

Dec. 9, 1930.

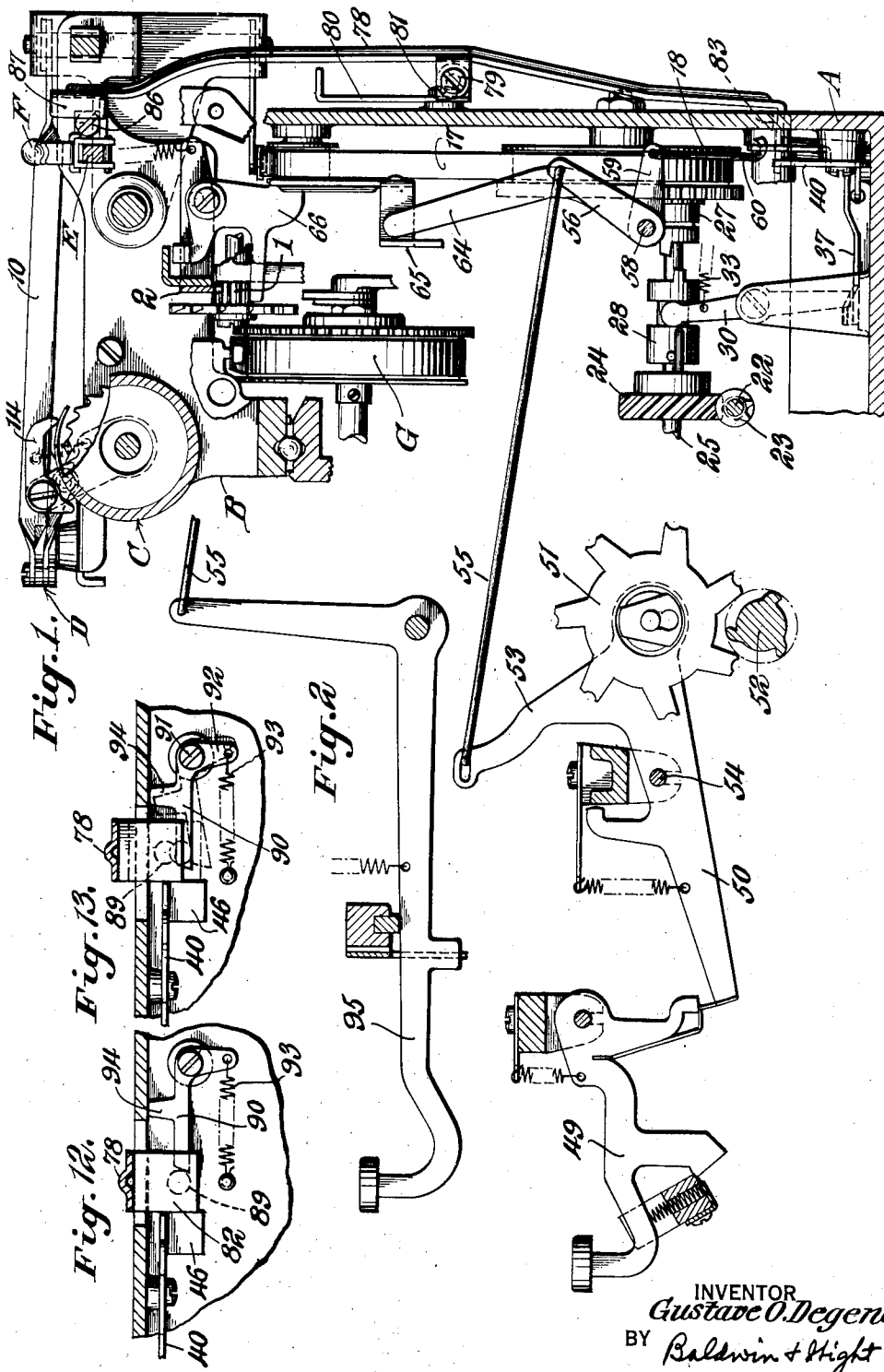
G. O. DEGENER

1,784,047

TYPEWRITING MACHINE

Filed Sept. 18, 1928

4 Sheets-Sheet 1



