

[54] **ELECTRIC TYPEWRITER**

[76] Inventor: **Takayasu Inoue**, 838 Rokkakubashi-machi, Yokohama, Japan

[22] Filed: **Aug. 27, 1970**

[21] Appl. No.: **67,474**

[52] U.S. Cl.197/17, 197/66, 197/87, 197/120

[51] Int. Cl.**B41j 23/08**

[58] Field of Search.....197/17, 120, 65, 197/66, 85, 87, 88, 74

3,059,751	10/1962	Palmer	197/85 X
3,352,399	11/1967	Madison	197/17 X
1,609,478	12/1926	Kupetz	197/120
2,921,660	1/1960	Barkdoll	197/17
3,225,884	12/1965	Krauss et al.	197/17
3,339,695	9/1967	Palmer	197/17
3,342,295	9/1967	Hishida	197/17
2,563,722	8/1951	Hart	197/17

Primary Examiner—Robert E. Pulfrey

Assistant Examiner—R. T. Rader

Attorney—William W. Downing, Jr.

[57]

ABSTRACT

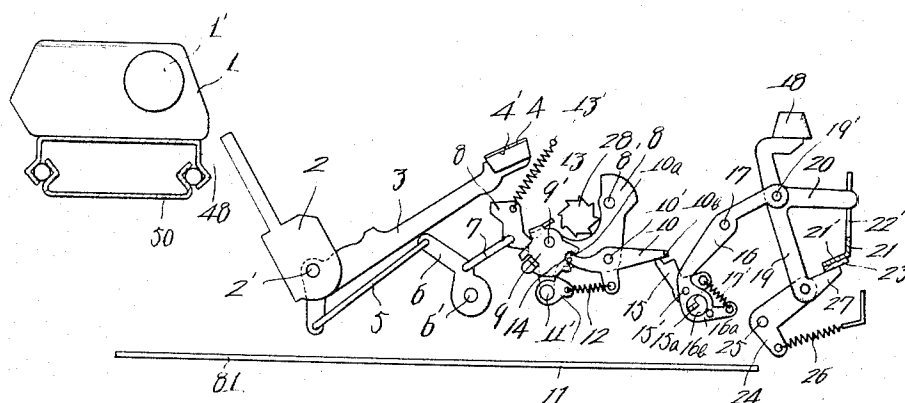
An electric typewriter so constructed that when a key is slightly touched a printing mechanism is electrically actuated to turn upward a corresponding type bar with a character so as to make impressions as desired on the paper wound on a platen and comprising a carriage having said platen, a spacing mechanism for feeding said carriage, a carriage return mechanism for feeding back said carriage and electric power supplier for operating said mechanisms. Said typewriter being designed so compacted as easier to handle.

