

Jan. 6, 1942.

W. A. GABRIELSON ET AL

2,268,867

TYPEWRITING MACHINE

Filed June 19, 1940

4 Sheets-Sheet 1

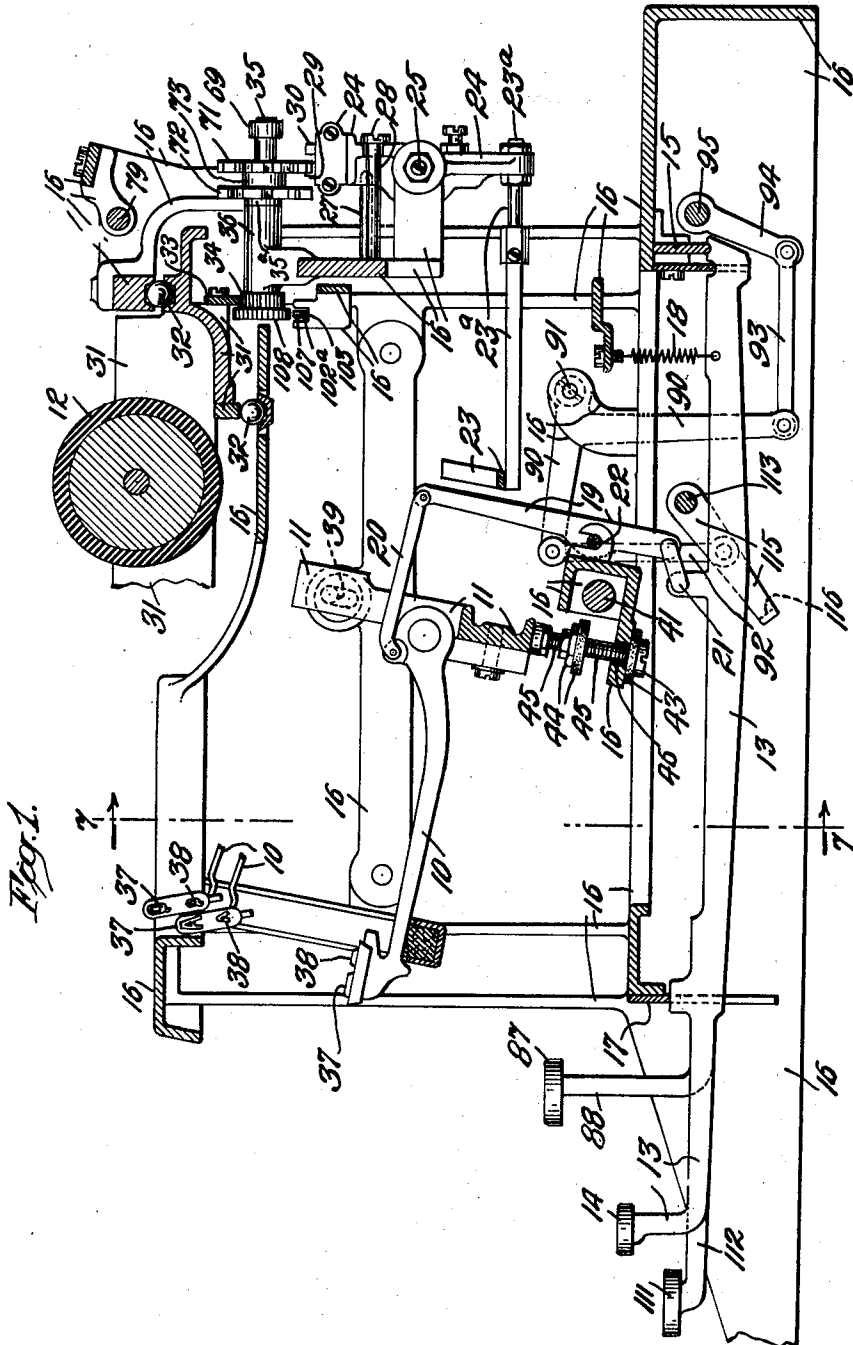


Fig. 1.

