

(No Model.)

2 Sheets—Sheet 1.

B. A. BROOKS.
TYPE WRITING MACHINE.

No. 454,845.

Patented June 30, 1891.

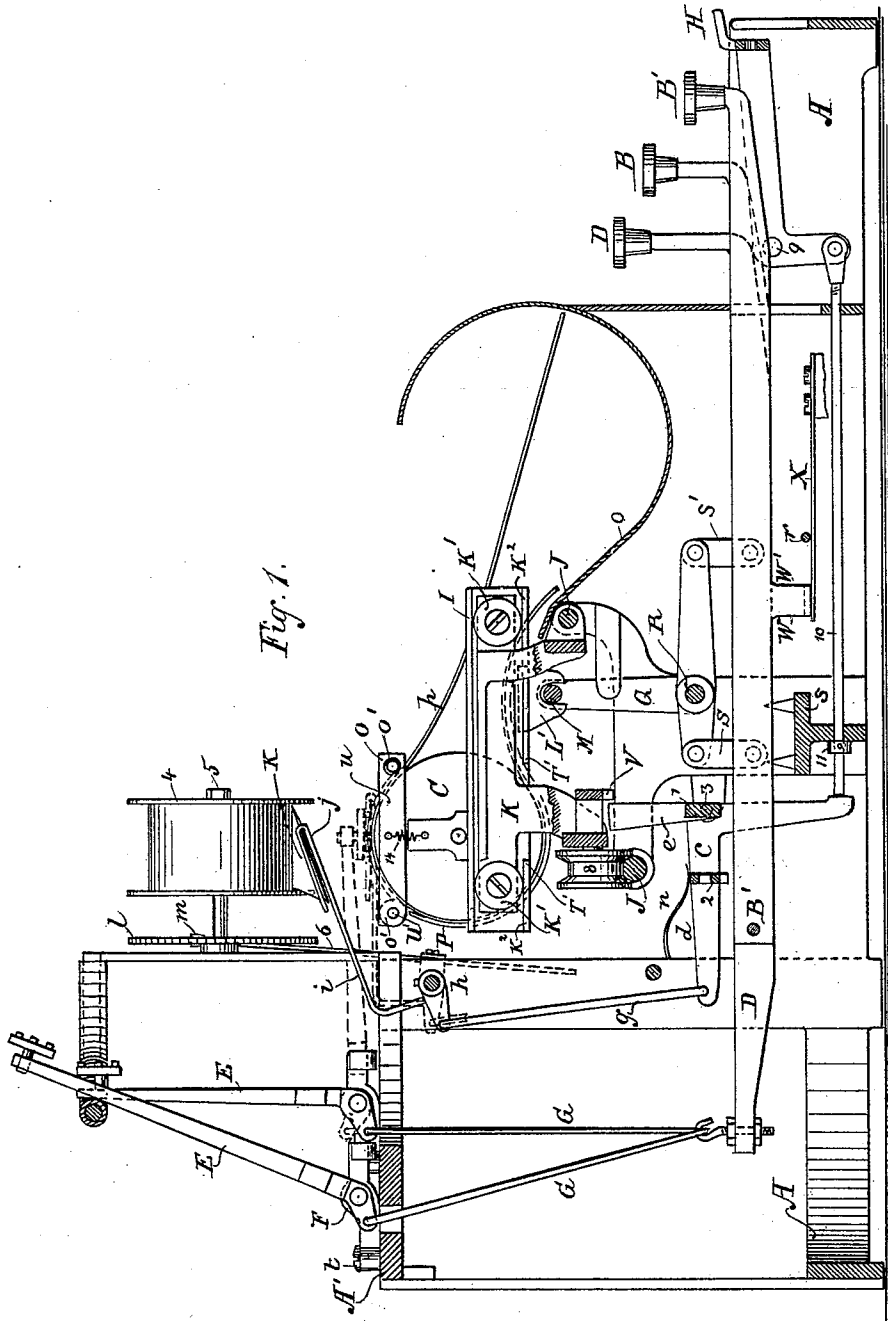


Fig. 1.

Witnesses.

