No. 790,283. PATENTED MAY 23, 1905.

B. A. BROOKS.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 17, 1900.

4 SHEETS—SHEET 1.

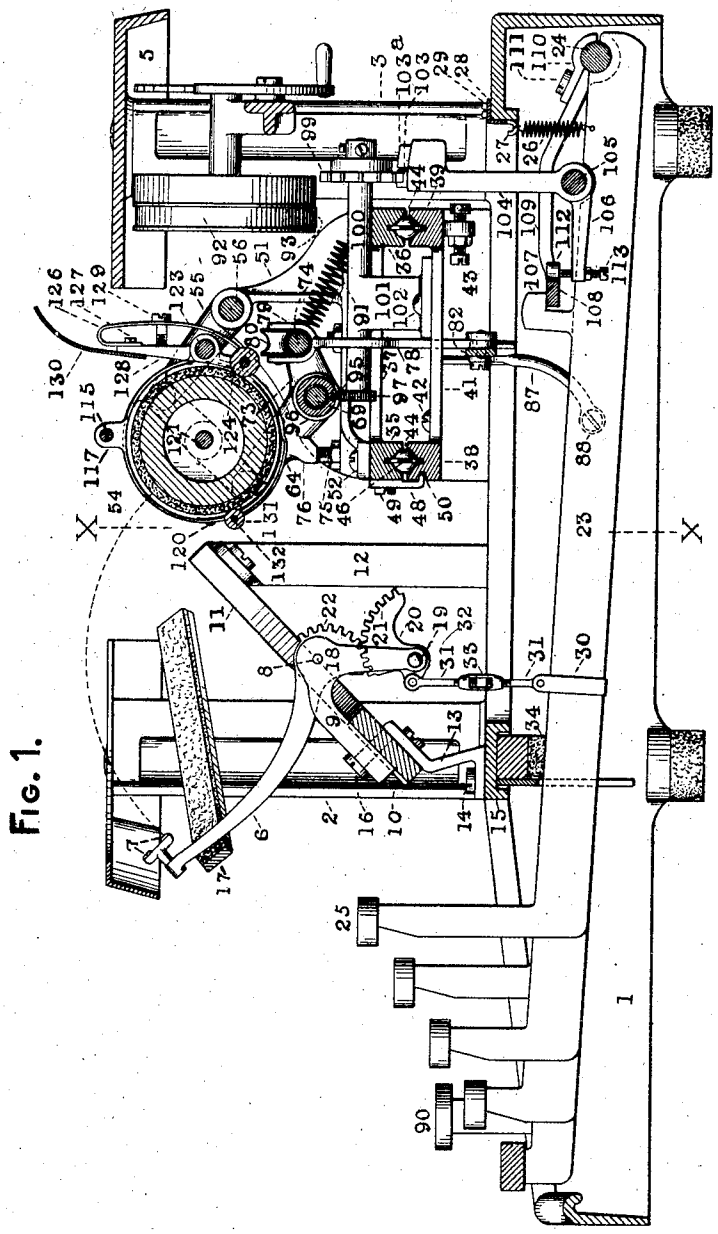


FIG. 1.

WITNESSES

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4 SHEETS—SHEET 2.

FIG. 2.

