

No. 776,851.

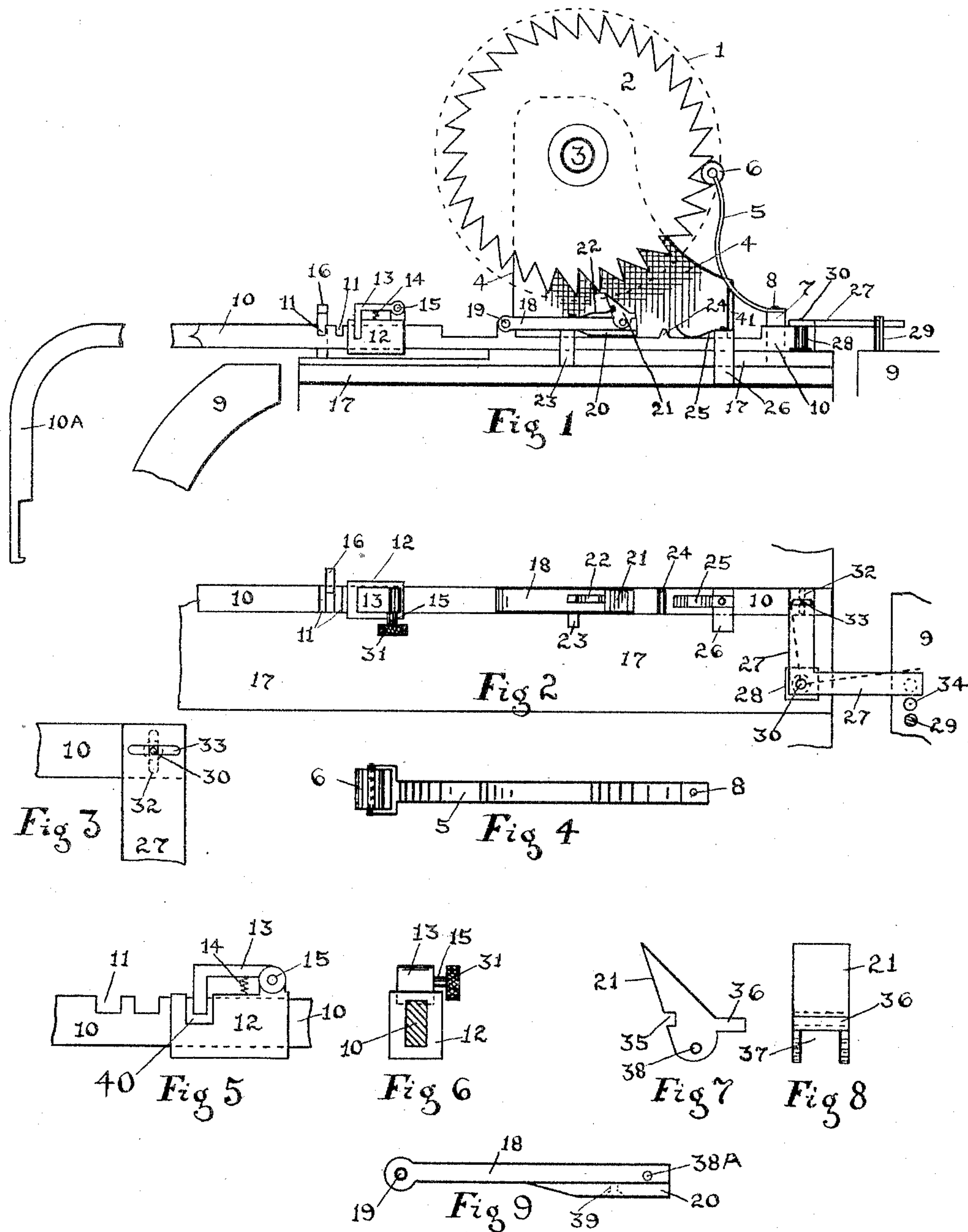
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LINE SPACING MECHANISM FOR TYPE WRITING MACHINES.

APPLICATION FILED MAY 4, 1904.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## LINE-SPACING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 776,851, dated December 6, 1904.

Application filed May 4, 1904. Serial No. 206,328. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. KITZMILLER, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Line-Spacing Mechanism for Type-Writing Machines, of which the following is a specification.

My invention relates to line-spacing mechanism for type-writing machines, and has for its object the regulation of the distance between the lines, so that the lines may be close together or farther apart, as desired.

My invention also has for its object automatically changing the line-space.

Referring to the drawings, Figure 1 is a side elevation of the platen, platen-ratchet or spacing wheel, and the operating mechanism. Fig. 2 is a plan of the operating devices, the platen and platen-ratchet wheel being removed. Fig. 3 is an enlarged plan of the bell-crank lever shown at the right in Fig. 2. Fig. 4 is a plan of the buffer or check-roller. Fig. 5 is an elevation of the line-space latch-block or regulator. Fig. 6 is an end view of the same. Fig. 7 is a plan of the notched ratchet-pawl or detent. Fig. 8 is a rear end elevation of the same. Fig. 9 is an enlarged elevation of the jointed detent-arm or wedge-block.