Dec. 9, 1930

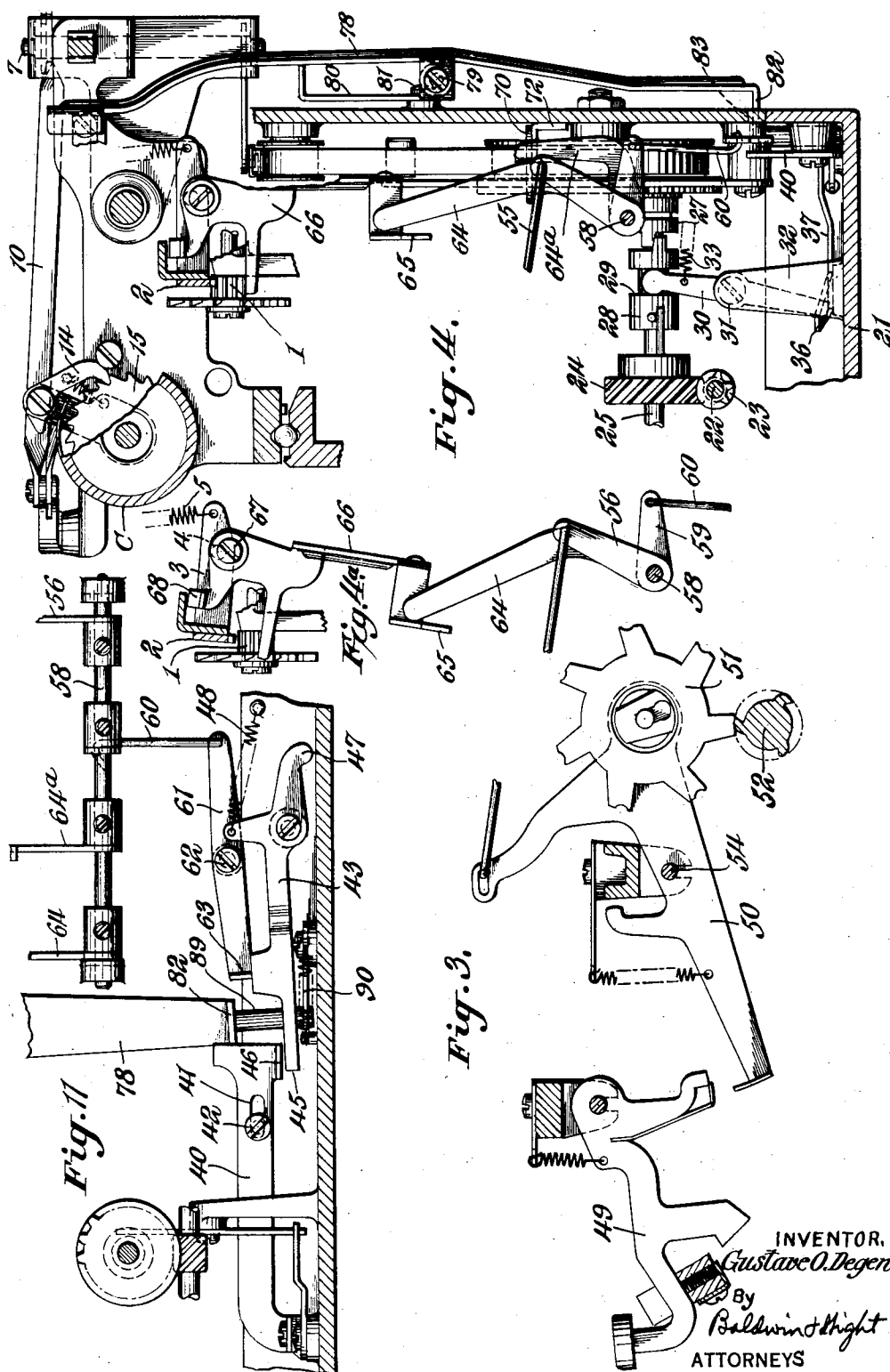
G. O. DEGENER

1,784,047

TYPEWRITING MACHINE

Filed Sept. 18, 1928

4 Sheets-Sheet 2



Dec. 9, 1930.

