No. 656,281. Patented Aug. 21, 1900.

W. J. BARRON.

TYPE WRITING MACHINE.

(Application filed June 29, 1899.)

(No Model.) 2 Sheets—Sheet 1.

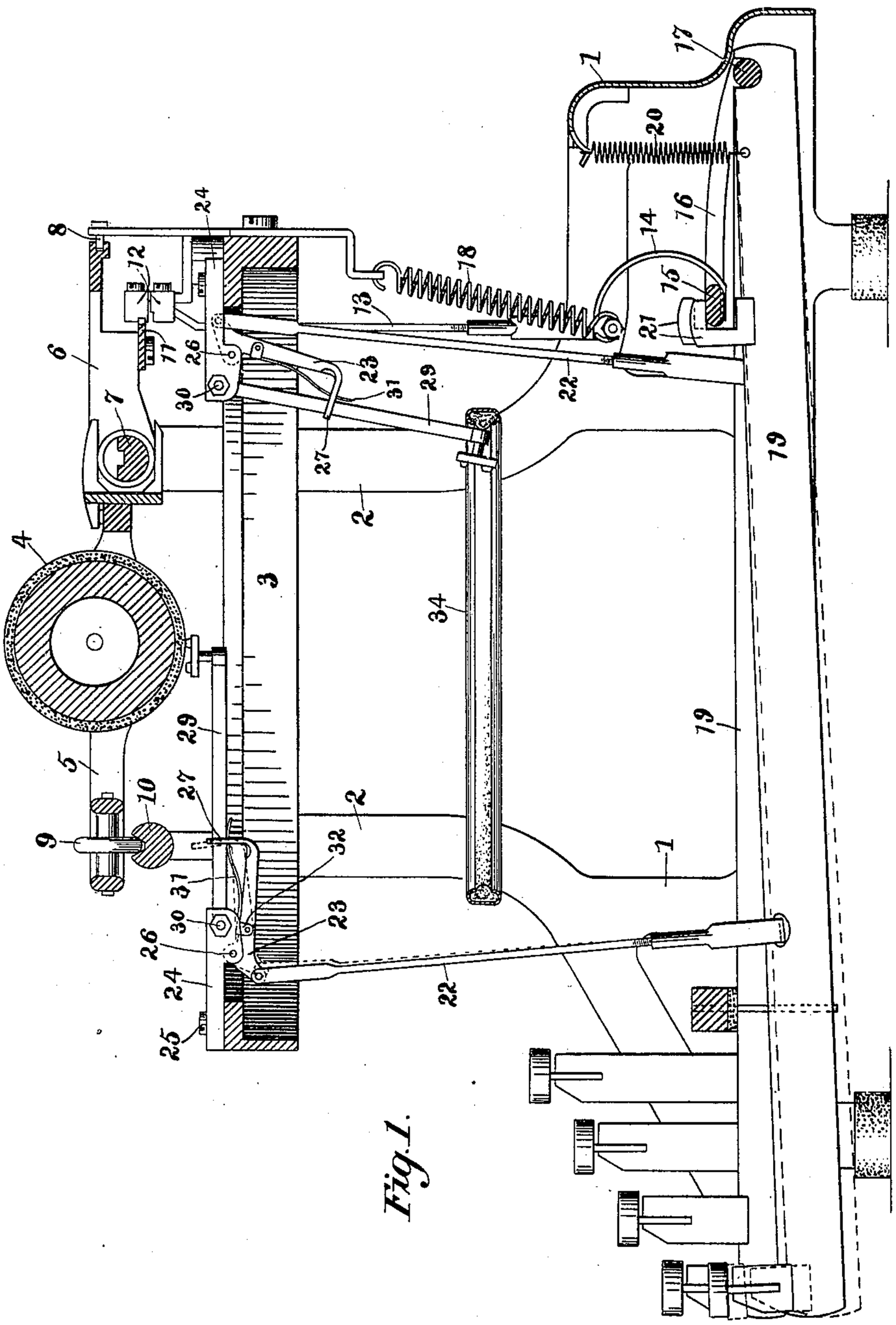


Fig. 1.

WITNESSES:

H. H. Steele.

K. V. Donovan.

INVENTOR

Walter J. Barron

by Jacob Felbel

HIS ATTORNEY

No. 656,281. Patented Aug. 21, 1900.

