

(No Model.)

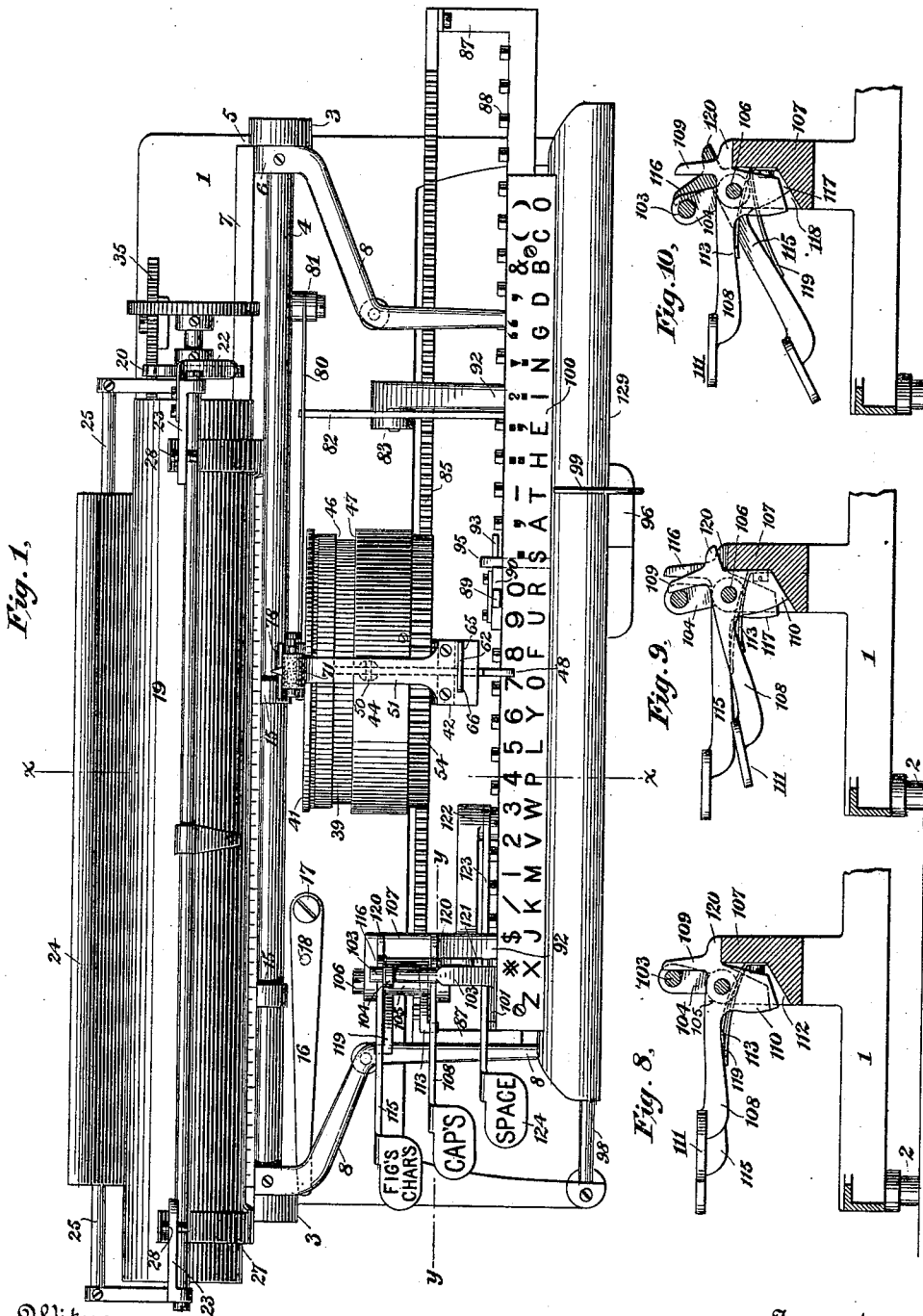
5 Sheets—Sheet 1.

W. J. BARRON.

TYPE WRITING MACHINE.

No. 470,969.

Patented Mar. 15, 1892.



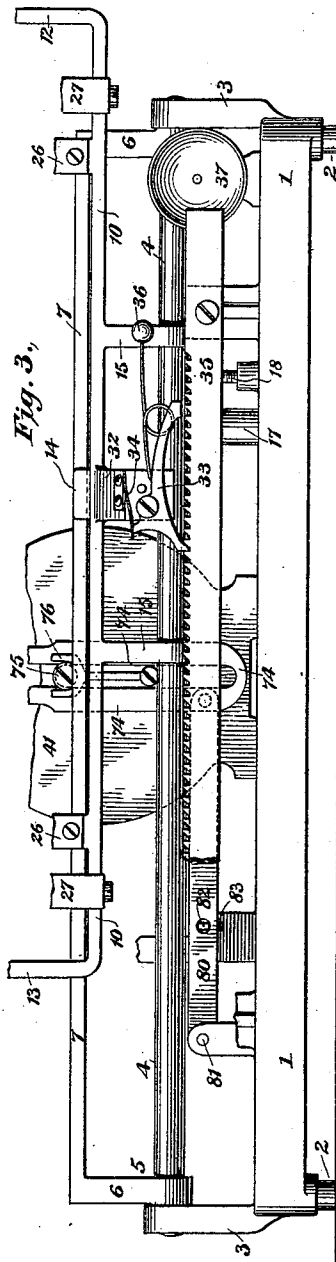
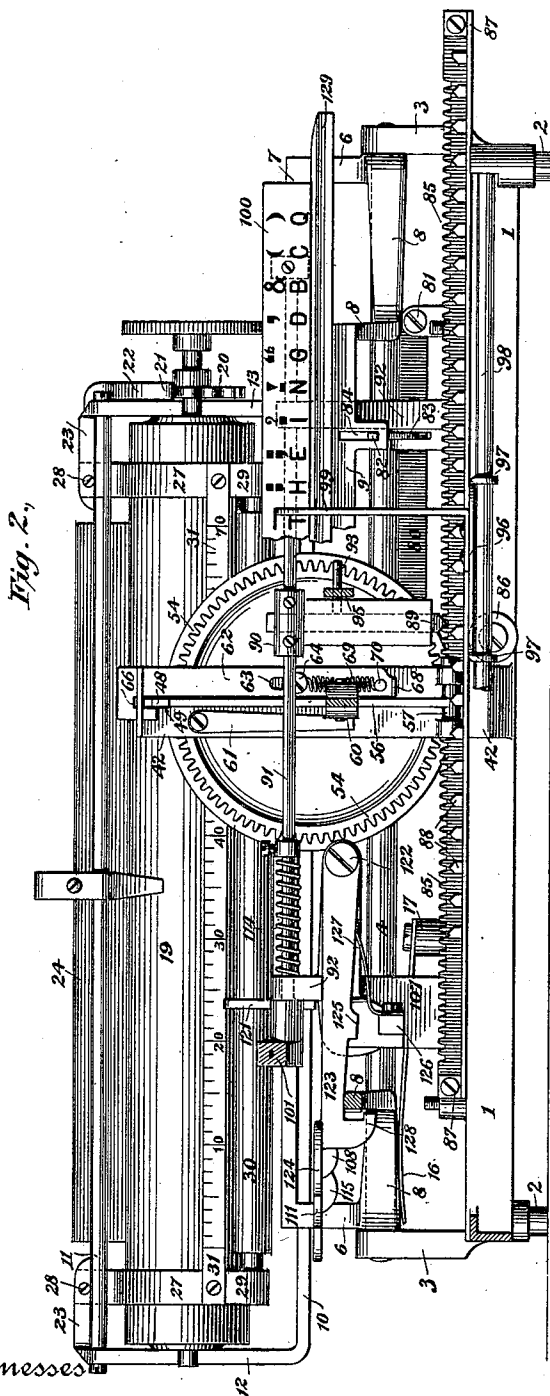
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5 Sheets—Sheet 2.