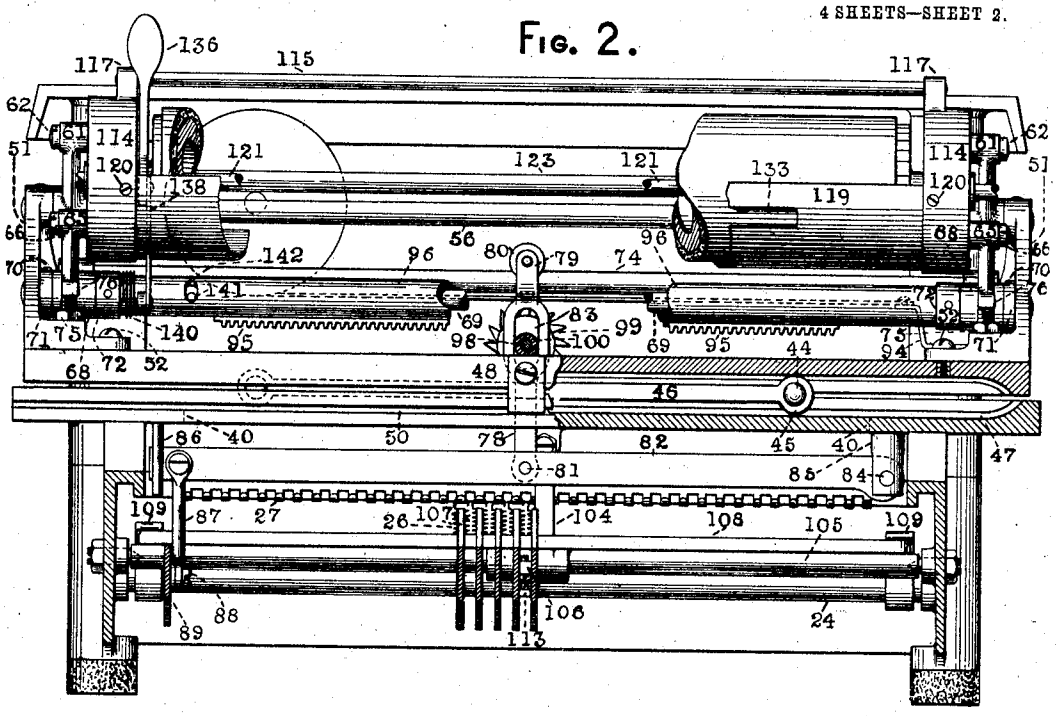
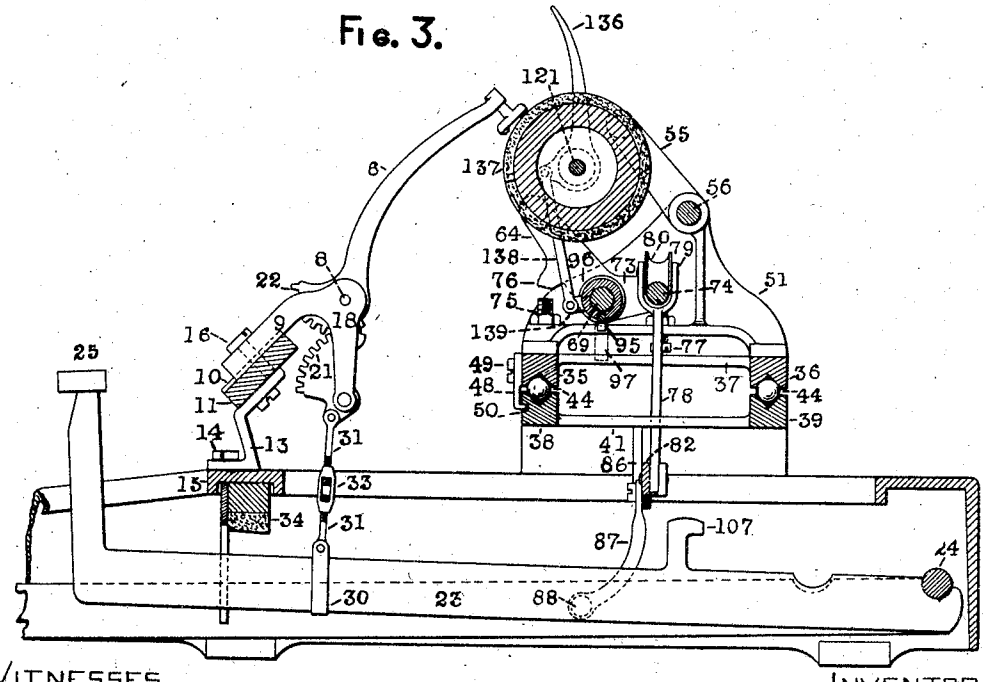


FIG. 3.



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4 SHEETS—SHEET 3.

