Feb. 26, 1946. W. T. SAGNER 2,395,763

TYPEWRITING MACHINE

Filed March 14, 1945 2 Sheets-Sheet 1

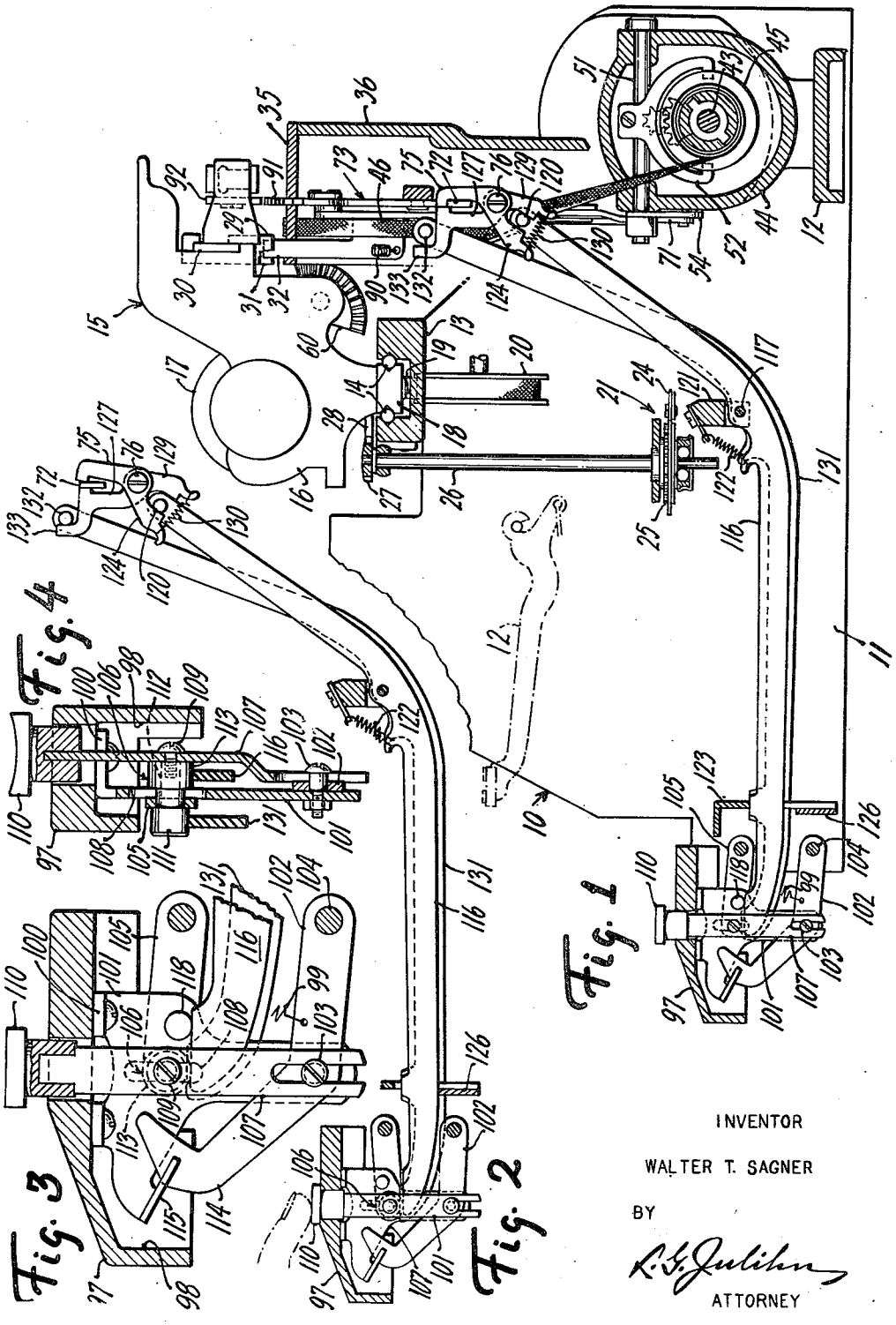


Fig. 1

Fig. 4

Fig. 3

Fig. 2

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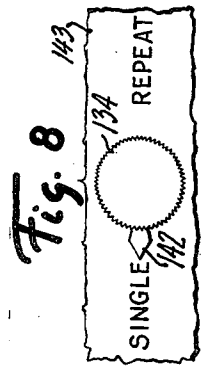


