

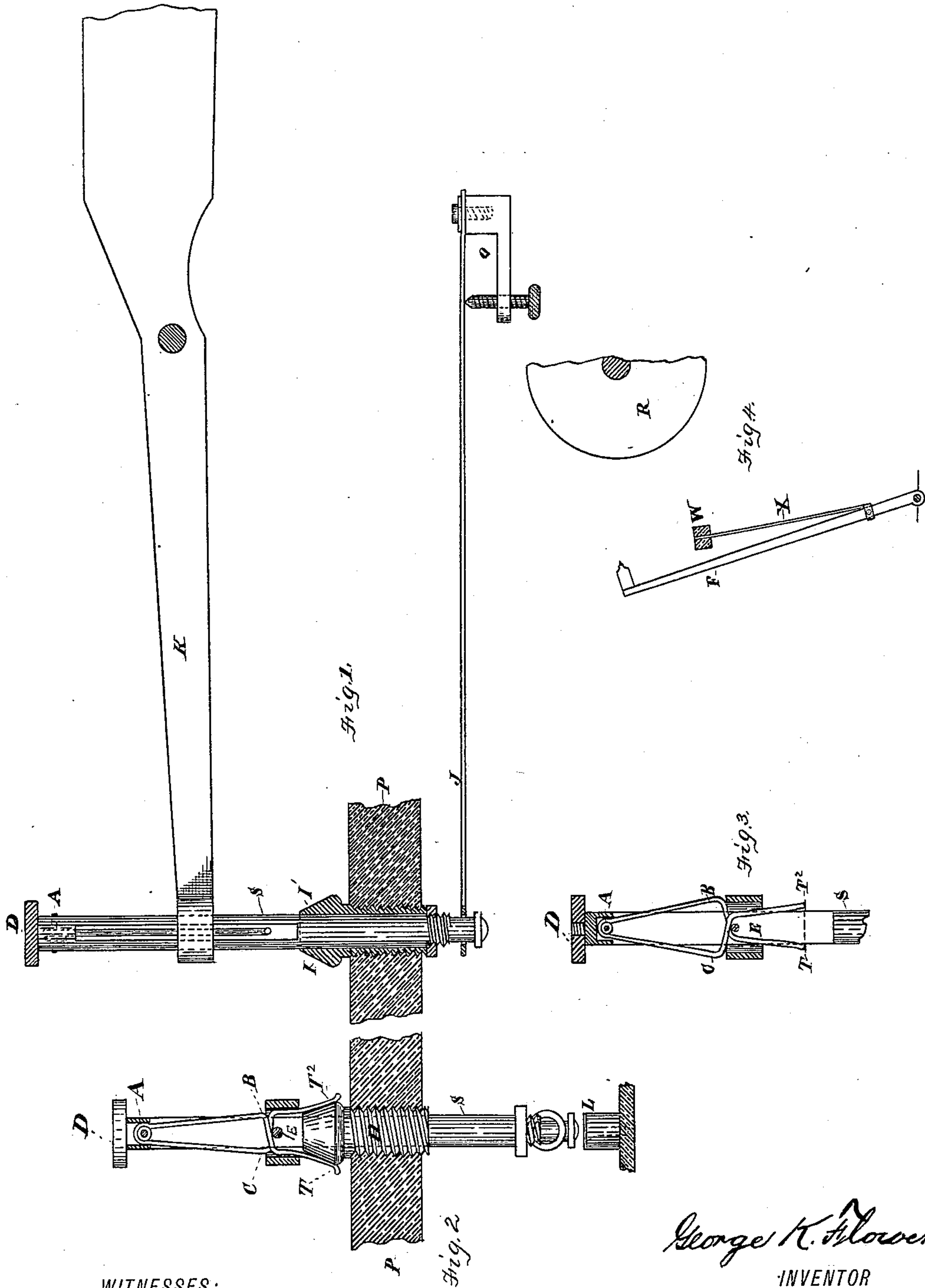
(No Model.)

2 Sheets—Sheet 1.

G. K. FLOWER.
TYPE WRITING MACHINE.

No. 426,931.

Patented Apr. 29, 1890.



WITNESSES:

Nathaniel Means
John F. Kennedy

George K. Flower
INVENTOR

(No Model.)

