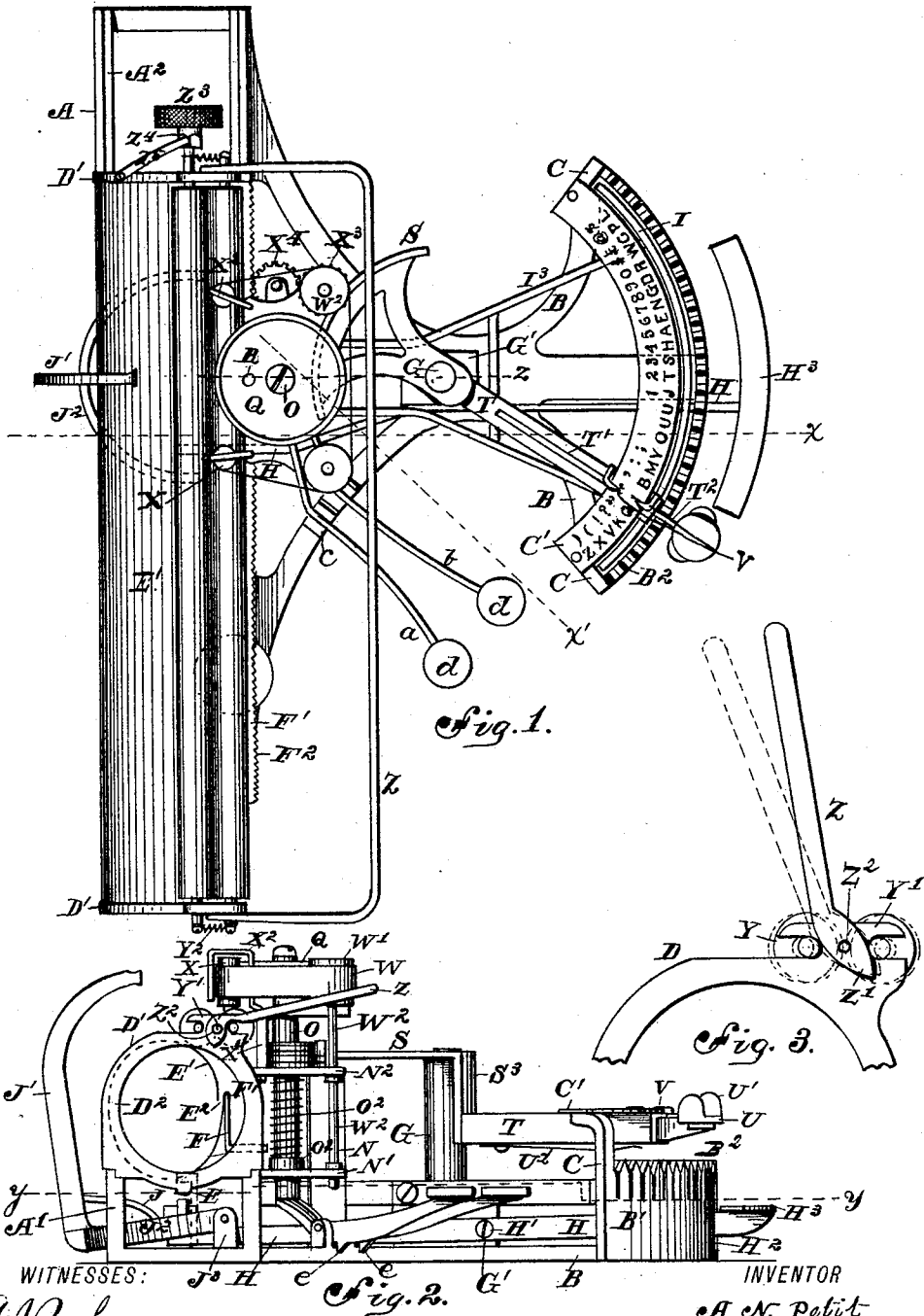


A. N. PETIT.
TYPE WRITING MACHINE.

No. 482,317.

