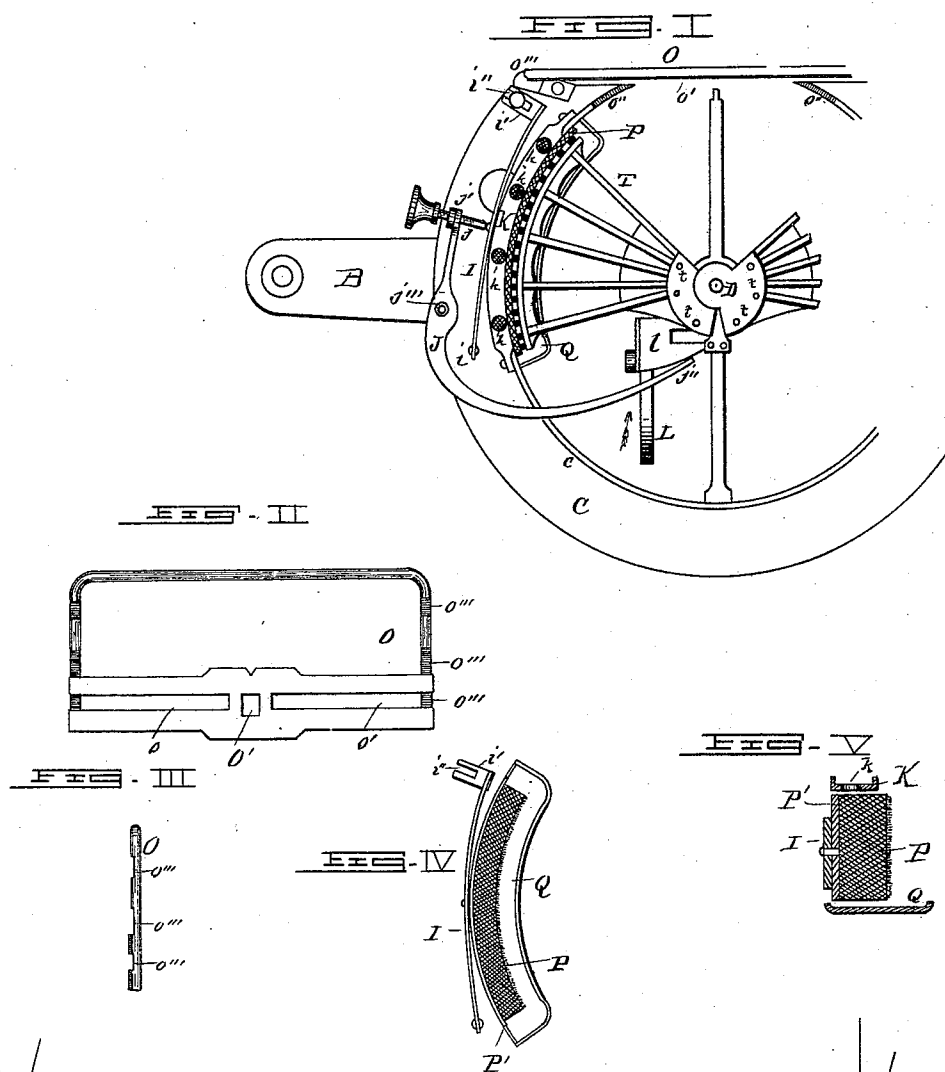


(No Model.)

T. BIGELOW.  
TYPE WRITING MACHINE.

No. 471,092.

Patented Mar. 22, 1892.



Witnesses:-  
 Wm. Sullivan  
 Charles S. Hall

Inventor:-  
J. Bigelow  
By atty. W. K. Kall

# UNITED STATES PATENT OFFICE.

TIMOTHY BIGELOW, OF BROOKLYN, NEW YORK.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 471,092, dated March 22, 1892.

Application filed November 21, 1887. Renewed November 21, 1891. Serial No. 412,594. (No model.)

*To all whom it may concern:*

Be it known that I, TIMOTHY BIGELOW, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and  
5 useful Improvement in Type-Writing Machines; and I do hereby declare that the following specification, taken in connection with the drawings annexed to and forming part  
10 of the same, furnishes a full and clear description of the invention, sufficient to enable those skilled in the art to which it pertains to make and operate the same.

My invention relates more especially to that class of type-writers in which the type are arranged upon the outer face of a wheel or segment thereof. A machine of this character  
15 is shown in the specification and drawings of Letters Patent No. 290,419, of December 18, 1883, commonly known as the "Hammond" type-writer.

The invention consists in the construction and combination of parts hereinafter described, and pointed out in the claims.

Figure I is a plan view of a portion of the  
25 type-case, showing my improvements. Fig. II is a front elevation of the paper-shield. Fig. III is an end view of Fig. II. Fig. IV is a plan view of the inking-pad on an enlarged scale. Fig. V is a transverse section of Fig. IV.

30 Only so much of the mechanism of the type-writing machine is shown in the drawings as is necessary to enable one acquainted with said machine to understand and apply my invention.

35 Similar letters of reference indicate corresponding parts in all the figures where they occur.

*The inking device.*—I will first describe the novel devices for inking the face of the type.  
40 C represents the type-wheel guard, and B the bracket which steadies the vertical shaft of the ribbon attachment in a type-writing machine of the description above referred to. T is a type-segment swinging horizontally on  
45 the shaft D and bearing on its outer curved face the raised printing characters. L is the driving-lever which, operated by the keys of the machine through intervening mechanism, swings the type-segment T to its operating position.  
50 P is the inking-pad, which is made of material adapted to hold printing-ink and feed it to the faces of the type, as required.