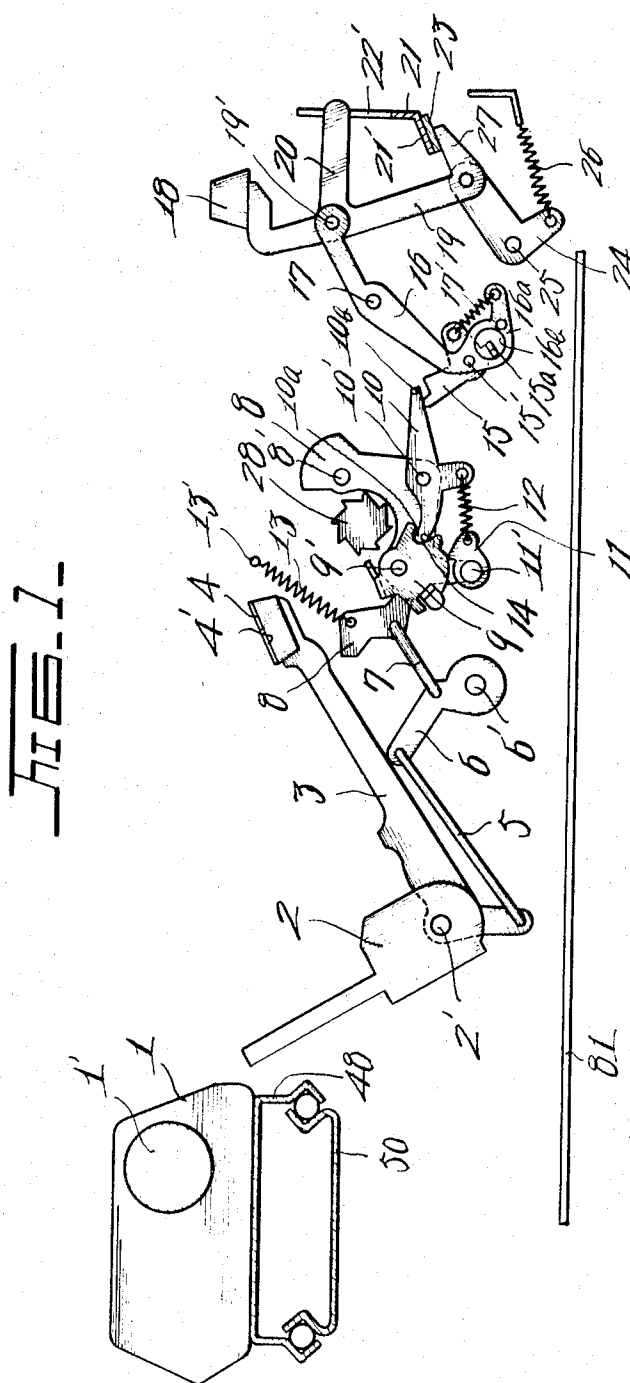
3 Claims, 15 Drawing Figures

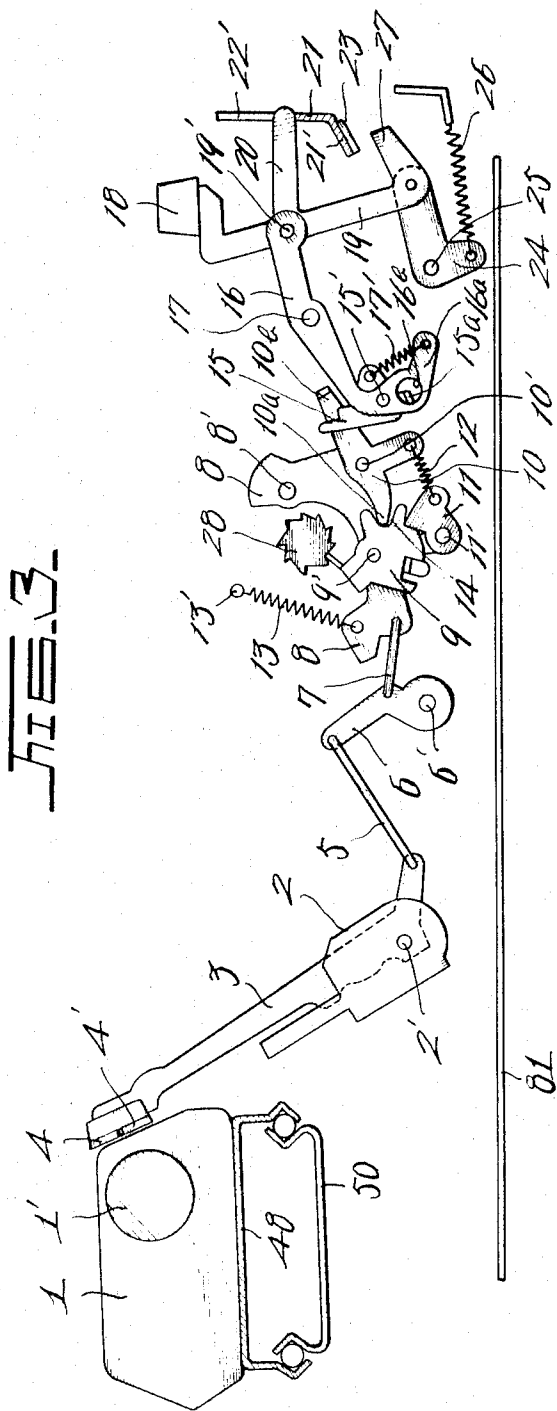
[56] **References Cited**

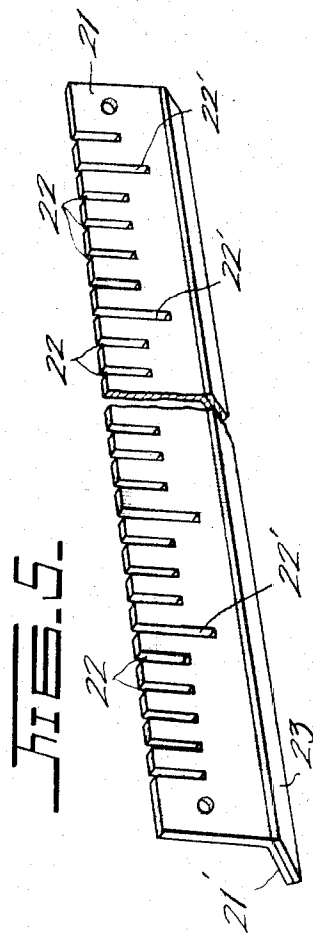
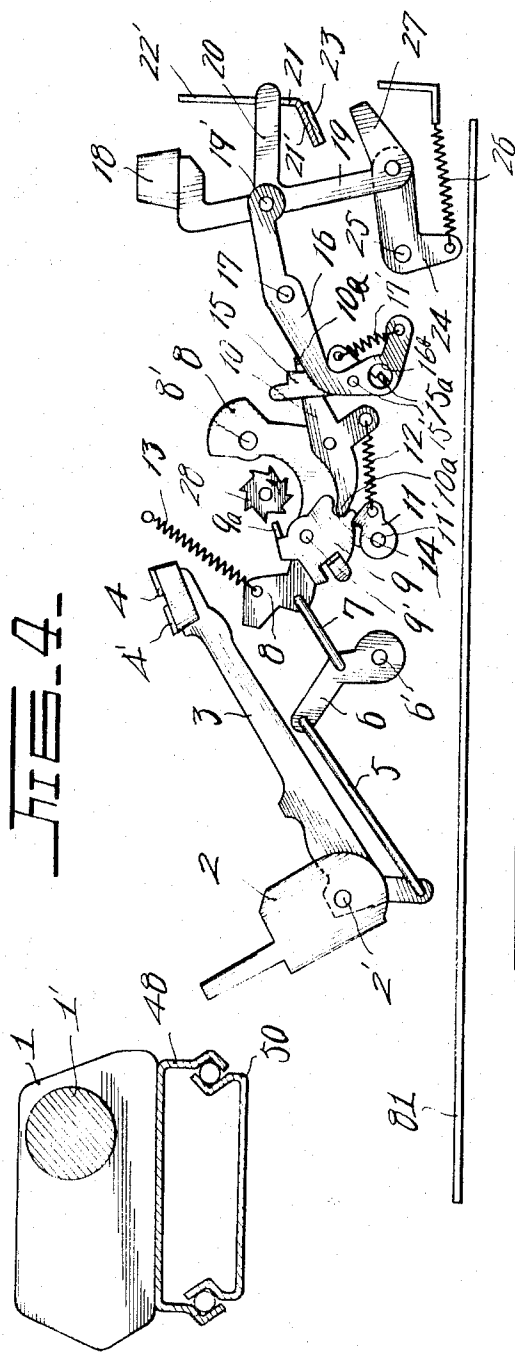
UNITED STATES PATENTS