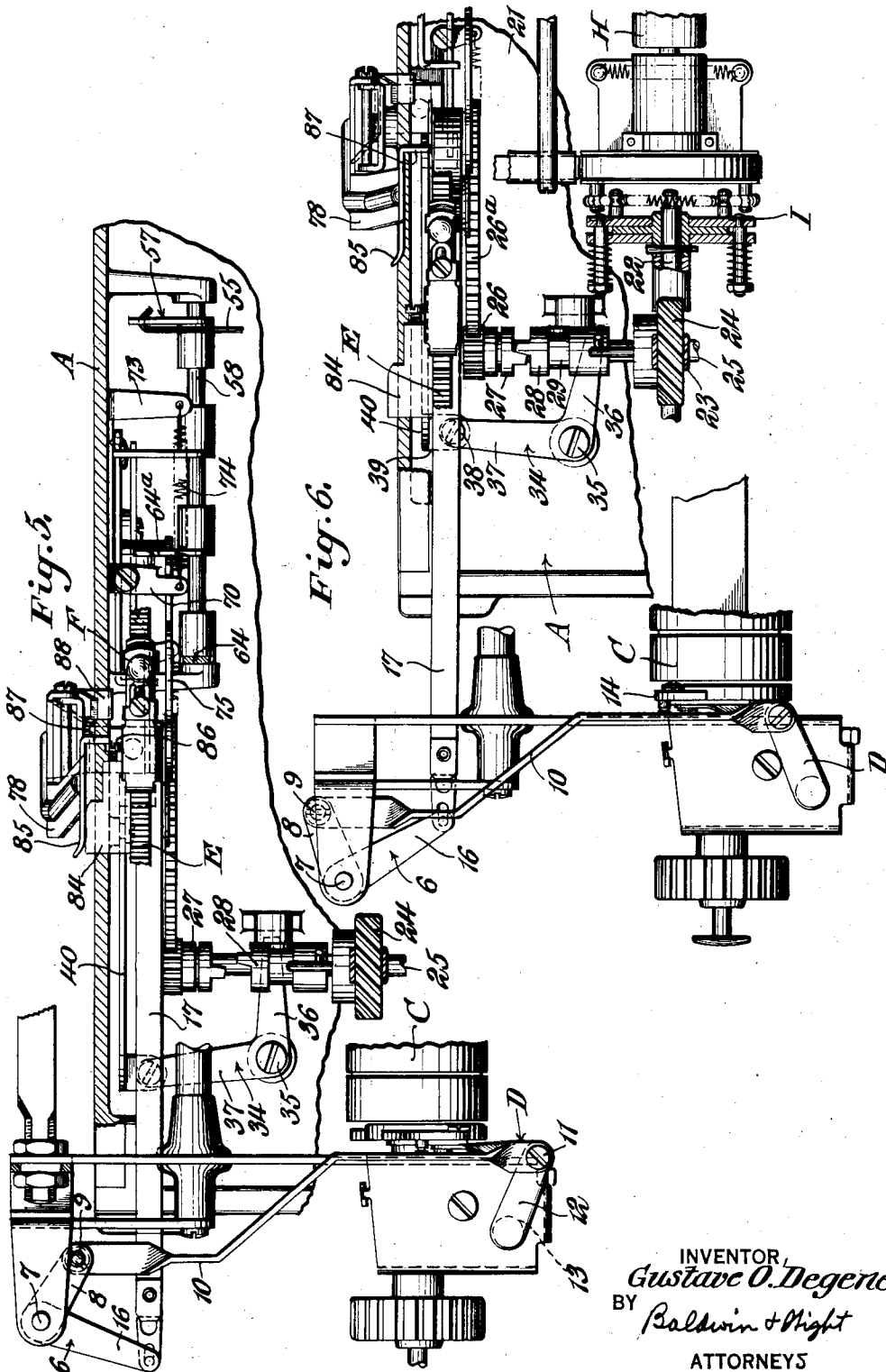
G. O. DEGENER

1,784,047

TYPEWRITING MACHINE

Filed Sept. 18, 1928

4 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

GUSTAVE O. DEGENER, OF BROOKLYN, NEW YORK, ASSIGNOR TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y.

TYPEWRITING MACHINE

Application filed September 18, 1928. Serial No. 306,755.

This invention relates to a power operated carriage return mechanism which is particularly adapted for use in power driven typewriting machines and which is adapted to first line space and then return the carriage to the beginning of a new line. This combined line spacing and carriage return mechanism is controlled by a key lever and as soon as the carriage is returned to its extreme position against the center stop, the power operated mechanism is automatically disconnected from the carriage and is held in such inoperative position until said key lever is again operated.

In the drawings:

Figure 1 is a vertical longitudinal sectional view of a typewriting machine embodying my invention, the parts being shown in their inoperative positions.

Figure 2 is a modified form of the special carriage return key lever shown in Figure 1.

Figure 3 is a detailed view showing the special carriage return key lever, as illustrated in Figure 1, in its operative position.

Figure 4 is a view similar to Figure 1 but showing the parts in their operative positions.

Figure 4a is a detailed elevation showing the letter spacing feed rack in its elevated position and the rack raising mechanism in its operative position.

Figure 5 is a plan view showing the motor drive connection through the clutch, the clutch disconnecting lever, the carriage and the line spacing mechanism, the parts being shown in their inoperative positions.

Figure 6 is a similar view but showing the parts in their operative positions.

Figure 7 is a front elevation showing the carriage in its normal position ready for typing, and showing the carriage return mechanism in its normal or inoperative position.

Figure 8 is a detailed plan view of the escapement rack lifting latch and the latch tripping lever.

Figure 9 is a front elevation thereof and showing the carriage return draw band associated therewith.

Figure 10 is a view similar to Figure 8 but

showing the latching pawl in disengaged position.

Figure 11 is a detailed front elevation of the carriage return clutch engaging parts arranged in clutch connected positions.

Figure 12 is a detailed plan view of the lower part of the clutch disconnecting lever and the latch lever therefor, the parts being shown in position when the clutch is disconnected.

Figure 13 is a similar view but showing the parts in normal position.

Only so much of a typewriting machine is illustrated in the present case as is necessary to disclose the invention and its operation and the location of the various elements with respect to the other parts of the typewriting machine. In my co-pending application Serial No. 243,063, filed December 28, 1927, I disclose a motor for returning the carriage and a key lever controlled mechanism for the motor.