W. J. BARRON.
TYPE WRITING MACHINE.

No. 470,969.

Patented Mar. 15, 1892.



Witnesses
Geo. W. Dreck.
Edward Thorpe.

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(No Model.)

5 Sheets—Sheet 3.

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Fig. 5.

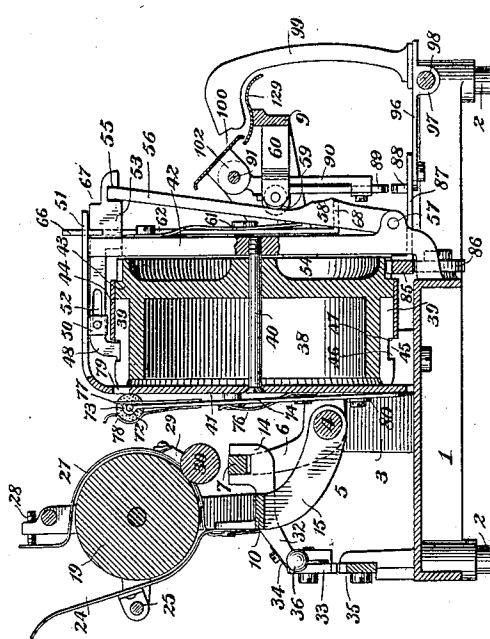
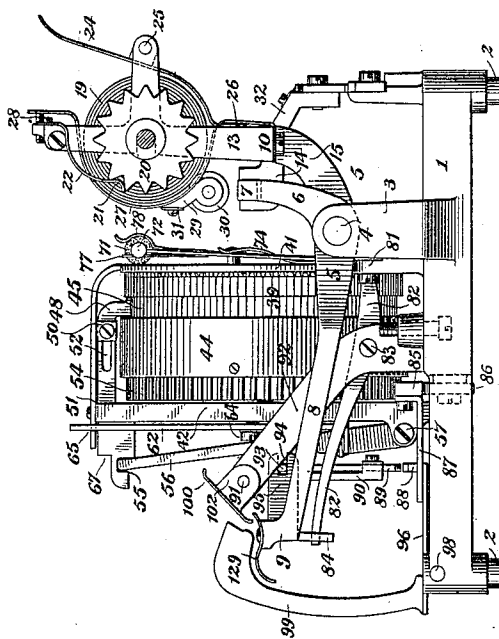


Fig. 4.



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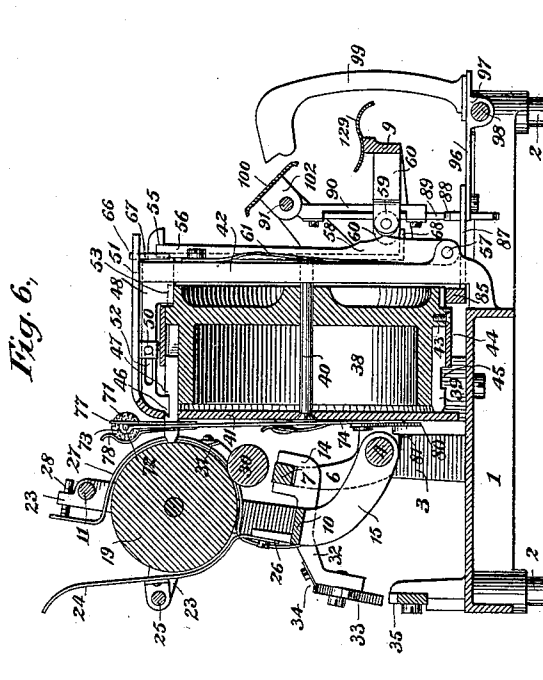
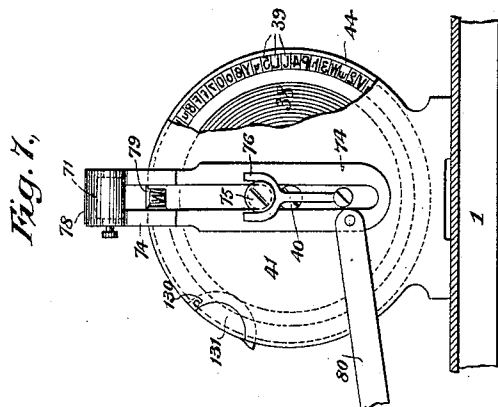
(No Model.)