1,163,761	12/1915	Kurowski	197/120
2,262,676	11/1941	Helmond	197/120 X
3,247,943	4/1966	Jonsson	197/120
3,263,793	8/1966	Brignole	197/120
3,295,653	1/1967	Salto	197/74
3,386,555	6/1968	Stroberg	197/74
3,164,237	1/1965	Cappotto	197/17
2,362,138	11/1944	Kavle	197/17
3,103,272	9/1963	Roggenstein	197/17









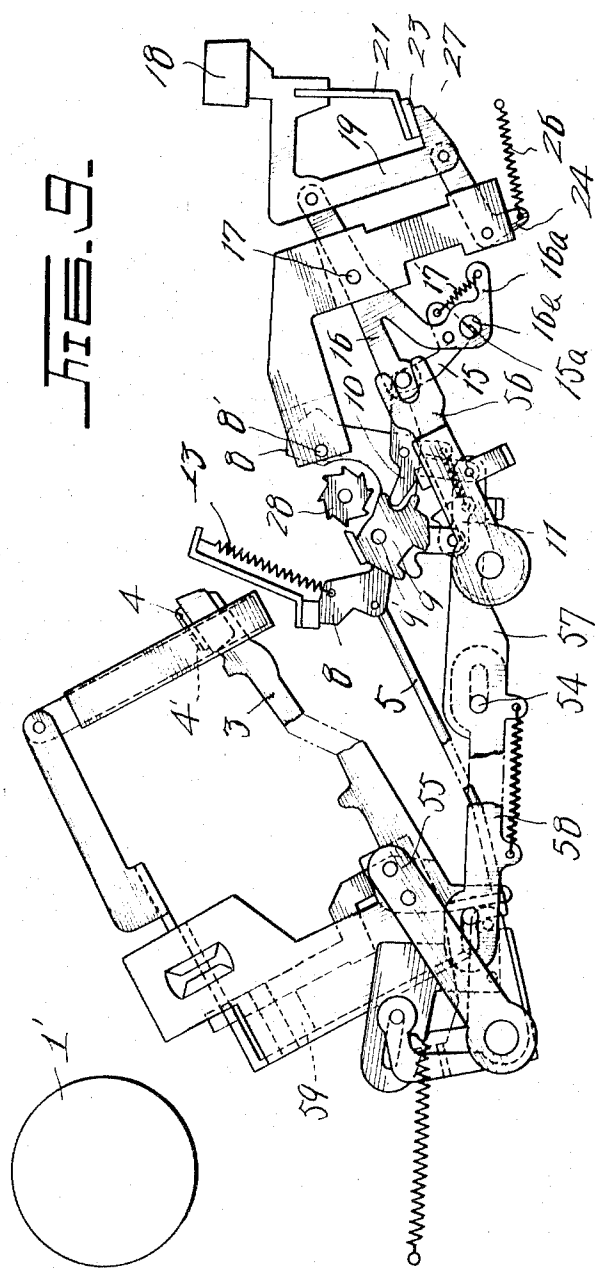


FIG. 10

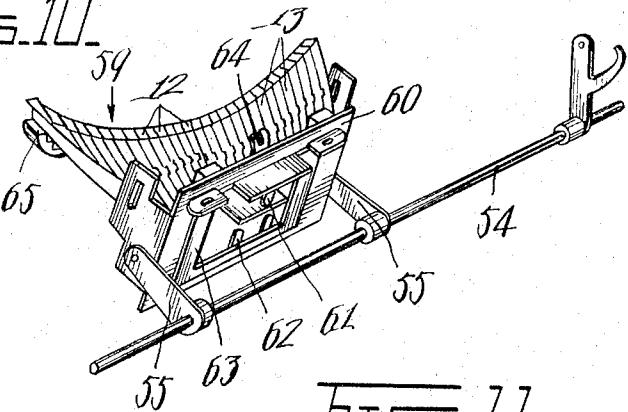


FIG. 11

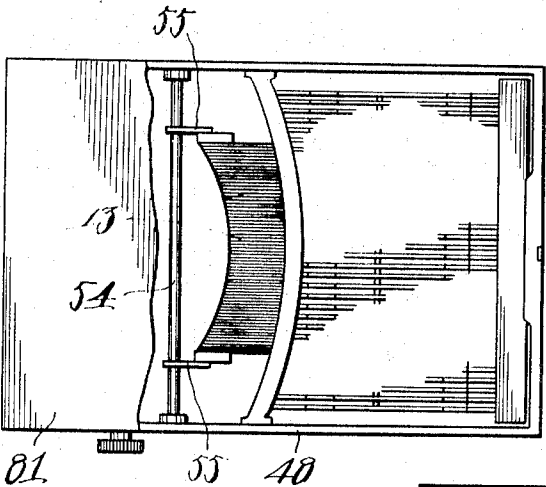
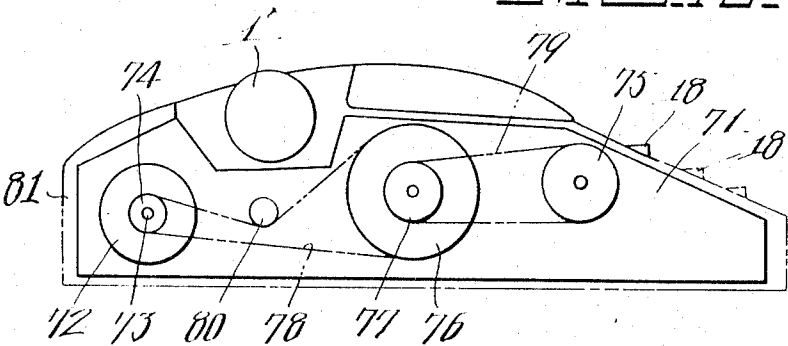
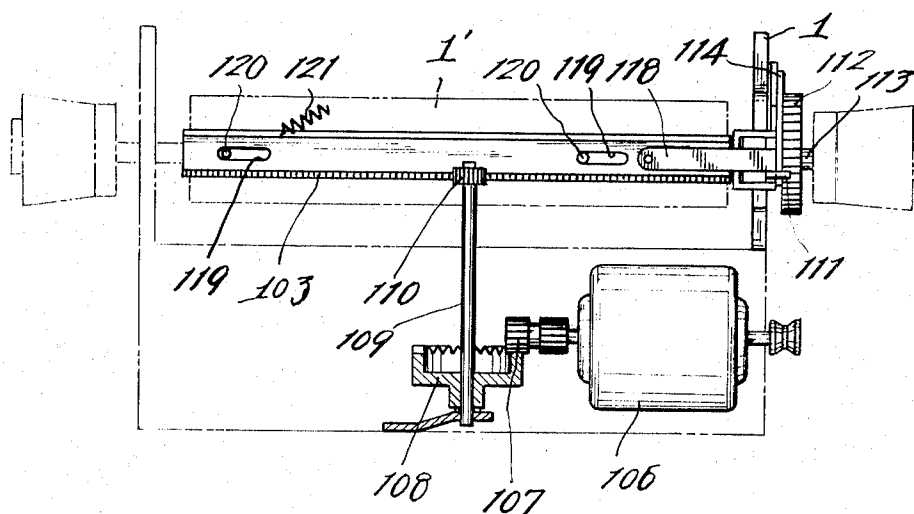
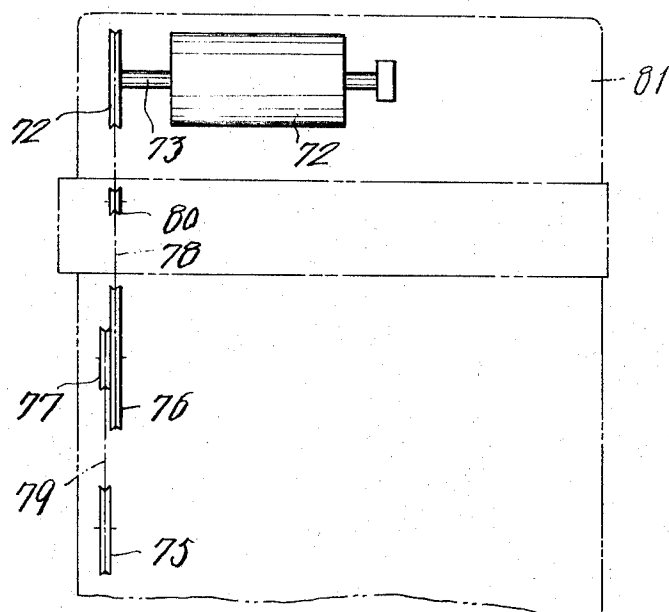
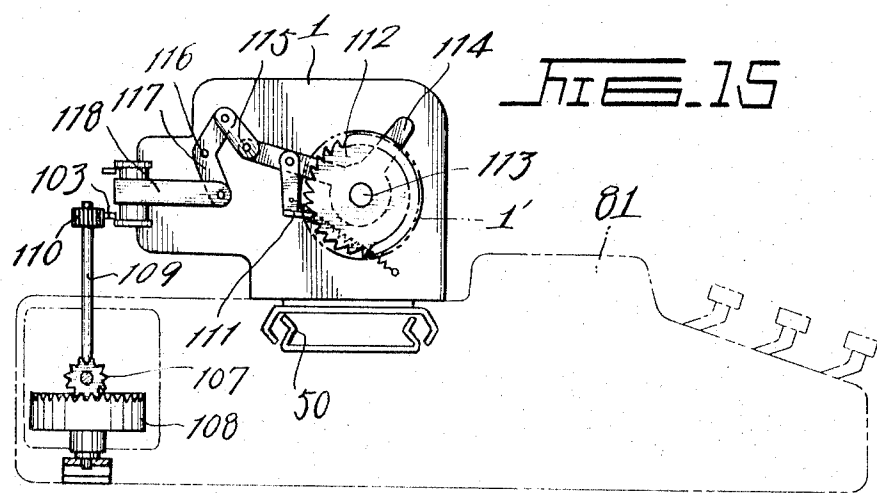


FIG. 12







ELECTRIC TYPEWRITER**BACKGROUND OF THE INVENTION**

The conventional typewriters usually have both capital and small letters on the same type bars, and are classified into two types by the method of matching either of the letters with the printing position, i.e., either the so-called carriage shifting type whereby the printing position on the paper is shifted by the up-and-down motion of the platen or the segment shifting method whereby the segment of types itself is lowered or lifted. The standard models of existing "standard" electric typewriters for office use are too high and not portable.

Where repeated printing of a certain type or character is to be done with a conventional electric typewriter, it has been customary to provide a special stopper under the key lever in such a manner that the depression of the key brings the stopper into contact with the housing, thus enabling the stopper to limit the downward stroke of the key. This arrangement is most inconvenient and unreliable in function, and makes it difficult to perform repeated printing with accuracy.