In my co-pending application Serial No. 239,493, filed December 12, 1927, I disclose a power operated mechanism for effecting a line spacing movement and also a carriage return movement. In this co-pending application, however, the carriage can be returned by the power operated mechanism from any point in its travel, and the line spacing movement effected at any point in the carriage travel, except when the carriage is within a predetermined number of letter spaces from the center stop.

My present invention provides for a key lever controlled power operated mechanism for returning the carriage from any position in its travel, as well as effecting a line spacing operation even when the carriage is against the center stop.

Accordingly, there is shown in the accompanying drawings a portion of the main frame A, a platen carriage B having the usual platen C mounted thereon, a line spacing mechanism D, a marginal stop rack E and marginal stop F. These parts are of usual construction and further description is deemed to be unnecessary. Associated with the carriage is the usual escapement mechanism which includes the escapement pinion

1 adapted to engage the letter spacing feed
 rack 2 which is supported on the carriage
 B. The carriage as in most all typewriting
 machines is moved from right to left in its
 letter spacing movement through the medium
 of a spring motor G and the escapement
 mechanism above described. The feed rack
 2 is supported on the main frame A by arms
 3 which are pivoted as at 4 to said main
 frame, whereby the rack may be swung up-
 wardly and thereby disengaged from the
 escapement pinion 1. A spring 5 is connect-
 ed to one of the arms 3 and to the main frame
 A for yieldably retaining the feed rack in
 engagement with the pinion.

The line spacing mechanism D includes a
 bell crank lever 6 which is pivoted at its an-
 gle on a vertical post 7 mounted on the car-
 riage B. One arm 8 of this bell crank lever
 is pivotally connected as at 9 to one end of
 a link 10, the other end of said link being
 pivotally connected as at 11 to an arm 12
 pivoted as at 13 to the carriage. A pawl 14
 is pivotally mounted on the link 10 for en-
 gagement with a ratchet 15 fixed to one end
 of the platen C. The other arm 16 of the
 bell crank lever 6 is connected to one end
 of a draw band 17, the other end of the band
 being connected to a winding drum 18 jour-
 naled on a shaft 19 mounted on the rear wall
 of the main frame. The band 17 is trained
 over a roller 20 which is located intermedi-
 ate the bell crank lever 6 and the drum 18.
 From the foregoing, it will be observed that
 whenever the drum is rotated in a clockwise
 direction to wind the band therearound, the
 bell crank lever will be first actuated to ef-
 fect a line spacing movement and upon the
 completion of this line spacing movement
 the continued winding of the band on the
 drum will effect a carriage return movement.

The power mechanism employed for line
 spacing movement and for carriage return
 movement is constructed as follows:

A motor H is mounted on the base 21 of
 the machine frame A and this motor drives
 an axially aligned shaft 22 through the me-
 dium of a friction clutch I, the details of
 which are fully disclosed in my co-pending
 application Serial No. 243,063 referred to
 above. Fixed to the shaft 22 is a worm 23
 which drives a worm wheel 24 fixed on a
 clutch shaft 25. Loosely mounted on the
 shaft 25 is a driving pinion 26 which meshes
 with a gear 26a fixed to the drum shaft 19
 so as to rotate said drum in a clockwise di-
 rection when the pinion 26 is connected to
 the shaft 25. In order to connect the pinion
 26 with the shaft 25, there is provided a two-
 part clutch, one of the members 27 being
 fixed to rotate with the pinion 26 and the
 other member 28 being mounted on the shaft
 25 to rotate therewith and to also move lon-
 gitudinally thereof. These members 27 and 28
 are provided with clutch faces. The mem-

ber 28 is provided with a peripheral groove
 29 for receiving one end of a clutch lever 30
 which is fulcrumed upon a horizontal stud
 31 carried by a bearing lug 32 which is
 mounted on the base 21 of the main frame
 A. A spring 33 has one end connected to the
 upper arm of the lever 30 and has its other
 end fixedly connected to the main frame of
 the machine. This spring functions to nor-
 mally urge the clutch member 28 rearwardly
 into engagement with the clutch member 27.
 A bell crank lever 34 is pivotally connected
 at its angle as at 35 to the base 21 of the
 main frame and one arm 36 of this lever co-
 operates with the lower end of the clutch lever
 30 to move the same against the tension
 of the spring 33 and thereby disconnect the
 clutch members. The other arm 37 of the
 bell crank lever is pivotally connected as at
 38 to an ear 39 which extends forwardly from
 one end of a slide arm 40. The arm 40 is
 provided with an elongated and longitudi-
 nally extending slot 41 and a guide screw 42
 extends through the slot 41 and is threaded
 into the rear wall of the machine frame, as
 shown in Figure 7. When the parts are in
 the position shown in Figure 7, the clutch
 is disconnected but when the slide arm is
 moved to the right as shown in Figure 11,
 the clutch is connected. In order to provide
 means for holding the clutch disconnected, I
 have provided a latch 43 which is pivoted as
 at 44 to the rear wall of the machine frame.
 One free end 45 of the latch constitutes a
 stop shoulder and is adapted to normally
 engage a forwardly extending ear 46 fixed
 to the slide arm 40 and thereby retain said
 slide arm against movement towards the
 right and consequently retain the clutch dis-
 connected. The latch 43 is provided with an
 extension 47 which is adapted to engage the
 base 21 of the machine frame and thereby
 limit the upward movement of the free end
 45 thereof. A spring 48 has one end con-
 nected to the latch 43 and the other end con-
 nected to the machine frame. This spring
 48 functions to yieldably retain the latch in
 its normal latching position as shown in
 Figure 7. It will be observed that when the
 latch 43 is swung downwardly against the
 tension of the spring 48 so as to lower the
 free end 45 from engagement with the ear
 46, the slide arm 40 will be moved to the
 right under the influence of the spring 33
 and consequently the clutch members will be
 thereby connected.

