

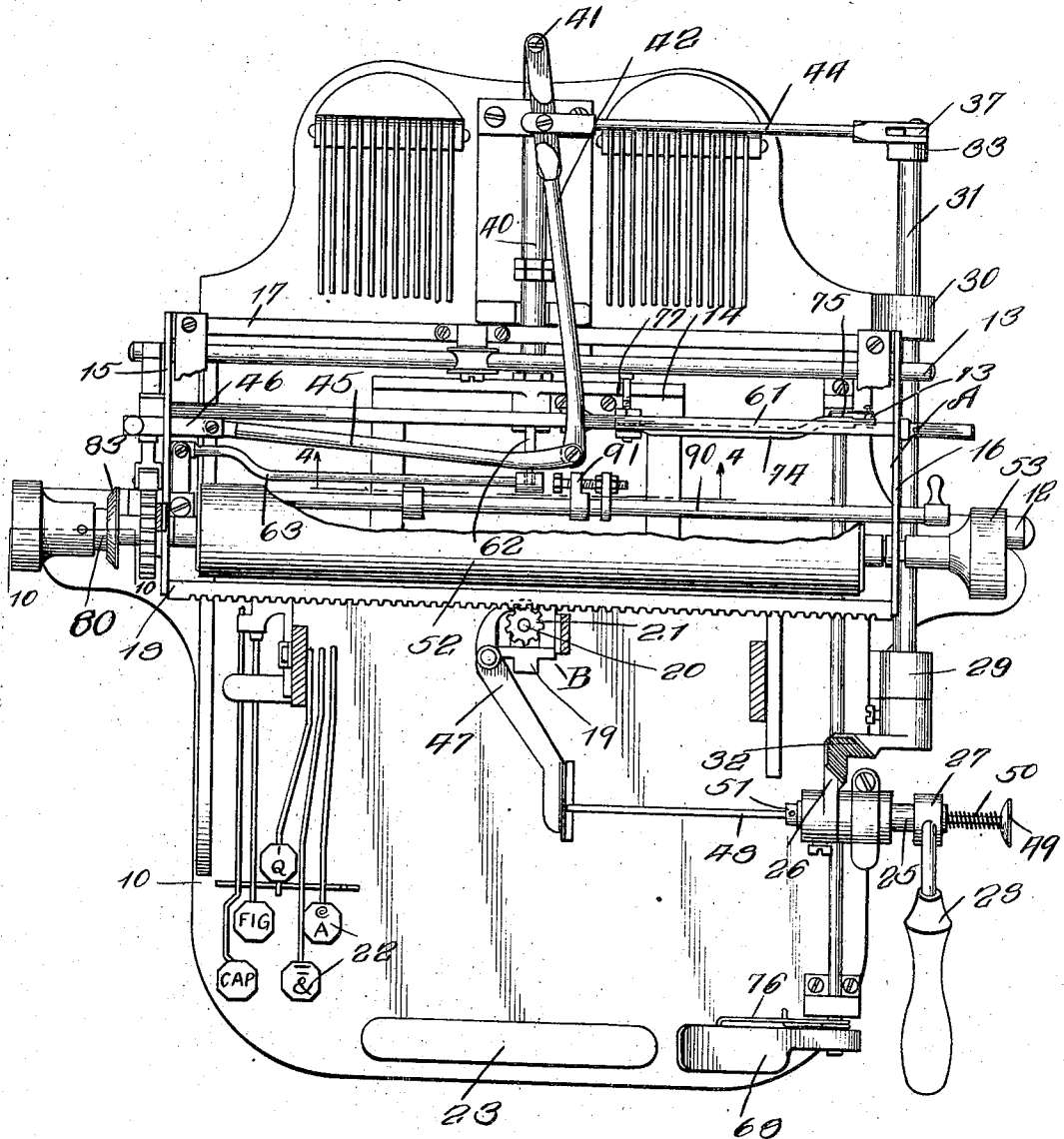
B. F. FRIZZELL.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 15, 1912.

1,061,464.

Patented May 13, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses
H. S. Braun
Henry D. Bright

Inventor
B. F. Frizzell.

By *Charles H. H. H. H.*
Attorneys

B. F. FRIZZELL.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 15, 1912.

1,061,464.

Patented May 13, 1913.

4 SHEETS—SHEET 2.

Fig. 2.