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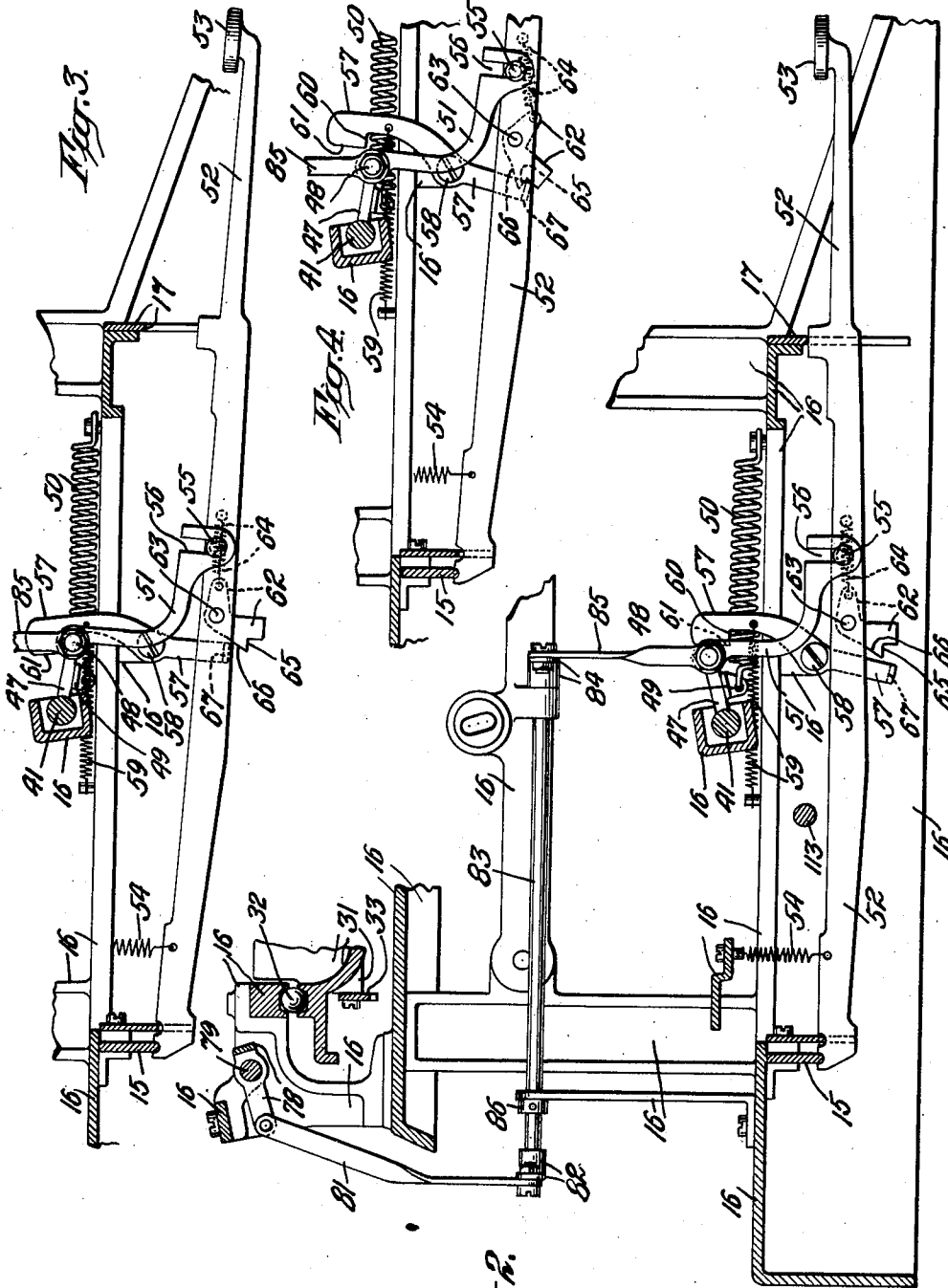
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4 Sheets-Sheet 2