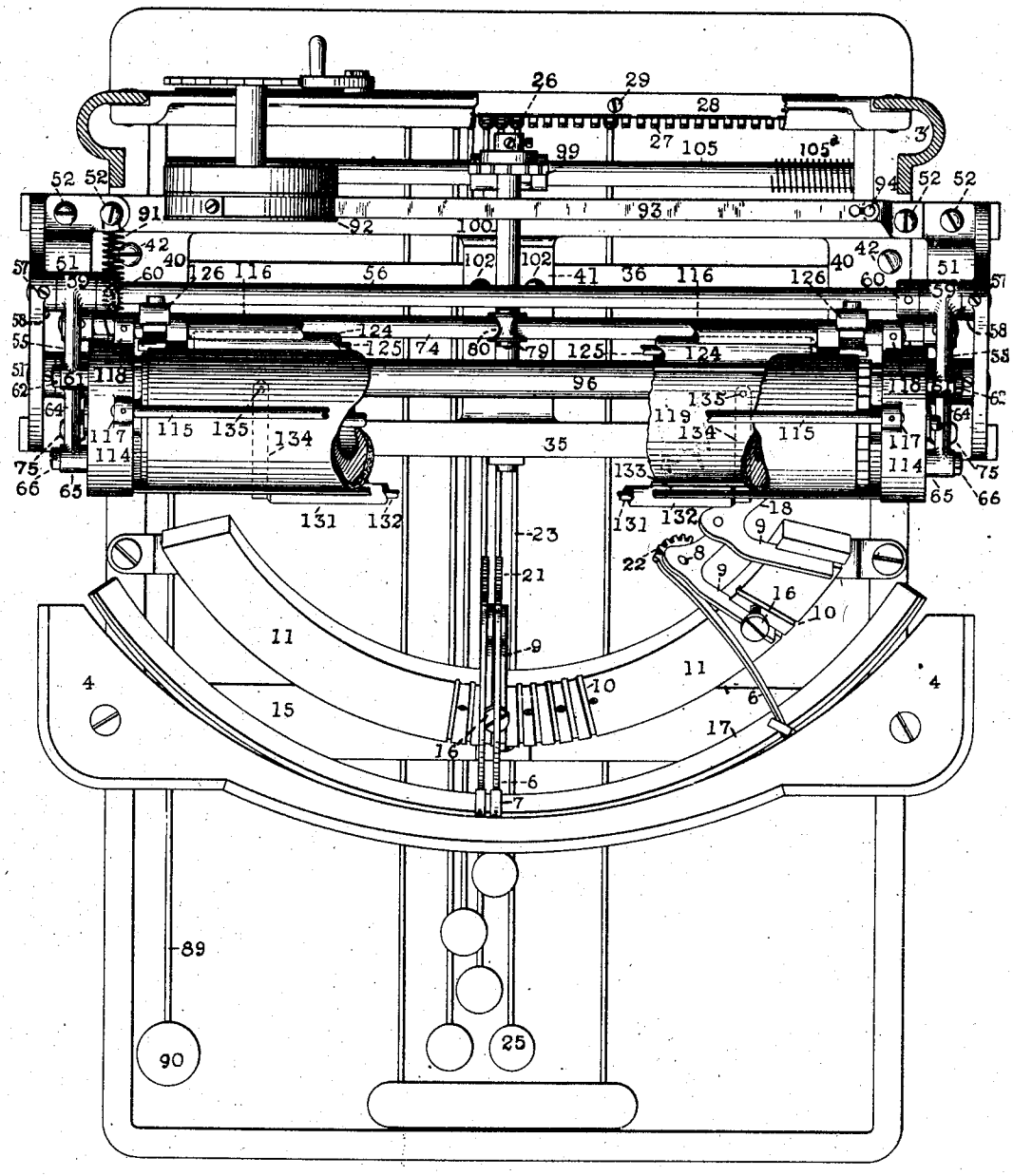


FIG. 4.

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4 SHEETS—SHEET 4.

Fig. 5.

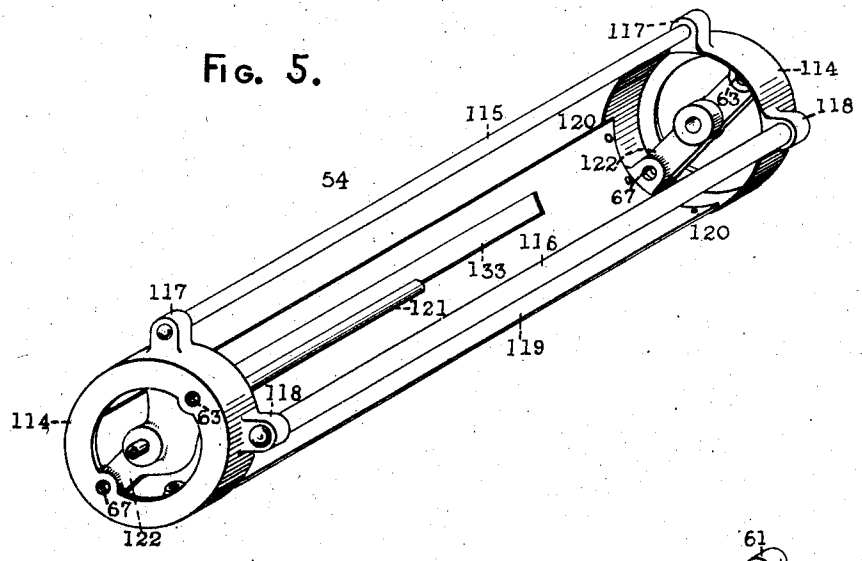
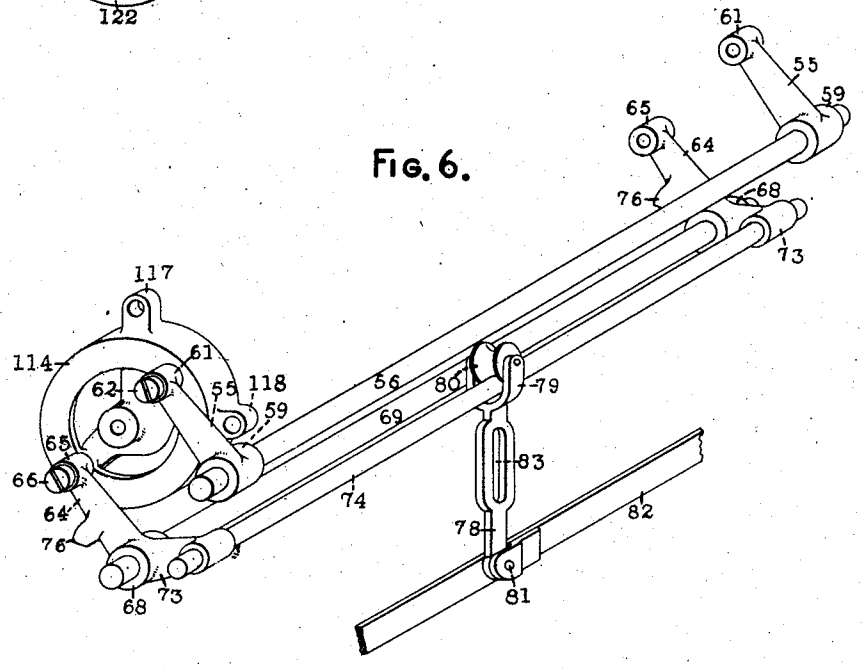


Fig. 6.



