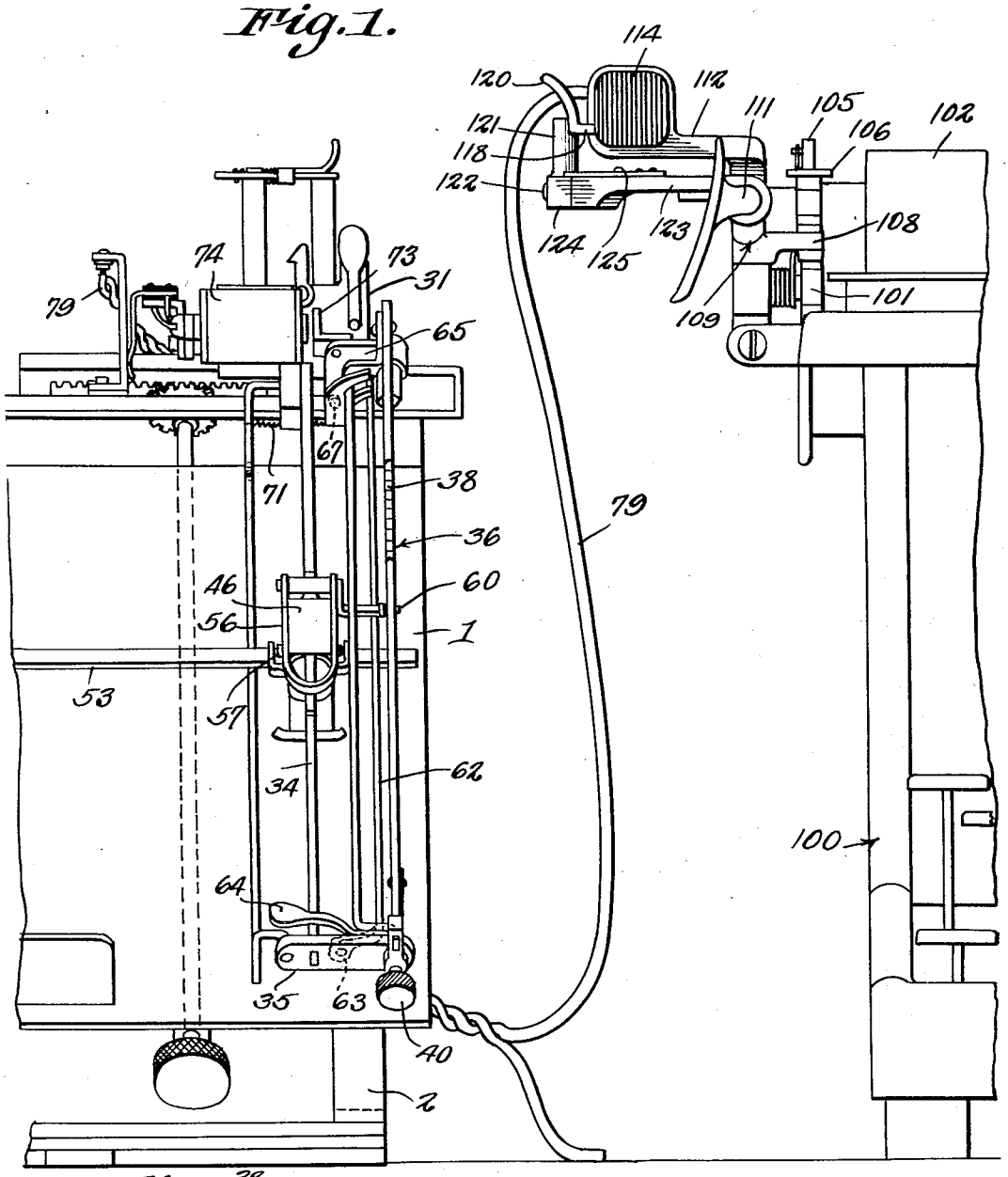
July 25, 1933. F. M. SPERLING 1,919,399

TYPEWRITER ATTACHMENT

Filed Nov. 19, 1932 2 Sheets-Sheet 1

Fig. 1.