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4 Sheets-Sheet 4

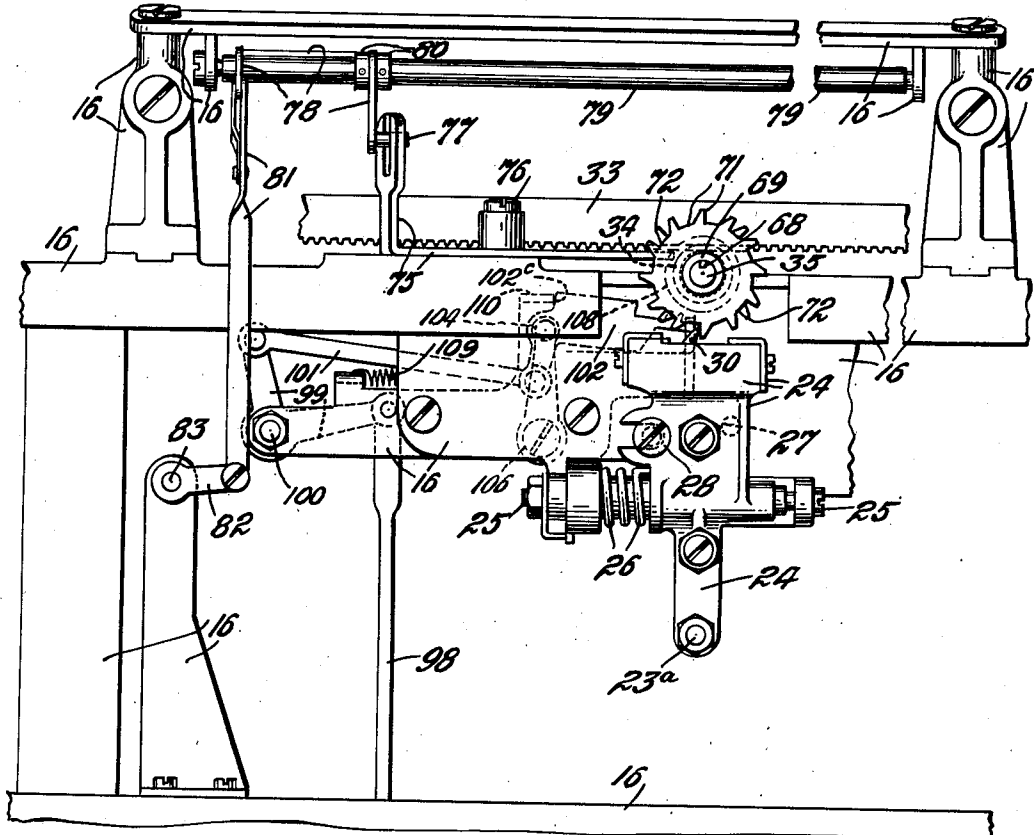


Fig. 8.

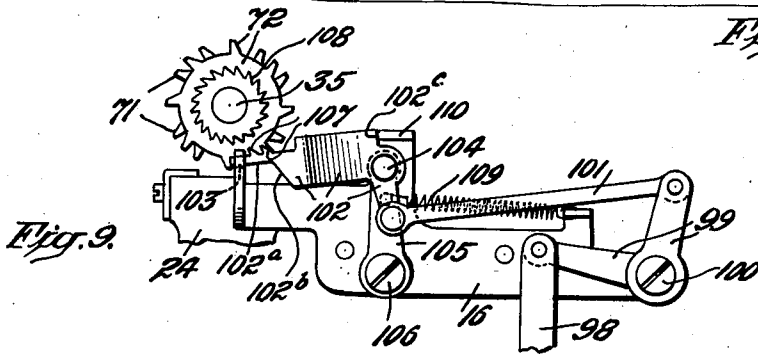


Fig. 9.

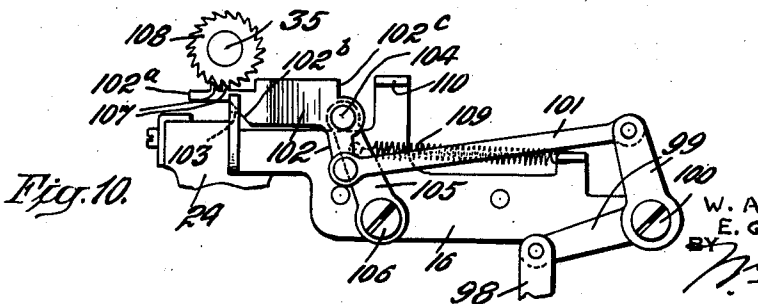


Fig. 10.

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2,268,867

TYPEWRITING MACHINE

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Application June 19, 1940, Serial No. 341,250

7 Claims. (Cl. 197-84)

The invention relates to improvements in typewriting machines.

The improvements provide a typewriting machine operable to type with either of a plurality of fonts or sets of types each of which fonts or sets requires a letter spacing different from that of the other font or fonts, the letter spacing for any single font being uniform, and the improvements also provide for automatically conditioning the machine for properly letter-spacing the characters of any of its several fonts or sets of types upon conditioning of the machine for use of said font in typing.

The improvements also provide means whereby the changes of type fonts and letter spacing may be effected by depressing and releasing a single key.

The improvements also provide means whereby the type font and letter-space changes may be made at any point in the travel of the platen carriage and with maximum ease by a supplemental key-controlled means operable to back space the carriage a fraction only of one letter space and hold the carriage so back spaced during font and letter space changing operations.

The improvements also provide means for changing the number of letter spaces per inch by means of a single key which is depressed and released to effect each successive change of letter spacing.

The improvements also provide means for effecting space changing by axial shift of any one of a plurality of axially registered escapement ratchet wheels of equal diameter into position for cooperation therewith of the escapement dogs of a single dog rocker having an invariable throw, each ratchet wheel having a different number of teeth than the others and being geared to the platen carriage.

The improvements are particularly useful as a whole in a machine having type bars or type carriers each bearing one type character of each of a plurality of fonts or sets of types, and wherein the change of font is effected by font-changing means analogous to "case changing" means ordinarily employed in machines the type carriers or type bars of which are provided with upper and lower case characters of a type font. As an example of the improved type of machine there is shown one wherein each type bar bears one of the characters of a font of large capitals and the corresponding character of a font of small capitals.