Patented Sept. 6, 1892.



WITNESSES:
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R. McCalligott

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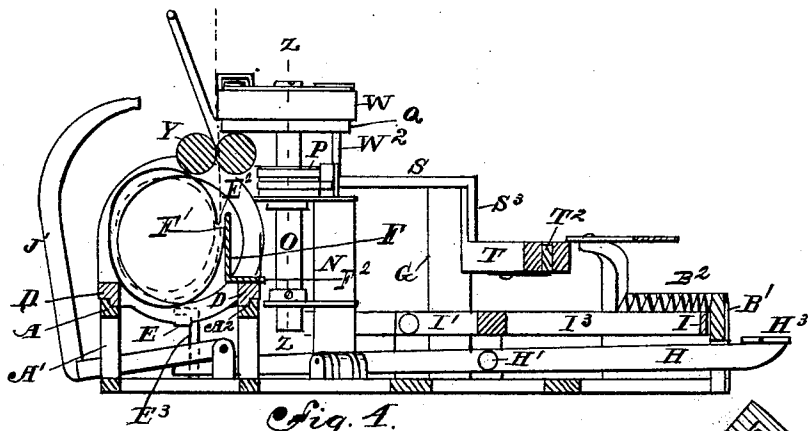


Fig. 4.

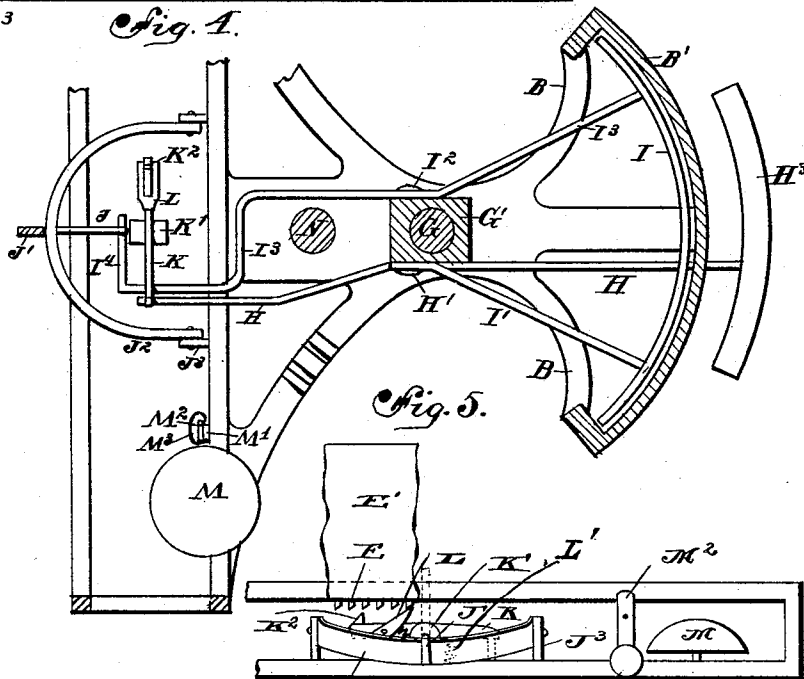


Fig. 5.

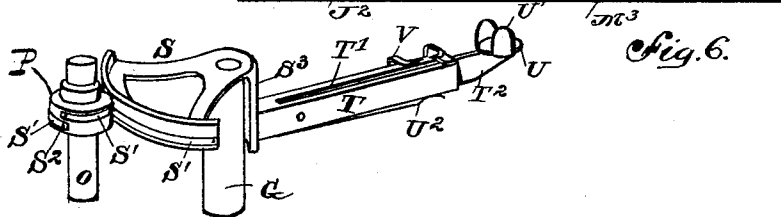


Fig. 6.



Fig. 7.