W. J. BARRON.

TYPE WRITING MACHINE.

(Application filed June 29, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

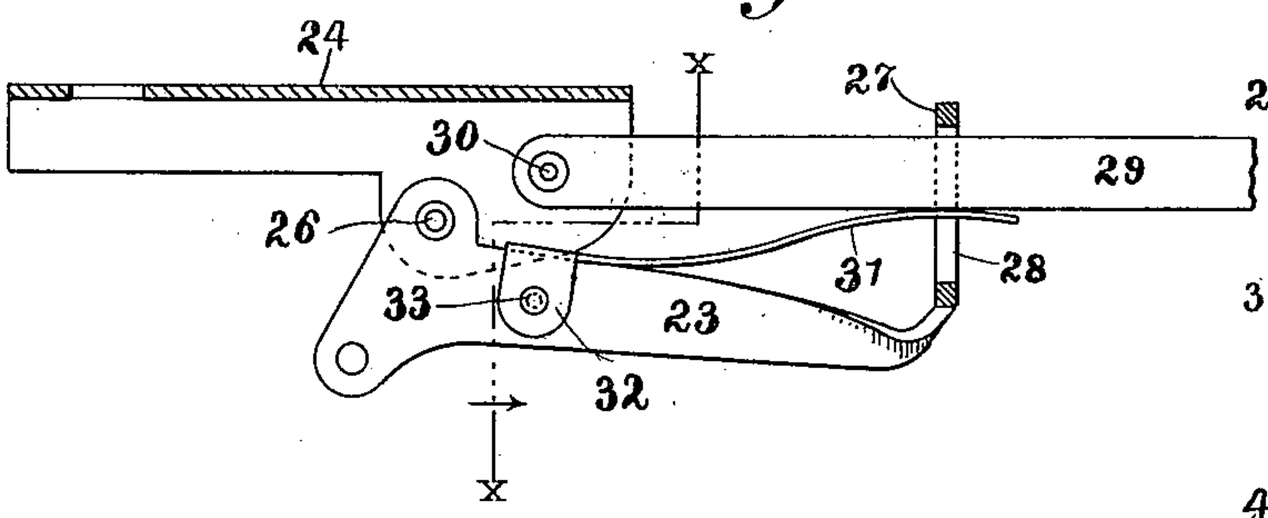


Fig. 3.

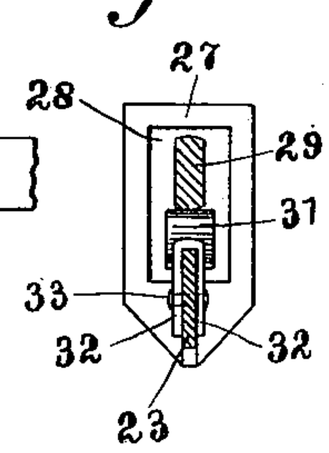
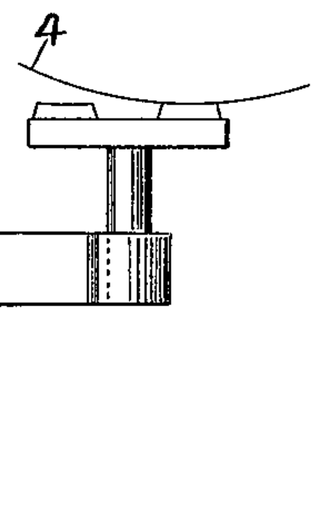


Fig. 4.