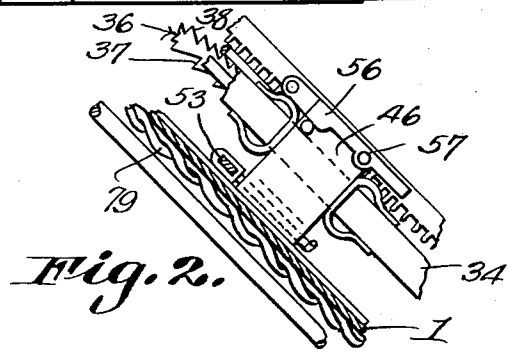


Fig. 2.

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TYPEWRITER ATTACHMENT

Filed Nov. 19, 1932 2 Sheets-Sheet 2

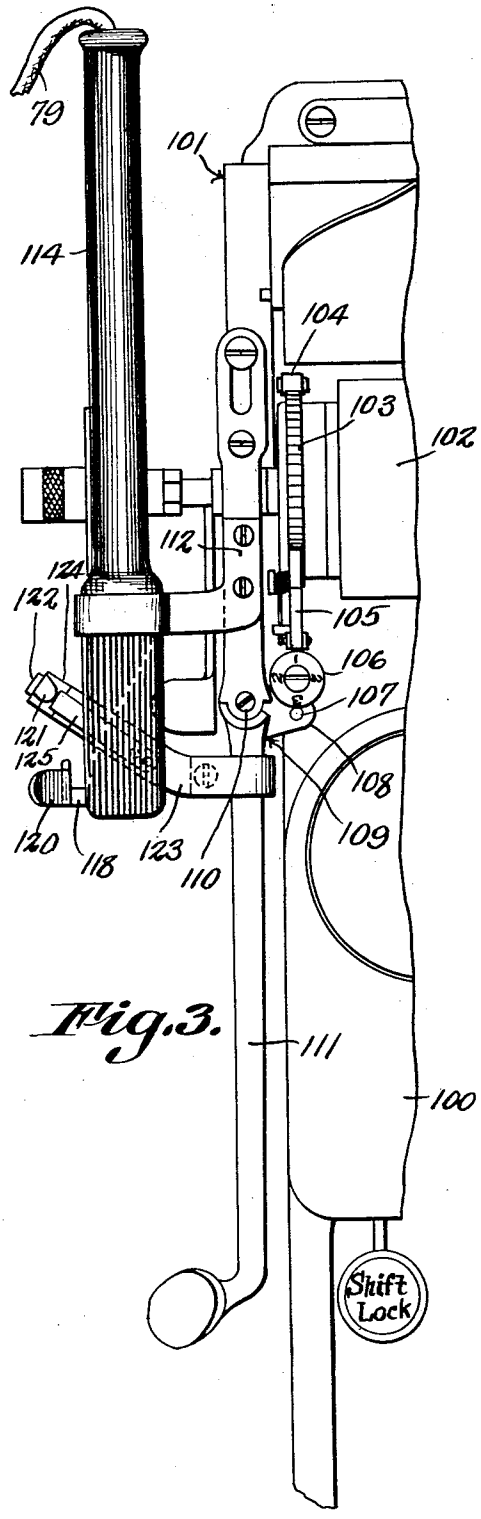


Fig. 3.

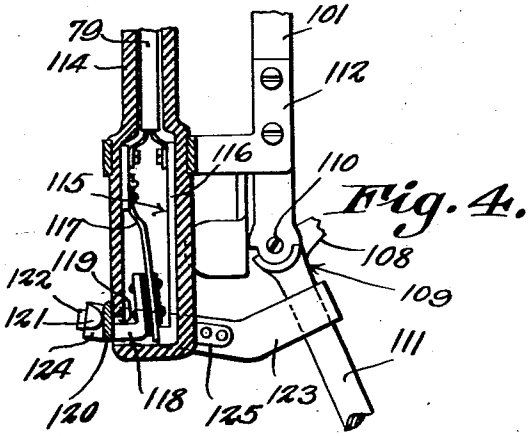


Fig. 4.

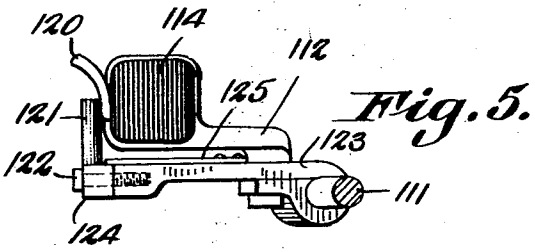


Fig. 5.

