Feb. 2, 1926. 1,571,519

C. GABRIELSON

REVERSE LINE SPACING DEVICE FOR TYPEWRITING MACHINES

Filed Jan. 12, 1922

Fig. 1.

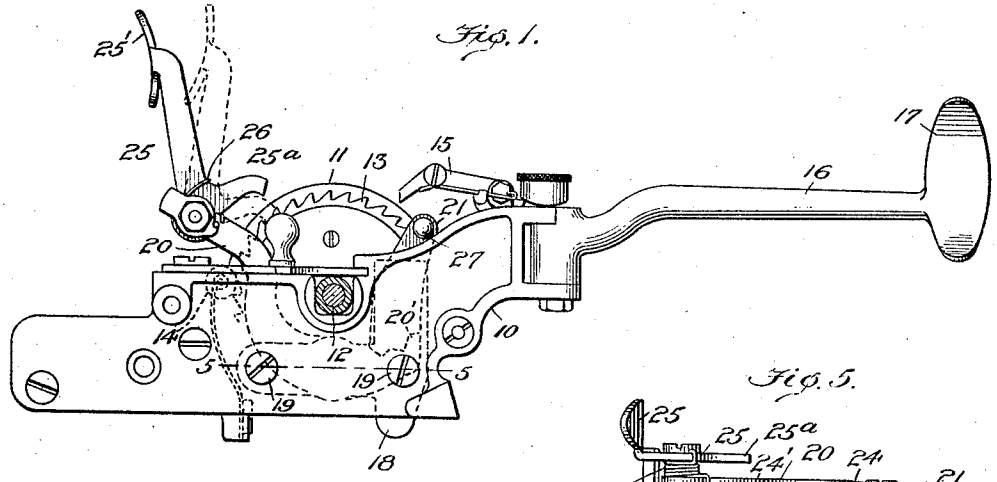


Fig. 5.

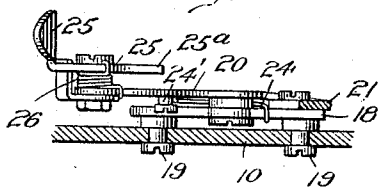


Fig. 2.

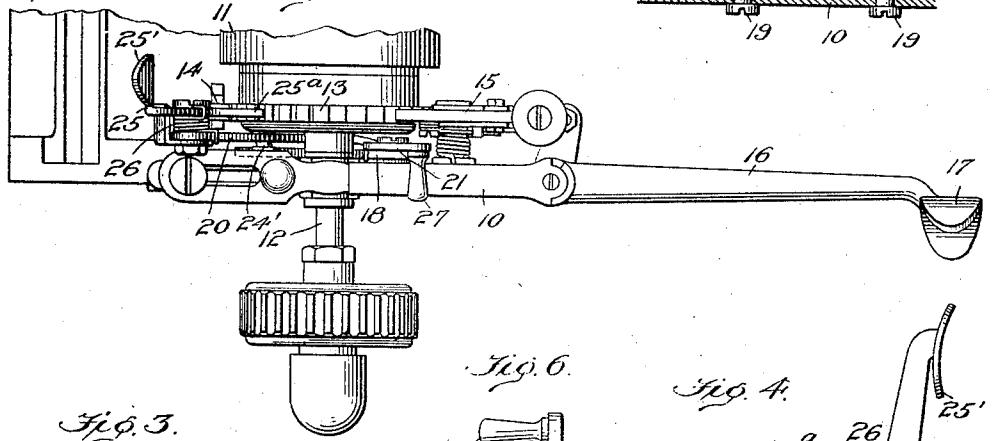


Fig. 6.

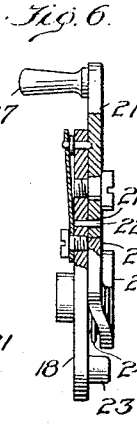


Fig. 4.