Fig. 8

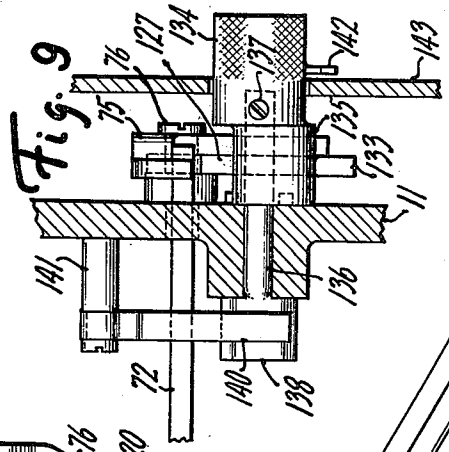


Fig. 9

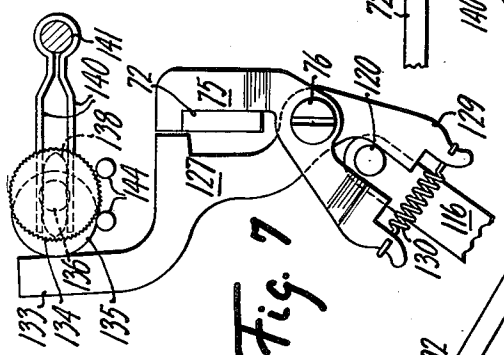


Fig. 7

Fig. 5

Fig. 6

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UNITED STATES PATENT OFFICE

2,395,763

TYPEWRITING MACHINE

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Application March 14, 1945, Serial No. 582,612

10 Claims. (Cl. 197—66)

This invention relates to typewriting and other office machines and more particularly to means in such machines for repeatedly power operating carriage supported devices, for example, line-feeding devices for work sheets.

It is one of the objects of the invention to provide efficient and conveniently controllable power means for effecting either a single or as many repeat operations of a line-spacing device as may be called for by the work.

It is a further object of the invention to provide a power line-spacing means which is efficiently and reliably controllable by a key and an adjunct manipulative means, to yield either one or a desired plurality of line-feeding operations.

Another object of the invention is to provide a power means for a line-spacing device, which, aside from fulfilling the above objects, is also capable to function efficiently as a carriage moving agency.

Still other objects and features of the invention will be apparent upon consideration of the detailed description which follows, as that description is read in the light of the accompanying drawings in which:

Figure 1 is a sectional, skeletonized side elevation of a typewriting machine, showing a power-actuated carriage-returning and line-spacing mechanism including controlling devices therefor, said mechanism and controlling devices being shown in their normal positions.

Figure 2 depicts the controlling devices shown in Figure 1 as having been conditioned for obtaining repeat line-spacing operations.

Figure 3 shows on an enlarged scale a portion of the controlling devices also shown in Figure 1.

Figure 4 is a sectional front view of the parts seen in Figure 3.

Figure 5 is a front perspective view of a typewriting machine carriage, together with a margin stop mechanism and portions of the power line spacing and carriage-returning mechanism.

Figure 6 is an enlarged perspective view of certain parts seen in Figure 5 and constituting a portion of a shut off mechanism for the combined line-spacing and carriage-returning mechanism.

Figure 7 is directed to a modified form of the invention, and more particularly shows in side elevation certain differences over the line-space controlling devices illustrated in the preceding figures.

Figure 8 is a side elevation of a manipulative control also seen in Figure 7, said manipulative control being shown in association with means for indicating different functional positions.

Finally, Figure 9 is a sectional front view of the organization of parts seen in Figure 7.

Directing attention now more particularly to Figure 1, the machine frame is designated by the reference character 10 and comprises two spaced side walls 11 connected by several connecting members including, a bar 12, and a carriage-supporting track-way 13.

Upon said track-way 13, by means of anti-friction elements 14, is guided, for letter-feed and return movements, in a conventional manner, a carriage designated by the general reference character 15. Said carriage has opposite end-pieces 16 which rise from a rail 18, and wherein a platen 17 is rotatably supported. A usual spring motor 20 having a strap connection 19 with said rail 18 is adapted to impart, in response to each typing operation, under control of an escapement mechanism 21, letter-feed movements to the carriage.

Typing instrumentalities of conventional design may comprise a series of type-bars, one of which is indicated at 12, and which are adapted to swing individually against the front of the platen, to make imprints.