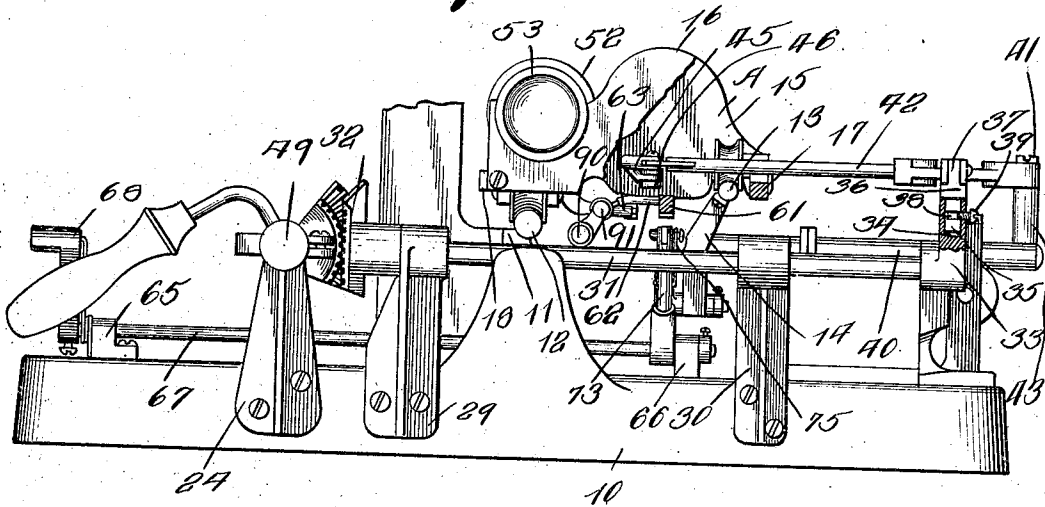
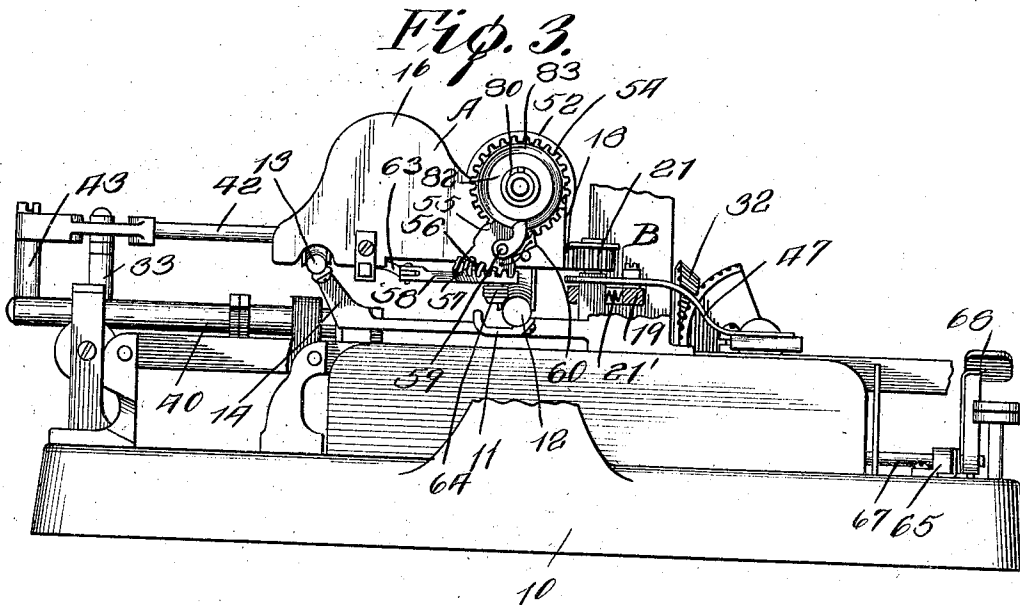


Fig. 3.



Witnesses
B. F. Frizzell
Henry T. Bright

Inventor
B. F. Frizzell
By *Donald C. Frizzell*
Attorney

B. F. FRIZZELL.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 15, 1912.

1,061,464.

Patented May 13, 1913.

4 SHEETS—SHEET 3.

Fig. 4.