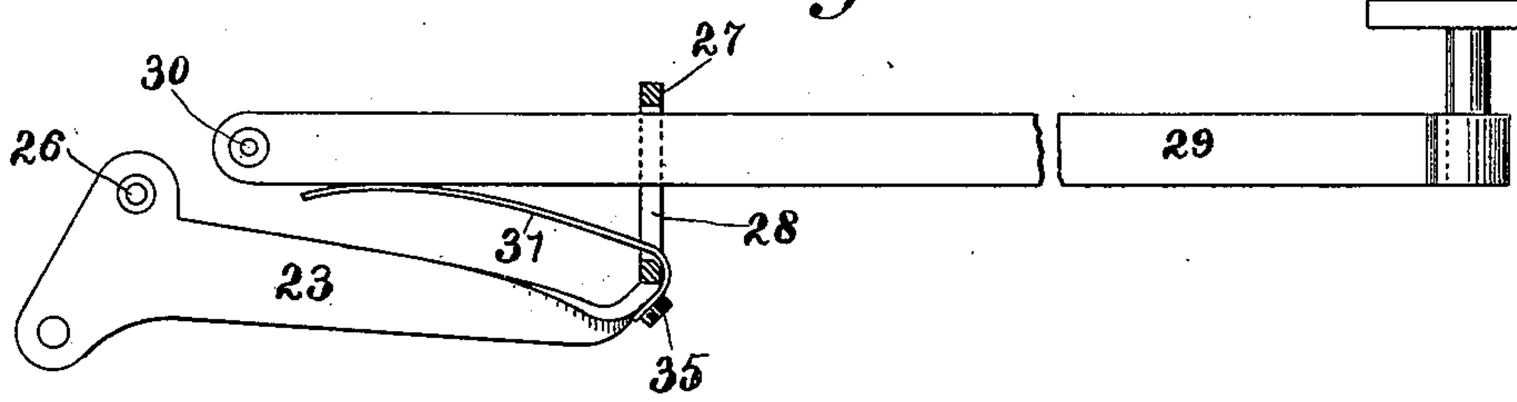
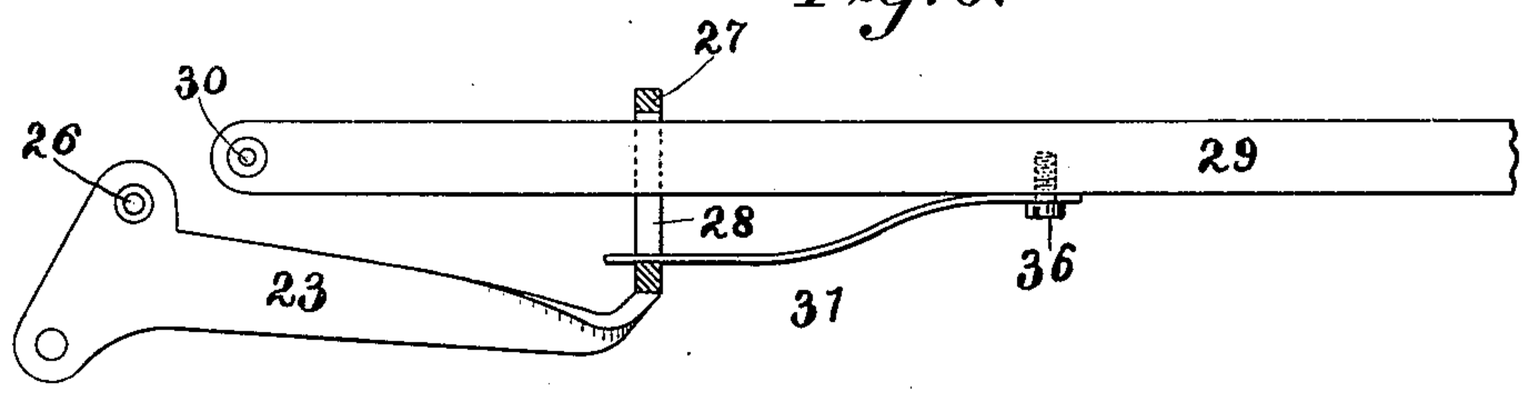


Fig. 5.

Fig. 6.



WITNESSES:

H. H. Steele.

K. V. Donovan.

INVENTOR

Walter J. Barron

by Jacob Felbel

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

WALTER J. BARRON, OF NEW YORK, N. Y., ASSIGNOR TO THE DENSMORE TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 656,281, dated August 21, 1900.

Application filed June 29, 1899. Serial No. 722,280. (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 the borough of Brooklyn, in the 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.

The present invention relates to the type actions of type-writing machines, the object of the invention being to relieve the fingers of the shock due to the impact of the type against the platen and transmitted to the fingers through the connecting-rod and key-levers.

To this and other ends the invention includes features of construction and combinations of devices hereinafter described, and more particularly pointed out in the appended claims.