At each operation of a type-bar, as well as also when a spacing key (not shown) is operated, there results an escapement operation of the afore-mentioned escapement mechanism 21. The latter may comprise an escapement dog 24 normally in engagement with a toothed escapement wheel 25, to restrain the carriage 15 against advance by the spring motor 20. The escapement wheel 25 is fast on a shaft 26 which at its upper end carries fixedly a gear 27 meshing with a carriage-supported rack 28. The carriage is caused to escape and advance a letter-feed step in response to each type-bar operation and each operation of said spacing key. The escapement dog 24 permits movement of the carriage in return direction, that is towards the right. Furthermore, the dog cooperates with the escapement wheel 25 to hold the carriage, upon return, in the letter-feed position to which it has been returned.

The carriage end-pieces 16 mount a serrated bar 30, which carries for adjustment therealong, a carriage-return-limiting margin stop 31, as well as also a line-end margin stop 29. Said margin stops 31 and 29 cooperate with a counterstop 32 which is in the form of an upright arm pivoted at a point 33, and which has its upper end projecting through an opening 34 in a horizontal capping plate 35 of a housing 36 constituting part of the general frame work 10 of the machine.

According to the embodiment of the invention illustrated and herein to be described in detail, a major portion of the carriage return and line-spacing mechanism of the invention may correspond substantially to the mechanism disclosed in the patent to Helmond No. 2,262,676, dated November 11,1941, such mechanism including the afore-mentioned margin stop 31 and the counterstop 32. So far as it is thought necessary for an understanding of the invention, certain parts and functions of this prior mechanism will now be described briefly.

A preferably continuously operating electric motor, see Figures 1 and 5, carried upon the rear of the machine on the cross-bar 12, drives a shaft 40 terminating at its left end in a drive pinion 41. Said pinion meshes with a larger gear 42 fixedly carried on a spindle 43. A housing 44 affords a bearing for the shaft 40 near the right end of the latter, and, moreover, provides also journals for the opposite ends of the spindle 43. A drum 45, normally free to rotate on the spindle 43, has a draw band 46 attached thereto and adapted to be wound thereon when the pulley, by means to be described, is rotated counterclockwise of Figures 1 and 5. During use of the machine, the motor 38 rotates the gear 42 and spindle 43 continuously, but the drum 45 is unaffected thereby. Said gear 42 has clutch teeth facing in the direction of said drum, and the drum has splined thereto for axial shift, in a manner fully made clear in said patent, a shiftable clutch element 47 having clutch teeth facing but normally clear of the clutch teeth of the gear 42. The spindle 43 rotates normally without effect on said clutch element 47 and the said drum 45, but when said element 47 is axially shifted into clutched mesh with said gear 42, it will rotate therewith and will cause the drum to rotate and wind the draw band 46. A rock shaft 51, mounted in said casing 44, has fixed thereto a yoke 52 fitting a groove 53 in the clutch element 47. An operating arm 54 carried fast on the shaft 51, serves to rock the latter and its yoke, to move the clutch element 47 into and out of clutched engagement with said gear 42. The draw band 46 passes from said pulley 45 over frame-supported guide pulleys 55, 56, onto a pulley 57 which is journaled on the left carriage end 16. An end of the draw band 46 is so attached and wound around the pulley 57 that rightward pull of the draw band, as effected by the power of the motor 38, rotates this pulley clockwise and actuates a line spacing device to be presently described. A bevel pinion 58 fixed to and rotatable together with said pulley 57 meshes with a gear sector 60 which is pivotally carried on the left carriage end 16. Said sector is integral with a cam 61 against which there bears, under the tension of a spring 65, a roll 62 provided on a line-space lever 63 carrying a line-space pawl 64, the latter of which is normally deflected clear of a toothed platen-rotating wheel 66 in a conventional manner. Upon a rightward pull of the draw band 46, that is when the clutch element 47 is in clutched engagement with the gear 42, the gear sector 60 is rotated limitedly and causes an actuation of the line-space pawl 64, to impart a line-feed movement to the wheel 66, and therefore the platen. When, by means hereinafter to be described, the clutch element 47 is declutched from the gear 42, said spring 65 returns the sector 60 to normal position against a stop 67. To keep the draw band 46 taut at all times, and to cause it to be wound back onto the drum 45, the latter is under constant tension of a draw band winding spring 68 contained in a barrel 70, it being understood that the line-space lever returning spring 65 is superior to the spring 45.