John Hill
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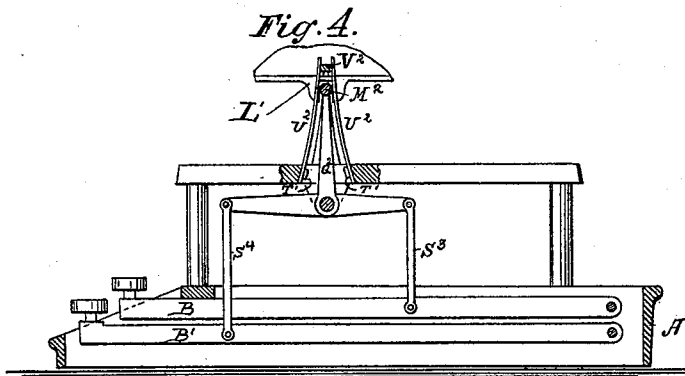
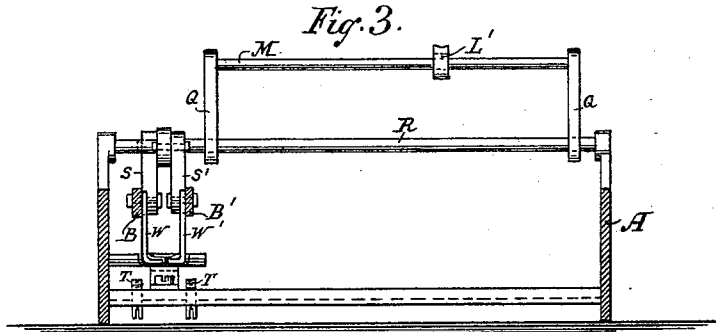
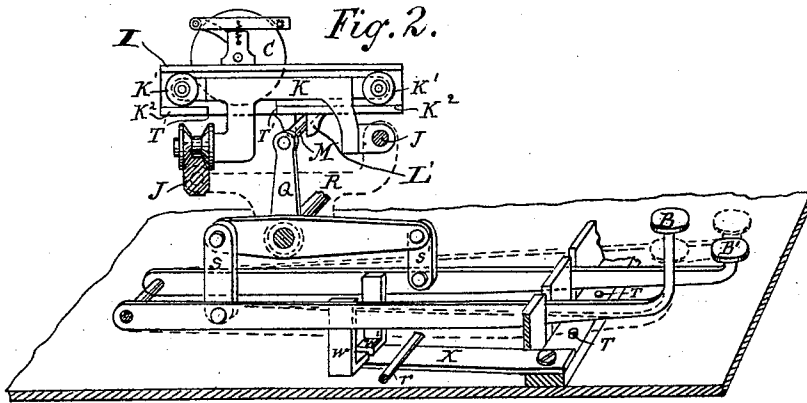
Inventor.

Byron A. Brooks

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Witnesses.

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UNITED STATES PATENT OFFICE.

BYRON A. BROOKS, OF BROOKLYN, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,845, dated June 30, 1891.

Application filed July 31, 1890. Serial No. 360,438. (No model.)

To all whom it may concern:

Be it known that I, BYRON A. BROOKS, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings, in the 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 type-writing machines; and it consists of certain novel parts and combinations of parts, which will be specifically and separately stated in the claims concluding this specification.

Referring to the accompanying drawings, Figure 1 is a longitudinal section through a type-writing machine containing the novel elements of my present invention. Fig. 2 is a perspective of a part of the machine; and Fig. 3, a cross-section of part of the same; and Fig. 4 is a longitudinal section showing a modified platen-shifting device.

The following is a description of the structure illustrated in the drawings, which shows all the several features of my invention in forms which are at present preferred by me; but it will be understood that my invention is not limited to the precise forms and combinations shown, as various modifications may be employed without departing from the spirit of my invention and without exceeding the scope of the concluding claims.

The structures shown may be thus described. The machine, Fig. 1, is of the "type-bar" class, the drawings showing two type-bars, each provided with more than two types. Only two of these type-bars *E E* are shown, which type-bars are set in the arc of a circle, and each is provided with three types. These strike down upon the platen at a common printing-point, as is shown by the position of a type-bar outlined in dots. *A* is the frame of the machine to which said type-bars are attached.