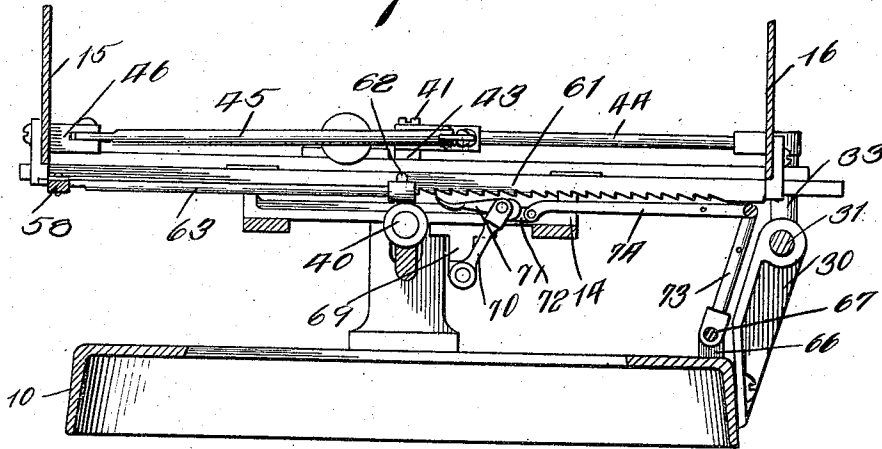


Fig. 5.

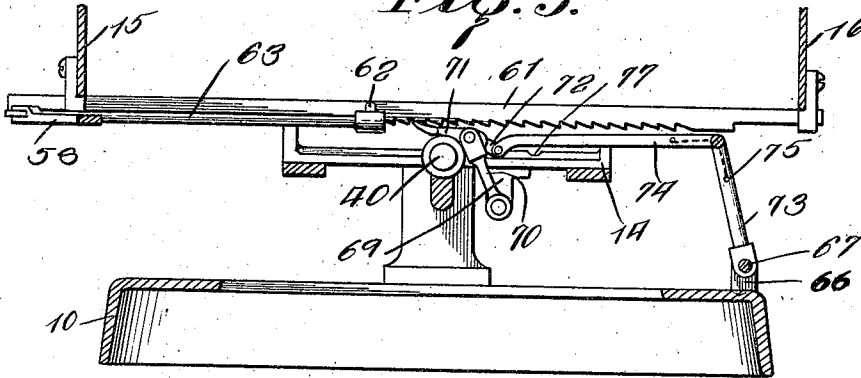


Fig. 6.

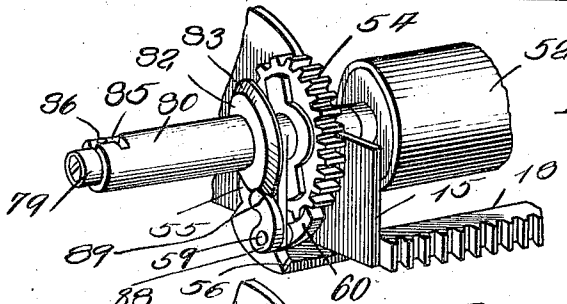
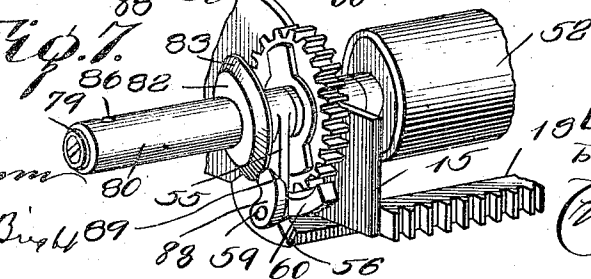


Fig. 7.



Witnesses

W. H. Harn

Henry D. Bugh

Inventor

B. F. Frizzell

Attorney

B. F. FRIZZELL.
TYPE WRITING MACHINE
APPLICATION FILED MAY 15, 1912.

1,061,464.

Patented May 13, 1913.

