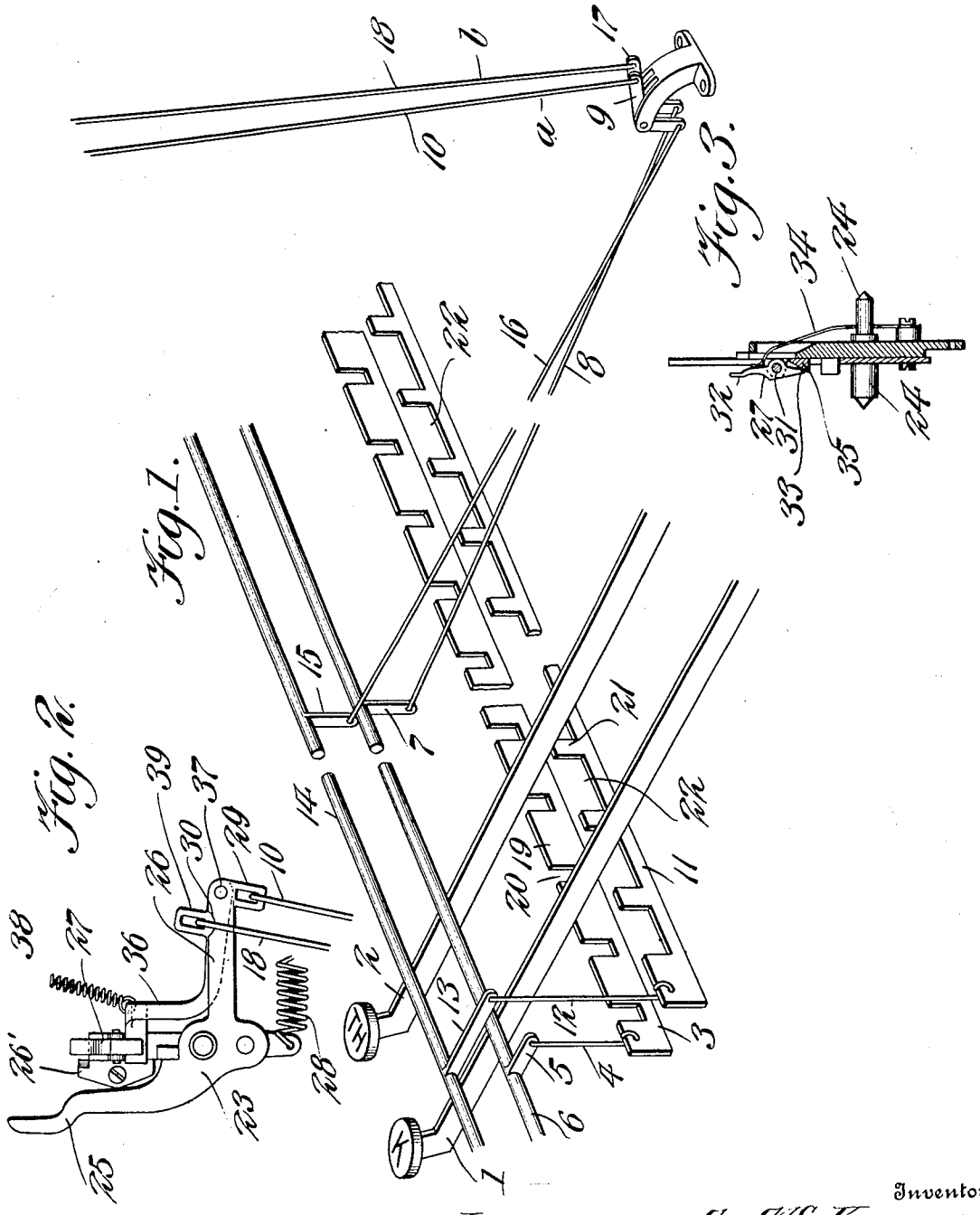
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TYPE WRITING MACHINE.