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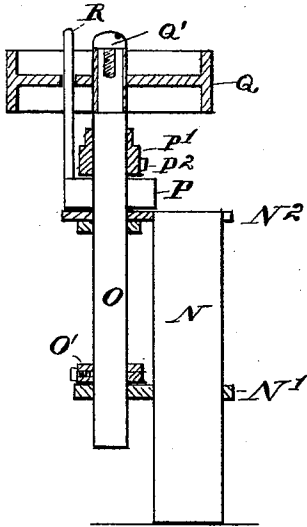


Fig. 8.

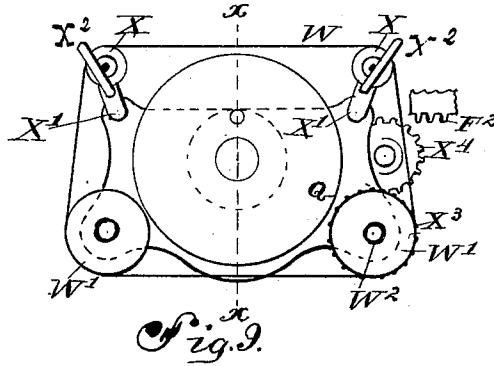


Fig. 9.

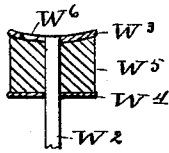


Fig. 10.

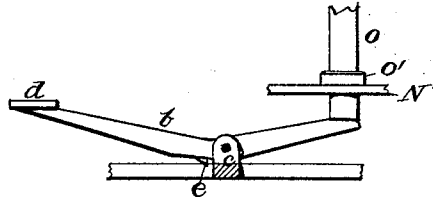


Fig. 11.

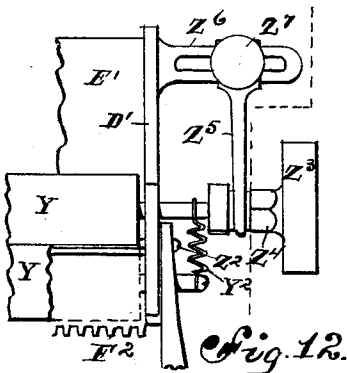


Fig. 12.

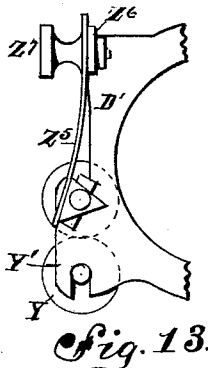


Fig. 13.

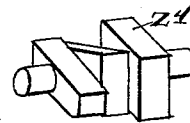


Fig. 14.

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INVENTOR

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J. S. Zerk

ATTORNEY.

UNITED STATES PATENT OFFICE.

ADEMOR N. PETIT, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,317, dated September 6, 1892.

Application filed June 18, 1891. Serial No. 396,673. (No model.)

To all whom it may concern:

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

The object of the present invention is to construct a cheap, easily-operated, efficient, and durable type-writer; and it consists of certain arrangements of parts, more particularly with reference to the structure and operation of the mechanism for transmitting motion to the hammer and type-wheel, whereby the number of parts is greatly reduced, the action of the printing is rendered much easier, and the print and alignment is made as nearly perfect as possible, as will now be pointed out in detail.

Referring to the accompanying drawings, Figure 1 is a top or plan view of my improved type-writer; Fig. 2, an end view of the same; Fig. 3, an end view of the paper-holding tube and rollers, showing manner of separating the rollers; Fig. 4, a cross vertical section through line X of Fig. 1; Fig. 5, a horizontal section through line Y of Fig. 2; Fig. 6, a view of Fig. 5 from the rear side of the machine; Fig. 7, a perspective view of the key-bar and key and portion of the type-wheel shaft and pulley; Fig. 8, a section through line Z Z, enlarged, showing the structure of the type-wheel and shaft; Fig. 9, a top view, enlarged, of the endless ribbon and rotatable ink-fountains; Fig. 10, a sectional view of one of the rotatable ink-fountains; Fig. 11, a vertical section through line X', showing the action of the cap and figure keys on the type-wheel shaft; Fig. 12, a top view, enlarged, of the end of the carriage, showing a preferred form of construction of the roller-shaft to provide for variable line-spacing; Fig. 13, an end view of same; and Fig. 14, a perspective view of shaft, showing the different forms of collars thereon for making variable line-spaces.