2 Sheets—Sheet 2.

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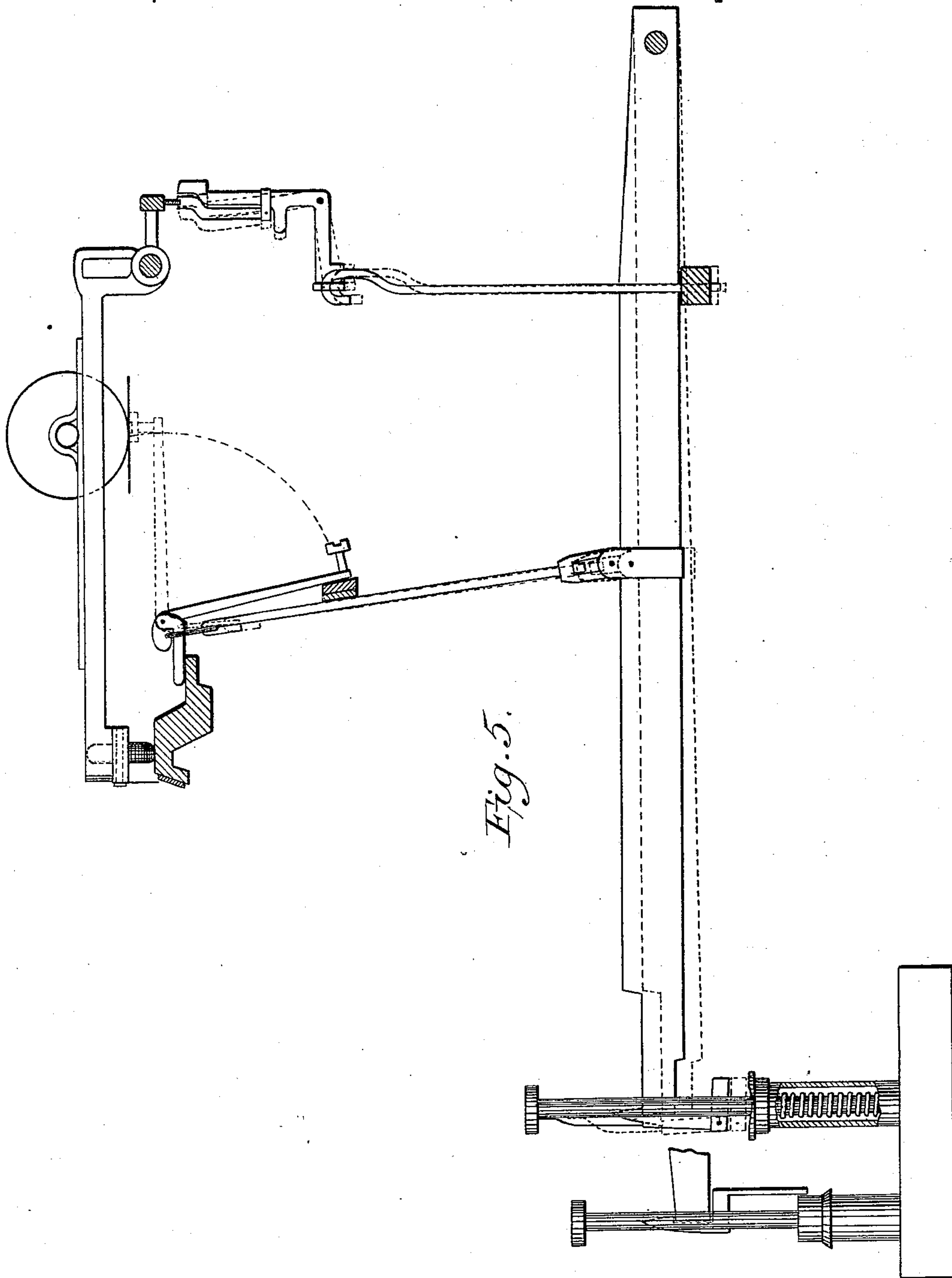


Fig. 5.

WITNESSES:

Daniel Agnew
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UNITED STATES PATENT OFFICE.

GEORGE K. FLOWER, OF PITTSBURG, PENNSYLVANIA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 426,931, dated April 29, 1890.

Application filed April 19, 1889. Serial No. 307,888. (No model.)

To all whom it may concern:

Be it known that I, GEORGE K. FLOWER, a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain Improvement in Type-Writing Machines, of which the following is a full and exact description, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical side elevation of my device attached to a lever of a type-writing machine, showing the lever and key in their normal or initial position. Fig. 2 is a front elevation of the same, showing the key and key-lever depressed and the spring contracted within the collar. Fig. 3 is a front elevation of the same, showing the spring expanded above the collar. Fig. 4 is a side elevation of a type-bar of a type-writing machine with my spring and weight attachment. Fig. 5 is a view showing the parts applied to a machine.

Hitherto the operation of type-writing has been performed by pressing the fingers directly on the ends of the levers that actuate the other operative parts of the machine, the operator withdrawing each finger from each key in succession, in order that there should be no conflict between any two keys or their relative operative parts on relieving consecutively each key from pressure for the same purpose.

My invention consists of a key attached to a key-lever so constructed that when the key is depressed by the finger it will impel the key-lever to a certain point, where it shall be released from the key, and the said key-lever, being impelled by a spring or other motive power, is permitted to return quickly to its initial position independent and in advance of the return movement of the key, and consequently independent of the removal or relieving from pressure of the finger that operates the key.