Connected to the arm 54 of the clutch shifting mechanism, by means of a link 71, is an arm 72 comprising part of a lever 73 pivoted at 74 to a rear wall of the aforesaid housing 36. The rightward extreme of the arm 72, as seen in Figure 5 and also Figure 1, is normally engaged by a latch 75 which is pivotally carried on the outer side of the right side wall 11 of the machine by a headed screw 76. The lever arm 72 is normally restrained against upward movement by the latch 75, and thus the spring 77 is restrained from closing the clutch comprised by the element 47 and the gear 42. Said latch 75 is releasable under control of a key, in a manner to be described later, and when released, will enable said spring 77 to actuate said arm 54 and effect clutch closure through said yoke 52. Consequently the drum 45 will be motor-actuated to operate, through the medium of the draw band 46, the pulley 57 and the associated line-spacing device. After a limited rotation of the gear sector 60, the band 46 picks up the carriage to effect its return.

Means are provided so that as the margin-stop 31 engages the counterstop 32, the lever 73 will be given a restoring movement resulting in disruption of the clutch connection. In order that engagement of the return-limiting margin stop with the counterstop 32 may disrupt said clutch connection, the said lever 73, see Figures 5 and 6, has pivoted thereto a transverse link 78, which in turn is articulated at 80 to another transverse link 81, said links forming a toggle. The link 81 is guided near its left end in a vertical slot 79 provided in a wall of the housing 36 and rests upon a lug or shelf 83. A link 89 connects the counterstop arm 32 with the link 81, the link 89 having a pin-and-slot connection 85 with the link 81 in order to give normally the counterstop 32 capacity for a leftward movement within the confines of the opening 34, for line-locking purposes, as fully described in said patent to Helmond.

Assuming the carriage 15 to be in an intermediate position the toggle is in the condition shown in Figures 5 and 6, and a toggle-link nose 91 is somewhat below a control bar 92 extending along the full length of the carriage. Upon release of the lever 73 from the latch 75, the toggle will flex upwardly into contact with the control bar 92. The control bar 92 is mounted for downward diagonal movement on the carriage, against the tension of a spring 93, the bar being provided at opposite ends with diagonal slots 94, whereinto there extend headed mounting pins projecting from a part of the carriage frame work. As the pulley 57 is rotated by the draw band 46, incident to line-spacing, in the manner hereinbefore stated, a pin 95 engages a hook-shaped appendix 96 of the control bar 92, to displace the latter diagonally in a downward direction. The result is that the bar 92 presses down on the nose 91 and causes the toggle 78, 81 to assume a more straightened condition and, furthermore causes the counterstop arm 32 to be displaced leftwardly through the medium of the link 89, and against the opposition to the spring 90, the power of the spring 77 being superior to that of the spring 90. There being nothing except the spring motor 20 to oppose the travel of the carriage in return direction, the carriage return draw band 46 will, after the actuation of the line-spacing mecha-

nism, draw the carriage rightwardly. Eventually, the return limiting margin stop 31 engages and moves the counterstop 32 rightwardly to the extent permitted by the opening 34. Therefore the toggle is moved also to the right, it being understood that the still lowered control bar 92 meanwhile opposes upperward flexing of the toggle. The result is that a clutch-opening movement is imparted to the lever 73 and in turn to the yoke 52. Thus the combined line-spacing and carriage return operation is automatically brought to a conclusion and the line-space actuating mechanism restores. If by this time the latch 75 is no longer held operated, the said lever 73 will automatically become relatched.

After the line-spacing mechanism has thus been power actuated and after the carriage has been power-returned, it is possible to obtain additional line-spacing operations through repeated closure of the said clutch. Obviously, operation of the latch 75 anytime while the carriage is returned against the counterstop 32 will result in a line-spacing operation.

At the end of such line-spacing operations, the lever 73 receives its clutch opening movement in direct response to the actuation of the control bar 92. This is because the counterstop 32 is held to the right by the carriage, and the toggle 78, 81, in being acted upon by the bar 92, will expand to the right and displace the lever 73.

The mechanism described to this point is substantially the same as that disclosed in the aforementioned patent to Helmond No. 2,262,676 and the description from here on is directed to an improved controlling mechanism whereby repeat line-spacing operations are conveniently obtainable at will and whereby, if desired, the machine may be caused to yield with certainty no more than one single line-spacing operation.

As has been stated, the latch 75 normally occupies the position seen in Figures 1 and 5. In the form of the invention illustrated in Figures 1 to 6, a key 97 in the keyboard of the machine, when operated, will cause the latch 75 to be swung rearwardly, clear of the lever 73.