Other purposes and advantages of the invention will appear from the following description

of the preferred embodiment of the invention shown in the accompanying drawings in which:

Fig. 1 is a vertical medial longitudinal sectional view of the improved machine, approximately on the line 1-1 of Fig. 7, with the several parts in normal idle position and the machine conditioned for typing with a font of small capitals and with minimum letter spacing;

Fig. 2 is a fragmentary vertical sectional view on the line 2-2 of Fig. 7;

Figs. 3 and 4 are views similar to Fig. 2 showing the position of the parts upon successive depressions of the font and space changing key, said key being fully depressed in each of Figs. 3 and 4;

Fig. 5 is a detail top plan view of a part of the letter-space changing means;

Fig. 6 is a detail view on the line 6-6 of Fig. 7 showing part of the back-spacing and partial back-spacing means of the machine;

Fig. 7 is a fragmentary vertical transverse sectional view of the machine on the line 7-7 of Fig. 1;

Fig. 8 is a fragmentary rear elevation of the machine; and

Figs. 9 and 10 are detail views of the back-spacing mechanism, showing respectively the parts in normal idle position and as they appear at the end of an operating stroke of the back-spacing pawl or dog.

The improvements are shown embodied in a preferred form thereof in a known L C Smith typewriting machine, only so much of which known machine is shown as is necessary for an understanding of the improvements.

The machine is provided with the usual arcuate set of type bars 10 pivotally mounted in the usual way on the usual arcuate type bar segment 11 to strike rearwardly to the platen 12. Each type bar is operable as usual by one of the usual series of key actions. Each individual key action comprises a key lever 13 carrying an appropriate character key 14 and fulcrumed at its rear end on the usual fulcrum bar 15 on the main frame 16 of the machine. The key levers 13 are returned against the usual stop 17 on the main frame by the usual return springs 18 anchored to the key levers and main frame. Upon depression of any character key its associated type bar is swung rearwardly to printing position by the usual sub-lever 19 of that key action, which sub-lever is connected as usual to the associated type bar by a link 20 and to the associated key lever by a link 21. The sub-levers 19 are fulcrumed at 22 on the main frame 16.

On the printing stroke of each type bar the associated sub-lever 19 moves rearwardly the usual arcuate universal bar 23 of the machine, said universal bar including a central rearwardly extending stem 23^a connected to the tail or lower end of the usual escapement dog carrier or dog rocker 24 of the machine to rock the rocker about its pivotal axis 25 on the main framework. The dog rocker and universal bar are restored to normal position on the return stroke of an actuated type bar by the usual dog rocker return spring 26. The usual dog rocker stops 27 and 28 on the main frame limit the extent of motion of both the dog rocker and universal bar. The dog rocker carries at its upper end the usual escapement dogs 29 and 30 for alternate coaction in the known manner with the teeth of an escapement wheel to letter-space the usual platen carriage 31 in which platen 12 is journalled as usual. The carriage is mounted as usual on the main frame to travel transversely of the machine on suitable ball bearings 32 and is normally urged toward the left-hand side of the machine by the usual escapement spring drum (not shown) on the main frame, connected with the carriage by the usual draw band (not shown).

The usual feed rack 33 is fixed to the carriage to travel therewith and meshes with the usual feed pinion 34 fixed on a feed shaft 35. The feed shaft is journalled in a fixed bearing sleeve 36 on the main frame and is held against axial movement by feed pinion 34 and a fixed collar 35^a on the shaft.

In the improved machine the type bars carry, instead of the usual set or font of upper-case types and usual set or font of lower-case types, a set or font of types 37 such as large capitals requiring one letter spacing, and a set or font of types 38 such as small capitals requiring a lesser extent of letter spacing, the large capitals being located nearest the free end of the type bars in the machine shown. Each type bar carries two types for printing like characters of different ones of said two fonts.

In the improved machine means are provided for conditioning the machine for typing with either set or font of types and for automatically conditioning the escapement to feed the carriage letter space distances appropriate to the font of type in use. This means will now be described.

The type bar segment 11 is supported on the main frame to shift up and down relatively to the platen 12 to condition the machine for typing with either font. To this end the segment is supported adjacent each end on the frame by ball bearings 39 in suitable races to shift up and down and is also supported to shift up and down by a pair of rock arms 40 (Fig. 7) fixed on a rock shaft 41. Arms 40 are pivoted at 42 to the segment, and shaft 41 extends transversely of the machine and is journalled in the main frame. The up and down movements of the segment are limited by stops 43 and 44 carried by a threaded stem 45 screwed into the segment. This stem is reciprocable in an aperture 46 in a portion of frame 16 which is engageable by the stops.

Fixed to shaft 41 adjacent the right hand end of the shaft is a forwardly extending rock arm 47 transversely through which passes a horizontally disposed pin or bolt 48 having a tight driving fit in said arm or otherwise held to the arm against movement. Rigidly welded or otherwise fixed to arm 47 is an angular bracket or extension 49 to which is anchored the rear end of a

segment lifting coiled spring 50 the front end of which is anchored to the main frame 16.

