

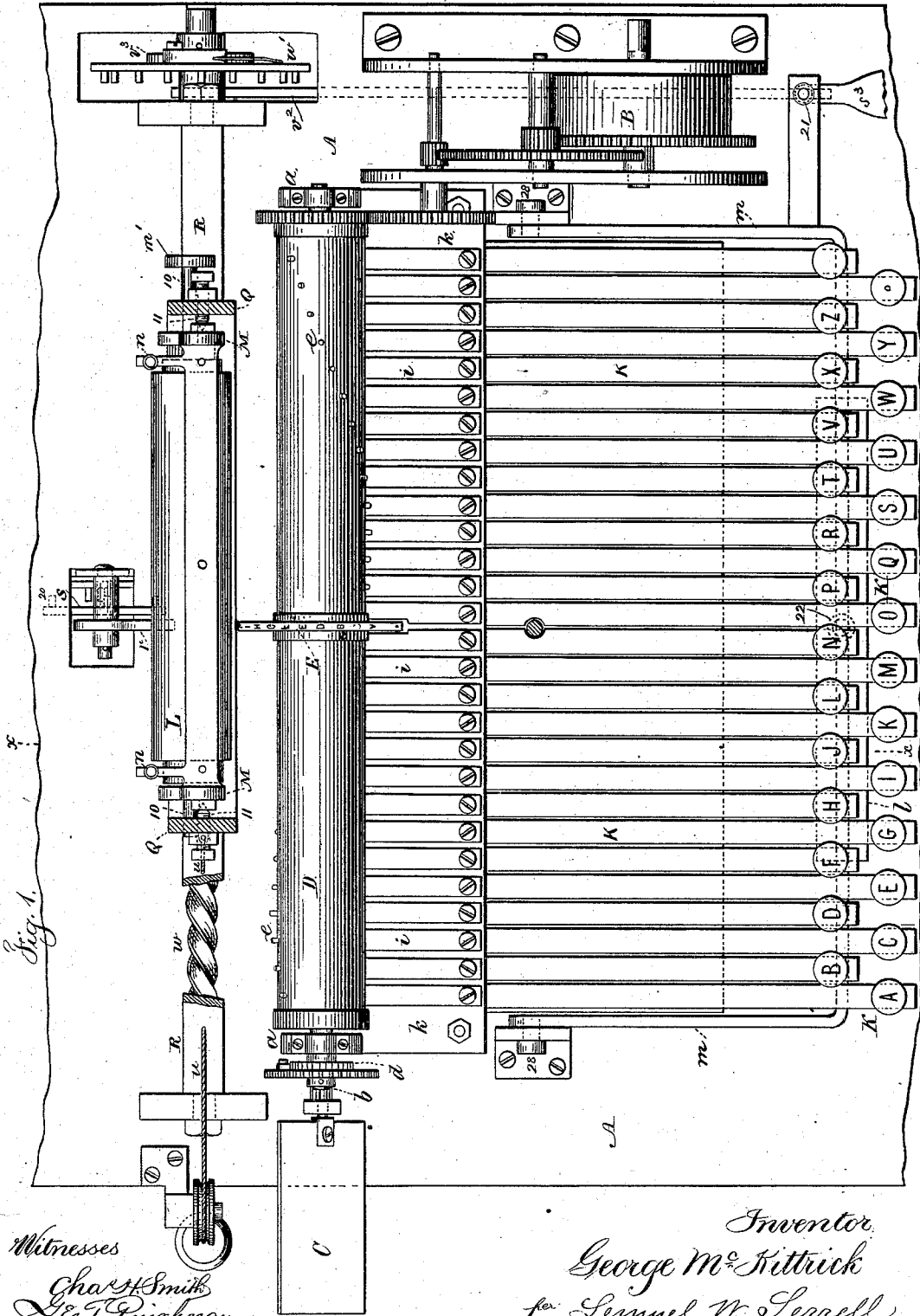
(No Model.)

2 Sheets—Sheet 1.

G. McKITTRICK. Type Writing Machine.

No. 239,823.

Patented April 5, 1881.



Witnesses
Charles Smith
Geo. T. Pickney

Inventor
George McKittick
 per *Samuel W. Serrell*, atty.

(No Model.)