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UNITED STATES PATENT OFFICE.

BYRON A. BROOKS, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 790,283, dated May 23, 1905.

Application filed May 17, 1900. Serial No. 17,029.

To all whom it may concern:

Be it known that I, BYRON A. BROOKS, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, 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 relates to that class of type-writing machines known as "visible" writing-machines, and more particularly to that species shown and described in my pending application, Serial No. 5,901, filed February 20, 1900, in which the impressions of the types are made upon the upper front side of the platen or between the top and front thereof.

One of the objects of the present invention is to mount the platen so that it may shift obliquely independently of the carriage upon which it is supported and to provide an improved mechanism between the carriage and the keyboard for operating the platen-shifting devices upon the carriage.

To this end and others which herein appear my invention consists in certain combinations of devices and features of construction, all as will be hereinafter more fully set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a longitudinal vertical central section of a type-writing machine embodying my improvements. Fig. 2 is a front sectional elevation taken at about the line X X of Fig. 1. Fig. 3 is a skeleton view similar to Fig. 1, but showing the platen shifted obliquely upward and the type-bar in its printing position. Fig. 4 is a plan view of the machine, and Fig. 5 is a perspective rear view of the platen-frame. Fig. 6 is a rear perspective view of the platen-frame supporting and shifting devices.

In the several views parts are omitted or broken away more clearly to exhibit the improvements, and similar parts are designated by similar numerals of reference.

1 designates the base of the machine, 2 front corner-posts, and 3 rear corner-posts rising from the base. The top plate is divided transversely of the machine, the front part 4 thereof being supported upon the front posts 2 and the rear portion 5 upon the posts 3. Type-bars 6, each having a plurality of types 7, are arranged in series below the front portion 4 of the top plate. Each type-bar is pivoted at its lower end at 8 to a hanger, which consists of a single plate-like arm 8, extending downwardly and forwardly from said pivot and placed on edge in one of a series of radial slots 10, cut in the upper face of an obliquely-placed segment 11. The latter is supported at its ends by standards 12, rising from the base 1, and at its middle portion by a short bracket 13, which is secured by a screw 14 to a transverse bar 15, cast integrally with the base. The hub portion of the type-bar is placed face to face with the hub portion of the hanger, Figs. 1 and 4. Inasmuch as the hangers are placed closely together upon the segment, I employ a single fastening-screw 16 to secure two adjoining hangers in their seats, using half as many screws as hangers. The space between adjoining hangers is sufficient to admit the shank of the screw, and the head of the screw is large enough to overlap the edges of the two hangers. The lower ends of the screws engage threaded holes in the segment. Owing to the inclination of the segment 11, the arc in which the type-bar pivots 8 are arranged lies in an oblique plane. The type-bars normally rest against a fixed padded support 17, arranged above the segment 11.

Each hanger is formed below the pivot 8 with a downwardly-extending arm 18, the arms 9 and 18 taken together forming an angular plate of an inverted-**V** shape. Placed by the side of the arm 18 and pivoted thereto at 19 is a lever 20, which operates the type-bar. Said lever is connected to the type-bar by means of an eccentric gear 21, formed upon the lever above its pivot, and a corresponding eccentric gear 22, formed upon the type-bar hub and extending below its pivot to the gear 21. Owing to the eccentricity of the gears,

the type-bar is started slowly from its position of rest when the finger-key is touched, thus avoiding jar to the finger of the operator. The resistance of the type-bar to the touch at the key gradually increases during the remainder of its movement to the platen, thus tending to diminishing the jar to the operator's finger at the bottom of the key-stroke. The speed of the type is greatest when it is nearest the platen, thus enabling it to make a powerful impression. It will be noted that the pivots 19 upon the type-bar hangers are arranged in an arc parallel with the arc of the pivots 8, and hence also lying in an oblique plane. Each lever 20 lies edge to edge with its type-bar and in the same plane. The compact arrangement of the type-bars, levers, and hangers enables a large number of type-bars to be assembled in a small space, as is required in this class of machines.

The levers 20 are operated by a series of key-levers 23 of the second order, which at their rear ends pivotally engage a common fulcrum-rod 24 and at their forward ends are provided with keys 25. The fulcrum-rod 24 is fixed in the side walls of the base and extends horizontally across the machine above the levers. The latter are held up against this rod by means of returning-springs 26, whose lower ends hook into the levers and whose upper ends engage hooks 27, formed in the lower ends of an angle-plate 28, which hangs over the front edge of the rear transverse wall of the base and is secured thereto by screws 29. The connection between each key-lever and its type-operating lever 20 consists of a strap 30, secured upon the key-lever, and an upwardly-extending pull-rod 31, which at its lower end is pivoted to said strap and at its upper end is pivoted to a horizontal arm 32 of the bell-lever 20. The length of the two-part pull-rod 31 may be changed by a turnbuckle 33 thereon. The key-levers near their forward ends bear up against a pad 34, which is supported upon the under side of the cross-bar 15.