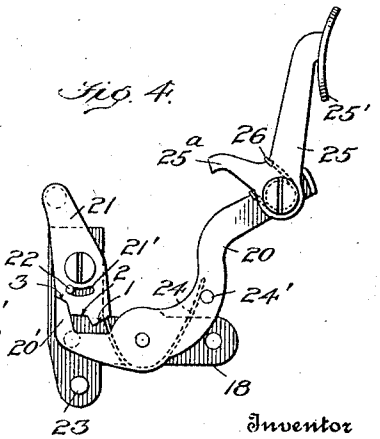
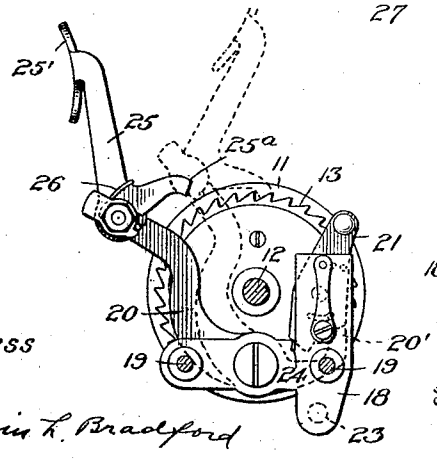


Fig. 3.



Witness

Edwin L. Bradford

Inventor

Carl Gabrielson,

By Watson, Cole, Morse & Grindle,

Attorney

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UNITED STATES PATENT OFFICE.

CARL GABRIELSON, OF SYRACUSE, NEW YORK.

REVERSE LINE-SPACING DEVICE FOR TYPEWRITING MACHINES.

Application filed January 12, 1922. Serial No. 528,744.

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and residing at Syracuse, Onondaga County, State of New York, have invented certain new and useful Improvements in Reverse Line-Spacing Devices for Typewriting Machines, of which the following is a specification.

The present invention relates to typewriting machines and particularly to line spacing mechanisms.

The object of the invention is to provide a reverse line spacing mechanism, that is, a mechanism for rotating the platen in a direction the reverse of that in which it is rotated in advancing the sheet line by line, in the usual operation of the machine. The reverse line spacing device enables the operator to move the platen backwards a predetermined number of line spaces, without error, by a single movement of the hand to operate a reverse line space lever. This is particularly desirable when the typewriter is being used to address form letters and in similar work.

In the drawings:

Figure 1 is an end elevation of a portion of a typewriter carriage having the invention incorporated therewith.

Figure 2 is a top plan view of the same.

Figure 3 is a view similar to Figure 1 with the typewriter carriage frame broken away;

Figure 4 is a side elevation of the reverse line spacing mechanism, this figure illustrating the reverse side of the mechanism shown in Figure 3;

Figure 5 is a section on line 5—5 of Figure 1; and

Figure 6 is an edge view of a portion of the mechanism, partly broken away.

Referring to the drawing, a portion of the carriage frame of the typewriter is indicated at 10, the platen at 11, platen shaft at 12, and platen ratchet at 13. A spring pressed detent is indicated at 14 which cooperates with the ratchet 13 to hold the platen in fixed position between the movements of the line spacing mechanism. The pawl 15 constitutes the usual line spacing device for advancing the platen, this pawl being actuated by means of a line space lever 16 having a finger piece 17. The pawl 15 and lever 16 constitute part of a well known line space mechanism which need not be described in detail.

Between the frame and the end of the platen, is a plate 18, clearly shown in Figures 3 and 4, which plate is secured in position by screws 19 passing through the frame and having threaded engagement with said plate. Pivotally secured to this plate are reverse line space lever 20 and variable throw stop 21. The reverse line space lever has an upturned toe 20′ at its lower end, the end of which is adapted to abut against any one of the steps 1, 2 or 3 of the variable throw stop 21. The movement of the variable throw stop is limited by a pin 22, mounted in the plate 18, which enters a slot 21′ in the pivoted stop 21 so that one of the steps 1, 2 or 3 is always in position to limit the upward movement of the toe 20′ of lever 20. The downward movement of the toe 20′ is limited by a fixed stop 23.