SUMMARY OF THE INVENTION

The present invention relates to an electric typewriter of such construction that, when a typist lightly touches keys on a keyboard, a printing mechanism is electrically actuated to turn upward the corresponding type bars that carry types or characters thereon so as to make impressions as desired on the paper wound around a platen.

The present invention provides a novel and improved electric typewriter capable of repeated printing in a smooth and positive way upon the depression of certain preset keys down to a predetermined point.

The invention provides a novel and improved electric typewriter having the function of accurately spacing the impressions while the feed mechanism is in continuous operation, with a very simplified construction.

The present invention provides a novel and improved electric typewriter which is lower than the conventional ones, more compact in design, and easier to handle.

According to the present invention, there is provided an electric typewriter comprising a housing, a carriage having a platen and mounted on said housing, type bars with characters oppositely positioned to said platen and pivotally disposed in said housing, keys connected to said type bars respectively and to be touched by fingers of a typist, a printing mechanism electrically connected to said keys and adapted to actuate said type bar for impressing on paper positioned on said platen, a spacing mechanism electrically connected to said keys and adapted to feed said carriage, a carriage return mechanism electrically connected to said carriage, electric power supplier disposed in said housing and connected to said mechanisms, said electric power supplier comprising a motor installed at the rear end of said housing, a pulley disposed at a side of housing and coupled to said motor, two coaxial intermediate pulleys having different diameter respectively and interposed between said pulley and a per-gear pulley disposed at the fore portion of said housing, said large intermediate pulley being communicated with a belt to said pulley directly coupled to the motor, said small intermediate pulley being communicated with a belt, and a roll disposed on said belt between said pulley and said large intermedi-

ate pulley for giving tension to the belt and reducing the space formed by the belt.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying drawings illustrate constructions of an electric typewriter according to the present invention.

FIGS. 1 to 4 are side elevational views illustrating the operation of a repeating mechanism of the electric typewriter according to the present invention.

FIG. 1 shows the unoperated state of the repeating mechanism;

FIG. 2 shows the parts just after actuation of the repeating mechanism;

FIG. 3 shows the state of impressing by the action of the repeating mechanism;

FIG. 4 shows returning operation of the repeating mechanism;

FIG. 5 is an enlarged sectional view of a key lever guide plate of the repeating mechanism;

FIG. 6 is a side elevational view of a space feed mechanism according to the present invention;

FIG. 7 is a fragmentary top plan view of the space feed mechanism;

FIG. 8 is a side elevational view of the essential part of the space feed mechanism;

FIG. 9 is a side elevational view of an embodiment of the invention for reducing the overall size to a minimum;

FIG. 10 is a perspective view of a part shown in FIG. 9;

FIG. 11 is a top plan view of a part shown in FIG. 10;

FIG. 12 is a diagrammatic side elevational view of the power mechanism designed for reduction of the overall height according to the present invention;

FIG. 13 is a fragmentary top plan view of a part of the mechanism shown in FIG. 12;

FIG. 14 is a plan view of a carriage return mechanism according to the present invention parts shown in phantom for purposes of orientation; and

FIG. 15 is a side elevational view of the mechanism shown in FIG. 14 portions shown in phantom for purposes of orientation.

DESCRIPTION OF PREFERRED EMBODIMENTS

The construction of the electric typewriter according to the invention will be described in detail in connection with embodiments thereof shown in the accompanying drawings.

Referring to FIGS. 1 to 5, which illustrate the construction of an automatic repeating mechanism of the typewriter generally comprises a carriage 1 having a platen 1', opposite to which are arranged type bars 3 in a segmentary formation. The type bars, are adapted to strike at the free ends carrying types 4, 4' representing capital and small letters, one at a time, against the paper head around the platen 1'. The multiplicity of type bars 3, 3 are pivotally supported in a segmentary row, through a curved shaft 2', by a common support frame 2, which in turn is secured to a housing 81 accommodating all of the mechanisms, with the aid of means to be described later.

A total of 44 type bars 3 are provided, each connected with a link 5 to an intermediate lever 6 which is pivotally connected with a shaft 6' to the housing 81. The lever 6 is connected with a short link 7 and to the front end of a driving piece 8, which is pivoted with a

pin 8' to inside the housing 81. This driving piece 8 is urged upward by a spring 13 fixed to the front end thereof and which is connected at the other end to a hanger 13' of the housing, and is pivotally connected at the rear end to a clutch lever 10 pivotally with a pin 10', in such a manner that one end 10a of the clutch lever 10 engages with a recess 14 of a driving pawl 9 which is pivotally connected with a pin 9' to the middle part of the driving piece 8. Underneath the driving pawl 9 a latch 11 is pivotally connected with a pin 11' to the driving piece 8, and the latch 11 and the clutch lever 10 are connected together with a spring 12.

The clutch lever 10, which is engaged at one end 10a with the recess 14 of the driving pawl 9 as stated above, is engaged at the other end 10b with a stopper 15. The stopper 15 is pivotally supported midway with a pin 15' by an actuating lever 16, which is connected at the other end with a pin 19' to a key lever 19 that carries a key 18 corresponding to the type bar 3. A bent portion 15a at the lower end of the stopper 15 fits loosely in a hole 16b formed in the curved end portion 16a of the actuating lever 16, so that the bent portion 15a of the stopper 15 can move slidably within the hole 16b. The stopper 15 is urged toward the bent end 10b of the clutch lever 10 by virtue of a spring 17'. The actuating lever 16 is pivotally supported midway by a shaft 17, which in turn is connected at the base end portion to the key lever 19 with the pin 19'.