The paper-carriage frame comprises parallel front and rear bars 35 36, which are arranged upon the same level and are united at their ends by short bars 37, cast integrally therewith, the four bars forming a rectangular frame. Immediately beneath the bars 35 36 are arranged tracks 38 39, which are united by end bars 40 and also by a bar or plate 41, arranged about midway between the bars 40. The latter are secured by screws 42 upon blocks 43, which are suitably secured upon the side walls of the base just forward of the rear corner-posts 3 and in rear of the type-bar system. Antifriction-balls 44 run in suitable **V**-grooves formed in the adjoining edges of the carriage bars and rails, whereby the carriage is enabled to run freely and at the same time is rigidly guided. A spacer is provided for each set of balls and comprises two rings 45, united by a link or bar 46. The rings surround the balls and work in clearance grooves or depressions 47, formed at the angles of the **V**-grooves in the carriage bars and rails. A hook 48 is secured by a screw 49 to the forward carriage-bar 35 and extends downwardly to engage a groove 50, extending longitudinally in the front face of the track 38, so as to prevent the carriage from jumping off the rail. Upon the ends of the rectangular carriage-frame are erected brackets 51, which are secured to the bars 35 36 by screws 52 and upon which are mounted the platen-supporting devices.

The cylindrical platen is journaled in the ends of a frame, (designated generally as 54.) In order to enable the platen and platen-frame to shift obliquely in a plane substantially parallel with the type-faces when the latter are in printing position and also substantially parallel with the arc of the type-bar pivots, the frame is pivotally mounted upon the upper ends of two sets of rocker-arms, whose lower ends are pivotally mounted upon the end brackets 51 of the carriage-framework. The two rear rocker-arms are designated as 55 and are mounted to rock upon a fixed shaft 56, which is mounted in rear of the platen and parallel therewith and is secured by set-screws 57 in bosses 58, formed at the top of the brackets 51. Said rocker-arms have hubs 59, which work freely upon the shaft 56, but are prevented from slipping along said shaft by fixed collars 60. At their upper ends the rocker-arms are provided with bosses 61, which are engaged by shouldered screws 62, whose inner ends engage threaded holes 63, formed in line with each other in the upper rear portions of the ends of the platen-frame. The platen-frame is thus hinged to the rocker-arms 55, and the latter are hinged to the carriage-framework. Inasmuch as said arms extend upwardly and forwardly from the shaft 56, their free ends are enabled to vibrate in an oblique direction. Although I prefer to mount said arms loosely upon the shaft, it is obvious that, if desired, they may be fixed to the shaft and that the latter may then turn in its bearings in the bosses 58, the screws 57 being omitted.

The two forward rocker-arms are designated as 64. They are parallel with the arms 55 and are of substantially the same length, but are preferably placed at a lower level, so that a line joining the upper pivots and the arms 55 64 is substantially parallel with the direction of the shifting movements of the platen. The upper ends of the arms 64 are likewise provided with bosses 65, which are engaged by shouldered screws 66, which enter threaded holes 67, formed in line with each other in the lower front portions of the ends of the platen-frame. At their lower ends the rocker-arms 64 are provided with bosses 68, which are mounted to turn freely upon a fixed

rod 69, whose ends are secured by screws 70 in bosses 71, formed upon the brackets 51 of the carriage-framework. Collars 72 prevent the arms 64 from slipping along the rod.

It will be seen that the platen-frame is hinged to the arms 64 independently of its hinge connection to the arms 55. The arms 64 taken together may be regarded as a single shifting device and the arms 55 taken together as an independently-mounted shifting device. It is obvious that, if desired, the arms 64 may be rigidly secured to the shaft 69 and that the latter may rock in the bosses 71, the screws 70 being omitted. By a simultaneous movement of all the arms 55 and 64 the platen-frame and platen may be shifted obliquely.

A rearwardly-extending operating-arm 73 is formed integrally with each of the rocker-arms 64, and these operating-arms are rigidly connected by a rod or bar 74, which is parallel with the platen. The rocker-arms 64, operating-arms 73, and rod or bar 74 taken together form a rigid bail, and hence the free ends of the arms 64 necessarily swing in unison and insure the constant parallelism of the platen at the shifting operation.

Adjustable stops 75 are placed upon each of the brackets 51 in position to contact with lugs 76, formed upon the rocker-arms 64, so as to determine the extent of the downward shifting movement of the platen. Its upward shifting movement is limited by adjustable stops 77, also placed upon said brackets 51 and adapted to engage the rear ends of the operating-arms 73, Fig. 3.