A spring 24 which presses against the vertical edges of the plate 18 and against the stud 24′ of the lever 20 normally tends to rotate this lever in a counter-clockwise direction (Figures 1, 2 and 3) and therefore to keep the toe 20′ normally resting against the stop 21. The position of the stop 21 determines the position of lever 20, and it will be noted that if the toe 20′ is movable only between the stud 23 and the step 1 of the stop 21, the possible movement of the lever 20 is slight and that the possible movement is increased when the stop 21 is turned so that the toe 20′ can oscillate between the stud 23 and the surface 2. The lever 20 has a still greater movement when the toe 20′ moves between the stud 23 and the surface 3.

Pivotally secured to the upper end of the reverse line space lever 20 is a pawl lever 25 which is normally pressed by a spring 26 to occupy its full line position (Figures 1 and 3) but which may be rotated about its pivotal point by pressure of the finger on the finger piece 25′ until the pawl end 25ª comes into contact with one of the teeth of the ratchet 13, as shown in dotted lines in Figure 1. This pawl lever projects above the other adjacent portions of the carriage and into position to be conveniently moved by the operator.

Assuming the parts to be positioned as shown in the drawings, the operator to rotate the platen, backwardly exerts a pressure on the finger piece 25′, the immediate effect of which is to rotate the pawl lever 25 until the pawl 25ª contacts with one of the teeth

of ratchet 13, as shown in dotted lines in Figure 1. The lever 20 is not moved during this movement of the pawl lever 25. Further pressure of the fingers now results in movement of the reverse line space lever 20 and rotation of the platen about the platen shaft. This movement of the lever 20 and the platen continues until the toe 20′ strikes the stop 23, the forward pull of the fingers on the pawl lever 25, of course, causing a downward, as well as a forward pressure to be exerted by the pawl 25ª on the ratchet tooth which it has engaged so that there is no slipping of the pawl 25ª over the ratchet.

The toe 20′ having been, for instance, in initial contact with the step 3 of the stop 21, the lever 20 has had a maximum forward rotation and, in the mechanism illustrated, the parts are so designed that this maximum rotation corresponds to four line spaces, so that the platen has been turned four spaces by a single movement of the operator's hand. With the stop 21 turned so that the toe 20′ is in initial contact with the step 2 of the stop, lever 20 would have a lesser rotation, rotating the platen 11 only three spaces. Where the toe 20′ has initial contact with step 1 of stop 21, it is possible to effect the rearward movement of platen 11 through only two spaces by a single movement of the lever 20. The stop 21 is provided with a handle 27, by means of which it may be rocked about its pivotal axis. Due to the fact that the contact surfaces of toe 20′ and stop 21 are inclined, as shown, the stop may be freely moved in either direction, when in contact with the toe 20′ its lower end constituting in reality, a cam which depresses the toe 20′ or allows it to rise depending upon the direction of movement of the member 21.

It is thought that one skilled in the art will perceive the advantages of the invention and the many forms in which its principles may be embodied. It is, as before pointed out, extremely useful in typewriting in the addresses in form letters. In typing such letters it is customary to bring the first line of the letter to the printing point and then to rotate the platen backwards the desired number of spaces by grasping the twirling knob of the platen shaft. Error often occurs in this method, from a miscount of the ratchet teeth passed over by the detent necessitating the discarding of the sheet. By using the reverse line spacing device the platen is rotated to reverse the platen the desired number of spaces instantly and without danger of error.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. Reverse line spacing mechanism for typewriters, including in combination with the platen ratchet, a pivoted reverse line space lever, a pawl lever pivotally carried by said line space lever and having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator, and means for limiting the throw of the reverse line space lever in both directions.