Intermediate the length the key lever 19 is formed in one piece with a protruding tab 20, which is engaged with one of 44 guide notches 22 formed in a comb-like guide plate 21 which is supported by the key lever holder, so that, when the key 18 is depressed, the key lever 19 descends using as the fulcrum a pivot 25 for an L-shaped lever 24 which is pivotally connected with a pin 19'' to the lower end portion of the key lever 19, until the tab 20 comes to the lower extremity of the corresponding guide notch 22.

The guide plate 21 at a lower bent portion 21' is lined with a thin sheet of rubber 23 attached to the underside, so as to permit the upper edge of the lower bent portion 27 of the key lever 19 to contact the rubber sheet 23 so as to provide a buffer action for the key lever 19, L-shaped lever 24, actuating lever 16, etc.

Of the rows of types 4, 4', some are impressed repeatedly in the course of typing but the rest are not. The mechanism for selectively effecting this repeating operation will be described below.

As shown in FIG. 5, the guide plate 21 is formed with shallow guide notches 22 and deep guide notches 22'. The tab 20 of a given key lever 19 loosely fitted in one of the shallow guide notches 22 descends with the key lever, upon depression of the key 18, until it is brought to a stop in contact with the bottom of said guide notch 22. At this time, the actuating lever 16 loosely supported by the key lever 19 and the pin 17' is turned clockwise about the pivot 17. This causes the stopper 15 to move upward, turning the clutch lever 10 counter-clockwise, so that the left end of the lever 10 actuates the recess 14 of the driving pawl 9 to turn the same clockwise. As a result, a pawl tip 9a formed integrally by bending of the driving pawl 9 meshes with a driving gear. As it returns, the driving pawl 9 turns the driving gear 28 counter-clockwise and the driving piece 8 also turns counter-clockwise about the shaft 29, thus actuating the type bar 3 via the links 6 and 7 to carry out a printing operation. The shifting mechanism for capi-

tal and small letters and other corresponding writing symbols is entirely the same as those in use on conventional typewriters and, therefore, the explanation is omitted.

The driving pawl 9 loosely fitted to the driving piece 8 moves away from the driving gear 28 and returns to the normal position (as shown in FIG. 1). The bent portion 10a at the right end of the clutch lever 10 is disengaged from the stopper 15 and brought back to the original position by dint of the spring 12, thereby causing counter-clockwise turning of the driving pawl 9.

Referring to FIG. 4, it is appreciated that, if a given key 18 associated with a key lever 19 which loosely fits in a deep guide notch 22' is held down, the key lever 19 descends, thereby bringing the tab 20 down into contact with the bottom of the guide notch 22', the tab 20 being subsequently reset by the release of the key 18. At this time, as explained above, the actuating lever 16 turns clockwise but, because the guide notch 22b is deeper than the guide notch 22 that prints one character only, the turning range of the actuating lever 16 is wider, and the stopper 15 associated with the actuating lever 16 comes into contact with the bent portion 10b of the clutch lever 10 to restrict the return of the latter lever to the original position. Thus, even if the driving piece 8 is reset in the manner already described, the driving pawl 9 will not return to the normal state but is re-engaged with the driving gear 28 as the latter rotates, whereby the type bar is caused to repeat the printing strokes the number of times desired.

Next, description will be made of the spacing mechanism shown in FIG. 6. A rotating shaft 31 is secured to the housing 81, and a cam 32 is fixed to one end of the shaft 31. Also fixed to the shaft is a tab 33, loosely fitted at the front end to one end of an actuating lever 34 with a pin 30. The actuating lever 34 is capable of reciprocating, in the usual manner, with the aid of a spring 35 and through engagement with a driving gear 28 which is revolved by a motor upon depression of a key 18. An escapement pawl assembly 36 comprises two pawls, or a first pawl 36' which is stationary and a second pawl 36'' which is superposed in such a manner that when viewed from above the two pawls form serrations, and the assembly is loosely fitted with a fixing pin 37 to a holder 38, in contact at one end with a stop pin 39 (as in FIG. 7) and is pulled at the other end by a spring 40 so that the pawl tips can move in one direction only. The first and second pawls 36', 36'' of the escapement pawl assembly 36 supported by the holder 38 are adapted to be alternatively engaged with a ratchet gear 41; normally or while the spacing mechanism is at rest the second pawl 36'' engages with the ratchet gear as shown in FIG. 6, and in an operative state, the first pawl 36' engages as shown in FIG. 8. The holder 38 for the escapement pawl assembly 36 is formed with a protrusion 42 on one side, which is rockably mounted on a pivot 43, and is held in position by a spring 44 and a stop pin 45.

The rotating cam 32, which is disposed normal to the side plate, is always in contact with the tab 42 of the holder 38 for the escapement pawl assembly 36, in such a manner that, as it rotates, the cam can rock the holder 38. The rotating shaft 31 is equipped with brakes 46, 47. In FIG. 6, which is a side view of the carriage return mechanism of a typewriter in normal position, the carriage 1 has carriage rails 48 and a rack 49 pivotally connected thereto, and is slidably mounted on

a carriage base 50, which in turn is urged leftward as viewed from the front by means of a return spring not shown. To the lower part of the carriage base 50 is fixed a gear holder 51, having a horizontal bent tab 51a, which carries a pinion gear 52 and a ratchet gear 41 coaxially and rotatably together. The pinion gear 52 engages with the rack 49, while the ratchet gear 41 at rest engages with the second pawl 36'' of the escapement pawl assembly 36. Therefore, notwithstanding the leftward urging as viewed from the front by a return spring, the carriage 1 is stopped in a given position. As the key 18 is depressed, the actuating pawl 53 (FIG. 6) of the driving pawl 9, which is associated with the clutch lever 10, meshes with a tooth of the rotating driving gear 28, whereby the actuating lever 34 is pulled by a spring 100 in one direction. Next, the actuating pawl 53 is disengaged from the tooth of the driving gear 28, when the actuating lever 34 is brought back to the original position under the urging of the spring 35. Thus, the reciprocating motion of the actuating lever 34 is repeated. During this operation, the rotating shaft 31 repeats an angular motion at a certain angle in association with the tab 33 which is linked to the front end of the actuating lever 34. Hence the cam 32 attached to the front end of the tab 33 also repeats its rotary motion.

