

L. J. ODELL.

TYPE WRITER.

APPLICATION FILED APR. 15, 1907.

932,167.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

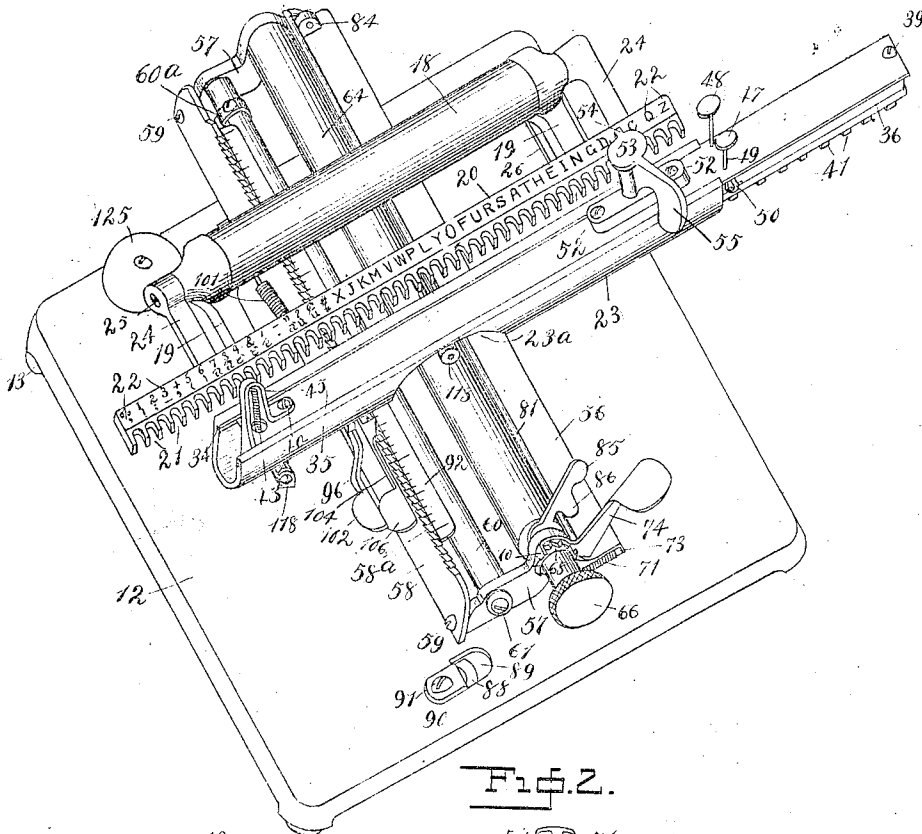
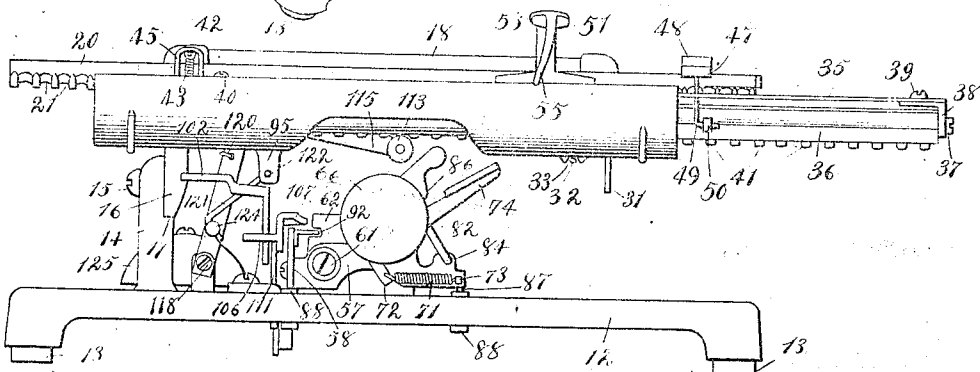


Fig. 2.