For the purpose of releasing the latch 43
 and thereby connect the clutch members, I
 have provided a key lever controlled mecha-
 nism therefor which may be either power op-
 erated or manually operated. In Figures 1
 and 3, I have shown a power operated key
 lever mechanism, whereas in Figure 2 I have
 shown a manually operable key lever for this
 purpose. Referring particularly to Figures

1 and 3, the power operated key lever mechanism includes a key lever 49 which is fulcrumed on the main frame of the machine and is adapted to trip a power actuated lever 50 to cause a star wheel 51 to contact with a power shaft 52 which is driven from the motor H. The power lever 50 is provided with an arm 53 which is moved forwardly when the power shaft 52 is engaged by the star wheel 51, the engagement between the star wheel and power shaft causing the power lever 50 to be swung about its pivot 54 to move the arm 53 forwardly. A link 55 is connected at one end to the arm 53 and at its other end to a crank arm 56 which is secured to a shaft 58, said shaft being journaled on the main frame of the machine. Another crank arm 59 is connected to one end of a link 60, and the other end of said link 60 is pivotally connected to one end of a latch releasing lever 61. The lever 61 is fulcrumed intermediate its ends upon a stud 62 supported on the rear wall of the machine frame, and the free end of the lever 61 is provided with a forwardly extending ear 63 which is disposed above and in contact with the latch 43, as shown in Figure 7.

Thus when the carriage return key lever 49 is depressed, the power shaft 52 will through the medium of the star wheel 51 and the power lever 50 rock the crank lever 56 which is fixed to the supporting shaft 58 and thereby rock the lever 61 and cause the ear 63 thereof to move downwardly against the latch 43 to disengage the nose 45 thereof from contact with the ear 46 of the slide arm 40. This will permit the slide arm 40 to be moved to the right by means of the spring 33 to effect a coupling of the clutch, as previously described.

In the present invention the letter spacing feed rack 2 is elevated and thereby disengaged from the escapement pinion 1 during every operation of the carriage return key lever 49. The lifting of this rack releases the carriage and causes said carriage to leave the starting position of the writing line under the influence of the spring motor G, and after the carriage has been moved about an inch or so the carriage return clutch is automatically connected and the carriage is then again returned to its starting position immediately subsequent to the actuation of the line spacing mechanism D. If the operator should desire to line space the paper with the carriage in its starting position, this is accomplished by depressing the carriage return key lever which lifts the rack 2 and causes the carriage to move away from the center stop 88 for a distance of about an inch or so. The clutch is then automatically connected and the line spacing mechanism D is then actuated after which the carriage is returned to its initial position. Thus any number of line spacing movements may be effected by the

power mechanism when the carriage is in its starting position. The advantage of this operation is that the heavy jar of the carriage against the marginal stop is considerably reduced by increasing the distance for the carriage to travel. The depression of the carriage return key lever 49 causes the spacing rack 2 to be lifted and also latched in its disconnected position and remain in such disconnected position until the motor drive clutch I has exerted a considerable pull on the carriage return draw band 17 which force releases the latch that is holding the carriage rack in its disconnected position. Fixed to the shaft 58 is an arm 64 having sliding contact at its free end with an ear 65 fixed to one end of a rack lifting lever 66 which is fulcrumed at 67 to the carriage B. The lever 66 is provided with an arm 68 for contact with the rack 2. Thus when the shaft 58 is oscillated upon depression of the carriage return key lever 49, the arm 64 will be moved forwardly, and this arm will in turn rock the rack lifting lever 66 and elevate said rack to disengage the same from the escapement pinion 1. The free end of a lever 64a which is also fixed to the shaft 58, is provided with a radially extending tooth 69 which is adapted for engagement with a spring latch 70 pivoted as at 71 to a bracket 72 fixed to the rear wall of the machine frame. The bracket 72 is provided with a forwardly extending lug 73 and a coil spring 74 is connected at one end to the free end of the latch 70 and at its other end to the lug 73. This spring 74 serves to yieldably retain the latch 70 in engagement with the tooth 69 of the rock arm 64a and thereby retain said rock arm in its operative position. Therefore while the latch 70 remains in engagement with the rock arm 64a the feed rack 2 is held in its upwardly adjusted position out of engagement with the escapement pinion 1. This of course permits the carriage to be moved freely under the influence of the spring motor G in a direction away from the center stop 88.