In an operative state, the carriage 1 is at rest with the second pawl 36'' in mesh with a tooth of the ratchet gear 41 as shown in FIG. 6. If the cam 32 rotates and pushes the tab 42 of the holder 38 leftward, then the holder 38 turns clockwise and the holder 38 is pushed by the rotating cam 32 about the shaft 43, with the result that the escapement assembly 36 coacts therewith to bring the second pawl 36'' downward, positively out of engagement with the ratchet gear 41. On the other hand, the first pawl 36' immediately moves to a position where it engages with the ratchet gear 41.

Since the carriage 1 is pulled in one direction by a spring (not shown), it is automatically moved leftward by the actuation of the escapement pawl assembly 36 over a distance equivalent to the gap between the tips of the first pawl 36' and the second pawl 36''. Next, by the reversing of the rotating shaft 31, the cam 32 is reversed in motion and comes back to the original position. Then, the holder 38 is also pulled back to the initial position by the spring 44, and the first pawl 36' of the escapement moves upward out of engagement with the ratchet gear 41 and, at the same time, the second pawl 36'' comes to the engaging position. Meanwhile, the carriage 1 under the urging of a spring (not shown) continues the intermittent motion, and, through the pinion 52 in mesh with the rack 49, the teeth of the ratchet gear coaxial therewith turn counter-clockwise by one pitch, bringing a second tooth into mesh with the second pawl 36'', so that the carriage 1 is stopped in that position.

As explained above, one reciprocating motion of the actuating lever 34 causes one rocking motion of the holder 38 and, in the meantime, the ratchet gear 41 is turned contrariwise by one tooth, thereby moving the carriage 1 accordingly to maintain proper spacing for the type-print.

While the rocking motion of the holder 38 as above described is known in the art, the machine according to the present invention is characterized in that the reciprocating motion of the actuating lever 34 is converted into a reversing motion of the rotating shaft 31

through linkage (at right of FIG. 6) so that the cam 32 is revolved to cause the rocking motion of the holder 38. Thus, the advantages of the invention are that the rocking distance can be kept constant by maintaining a predetermined distance between the center of the rotating shaft 31 and the periphery of the cam, and also that, because the periphery of the cam 32 is kept in contact with the tab 42 of the holder 38 under the urging of the spring 44, there is no possibility of the holder 38 vibrating sidewise during the rocking motion, and the engagement and disengagement of the ratchet teeth and the escapement pawl assembly, which are necessitated by the frequent repetitive rocking in electric typewriting, can be carried out with an extremely high degree of accuracy. Consequently, the invention provides a typewriter capable of accurate carriage feeding and therefore fine and neat typewriting with regular spacing of the characters typed.

With reference to FIGS. 9 to 11 an embodiment of the invention designed for compactness of the whole construction will be described. Throughout these figures, numeral 54 indicates a shifting shaft, formed straight instead of being generally reversed-wide-U-shaped with the intermediate portion bent downward as is customary in the art. To this shifting shaft 54 are fixed shifting arms 55, 55, which are pivotally supported at the other end by the lower portion of the housing 48. In the frontal part of the machine is provided a mechanism for printing purpose. The printing mechanism comprises a series of components, namely, as shown in FIG. 9, the key 18, actuating lever 16, link 56, clutch lever 10, driving pawl 9, driving gear 28, intermediate lever 57, shifting shaft 54, type bar link 58, and the type bar 3 having types 4, and 4', and which is adapted to pivot and strike against the sheet of paper on the platen 1' to make an impression thereon. Also shown in the same figure is a segment 59 and a segment carrier 60. The shifting arms 55 fixed to the shifting shaft 54 are coupled to the segment carrier 60 as shown in FIG. 10. Numeral 61 designates a shift control cushion, 62 a lift stopper, 63 a lift rock bracket, 64 a type bar guide and 65 a bolster for type bars.

Located in the rear part of the machine, the shifting shaft 54 needs not be bent as in a conventional typewriter. The shaft is therefore easy to make with good accuracy. Further, because the arrangements for printing are concentrated in the fore part of the machine and the shifting shaft 54 is located behind, it is possible to decrease the overall height of the machine and render it compact in construction.

FIGS. 12 and 13 illustrate the arrangements for decreasing the overall height. In the rear end portion of the machine body 71 a motor 72 is installed, and a pulley 74 secured to the motor shaft 73 is located on one side of the body 71. Two coaxial intermediate pulleys 76, 77, one large and one small, are interposed between the pulley 74 and a per-gear pulley 75 and are both located in a low position inside the body 71. The large intermediate pulley 76 is communicated with the pulley 74 that is directly coupled to the motor, whereas the small intermediate pulley 77 is communicated with the pulley 75 through belting 79. A pressure roll 80 is provided to apply a pressure on the upper part of the belt 78 that is spread between the pulley 74 and the large intermediate pulley 76 in order to keep the belt from running upward of the machine body. These pulleys and roller are fitted in the housing 81. Since the motor

72 is installed in the rear part of the body and the intermediate pulleys 76, 77 are held as low as possible within the body 71, the machine as a whole is not so large as ordinary electric typewriters. Short, flat and compact in design, the machine according to the invention incorporates keys in low positions and is, therefore, easy to type and is convenient to handle for storage, transportation, etc. The pressure roll 80 gives tension to the belt 78 and prevents the upper part of the belt 78 from overrunning above the machine body 71. Thus, the roll combines with the mounting positions of the motor and intermediate pulleys to make the machine portable.