In constructing my invention I first provide a suitable base, (shown in Figs. 1 and 4,) the rear portion being formed of two parallel bars A A, raised on short posts A' A'. These bars are provided with ways A² on their inner sides to receive the carriage. The base ex-

tends forward a suitable distance, terminating in a fan-shaped extension B, from which rises a curved plate B', in the upper edges of which is a sufficient number of vertical ways B² to provide for the different characters in the instrument or for the different movements in the key-bar. At each end of this curved plate is a post C, to which posts is attached a curved plate C', on which are indicated the different letters and characters which the instrument writes.

The carriage is composed of the lower parallel bars D D, gained on their lower edges to fit the notches A of the frame and slide upon them. To these bars D D at each end is secured a head D', having a circular opening D², and extending from one head to the other, on the under side, is a rack-bar E for moving the carriage. Between the heads D' is a tube E', open on the front side, as shown at E², to receive the sheet of paper.

E³ is a standard or post secured to the base and having its upper end provided with or formed into a hook extending around or overhanging the rack-bar E to hold the carriage in position.

Resting on top of the front bar D is an angled plate F, to the upper edge of which is attached one edge of the open tube E', as shown at F', while the other edge of the angled plate has gear-teeth F² for transmitting motion to the inking-ribbon, as will be more fully explained hereinafter.

Approximately midway between the carriage and the forward end of the frame, at a central point, is a post G, having a square or rectangular base G'. On one side of this rectangular base is a horizontal lever H, pivoted thereto at H'. This lever extends back under the carriage and rests below the end of a trigger, while the forward end of the lever extends forward and passes through a vertical slot H² in the curved plate B', terminating in a curved key-plate H³, which extends partially around the curved plate B'. Above this lever, pivoted to the rectangular base G', is a lever on each side, which levers extend forward and diverge from each other, having their outer ends attached to a curved bar I, which rests close up to the inner side of the curved plate B'. One of these levers I' terminates at the pivotal point H', while

the other lever I³ extends back under the carriage and is bent downward and to one side, so that it rests alongside of the rear end of the lever H beneath the trigger. The rear end of the lever I³ has a right-angled bend I⁴, parallel with the carriage, which bend rests beneath the inner end of the arm J, attached to the hammer J'. The lower end of the hammer J' is secured to a semicircular piece J², the inner ends of which are hinged to posts J³, secured to the base beneath the carriage. It will thus be seen that when the spacing-lever H is moved the hammer is not set in action, but only the trigger for moving the carriage; but when the lever I³, which is actuated when a character is struck, is moved both the spacing-trigger and the hammer are operated.

The trigger K is shown more fully in Fig. 6 and is horizontally disposed and is centrally hinged to a post K' on the base beneath the carriage. One end of this trigger rests above the rear ends of the levers H I³, as before described, and on the other end of the trigger is a tooth K², adapted to engage with the toothed bar E beneath the carriage when the levers H I³ are in their normal position. This end of the trigger has a spring-pressed latch or pawl L hinged thereto, with the free end of the pawl projecting in the direction of the pivot of the trigger, and this pawl engages with the next tooth whenever this end of the trigger is lowered, so that when the trigger is again moved up the pawl will move forward the carriage until the tooth K² of the trigger again engages a tooth. A spring L' below the trigger serves to keep the tooth K² normally in contact with the rack-bar and to draw along the carriage, as the latter is not provided with a spring, weight, or other device for moving it along.

The bell M is located beneath the carriage and attached to the frame, and on one side is a post M', to the upper end of which is hinged a vertically-disposed lever M², having on its lower end a ball M³. The carriage has a stop (not shown) which engages with the upper end of the lever M² when the carriage approaches a certain point, causing the lever to swing so that the ball strikes the bell, and thus signals when the end of a line is reached.