Spring 50 is adapted to raise the segment and hold stop 43 engaged with the main frame, in which position of the segment the font or set of types 38 are coactive with the platen at the printing point to print. Shaft 41 and the arms fixed thereto constitute a shift frame for the type bar segment. By pulling the segment down by rocking shaft 41 in opposition to the pull of spring 50 until the segment stop 44 engages the main frame the segment may be positioned for coaction of the font of types 37 with the platen to print. Means are provided for so pulling down the segment and for latching it down.

A draw link 51 has its upper end loosely pivoted on bolt 48 and engaged in a slot in arm 47 (see Fig. 7) to swing about said bolt in said slot. Changes of font and of letter space extent are effected by operation of a single font and escapement changing key lever 52 bearing a key 53 and fulcrumed on the fulcrum bar 15 on the main frame. A return spring 54 connected to the key lever 52 and main frame 16 normally swings and holds the key lever 52 up against the key lever stop 17. The key lever 52 is located adjacent the right hand side of the machine and has projecting laterally inward therefrom about midway the ends of said lever a horizontal stud 55 having a reduced intermediate portion constantly engaged in an up and down extending slot 56 in the draw link 51. In the position of the parts in Figs. 1, 2 and 7 the stud 55 is at the bottom of slot 56.

In Fig. 3 key lever 52 is shown pressed down to shift the segment and its shift frame from the position shown in Figs. 1, 2 and 7 to the other operative position of the segment in which the large capital types are coactive with the platen. During the downward movement of the key lever 52 and its key 53 it will be obvious that stud 55 has pulled down draw link 51 until the segment was lowered and arrested by stop 44. During this downward movement of the segment it will be seen that a pivoted latch lever 57 has acted on the shift frame just as the segment reached its lowest position to latch the segment and shift frame against return movement by spring 50. The key lever 52 may now return to normal position upon release of pressure on its key without releasing this latch. In so doing, the stud 55 rises in slot 56 but does not leave the upper end of said slot. On the next depression of the key lever 52 the latch will be released on the down stroke of the key lever as shown in Fig. 4 and on the following up stroke of the key lever 52 the segment and shift frame and latch 57 will be restored to the position of Figs. 1, 2 and 7. It will thus be seen that alternate changes of font are effected by alternate cycles of operation of key lever 52, each cycle of operation of said key lever comprising a down stroke and a return or up stroke of the key lever.

This is accomplished in the following manner. Latch lever 57 is an upstanding lever pivoted about midway its ends on the main frame by a pivot 58 to swing fore-and-aft of the machine. A light spring 59 anchored to the main frame and the upper arm of latch lever 57 normally urges the said upper arm of the lever 57 rearward. At its rear side, below its upper end, the lever 57 is formed with a downwardly facing shoulder 60. Extending upward from the rear end of shoulder 60 to the upper end of lever 57

is a rear edge portion 61 of said lever. In the position of the parts shown in Figs. 1, 2 and 7 edge portion 61 of latch lever 57 bears rearwardly against the projecting right hand end of bolt 48 and holds the latch lever out of latching position. The length of edge portion 61 is such that in movement of the segment from its uppermost to its lowermost position said edge portion will hold the latch out until the segment reaches its lowermost position, and will then clear bolt 48 and permit shoulder 60 of the latch to slide over the top of the bolt and thus lock the segment down as shown in Fig. 3 in which lever 52 is shown fully depressed. On the return stroke of this cycle of operation of key lever 52 a latch releasing dog 62 on the key lever 52 is ineffective to release the latch. During the down stroke of the next succeeding cycle of operation of the key lever 52 the dog 62 will release the latch 57 as shown in Fig. 4, and on the return stroke of this cycle of operation of key lever 52 said dog 62 will hold the latch 57 released until bolt 48 moves up behind edge 61 of the latch, after which said edge will hold the latch out until the next succeeding cycle of operation of key lever 52.

Dog 62 is pivotally held to the key lever 52 by a horizontal pivot 63 and has a forwardly extending arm to which and to the key lever 52 is anchored a light spring 64 normally tending to hold the dog positioned as in Figs. 2 and 3 relatively to the key lever in which the other arm of the bell-crank shaped dog depends vertically from the key lever. The pendent arm of dog 62 is provided at its rear lower corner with a notch 65, and the rear edge of said pendent arm is inclined upward and forward from the notch 65 to provide a cam edge 66.