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W. J. BARRON.
TYPE WRITING MACHINE.

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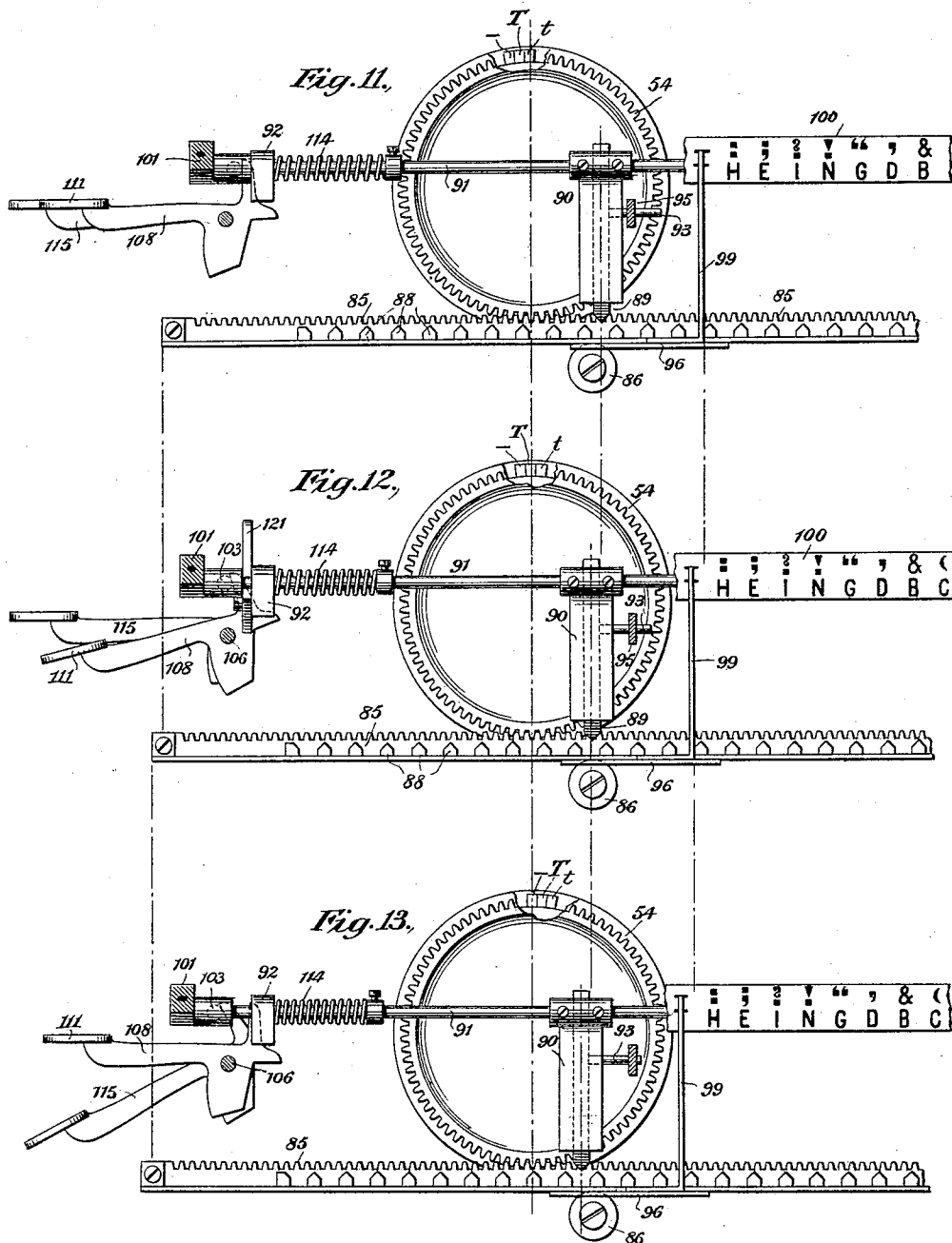
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UNITED STATES PATENT OFFICE.

WALTER J. BARRON, OF BROOKLYN, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,969, dated March 15, 1892.

Application filed May 26, 1891. Serial No. 394,133. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. BARRON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention has for its main objects to provide a small, simple, cheap, and effective type-writing machine; and it consists in the various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of a type-writing machine embodying my improvements. Fig. 2 is a front elevation thereof with the keyboard and printing-bar broken away to more clearly show the construction. Fig. 3 is a rear elevation with the upper portion of the platen-carriage removed. Fig. 4 is a side elevation of the right-hand end of the machine. Fig. 5 is a vertical cross-section taken at the line $x x$ of Fig. 1 with the parts in their normal position. Fig. 6 is a similar section with the parts in their printing positions. Fig. 7 is a rear elevation to show the type-carrier and inking devices. Fig. 8 is a vertical section taken at the line $y y$ of Fig. 1. Fig. 9 is a similar section with the capital-letter shifting-lever in its operative position. Fig. 10 is a similar section with the figures and characters shifting-lever in its operative position. Fig. 11 is a detail view showing the position of the shifting and type-moving devices in the normal condition of the machine or when arranged to print lower-case letters. Fig. 12 is a similar view when the devices are arranged to print capital letters, and Fig. 13 is a like view when the parts are arranged to print figures and characters.

In the several views the same part will be found designated by the same numeral of reference.

1 is the base or bed plate of the machine, made preferably of metal and provided with rubber feet 2 at the corners.

At each side of the machine and slightly back of the center line of the base-plate is cast integral therewith an upright 3, in which is

mounted the ends of a hinge and guide-rod 4, to which is attached a lever-frame 5, consisting of two vertical arms 6, one at each end, arranged slightly back of the plane of the rod 4 and connected by a horizontally-arranged bar 7, and two horizontally-arranged and forwardly-extending bent arms 8, made integral with the vertical arms 6 and connected at the front of the machine by a horizontally-arranged bar 9. This lever-frame 5 is so connected to the rod 4 that when depressed at its forward end the rod 4 serves as its axis of motion, although said rod is adapted to turn with the said lever-frame. The platen-carrier or paper-carriage is connected to said lever-frame, so as to vibrate with it and move independently longitudinally.