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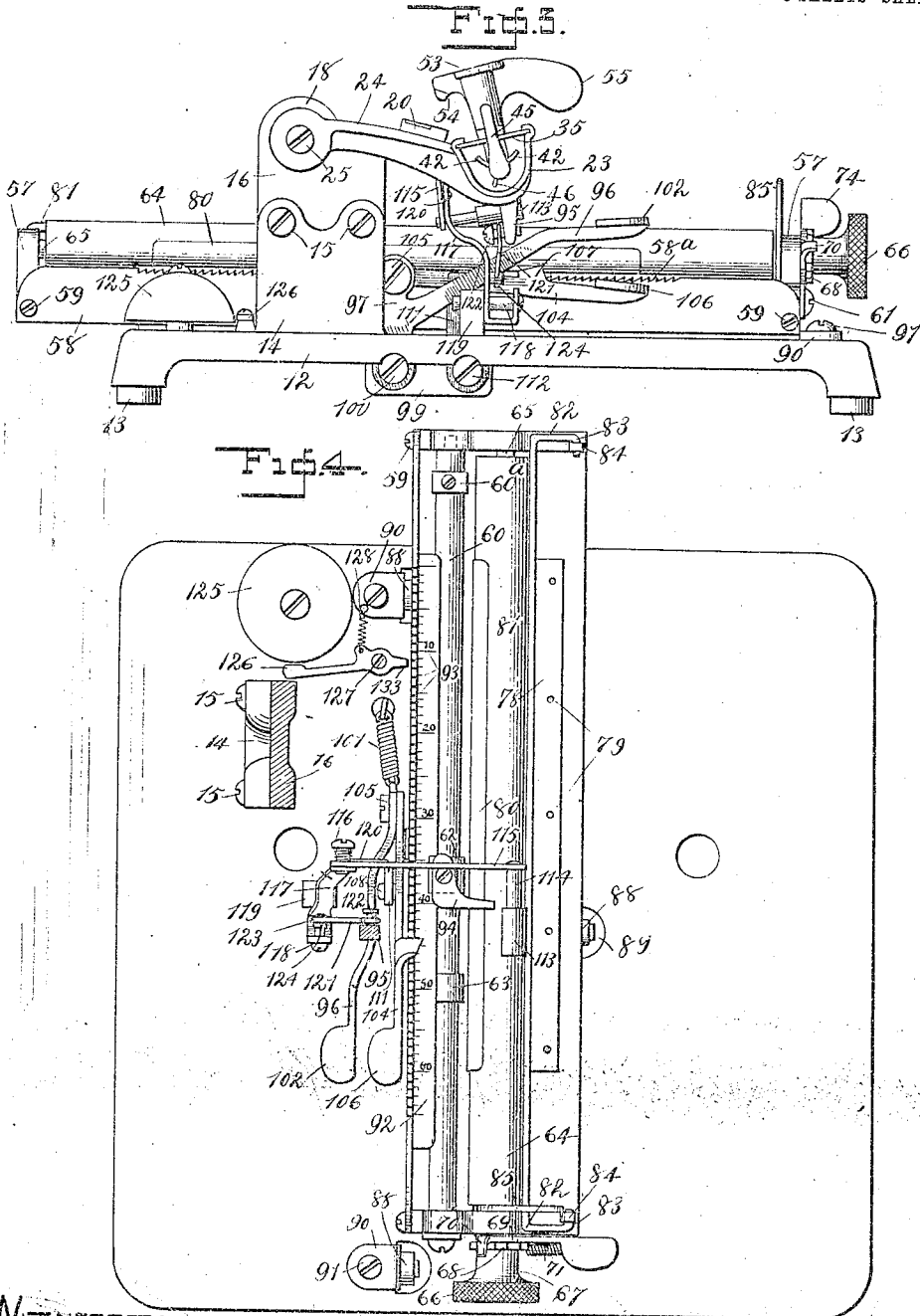
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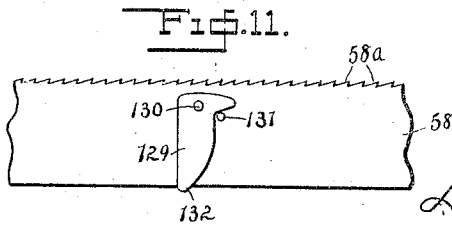
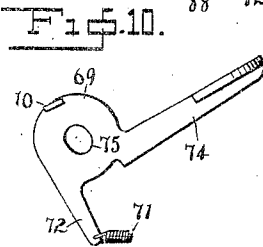
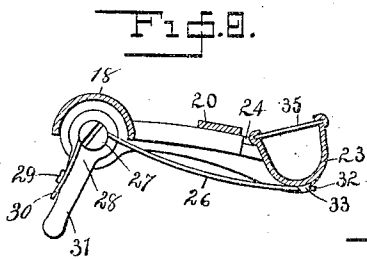
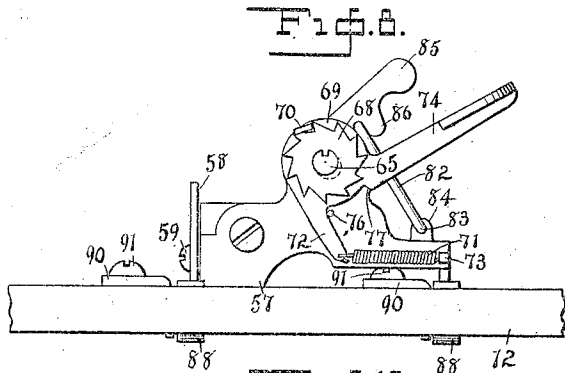