4 SHEETS—SHEET 4.

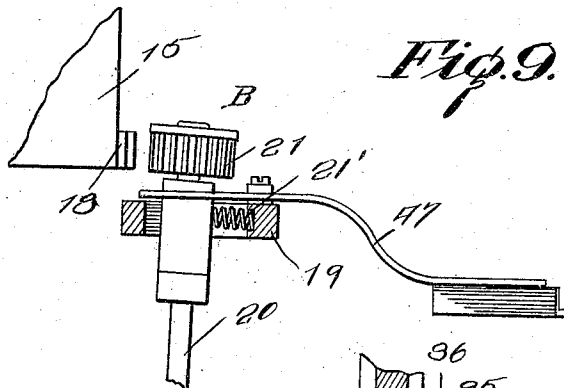
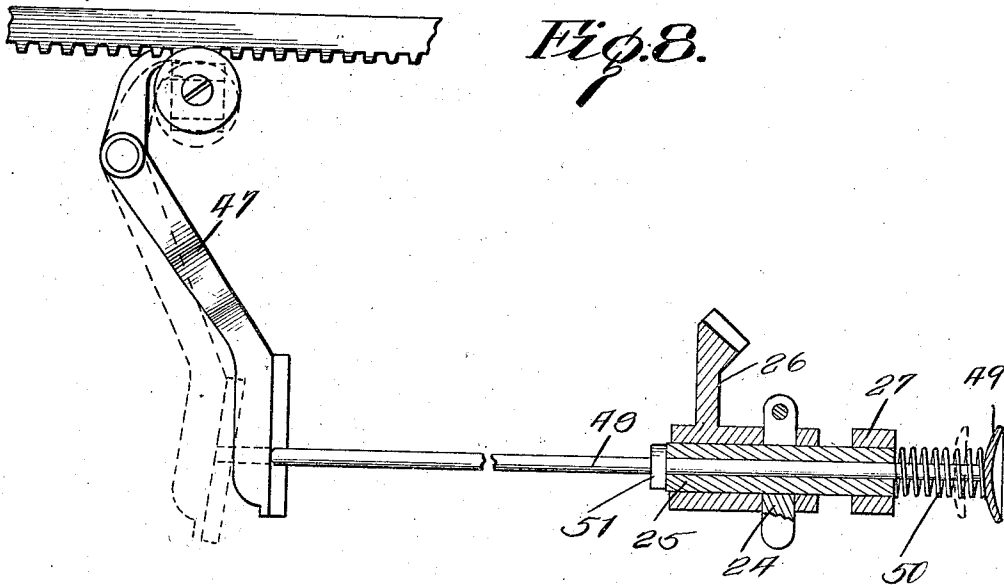
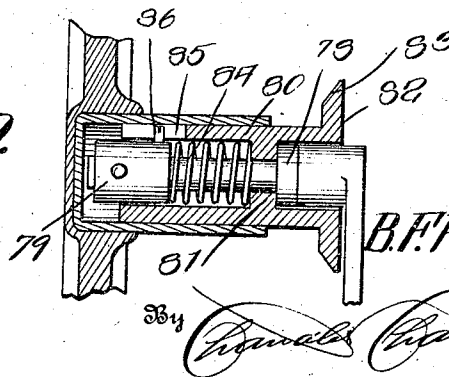


Fig. 10.



Witnesses
B. F. Frizzell
Henry O. Bright

Inventor
B. F. Frizzell

By *Charles Chas. Chas.*
Attorney

UNITED STATES PATENT OFFICE.

BERNARD F. FRIZZELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

TYPE-WRITING MACHINE.

1,061,464.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed May 15, 1912. Serial No. 697,510.

To all whom it may concern:

Be it known that I, BERNARD F. FRIZZELL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines.

The object of the invention resides in the provision of an improved form of carriage shifting mechanism in which the actuating element thereof moves in such a direction and is so positioned with respect to the key board that substantially the same movement of the hand of the operator which effects the actuation of the keys may be utilized in operating said actuating element to shift the carriage without removing the fingers from the key board.

A further object of the invention resides in the provision of a carriage shifting mechanism which includes improved means for disengaging the escapement pinion from the carriage rack bar to permit free shifting of the carriage in either direction, said means being so positioned with respect to the actuating element of the carriage shifting mechanism that same may be controlled and the actuating element simultaneously operated to shift the carriage with the use of only a single hand and with the latter disposed in substantially operative relation to the key board.