APPLICATION FILED MAR. 13, 1908.

904,982. Patented Nov. 24, 1908.



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TYPE-WRITING MACHINE.

No. 904,982. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed March 13, 1908. Serial No. 420,870.

To all whom it may concern:

Be it known that I, LAWRENCE A. McKEEVER, a citizen of the United States, residing at Norton, in the county of Norton and State of Kansas, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in typewriting machines, and particularly to an improved key action and carriage feeding or spacing mechanism therefor, the main object of the invention being to provide for use in conjunction with the ordinary single letter or character keys and types controlled thereby supplemental keys and type for the most ordinarily used combinations, as th, er, in, e with a following space, etc., so as to render it possible to write at one touch the two letters or the letter and space of such combinations, whereby, through the addition of keys and type bars representing those combinations most frequently used, fewer touches will be required in writing any given amount of matter.

Another object of the invention is to provide a construction of carriage escapement or feed mechanism whereby the depression of any of the usual keys will feed the carriage the distance of one ordinary space, while the depression of a combination or plural letter key will feed the carriage two or more spaces according to the number of letters or characters or characters and spaces on or represented by such combination or plural letter key, and further to provide a means for controlling an ordinary type of escapement for this purpose, which means embodies a principle of operation adapting it by slight changes in construction for application to any of the various types of escapements in common use.

In the accompanying drawing illustrating the invention,—Figure 1 is a perspective view showing sufficient of the mechanism of a typewriter to disclose the principle of the invention. Fig. 2 is a side elevation of the carriage feed controller or escape. Fig. 3 is a vertical cross-section of the same.

In carrying my invention into practice, any desired number of type bars and additional keys for operating the same may be employed, according to the number of combination characters it is desired to adapt the machine to write, and these additional type bars and keys may be applied without detriment either to machines of that type in which each type key represents two types, either of which can be printed by striking the same key and the manipulation of a shift key, or of that type in which each individual upper and lower case letter and character is represented and operated by a distinct key.

The application of the present invention to a typewriting machine of any of the ordinary makes now in common use requires merely the addition of the required number of plural letter type bars and their actuating keys, and the substitution of simple means controlled by the respective kinds of keys for operating the carriage escapement mechanism accordingly to effect the movement of the carriage a distance of one space or two or more spaces.

In the drawing I have shown an ordinary single character key 1 and a plural character key 2, which keys may be connected with the respective type-bars in the ordinary way. The key 1 when struck depresses the usual cross-bar 3 of the escapement controlling mechanism, which bar is connected in practice at each end by a link 4 with a crank arm 5 on a rock shaft 6, which shaft is also provided with a crank arm 7 connected by a link 8 with an elbow lever 9, from which motion is communicated through a link 10 to the carriage escapement for movement of the carriage a single space, as hereinafter described.

The key 2 when struck engages and depresses a similar cross-bar 11, which in practice is connected at each end by a link 12 with a crank arm 13 on a rock shaft 14, which shaft is also provided with a crank arm 15 connected by a link 16 with an elbow lever 17, from which motion is communicated through a link 18 to the escapement mechanism for movement of the carriage two or more spaces, in accordance with the character of the compound letter or its equivalent represented by the key. The shafts and links are arranged so as to avoid interference between the same in operation and the bars 3 and 11 are preferably disposed in parallel relation transversely below the key levers. The bar 3 is provided with a series of lugs 19 and intervening slots or recesses 20, while the bar 18 is provided with a similar series of lugs 21 and intervening slots or recesses 22. The single let-

ter keys 1 engage the respective lugs 19 of the bar 3 and move downward into the recesses 22 of the bar 11, to avoid depression of such bar 11 when either of said single letter keys is struck, while the compound character keys 2 engage the lugs 21 of the bar 11 which stand opposite the recesses 20 of the bar 3 and upon depression move downward into said recesses to prevent depression of the bar 3 upon the actuation of either compound key. It will thus be understood that when any of the ordinary keys 1 is depressed, the bar 3 will be operated to shift the escapement for the feed of the carriage a distance of one space, and that on the other hand when any one of the keys 2 is depressed the bar 11 will be actuated to shift the escapement for the feed of the carriage a plurality of spaces, specifically, in the present instance, a distance of two ordinary spaces.