As soon as the carriage has been moved a predetermined short distance, say for a distance of approximately ten spaces or about an inch, the latch 70 is automatically disconnected from its engagement with the rock arm 64a and consequently the feed rack 2 is lowered into engagement with the escapement pinion 1, and power mechanism through the medium of the draw band 17 returns the carriage to its initial position against the marginal stop. For this purpose, I have provided a lever 75 which is pivoted at its lower end to the pivot screw 62 of the latch releasing lever 61. The upper end of the lever is provided with a roller 76 which engages the draw band 17. The roller 76 is located between the roller 20 and the winding drum 18. The lever 75 is provided with a finger 77 which contacts with the free end of the

latch 70 and is adapted upon movement of the lever 75 in one direction to release said latch 70 from engagement with the rock arm 64a. The spring 74 serves to yieldably urge the lever 75 to the right as viewed in Figure 9 whereby the roller 76 will normally cause the band 17 to be bowed outwardly. Thus when the clutch is connected upon the depression of the carriage return key lever 49, the feed rack 2 will be elevated and held in such elevated position by the pawl 70, thereby permitting the carriage to be moved under the influence of the spring motor G for a predetermined distance such as ten spaces or the like. By this time the winding drum 18 has been brought into action and a pull exerted on the draw band 17. This initial pull straightens the bowed portion between the roller 20 and the winding drum 18 and consequently the lever 75 is swung to the left against the tension of the spring 74, as viewed in Figure 9, whereupon the latch 70 is released and the feed rack 2 is consequently lowered into cooperative engagement with the escapement pinion 1. As above explained the continued rotation of the winding drum 18 will effect first a line spacing movement and secondly a return movement of the carriage.

It is of course desirable to disconnect the clutch members 27 and 28 as soon as the carriage is returned to its initial or writing position at the beginning of a line, and for this purpose the following mechanism is employed.

At the rear of the machine there is mounted a vertical clutch disengaging lever 78 which is supported to turn about a transverse axis 79 in a bracket 80 which is supported on the main frame A for pivotal movement about a fore and aft axis 81. The lower end of the lever 78 is provided with a forwardly extending foot 82 which extends through an opening 83 in the rear wall of the main frame at a point immediately to the right of the slide arm 40, as viewed in Figures 7, 11, 12 and 13 particularly. The marginal stop F is provided with a rearwardly extending cam 84 which is adapted, when the carriage is being returned to its initial position, to engage a shoe 85 fixed to the upper end of the lever 78 and thereby cause said lever to rock on its transverse axis 79 to project the foot 82 thereof forwardly to the position shown in Figure 12.

The cam 84 is provided with an adjustable set screw 86 adapted to engage a forwardly extending arm 87 carried by the shoe 85 and thereby cause the clutch disengaging lever 78 to swing on its fore and aft axis 81. In other words, the upper end of the lever 78 is moved towards the right, and the lower end of said lever is moved towards the left as viewed in Figure 7. This movement of the lever causes the slide arm 40 to be moved

towards the left from its Figure 11 position to the position shown in Figure 7, thereby disconnecting the clutch members 27 and 28, and permitting the latch 43 to be moved upwardly under the influence of the spring 48 so as to retain the slide arm 40 against movement towards the right. Consequently the clutch is held in its disconnected relation until the carriage return key lever 49 is again depressed. During said movement of the lever 78, the upper end thereof is swung to the right until the arm 87 contacts with the fixed center stop 88 in which position the carriage is brought to a state of rest at the beginning of a line.