The platen-carrier consists of a lower side bar 10 and upper side bar 11 and end bars 12 and 13. The lower side bar 10 is formed with a forwardly-extending forked arm 14, which embraces loosely the horizontal bar 7 of the lever-frame, and said lower side bar 10 is formed with two forwardly-curved arms 15, which are mounted to slide and turn on the rod 4, the construction being such that when the lever-frame is depressed at its outer end the horizontal bar 7 carries the platen-carrier toward the front of the machine, swinging it about the rod 4 at a center of motion, and when the front end of the lever-frame is released returning said platen-carrier to its normal position by reason of its forked connection with said horizontal bar 7, the lever-frame being returned itself to normal position by a flat bar spring 16, mounted on a post 17 on the bed-plate. The tension of this spring may be increased or diminished by means of a screw 18, passing up from the under side of the bed-plate between the point of attachment of the spring and its free end, upon which latter one of the bent arms 8 of the lever-frame rests.

In the upright end bars 12 and 13 of the carriage is mounted a platen 19, whose shaft or axis is provided near the right-hand end with a toothed wheel 20, with which engages a hold-fast dog 21, formed at the free end of a spring 22, which is secured to an extension 23 of the end-bar 8. A paper-table 24 is attached to a back rod 25 and is bent around the under side of the platen and is cut out at

its ends to form two ears 26, which are screwed to two lugs projecting up from the lower side bar 10 of the carriage.

Near each end of the platen is a paper-guide 27, which is bent to embrace the front side of the platen, and which at its lower end is attached to the side bar 10 and at its upper end bent to bear against the point of an adjusting-screw 28, fitted in the extension or bar 23. The tendency of the upper end of the paper-guide is to spring forward, and this tendency may be restrained by the screw 28, which may be adjusted to obtain any desired space between the paper-guide and the platen. Attached to each of said paper-guides is a bracket 29 to receive the ends of a pressure or feed roller 30, which bears against the paper-platen. The pressure of said roller against the platen may be increased or diminished by means of the adjusting-screws 28. When said screws are forced rearwardly, the spring paper-guides are caused to approach more closely to the platen and carry the feed-roller with them, and when said screws are turned in the opposite direction the spring paper-guides move away from the platen and diminish the pressure of the roller 30 against said platen.

To the brackets 29 is attached a scale-bar 31, graduated from left to right.

At the right-hand end of the platen axle or shaft is a hand-wheel for turning the platen and moving the paper in line-space direction.

At about the middle of the lower side bar 10 is cast a short bent arm 32, to the vertical portion of which is pivoted a feed-dog 33, having a spring 34 and adapted to engage with the teeth of a stationary rack 35. The said dog is provided with a spring-wire bell-hammer 36, which is adapted to strike the stationary gong 37 when the carriage has traveled to near the extreme left of the machine.

In front of the platen-carriage and centrally of the machine is arranged a drum or barrel 38, about the periphery of which separable, movable, and independent type 39 are arranged. The drum or carrier is mounted upon a pin or shaft 40, supported at one end in a plate 41 and at its other end in a vertical arm or bracket 42, formed integral with the base-plate. The type 39 are formed of a keystone shape or with sides radiating from the center of the drum or carriage, so that the type may be arranged closely together without intervening spaces, which would be apt to catch dust, dirt, &c., and interfere with their free movements, and so as to obtain increased bearing or wearing surface for the type. The rear ends of the type in their normal positions all abut against a circular flange 43 on the carrier, and all of the type are held upon the drum against casual displacement by means of the plate 41 and a cylindrical collar or band 44, which is screwed down on the flange 43 and projects rearwardly to cover about one-half of the body of the type. Each type is formed with a cut-away or notch 45

intermediate its ends, forming two shoulders 46 and 47. The notches or cut-aways in the type are all arranged at the same locality, so that when the type are mounted upon the carrier a continuous circular groove is formed by said notches.

At the upper side of the carrier is arranged a type ejector or pusher 48, the downwardly-bent operative portion of which stands within said circular groove formed by the type and in position to engage with the shoulders of any type which may happen to be uppermost, and when operated to project and retract such type. The ejector is arranged to have a sliding movement and is guided at one point by a slot 49 in the upper end of the vertical arm 42 and at another point between a short fork 50, projecting downwardly from the under side of a plate 51, screwed upon the upper end of the arm 42. The ejector is provided with a longitudinal slot 52, which embraces a screw or pin in said fork, and by this means the to-and-fro movements of the ejector are limited. The ejector near its front end and on its lower side is formed with a tooth 53, which is adapted to engage with a spur-gear 54, attached to or formed integral with the type-carrier, and lock or hold the type-carrier against rotation during the printing movement. The foremost end of the ejector is notched at 55 to receive loosely the upper free end of an arm 56, pivoted at 57 at the lower end of the vertical arm or bracket 42. The arm 56 at its front edge is formed with a cam-surface 58, adapted to be acted upon by an anti-friction roller 59, mounted in a forked arm 60, projecting rearwardly from the front horizontal bar 9 of the lever-frame. When the lever-frame is actuated and the anti-friction roller caused to descend against said cam-surface, the pivoted arm 56 is forced rearwardly and the ejector is slid toward the platen and carries with it the uppermost type with which it is in engagement. When the lever-frame is released, the pivoted arm 56 and the ejector and type are returned to their normal positions by a flat spring 61, attached to the front side of the bracket 42.

62 is a plate having a slot 63, through which passes a screw 64, attaching said plate to the bracket 42 in a manner to permit said plate to move up and down. The upper end of the plate is guided in a slot 65, formed in the horizontal plate 51, and is formed with a hook 66, adapted to drop behind a shoulder 67 at the front end of the ejector and serve as an abutment or stop to the ejector and type during the printing movements. The lower end of the plate 62 is provided with a toe piece or projection 68, which is adapted to be struck by one of the arms of the fork 60 in its descent, and by this means the plate 62 is carried down to fall behind the shoulder on the ejector. The movements of the parts are so timed as that the plate 62 does not commence to descend until the type has about or almost reached the paper. The locking-plate 62 is

returned to its normal position by means of a spiral spring 69, attached at one end to the screw 64 and at the other end to a stud 70 on said plate.