About midway between the post G and the carriage is a post N, Fig. 8, and this post has two brackets N' N², a short distance apart.

Between the post N and the carriage is a vertical shaft O, journaled in the brackets N' N². This shaft has its lower end projecting a short distance below the lower bracket N', and above this bracket is a collar O', fixed on the shaft, and interposed between this collar and the underside of the upper bracket N² is a coiled spring O² around the shaft O to keep the shaft down while the type-wheel is in motion. Directly above the upper bracket N² the shaft O has a pulley or wheel P, by means of which the type-wheel is driven. This pulley is loose on the shaft O and has a collar P' above it, fixed to the shaft,

to prevent the pulley P from moving up. The collar is secured to the shaft by means of a set-screw P² or otherwise. The upper end of the shaft has thereon the type-wheel Q, held in position loosely on the shaft by means of a screw Q'. Projecting up from the pulley P near the edge is a stem R, which passes through the web of the type-wheel Q, so as to cause the type-wheel to turn in unison with the pulley P, as the shaft O has no rotary motion, but is capable of a vertical motion only.

In Fig. 7 I show the novel manner in which I turn the type-wheel. To the upper end of the post G, I hinge a segment S, the periphery of which is nearly in engagement with the pulley P. I then employ two narrow strips of steel S', securing their ends to the face of the pulley, one above the other, as shown at S², and winding them around the pulley in opposite directions. The end of one strip I extend around the face of the segment in one direction and secure it to the end of the segment, while the other strip is extended around the face of the segment in the other direction and secured. As a result whenever the segment turns the pulley P rotates. The hinged end of the segment has an arm S³, which projects down a short distance, and has jointed thereto a horizontally-disposed arm T, thus forming a right angle, which projects forward, passing under the lettered plate C', terminating near the inner edge of the curved plate B'. This arm has a vertical slot T' therein, in which is located a hinged bar T², the forward end of this bar projecting out over the toothed curved plate B' and terminating in a key or disk U, which has wings U' on the sides. The object of these wings is to prevent the finger of the operator from slipping off while moving the key around the semicircular space. Below the bar and resting against the outer end is a spring U², the inner end of which is secured to the under side of the arm. The object of this spring is to keep the bar T² normally up to the position shown in Figs. 2 and 7. Two pointers V project up from the arm T and extend over the lettered plate C' to indicate the exact position of the key.

The inking-ribbon is an endless tape W, (shown more fully in Fig. 9,) which travels around four pulleys. The two forward pulleys W' W' are mounted on the upper ends of vertically-disposed shafts W², journaled in the brackets N' N², while the rear pulleys X are mounted on posts X' X', which extend up from the upper bracket. Each post X' has an inverted-U-shaped wire guard X², extending up over each roller X, which serves to keep the sheets of paper from the printing-ribbon.

The front rollers W' are ink-fountains and are composed of the upper and lower disks, W³ W⁴, Fig. 10, respectively, between which is wound some absorbent material W⁵, and a hole W⁶ is formed through the upper disk,

into which is poured the ink. Thus the absorbent material of which the pulleys are formed keep the ribbon W constantly moist. The lower end of one of the shafts W² has a gear-wheel X³, and engaging therewith and with the toothed rack F² on the carriage is an intermediate spur-gear X⁴, whereby motion is imparted to the inking-ribbon whenever the carriage moves to and fro.