The mechanism for supporting the key 97, and the mechanism by which this key is connected to said latch will now be described.

As is best seen in Figures 3 and 4, said key 97 is in the form of an elongate block which is hollowed out or recessed as at 98. The key block heads and is fastened to a vertical plate 101, said plate having horizontal ears 100 through which screws extend upwardly into the key. In order to guide the key 97 for operation in a vertical direction, the lower end of the plate 101 is pivotally carried on the forward end of an arm 102, by means of a shouldered screw 103, said arm being mounted for pivotal movement about an axis as at 104. A spring 99 may urge the arm 102, and thus also the key 97, to a normal position determined by an abutment, not shown. Another guide arm 105, arranged above the guide arm 102, has extending through a perforation therein, at its forward end, a stud assembly generally designated by the numeral 106, see Figure 4. Said stud assembly is rigidly carried on a vertical key stem 107 of a repeat line-spacing key 110, and comprises, a pin having a large head 111 and a reduced portion 112, and a shouldered bushing 113 carried on said reduced pin portion 112. The entire stud assembly is held fast on the key stem 107 by a screw 109 threaded into the reduced pin portion 112 as depicted in Figure 4, the reduced portion of the shouldered bushing 113 extends through a vertical slot 108 provided in the key-supporting plate 101, and fits a perforation in the arm 105. It will thus be seen that the key-supporting plate is effectively guided for vertical movement by the stud assembly 106.

When it is desired to obtain a single line-spacing operation, the key 97 is operated to the exclusion of the key 110, the stud assembly 106 remaining stationary. The key-supporting plate 101 is guided at its upper region on the reduced portion of the shouldered bushing 113, whereas therebelow another guide is afforded by reason of the articulation of the plate with the swinging arm 102. To give the key greater stability when at rest and during operation, the arm 102 is extended upwardly and forwardly to fit guidingly between one side of the plate 101 and a tongue 115 bent off therefrom.

The connection from the key 97 to the clutch-controlling latch 75 comprises a lever 116, pivoted intermediate its ends on a pivot rod 117 and having an arm reaching under a pin 118 projecting laterally from the key mounting plate 101. At the rear, the lever has a pin 120 situated behind a pendant arm 124 which is integral with the latch 75. For guidance the lever 116 extends at the front through a slot in a comb plate 123, and is laterally contained at the pivot location in a vertical slot provided in a traverse bar 121. A spring 122 has an anchorage on the cross bar 121 and is attached to the lever 116 to urge it towards the normal position seen in Figure 1, wherein the lever abuts the upper limit of its guide slot in the plate 123, and wherein, furthermore, the pin 120 on the lever may be slightly spaced from the pendant arm 124. The extent of operation of the lever 116 is limited by a stop plate 126 carried on the comb plate 123. When the operator depresses the key 97, the lever 116 is operated and the latch 75 is moved clear of the lever arm 72, by the pin 120. This releases the lever arm 72 to the action of the spring 77 and results in a winding operation of the drum 45. Consequently there will ensue an actuation of the line-spacing mechanism, this being followed by a return of the carriage in the case the carriage is not already stationed in return position. At the end of such operation the toggles 78, 81 will have been acted upon by the bar 92 and the counterstop 32 will have been displaced to the right, with the result that these aggregate effects will have caused the restoration of the lever 73 to open clutch position. If the key 97 has mean-while been released, the lever 73 will become automatically relatched by the latch 75. In order to suppress clutch-closing movement of said lever 73, in the case the operator holds the key 97 depressed, there is provided a holding means in the form of a secondary latch 127. This secondary latch 127 is pivotally supported by the screw 76 which also supports the latch 75. It will be seen from Figures 1 and 5 that the clutch-controlling lever arm 72 is normally unobstructed by the secondary latch 127, and, furthermore, that the latching shoulder of the latter is situated slightly lower than the latching shoulder of the latch 75. A downward branch 129 of the latch 127 reaches to the rear of the pin 120, and a spring 130, oppositely attached to the latch branches 124, 129, tends to keep the latches in contact with each other just above their latching shoulders. Operation of the key 97 forces the latch 75 rearwardly to release the lever arm 72; while the secondary latch 127 tends to move rearwardly

but is being temporarily obstructed by the released lever arm 72, which assumes a closed clutch position. However, providing the key 97 is held depressed, just as soon as the lever arm 72 is being restored, said secondary latch 127 will catch over the arm 72 and will suppress or prevent with complete certainly a reclosure of the clutch. The clutch-opening movement imparted to the lever 73 is slightly excessive so that the lever arm 72 may be caught underneath the shoulder of the latch 127. Upon release of the key 97, the latches 75 and 127 reassume their normal position. In doing so, the latch 75 catches over the lever arm 72, holding the latter in open clutch position.