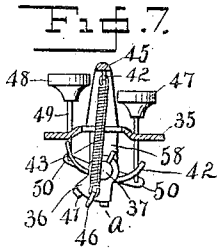
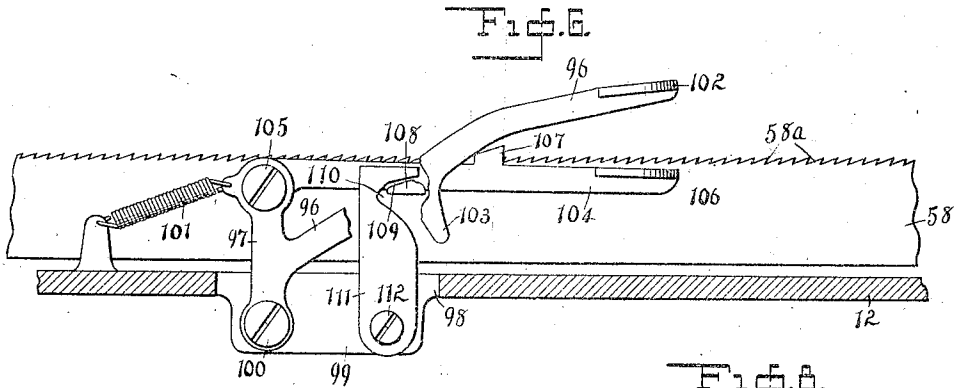
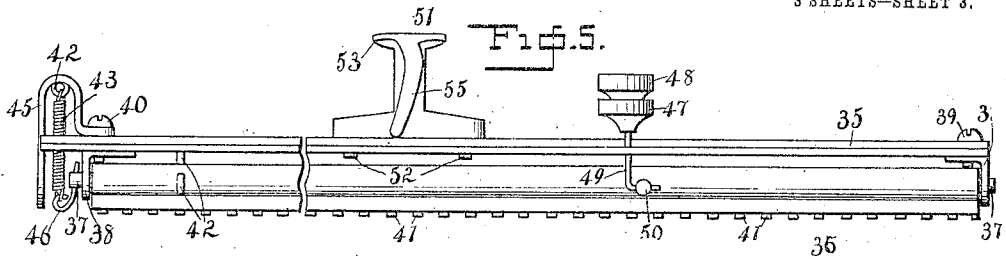
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 3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LEVI J. ODELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO GUSTAVE A. ALBRECHT, OF CHICAGO, ILLINOIS