In order that the required number of type-bars, each carrying a plurality of types, may have space for the types to pass each other, they are arranged in two rows, those in the rear row being longer than those in the front row, so that the types carried by the longer bars may pass over the types carried by the shorter bars and strike at the common print-

ing-points. As the platen has a vibratory movement at right angles to the line of print, it is obvious that the types on some of the type-bars must be placed in a line forming an angle with the type-bar, and it is obvious that the types so placed require more space than they would if they were all set in lines parallel with their respective type-bars.

Each type-bar is provided with a rod *G*, suitably attached to a key-lever *D*. *A* is the frame of the machine, and to it is attached a fulcrum-piece *s*, provided with two or more fulcrum projections, the longer key-levers being fulcrumed on one and the shorter key-levers on another fulcrum-piece, so that all may work under substantially the same conditions.

2 is a universal bar extending the entire width of the machine, attached to a bell-crank lever *c*, which is pivoted to the frame of the machine at *3*. The universal bar *2* stands with such relation to the printing key-levers that every time one of said key-levers is depressed it comes in contact with said universal bar, operating the bell-crank lever *c*, to which it is attached, and communicating motion through the rod *g* to the rocking bar *h*. This extends across the machine behind the platen and is attached to the frame of the machine. To this rocking bar the ribbon-guide *i* is connected, whereby the inking-ribbon is caused to approach the platen as the type approach it to print, and is raised above the platen when the type return to expose to view the printing-point. As the printing-point is on the top of the platen and the inking-ribbon is raised after each printing impulse, the work being done is always in plain sight of the operator.

4 is one of the ribbon-spools attached to a shaft *5*, attached to the frame of the machine, to which shaft the ratchet-wheel *l* is also keyed.

m is a pawl meshing in the ratchet-teeth of the wheel *l*. This pawl is, by means of a rod *6*, also connected to the rock-shaft *h*, and after each printing impulse the ribbon is fed forward to present a new portion under the descending type.

n is a spring bearing on the top of the bell-crank lever *c*, by means of which it is re-

turned to its initial position after each impulse. The lever *c* and bar 2 constitute the letter-space frame.

e is the letter-space ratchet attached to the lever *c* and operating the rack *V*, attached to the platen-carriage, by means of which the said platen is fed forward under the influence of a spring in the ordinary manner.

The platen-carriage *K* travels on the tracks *J J*. To this carriage a shifting frame *I*, carrying the platen, is attached. The shifting frame is supported on the rollers *K' K'*, running on the tracks *K² K²* to reduce friction when the frame is moved forward or backward on the carriage. To this frame *I* a fork *L'* is attached, embracing a shifting-bar *M*, which shifts the frame of the carriage to bring the printing-point on the platen under one of the several types carried on the type-bar.

Q is an arm carrying said shifting-rod *M* and rigidly attached to the bar *R*. To this bar *R* is rigidly attached broken levers *S S'*, pivoted, respectively, to the key-levers *B B'*.

R is a rock-shaft by which the arm *Q* is vibrated. Each of these shifting key-levers is provided with a projection *W* or *W'*, both resting on a flat spring *X*, attached to the frame of the machine. As one or the other of these key-levers is depressed, the platen is caused to move from its normal central position forward or backward to a new position.

T T' are stops on the platen-carriage for limiting its motion. The platen is held in a central or normal position by the spring-stop *X* resting against both projections *W W'*. As the key-lever *B*, for instance, is depressed the projection *W* depresses the spring-stop *X* and at the same time the projection *W'* is raised. When pressure is removed from the key-lever *B*, the spring *X* returns to its normal position, while the projection *W'* descending meets the spring just as the platen reaches its normal position and holds it there. This result, it will be seen, is accomplished by having both key-levers attached to the same moving part, so that the projections *W W'* work against each other on the spring *X*. This causes the platen to come to rest immediately at its central position. This spring *X*, upon which the projections *W* and *W'* both rest, is in effect two springs side by side, acting not only to return the platen to its normal position, but also as stops to arrest the returning movements of the platen and to hold it at its normal position. These stops being movable permit the platen to be shifted in both directions.

r is a stop placed above the flat spring *X* and limiting its recoil.