With the above and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a plan view of a typewriting machine with certain parts removed and other portions shown broken away and in section, to more clearly disclose the invention, Fig. 2, a side view of what is shown in Fig. 1 with certain parts broken away and other parts shown in section, Fig. 3, a side

view of what is shown in Fig. 1 looking at the opposite side of the machine from that disclosed in Fig. 2 and with certain parts broken away, Fig. 4, a section on the line 4—4 of Fig. 1 showing the parts of the line spacing mechanism in the position they would occupy before said mechanism has been operated to rotate the platen, Fig. 5, a view similar to Fig. 4, showing the parts of the line spacing mechanism in the position they would occupy after said mechanism has been operated to rotate the platen, Fig. 6, a detail perspective view of one end of the carriage and platen showing the improved construction for disengaging the platen ratchet wheel pawl from the platen ratchet wheel, said pawl being shown in operative engagement with the platen ratchet wheel, Fig. 7, a view similar to Fig. 6 showing the platen ratchet wheel pawl locked out of engagement with the platen ratchet wheel, Fig. 8, a detail plan view partly in section of the mechanism for disconnecting the escapement pinion from the carriage rack bar, the parts of said mechanism being shown in full lines in the position they would occupy when the escapement pinion is operatively connected with the carriage rack bar and in dotted lines in the position they would occupy when said mechanism has been operated to disconnect the escapement pinion from the carriage rack bar, Fig. 9, a side elevation of what is shown in Fig. 8, same being partly in section and with the pinion of the escapement mechanism out of engagement with the carriage rack bar, and Fig. 10, a section on the line 10—10 of Fig. 1.

Referring to the drawings 10 indicates the base of the machine which may be of any suitable form and construction. Supported upon the base 10 by means of brackets 11 rising therefrom is a front carriage rail 12, while a rear carriage rail 13 is supported upon the base 10 by a bracket 14 which also rises from the base. Mounted upon the rails 12 and 13 for reciprocation transversely of the base 10 is a platen carriage A which includes side members 15 and 16, a rear member 17 and a front member 18, said front member constituting the carriage rack bar and will hereinafter be referred to as such. The escapement mechanism of the machine is indicated typically at B and is shown as including a frame 19 through which passes a shaft 20 and upon

the upper end of this shaft is fixed a pinion 21 normally held in operative engagement with the rack bar 18 by a spring 21' disposed between the shaft 20 and the frame 19, whereby the step by step feed of the carriage through the instrumentality of the escapement mechanism may be accomplished.

The type keys of the machine are indicated at 22 and constitute collectively what is commonly known as the key board. Only a limited number of these keys are shown in order to more clearly disclose the essential features of the invention but it will be understood that these keys are disposed across the forward portion of the base as is common in typewriter structures. Disposed outwardly of the keys 22 is the usual spacer bar 23 through the instrumentality of which the carriage may be fed step by step independent of the operation of the keys 22.

Rising from the base 10 at one side thereof between the key board and the carriage A is a bracket 24 in which is rotatably mounted a shaft 25 of tubular formation and having its axis of rotation disposed transversely of the base 10. Fixed on the inner end of the shaft 25 is a segmental beveled gear 26, while a collar 27 is fixed on the outer end of the shaft 25 and carries a laterally extending handle or arm 28 through the instrumentality of which the shaft 25 may be rotated to reciprocate the carriage A as will hereinafter appear. The handle 28 projects forwardly of the base 10 and is disposed just to one side of the key board in position to be operated by the palm of the hand of the operator without removing the fingers from the key board. Rising from the base 10 at the same side thereof as the bracket 24 are spaced brackets 29 and 30 in which is rotatably journaled a shaft 31. The forward end of this shaft 31 has fixed thereon a segmental beveled gear 32 which meshes with the segmental beveled gear 26 on the shaft 25. Fixed on the rear end of the shaft 31 is a crank arm 33 provided with a longitudinal recess 34 opening through its free end. This recess 34 rotatably receives the reduced stem 35 of a pivot block 36, the outer end of said block terminating in an ear 37. The stem 35 is provided with an annular groove 38 in which projects a screw 39 mounted in the crank arm 33, said screw serving to lock the pivot block 36 against disengagement from the crank arm 33 but at the same time permitting free rotation of the stem 35 in the recess 34. Mounted upon the base 10 and extending longitudinally of the machine is the usual tail rod 40 and rising from the rear end of this rod is a pivot pin 41 upon which is pivotally mounted for oscillation in a plane parallel to the base 10 an arm 42. The pivot end of the arm 42 is held at the proper elevation with respect to the tail rod 40 by means of a sleeve 43 loosely mounted