In the drawing, I have shown the invention adapted for use in connection with the escapement device of the type employed on the well-known Remington machine, in which a spring-actuated escapement lever having a stop arm and carrying fixed and movable dogs is employed in conjunction with an escapement wheel for controlling the feed of the carriage, but I do not limit the invention in its use or application to this particular type of escapement mechanism, as, by slight changes in the construction, or the use of equivalent parts for those disclosed, the escapement controlling means forming part of my invention may be applied to or used in conjunction with the types of escapement devices employed on any of the other typewriting machines in use.

23 represents the rocking escapement lever of the type described, which is pivotally supported upon the frame of the machine by trunnions 24 and is provided with the usual stop arm 25 and operating arm 26. The lever carries a fixed or rigid dog 26′ which normally lies in engagement with the feed wheel, not shown, and a movable or pivotally mounted dog 27, and is held in position to normally maintain the dog 26′ in engagement with the wheel by a spring 28. In accordance with my invention the arm 26 of the lever is formed with a depending lug 29 slotted for engagement with the hooked upper end of the link 10, and is formed in its upper edge at a point in advance of said lug with a notch or recess 30.

The pawl 27 is vertically arranged and pivotally mounted upon a pin 31 intermediate of its length, and is provided with an upper engaging tooth 32 and a lower arm 33. Said pawl swings in a direction at right angles to the plane of movement of the lever 23 and is arranged to be projected by a spring 34 bearing upon the inner side of the tooth 32 and normally tending to force said tooth outward or away from the lever and the arm 33 inward or toward the lever. A device is provided for controlling the position and extent of movement of the dog to space its tooth relative to the plane of the lever and to the fixed dog to adapt said pivoted dog to permit the carriage to move only a single space or to move a distance of two spaces. This device comprises a tapered spreader or stop bar 35 which is of triangular form in cross-section, its inner side being straight to lie in contact with the adjacent side of the lever, while its outer side is beveled upwardly and inwardly to its upper edge. The beveled side of the spreader is adapted to engage the arm 33 of the movable dog, and said spreader is free to slide in a forward and rearward direction at right angles to the plane of movement of the dog without moving out of engagement therewith, and is also adapted to be depressed below the arm 33 to permit the dog to be swung further out by the spring 34 to position the tooth 32 a greater distance from the fixed dog to allow the carriage to move two ordinary spaces instead of one. In its upward movement from its position below the released dog, the reduced upper edge of the spreader formed by beveling the outer face thereof permits said spreader to move freely upward between the lever and the arm 33 to swing the dog to normal position.

The spreader or stop bar is carried by and projects forwardly from the upper end of a controlling lever 36, the rear end or arm of which is curved downwardly and rearwardly and lies on one side of the arm 26 of the lever 23, to which it is pivotally connected by a pin 37. The lever 36 is maintained in normal position to hold the spreader in engagement with the movable dog to set the dog for single space feeding by a spring 38 suitably connected in practice with the frame of the machine, and said lever is provided opposite the recess 30 in the arm 26 with an upwardly extending slotted lug 39 receiving the upper hooked end of the link 18, which hooked end of the lever is adapted to normally lie above and to pass down into said recess 30.