The upward shifting movement of the rocker-arms and platen-frame is caused by a downward movement of the bar 74, which is effected by a vertically-arranged pull-rod 78, whose upper end is forked at 79 to provide bearings for the trunnions of an antifriction-wheel 80, which rolls upon the upper face of the rod. The lower end of the pull-rod is pivoted at 81 to a lever 82 of the second order. Near its upper end the pull-rod 78 is provided with a vertical slot 83, with which engages a fixed tube 100, to be presently described, whereby the link is held in place. The lever 82 extends horizontally across the machine over the key-levers 23 and at its right-hand end is pivoted at 84 to a slotted stud 85, which depends from the right-hand plate 40 of the carriage-rail frame. At its left-hand end said lever is guided between fixed pins 86, which depend from the left-hand plate 40, and to this end of the lever is pivoted the upper end of a link 87, which curves downwardly and forwardly, and at its lower end is pivoted at 88 to a lever 89 of the second order. The latter is similar to the type-key levers and is provided at its forward end with a shift-key 90, its rear end being held up against the fulcrum-rod 24 by one of the springs 26. It will be seen that by a depression of the key 90 the link 87 may be pulled down to cause a downward vibration of the lever 82, thereby pulling down the link 78 and the bar 74 and causing the platen-frame to be shifted obliquely upward.

The weight of the platen-frame and shifting devices is depended upon to return these parts to normal position upon the release of the key 90. The resistance in operation due to said weight is partially counteracted by an obliquely-arranged draw-spring 91, one end of which is hooked over one of the screws 52 at the left hand of the carriage-framing and the other end of which hooks over the left-hand end of the bar 74, thus making the touch of the shift-key lighter and more agreeable.

The carriage is propelled by a spring-drum 92, which is connected by a strap 93 to an arm 94, which is attached to the right-hand carriage-bracket 51 by one of the screws 52. A rack 95 is secured in the under side of a sleeve 96, which surrounds the rod or shaft 69. The rack meshes with a pinion 97, fixed upon the forward end of a shaft 98, which at its rear end carries an escapement-wheel 99. The shaft is housed in a horizontal tube or bearing 100, which is cast upon the upper end of a standard 101, secured by screws 102 to the bar 41 of the fixed carriage-rail framing. Escapement-dogs 103 and 103ª alternately engage the escapement-wheel, so as to permit intermittent advance movements of the carriage under the tension of the spring-drum, said dogs being carried upon the vertical arm 104 of a dog-rocker. The latter is mounted upon a transverse shaft 105, supported in the side walls of the base, and is provided with a forwardly-extending horizontal operating-arm 106 and a returning-spring 105ª, coiled upon the shaft 105. In order to enable the dog-rocker to be vibrated by any of the type-key levers, each of the latter is provided with an upwardly-projecting hook 107, adapted to engage a transverse horizontal universal bar 108, the ends whereof are secured upon the front ends of a pair of vibratory arms 109, which extend forwardly from the fulcrum-rod 24, upon which they are detachably pivoted. The rear end of each arm is bent or shaped to fit the under side of the rod, and a cap 110, which fits over the upper surface of the rod, is secured to each arm by a screw 111. About midway of its length the universal bar 108 is provided with an ear 112 in position for engagement with the end of a screw 113, which projects upwardly from the forward end of the rocker-arm 106. Upon the depression of any key-lever its hook 107 engages the universal bar, and thereby operates the dog-rocker and permits movements of the escapement-wheel and carriage in the usual way. By means of the screw 113 the escapement of the carriage may be timed to occur at any desired point in the movement of the key or type-bar.

The platen-frame, which is generally desig-

nated as 54, comprises cup-like or flanged end portions 114, which are united by tie-rods 115 and 116, the ends of the latter being fixed in ears 117 118, projecting outwardly from the flanges 114. The platen-frame ends are further united by a curved trough-like shield 119, which conforms to the curvature of the platen and partly surrounds the lower portion thereof and deflects or guides the paper around the platen as it feeds toward the printing-point. The ends of the shield 119 are secured by rivets 120 to the inside surfaces of the flanges 114. The platen-shaft is designated as 121 and is journaled in radially-arranged arms 122, which are fixed in the cup-like ends of the platen-frame or formed integrally therewith. Depending from the rear tie-rod 116 and pivoted thereon are short arms or links 123, to the lower ends of which is journaled a pressure-roller 124, whose shaft 125 is prolonged beyond said arms 123 and is engaged by the lower ends of flat springs 126. The upper ends of these springs are looped forwardly and downwardly and are secured by screws 127 to arms or brackets 128, which are fixed upon the tie-rod 116. The tension of the springs 126 may be regulated by headed screws 129, which pass through perforations in the springs and engage threaded holes in the brackets 128. A paper-shelf 130 is supported upon said brackets. A front pressure-roll 131 is supported upon a shaft 132 and works in a longitudinal opening 133, formed in the apron or shield 119. The shaft 132 is supported upon the free forward ends of spring-arms 134, which at their rear ends are riveted at 135 to the under surface of the shield 119.