In the drawings like numbers indicate corresponding parts in all the views.

1 is the platen, (shown by dotted lines in Fig. 1.)

2 is the platen-actuating ratchet-wheel.

3 is the platen shaft or axis.

4 is the platen-support or end piece.

5 is a spring or tongue for the retarding-buffer or check-roller 6 and is supported by a lug 7 on the carriage 17 of the machine by the screw or pin 8. The roller 6 prevents a too free movement of the ratchet and platen 1, yet easily turned by hand in either direction.

10 is the line-space-operating bar or rod, having a curved part 10<sup>A</sup> for use as a handle for hand operation of the rod or bar.

11 represents notches in the rod 10 for engagement with the latch 13, the said latch be-

ing pivoted at 15 to the latch-block 12. The latch-block 12 is movable on the pull-rod or handle-bar 10 and is for the purpose herein-after described, 14 being a spring for holding the latch in the slot when the machine is in operation.

16 is a stop on the carriage 17 for limiting the movement of the latch-block 12.

18 is a detent or pawl arm pivoted at 19 on the line-space bar or rod 10.

31 is a thumb-nut for releasing the latch 13 from the notches 11 when it is desired to change the distance between the writing-lines.

The arm 18 is provided with an inclined or angular die 20 of suitable length, so that it may travel in a raised horizontal line. When the rod or bar 10 is pulled outward or toward the left, Fig. 1, the lug 23 on the carriage 17 causes the angular part of the block 20 to be lifted.

21 is a spring-actuated notched detent or pawl on the end of the arm 18, fastened in the aperture 38<sup>A</sup>, Fig. 9, and comes in contact with the teeth of the ratchet 2 when the arm 18 is lifted by the angular die 20, thus moving the ratchet 2 and platen 1 to the desired distance for spacing. The detent or pawl 21 is kept in its normal position by means of the spring 22 in the notch 35, Fig. 7, and causes the lug 36 to press against the arm 18 and keeps it at its proper angle. The detent is pivoted to the arm 18 by a pin in the aperture 38, Fig. 7.

24 is a lug on the line-space bar or handle-rod 10, which engages with the spring 25 and holds the sliding bar 10 when pushed toward the rear of the machine, during which operation the lug or arm 41, Fig. 1, engages the spring 5 and disengages the roller 6 from the teeth of the ratchet-wheel 2 in order that the platen may freely rotate in either direction. The spring 25, being now in engagement with the lug 24, maintains the pull-rod and roller 6 in this position until the pull-rod is drawn to its normal position.

26 is a lug on the carriage 17 for supporting the spring 25.

27 is a bell-crank with arms at right angles to each other and is pivoted at 30 on the lug



or block 28 and has a slot 33 on one of its arms and is pivoted in the slot, as at 32, to the pull-rod 10, which admits of the pull-rod 10 being operated by hand or automatically when the carriage is returned for the commencement of a new writing-line.

34 is an aperture for the pin 29, shown in place in another aperture. The pin 29 may be placed in either of the holes or apertures, according to how soon or late the contact is to be made, and causes one of the bell-crank arms to strike the pin 29 when the carriage is returned for a new writing-line and automatically makes the desired line-space. When the bell-crank arm comes in contact with the pin 29, it assumes a position as indicated by dotted lines in Fig. 2.

39 is a screw or pin for fastening the die or wedge-shaped die-block 20 on the arm 18, Fig. 9.

In my invention the line-spacing is either done automatically or by hand when the carriage is returned after reaching the end of a writing-line. The spaces can be regulated by placing the latch-block at any desired point on the rod 10, which is secured in any of the notches 11 by the latch 13, according to the width of space desired. The detent or pawl 21 is normally at a fixed angle, which is accomplished by the lug or ear 36, Figs. 7 and 8, and consequently operates only in one direction, and that being when the detent passes the teeth of the ratchet and working against the spring 22, which finally restores it to the position as shown in Fig. 1, in which case it is ready for another spacing operation. The latch-block is provided with a suitable notch, as at 40, Fig. 5, so as to enable the latch 13 to reach the teeth and hold the block in position either close to or away from the stationary pin or lug 16, which governs the stroke of the lever 10.

41 is a pin for disengaging the roller 6 from the ratchet-wheel 2 when the bar 10 is pushed toward the rear.

I am not confined to the exact details as herein set forth; but I may make such modifications as may be deemed expedient without departing from the subject-matter herein claimed.