From the foregoing, it is evident that an operation of the key 97 alone, whether of short or long duration, results in no more than a single power line-spacing operation, it being understood that additional line-spacing operations are obtainable by additional operations of the key 97.

When the work calls for extensive paper advance, the key 110 is preferably operated. Operation of the latter will effect the release of the primary latch 75, and in addition thereto, will incapacitate the secondary latch 127. Thus, there will ensue one line-spacing operation upon another so long as the key 110 is held depressed by the operator, the lever 73 being caused to move to closed clutch position upon the operation of the key 110, and being thereafter automatically moved to such position upon each clutch opening movement occurring while the key is still held depressed.

The lower end of the stem 107 of the key 110 is forked for vertical guidance on the shouldered screw 103, and the key 110 may be arranged to recede into an opening in the key-block 97. In order that operation of the key 110 will result in an operation of the latch 75, the forward end of the lever 116 is extended sufficiently to underlie closely the bushing 113 of the aforedescribed stud assembly 106. For incapacitating the latch 127 at the depression of the key 110, there is arranged to the left of the lever 116, pivoted and guided in the same manner as the latter, another lever 131, the forward end of which underlies the stud-head 111, and the rear end of which has a pin behind a forwardly and upwardly reaching extension 133 on the secondary latch 127. With said lever standing in normal position, as depicted in Figures 1 and 5, there is sufficient clearance intermediate said pin 132 and said extension 133 for the secondary dog to move rearwardly into effective position when the key 97 is operated. However, when the key 110 is operated, the pin 132 on the lever 131, as illustrated in Figure 2, moves forwardly against said extension 133, and holds and incapacitates the secondary latch. The lever 131 is spring-urged to normal position and its motion is limited in the same manner as the lever 116. The key 97 may receive some downward motion at the depression of key 110, through bottoming of the bushing 113 in the slot 108, as shown in Figure 2.

With the structure described to this point, an operator will find it most convenient to obtain a single carriage return and/or line-spacing operation by simply depressing the key 97. If line-spacing is to be repeated, the key 110 is depressed and the desired number of operations are conveniently obtainable by simply varying the duration of key depression.

According to the embodiment of the invention, illustrated in Figures 7, 8, and 9, it is conceived to render the secondary latch either permanently operative, or permanently inoperative. To this end there is substituted for the key 110 and its connections leading to the pin 132, a control knob 134. This knob has integral therewith an eccentric 135, together with which it is rotatably mounted upon the frame for holding the secondary latch 127 at will in an inoperative position. The knob and eccentric are fastened on a short shaft 136 by means of a screw 137, the shaft being rotatably supported in a bearing provided on the right side wall 11 of the machine, and having a large flat end 138 adjoining said bearing at the inner side of the wall. Said shaft end 138 is resiliently engaged at its opposite flat sides by spring prongs 140 which may be formed, as shown, of one piece and which may be anchored by a stud 141 to the side wall 11. It will be seen that the said prongs 140, by cooperation with the flat shaft end 138, tend to position and hold the eccentric 135 in either one of two rotative positions. In Figure 7 the eccentric 135 has been turned so that it holds the latch 127 clear of the operating path of the clutch shifting lever 73. If the key 97 is operated with the eccentric 135 positioned as in Figure 7, there will result one line-spacing operation after another so long as the key 97 is maintained depressed, the lever 73 only becoming held in open clutch position in response to the last clutch opening movement imparted thereto after the release of the key. If the eccentric 135 is given a half turn from the position seen in Figure 7, it will be stationed in a position allowing the secondary latch 127 to snap freely into position over the lever arm 72 when the latter is forced to normal position upon the first actuation of the draw band 46. In other words, the latch 127 will prevent reclosure of the clutch even though the latch 75 may be held operated by the key 97, it being understood that, as the key is released, the primary latch 75 moves into holding position. The knob 134, see Figure 8, may be provided with an indicator 142 cooperating with appropriate legends upon a machine mask indicated at 143, see Figure 9, to indicate the position of the eccentric 135. Rotative movement of the cam is preferably confined to 180° by two stops 144.