TYPE-WRITER.

982,167.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed April 15, 1907. Serial No. 368,178.

To all whom it may concern:

Be it known that I, LEVI J. ODELL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention relates to type-writing machines and has special reference to that class of machines employing a single key secured to a movable type-bar, the various printing positions being regulated by means of an attached stylus.

The chief objects of my invention are to produce a type-writing machine of the class designated that will be simple in its mechanism, easy to operate, and that can be readily understood and manipulated by an unskilled person.

Further objects are to provide improved means for operating the inking mechanism with a view to increase its efficiency and durability; to furnish a reliable and convenient method of handling the paper; to render the various parts durable, and to produce a machine of such design and construction that it can be economically manufactured.

I accomplish the above and other important results by the employment of the mechanical construction illustrated in the accompanying drawings which form a part of this specification and in which:

Figure 1 is a perspective view of my improved type-writing machine in its complete form; Fig. 2 is a front elevation; Fig. 3 is a side elevation; Fig. 4 is a sectional top plan view the plane of section passing immediately beneath the type-bar frame, cutting the supporting bracket and carriage operating lug; Fig. 5 is a side view of the type bar and attachments; Fig. 6 is a fragmentary view showing a portion of the rack plate and co-acting levers; Fig. 7 is an end view of the type bar with some parts removed and others broken away; Fig. 8 is a partial view showing the line spacing mechanism with the thumb wheel removed; Fig. 9 is a partial view showing the spring for the type-bar frame and adjusting device; Fig. 10 is a side view of the line spacing lever, and Fig. 11 is a fragmentary view showing the bell trip.

Referring to the drawing in detail, the numeral 12 indicates a base plate upon which

the mechanism is supported and which is furnished with feet 13, preferably formed with rubber to prevent abrasion of the desk or table upon which the machine may be placed. This plate is provided with a pillar 14 formed integral therewith, and to this is secured by screws 15 a bracket 16 the lower end of which rests upon a shoulder 17 formed in the said pillar. The bracket carries a horizontal frame arm 18, which is semi-circular in cross section as shown in Fig. 9, to give rigidity to the member which is supported at one end only by the bracket 16. Extending horizontally forward from said frame arm 18 near each end are duplicate arms 19 which support a transverse character bar 20. This bar is provided with registering slots 21 along its front margin and upon the upper surface adjacent to said slots are impressed a series of characters 22 disposed in two lines one above the other except where the characters represent the letters of the alphabet, when one character will stand for both upper and lower case letters.

A type-bar frame 23 has rearwardly projecting arms 24 which are pivoted to the extremities of the frame arm 18 by shouldered screws 25. The said frame 23 is held in its initial position by a spring wire 26 having a portion of its length coiled about the body of a shouldered screw 27 which passes through an adjusting plate 28 and engages a threaded hole in the frame arm 18. Said plate is furnished with an ear 29 which engages the fixed end 30 of the spring 26. The shoulder of the screw 27 holds the plate from turning and when said screw is loosened it permits the said plate to be turned on its center 27 by means of a handle 31 so that the resiliency of said spring 26 may be increased or diminished at will. The end 32 of the spring is received in a notch 33 in the underside of the type bar frame. The transverse portion of said frame 23 is U-shaped in cross section and open at the ends, and near the upper edge the sides are provided with internal longitudinal grooves 34 to receive the margins of a sliding plate 35, upon the under surface of which is mounted a type-bar 36, supported at each end by gudgeons 37 which are journaled in brackets 38 secured to the under side of said sliding plate 35 by screws 39, 40. Upon the under surface of said type bar and formed integral therewith are the printing charac-

ters 41, disposed in a double line. The swing of said bar upon its centers 37 is limited by stops 42 which permit the bar to oscillate in either direction to a sufficient extent to bring the lines of printing type alternately into a position vertically below the said centers. A tension spring 43 is suspended at its upper end to a yoke 45 secured by the screw 40 to the plate 35, the lower end of said spring being attached to a radially extending arm 46 rigidly fixed to one of the bearings 37 of the type-bar. The upper end of said spring is located directly over the center of oscillation of said bar, as shown in Fig. 7. The positions of the spring attachments relative to the limitations imposed by said stops 42 are such that when either of the stops engages the underside of the plate 35 the spring 43 will make traction upon that side of the center of oscillation and tend to hold the bar in the position then occupied, one of the lines of type being in the printing position which is shown at *a* Fig. 7, directly beneath the center of oscillation. When the type bar is rocked so that the other stop is against the plate 35 bringing the second line of type into the printing position, the lower end of the spring 43 will swing past the center and exert tension from the opposite side holding the parts in their relative position until the bar is again rocked upon its centers. The means employed for rocking the type bar to shift the position of the lines of type consists of two keys 47, 48, their stems 49 passing through holes in the plate 35. The lower ends of the stems are bent at a right angle and engage holes in the ends of pins 50 projecting from the opposite sides of the type-bar. One of said keys is normally up when the other is down, and to shift the bar it is only necessary to depress the key which is elevated. Upon the upper surface of said type-bar plate is secured an operating key 51 fastened to said plate by screws 52. This key is provided with a cap 53 from the rear of which projects a guide finger 54 having its lower margin wedge shaped to insure its entering the proper slot when the key is depressed as hereinafter described. From the front of said key is a handle 55 which is grasped by the fingers when the key is operated.