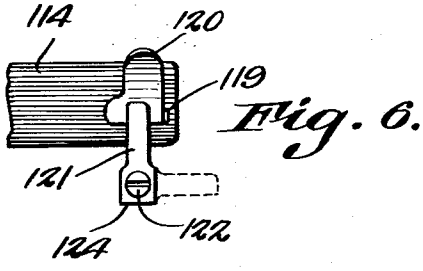


Fig. 6.

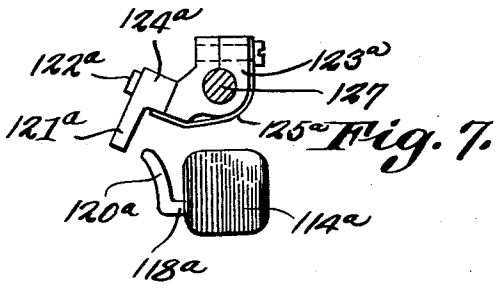


Fig. 7.

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Patented July 25, 1933 1,919,399

UNITED STATES PATENT OFFICE

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TYPEWRITER ATTACHMENT

Application filed November 19, 1932. Serial No. 643,491.

My prior Patent No. 1,881,103, granted on the 4th day of October, 1932, discloses a line-finder; that is, a machine in which a horizontal bar moves downwardly, step by step, at the will of an operator, with respect to an inclined table, for the purpose of designating clearly to a person who is making a copy on a typewriting machine, the line that is being copied from a paper on the table. The step by step movement of the line-finder is produced by electro-mechanical means, such as an electro-magnet and a magnet circuit.

In my aforesaid patent, the magnet circuit is controlled by a simple switch, having nothing to do with the operation of a typewriter. In the present application it is proposed to operate the switch in consonance with the typewriter, and specifically, to operate the switch in consonance with the movement of the roller platen that feeds up the paper in the typewriter, as line after line is typed. Still more definitely stated, it is herein proposed to operate the switch from the part of the typewriter that transmits rotary movement to the platen. The aforesaid part takes many forms. In one well known typewriter, it is a swinging lever at the left hand side of the typewriter. In another, it embodies a shaft journaled for rocking movement at the right side of the typewriter. Whatever be the form of the mechanism which turns the platen, it is proposed to use that mechanism to control the switch that governs the operation of the line-finder.

I aim to supply a device by which, through the operation of the platen-actuating means of a typewriter, the line-finder will make single space steps over the manuscript that is being copied, even though the paper in the typewriter is being turned up by greater steps, to produce double-spaced type-written copy; to reverse the foregoing, that is, to make single-space copy on the typewriter, whilst the line-finder is following double-space manuscript; to enable single-space copy to be made from single-space manuscript; and to make it possible to operate the typewriter and the line-finder, each independently of the other.

It is within the province of the disclosure to improve generally, and to enhance the utility of, devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, my be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows in front elevation, a portion of the manuscript holder and a portion of the typewriter, parts being broken away;

Fig. 2 is a fragmental sectional view showing a part of the manuscript holder;

Fig. 3 is a top plan showing the switch mechanism that is mounted on the typewriter;

Fig. 4 is a horizontal longitudinal section, showing the switch mechanism, parts being in plan;

Fig. 5 is a sectional view showing the switch mechanism in elevation;

Fig. 6 is a side elevation of the structure delineated in Fig. 5, parts being omitted;

Fig. 7 is a fragmental elevation, with parts in section, the view showing a modification.

The aforesaid Patent 1,881,103 is referred to as showing an electrically-operated line-finder. A portion of the drawings in that patent is reproduced in this application, that the construction and operation of the combined and improved device may be manifest. The description of the line-finder and its associated parts, however, may be condensed somewhat, compared with the disclosure of the patent, and is as follows:

There is provided a flat, backwardly-slanting table 1, suitably supported at 2. At the top of the table 1 there is a head block 31. A guide bar 34 extends downwardly along the table 1, and is supported by the head block 31. A slide block 46 is mounted to reciprocate on the guide bar 34, and the slide block carries the line-finder 53. On the lower end of the guide bar 34 there is a transverse

arm 35. A rack bar 36 is mounted on the head block 31 and on the arm 35, to turn on its axis, and can be turned as aforesaid by means of a knob 40 on the lower end of the rack bar. The rack bar 36 has a single space rack 38 on one edge, and a double-space rack 37 on its opposite edge. By turning the rack bar 36 on its axis, either of the racks 38 or 37 may be presented operatively to the lateral finger 60 of a latch 56 which is fulcrumed at 57 on the slide 46. A releasing member 62 is provided and in substance is a shaft, with a long offset crank that extends under the finger 60 of the latch 56 on the slide 46. The lower end of the releasing member 62 has an arm 63 pivoted on the arm 35 of the guide 34. On the upper end of the releasing member 62 there is a U-shaped hanger or arm 65, and this hanger is pivotally mounted at 67 on the head block 31. The hanger 65 carries an armature 73 that is responsive to an electro-magnet 74, mounted on the head block 31. The armature 73 is drawn away from the magnet 74 by a pull spring 71, connected to the hanger 65, and anchored to any suitable part of the machine.