The normal position of the parts of the escapement mechanism is shown in Figs. 2 and 3, from which it will be understood that the pawl 27 is normally maintained in position for a single space feeding movement of the carriage. Hence, when one of the keys 1 is depressed the link 10 will be drawn downward and thus pull down upon the arm 26 to swing the lever 23 to move the pawls to effect the movement of the feed wheel the distance of a single space. In this operation, the lever 36 is drawn downward with the arm 26, but the spreader instead of being depressed simply slides back-

ward between the adjacent portion of the lever and the arm 32 of the movable pawl, thus maintaining said pawl in single space feeding position. When, however, one of the compound keys 2 is depressed and the link 18 is drawn downward, the hooked upper end of said link will pull down upon the lever 36 until such end of the link enters the recess 30 and engages the arm 26, which preliminary movement draws the spreader downward out of engagement with the movable pawl, and as the downward motion of the link 18 is continued the lever 23 is swung to carriage feeding position in the usual way. As a result of the release of the movable pawl by the downward movement of the spreader, the tooth of the pawl is shifted relatively to the fixed pawl to engage the second tooth of the feed wheel behind the rigid pawl instead of the first tooth of the wheel in rear of said pawl, thus permitting the carriage to move two spaces instead of one for the proper movement of said carriage to accord with the space of the compound character printed. Upon the release of the compound key, the springs return the parts of the escapement mechanism to normal position, thus resetting the movable pawl for a single space feeding action. It will be understood that the slots in the lugs 29 and 39 respectively permit the upper end of the link 10 to play in the slot 29 when the escapement is operated by the rod 18, and the upper end of said rod 18 to play in the slot in the lug 39 when the escapement is operated by the link 10.

From the foregoing description, it will be seen that the use of this invention renders it possible to write at one touch the two letters or the letter and space of the combinations most used, instead of requiring the operator to touch a key for each letter written, as on the ordinary typewriter. The principle of construction makes it possible to change the plan of the ordinary typewriter in a few particulars to adapt it to such writing. By adding to the ordinary typewriter and universal keyboard twenty types and keys having the twenty most used combinations, it is calculated that an average of twenty-five per cent. fewer touches will be required, while the addition of types and keys representing the ten most used combinations will reduce the number of touches approximately sixteen per cent., so that the advantages of my invention in effecting a saving in time and labor can be readily appreciated.

Having thus fully described the invention, what is claimed as new is:—

1. In a typewriting machine, a carriage escapement mechanism embodying a rocking escapement lever, relatively fixed and movable dogs carried by said lever, a spreader movable to space the movable dog a greater distance than normal from the fixed dog, a lever pivoted to the escapement lever for operating the spreader, single and compound character keys, and operating connections between said keys and the escapement and operating levers, said connections being adapted to respectively operate the escapement lever without actuating the spreader and to move both levers for the simultaneous projection of both pawls and actuation of the spreader.

2. In a typewriting machine, a carriage escapement mechanism embodying a rocking escapement lever, relatively fixed and pivoted dogs carried by said lever, a spring for moving the pivoted dog to plural spacing position, a wedge-shaped spreader movable between the pivoted dog and a portion of the lever to hold said dog against the action of said spring in normal or single spacing position, a lever carrying said spreader and pivotally mounted on the escapement lever, single and compound character keys, and operating connections between said keys and the respective levers, said connections being adapted to permit movement of the escapement lever for normal spacing without retracting the spreader when the single character key is depressed and to operate both levers in unison when the compound character key is depressed.

3. In a typewriting machine, a carriage escapement mechanism embodying a rocking escapement lever, fixed and pivoted dogs carried by said lever, a tapered spreader for normally holding the pivoted dog in single spacing position, a spring projected lever pivoted to the escapement lever and carrying said spreader, sets of keys, a spring for adjusting the pivoted dog to a plural spacing position upon the retraction of the spreader, means including a rod having a slip-joint connection with the escapement lever for operating said lever independently of the spreader lever upon the depression of the keys of one set, and means including a rod operated by the keys of the other set and engaging the spreader lever and having a slip-joint connection with the escapement lever for first operating the spreader lever to retract the spreader and then operating the escapement lever for the escapement action upon the depression of any one of the keys of said set.

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

LAWRENCE A. McKEEVER.

Witnesses:
W. J. MEREDITH,
A. J. FITT.