It is to be understood that the invention comprehends changes, variations, and modifications which come within the scope of the claims hereto appended.

What I claim is:

1. In a typewriting machine, the combination with a limitedly operable line-spacing device, of power means, normally idle actuating means for said line-spacing device, a normally open clutch interposed between said line-spacing device and said power means, closable for actuation of said line-spacing device by said actuating means, a line-spacing key, means, responsive to the operation of said key to effect a clutch closing operation, and responsive automatically to the ensuing actuation of the line-spacing device to effect a clutch opening operation, and further responsive thereafter to repeat such clutch closing and opening operations until a clutch opening operation is preceded by a restoration of said key, means to suppress clutch closing operation of said responsive means after the first clutch closing and clutch opening operation thereof has ensued in response to an operation of said key, and means, including a manual control, to render

said suppressing means optionally operative or inoperative.

2. In a typewriting machine having a frame, the combination with a reciprocatory carriage which is movable from and returnable to a predetermined position on said frame, of a line-spacing device on the carriage, an electric motor on the frame, normally ineffective drive means intermediate said motor and said device, adapted to operate said device and, if said carriage is not already stationed in the said position, to return the carriage to the said position, said driving means including a normally open clutch to render it effective, resilient means tending to close said clutch, a latch to hold said clutch normally in open position, a key, means to render said latch released through operation of said key, thereby to cause closure of said clutch, by said resilient means, means to open said clutch forcibly as a result of the ensuing aggregate operation of the line-spacing device and the return of the carriage, means to restore said line-spacing device automatically upon opening of the clutch, said latch being controlled to hold said clutch open again upon the release of said key, normally ineffective, holding means so controlled by said key that with said key held operated, said clutch will be held open upon it being opened, thereby to prevent repeat operation of said line-spacing device, and means to incapacitate said holding means optionally, whereby when said holding means is incapacitated, and said key is operated and held operated, there will ensue repeat operations of said device, followed by restorations thereof, so long as said key is held operated.

3. In a typewriting machine, the combination with a limitedly operable line-spacing device, of power means, normally idle actuating means for said line-spacing device, a normally open clutch interposed between said power means and said actuating means, and means to close and to open said clutch, comprising, two operable elements, means responsive to operation of one, or conjoint operation of both said elements to close said clutch, means responsive to limited operation of the line-spacing device to effect a clutch opening operation, and means responsive to said clutch opening operation only if both said elements are continued to be held operated, to render said clutch reclosed, whereby repeat operation of the line-spacing device can be obtained, said clutch opening and closing means including also means responsive to the operation of one of elements alone, regardless of the duration of operation, to close said clutch only once, and including also means responsive to the operation of the line-spacing device to open said clutch and hold it open pending a new operation of said one or both said keys.

4. In a typewriting machine, the combination with a reciprocatory carriage which is movable from and returnable to a predetermined return position, of an operable device on said carriage, power means, normally idle actuator means connectable with said power means to operate said device and also to return said carriage to said predetermined position if the latter is not already returned, and means to connect and to disconnect said actuator means from said power means, comprising two operable elements, and means, responsive to operation of at least one of said two elements to render said actuator means connected, and responsive to the aggregate operation of said device and the return of the carriage, or, in the event the carriage is in returned position, responsive to the operation of said device alone, to render said actuator means disconnected, and further responsive to each disconnection of the actuator means, if both said elements are operated and held operated, to render said actuator means reconnected for repeat operation of said device, said responsive means including means responsive to the operation of one of said elements to the exclusion of the other, and regardless of the duration of such operation, to render said actuator means connected only once, and responsive to the first operation of said device to render said actuator means automatically disconnected.

5. In a typewriting machine, the combination with a reciprocatory carriage which is movable to and from a predetermined position, of an operable line-spacing device on said carriage, power means, normally idle actuator means connectable with said power means to operate said device and also to power-move said carriage to said predetermined position if the latter is not already stationed in such position, and means to connect and to disconnect said actuator means from said power means, comprising two operable elements, and means, responsive to operation of at least one of two elements to render said actuator means connected, and responsive to the aggregate operation of the line-spacing device and power movement of the carriage to the said position, or, in the event the carriage is stationed in said position, responsive to the operation of said device alone, to render said actuator means disconnected, and further responsive to each disconnection of the actuator means, if both said elements are operated and held operated, to render said actuator means reconnected for repeat operation of said device, said responsive means including means responsive to the operation of one of said elements to the exclusion of the other, regardless of the duration of such operation, to render said actuator means connected only once, and responsive to the operation of said device to render said actuator means automatically disconnected.