Now, description will be made of the carriage return mechanism shown in FIGS. 14 and 15.

In these figures, a carriage is generally indicated at 1, as equipped with a platen 1', a rack 103, etc. and mounted slidably sideways along rails 50. A motor 106 is disposed in housing 81 and has a small gear 107 directly coupled thereto and in mesh with a crown gear 108. A pinion 110 is fixed to the upper end of a vertical shaft 109 that is supported by said crown gear 108. The pinion 110 is engaged with the rack 103 provided at the back of the platen 1' to cause the return of the carriage 1. A line space feed pawl 111 is engaged with a ratchet gear 112 attached to one side of the platen 1', and is pivotally connected to an operating lever 114 which is pivoted to the platen shaft 113. The lever 114 is communicated to a cord belt 118 through a link 115 and a bent lever 117 which is pivotally connected to the carriage 1 with a pin 116. The cord belt 118 is coupled to the rack 103, and the rack 103 is formed with slots 119, 119, so that pins 120, 120 provided on the carriage 1 can fit therein to move the rack 103 freely against the urging of a spring 121 within the range defined by the slots 119, 119.

Returning to the carriage 1 is effected by the motor 106 through the rotation of the pinion 110, when the line space feed pawl 111 is actuated through the cord belt 118 which is coupled to the front end of the rack. When the carriage has been fed to the extremity or has returned, the cord belt 118 serves as a buffer to protect the feed pawl 111 and the rack against any excessive force or impact.

As described, the carriage return mechanism has a rack 103 at the back of the platen and a line space feed pawl 111 in communication with the rack 103 through the cord belt 118, and this makes it possible to decrease the overall height of the machine as compared with existing machines wherein the rack is disposed below the platen. The machine according to the present invention is thus compact in design and convenient for portable use. In addition, because no excessive force is exerted on the feed pawl and rack as compared with the conventional arrangements wherein the feed pawl is directly attached with some fasteners to the front end of the rack, the machine of the invention is free from trouble about the mechanism.

What is claimed

1. A low-profile electric typewriter comprising a housing, a carriage having a platen and mounted on said housing, type bars oppositely positioned to said platen and pivotally disposed in said housing, keys operatively connected to said type bars respectively, a power-operated printing mechanism operatively connected to said keys and adapted to actuate said type bars,

a power-operated spacing mechanism operatively connected to said keys and adapted to feed said carriage in one direction transversely of said keys, a power-operated carriage return mechanism adapted to return said carriage to a position from which it was fed, and electrically-operated power means disposed in said housing and operatively connected to said power-operated mechanisms,

said electrically-operated power means comprising a motor installed at the rear end of said housing below and behind said platen, a pulley disposed at a side end of said housing and coupled to said motor for rotation thereby, two coaxial intermediate pulleys having different diameters respectively and journaled on said housing forwardly of said platen, a drive pulley disposed at a forward portion of said housing and journaled thereon, a first endless belt entrained over said larger diametered intermediate pulley and said pulley directly coupled to the motor, a second endless belt entrained over said smaller diametered intermediate pulley and said forward drive pulley, and a biasing roll disposed for rotation on the upper run of said first endless belt generally beneath the platen on said belt between said pulley and said large intermediate pulley whereby said platen and carriage afford a low profile to said typewriter, said power-operated spacing mechanism comprising a drive shaft rotatably mounted on said housing and projecting inwardly beneath said carriage; a carriage base for said carriage; a cam member fixed to said shaft and rotatable therewith, a reciprocable actuating lever extending fore-and-aft of said housing, power-operated drive means operatively connected through at least one key for reciprocating said actuating lever; an escapement-pawl holder pivotally mounted on said carriage base at an upper portion and abuttingly engaged with said cam for oscillation thereby as said cam is operated by said actuating lever, means for moving said carriage space-by-space along said base, an escapement pawl assembly on said holder and operatively connected to said means for moving said carriage whereby reciprocation of said actuating lever will move said carriage a single space.

2. An electric typewriter as set forth in claim 1, in which said power-operated printing mechanism includes a linear shifting shaft extending transversely of and rotatably supported on said housing forwardly of and below said platen, shifting arm means connected to said shaft and movable therewith, a vertically shiftable printing segment carrier pivotally connected to said arm means, and means operatively connected to said linear shifting shaft for rotating the same and orienting said printing segment carrier.

3. An electric typewriter as set forth in claim 1, in which said power-operated carriage return mechanism includes a gear rack projecting rearwardly from said carriage, electrically operated motor means in said housing and including a driven member operatively connected to said gear rack for driving the same transversely of said housing, said platen including means for incrementally rotating said platen line-by-line, said last-mentioned means comprising a ratchet gear fixed on said platen and a pivotal pawl engagable with said ratchet gear for rotating the platen, and a cord belt secured at one end to said carriage and operatively connected to said pawl whereby terminal movement of said carriage at the end of a transverse movement relative to said carriage cause the pivotal pawl to oscillate into engagement with said ratchet gear and rotates the platen a single space.