Secured to and depending from the foot 82 of the clutch disengaging lever 78 is a stop pin 89 which is normally disposed in rear of a stop lever 90 which is pivoted as at 91 to the base 21 of the machine frame. This stop lever includes an arm 92 to which one end of a coil spring 93 is connected, the other end of the spring being connected to the base 21. The lever 90 is also provided with a rearwardly extending stop shoulder 94 adapted for engagement with the rear wall of the machine frame and yieldably held in such engagement by the spring 93. When the clutch disengaging lever 78 is rocked on its transverse axis 79, the stop pin 89 is moved forwardly and this movement swings the stop lever 90 on its pivot 91 against the tension of the spring 93. During the last part of the carriage return movement the lever 78 is rocked on its fore and aft axis 81, by engagement with the marginal stop F and consequently the stop pin 89 is moved to the left from the dotted line position shown in Figure 13 to the position shown in Figures 7 and 12 wherein the stop pin is located immediately to the left of and in engagement with the end of the stop lever 90. The stop pin 89 is retained in this position while the carriage is in its extreme position against the center stop, and also during the period the carriage is moved under the influence of the spring motor G for a distance equal to the width of the shoe 85. In other words, as soon as the carriage return key lever 49 is depressed, when the carriage is in its extreme position against the center stop 88, the spacing rack 2 will be lifted from operative engagement with the escapement pinion 1 and latched in said elevated position, thus permitting the spring motor G to move the carriage a distance sufficient to withdraw the cam 84 from engagement with the shoe 85. Immediately thereafter the drum will begin its rotation in a clockwise direction and wind the draw band 17 therearound. As a result of the slack being first taken out of this band, the lever 75 is moved and the latch 70 disengaged from the lever 64a thus permitting the feed rack 2 to automatically return to engage the escapement pinion 1. Immedi-

ately following the return of the rack, the continued winding of the band 17 on the drum first effects a line spacing operation and after the completion of this line spacing operation the carriage is returned to its initial or stopping position. During the time the carriage is moving away from the center stop, and until the cam 84 has left the shoe 85, the clutch members 27 and 28 are held in their disconnected relation for the reason that the clutch disengaging lever 78 can not swing on its fore and aft axis 81, because of the stop lever 90 being at this time disposed in the path of movement of the stop pin 89. It is evident, however, that just as soon as the cam 84 breaks contact with the shoe 85 the clutch lever 78 will be free to swing on its transverse axis 79, thereby moving the stop pin 89 rearwardly out of the path of the stop lever 90 to permit the slide arm 40 to be moved towards the right and the clutch members 27 and 28 to connect.

From the foregoing, it will be observed that I have provided a power operated mechanism controlled by a key lever which will effect a return of the carriage from any point in its travel; which will effect a line spacing movement of the platen at any position of the carriage in its travel, and which will effect a line spacing movement of the platen and a return movement of the carriage in any position of the carriage in its travel, upon the depression of a single control key lever.

Instead of employing a power operated key lever, I may employ a manually operable key lever 95, as shown in Figure 2, this lever being connected to the link 55 as will be readily understood.

It is obvious that changes may be made in the precise form and arrangement of the parts without in any way departing from the spirit of the invention which is to be regarded as limited only by the scope of the appended claims.

I claim:

1. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a rack, means for supporting the rack for movements into and out of engagement with the pinion, and a power operated mechanism for first disengaging the rack from the pinion and then effecting the carriage travel in the opposite direction.

2. In a typewriting machine, the combination with a carriage, a platen mounted on the carriage, line spacing means associated with the platen, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a rack, means for supporting the rack for movements into and out of engagement with the pinion, and a power

operated mechanism for first disengaging the rack from the pinion, then actuating the line spacing means, and then effecting the carriage travel in the opposite direction.

3. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a rack, means for supporting the rack for movements into and out of engagement with the pinion, and a power operated mechanism for returning the carriage to its initial position comprising a power operated shaft, connections including a clutch between the carriage and the shaft and a winding drum and draw band between the clutch and the carriage, means to move the rack out of engagement with the pinion, a spring latch for retaining the rack in its disengaged position, and means controlled by the draw band for releasing said latch and thereby effect reengagement of the rack with the pinion.

4. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a rack, means for supporting the rack for movements into and out of engagement with the pinion, and a power operated mechanism for returning the carriage to its initial position comprising a power operated shaft, connections including a clutch between the carriage and the shaft and a winding drum and draw band between the clutch and the carriage, means to move the rack out of engagement with the pinion, a spring latch for retaining the rack in its disengaged position, and a release lever cooperating with the latch and having a roller thereon cooperating with the draw band for releasing said latch and thereby effect reengagement of the rack with the pinion.

5. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a rack, means for supporting the rack for movements into and out of engagement with the pinion, and a power operated mechanism for returning the carriage to its initial position comprising a power operated shaft, connections including a clutch between the carriage and the shaft and a winding drum and draw band between the clutch and the carriage, means to move the rack out of engagement with the pinion, a spring latch for retaining the rack in its disengaged position, and a release lever cooperating with the latch and having a roller thereon cooperating with the draw band for releasing said latch and thereby effect reengagement of the rack with the pinion, the latch spring serving to return the latch and

lever to their normal positions immediately following the return of the carriage to its initial position.

6. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a pivotally mounted rack movable into and out of engagement with the pinion and including a lever arm, a normally open clutch between the power shaft and the carriage, a drum operatively connected to the clutch and a draw band connecting the drum and carriage, and a power operated mechanism for closing the clutch, engaging the lever arm of the rack to disengage the latter from the pinion, and rotating the drum to return the carriage to its initial position.