The preferred form of the invention and modifications thereof are shown in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical longitudinal section of a type-writing machine in which the invention is embodied, some of the parts of the machine being omitted. Figs. 2 and 3 are enlarged detail views of parts shown in Fig. 1, Fig. 3 being a section on the line *x x* of Fig. 2; and Figs. 4, 5, and 6 illustrate modifications or modified arrangements.

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

1 indicates a bottom frame provided with standards 2, to which a top plate or type-ring 3 is attached.

4 indicates a platen which is suitably journaled in a platen-carrier 5, hinged to the carriage 6, which travels upon a transverse rod 7 and is held from tilting by a pin 8, entering a groove in the rear end or bearing of the carriage 6.

9 is a guide-roller at the front of the platen-carrier, running in a grooved guide and shift-rail 10.

11 is a rack secured to the carriage 6, with which the dogs 12 coact in a known manner.

13 is a rod connecting the dog-carrier with an arm 14, rising from the universal bar 15, which is carried by an arm 16, pivoted at 17 to the frame of the machine.

18 is a spring attached to the framework of the machine at one end and to a pin on the rod 13 at its other end and serves to lift the rod 13 and universal bar 15 to their normal positions.

19 shows key-levers fulcrumed upon the rod 17.

20 shows springs for holding the key-levers against the fulcrum-rod 17.

21 shows notched arms or hooks attached to the key-levers 19 and adapted to engage with the universal bar 15.

22 shows connecting-rods pivotally connected at their ends to the key-levers 19 and to type-bar lifting or operating levers 23.

24 shows type-bar hangers secured to the ring 3 by screws 25 and to which the levers or arms 23 are pivoted at 26. The levers 23 are formed with upwardly-bent portions 27, which are provided with slots 28.

29 shows type-bars pivoted in the hangers 24 at 30. The type-bars 29 are of a width considerably less than the length of the slot 28, whence it results that the type-bar has play relative to the lever 23. Said slot is closed at each end, whereby the extent of the play of the type-bar therewithin is limited.

Referring more especially to Figs. 1, 2, and 3, 31 is a flat or leaf spring curved, as shown, and provided with parallel ears 32, which embrace the lever 23, and 33 is a pin or rivet securing the ears firmly to the levers 23. The spring 31 extends through the slot 28 of the arm 27 and is tensioned to hold the type-bar 29 preferably yieldingly toward but not against the upper cross-bar of the slot (see Fig. 3)—that is to say, the spring 31 is by preference not under strain when the parts are in their normal positions. This is indicated in Fig. 1 at the right by the space separating the spring from the type-bar, which latter rests against the type rest or basket 34. Upon the depression of a key-lever 19 the corresponding rod 22 is pulled downwardly and the down-hanging end of the corresponding lever 23 is moved inwardly and upwardly toward the center of the machine and its spring 31 is brought in contact with the under edge of its associated type-bar 29 and lifts the same to-

ward the printing-point. Upon the impact of the type against the platen 4 the surplus energy of the blow upon the key compresses the spring 31, and the spring also absorbs the vibration due to the impact of the type. The positions of the parts shown in full lines at the left in Fig. 1 are those assumed at the moment of impact of the type, and the dotted lines representing the key-lever, connecting-rod, and lifting-lever 23 show the positions assumed by those parts when the force of the blow upon the key is more than sufficient to throw the type to the printing-point, in which case the spring 31 is compressed to bring it nearer the bottom of the slot 28 while the parts 19, 22, and 23 are moving from the full to the dotted-line positions. In the event of undue pressure being applied at the key the spring 31 contacts with the bottom of the slot 28, so that the stress is sustained directly by the type-bar 29 and the lever 23, thus preserving the spring from damage by reason of such undue key-pressure.

It will be observed in Figs. 1 and 2 that the spring 31 coacts with the type-bar at a point between the pivot and the type thereof and at the slot 28, thus obtaining the same leverage upon the type-bar 29 as in the class of type-writing machines in which the type-bar is lifted by an auxiliary lever pivoted to the same hanger.

In the modification illustrated at Fig. 4 the spring 31 is secured to the lever 23, closely adjacent the bent end 27, as by a screw 35, and the spring extends backwardly toward the pivot of the lever 23 and bears against the type-bar 29 at a point intermediate the pivot of the type-bar and the slotted end 27 of the lever 23. The operation of this modification is substantially the same as that above described, the leverage upon the type-bar being less, however.