2. Reverse line spacing mechanism for typewriters including in combination with the platen ratchet, a pivoted reverse line space lever, a pawl lever pivotally carried by said line space lever and having a portion adapted to engage the platen ratchet and a second portion adapted to be engaged by the operator, and a variable throw stop limiting the throw of the reverse line space lever in one direction.

3. Reverse line spacing mechanism for typewriters including in combination with the platen ratchet, a pivoted reverse line space lever, a pawl lever pivotally carried by said line space lever and having a portion adapted to engage the platen ratchet, a second portion adapted to be engaged by the operator, fixed means to limit the throw of the reverse line space lever in one direction, and adjustable means limiting the throw of said lever in the opposite direction..

4. In a typewriter, in combination with the platen, the platen ratchet, and means for rotating the platen forwardly for line spacing, a reverse line spacing device comprising a reverse line space lever, a pawl lever pivotally carried by said lever and having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator.

5. In a typewriter, in combination with the platen, the platen ratchet, and means for rotating the platen forwardly for line spacing, a reverse line spacing device comprising a reverse line space lever, a pawl lever pivotally carried by said lever and having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator, and means for limiting the throw of the reverse line space lever in both directions.

6. In a typewriter, in combination with the platen, the platen ratchet, and means for rotating the platen forwardly for line spacing, a reverse line spacing device comprising a reverse line space lever, a pawl lever pivotally carried by said lever and having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator, and a variable throw stop limiting the movement of the reverse line space lever in one direction.

7. Reverse line space mechanism for typewriters including in combination with the platen ratchet, a reverse line space lever, means carried by said lever having a portion adapted to engage the teeth of the

platen ratchet and a second portion adapted to be engaged by the operator, and an adjustable stop limiting the movement of said lever in one direction, the end of said lever abutting against said stop and said stop being adjustable in either direction while in contact with said lever.

8. Reverse line space mechanism for typewriters, including in combination with the platen ratchet, a pivoted reverse line space lever, a spring acting to keep said lever in retracted position, a pawl lever pivotally carried by said line space lever and having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator, a spring normally holding said pawl lever out of engagement with the platen ratchet, and a variable throw stop limiting the movement of the line space lever in one direction.

9. In a typewriter, the combination with the platen, platen ratchet, and means for rotating the platen forwardly in line spacing, of a second means for rotating the platen backwardly through one or more line spaces, said second means being normally disconnected from the platen, supported and operated independently of said first means, and having a reverse line space member, an element carried by said member and adapted to engage the teeth of the platen ratchet, stops for limiting the movement of the line spacing mechanisms in rotating the platen, and means whereby each of said stops may be adjusted independently of the other.

10. In a typewriter, the combination with the platen, platen ratchet, and means for rotating the platen forwardly in line spacing, of a second means for rotating the platen backwardly through one or more line spaces, said second means being normally disconnected from the platen and operable independently of said first means and including an independently adjustable stop member whereby it may be adjusted to space the platen one or more spaces backwardly when actuated.

11. In a typewriter, the combination with the platen, platen ratchet, and means for rotating the platen forwardly in line spacing, of a second means independent of said first means for rotating the platen backwardly in line spacing, each of said means having an operating pawl adapted to engage the platen ratchet, and an independently adjustable mechanism for operating each of said pawls to effect rotation of the platen through different angles of rotation.

12. Reverse line space mechanism for typewriters including in combination with the platen ratchet, a reverse line space lever, means carried by said lever having a portion adapted to engage the teeth of the platen ratchet and a second portion adapted to be engaged by the operator, and a pivotally supported adjustable stop having a plurality of abutment surfaces at different distances from its pivotal axis and cam faces between said abutment surfaces, the end of the reverse line space lever being adapted to bear against said abutment surfaces, and the stop being adjustable in either direction while the end of the lever is in contact therewith.

In testimony whereof I hereunto affix my signature.

CARL GABRIELSON.