(No Model.)

T. BIGELOW.

LINE FEED MECHANISM FOR TYPE WRITING MACHINES.

No. 414,749. Patented Nov. 12, 1889.

FIG. 1.

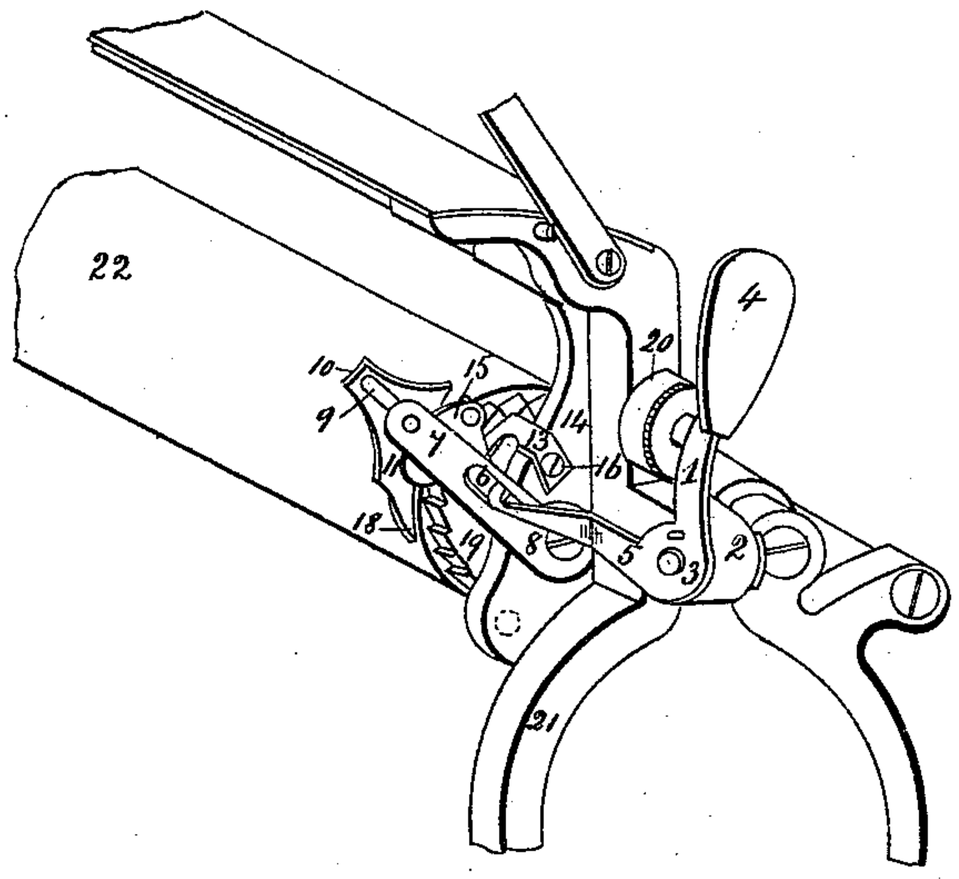
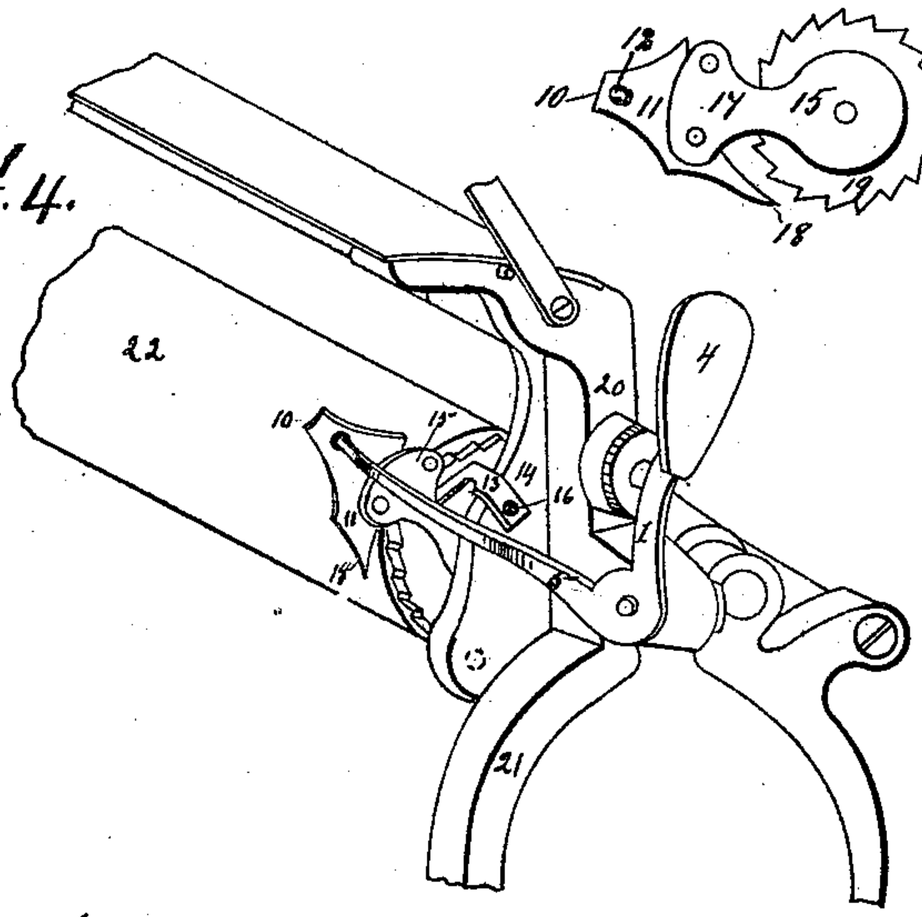


FIG. 2.