Referring to Figs. 2 and 3, an upwardly-extending carriage-release key or lever 136 is pivoted upon the platen-shaft 121 or upon the left-hand platen-hub. Said release-lever is provided with a short arm or ear 137, which is connected by a link 138 to an arm 139, provided upon the rack-carrying sleeve 96. When the lever 136 is swung forwardly, the link 138 and arm 139 are forced downwardly and the sleeve is given a partial rotation upon the rod 69, whereby the rack 95 is swung out of mesh with the pinion 97. The carriage may then be moved rapidly along in either direction to any desired point. Upon relief of the lever 136 from pressure the rack, sleeve, link, and lever are all returned to normal position by a spring 140, which is coiled around the left-hand end of the sleeve. One end of the spring engages the fixed collar 72 and the other end thereof is caught under the arm 139. The rotation of the sleeve is limited in both directions by a pin 141, which projects from the rod 69 outwardly through a slot or perforation 142, formed circumferentially in the sleeve. The carriage may be released by said lever at either the normal or shifted position of the platen-frame.

In operation a key 25 is depressed, causing the lever 23 to swing downwardly about the fulcrum 24 and through the connecting-rod 31, pulling down the short arm of the lever 20 and causing the latter and the type-bar to vibrate and the type to swing rearwardly and downwardly to strike the platen or the paper thereon. During the movement of the lever 23 its hook 107 engages the universal bar 108 and causes the latter to swing downwardly upon the arms 109. The lug 112 contacts with the point of the screw 113 and forces the latter downwardly, together with the rocker-arm 106. The upright rocker 104 swings forwardly and the forward or limber dog 103 escapes from the teeth of the escapement-wheel 99, its place being taken by the rear or fixed dog 103^a without permitting a movement of the escapement wheel or carriage. Upon the relief of the key 25 from pressure the key-lever 23 and the type-operating levers 20 and 6 are returned to normal position by the spring 26 and the universal bar and dog-rocker are simultaneously returned to normal position by spring 105^a, the latter also assisting in returning the key-lever and type-bar. During the return movement of the dog-rocker the detent-dog 103^a is withdrawn from engagement with the escapement-wheel and the limber or feeding dog 103 engages the next tooth in the wheel, thus permitting the carriage to advance a step under the tension of the spring-drum 92.

When it is desired to write a capital letter, the shift-key 90 is first depressed, causing the lever 89 to swing down about the fulcrum-rod 24 and through the link 87, pulling down the left-hand end of the transverse lever 82, which in turns pulls down the link 78 and the bar 74, causing the arms 73 to swing downwardly and the arms 64 to rock upwardly. An upward movement is thus imparted to the platen-frame 54 and to the platen journaled thereon. The platen-frame swings partly upon the arms 64 and partly upon the arms 55, its upward movement being arrested by contact of the arms 73 with the stops 77. While the key 90 is held down, the desired capital letter or letters may be written by manipulation of the corresponding type-keys 25. The roll 80 minimizes the friction occasioned by the endwise movement of the rod 74 when the latter is held down by the link 78 during the writing of a number of capital letters. Upon relief of the key 90 from pressure the weight of the platen, platen-frame, and rocker-arms, assisted by the spring 26, which is attached to the lever 89, causes the return of the parts to normal position. The spring 91 assists in lifting the shifting parts to the position for writing capitals, but is not sufficiently powerful to prevent a prompt return movement thereof.

It will be observed that the type-bars are arranged forwardly of the platen in oblique positions and with their upper type ends

flared outwardly. The key-levers are pivoted at the rear of the machine and extend forwardly beneath the carriage and the type-bars to the keyboard. The rocker-arms 55 and 64 are preferably hinged to the platen-frame independently of the journals of the rotatable platen, and the hinge construction at 62 is preferably independent of the hinge construction at 66. The arms 64 and 73, being formed integrally, may be considered as single rocker-arms extending from the shifter bar or rod 74 to the platen-frame.

It is not essential that the precise details of construction and arrangement of parts illustrated be followed in all cases, as many variations may be made in the several portions of the mechanism without departing from the invention. For instance, it is not important that the rocker-arms 55 and 64 should be of equal length or that their pivots should be disposed in oblique planes, so long as the arms are so arranged that the platen may be shifted obliquely thereon. Portions of my improvements may be used without others.

Any desired construction of platen-frame may be used in connection with the main features of the invention.

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

1. In a type-writing machine, the combination of a carriage, a pivoted shifter-bar mounted thereon, a platen connected to said shifter-bar, a lever mounted upon the framework of the machine, a downwardly-acting rod or link engaging at one end said lever and engaging at its other end said shifter-bar, and a key connected to said lever.

2. In a type-writing machine, the combination of a carriage, a shifter-bar mounted thereon, a platen connected to said shifter-bar, a lever mounted upon the framework of the machine, a rod or link engaging at one end said lever and engaging at its other end said shifter-bar, and a key-lever also mounted upon the framework and connected to the first lever.

3. In a type-writing machine, the combination of a carriage, a transverse pivoted shifter-bar mounted thereon, a platen mounted on links and connected to said shifter-bar, a transverse lever mounted upon the framework of the machine, a rod or link engaging at one end said lever and engaging at its other end said shifter-bar, and means for actuating said lever.

4. In a type-writing machine, the combination of a carriage, a shifter-bar mounted thereon, a platen connected to said shifter-bar, type-key levers arranged beneath the carriage, a lever of the second order mounted upon the framework of the machine and extending transversely over said type-key levers, a rod or link extending upwardly from said transverse lever and engaging at its upper end said shifter-bar, and a shift-key lever extending to the keyboard and connected to said transverse lever.