2 Sheets—Sheet 2.

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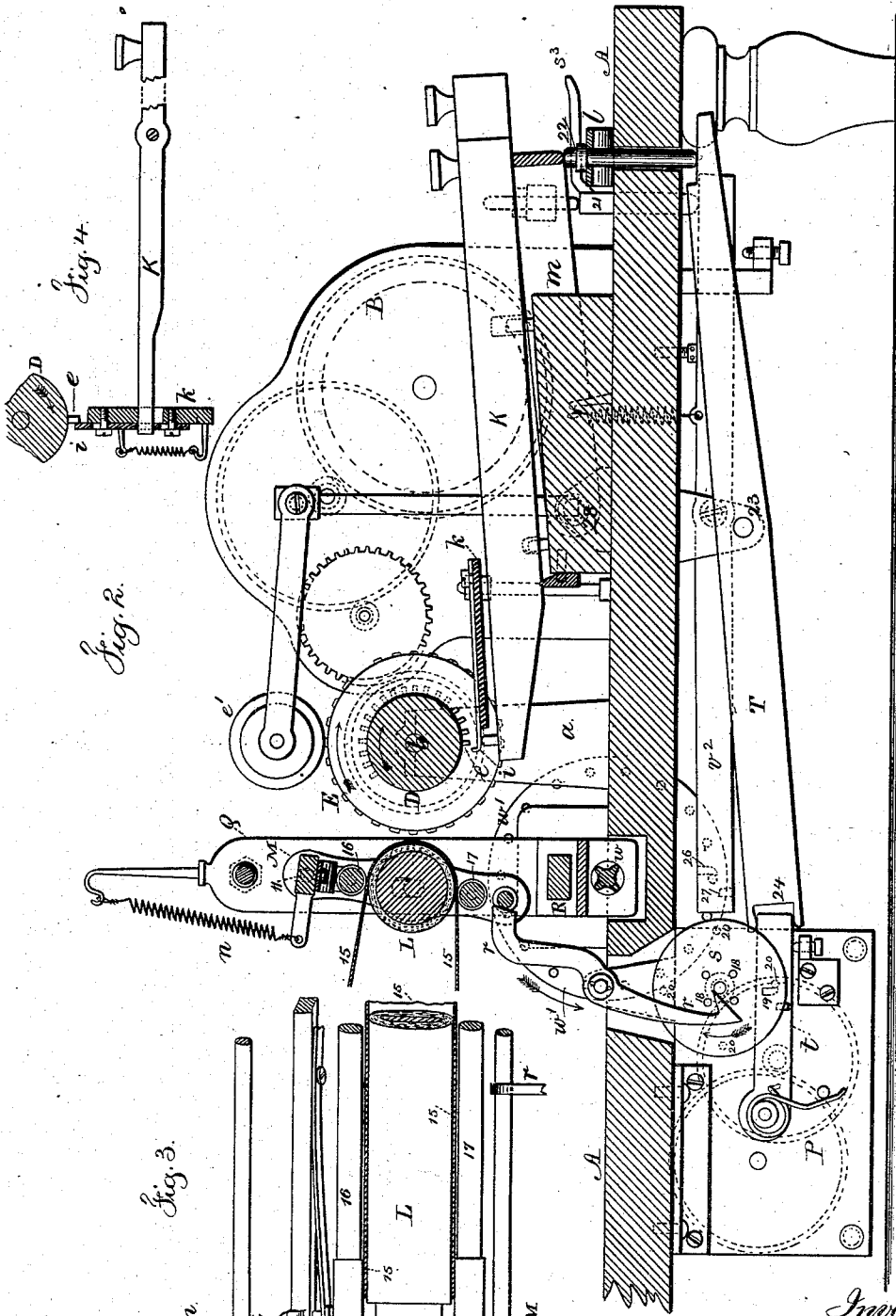


Fig. 4.

Fig. 2.

Fig. 3.

Fig. 5.

Witnesses
 Chas. H. Smith
 Geo. F. Pinckney

Inventor
 George McKittrick
 per Samuel N. Sewell atty

UNITED STATES PATENT OFFICE.

GEORGE MCKITTRICK, OF BROOKLYN, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 239,823, dated April 5, 1881.

Application filed June 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MCKITTRICK, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Type-Writing Machines, of which the following is a specification.

I make use of a type or character wheel upon a shaft that is also provided with a cylinder having a spiral range of stop-pins, and this is revolved automatically, and a range of stops acted upon by keys serve to stop the cylinder and type-wheel at the corresponding letter. An elastic-faced roller in a swinging frame is brought up to give the impression upon the paper that passes around such roller. The roller and its frame are moved endwise upon a screw, and the roller is partially turned between one line and the next.

I am aware that a type-wheel and cylinder with stop-pins have been used, and that the paper has passed around an elastic-faced impression-roller.