When the electro-magnet 74 is energized and de-energized, the armature 73 is attracted and released, the releasing member 62 swings on its axis, because the armature 73 is carried by the bracket 65, which, in substance, is an arm on the releasing member, the laterally-offset crank portion of the releasing member 62 cooperates with the finger 60 of the latch 56 on the slide 46, to tilt the latch on its fulcrum 57, and to move the finger into and out of engagement with the single space rack 38 or the double space rack 37 of the bar 36 (whichever of the racks 38 or 37 is disposed in operative relation to the finger 60 of the latch 56), and the slide 46 moves down by gravity along the guide 34, step by step, carrying with it the finder 53, from line to line of the manuscript on the table 1, and being copied.

Aside from the electro-mechanical control for the line-finder 53, there is a manual control, represented by a finger piece 64 on the lower end of the releasing member 62, and this finger piece enables the releasing member 62 to be actuated, and to function as it did when actuated by the electromagnet 74 and the armature 73.

Such, viewed grossly, and disregarding many refinements at this time considered of no moment in the present disclosure, is the construction and operation of the electrically-operated line-finder mechanism of my Patent 1,881,103.

Passing to Figs. 3, 4, 5 and 6, there is shown a typewriter 100, on which a carriage 101 is mounted for reciprocation. A platen 102 is journaled for rotation on the carriage 101, and a ratchet wheel 103 is secured to one end of the platen. A back stop pawl 104, mounted on the carriage 101, cooperates with the ratchet wheel 103. The platen 102 is rotated to elevate the paper, as line after line is written thereon, through the instrumentality of a spring-pressed feed pawl 105, which is pivotally mounted on the carriage 101. The adjusting device for the feed pawl 105 is designated by the numeral 106, and by means of the adjusting device 106, the feed pawl 105 may be regulated, as to throw, to fix the space between lines of typewritten matter. The feed pawl 105 is operatively connected at 107 to the short arm 108 of a bell crank lever 109, fulcrumed at 110 on the carriage 101. The horizontally movable, long arm of the bell crank lever 109 is shown at 111.

No claim is made herein to the invention of a typewriter, the parts above described being common and well known, the bell crank lever 109 and parts associated therewith constituting mechanism for operating the platen 102, to advance the paper in the typewriter 100, and permit line after line to be typed upon the paper. The mechanism for operating the platen 102, however, is employed with the manuscript holder shown in Figs. 1 and 2, and embodying the line-finder 53 and related parts.

A bracket 112 is removably secured to the carriage 101, and holds a tubular housing 114, which is made of insulating material. In the enlarged forward end of the tubular housing 114 is disposed a normally open electrical switch 115. The switch 115 embodies a contact terminal 116, secured within the housing 114, and a spring tongue 117, secured at its rear end within the housing, and adapted to make contact with the terminal 116. An angular finger 118 is secured to the free end of the spring tongue 117, but is insulated therefrom. The angular finger 118 extends outwardly through an opening 119 in the housing 114 and carries a finger piece 120.

The finger piece 120 lies in the path of an arm 121, pivotally mounted at 122 on a bracket 123, secured to the long arm 111 of the bell crank 109 which actuates the platen 102. The arm 121 has a flat-sided head 124, receiving the pivot element 122. A spring tongue 125 is secured at one end to the bracket 123, the opposite end of the spring tongue or retainer engaging the flat-sided head 124, to hold the arm 121 erected, and in the position of Fig. 5, so as to engage with the finger piece 120 of the switch 115.