A paper carriage is arranged transversely to the type-bar frame and is composed of a base plate 56 having end plates 57 formed integral therewith and connected on the side opposite to the base plate by a ratchet plate 58 secured to the end plates by screws 59 and furnished along its upper margin with spaced teeth 58^a. A slide rod 60 is fixed to the end plates 57 and is secured in place by a screw 61. This rod passes through lugs 62, 63, which project vertically from the bed plate 12 and has a sliding fit therein, a collar 60^b serving as a stop. A platen of the usual

form, consisting of a rubber roller 64 mounted upon a shaft 65 is journaled in the end plates 57, the forward end projecting through the bearing plate 57 and carrying upon its extremity a thumb wheel 66 provided with a sleeve 67, the inner end of which carries a line-spacing ratchet 68. Between said ratchet and the bearing plate 57 is located a pawl plate 69 carrying a pawl tooth 70 which is adapted to engage the teeth of said ratchet 68. The pawl tooth is held in engagement with the ratchet by a spring 71 attached at one end to an arm 72 extending from the pawl-plate 69, and at the other is secured to the carriage base at 73. The pawl plate has a line spacing lever 74 by means of which it can be rocked upon the shaft 65, and is provided with a slot 75 where the said shaft pierces it, to allow the pawl tooth to ride over the ratchet teeth when retracted by its spring. The rotation of said plate is limited by a stop pin 76 against which the arm 72 is held when the plate is in its normal position, said pin engaging a shoulder 77 at the base of the arm 74, when the latter is depressed, thus preventing the pawl from turning the platen farther than desired.

A paper tension dip 78 formed of a thin sheet of metal is secured at one edge to the upper surface of the base plate 56 by rivets 79, and passing beneath the platen is curved upward and partly around the platen, its free margin 80 lying closely against the face of the platen upon which it exerts sufficient force to produce some tension for the paper which is inserted between the platen and said tension plate. A guide rod 81 is placed parallel with the platen and lies in contact therewith, and each end is bent downward at a right angle as indicated at 82, and the extremities 83 bent in opposite directions to be inserted in lugs 84 fixed to the carriage base plate 56. The said rod is held in initial position against the face of the platen by a locking lever 85 pivoted on the shaft 65 and furnished with a lip 86 which engages the rod when in its initial position. When it is desired to insert a sheet of paper the lever 85 is lifted until the rod is released and turned away from the platen and the forward edge of the paper inserted beneath. The rod is then replaced and locked in position by the said lever.

The carriage base plate 56 has a down turned flange 87 along its outer margin and this flange and the lower edge of the ratchet plate 58 form guide ways which rest upon rollers 88, which project slightly above the upper surface of the bed plate through openings 89 therein, and are pivoted to brackets 90 by means of screws 91. A scale bar 92 is attached to the side of the ratchet plate 58, the graduations 93 of the scale corresponding with the ratchet teeth. To the lug 62 is

fixed an index finger 94 for the purpose of locating the carriage relatively to the printing point.

The under side of the type-bar frame 23 is provided with a depending lug 95 and directly beneath this lug is located a spacing lever 96 the lower end of which is attached to the middle of a vertical arm 97 one end of which projects through a slot 98 in the bed plate 12 and is pivoted to a flange 99 by a shouldered screw 100 upon which said arm and attached lever rock. The said spacing lever is maintained in an extended position by a spring 101 which is attached at one end to the upper end of the arm 97, and at the other to a fixed point on the bed plate. The free end of the lever 96 is provided with a finger plate 102 and the downward movement of said lever is limited by a stop finger 103 which strikes the bed plate 12. A spacing pawl arm 104 is pivoted to the upper end of the lever arm 97 by a pivot screw 105 and has a finger plate 106 at the free end. Projecting from said arm is a pawl tooth 107 adapted to engage the ratchet teeth 58^a, and upon the opposite side is a projecting lug 108 which engages the inclined upper margin 109 of notch 110 formed in a post 111 secured at 112 to the flange 99. When in the position shown in Fig. 6 the pawl arm 104 is locked down by the said engagement of its lug 108 with the inclined edge 109. The said lug also forms a stop for the lever 96 in its rearward movement. By depressing the said lever either by the finger or the action of the lug 95 when the type bar frame is moved downward as hereinafter described, the center 105 will be carried forward sufficiently to release the lug 108 and permit the pawl tooth 107 to ride over the teeth of the ratchet plate as the pawl arm is moved forward in unison with the arm 97.