The type are inked by means of a roller 71, of felt or other suitable material. Said roller is mounted on an axle 72, the ends of which are seated in hooks 73, formed at the upper end of a U-shaped frame or plate 74, which is held to plate 41 by means of a screw 75 and a forked spring 76. The axle of the ink-roller is held in the open hooks by means of two light flat springs 77, which are soldered or otherwise attached to the frame 74. The back of the roller is prevented from coming in contact with the paper during the printing movements by a shield 78, attached to the frame 74. The inking-roller may be readily removed from the hooks and a new one substituted when desired. In the normal position of the inking-roller its axle stands at about on a line with the periphery of the type-carrier, and the surface of the roller is pressed against the rear side of the plate 41 at the lower side of the type guide or opening 79, formed in said plate. The U-shaped frame is adapted to be reciprocated and to carry the inking-roller up past said type-guide and to ink the face of the type as it is projected there-through. The movements up and down of the inking-roller are effected by a lever 80, connected at one end to the lower end of the frame 74 and acted upon in front of its pivot 81 by another lever 82, arranged at right angles thereto. The lever 82 is pivoted at 83 in a bracket extending up from the base-plate, and its forward end rests in a slotted projection 84, depending from the front horizontal arm 9 of the lever-frame. The forward end of the lever 82 rests normally at the lower end of the slot in the extension 84 in order that the lever-frame may have a certain amount of motion before the ink-roller is started to move.

Engaging with the gear-wheel 54 on the type-carrier is a rack 85, adapted to slide horizontally on an anti-friction roller 86 beneath said rack. To the rack is connected by side arms 87 a comb or index-bar 88, the teeth of which have beveled points, and the distance apart between any two adjacent teeth from center to center about equals the space occupied by any three type on the type-carrier. With this comb or index-bar 88 engages a vertical sliding tooth 89, guided in a bracket 90, secured to a rod 91, which is mounted to slide endwise in two arms 92, forming part of the frame-work. Said sliding tooth 89 has a lateral projecting arm 93, which enters a slot 94 in a rearwardly-projecting arm 95, formed integral with the front bar 9 of the lever-frame, so that when said bar 9 is depressed the sliding tooth 89 may be slid down to engage with said comb 88 and lock it and the rack 85. Centrally of the comb and at its front is attached a horizontal bracket 96, provided with downwardly-projecting perforated ears 97,

which slide upon a guide-rod 98 at the front of the machine. On said bracket is mounted a vertical pointer or indicator 99, which is bent at its upper end to extend back to a keyboard 100, attached to short brackets 101 and 102, fast on the ends of the sliding rod 91. The bracket 101 has formed integral with it a rearwardly-extending arm 103, which is pivotally connected to a vertically-arranged arm 104 on a sleeve 105, adapted to oscillate on a pin or axis 106, mounted in a bifurcated stand or bracket 107, made integral with the base-plate. On said pin 106 is mounted a lever 108, having a projection 109 on its upper side and a projection 110 on its lower side. This lever is provided at its free end with a finger-piece 111, inscribed with the word "Caps." The upper projection 109 stands behind the arm 103, so that when the finger-piece 111 of said lever is depressed the projection 109 may carry the arm 103 and the keyboard toward the left, and this movement of the keyboard to the left is defined and determined by the lower projection 110, which strikes against a stop or abutment 112, formed on the bracket 101. Beneath the lever is a flat spring 113 to effect its return when released, and the keyboard is also returned by this spring and by another spring 114, coiled on the rod 91 and attached thereto at one end and bearing at its other end against the arm 92.

On the pin 106 is mounted another lever 115, having also an upward projection 116 and a lower projection 117, and having also a finger-piece inscribed "Figs. & Char's." The upper projection 116 of the lever 115 also rests behind the arm 103, and when said lever is depressed operates to draw said arm and the keyboard to the left, but a greater distance than the lever 108 moves said devices, owing to the fact that the lower projection 107 is shorter than the lower projection 110 and will move a greater distance before coming in contact with its abutment 118. For the lever 115 there is also provided a returning-spring 119. The levers 108 and 115 are each provided with a finger 120, adapted to contact with the stand or bracket 107 and limit the return movements of said levers.

On the stand or bracket 107 is pivoted a latch 121, adapted to enter between the arm 92 and the bracket 101 when the lever 108 has been depressed and the keyboard shifted, so as to prevent the return of the keyboard to its normal position when it may be desired to use the capital letters only.

In an extension of the stand or bracket 107 is pivoted at 122 a spacing-lever 123, having a finger-piece 124 marked "Space." Said lever overlies the left-hand bent arm 8 of the lever-frame, so that when the lever 123 is depressed it may actuate the lever-frame and to an extent to perform a word-space. The descent of the lever 123, and hence the amount of vibration of the lever-frame 5, is limited by a projection 125 on the under side of the spacing-lever, which comes in contact with

an arm 126 on the stand or bracket 107. When the projection 125 has arrived at the arm 126 and come to a stop, the anti-friction roller 59 has traveled down only part way along the cam-surface 58 of the pivoted arm 56 and not a sufficient distance to vibrate said arm its full extent, and for this reason the uppermost type, although it will be moved slightly, will not be projected a sufficient distance to enable it to reach or make an impression upon the paper on the platen.

Beneath the spacing-lever 123 is a returning-spring 127, attached to the arm 126.

To prevent accidental printing during the spacing operation between words and after the spacing-lever has come to a stop, there is provided at the free end of the spacing-lever a hook 128, which swings underneath the left-hand arm 8 of the lever-frame and prevents said frame from being vibrated independently of the spacing-lever.

Upon the horizontal bar 9 of the lever-frame is attached a printing-bar 129, which is arranged in front of and beneath the inclined keyboard, and which is preferably slightly longer than the latter. By pressing down upon the printing-bar at any point of its length the lever-frame and platen are vibrated, the type projected, inked, and held projected, and the type-carrier locked against rotation at the time of printing.