Preferably a thick felt or woolen cloth is used with a short nap or pile forming its face, as shown in Fig. V, which may be produced either  
55 by teasing up the fibers or by drawing threads through in loops, which are afterward trimmed down, so that the face of the fabric resembles that of plush or velvet, the back or body, however, having a texture and thickness which  
60 adapt it to hold a considerable quantity of ink, while the pile aids in its distribution under slight pressure. The pad P moves laterally through an opening made for it in the vertical wall *c* of the type-wheel guard. It is  
65 attached to a holder P', (see Figs. IV and V,) and the holder is attached to a bow-spring I, one end of which is inserted into a slot in the pin *i*, while the other end is loosely attached  
70 by means of a screw and slot to a support *i'*, which support is secured to the flange *c'* of the type-wheel guard C by a screw passing through the slot *i''* in its horizontal limb. The support *i'* thus affords opportunity to adjust  
75 the tension of the bow-spring I, which is so set that its normal action withdraws the pad P from the faces of the type far enough to allow the type-segment T to swing clear of the pad after it has applied the ink to the faces of the type. J is a bent lever, by means of  
80 which the inking-pad is applied to the face of the type. It is pivoted at *j'''* to the flange of the type-wheel guard and has its power end *j''* moved by contact with the link *l* of the driving-lever. The opposite end of the  
85 lever J bears against and moves the pad through the medium of an adjusting-screw *j*, which is provided with a lock-nut *j'*. An inking-fountain K is attached to the upper rim of the type-wheel guard C just over the pad  
90 P, and is provided with wells *k k k k*, discharging beneath, which feed ink to different parts of the pad, as required by consumption on the type. A pan Q is placed underneath the pad to catch any ink which may drip from  
95 the pad.

*The improved paper-shield.*—A shield (shown separately at Fig. II) placed between the paper and the type limits the imprint  
100 made upon the paper to one letter at a time, and excludes the paper from contact with the borders of neighboring type, thus securing the cleanness of the work. This shield consists of a thin blade or plate O, extended and

supported by a stiff frame *o''*. The plate is made with an aperture *O'* in the middle, through which the paper is driven against the type in printing and with two longitudinal openings *o o'*, through which the work may be inspected as it progresses, the wall of the type-wheel guard being constructed so low at the points opposite said openings *o o'* as not to obstruct such inspection. The longitudinal openings *o o'* are made to extend to the outer edges of the vertical arms of the frame *o''*, so as to allow the freshly-printed characters on the paper to pass the arms without touching and smearing the print, and the vertical arms of the frame are recessed or indented, as shown at *o''' o''' o'''*, for the same purpose. Both the openings *o* and *o'* are useful in writing. It is frequently necessary to correct printed matter by erasure and filling in between other portions of the printed lines, and to do this properly accurate spacing and adjustment are required. The opening *o'* to the right of the hammer-opening permits this space to be seen and accurately gaged as it approaches the printing-point. The opening *o'* is of advantage in many other ways—as, for example, to permit inspection as the printing starts from a marginal line on the paper to give the proper indented space—and also is especially valuable as the printing approaches the end of the line to enable the remaining space to be accurately estimated for the purpose of adjusting and spacing in a symmetrical and uniform manner the words and syllables required to fill it or to uniformly justify the matter and prevent the irregular appearance caused by lines of unequal length.

The operation of the inking device is as follows: When a key of the machine is depressed, the lever *L* moves in the direction shown by the arrow. This presses the link *l* against the pins *t t* and causes the type-segment *T* to swing horizontally on its shaft *D*, bringing the letter, the key of which has been struck, opposite the small opening *o'* in the middle of the shield *O*. The end *j''* of the bent lever *J* follows the movement of the link *l*, being caused to do so by the pressure of the spring *I* against the set-screw *j* at the other end of the lever. The pad *P*, following the spring *I*, to which it is attached, leaves the face of the type-segment *T* and permits the free movement of the inked type-segment toward the printing-point *O'*. On the return of the link

*l* to its position when at rest it strikes the end *j''* of the bent lever *J* and carries it in a direction the reverse of that indicated by the arrow. This causes the set-screw *j* at the other end of the bent lever *J* to press against the spring *I* and, overcoming its resistance, to force the pad *P* against the type, which have before the pressure is fully applied to the spring returned to their position of rest shown in the diagram. The set-screw *j* serves to adjust the pressure and time of the various steps of the operation.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a driving-lever and type-segment, of a spring-supported inking-pad and a lever operated by the driving-lever for causing the pad to press against the type.

2. The combination, with a driving-lever and type-segment, of an inking-pad, a spring upon which it is held, and a lever operated by the driving-lever for pressing the pad upon the type.

3. The combination, with a driving-lever and type-segment, of an inking-pad and spring having adjustment, substantially as described, upon which the pad is supported, and a bent lever acting upon the back of the pad at one end and operated upon by the driving-lever at the other end.

4. The combination, with a driving-lever and type-segment, of a spring-supported inking-pad having an ink-feeding reservoir mounted above and a drip-pan beneath it, and a lever operated by the driving-lever for causing the pad to press upon the type, as set forth.

5. In a type-writer of the kind described, a paper-shield constructed with recesses upon the vertical arms of the frame-work thereof, substantially as and for the purposes described.

6. In a type-writer of the kind described, a shield having in addition to an opening in the center *O'* the longitudinal openings *o o'* at each side of said central opening, said shield being adapted to be placed between the type-segment and the paper at the point where the imprint is to be made, as set forth.

T. BIGELOW.

Witnesses:

B. E. VALENTINE,  
M. C. ST. JOHN.