7. In a typewriting machine, the combination with a carriage, of means for effecting carriage travel in one direction including an escapement mechanism embodying a normally engaged pinion and a pivotally mounted rack movable into and out of engagement with the pinion and including a lever arm, a latch for retaining the rack in its disengaged position, a normally open clutch between the power shaft and the carriage, a drum operatively connected to the clutch and a draw band connecting the drum and carriage, a release lever cooperating with the latch and having operative connection with the draw band, and a power operated mechanism for closing the clutch, engaging the lever arm of the rack to disengage the latter from the pinion, and rotating the drum to return the carriage to its initial position and releasing the latch to return the rack into engagement with the pinion immediately following the initial rotation of the drum.

8. In a power operated carriage return mechanism for typewriting machines, the combination with a carriage, of a margin stop on the carriage, a spring motor and an escapement mechanism for effecting carriage travel in letter space direction, a power shaft, connections including a clutch between the carriage and power shaft for returning the carriage to its initial position, means including a clutch disengaging lever directly engageable by the margin stop during the latter part of the return movement of the carriage to effect opening of the clutch, key controlled means for effecting connection between the power shaft and the escapement mechanism to release the latter and to close the clutch upon return movement of the clutch disengaging lever, and a stop lever cooperating with the clutch disengaging lever to retain the latter in its clutch opening position until the margin stop has moved out of engagement with said clutch disengaging lever.

9. In a typewriting machine, the combina-

tion with a carriage, of means including an escapement mechanism and a motor for effecting the carriage travel in one direction, and a power operated mechanism for returning the carriage to its initial position from any point in its travel comprising a power operated shaft, connections including a clutch between the carriage and the shaft for returning the carriage to its initial position, means actuated by the carriage during the last part of its return movement for disconnecting the clutch, and means for first disconnecting the carriage from its escapement mechanism to permit the motor to move the carriage out of contact with the clutch disconnecting means and for subsequently connecting the clutch to return the carriage to its initial position.

10. In a typewriting machine, the combination with a carriage, of means including an escapement mechanism and a motor for effecting the carriage travel in one direction, a platen mounted on the carriage, a line spacing means associated with the platen, a power operated mechanism for actuating the line spacing means and for returning the carriage to its initial position from any point in its travel comprising a power operated shaft, connections including a clutch between the line spacing means and the shaft, means actuated by the carriage during the last part of its return movement for disconnecting the clutch, and means for first disconnecting the carriage from its escapement mechanism to permit the motor to move the carriage out of contact with the clutch disconnecting means and subsequently connecting the clutch, actuating the line spacing means, and returning the carriage to its initial position in sequence.

11. In a typewriting machine, the combination with a carriage, of means including an escapement mechanism and a motor for effecting the carriage travel in one direction, and a power operated mechanism for returning the carriage to its initial position from any point in its travel comprising a power operated shaft, connections including a clutch between the carriage and the shaft for returning the carriage to its initial position, means normally tending to connect the clutch, means actuated by the carriage during the last part of its return movement for disconnecting said clutch, a latch for retaining the clutch disconnected, and means for releasing said latch and for disconnecting the carriage from its escapement mechanism to permit the motor to move the carriage out of contact with the clutch disconnecting means whereby the clutch will be connected and the carriage returned to its initial position and the clutch disconnecting means operated.

12. In a typewriting machine, the combination with a carriage, of means including an

escapement mechanism and a motor for effecting the carriage travel in one direction, and a power operated mechanism for returning the carriage to its initial position from any point in its travel comprising a power
5 operated shaft, connections including a clutch between the carriage and the shaft for returning the carriage to its initial position, means actuated by the carriage during the last part of its return movement for disconnecting the clutch, means for first disconnecting
10 the carriage from its escapement mechanism to permit the motor to move the carriage out of contact with the clutch disconnecting means and for subsequently connecting the
15 clutch to return the carriage to its initial position, said carriage disconnecting means including a latch for holding the carriage disconnected from the escapement mechanism until the clutch is connected, and means operated
20 by the carriage return connections for releasing said latch.

13. In a typewriting machine, the combination with a carriage, of an escapement
25 mechanism for effecting the carriage travel in one direction including a motor, a feed rack and a cooperating escapement pinion, the rack being movable into and out of engagement with the pinion, a power operated
30 mechanism for returning the carriage to its initial position from any point in its travel comprising a power operated shaft, connections including a clutch between the carriage and the shaft for returning the carriage
35 to its initial position, means actuated by the carriage during the last part of its return movement for disconnecting the clutch, means for first moving the rack out of engagement with the pinion to permit the
40 motor to move the carriage out of contact with the clutch disconnecting means and for subsequently connecting the clutch to return the carriage to its initial position, a latch for holding the rack in its disengaged position
45 relative to the pinion until the clutch is connected, and means operated by the carriage return connections for releasing said latch.

In testimony whereof, I have hereunto subscribed my name.

50 GUSTAVE O. DEGENER.

55

60

65