said scale, said catch being formed with means projecting beyond the gear wheel whereby when the gear wheel is rotated a predetermined extent said means will engage said pinion and raise the gear wheel out of mesh, resilient means for continuing the movement of said gear wheel when moved by said first mentioned means, a spring for returning said gear wheel to its original position, and

means actuated by the gear wheel for sounding a signal as said gear wheel is returned to its original position.

4. A line indicator for typewriters comprising an indicating dial, means connected with the platen of said typewriter for rotating said dial when said platen is rotated, a signal, means for automatically operating the signal when the dial has reached any predetermined point, means for automatically disengaging the dial from the means for operating the same at any predetermined point, and means for returning automatically the several parts to their initial operative position after disengagement.

5. A line indicator attachment for typewriters comprising a dial, a gear wheel connected with the dial, a pinion connected with the platen of said typewriter, a sliding supporting frame for said gear wheel, said frame being manually operated in one direction for moving the gear wheel and pinion into mesh, a line indicating catch normally engaging the teeth of said gear wheel and extending from said dial for indicating the point at which the signal is to be sounded, said catch being formed with a tooth projecting beyond the gear wheel for engaging the pinion and raising the gear wheel out of mesh with the pinion, a spring for moving the gear wheel back to its starting point, means for limiting the reverse movement of said gear wheel, a bell, and a hammer structure for operating said bell, said hammer structure being provided with a flexible member extending into the path of movement for part of the distance, means for limiting the reverse rotation of said gear wheel whereby said hammer structure will be operated each time the gear wheel is brought back to its starting point.

6. A line indicator for typewriters comprising a pinion connected to the platen of the typewriter, a gear wheel, a sliding support for said gear wheel, a manually operated member connected with said sliding support whereby the gear wheel is brought into mesh with the pinion, automatic means connected with the gear wheel for moving the gear wheel out of mesh with said pinion, a spring structure acting on said gear wheel in two directions so as to hold the gear wheel in mesh with the pinion when moved manually, and to hold the gear wheel out of mesh with the pinion when moved automatically, a signal device, and means carried by the gear wheel for actuating the signal device when the gear wheel has been raised.

7. A line indicator for typewriters comprising a pinion connected to the platen of a typewriting machine, a gear wheel, manually operated means for moving the gear wheel into mesh with the pinion, automatically actuated means for moving the gear wheel out of mesh with the pinion, a signal device, and means carried by the gear wheel positioned to actuate the signal device when moved automatically out of mesh with the pinion, and a spring for returning the gear wheel to its original position when disengaged from the pinion.

8. A line indicator for typewriting machines comprising a pinion connected with the platen of a typewriting machine, a gear wheel adapted to mesh with said pinion, a frame for supporting said gear wheel, said frame having a grooved section, means associated with the carriage of the typewriting machine formed with projections fitting into said groove whereby said frame and the gear wheel carried thereby may slide back and forth toward and from said pinion, an ear acting as a stop arranged on said grooved section, a pin extending from said gear wheel normally engaging said stop for holding the gear wheel at a predetermined position, a spring acting on said gear wheel and on said movable section for urging said gear wheel in a direction for causing the pin to engage said ear, said frame and gear wheel being manually movable toward said pinion so that the pinion will mesh with the gear wheel whereby when the platen of the typewriting machine is rotated during the typewriting operation said gear wheel will be rotated against the action of said spring, means carried by the gear wheel for engaging said pinion upon a predetermined number of revolutions of the platen and for raising the gear wheel out of engagement with said pinion whereby said spring will move said gear wheel back to its original position, a signal member, and means actuated by the pin carried by the gear wheel for operating the signal member when the gear wheel is moved by said spring.

9. The combination with a typewriter provided with a platen for receiving a sheet in the usual manner of typewriters of an attachment connected to the carriage of said typewriter provided with a gear wheel connected with said platen and revolved therewith, a second gear wheel movable into mesh with said first mentioned gear wheel, means for automatically disengaging the second mentioned gear wheel from the first mentioned gear wheel when the predetermined line has been reached during the operation of the typewriting machine, and means for returning the several parts to their initial position after said disengagement.

DAVID G. WHITE.