The type are arranged in groups of three, a small letter first, a capital letter next, and a numeral or punctuation-mark last, and the type are all arranged about the drum or carrier to correspond with the marking of the keyboard, which is shown in full at Fig. 1. The characters on the keyboard are all arranged in two horizontal rows, the numerals and punctuation-marks being in the upper and the letters of the alphabet in the lower row. The row of letters serves both for the lower-case and the upper-case type.

The machine herein shown and described has been devised as an improvement upon the machine shown in the Wagner patents of June 7, 1887, No. 364,556, and November 20, 1888, No. 393,318, and hence those portions of the machine which are shown and described in said Wagner patents need not be more fully set forth in this specification.

Having described the construction of a machine embodying my improvements with sufficient fullness, I shall now proceed to explain the mode of operation of said machine. The paper is placed upon the platen by passing it down in front of the paper-table and up into the bite of the pressure-roller in about the usual way, and the carriage may be drawn to the left until the right-hand curved arm 15 strikes against the right-hand bent arm 8 of the lever-frame at the point where it is pivoted or hinged upon the rod 4. If it be desired now to write the word "From," commencing with a capital letter, the capital-letter shift-lever 108 is depressed at its free end and the keyboard or index shifted to the left a letter-space

distance, and while held shifted the pointer or indicator is moved along until it arrives opposite the character "F" on the keyboard. The printing-bar 129 is then depressed, thus actuating the lever-frame and moving the platen toward the type-carrier, and by the same movement the uppermost type of the carrier, which is in this instance the capital letter F, is slid out through the type-guide, inked by the roller, and moved toward the vibrating platen until they both meet and the character is impressed upon the paper. Upon releasing the printing-bar the parts all return to their first positions and the carriage is fed a letter-space distance. The pointer or indicator is then slid to the right until opposite the letter "r" on the keyboard and the printing-bar again depressed to effect the impression of the lower-case letter "r" on the paper immediately following the capital letter "F." The pointer is then moved to the left until opposite the character "o" on the keyboard, and the printing-bar again depressed to cause the lower-case letter "o" to make its impression, and then to print the letter "m" the pointer is moved still further to the left until opposite that character on the keyboard, when the printing movement is again effected. In moving the pointer, and hence the comb and rack, toward the right the type-carrier is rotated toward the left, and vice versa. When the keyboard has been shifted by the capital-letter shift-key and the pointer brought to align with the letter "F" on the keyboard, the arrangement of the type is such that the capital letter "F" is brought uppermost on the type-carrier or in a position to have its groove occupied by the operating end of the ejector 48, and at the same time the comb 88 and the vertical sliding tooth 89 have been so adjusted as that the tooth 89 stands midway between two of the teeth of the comb. As soon as the printing-bar is depressed the said tooth 89 is caused to slide down between said two teeth on the comb, and thus prevent said comb and the rack and the pointer connected therewith from moving longitudinally and effecting any rotation of the type-carrier, which might throw the selected type out of alignment with the type guide or opening. As the descent of the printing-bar is continued after the locking of the comb the anti-friction roller 59, carried by the printing-bar, engages with the cam-surface of the pivoted arm 56 to move said arm toward the type-carrier and cause it to push the ejector and the type with which it is in engagement rearwardly, the tooth 53 on the under side of the ejector simultaneously sliding in between two of the teeth of the gear-wheel 54 and further locking said wheel and the type-carrier against rotation. At about the time the ejector begins to move the forward end of the lever 82 is depressed by the printing-bar and its rear-most end caused to lift the lever 80 and elevate the inking-roller frame, the movements of the parts being so timed as that immedi-

ately the face of the type is projected through the guide or opening the inking-roller begins to ascend and impart a suitable quantity of ink to the type for the impression. After inking the type the inking-roller passes up out of the path of the type and the letter is projected through between the bars of the U-shaped frame to the paper. At about the instant or just before the platen and the type (which are moving toward each other) come together the anti-friction-roller bracket-arm carries down the hooked end of the plate 62 behind the shoulder 67 on the ejector to lock or hold the ejector and the type firmly in place to receive the impact of the vibrating platen-carrier. After the impression has been made the moving parts all return to their normal positions by the means and in the manner hereinbefore described. If it be desired to print a numeral or punctuation-mark, the lever 115 is depressed at its outer end and the keyboard and sliding tooth 89 are carried to the left a distance of two type or twice as far as the capital-letter shift-lever carries these devices. The pointer is then moved opposite the numeral or punctuation-mark which it may be desired to print, and through the described means the type represented by such character is brought to the impression-point. While the keyboard is held in this shifted position, the printing-bar is then depressed, the sliding tooth 89 engaged with the comb, the platen vibrated, the type inked and projected, and the gear-wheel and ejector respectively locked against further movement, as hereinbefore described. When it may be desired to space between words, the space-key is depressed to cause the vibrating frame to move a sufficient extent only to disengage the feeding-dog from its rack and enable it to thereafter tilt by the action of its spring to engage with another tooth of the rack on the left of the one it formerly engaged with, when said dog is allowed to return to the rack by releasing the pressure upon the spacing-key, all in substantial accordance with the mode of feeding the carriage described in said Wagner patents. The plate 41 serves to protect the faces of all the type against injury and to prevent the accumulation thereon of dust and dirt, as well as to hold said type from being accidentally displaced rearwardly. The opening through which the uppermost type passes is of a size to permit only one type to pass through at a time, and any tendency of the type on either side of the one projected to follow by reason of the contact of the sides of the type is prevented by said plate 41, which during the printing movement serves as a stop or abutment for the type adjacent to the one selected for movement. At 130 a section of said plate is cut away and provided thereat with a pivoted cover or gate 131, which may be moved aside to permit the cleaning of the type or the removal or insertion of one or more type.