My present invention relates to the construction of the parts and the combination of devices, as hereinafter set forth.

In the drawings, Figure 1 is a plan with portions of the impression-roller frame and its guide-bar removed. Fig. 2 is a vertical section of the machine at line *xx* of Fig. 1. Fig. 3 is an elevation at one end of the swinging frame carrying the impression-roller. Fig. 4 represents a modification in the stop-plates, and Fig. 5 is a sectional plan view of the escapement that allows the parts to revolve that operate the impression-lever.

Upon a suitable frame or bed, A, are the bearings *a* for the shaft *b*, and the said shaft is rotated by the spring-barrel B and train of gearing of ordinary character; or a weight and cord may be applied to the barrel B instead of a spring.

A fly or balance, C, is connected to the shaft *b* by a multiplying-gearing, consisting of a pinion on the axis of the fly driven by a gear-wheel upon the shaft *b*, having a pawl to an intermediate ratchet-wheel, *d*, so that the fly C regulates the speed of the shaft and the parts attached thereto, and when said shaft *b* is stopped the inertia of the fly and gearing will usually cause them to continue to move. This is allowed for by the ratchet-wheel and its pawl, and the friction of the gear-wheel on

the shaft *b* will tend to continue the movement of the shaft *b* and keep it from rebounding from the stop that is operated by the key and arrests the revolution of the shaft *b* and its type-wheel, as hereinafter described. If the fly or balance wheel at *c* did not receive its motion from the shaft *b* and the stop-roller D that is on it, the inertia of the fly could not be availed of to prevent rebound when the roller D is arrested by a stop.

Upon the shaft *b* there is a stop-roller, D, and a type-wheel, E. I prefer to have the type-wheel near the center of the stop-cylinder, as shown, so as to be in the most convenient position for the operator. This type-wheel has as many letters or characters around its periphery as are required for the type-writer, and a range of keys, K, is employed corresponding to the characters upon the type-wheel.

In the stop-roller D there is a spiral range of pins, *e e*, and there are stops *i* operated by the respective keys. These stops *i* form a straight, or nearly straight, range beneath the stop-roller D, and when either key is depressed its stop *i* is raised so as to arrest the revolution of the type-wheel E, and the corresponding type or character will be in the proper place for printing that character upon the paper that is moved up against the type, as hereinafter described.

The stops *i*, upon which the keys act, may be of any desired character. I have shown in Figs. 1 and 2 latch-ended springs attached at one end to the stationary plate *k*, so that the stop *i* at the other end may be brought up into the path of the stop-pin on the roller D by a pin at the end of the key, which acts beneath the spring *i* to move it upwardly. These stops *i* may be sliding plates upon the surface of a vertical support or plate, *k*, as seen in Fig. 4, the back ends of the keys serving to elevate these stop-plates into the path of the stop-pins, as aforesaid. When either key is released the parts are returned to their normal position by the action of a spring, *l*, beneath the swinging frame *m*, or by a spring applied to each key, or both.

The impression-roller L is preferably of hard wood or metal, with a tube of india-rubber or similar elastic material drawn over the same. This roller L is upon a shaft, 10, that is mounted in a frame, M, that hangs below and

swings upon the centering-screws 11 and within the frame Q, and this frame M and roller L are drawn away from the type-wheel by a spring, *n*, that acts against an arm that projects from the frame M.

The sliding frame Q is supported by and slides endwise upon the fixed bar R, and through this frame Q the centering-screws 11 pass, so that the frame M and roller L can swing within the frame Q, and the roller L will also be moved endwise in close proximity to the type-wheel. The paper 15 passes around the roller L, between it and the guide-rollers 16 and 17, which are, by preference, made smallest in the middle portions contiguous to the printed portions of the paper, so that said rollers only act upon the unprinted edges of the paper, and it will be evident that as the frame Q is slid along behind the type-wheel the line of type-writing will be made upon the paper by swinging the roller L and paper up against the type that has been brought around to its place. The types are constantly inked by the roller *e'*, of felt or similar fibrous material, with which the type-wheel revolves in contact. The shaft of the roller L projects through the frames M and Q, the latter being slotted horizontally for its passage. By turning the head *m'* the roller will be moved between one line and the next.

To swing the impression-roller up against the type-wheel I make use of the escapement-lever *r*, the upper end of which acts against the lower bar of the frame M, and the lower end is made as an incline, against which one of the pins 18 upon a rotary disk, *s*, acts. This disk *s* is revolved by a train of gearing, P, and spring barrel or weight, and there is a lever, *t*, with pallets upon it at 19, which lever, when raised, allows one pallet-tooth, 20, to escape and the disk *s* to partially turn, and one of the teeth 18 to operate the impression-lever *r* and strike the paper and its roller against the type.