5. In a type-writing machine, the combination of a carriage, a shifter-bar mounted thereon, a platen connected to said shifter-bar, type-key levers arranged beneath the carriage, a lever mounted upon the framework of the machine and extending transversely of said type-key levers, a rod or link extending upwardly from said transverse lever and carrying at its upper end an antifriction-roller which engages said shifter-bar, a shift-key lever extending to the keyboard, and a link connecting said shift-key lever to the free end of said transverse lever.

6. In a type-writing machine, the combination of a platen, a frame in whose ends said platen is journaled, a pair of arms upon which said platen-frame is hinged, a second pair of arms upon which said platen-frame is independently hinged, a carriage upon which all of said arms are pivotally mounted, a shifter-bar rigidly connecting said second pair of arms, type-key levers arranged beneath the carriage, a lever mounted upon the framework of the machine and extending transversely of said type-key levers, a rod or link extending from said transverse lever and engaging said shifter-bar, and a shift-key lever connected to said transverse lever.

7. In a type-writing machine, the combination of a carriage-frame, fixed rails upon which said frame runs, brackets erected upon the ends of said frame, oblique rocker-arms pivotally supported upon said brackets, and a platen-frame hinged upon said rocker-arms.

8. In a type-writing machine, the combination of a carriage, a rod or shaft extending longitudinally thereof, a sleeve mounted to oscillate upon said rod or shaft, a rack carried by said sleeve, an escapement device engaging said rack, a release-lever connected to said sleeve, means for limiting the oscillation of said sleeve and rack, and a spring for returning said sleeve and rack upon release of said release-key.

9. In a type-writing machine, the combination of a carriage, a rod or shaft extending longitudinally thereof, a sleeve mounted upon said rod or shaft, a rack carried by said sleeve, an escapement device engaging said rack, a release-lever, a connecting-link attached at one end to said sleeve and at the other end to said lever, whereby the sleeve and rack are oscillated in one direction, means for limiting the oscillations of the sleeve, and a spring for returning the sleeve, rack, link and lever to normal position.

10. In a type-writing machine, the combination of a carriage, a rod or shaft extending longitudinally thereof, a sleeve mounted upon said rod or shaft, a rack carried by said sleeve, a pinion in mesh with said rack, an escape-

ment-wheel connected to said pinion, a release-lever connected to said sleeve, a returning-spring, and a stop.

11. In a type-writing machine, the combination of a carriage, a rod or shaft extending longitudinally thereof, a sleeve mounted upon said rod or shaft, a rack carried by said sleeve, a pinion in mesh with said rack, an escapement-wheel connected to said pinion, a release-lever mounted upon the platen-shaft or hub and connected to said sleeve by a link, and means for shifting said platen obliquely.

12. In a type-writing machine, the combination of a platen-frame consisting of a pair of end rings united together by tie-rods and having bearings for the platen-shaft journals, a platen mounted within said frame, links connected to said end rings, and a carriage for supporting said links.

13. In a type-writing machine, the combination of a platen-frame consisting of a pair of end rings united together by tie-rods and having bearings for the platen-shaft journals, a platen mounted within said frame, an apron or deflector secured at its ends to said rings and curving partly around the platen, a pressure-roller, and an opening in said apron or deflector for said pressure-roller.

14. In a type-writing machine, the combination of a platen-frame consisting of a pair of end rings united together by tie-rods and having bearings for the platen-shaft journals, a platen mounted within said frame, an apron or deflector secured at its ends to said rings and curving partly around the platen, a pair of springs secured at their ends to said apron, and a pressure-roller mounted upon the free ends of said springs.

15. In a type-writing machine, the combination with a carriage, of a shifter-bar thereon, a platen connected to said shifter-bar, slotted link 78 having a hole 80 to engage said shifter-bar, fixed member 100 engaging the slot in the link, and a key-operated lever to which said link is connected.

16. In a type-writing machine, the combination of an endwise-movable carriage, a pair of rocker-arms hinged thereon, a platen-frame connected to said rocker-arms, a rack pivoted or hinged upon the carriage concentric with the hinge of said rocker-arms, an escapement device engaging said rack, and a lever mounted upon the shifting platen-frame and connected to said rack to rotate the latter out of engagement with said escapement device and release the carriage.

17. In a type-writing machine, the combination of a platen, a platen-frame, two pairs of links 55 55 and 64 64, a paper-carriage, the said pairs of links being pivotally attached at one set of their ends to the platen-frame and at the other set of their ends to the carriage, pivoted arms 73 projecting rearwardly from the said links 64, a shifter-bar 74 attached to the free ends of said arms, and means for swinging said shifter-bar, arms, and links and therethrough shifting the platen-frame and platen.

Signed in the borough of Manhattan, in the city of New York, in the county of New York and State of New York, this 12th day of May, A. D. 1900.

BYRON A. BROOKS.

Witnesses:
K. V. DONOVAN,
FLORENCE KEELING.