Directly above the opening E², formed in the tube E', are two rollers Y, mounted in suitable ways Y' and held together by a spiral spring Y² at each end. The relative arrangement of the rollers Y Y and the feed-opening E² of the cylinder or tube E', said opening being in alignment with the meeting surfaces of said rollers and the arrangement of said opening itself with relation to the interior of said tube being at one side thereof, are such that in the feeding of the sheet or paper it (the latter) will conform in its movement to the inner contour of the tube or cylinder, and thus take the form of a roll, fully utilizing the holding capacity of the tube or cylinder and providing for the proper storage of the paper and the storage of the maximum amount thereof. Between the journals of these rollers I place the downturned ends of the bar Z. The end of the bar Z is cam-shaped, as shown at Z', and is hinged to the frame at Z². When the bar is turned down to the position shown in Fig. 2 or up to its proper position when in use, as shown in Fig. 3, the two rollers are held together by means of the spiral springs, but when the bar Z is pushed back to the position indicated by the dotted lines in Fig. 3 the cam-shaped ends Z' move the rollers apart and permit the paper to be inserted between the two rollers. The right-hand end of the rear roller has its journal provided with a small wheel Z³, and by the side of the wheel is a collar Z⁴, with four or more flat faces thereon. A spring Z⁵, secured to the head D' of the carriage, has its free end resting on this collar, so that in turning these rollers the lines will register perfectly.

In Figs. 12, 13, and 14 I show a preferred form of constructing the line-spacing mechanism. The spring-finger Z⁵ is secured to a slotted arm Z⁶, which projects out from the end of the carriage and is set at any desired point by means of a set-screw Z⁷. The collar Z⁴, instead of having only the square face, as shown in Fig. 1, has two additional spaces, one having three and the other two faces, as shown more fully in Fig. 14, whereby I am enabled to make a greater or less distance between the lines by simply moving the spring-finger to the proper collar.

As this invention belongs to that class wherein the figures are placed in rows one above the other on a type-wheel, means must be provided for raising and lowering the type-wheel. I perform this in a very simple manner by employing two levers a b, the former being for figures and the latter for caps. The inner ends of these levers extend under the

type-wheel shaft O and are hinged centrally to ears c on the base. Their outer ends are provided with disks d, as shown. The whole distinction between these two levers is that the tooth or stop e on the under edge of the lever a is set back further from the pivotal point, and thus gives a greater throw to the shaft O and brings up the third row of letters or characters instead of the second row.

In action the carriage can be moved to and fro by pressing on the lever H, which disengages the trigger K and pawl, so that the carriage can be moved at will in either direction. In operation the finger of the right hand is placed on the key and the key-bar T² turned to the proper character. Pressure is then exerted downwardly on the key-bar, which causes the latter to enter one of the vertical notches or detents B², and in its downward movement the bar strikes the curved bar I, depressing the same and throwing forward the hammer, as before described. When pressure on the bar is released, the trigger K and its pawl L move forward the carriage one point. In case caps or figures are desired the keys a b are employed to throw up the type-wheel, and these keys being in range of the left hand the right hand need not move from its position on the type-bar key T².

Instead of employing the key-levers a b for bringing up the caps and figures it is obvious that the curved toothed plate B' can be enlarged and have a sufficient number of notches therein to provide for the entire set of characters, and the type-wheel can also be enlarged, so that the full set of characters will be in one line around the wheel. Such an arrangement would greatly cheapen the entire structure; but for general uses the form herein shown is more preferable and is easier to manipulate.

What I claim as new is—

1. A type-writer having, in combination, a vertically-movable non-rotatable type-wheel shaft, a type-wheel rotatably mounted on its upper end, a pulley below said type-wheel, connected therewith by a vertical stem, a segmental wheel engaging with the pulley, and an arm connected with said segmental wheel having a hinged key-bar therein, as set forth.

2. A type-writer having, in combination, a vertically-movable non-rotatable type-wheel shaft, a type-wheel rotatably mounted on its upper end, a pulley below said type-wheel, connected therewith by a stem, a segmental wheel engaging with the pulley, an arm connected with said segmental wheel having a hinged key therein, a circular lettered plate above said arm, and a toothed circular plate below the hinged key, substantially as set forth.

3. A type-writer having beneath the carriage a toothed rack, in combination with a trigger centrally hinged, having at one end a tooth normally in engagement with the carriage-rack, a spring-pressed hinged pawl on the toothed end of the trigger, projecting in

the direction of the pivot of the latter, a hinged lever having one end beneath the end of the trigger and its opposite end projecting forward and provided with a horizontal key-bar, and a spring connected with said trigger for drawing the same back to its normal position and moving the carriage, substantially as set forth.