The frame *m* (before mentioned) that is beneath the range of keys is pivoted at 28, and it acts upon the sliding pin 22, that passes through the bed A and rests upon the lever T, said lever having its fulcrum at 23 and a jaw at 24, to act upon the lever *t* and liberate the disk *s* and allow it to partially revolve and give the impression as aforesaid; and the frame *m* is also made to regulate the endwise movement of the frame Q to move the paper between one impression and the next. The two pallets 19 on the lever *t*, one above the other, act the same as the well-known clock-escapement to allow but one tooth 20 to pass at each movement of the levers T *t*. When one of the keys K is depressed its stop *i* is raised and it arrests the stop *e* and cylinder D, the levers T and *t* being moved simultaneously with the key K, the tooth 20 clears the forward escapement-pallet and stops against the rear pallet, and in so doing the disk *s* is turned, so that one of its pins 18 is ready to move the impression-lever *r*. The moment the key K is raised to

the smallest extent the tooth 20 is liberated from 19, and the impression is given before the pin *i* separates from the pin *e*, the pins *i* and *e* being sufficiently long to allow of these movements.

The weight and cord *u* tend to draw the frames Q and M along upon the bar R, and the screw *w*, which, by preference, is four-threaded, prevents this movement except when the screw receives a partial rotation. At one end of this screw there is a disk, *w'*, having a circular range of pins projecting from one side. The weight and cord, acting upon Q, tend to turn the disk *w'* in the direction indicated by the arrow, Fig. 2, and this action is stopped by the pallet 26 on the lever *v*².

There is a push-pin, 21, between the lever *v*² and the swinging frame *m*, so that when either key is depressed the frame *m* is moved thereby, and the lever and pallet 26 also being moved, the disk *w'* is liberated and partially turns as the frame Q is drawn endwise. The pallet 27 on *v*² arrests the further movement and holds the parts while the printing takes place. When the key *k* is liberated the pallet 27 is moved down out of the way of the pin upon the disk *w'*, and said disk turns until its next pin strikes against the pallet 26, and the operations are repeated.

There is a ratchet-wheel, *v*³, on the shaft at the end of the screw *w*, and a pawl on the disk *w'*, so that the screw can be rotated by the frame Q as it is drawn back to the right-hand end after each line of printing has been finished.

The types upon the type-wheel are preferably made so that a definite space in each line will be required for the impression of each letter, except the letters "m" and "w," and these should occupy about twice the space of either of the other letters. The pitch of the screw *w* is to be such that the endwise motion of the roller will be sufficient for the impression of any letter except the "m" and "w," and to allow for these I provide a space-key, *s*³, that is to be struck after each impression of either of these letters, so as to give the necessary distance for them in the line. This space-key is also to be struck between one word and the next. The space-key *s*³ is preferably upon the pin 21, that is placed between the lever *v*² and frame *m*, so as to allow the screw to turn and the impression-roller to be moved endwise without the impression being made.

I claim as my invention—

1. In a type-writing machine, the combination, with the type-wheel, stop-roller, and keys, of an elastic-faced impression-roller placed behind the type-wheel, a swinging frame for the same, a vertical frame for the impression-roller and its swinging frame, and mechanism for moving the two frames and the impression-roller endwise, and mechanism for giving the impression, substantially as set forth.

2. The combination, with the keys, the stop-roller, and the type-wheel, of a train of gearing acting upon the shaft of the stop-cylinder, and

a ratchet-wheel, gearing, and fly receiving motion from the shaft of the stop-cylinder, for the purposes and substantially as set forth.

3. The combination, in a type-writing machine, of an impression-roller, a frame for sustaining the same, a bar or support upon which the frame is moved, a screw and mechanism that allows it to revolve progressively as the impression-roller and frame are drawn along
10 over the screw, substantially as set forth.

4. The combination, with the impression-roller, of the guide-rollers for the paper, the swinging frame M, the sliding frame Q, the lever *r*, and the escapement-pins for giving the
15 impression, as set forth.

5. The combination, in a type-writing machine, of a type-wheel, a cylinder with a spiral row of pins, a range of keys, and stops, a swinging frame, *m*, a lever and escapement, and a screw that is allowed to turn, an impression-roller and its frame, an impression-lever, and actuating mechanism, substantially as set forth.

Signed by me this 17th day of June, A. D. 1880.

GEO. MCKITTRICK.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.