When key lever 52 is operated through one cycle to shift the segment downward and leave it latched down, the dog 62 on the down stroke of the lever moves from the position shown in Fig. 2 to that of Fig. 3 without said dog engaging a laterally projecting lug 67 formed on the lower end of latch 57 and extending toward the right side of the machine. On the return stroke of this cycle of operation of key lever 52, the cam edge 66 of dog 62 will ride up past lug 67, the spring 64 permitting the dog to yield as edge 66 rides up across lug 67 and then swinging the dog to normal position with respect to the key lever so that at the end of the key return on this cycle of operation the lug 67 will be engaged in the notch 65 of dog 62. Consequently on the next succeeding cycle of operation of key lever 52 the dog 62 will during the down stroke of the lever throw out the latch 57 as shown in Fig. 4 and will hold the latch thrown out on the return stroke of said cycle until bolt 48 has risen high enough to engage behind the lower end of edge 61 of the latch, which edge will thereafter hold out the latch during the remainder of said return stroke and until key lever 52 is next depressed.

The improved machine is provided with novel escapement means and means for automatically setting said escapement means for letter-spacing the carriage in accordance with the font selected for use by actuation of key lever 52, as will now be described. The feed shaft 35 of the escapement extends rearwardly beyond collar 35^a and is provided with a longitudinal slot or key-way 68 from said collar to the rear end of the shaft. A removable collar 69 is detachably held on the rear end of shaft 35 by a suitable set screw 70. A pair of axially spaced escapement ratchet wheels 71 and 72 are fixedly united by a sleeve

73 which is mounted on shaft 35 to turn therewith and to slide along said shaft. A pin or key 74 fixed in the sleeve is slidable in the keyway 68. Axial movement of the rigidly connected wheels is limited in one direction by abutment of one wheel with collar 35^a and is limited in the other direction by abutment of the other wheel with collar 69. The wheels 71 and 72 are of equal diameter. Wheel 71 has twelve equally spaced teeth coactive with the escapement dogs for feeding the platen carriage twelve letter spaces per inch, while wheel 72 has eight equally spaced teeth coactive with the escapement dogs to feed the carriage eight letter spaces per inch, in the machine shown. When the wheels are shifted to their forward limit of sliding motion only wheel 71 is positioned for coaction therewith of the escapement dogs. When the wheels are shifted to their rear limit of sliding motion only the wheel 72 is positioned for coaction therewith of the escapement dogs. The axial spacing of the wheels is such that when either wheel is positioned in the field of action of the escapement dogs the other wheel is entirely out of the field of action of the dogs.

The united wheels are shifted by an escapement setting train operable by font selecting movement of the segment shift frame of the machine. A wheel shifting lever 75 extending transversely of the machine is pivoted about midway its ends on the main frame by a vertical pivot 76. At its inner end the lever 75 has a substantially circular head the periphery of which engages the inner faces of the two united escapement wheels, and at its outer end said lever is formed with an upstanding fork in which is engaged a pin or stud 77 extending horizontally inward from the pendent side arm of a yoke 78 loosely pivoted on a known rock shaft 79 of the known machine in which the improvements are shown embodied. Rock shaft 79 is journaled on the main frame. Collars 80 on said shaft prevent axial movement of yoke 78. Yoke 78 has a rearwardly extending side arm which is connected by a pendent link 81 to an inwardly extending rear crank arm 82 of a fore-and-aft extending crank shaft 83 journaled on the main frame adjacent the right hand side of the machine. An inwardly extending forward crank arm 84 of said crank shaft is connected by a pendent link 85 with bolt 48. The lower end of link 85 is pivoted on the bolt 48 between the arm 47 and a nut 48^a screwed on a reduced threaded inner end portion of the bolt or pin 48. Crank arm 84 and a collar 86 on shaft 83 hold the shaft against axial movement.

The escapement wheel shifting train just described will shift wheel 71 into operative position when the segment is shifted upward, and said train will shift wheel 72 into operative position when the segment is shifted downward. The wheel shifting train will hold the wheels in whichever position they are shifted until the segment is again shifted by the segment shifting means.

For back spacing the platen carriage a letter space at a time the improved machine is provided with a back spacing mechanism similar to that of the known machine before referred to. This known mechanism will now be described. A back spacing key 87 is carried by a back spacing key lever 88 fulcrumed on frame member 15 and normally held up against stop member 17 by a return spring 18 which is anchored to the key lever and to the main frame 16 as in the