The lower part of the type-bar frame is provided with an opening 23^a directly over the platen to expose the type to the action of an inking roller 113 composed of a suitable fibrous or absorbent material saturated with an ink adapted to the purpose, an anilin ink being found satisfactory. This ink roller is mounted to rotate on an arbor 114 carried on the end of a lever 115 pivoted by a shouldered screw 116 to the upper end of a rock arm 117 journaled on a stud screw 118 engaging a post 119 fixed to the bed plate 12. The said lever 115 is held in an extended position by a spring 120, coiled about the screw 116, its free end engaging said lever 115. The rock arm 117 is operatively connected with the lug 95 by a link 121 formed of a rigid wire furnished with a ring at the upper end which engages a shouldered screw 122 inserted in said lug 95, its other end 123 being bent at a right angle to pass through a hole in a lug 124 pivoted to the rock arm 117.

A signal bell 125 is conveniently located near the rear of the plate 12 and is provided with a hammer 126 pivoted to the bed plate at 127 and is held in a retracted position by a spring 128.

To the outer surface of the ratchet plate 58 is attached a gravity bell trip 129 which swings on a pivot 130, and rests against a stop pin 131. As the carriage is moved rearwardly the lower end 132 of the said trip will engage the heel 133 of the hammer lever and cause the latter to strike the bell when released as the carriage passes on. When the carriage is returned the trip will yield on its center 130 to permit the end to pass over said heel.

The operation of the machine is as follows:—The ink roller having been supplied with a proper quantity of ink and a sheet of paper inserted between the platen and tension plate and carried under the guide rod, the latter is locked against the platen by the lever 85. The operator then grasps the operating key 51 and moves said key and attached type-bar laterally until the guide finger 54 is approximately above the recess in the character bar 20 corresponding with the character which it is desired to print. He then depresses the key carrying the type bar and frame downward until the type strikes the paper against the platen. Relaxing the pressure he permits the spring 26 to restore the said frame and type bar to the initial position. The bar is then moved laterally by means of the operating key until another character is selected and printed by depressing the key; and this process is repeated until the alarm bell gives warning that the end of the line is reached. The carriage movement is controlled by the lever 96, the depression of which carries the pawl arm 104 forward to engage a new notch, the tension of the spring 101 being sufficient to restore the lever 96 and attached arm 104 to their initial positions and at the same time move the carriage one step toward the rear. The lever 96 may be depressed by the finger, which is the method employed to space between words or when no print is required and is always automatically depressed whenever the key 51 is operated, by the engagement therewith of the pendent lug 95. The automatic movements which take place when the operating key 51 is depressed are as follows: The first effect of the downward movement of the type bar carriage is to throw the inking lever and roller to the left to leave a clear space for the impression to be made upon the paper. This is done by the action of the link 121 which carries the rock arm 117 and attached lever 115 to the left, the ink roller being then entirely out of the way by the time the type bar carriage is depressed to the printing plane. At the same time the lug 95 engages the spacing lever

96, causing the arm 97 to rock on its center 100 moving the attached pawl arm forward to engage a new tooth, and the spring 101 will move the carriage one step through the medium of said pawl tooth 107, when the type bar frame ascends, and the ink roller will also be restored to its first position. To bring the carriage forward when it has reached the end of the line or at any other time with one hand the spacing lever is depressed to release the lug 108 and the pawl lever 104 lifted out of engagement with the ratchet, thus leaving the carriage free to be moved either forward or back with the other hand so long as the pawl arm is kept elevated. When one line is finished the operator turns the platen by the line spacing lever 74 to feed the paper, a single depression acting upon one tooth to give one space, and when more space is required between the lines the lever is given the required number of depressions or the platen can be turned indefinitely, and may be used to feed the paper, for line spacing or to remove it from the roller.

It is obvious that many changes may be made in the devices of my invention as herein disclosed without departing from the spirit and scope thereof, and I do not wish, therefore, to be limited to the precise construction set forth.