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

1. In a line-spacing mechanism for type-writing machines, the combination comprising a platen-mounted carriage, a toothed ratchet-wheel for actuating the said platen, a hooked line-space-actuating bar or rod under the horizontal center line of the said platen, a jointed arm attached to the said bar or rod, an inclined or wedge-shaped thicker portion or die-block on the said jointed arm, a spring-controlled notched detent or pawl on the said jointed or pivoted arm, a lug on the said carriage adapted to elevate the said arm and de-

tent to engage it with the said ratchet-wheel, and an offset or projection on the said detent, and means for horizontally operating the line-space-actuating rod to bring the said detent in contact with the ratchet-wheel teeth, as described.

2. In a line-spacing mechanism for type-writing machines, the combination comprising a carriage, a platen, a toothed ratchet-wheel for actuating the said platen, a notched and slotted line-space rod or bar, a pivoted detent-arm on the said line-space bar or rod, an angular notched spring-controlled detent or pawl on the said pivoted arm, an angular lug or wedge-shaped die-block on the said arm, a lug on the carriage adapted to engage the wedge-shaped die-block and raise the said pivoted detent-arm, a spring-supported roller for engagement with the toothed ratchet-wheel, a lug or arm for disengaging the said roller from the ratchet-wheel, a lug on the line-space bar, a spring on the carriage for engagement with the said lug and adapted to hold the said line-space bar at either point of its throw, a slotted sliding latch-block, a latch for securing the said block at any point on the notched portion of the hooked line-space bar or rod, and a pin or lug on the carriage for limiting the movement of the said latch-block and line-space bar or rod, as described.

3. In a line-spacing mechanism for type-writing machines, the combination comprising a platen, a toothed ratchet-wheel attached to the said platen, a laterally-movable carriage, means for retarding the revolution of the said ratchet-wheel and platen, a hooked line-space-operating bar under the said ratchet-wheel, a pivoted arm on the said hooked line-space-operating bar, a spring-pressed inclined detent or pawl movably pivoted on the said arm, means for elevating the said detent or pawl to engage the ratchet-wheel teeth, a detachable angular or wedge-shaped die on the said arm, a lug on the said hooked line-space bar, a spring adapted to secure the said hooked bar at its forward and backward position, a plurality of notches in the said hooked line-spacing or handle bar, a movable latch-block on the said hooked or handle bar, a spring-controlled hinged hooked latch for engaging in the said notches, and a stop or lug on the carriage for gaging the distance traveled by the said latch-block and line-space bar or rod, as described.

4. In a line-spacing mechanism for type-writing machines, the combination comprising a carriage, a platen, a ratchet-wheel rigidly secured to the said platen, means for rotating the said platen and ratchet-wheel, a hooked handle-bar or line-spacing rod provided with a notched portion, a latch-block movable along the said handle-bar, a jointed latch for engaging the said notches in the handle rod or bar and adapted to regulate the width of the writing-line spaces, means for re-



leasing the said latch from the notches, a piv-  
 oted inclined arm or wedge-bar movable with  
 the said handle or hooked line-space bar, means  
 for elevating the said inclined arm or wedge-  
 5 bar, means for securing the said handle-bar  
 at a point on the carriage for releasing the  
 ratchet-roller, a pivoted bell-crank lever hav-  
 ing its arms at right angles to each other one  
 of the said arms being provided with a slot,  
 10 means for securing one arm of the bell-crank  
 on the end of the line-space or handle bar,  
 means for supporting and pivoting the said  
 bell-crank in the vicinity of the junction of  
 its arms, a detachable pin or rod on the frame  
 15 of the machine adapted to automatically op-  
 erate the line-space rod or handle-bar, and  
 means for varying the point of contact be-  
 tween the said pin and the bell-crank lever, as  
 described.

20 5. In a line-spacing mechanism for type-  
 writing machines, the combination compris-  
 ing, a platen, a ratchet-wheel for actuating the  
 said platen, a movable carriage, a line-space  
 bar or handle-rod provided with a series of  
 25 notches, a movable adjustable latch and latch-  
 block, a pivoted wedge-shaped die-arm, a

spring-controlled detent, means for causing  
 the detent on the die-arm to engage the said  
 ratchet-wheel, a pivoted oscillating slotted  
 right-angled bell-crank lever, means for mov- 30  
 ably securing the said bell-crank lever to the  
 line-space bar or handle-rod, a pin secured in  
 the line-space bar or handle-rod engaging in  
 the slot on one arm of the said bell-crank le-  
 ver, a pin or pivot adapted to fulcrum the 35  
 said bell-crank lever, a detachable pin on the  
 frame of the machine adapted to automatic-  
 ally operate the line-space bar or handle-rod  
 during the return of the carriage for the com-  
 mencement of a new writing-line, and a plu- 40  
 rality of apertures in the frame of the ma-  
 chine for changing the position of the said  
 pin and the striking-point of the bell-crank  
 arm, substantially as described.

In testimony whereof I have hereunto af- 45  
 fixed my signature in the presence of two sub-  
 scribing witnesses.

GEORGE M. KITZMILLER.

Witnesses:

A. O. CALCOTT,  
 THOMAS HANLON.