case of the character key levers. The key lever 88 is located adjacent the left hand side of the machine. A bellcrank lever 90 fulcrumed at 91 on the main frame has a forwardly extending arm connected by a pendent link 92 with key lever 88 forward of the fulcrum of the key lever, and said bellcrank has a pendent arm connected by a rearwardly extending link 93 with a pendent rock arm 94 fixed on a rock shaft 95 journalled in bearings 96 on the main frame. Adjacent its right hand end the shaft 95 has fixed thereto a downwardly-bowed forwardly-extending rock arm 97 the forward end of which is connected by an upwardly extending link 98 to the inwardly or leftwardly extending arm of a bellcrank 99 fulcrumed at 100 on a part of the main framework 16. Bellcrank 99 has an upwardly extending arm connected by an inwardly or leftwardly extending link 101 to the pendent arm of the back spacing pawl or dog 102, and said pawl has an inwardly or leftwardly extending arm provided with a reduced left hand end portion 102^a slidably guided in a vertical notch 103 in a part of the main frame. Pawl 102 is fulcrumed at 104 on the upper end of a laterally swingable link 105 which is fulcrumed at its lower end at 106 on the main frame. Pawl 102 is formed with a cam edge 102^b extending downward and rightward from the lower right hand end edge of extension 102^a of the pawl for coaction with the bottom edge of the notch 103 in the frame. A pair of teeth 107 are provided on the upper edge of extension 102^a of pawl 102 for coaction with the teeth of a back spacing ratchet wheel 108 fixed on the forward end of feed shaft 35 of the carriage escapement in the same vertical transverse plane of the machine in which the pawl 102 is located. A pawl retracting spring 109 is anchored at its left hand end to the arm 105 and at its right hand end to the main framework and normally holds the pawl retracted from wheel 108 as shown in Figs. 8 and 9 with the pawl teeth retracted from the wheel 108 and with a rightwardly facing stop shoulder 102^c on the tooth-bearing arm of the pawl engaged with a stop lug 110 on the frame 16.

The operation of this known back spacing mechanism for back spacing the platen carriage one letter space for each depression and release of the back spacing key 87 will be briefly described. Upon depression of the key 87 the pawl 102 will move leftward and its tooth-carrying end will rise to engage its teeth with the teeth of wheel 108. As the pawl continues to move from the position of Fig. 9 to that of Fig. 10 it will turn wheel 108 clockwise and thus drive the carriage backward or toward the right far enough to back space the carriage one letter space or tooth space of either of the wheels 71 and 72. Before the carriage can be driven further the cam edge 102^b on the pawl rides far enough upward and leftward on the bottom edge of notch 103 to jam lock wheel 108 as shown in Fig. 10. The use of this known back spacer to back space the carriage one letter space at a time irrespective of which of the wheels 71 and 72 is in operative position is feasible because the known back spacer, as is common in the art, is made to drive the carriage backward materially more than one but less than two letter spaces before jamming. Thus a back spacer with the conventional partial overthrow for wheel 71 may be used to back space wheel 72 also a full letter space at a time.

In the improved machine novel means are

provided for facilitating the shifting of the escapement wheels 71 and 72 and for holding the carriage against leftward movement during shifting of the wheels, thus making it possible to easily shift the wheels and to do this at any point in the travel of the carriage. This improved means includes utilization of the known back spacing means.

An auxiliary fractional back-spacing key 111 is carried by an auxiliary fractional back-spacing key lever 112 provided adjacent the left hand side of the machine alongside the main back spacing key lever 88. Said key lever 112 is fulcrumed on member 15 and normally held against stop 17 by a return spring 13 as in the case of the character key levers 13 of the machine. Forward of shaft 95 and parallel thereto a horizontal rock shaft 113 extends transversely of the machine and is journalled in bearings 114 on the main frame. Fixed on shaft 113 near the left hand end of the shaft is a forwardly and downward extending tappet arm 115 having at its free end a tappet lug 116 underlying and normally spaced below the key lever 112 to be engaged by the latter after a substantial downward movement of key lever 112 but before said key lever reaches the limit of its downward movement and prior to jamming of the back space pawl as hereinafter more fully described. Shaft 113 has fixed thereto a pendent rock arm 117 connected by a rearwardly extending link 118 to the downwardly bowed part of the forwardly extending and downwardly bowed arm 97 on shaft 95, the point of pivotal connection of link 118 with arm 97 being shown at 119 in Fig. 6. If desired, a supplemental return spring 120 for the back spacing mechanism may be anchored to the main frame 16 and to a fixed rock arm 121 extending forward from shaft 113.

When it is desired to change type fonts and escapement ratchet wheels by actuation of key 53 at the right hand side of the keyboard, the typist may first depress key 111 at the left hand side of the keyboard and hold key 111 depressed until key 53 is depressed and allowed to return. By so doing the carriage will be back spaced a fraction only of one letter space and held in this partially back spaced position during a cycle of operation of key 53. This fractional back spacing and holding or locking of the carriage will relieve the pressure of the normally engaged escapement dog with the engaged tooth of the active escapement wheel and facilitate positioning of a tooth of the other wheel in position for engagement by said escapement dog. It will also prevent jumping of the carriage to the left during a change of escapement wheels.