The object of my invention is to provide a machine having a series of type-bars printing at a common point, which may be operated and printing performed, the type-bar and type-lever being enabled to resume their initial position independently of the key, whereby a succeeding key may be operated without releasing or relieving from pressure any key

previously operated. By the employment of this device the operator is enabled to write or print more rapidly and with greater ease and accuracy than heretofore, for not only is the liability of the locking or interfering of the operative parts of the machine greatly lessened by the use of my device, but the natural alternative action of the fingers is facilitated, and the unavoidable pause of each finger at the time of the impression of the type on the paper does not impede or detain the other fingers.

In the type-writing machine not only does the key-lever actuate the type-hammer, but by its return action it releases and calls into action those parts of the machine that must act immediately after an impression of a character has been printed and come to rest before another character can be printed—as, for instance, the paper-carrier and ink-ribbon—and any device that causes the lever to act more quickly in its return action enables these parts to assume their new positions more rapidly. The improved device therefore affects those operative parts, some of which are of considerable weight and require all the time that can be obtained for their movement between the impressions of the type-characters.

The improved key with the release-spring A B C being applied to the key-lever, which in turn operates all the operative parts of the machine, constitute a less complicated arrangement than where each of these parts may be made to disconnect with the key-lever, and the device may be applied to all, or nearly all, of the type-writing machines now made or in use without requiring any material change in their special designs or operative parts.

I will now more fully describe my invention, reference being had to the accompanying drawings.

K is a lever of a type-writing machine, the outer end of which terminates in a collar. The stem of the key passes loosely through this collar, the cap D at the upper end of the stem serving for a bearing for the finger of the operator. The stem S of the key also passes downwardly through and is adapted to operate within the cylinder H, which is screwed into the plate which forms part of the frame

of the machine. Said stem is provided with a slot extending from a point near its upper end to a point below the collar mentioned, in which slot is secured the double spring A B C, having projecting tips T T'. The outer surface of the cylinder H above the plate P is sloped outwardly and downwardly, forming inclined planes or a tripper I I', on which the ends of the double spring may slide. The lower end of the stem rests upon the spring J, firmly affixed to the frame of the machine at Q. Below the stem, suitably attached to the frame of the machine, is the cushioned stop L, which may be adjusted to be touched by the stem of the key at the moment of the release of the lever from the spring A B C.

F is a type-bar, provided at its lower end with a spring X, to which is secured at the outer end a weight W, the momentum of which when the said bar is impelled against the ribbon, pad, or paper presses the type firmly against the ribbon, pad, or paper for an almost unappreciable portion of time, but sufficiently long in duration to make a clear and distinct impression thereon, the rebound of the spring throwing the weight against the type-bar, increasing its velocity to its initial position.

The action of the device constituting the improvement is as follows: The finger of the operator, depressing the stem S, causes the shoulder of the spring to press upon or impinge against the upper edge of the collar and bear down the end of the lever until the lower outwardly-projecting ends or tips of the double spring impinges against the inclined planes of the cylinder or tripper H. This contracts the shoulders of the spring at B C within the slot, and the end of the lever, being released from the downward pressure, returns by its own recoil (caused by the overbalancing weight of the inner end of the lever K or by its own resiliency) to its initial position. Either immediately thereafter or after the operation of other keys the stem may be permitted to rise, the finger being removed from the cap and the recoil of the spring at the base of the stem-key forcing it upward, the double spring in the stem-key again contracting as it is forced through the

collar, and again expanding when the shoulders are above the edge of the same.

E is a pin attached to the stem at the junction of the downwardly-projecting tips of the spring A B C to prevent undue expansion of the spring at its shoulder, when the said shoulders are permitted to rise above the collar.

Having described my invention, what I desire to secure by Letters Patent are the following claims:

1. In a type-writing machine, the combination of a key and a lever actuated thereby and adapted to operate a type-bar, and a means whereby said key-lever and type-bar are enabled to resume their initial positions simultaneously independently of the key, whereby a succeeding key or keys may be operated without releasing or relieving from pressure any key previously operated, as and for the purpose set forth.

2. In a type-writing machine, the combination of a key, a stem, a flexible spring attached thereto, a key-lever, and a tripper, whereby when the said key is depressed the spring impinges upon and operates the key-lever and immediately thereafter is actuated by the tripper to release the key-lever and permit it to return to its initial position in advance of the return of the key, substantially as and for the purpose set forth.

3. In a type-writing machine, the combination of a key, a flexible spring attached thereto, a key-lever, and a tripper, whereby when the key is depressed the spring impinges upon and operates the key-lever and immediately thereafter is actuated by the tripper to release the key-lever and permit it to return to its initial position in advance of the return of the key, and a spring attached to the type-bar and provided with a weight at one end, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I hereunto affix my signature this 4th day of April, A. D. 1889.

GEORGE K. FLOWER.

In presence of—

JOHN S. KENNEDY,
NATHAN C. MEANS.