From the foregoing it will be seen that I

have provided a simple and practicable type-writing machine and one of great manifold-ing power. It will of course be understood that some of the parts shown and described may be used with substitutes for other parts, and hence I do not wish to be understood as limiting my claims to the employment in every instance of precisely the construction of devices shown. For example, so far as some of my improvements are concerned, the platen need not be vibratory and the type need not be movable independently, though of course I prefer both features.

The following claims indicate the improvements which I believe I have invented.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a vibratory paper-platen and a series of independent reciprocatory type, the platen and the type being arranged to simultaneously move toward each other.

2. In a type-writing machine, the combination of a vibratory paper-platen and a rotatory type-carrier provided with a series of independent reciprocatory type, the platen and the type being arranged to simultaneously move toward each other.

3. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory drum having a horizontal axis of rotation and having on its periphery a series of independent reciprocatory notched type arranged parallel with the axis of rotation of said drum, and a sliding type-ejector.

4. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory type-carrier having a series of independent type, a type-ejector, means, substantially as described, for vibrating said paper-platen toward the type-ejector, and means, substantially as described, for simultaneously moving said type-ejector toward the paper-platen.

5. In a type-writing machine, the combination of a paper-platen, a rotatory type-carrier having a series of independent type, each having a notch, a reciprocatory type-ejector, and stops for limiting its to-and-fro movements.

6. In a type-writing machine, the combination of a paper-platen, a rotatory type-carrier having a series of independent type, each having a notch, a reciprocatory type-ejector having an elongated slot, and a fixed pin passing through said slot.

7. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory type-carrier having a series of independent type, a type-ejector, and a lock or abutment for the type-ejector to sustain the blow of the vibratory platen.

8. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory type-carrier having a series of independent type, a type-ejector having a shoulder or stop, and a locking plate or abutment arranged to pass behind the same to sustain the blow of the vibratory platen.

9. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory type-carrier having a series of independent type, a type-ejector having a shoulder or stop, 5 and a sliding hook-shaped plate adapted to embrace said type-ejector and pass behind the shoulder or stop thereon.
10. In a type-writing machine, the combination of a vibratory paper-platen, a rotatory 10 type-carrier having a series of independent type, a type-ejector having a shoulder or stop, a sliding locking-plate therefor, and a returning-spring for said plate.
11. In a type-writing machine, the combination of a vibratory platen, a rotatory type- 15 carrier having a series of independent type, a horizontal type-ejector, a vertical pivoted arm connected to said type-ejector, a lever-frame, a printing-bar on said frame for moving said arm and ejector in one direction, and 20 a spring for moving them in the other direction.
12. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type, a horizontal 25 type-ejector, a vertical pivoted arm connected thereto, and a printing-bar having an anti-friction roller to actuate said arm.
13. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type, a horizontal 30 type-ejector, a vertical pivoted arm connected thereto and provided with a cam-surface, and a printing-bar carrying a roller to actuate said arm and ejector. 35
14. In a type-writing machine, the combination of a vibratory platen, a rotatory type-carrier having a series of independent type, a horizontal type-ejector, a vertical pivoted 40 arm connected thereto, a lock or abutment for the type-ejector, and a printing-bar adapted by its movement to actuate the arm, ejector, and lock or abutment.
15. In a type-writing machine, the combination of a vibratory platen, a rotatory type- 45 carrier having a series of independent type, a horizontal type-ejector, a vertical pivoted arm connected thereto, a vertical sliding lock or abutment for the type-ejector, and a printing- 50 bar having a roller to move said arm and an arm to move said lock or abutment.
16. In a type-writing machine, the combination of a vibratory platen, a type-carrier having a series of independent type, a type-ejector, 55 and an abutment for the latter.
17. In a type-writing machine, the combination of a vibratory platen, a type-carrier having a series of independent type, a type-ejector, 60 an abutment for the latter, a pivoted actuating-arm, and a printing-bar.
18. In a type-writing machine, the combination of a vibratory platen, a type-carrier having a series of independent type, a horizontal 65 type-ejector, a bracket or support, a vertical arm pivoted to the support and connected to the ejector, a vertical sliding abutment for said ejector, connected to said support, and a printing-bar having a roller to vibrate said arm and an arm to slide said abutment.
19. In a type-writing machine, the combination of a vibratory platen, a type-carrier 70 having a series of independent type, a horizontal type-ejector, a bracket or support, a vertical arm pivoted to the support and connected to the ejector, a retracting-spring 75 therefor, a vertical sliding abutment for said ejector connected to said support, a retracting-spring therefor, and a printing-bar having a roller to vibrate said arm and an arm to slide said abutment. 80
20. In a type-writing machine, the combination of a platen, a type-carrier having a series of independent type, a reciprocatory support, an inking-roller mounted thereon, a 85 printing-bar, a lever connected to said support, and a lever connected to said printing-bar and engaging with the support-lever.
21. In a type-writing machine, the combination of a platen, a type-carrier having a series of independent type, a reciprocatory open 90 or slotted support having open hooks or bearings, an inking-roller mounted at its ends in said hooks or bearings, and fingers for holding said inking-roller in said hooks or bearings. 95
22. In a type-writing machine, the combination of a platen, a type-carrier having a series of independent type, a reciprocatory support having an inking-roller, and a shield arranged between the inking-roller and the 100 platen.
23. In a type-writing machine, the combination of a platen, a type-carrier having a series of independent type, a reciprocatory support having open hooks, an inking-roller 105 mounted at its ends thereon, spring-fingers for holding said roller in place, attached to said support, and a shield between the inking-roller and the platen, also attached to said support. 110
24. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type, an ejector, 115 a plate having a type guide or opening, an inking-roller-support mounted to slide on said plate and arranged to have the inking-roller stand normally below said type guide or opening.
25. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a horizontal axis of rotation and provided 120 with a series of independent type, a horizontal ejector, and a vertically-moving inking-roller timed to move past and against the face of the projected type. 125
26. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a horizontal axis of rotation and a series of independent type, a horizontal type-ejector, 130 a plate having a type-guide, and a vertical inking-roller support having an opening in line with the type-guide and mounted to slide on said plate, whereby the inking-roller may ink the type as it emerges from the type-

guide and pass away to allow the type to go through the opening in the support to the platen.

27. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, and a type-ejector provided with a tooth for engaging said gear-wheel.

28. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage with said wheel, and a tooth to engage with said comb.

29. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, a type-ejector carrying a tooth to engage said wheel, a comb connected to said rack, and a tooth to engage said comb.

30. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a type-ejector, a tooth to engage said wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage said comb, a keyboard, and a sliding pointer or indicator connected to said comb and rack.

31. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage said comb, a keyboard, and a sliding pointer or indicator connected to said comb and rack.

32. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, a type-ejector, a tooth to engage said wheel, a keyboard, a sliding pointer or indicator, and a printing-bar for moving said ejector and locking-tooth.

33. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage said comb, a keyboard, a sliding pointer or indicator, and a printing-bar for moving said tooth into engagement with said comb.

34. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel, a type-ejector, a tooth to engage said wheel, a rack for turning said wheel and carrier, a comb connected thereto, a tooth to engage said comb, a keyboard, a pointer or indicator, and a printing-bar adapted to simultaneously move said teeth into engagement, respectively, with said wheel and comb.

35. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a series of independent type and a gear-wheel; a type-ejector, a rack for turning said gear-wheel and carrier, a comb connected to said rack, likewise a pointer or indicator, a key-board, and a printing-bar carrying a tooth to engage said comb, the rack, comb, key-board, and printing-bar being all arranged parallel with one another.

36. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage said comb, a shiftable keyboard, and a pointer or indicator.

37. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack for turning said wheel and carrier, a comb connected to said rack, a tooth to engage said comb, a shiftable keyboard, a lever for moving said keyboard, and a pointer or indicator.

38. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard, a lever to move the same, a returning-spring, and a pointer or indicator.

39. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard, a lever for moving the same, a stop for said lever, and a pointer or indicator.

40. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard, a pointer or indicator, and a plurality of levers for moving said keyboard different distances in the same direction.

41. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard having a horizontal arm connected to a vertical rocker-arm, a lever engaging with said horizontal arm, and a pointer or indicator.

42. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard having a horizontal arm, a lever mounted in a stand having a projection engaging said arm, and a projection adapted to serve as a stop to limit the movement of the keyboard.

43. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a shiftable keyboard having a horizontal arm connected to a vertical rocker-arm, a lever mounted in a stand and having two projections, one to engage with said horizontal arm and the other to serve as a stop to limit the vibration of the lever and movement of the keyboard.

44. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth for the latter, a shiftable keyboard having a horizontal arm connected to a vertical rocker-arm, a lever mounted in a stand and having a projection to engage said horizontal arm, a projection to stop the downward movement of said lever, a projection to limit the return movement of said lever, and a returning spring for said lever.

45. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a tooth to engage the latter, a keyboard mounted on a sliding rod, a horizontal arm, and a spring-actuated lever engaging said arm.

46. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a shiftable keyboard, and a tooth to engage said comb, movable laterally with said keyboard.

47. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a shiftable keyboard, and a tooth movable laterally with said keyboard and adapted, also, to be moved vertically independently to engage said comb.

48. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a shiftable keyboard, a lever to move said keyboard, a tooth connected to move laterally with said keyboard, and a printing-bar for moving said tooth vertically into engagement with said comb.

49. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a rod mounted to slide endwise, a keyboard connected to said rod, a tooth also connected to said rod, and a printing-bar for moving said tooth into engagement with said comb.

50. In a type-writing machine, the combination of a platen, a rotatory type-carrier having a gear-wheel, a rack, a comb, a rod mounted to slide endwise, a keyboard connected to said rod, a bracket fastened to said rod, a tooth adapted to slide in said bracket at right angles to the sliding movement of said rod, a printing-bar, and connections from said bar to said tooth.

51. In a type-writing machine, the combination of a platen, a rotatory type-carrier having gear-wheel, a rack, a comb, a spring-actuated rod mounted to slide endwise, a keyboard connected to said rod, an actuating-lever, a tooth also connected to said rod to slide laterally with the keyboard, and a printing-bar

connected to said tooth to carry it into engagement with said comb.

52. In a type-writing machine, the combination of a platen, a type-carrier having a series of independent type and a gear-wheel, a type-ejector, an inking-roller, a rack, a comb, a shiftable keyboard, a shiftable tooth for said comb, a printing-bar, and connections therefrom to the ejector, the inking-roller, and the shiftable tooth.

53. In a type-writing machine, the combination of a vibratory platen, a type-carrier having a series of independent type and a gear-wheel, an inking-roller, a type-ejector, an abutment therefor, a rack, a comb, a shiftable keyboard, a shiftable tooth for the comb, and a printing-bar connected to the inking-roller, the type-ejector, the abutment, and the shiftable tooth.

54. In a type-writing machine, the combination of a lever-frame, a platen-carriage connected to move with said frame and independently thereof, a printing-bar connected to said lever-frame, a rotatory type-carrier having a series of independent type, a type-ejector, a reciprocating inking-roller, and connections from the printing-bar to the type-ejector and inking-roller.

55. In a type-writing machine, the combination of a lever-frame, a hinge-rod therefor, a platen-carrier connected to said lever-frame and to said rod, a printing-bar connected to said lever-frame, a rotatory type-carrier having independent type and a gear-wheel, a type-ejector, an abutment therefor, a reciprocating inking-roller, a rack, a comb, a shiftable keyboard, a shiftable tooth for said comb, and a pointer or indicator.

56. In a type-writing machine, the combination, with the type-carrier, the vibratory platen, and its letter-space-feeding devices, of a lever-frame and a spacing-lever overlying said frame and provided with a hook adapted to swing under said lever-frame.

57. In a type-writing machine, the combination, with a rotatory type-carrier having independent type, of a plate arranged in front of the faces of the type to shield the type and prevent endwise movements, and having a pivoted or movable section to enable the type to be cleaned, as well as removed and substituted.

Signed at New York city, in the county of New York and State of New York, this 25th day of May, A. D. 1891.

W. J. BARRON.

Witnesses:

JACOB FELBEL,
WILLIS M. TYLER.