Having thus described my invention I claim:—

1. In a typewriting machine, including a paper carriage and inking mechanism, the combination with a base and a pillar thereon, of a bracket removably secured to the pillar, a frame-arm rigidly attached at one end to said bracket, an oscillating frame pivoted to said frame-arm, a spring urging said oscillating frame to its initial position, adjusting means for the spring, a type-bar plate slidably mounted in said oscillating frame, a type-bar carried by said type-bar plate and pivoted to rock relatively thereto, and means for rocking said type-bar, said means comprising keys pivotally attached upon opposite sides of said bar.

2. In a type-writing machine, including a paper carriage and inking mechanism, the combination with a base and a standard thereon, of a bracket removably attached to the standard, a frame-member rigidly secured at one end to the bracket, an oscillating frame pivoted to said frame-member, a spring urging said frame to its initial position, means for adjusting said spring, said means comprising a plate pivotally mounted upon said frame arm and engaging the spring, a type-bar plate slidably mounted in said oscillating frame, a type-bar pivotally mounted on said type-bar plate, means for rocking said bar, and a stop carried by said bar and adapted to limit the movement of said bar in both directions upon its centers.

3. In a type-writing machine, including a paper carriage and inking mechanism, the combination with a base and a standard thereon, of a bracket removably attached to said standard, a frame-arm rigidly secured at one end to the bracket, an oscillating frame pivoted to said arm, a spring for said frame, means for adjusting said spring, said means comprising a clamping screw, a plate pivoted on said screw, and a lug on said plate engaging said spring, a type-bar plate slidably mounted in said oscillating frame, a type-bar pivotally mounted on said type-bar plate, means for rocking said bar on its pivots, said rocking means comprising lugs extending laterally from opposite sides of the said bar, keys pivotally attached to said lugs, a stop carried by said bar and adapted to limit the movement of the bar in both directions upon its centers, and means for yieldingly locking said bar at either limit of its movement.

4. In a type-writing machine including a paper carriage and inking mechanism, the combination with a base and a pillar thereon, of a bracket removably secured to the pillar, a frame-arm rigidly attached at one end to said bracket, an oscillating frame pivoted to said frame-arm, a spring attached to the frame-arm and urging said oscillating frame to its initial position, means for adjusting said spring, said means consisting of a plate adjustably mounted upon said frame-arm and engaging the spring, a type-bar plate slidably mounted in said oscillating frame, a type-bar pivoted on the type-bar plate and provided with two lines of type, means for rocking said bar to bring it successively into each of its printing positions, and resilient means for locking the bar in either of said positions.

5. In a type-writing machine, the combination with a base, and a pillar thereon, of a bracket secured to the pillar, a horizontal frame-member secured at one end to the bracket, rigid arms extending horizontally from the said frame-member, a character bar supported thereon, a comb formed integral with said bar, an oscillating frame pivoted to said frame member, a spring urging said oscillating frame to its initial position, means for adjusting said spring, said means consisting of a plate pivotally mounted upon said frame member, a lug on said plate engaging the spring, and means for locking said plate in adjusted position, a type-bar plate slidably mounted in said oscillating frame, a type-bar pivoted on the type-bar plate and provided with two lines of type, means for rocking said bar to bring each line of type successively into printing position, and means for locking the bar in either of its printing positions.

6. In a type-writing machine, the combination with a base, and a pillar thereon,

of a bracket secured to the pillar, a horizontal frame-member secured at one end to the bracket, rigid arms extending horizontally from the said frame-member, a character bar supported thereon, a comb formed integral with said bar, an oscillating frame pivoted to said frame member, a spring urging said oscillating frame to its initial position, means for adjusting said spring, said
 10 means consisting of a plate pivotally mounted upon said frame member, a lug on said plate engaging the spring, and means for locking the plate in adjusted position, a
 15 type-bar plate slidably mounted in said oscillating frame, a type-bar pivoted on the

type-bar plate and provided with two lines of type, means for rocking said bar to bring each line of type successively into printing position, said means consisting of individual keys mounted in the type-bar plate and pivoted to the type-bar upon opposite sides of its axis, and resilient means for locking the bar in either of its printing positions.

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

LEVI J. ODELL.

Witnesses:

F. BENJAMIN,
 K. M. CORNWALL.