What we claim is:

1. In a typewriting machine of the kind having a platen and a carriage for said platen escapement-controlled for letter spacing the platen, the combination of escapement dogs, an escapement dog carrier vibrative in a fixed field, a plurality of escapement wheels geared to the carriage and each having a different number of differently spaced teeth, a set of type carriers each carrying as many types of different sets as there are escapement wheels, key-controlled means for selectively actuating the type carriers, key-controlled means for conditioning the machine for typing with either set of types and for simultaneously axially shifting the escapement wheels to present and maintain a selected one of said escapement wheels in position for coaction of the escapement dogs therewith, the wheel

presented being different for each set of types, and key-controlled means for holding the carriage against letter feed travel during actuation of the second-mentioned key-controlled means.

2. In a typewriting machine of the kind having a platen and a carriage for said platen escapement-controlled for letter spacing the platen, the combination of escapement dogs, an escapement dog carrier vibrative in a fixed field, a plurality of escapement wheels geared to the carriage and each having a different number of differently spaced teeth, a set of type carriers each carrying as many types of different sets as there are escapement wheels, key-controlled means for selectively actuating the type carriers, key-controlled means for conditioning the machine for typing with either set of types and for also simultaneously axially shifting the escapement wheels to present and maintain a given one of said escapement wheels in position for coaction of the escapement dogs therewith, the wheels presented being different for each set of types, and key-controlled means for fractionally back-spacing the carriage and also holding it so back-spaced during operation of the second mentioned key-controlled means.

3. In a typewriting machine of the kind having a platen and a carriage for said platen escapement-controlled for letter spacing the platen, the combination of escapement dogs, an escapement dog carrier vibrative in a fixed field, a plurality of escapement wheels geared to the carriage and each having a different number of differently spaced teeth, a set of type carriers each carrying as many types of different sets as there are escapement wheels, key-controlled means for selectively actuating the type carriers, and key-controlled means for conditioning the machine for typing with either set of types and simultaneously axially shifting the escapement wheels to present and maintain a given one of said escapement wheels in position for coaction of the escapement dogs therewith, the wheel presented being different for each set of types, and key-operated means operable by depression and holding down of its key to lock the carriage against letter space movement.

4. In a typewriting machine of the kind having a platen carriage, a dog carrier vibrative in a fixed field, and escapement dogs on the dog carrier, the combination of a plurality of axially aligned and spaced escapement wheels geared to the carriage and each having a different number of differently spaced teeth from all others of said wheels, key controlled means for axially shifting said wheels as a unit to position one wheel at a time in an operative position for coaction therewith of the dogs on said dog carrier to letter space the carriage upon vibration of the dog carrier, and key-controlled means for fractionally back spacing the operative wheel to relieve the pressure thereof on the normally engaged escapement dog and for holding the carriage thus back spaced during operation of the first-mentioned key controlled means.

5. In a typewriting machine, the combination of a traveling platen carriage, a feed rack on said carriage, a feed shaft journaled on the frame of the machine and held against axial movement, a feed pinion fixed on said shaft and meshing with said rack, a plurality of externally toothed escapement wheels of equal diameter slidably keyed to said shaft to turn with the shaft and slide as a unit along said shaft, each wheel having a different number of teeth than the others and the teeth of each wheel being uniformly spaced, an escapement dog carrier vibrative in a fixed field, escapement dogs on said carrier, and means for sliding the wheels as a unit along said shaft to position either wheel for coaction of the escapement dogs therewith to letter space the carriage, a back spacing ratchet wheel fixed on said shaft, key-operated means coactive with the back-spacing ratchet wheel to back space the carriage one letter space at a time, and key-operated means operable on part of said last-mentioned means to fractionally back space the carriage to facilitate change of escapement wheels and lock the carriage during change of escapement wheels.

6. In a typewriting machine, a platen carriage escapement comprising a pair of escapement wheels each having a different tooth spacing from the other, an escapement dog carrier vibrative in a fixed field and having escapement dogs for coaction with one or the other of said escapement wheels, an oppositely movable key, means operable by alternate cycles of operation of said key for alternately presenting and holding different ones of said escapement wheels in position for coaction therewith of the escapement dogs, each cycle of operation of said key consisting of a movement of the key in one direction and a movement of said key in the opposite direction, and key-operated means for fractionally back spacing the carriage and holding it back spaced through said means by manual pressure on the key of said key-operated means.

7. In a typewriting machine having a shift frame alternately shiftable to either of two positions for conditioning the machine for typing with either of two sets of types, the combination of a platen carriage, a platen on the carriage, an escapement dog carrier, escapement dogs on the carrier, means for vibrating the dog carrier at each printing operation of the machine, two escapement wheels geared to the carriage and alternatively axially shiftable into position for coaction therewith of the escapement dogs, a connection between said shift frame and said escapement wheels for so axially shifting the wheels when the shift frame is shifted and holding them shifted until the shift frame is again shifted, and manually controlled means for shifting the shift frame from either of its positions to the other and holding it there until said manually controlled means is again actuated.

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