H is a spacing key-lever pivoted to the frame at 9 and provided with a bar 10, working longitudinally through a collar 11. One arm of the bell-crank lever *c* stands in front of the end of the bar 10, but it is not attached to it. When the spacing-lever is depressed, the bell-crank lever *c* is caused to rock and

the platen is moved. The platen is provided with means for turning it to space between lines and means for drawing it back to begin a new line, and with a coiled spring for causing it to move forward when the loose dog falls in the teeth of the rack *V*, all as in the ordinary machines of this class.

o is a paper-holder for holding the paper away from the keys in front of the platen, between the platen and the keys. This extends across the machine and is attached to the frame.

P is a paper-guide embracing a segment of the platen.

u is a frame provided with a spring, which is at one end attached to said frame and at the other end attached to the shifting frame carrying the platen. This frame *u* is provided with friction-rollers *o' o'*, which are constantly pressed upon the paper to press it against the platen by the force of spring 14.

p is the paper, which is put between the rollers and the platen at the top thereof, and proceeds thence down under the platen between the platen and paper-guide and out into the paper-holder *o* between the platen and the key-board. The frame *u* is fulcrumed at *u'*, on which it is raised to insert the paper.

Fig. 2 shows the shifting mechanism above described in perspective, and Fig. 3 a front view of the same; but as in these figures the same reference-letters are used a further description is unnecessary.

A modified form of the shifting mechanism is shown in Fig. 4, in which the platen is also held normally in a central position, from which it is moved forward or backward, according to which shifting key-lever is depressed, and this by the following mechanism: The shifting-bar *M²* is held in its normal position by the agency of two springs *U² U²*, one bearing on each side of said bar. *V²* is a common stop against which both of said springs rest. The broken levers *S³ S⁴* rock the arm *Q²* forward or backward, according to which key-lever is depressed. By the relation between the lengths of the arms of these broken levers *S³ S⁴* and the distance they are removed from the fulcrum-points of their respective key-levers it will be seen that they move the platen substantially the same distance forward or backward as one or the other key-lever is depressed. In this modification the springs *V²* act not only to return the platen to its normal position, but also as stops to arrest the returning movements of the platen and to hold it at its normal position. These stops being movable permit the platen to be shifted in both directions. The fixed stop *V²* arrests the vibrations of the springs *U² U²* and permits the platen immediately to come to rest.

It will be observed that in the machine above described the type-bars carry each more than two types, and the platen is vibrated by a plurality of shifting key-levers, by means

of which it is shifted from the normal position to more than one new position, the said platen being stopped in each of its movements automatically, returned to its normal position, and held in that position until shifted, so that the printing is all done in line from more than two types on a bar by the simple operation of key-levers.

I have omitted from the accompanying drawings certain details of construction of the machine which are now well known in the art and which can be supplied by any person skilled therein, and this for the purpose of making the description of my invention more clear and specific, and for the same purpose in the description I have avoided entering into the description of details which are now well understood in the art and which do not directly affect the invention which it is my object to cover in these Letters Patent.

In the foregoing specification I have incidentally referred to a few of the modifications which may be adopted in practicing my invention, but I have not endeavored to specify all the modifications which may be employed, the object of this specification being to instruct persons skilled in the art to practice the several novel parts of my invention in forms at present preferred and to enable them to understand their nature, and I desire it to be distinctly understood that mention by me of a few modifications is in no way intended to exclude others not referred to, but which are within the spirit and scope of my invention.

Many of the details and combinations illustrated and above described are not essential to the several features of my invention, separately and broadly considered. All this will be indicated in the concluding claims, as the omission of an element or the omission of the particular features of the elements mentioned from any given claim is intended to be a formal declaration of the fact that the omitted elements or features are not essential to the invention therein covered.