6. In a typewriting machine, the combination with a reciprocatory carriage which is movable to and from a predetermined position, of an operable line-spacing device on said carriage, power means, normally idle actuator means connectable with said power means to operate said device and also to power-move said carriage to said predetermined position if the latter is not already stationed in such position, and means to connect and to disconnect said actuator means from said power means, comprising two operable elements, means, responsive to operation of at least one of two elements to render said actuator means connected, and responsive to the aggregate operation of the line-spacing device and power-movement of the carriage to the said position, or, in the event the carriage is stationed in said position, responsive to the operation of said device alone, to render said actuator means disconnected, and further responsive to each disconnection of the actuator means, if both said elements are operated and held operated, to render said actuator means reconnected for repeat operation of said device, said responsive means including means responsive to the operation of one of said elements to the exclusion of the other, regardless of the duration of such operation, to render said actuator means connected only once, and responsive to the operation of said device

to render said actuator means automatically disconnected, means including a key for operating said two elements conjointly, and means including a key for operating said one element to the exclusion of the other.

7. In a typewriting machine, the combination with a line-spacing device, power means, normally idle actuator means connectable with said power means for operating the line-spacing device, and control means to connect and to disconnect said actuator means from said power means, comprising, two operable elements, and means, responsive to conjoint operation of both said elements to render said actuator means connected to said power means for a line-spacing operation, and responsive to the operation of the line-spacing device to render said actuator means automatically disconnected, and further responsive to each disconnection of the actuator means, so long as both said elements are held operated, to render said actuator means automatically reconnected, whereby repeat operation of the line-spacing device is obtained, said responsive means including means, responsive to the operation of one of said elements to the exclusion of the other and regardless of the duration of operation of such element, to render said actuator means connected for a single line-spacing operation and to suppress reconnection thereof after the resultant operation of the line spacing device.

8. In typewriting machine, the combination with a line-spacing device, power means, normally idle actuator means connectable with said power means for operating the line-spacing device, and control means to connect and to disconnect said actuator means from said power means, comprising, two operable elements, means, responsive to conjoint operation of both said elements to render said actuator means connected to said power means for a line-spacing operation, and responsive to the operation of the line-spacing device to render said actuator means automatically disconnected, and further responsive to each disconnection of the actuator means, so long as both said elements are held operated, to render said actuator means automatically reconnected, whereby repeat operation of the line-spacing device is obtained, said responsive means including means, responsive to the operation of one of said elements to the exclusion of the other and regardless of the duration of operation of such element, to render said actuator means connected for a single line-spacing operation and to suppress reconnection thereof after the resultant operation of the line-spacing device, and key-means to operate said elements, including a single key to operate said elements conjointly.

9. In a typewriting machine, the combination with a limitedly operable line-spacing device, of power means, normally idle actuating means for said line-spacing device, means including a normally open clutch interposed between said power means and said actuating means, said clutch adapted to be closed and opened respectively to cause an operation and a restoration of said line-spacing device, and means to control said clutch, comprising, two keys, and means responsive to the operation of one or both of said keys to render said clutch closed and cause an operation of the line-spacing device, and responsive automatically to each operation of the line-spacing device, to open said clutch and to cause the restoration of the line-spacing device, said responsive means including a provision controlled by said keys in a manner so that if both said keys are held in an operated position at the moment the clutch is opened, the said responsive means will automatically reclose said clutch for another line-spacing operation, and so that if only one key or none is held operated at said moment, there will be no reclosure of the clutch excepting by renewed key-operation.

10. In a typewriting machine, the combination with a limitedly operable line-spacing device, of power means, normally idle actuating means for said line-spacing device, a normally open clutch interposed between said line-spacing device and said actuator, closable for actuation of said line-spacing device, a line-spacing key, means, responsive to the operation of said key to effect a clutch closing operation, and responsive automatically to the ensuing actuation of the line-spacing device to effect a clutch opening operation, and further responsive thereafter to repeat such clutch closing and opening operations until a clutch-opening operation is preceded by a restoration of said key, means to suppress clutch closing operation of said responsive means after the first clutch closing and clutch opening operation thereof has ensued in response to an operation of said key, and means including a control settable to one or another position, to render said suppressing means either operative or inoperative.

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