4. A type-writer having a hammer for printing the characters, in combination with a lever having at its inner end a lateral or right-angled bend adapted to actuate the hammer and a key-bar for throwing the proper character in position and operating said lever, substantially as set forth.

5. A type-writer having a hammer for printing the characters, a trigger carrying alternately-actuating pawls, and the carriage actuated by said pawls, in combination with a lever adapted to simultaneously actuate said hammer and trigger and a key-bar for throwing the proper characters in position and operating said lever, substantially as set forth.

6. A type-writer having a hammer for printing the characters, a trigger carrying alternately-operating pawls, and the carriage actuated by said pawls, in combination with a lever having the right-angled bend at one end, one arm of said bend being adapted to engage said trigger and the other arm to engage said hammer, and a key-bar for throwing the proper character in position and operating said lever, substantially as specified.

7. A type-writer having, in combination, a vertically-movable type-wheel shaft carrying a pulley having a sliding stem connection with the rotatable type-wheel, a segmental wheel having connection with said pulley by oppositely-wound bands, and its arm provided with a hinged key-bar, substantially as and for the purposes set forth.

8. A type-writer having a sheet-feeder composed of two rolls mounted on the slotted paper-receiving tube, said rollers mounted within keepers at each end and having a lever hinged between the journals of the rollers, having cams arranged between and for spreading apart said rollers, substantially as set forth.

9. In a type-writer, a carriage having two rollers movable to and from each other by the paper-guard comprising the inverted-V-shaped wire guards adapted to overhang said rollers, one of the journals having a hand-wheel, and two or more sets of faces on said journal, and a spring-finger laterally movable and adapted to engage with either set of faces, substantially as set forth.

10. In a type-writer, a base having two horizontal parallel ways, in combination with a carriage mounted thereon having a central horizontal rack-bar beneath and a hooked post or standard extending up from the base

and around said rack-bar to hold the carriage in position, substantially as set forth.

11. In a type-writer, a carriage composed of two horizontal parallel gained bars, a head at each end, having centrally below a connecting rack-bar and on the upper side keepers for rollers, in combination with said rollers, springs for holding the same together, and a lever with cams thereon arranged between and for separating said rollers, substantially as set forth.

12. A type-writer composed of a sliding carriage provided with a rack-bar beneath, in combination with a trigger and pawl beneath said rack-bar having attached thereto the spring for moving the carriage and a lever having one end in engagement with but disconnected from the trigger and the other end within range of the operating-key, substantially as set forth.

13. A type-writer composed of a sliding carriage provided with a rack-bar beneath, in combination with a trigger and pawl, said trigger having attached thereto the spring for moving the carriage, a lever for operating but disconnected from said trigger independently of the printing mechanism, and a lever connected with the printing mechanism, substantially as set forth.

14. A type-writer composed of a sliding carriage provided with a rack-bar, in combination with a trigger having a pawl adapted to normally engage said rack-bar and having a spring-pressed pawl or latch also adapted to engage said rack-bar and move the carriage when the aforesaid pawl is disengaged from said rack-bar and having attached thereto the spring for actuating the carriage, and a lever having one end adapted to engage said trigger and the other end adapted to be actuated by the operating-key, substantially as and for the purpose set forth.

15. A frame composed of the single post with two brackets or ledges, a type-wheel shaft passing through said brackets, two vertical shafts on the front side, carrying on their upper ends rotatable ink-fountains, and on the rear side of the upper bracket two swiveled posts for holding vertically-disposed rollers, and the endless ribbon around said rollers.

16. A type-writer having rotatable ink-fountains and suitable tension-rollers and an endless ribbon around the same, in combination with inverted-U-shaped guard-pieces over said tension-rollers, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of June, A. D. 1891.

ADEMOR N. PETIT.

Witnesses:

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J. S. ZERBE.