on the pin 41 between the arm 42 and the tail rod. The arm 42 is pivotally connected adjacent its inner end with one end of a link 44, while the other end of said link is pivotally connected to the ear 37 of the pivot block 36. The free end of the arm 42 is pivotally connected to one end of a link 45 and the other end of this link 45 is pivotally connected to a block 46 secured to one end of a carriage A. By this construction it will be apparent that when the carriage A has been fed step by step by the operation of the machine, same may be returned by depressing the handle or arm 28 with the palm of the hand and without removing the fingers from the key board. This depression of the handle or arm 28 will rotate the shaft 25 and this rotation of the shaft 25 will be transmitted to the shaft 31 through the medium of the meshing gears 26 and 32. The rotation of the shaft 31 will, through the medium of its connection with the arm 42, swing the free end of this arm toward the right of the machine and as the free end of the arm 42 is connected to the carriage A by the link 45 the movement of the arm 42 just referred to will return the carriage A toward the right of the machine.

As the escapement pinion 21 is normally in engagement with the rack bar 18 it will be apparent that so long as the pinion 21 remains in engagement with the rack bar 18 the carriage A can only be moved to the left of the machine step by step. In order to disengage the pinion 21 from the rack bar 18 to permit free adjustment of the carriage to the left of the machine through the medium of the handle or arm 28 there is pivotally mounted on the frame 19 of the escapement mechanism B a lever 47. The inner end of this lever is curved so as to bear against the inner side of the shaft 21, while the forward end of the lever is disposed in line with the shaft 25. Slidably mounted in the bore of the shaft 25 is a rod 48 the outer end of which is provided with an enlarged head 49. Surrounding the rod 48 with one end bearing against the outer end of the shaft 25 and its other end bearing against the head 49 is a spring 50. The spring constantly tends to move the rod 48 longitudinally toward the right of the machine and this movement of said rod is limited by means of a flange 51 formed thereon and adapted to engage the inner end of the shaft 25. By this construction it will be apparent that when the rod 48 is moved under the influence of the spring 50 to its limit the spring 21' will move the shaft 20 of the escapement mechanism toward the carriage so as to bring the pinion 21 into engagement with the rack bar 18.

Should it be desired to disengage the pinion 21 from the rack bar 18 it is only necessary for the operator to press the head 15

49 with a finger of the hand in engagement with the arm or handle 28. This pressure upon the head 49 will move the rod 48 inwardly of the machine and cause same to engage the outer end of the lever 47 so as to shift same to the left of the machine. This movement of the lever 47 will result in the inner end of said lever engaging the inner side of the shaft 20 and moving same forwardly of the machine so as to disengage the pinion 21 from the rack bar 18. When this status exists the carriage A can be readily adjusted either to the right or the left through the instrumentality of the handle 15 or arm 28.

Rotatably mounted between the side members 15 and 16 of the carriage A is the usual platen 52 the trunnions of which are extended through said side members respectively so that a considerable portion of said trunnion will be disposed outwardly of the side members of the carriage. The trunnion of the platen 52 disposed on the right of the machine has fixed thereon the usual hand knob 53. Fixed on the trunnion of the platen on the left of the machine adjacent the outer face of the side member 15 of the carriage is the platen ratchet wheel 54. Rotatably mounted on the trunnion of the platen adjacent the outer face of the ratchet wheel 54 is an arm 55 the free end of which is provided with gear teeth 56 which mesh with a segmental gear 57 journaled on the carriage A and rotatable in a plane parallel to the plane of the base 10. This segmental gear 57 is provided with a rearwardly directed arm 58 for a purpose that will hereinafter appear. Journaled in the arm 55 is a shaft 59 having its ends disposed on opposite sides of said arm. Fixed on the inner end of the shaft 59 is the platen ratchet wheel pawl 60 which is normally disposed in operative relation to the platen ratchet wheel 54. By this construction it will be apparent that if the gear 57 is rotated toward the front of the machine it will cause a corresponding movement of the arm 55 and as the pawl 60 is carried by said arm a corresponding movement will be imparted to the pawl which will result in the rotation of the platen 52 owing to the operative engagement between the platen ratchet wheel 54 and the pawl 60. The mechanism so far described with respect to effecting the rotation of the platen 52 is of well known construction and will hereinafter be termed the line spacing mechanism.