FIG. 3.

FIG. 4.



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UNITED STATES PATENT OFFICE.

TIMOTHY BIGELOW, OF BROOKLYN, NEW YORK.

LINE-FEED MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 414,749, dated November 12, 1889.

Application filed November 28, 1888. Serial No. 292,092. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY BIGELOW, of the city of Brooklyn and State of New York, have invented a new and useful Improvement in Line-Feed Mechanism for Type-Writing Machines; and I do hereby declare that the following specification, taken in connection with the drawings annexed to and forming part of the same, furnishes a full and clear description thereof, sufficient to enable those skilled in the art to which it pertains to make and operate the same.

My invention relates to type-writing machines, and has particular reference to the mechanism or devices for manipulating the paper on which the printing is done, and has for its object the provision of a construction of parts whereby greater simplicity in the operation of line-feed is attained.

The invention is particularly applicable to the style of type-writer known as the "Hammond," an example of which may be seen in the specification and drawings of Letters Patent No. 290,419, of December 18, 1883. It will be understood, however, that the invention may be applied to other machines than that known as the "Hammond."

The accompanying drawings illustrate what I consider the best means for carrying my invention into practice.

Figure 1 is a view in perspective of my improved paper-feed attached to a section of the frame of an ordinary paper-carriage of a Hammond machine. Fig. 2 is a plan view of the pawl and ratchet partly shown in Fig. 1. Fig. 3 shows the construction of spring operating the thumb-lever shown in Fig. 1. Fig. 4 is a perspective view of a modification of the construction shown in Fig. 1.

Similar characters of reference indicate corresponding parts in all the figures where they occur.

A bell-crank thumb-lever 1 is attached to the rear side of the laterally-projecting lug 2 of the left-hand carriage end 21. It is provided, as levers of kindred mechanism have been heretofore provided, with a spring 23 around its pivot 3, whose action tends to throw the thumb-piece away from the carriage end. The inner or horizontal arm 5 of said lever enters a slot 6 in the middle part of the lever 7, one end of which lever is pivoted on the shaft of the feed-roll 22 at 8, either within or without the roll-hanger 14, and the other end is connected by a pin 9 with the arm 10 of the pawl 11, which has a hole 12 made in it for that purpose, as shown in Fig. 4. If preferred, the arm 5 can be prolonged so as to enter the hole 12, which must then be elongated in slot form, the lever 7 being then omitted. I place a stop 13 on the roll-hanger 14 above the click-lever 15, which, by loosening the screw 16, can be adjusted to limit accurately the upward movement of the click-lever 15. A stop-pin can be used for the same purpose. The pawl 11 (see Fig. 4) is pivoted at 17 on the click-lever, as heretofore, with a spring around the pivot 17, whose action tends to thrust the point 18 of the pawl against the ratchet-wheel 19.

This line-spacing device may be applied to any type-writing machine using a paper-feed roll. It may be placed at either end of the feed-roll; but if at the right-hand end the movement of its thumb-lever should be reversed and the feed of the paper effected by a pull instead of a push. Where roll-hangers are not used, the devices which are herein described as attached thereto may be attached in suitable positions to any frame or support in which the shaft of the roll turns.

The operation of the device is as follows: Starting from the position of rest shown in Fig. 1, pressing the thumb-piece 4 toward the carriage end where the number 20 is placed causes the inner arm 5 of the lever 1 to descend. Its extremity inserted in the slot 6 carries the rear end of the lever 7 downward, and this by means of the pin 9 draws down the arm 10 of the pawl 11, causing the point of the pawl 18 to engage with a tooth of the ratchet-wheel 19 and turn the said wheel part way around, feeding the paper upward to a distance fixed by the position of the adjusting-nut 20, against which the upright arm of the bell-crank lever 1 strikes at about the position of the figure 1. On releasing the thumb-piece 4 the action of the spring 23, which surrounds the pivot 3 of the bell-crank lever 1, restores the parts to the position shown in the drawings, the pawl being withdrawn from the ratchet-wheel and the paper-feed rolls left free for rotating in either direction without the need of specially detaching the pawl from

the ratchet. The spring which is placed around the pivot of the bell-crank lever, and whose resistance opposes the inward movement of the thumb-piece, can be made weaker than was proper in any construction and relation in which it was used prior to my improvements, it being no longer charged with the double duty of operating the feed-rolls and of returning the parts to their position of rest, but performing the latter function only.

The paper-feed rolls in my improved device should be made to press together firmly, or be made with some friction at their bearings, so as to obviate the slight tendency of the hammer-stroke to draw the paper through between them. In making interlineations especially, or additions to work already printed, the paper can be moved up or down and brought to any given line with accuracy and freedom (by means of the milled head or equivalent usually attached to the end of such feed-rolls) and without the preliminary release of any pawl or other feeding mechanism.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a ratchet-wheel 19 on the shaft of the paper-feed roll 22 of a type-writer, of a click-lever 15, pivoted pawl 11, and bell-crank lever 1, connected at one end to the pawl 11, substantially as set forth.

2. The combination, with the ratchet-wheel 19 on the feed-roll shaft of a type-writer, of the click-lever 15, pivoted pawl 11, pin 9, connected therewith, pivoted slotted arm 7, to which the pin 9 is also connected, and the bell-crank lever 1, one of whose members is connected to the slotted arm 7.

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