Having thus described a machine embodying in preferred forms all the several features and combinations of my present invention, what I separately claim, and desire to secure by these Letters Patent, is the following:

1. In a type-writing machine, the combination of key-levers, a platen, type-bars arranged behind the platen to strike down upon it, an inking-ribbon carried by a ribbon-guide, by which it is vibrated toward the printing-point when a type-bar is depressed and away from said point when a type-bar rises, a universal bar operated by the key-levers, and a connecting-rod between said ribbon-guide and said bar, whereby the guide is vibrated at each impression.

2. In a type-writing machine, the combination of key-levers, a platen, type-bars arranged behind the platen to strike down upon it, an inking-ribbon suspended between the type-bars and the platen, a vibrating ribbon-

holder, a rock-shaft to which said holder is attached, a universal bar operated by said key-levers, and a connecting-rod between said bar and said rock-shaft, whereby the ribbon is vibrated at each impression.

3. In a type-writing machine, the combination of a platen, type-bars arranged behind said platen to strike down upon it, an inking-ribbon suspended between the type-bar and platen, a key-board arranged in front of the platen, paper-guides traveling with the platen-carriage, and a stationary paper-holder between the key-board and platen, all combined and arranged so that the paper may be inserted over the surface of the platen and returned under the platen into the paper-holder and be retained by said holder.

4. In a type-writing machine, the combination of a shifting and longitudinally-traveling platen, type-bars carrying a plurality of types arranged behind said platen to strike down upon it, said type-bars being arranged in the arc of a circle and the type set therein at right angles to the line of the vibration of the platen, and a vibrating inking-ribbon suspended between the type-bars and the platen, substantially as described.

5. In a type-writing machine, the combination of a shifting and longitudinally-traveling platen, a plurality of shifting key-levers attached to the same moving part by which the platen is caused to move in both directions from a central and normal position, a shifting-bar, and mechanism, substantially as described, for returning the platen to its normal position, for arresting it and holding it there.

6. In a type-writing machine, the combination of a shifting and longitudinally-traveling platen, a plurality of shifting key-levers by which it is caused to move in both directions from a central and normal position, a shifting-bar, and spring mechanism operating to return the platen to its normal position and also operating to arrest it and to hold it there.

7. In a type-writing machine, the combination of a shifting and longitudinally-traveling platen, a plurality of shifting key-levers by which it is caused to move in both directions from a central and normal position, a shifting-bar, a rock-shaft to which said bar is attached, spring mechanism for returning the platen to its normal position, and a fixed stop for limiting the vibrations of said spring mechanism.

8. In a type-writing machine, the combination of a shifting and longitudinally-moving platen, a plurality of shifting key-levers by which it is caused to move in both directions from a central and normal position, and movable stop mechanism for holding the platen in its normal position.

9. In a type-writing machine, the combination of a shifting and longitudinally-moving platen, a plurality of shifting key-levers by which it is caused to move in both directions

from a central and normal position, and spring stop mechanism for returning the platen to its normal position and holding it there.

5 10. In a type-writing machine, the combination of a shifting and longitudinally-traveling platen, a plurality of shifting key-levers by which it is caused to move in both directions from a central and normal position, and
10 a spring acting against both of said key-levers for returning the platen to its normal position and for holding it there.

11. In a type-writing machine, the combination of a universal bar operated by the
15 key-levers, a rock-shaft operated thereby, a connecting-rod between said bar and rock-shaft, a vibrating ribbon-holder attached to said rock-shaft, and ribbon-feed pawls operated by said shaft to feed the ribbon at each
20 impulse.

12. In a type-writing machine, a universal bar operated by the key-levers, a rock-shaft operated by said bar, a connecting-rod between said bar and said rock shaft, a vibrating ribbon-holder attached to said shaft, feed-
25 pawls, and a key-lever for operating said bar, by means of which the ribbon is fed forward at each impulse of said key-levers.

13. In a type-writing machine, a universal bar operated by the key-levers, key-levers for
30 operating said bar, a rocking frame operated by said bar, a spacing-pawl carried by said frame, and a rack in which said pawl works attached to the platen-carriage, a rock-shaft operated by said bar, and a vibrating ribbon-
35 holder attached to said shaft.

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Witnesses:

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