Mounted for reciprocation between the side members 15 and 16 of the carriage is a rack bar 61 from which projects toward the front of the machine an arm 62 and this arm is suitably connected at its free end with one end of a pitman 63, while the other end of said pitman is pivotally connected to the free end of the arm 58 of the gear 57 of the

line spacing mechanism. The rack bar 61 is normally held at the limit of its movement toward the right of the machine by means of a spring 64 suitably associated with the gear 57 to constantly tend to rotate said gear toward the rear of the machine, the influence of this spring being transmitted to the rack bar 61 through the pitman 63 and arm 62. By this construction it will be apparent that when the rack bar 61 is moved from its normal position to the left of the machine it will serve to operate the line spacing mechanism so as to effect the desired rotation of the platen 52.

Mounted upon the base 10, just inward of the brackets 24, 29 and 30 are spaced brackets 65 and 66 and journaled in these brackets 65 and 66 is a shaft 67 having its axis of rotation disposed longitudinally of the machine. The outer end of the shaft 67 is disposed in alinement with the spacer bar 23 and has fixed thereon a presser foot or key 68 the free end of which is directed inwardly of the machine toward the spacer bar 23 and disposed in close proximity to the adjacent end of said spacer bar so that said foot may be depressed to rotate the shaft 67 in conjunction with the operation of writing and without removing the fingers from the key board.

Depending from the bracket 14 is a block 69 upon which is pivotally mounted an arm 70 for oscillation in a plane at right angles to the base 10. Pivotally mounted on the free end of the arm 70 is a pawl 71 provided with a tail 72. This pawl 71 is so positioned with respect to the rack bar 61 that when the tail end of said pawl is moved downward the opposite end thereof will pass into operative engagement with the teeth of the rack bar 61. Fixed on the inner end of the shaft 67 adjacent the inner face of the bracket 66 is a crank arm 73 the free end of which is pivotally connected to one end of a pitman 74 while the other end of said pitman is pivotally connected to the tail 72 of the pawl 71. It will be here noted that the pivotal connection between the pitman 74 and the tail 72 is disposed beneath the pivotal connection between the pawl 71 and the arm 70 so that movement of the pitman 74 inwardly of the machine will rock the pawl 71 on its pivot and move the end thereof remote from the tail 72 into engagement with the teeth of the rack bar 61.

In order to positively insure the movement of the pawl 71 into engagement with the rack bar 61 there is provided a spring 75 having one end anchored to the pitman 74 and its other end anchored to the crank arm 73, said spring being so arranged as to constantly tend to throw the end of the pitman 74 adjacent the pawl 71 downward. The forward end of the shaft 67 is encircled by a spring 76 one end of which is anchored to

the base 10 while the other end thereof is anchored to the free end of the presser foot 68. This spring constantly tends to rotate the shaft 67 in a direction that will draw the pitman 74 toward the right of the machine. 5 The pivotal connection between the pitman 74 and tail 72 is extended rearwardly of the machine and is adapted to engage in a seat 77 in the bracket 14 and act as a stop whereby the rotation of the shaft 67 is arrested 10 when the pawl 71 has assumed the position shown in Fig. 4. From this construction it will be apparent that when the key 68 is depressed and the shaft 67 rotated the pawl 71 will be moved into engagement with the rack bar 61 and then shifted toward the left 15 of the machine so as to impart a corresponding movement to said rack bar whereby the line spacing mechanism is operated to rotate the platen 62 in the manner previously referred to. 20

It will be noted that as long as the pawl 60 remains in engagement with the platen ratchet wheel 54 it will be impossible to rotate the plate 52 backward. In order to lock the pawl 60 out of engagement with the ratchet wheel 54 the following structure is resorted to. The trunnion of the platen 52 which carries the ratchet wheel 54 has 30 fixed thereon a collar 78 disposed adjacent the arm 55. Fixed on the outer end of this trunnion is another collar 79 having the same external diameter as the collar 78. Slidably mounted on the collars 78 and 79 is a sleeve 80 which is provided adjacent its inner end with an inwardly directed flange 81 which is adapted to abut the collar 78 and limit the inward movement of the sleeve 80. This sleeve is provided at its extreme 35 inner end with outwardly directed flange 82 the peripheral edge of which is beveled as at 83 for a purpose that will presently appear. Surrounding the trunnion of the platen is a coil spring 84 one end of which 40 bears against the inner end of the collar 79 while the other end thereof bears against the flange 81. This spring constantly tends to move the sleeve 80 inwardly and maintain the flange 81 in engagement with the collar 78. The sleeve 80 is provided at its outer 50 end with an angular slot 85 in which is engaged a pin 86 mounted in the trunnion of the platen. By the arrangement of the pin 86 and slot 85 the sleeve 80 may be drawn outwardly and then rotated axially 55 so as to dispose the pin 86 in that portion of the slot 85 which extends transversely of the sleeve 80. With the pin thus disposed the sleeve 80 will be locked against inward movement under the influence of the 60 spring 84. Suitably mounted on the outer end of the sleeve 80 is a hand knob 87 corresponding to the knob 53 on the opposite trunnion of the platen, said knob serving as 65 an efficient means for operating the sleeve 80.