The circuit for the electro-magnet 74 is designated by the numeral 79, and its constituent conductors are connected, respectively, as shown in Fig. 4, to the contact terminal 116 and to the spring tongue 117 of the switch 115. When the arm 111 of the bell crank lever 109 is swung to the right, as shown in Fig. 4, the bracket 123 carries the arm 121 into engagement with the finger piece 120 of the spring tongue 117, the spring

tongue is pressed against the contact terminal 116, and the circuit of the electro-magnet 74 is closed. Therefore, whenever the member 111 is operated to turn the platen 102 by means of the feed pawl 105 and the ratchet wheel 103, the line-finder 53 takes a step downwardly.

It is to be observed that the switch 115 need not be operated by way of the member 111 on the typewriter. If the operator desires, he can push in on the finger piece 120, and close the switch 115. The line-finder 53, therefore, can be operated at any time, without moving the platen 102 of the typewriter.

It may be desired to operate the platen 102 of the typewriter, without imparting movement to the line-finder 53. This can be done by turning down the arm 121, from the position of Fig. 5, so that it does not engage the finger piece 120 of the switch 115 when the member 111 is operated.

The throw of the arm 111 of the bell crank lever 109 is always the same, when the platen 102 is turned, regardless of whether the platen gets a one space movement, a two space movement, or a three space movement. The throw of the member 111 is always the same, because the throw is varied by adjusting the position of the feed pawl 105 with respect to the ratchet wheel 103, that adjustment being brought about by the device indicated at 106. The change in the line spacing on the typewriter, brought about by the operation of the member 111, therefore, can be made by the operator at any time, without making a corresponding change in the downward movement of the line-finder 53. By reversing the rack bar 36 on its axis, so that the rack 37 or the rack 38 is in operative position, the step by step movement of the line-finder 53 may be varied, without working any corresponding change in the movement that is imparted to the platen 102 by the pawl 105 and the member 111.

In view of the foregoing, it will be seen that the machine may be set so that single space manuscript on the table 1, and cooperating with the line-finder 53, may be typed on the typewriter 100 with a double space between the lines. Likewise, double space manuscript on the table 1 can be typed in single space on the typewriter 100, and single space manuscript on the table 1 can be typed in single space on the typewriter.

The mechanism for operating the platen 102 is of various kinds, depending upon the construction of the typewriter. It is not necessary that the horizontally swinging arm 111 of Fig. 3 be used. Thus, in Fig. 7, there is shown digrammatically, a shaft 127, journaled for rocking movement about its axis, and sometimes located at the right hand side of the typewriter, the shaft 127, in function, corresponding to the horizontally swinging arm 111 of Fig. 3. In Fig. 7, parts hereinbefore described have been designated by numerals previously used, with the suffix "*a*". Without any description, it will be entirely clear to any one skilled in the art, that the rocking shaft 127 may be employed in the place of the arm 111.

Having thus described the invention, what is claimed is:

1. In a device of the class described, a typewriter having a platen, mechanism for actuating the platen, and an electric switch on the typewriter and operatively connected with a part of said mechanism, whereby the switch will be opened and closed when said mechanism is operated.

2. In a device of the class described, a typewriter including a movable carriage, a platen on the carriage, mechanism for actuating the platen, and an electric switch on the carriage and operatively connected with a part of said mechanism, whereby the switch will be opened and closed when said mechanism is operated.

3. In a device of the class described, a typewriter having a platen, mechanism for actuating the platen, an electric switch on the typewriter and operatively connected with a part of said mechanism, whereby the switch will be opened and closed when said mechanism is operated, and means for disconnecting the switch from said mechanism, to permit said mechanism to be operated alone, at the will of an operator.

4. In a device of the class described, a typewriter having a platen, mechanism for actuating the platen, and an electric switch on the typewriter and operatively connected with a part of said mechanism, whereby the switch will be opened and closed when said mechanism is operated, the switch comprising a part under the control of an operator and movable independently of said mechanism, to permit the switch to be operated alone.

5. In a device of the class described, a typewriter having a platen, mechanism for actuating the platen, an electric switch on the typewriter and operatively connected with a part of said mechanism, whereby the switch will be opened and closed when said mechanism is operated, means under the control of an operator for disconnecting the switch from said mechanism, thereby permitting said mechanism to be operated alone, and the switch including a part which is movable independently of said mechanism, thereby permitting the switch to be operated alone.

6. In a device of the class described, an electric switch, means for mounting the switch on a typewriter, a bracket, and means for mounting the bracket on the platen-actuating member of a typewriter in such position that the bracket will cooperate with the switch, to open and close the switch, when said member is moved to operate the platen.

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