In the modification shown at Fig. 5 the ears 32 of the spring 31 are secured to the type-bar 29, as by a rivet 33, and the end of the spring 31 passes through the slot 28 and in the position shown in Fig. 5 bears against the bottom thereof.

In the modification illustrated at Fig. 6 the spring 31 is secured to the type-bar by a screw 36 at a point between the type (not shown in Fig. 6) and the yoke or slotted end 27, the spring 31 bearing upon the bottom of the slot, as indicated.

Other modifications and embodiments of the invention may be made. Hence I do not limit myself to the precise form of invention shown in the drawings and hereinbefore described.

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

1. In a type-writing machine, the combination of a pivoted type-bar, an operating-lever therefor, said parts being constructed to have relative play, a transmitting-spring interposed between the two, means for limiting the relative play of the type-bar and operating-lever in each direction, and a key-lever connected to the operating-lever.

2. In a type-writing machine, the combination of a pivoted type-bar, an operating-lever therefor, said parts being constructed to have relative play, means for limiting such play in each direction, a spring fast to one and adapted to bear against the other of said bar and lever elements whereby power is transmitted through the spring to the bar to throw it to the printing-point, and a key-lever connected to the operating-lever.

3. In a type-writing machine, the combination of an upwardly-striking pivoted type-bar, a lifting-lever therefor, said parts being constructed to have relative play, means for limiting such play in each direction, and a flat or leaf spring fast to one and adapted to bear against the other of said bar and lever elements and transmitting the lifting power to the bar.

4. In a type-writing machine, the combination of a pivoted type-bar, an operating-lever through a slot of which the bar passes, and in which said bar has limited play, and a spring interposed between said bar and said lever to transmit the power of the finger-stroke to the bar and to absorb the shock on the impact of the type.

5. In a type-writing machine, the combination of a pivoted type-bar, a lifting-lever therefor, said parts being constructed to have relative play, means for limiting such play in each direction, and a spring for transmitting the lifting action of the lever to the bar at a point between the pivot and the type thereof.

6. In a type-writing machine, the combination of a pivoted type-bar, a lifting-lever therefor, said parts being constructed to have relative play, means for limiting such play in each direction, and a flat or leaf spring fast to the lever and adapted to bear against the type-bar at a point intermediate its pivot and type.

7. In a type-writing machine, the combination of a pivoted type-bar, a lifting-lever therefor provided with a slot through which the bar passes and in which it has play, means for limiting the play in each direction, and a spring fast to one and adapted to bear against the other of said bar and lever elements.

8. In a type-writing machine, the combination of a pivoted type-bar, a lifting-lever therefor provided with a slot through which the bar passes and in which it has play, means for limiting the play in each direction, and a flat or leaf spring fast to one and adapted to bear against the other of said bar and lever elements at said slot.

9. In a type-writing machine, the combination of a pivoted type-bar, a lifting-lever therefor provided with a slot through which the bar passes and in which it has play, means for limiting the play in each direction, and a flat or leaf spring fast to the lever and adapted to bear against said bar.

10. In a type-writing machine, the combina-

tion of a pivoted type-bar, a lifting-lever therefor, said parts being constructed to have relative play, means for limiting such play in each direction, a hanger to which both type bar and lever are pivoted, and a flat or leaf spring fast to one and adapted to bear against the other of said bar and lever elements to transmit the lifting power to the type-bar.

11. In a type-writing machine, the combination of a type-bar, an operating-lever therefor having a slot embracing said bar, and enabling said bar to have a limited play relatively to said lever, a transmitting-spring intermediate said lever and said bar, a key-lever, and a connection between said key-lever and said operating-lever.

12. In a type-writing machine, the combination of a type-bar, a pivoted arm, said parts being constructed to have relative play, means for limiting such play in each direction, a spring connected to one and adapted to bear against the other of said bar and arm parts to transmit power to move the bar to the printing-point, and a key-lever connected to and operating said arm.

Signed in the borough of Manhattan, in the city of New York, in the county of Kings and State of New York, this 21st day of June, A. D. 1899.

WALTER J. BARRON.

Witnesses:
K. V. DONOVAN,
A. C. VAN BLARCOM.