Fixed on the outer end of the shaft 59 adjacent the outer face of the arm 55 is a finger 88 the free end of which is beveled as at 89 and positioned to cooperate with the beveled periphery 83 of the flange 82. 70 When the sleeve 80 is disposed in the position shown in Fig. 6 the pawl 60 is in engagement with the ratchet wheel 54 and the free beveled end 89 of the finger 88 is in engagement with the beveled periphery 75 83 of the flange 82. Upon moving the sleeve 80 outwardly the beveled edge 83 will cooperate with the beveled end 89 to rotate the shaft 59 and move the pawl 60 out of engagement with the ratchet wheel 54. 80 When this is accomplished the platen 52 may be rotated freely in a backward direction. If it is desired to maintain the pawl 60 out of engagement with the ratchet wheel 54 it is only necessary to rotate the sleeve 85 80 so as to position the pin 86 in the transverse portion of the slot 85 as has been previously referred to. Adjustably mounted upon the base 10 for movement transversely of the latter is a stop bar 90 upon which is 90 mounted a stop 91 disposed in alignment with and in the path of travel of the pitman 63. By this construction it will be apparent that as the carriage A is returned to the right the inner end of the pitman 63 95 will, at the termination of such return movement, engage the stop 91 and cause said pitman 63, arm 62 and rack bar 61 to move toward the left of the carriage which will result in the automatic actuation of the line 100 spacing mechanism to rotate the platen 52.

What is claimed is:

1. In a typewriting machine the combination of a base, a carriage mounted for reciprocation on said base, an escapement 105 mechanism normally in operative connection with the carriage, a rotatable member mounted on the base, means for rotating said member, connections between the rotatable member and the carriage whereby 110 the rotation of the former will reciprocate the latter, a rod slidably mounted in said rotatable member, and means operated by the movement of said rod in one direction for disconnecting the escapement mechanism from the carriage. 115

2. In a typewriting machine the combination of a base, a carriage mounted for reciprocation on said base, an escapement mechanism normally in operative connection 120 with the carriage, a lever pivotally supported by the base and adapted when moved in one direction to disconnect the escapement mechanism from the carriage, a rotatable member mounted on the base, 125 means for rotating said member, connections between the rotatable member and the carriage whereby the rotation of the former will reciprocate the latter, and means carried by said rotatable member for effecting 130

a movement of said lever to disconnect the escapement mechanism from the carriage.

3. In a typewriting machine the combination of a base, a carriage mounted for reciprocation on said base, an escapement mechanism normally in operative connection with the carriage, a lever pivotally supported by the base and adapted when moved in one direction to disconnect the escapement mechanism from the carriage, a rotatable member mounted on the base, means for rotating said member, connections between the rotatable member and the carriage whereby the rotation of the former will reciprocate the latter, and slidable means carried by said rotatable member for effecting the movement of said lever to disconnect the escapement mechanism from the carriage.

4. In a typewriting machine the combination of a base, a carriage mounted for reciprocation on said base, an escapement

mechanism normally in operative connection with the carriage, a lever pivotally supported by the base and adapted when moved in one direction to disconnect the escapement mechanism from the carriage, a rotatable member mounted on the base, means for rotating said member, connections between the rotatable member and the carriage whereby the rotation of the former will reciprocate the latter, and a rod slidably mounted in said rotatable member and adapted when moved in one direction to engage said lever and operate the latter to disconnect the escapement mechanism from the carriage.

In testimony whereof, I affix my signature, in presence of two witnesses.

BERNARD F. FRIZZELL.

Witnesses:

H. M. POPHAM,
FRANCIS BOYLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."