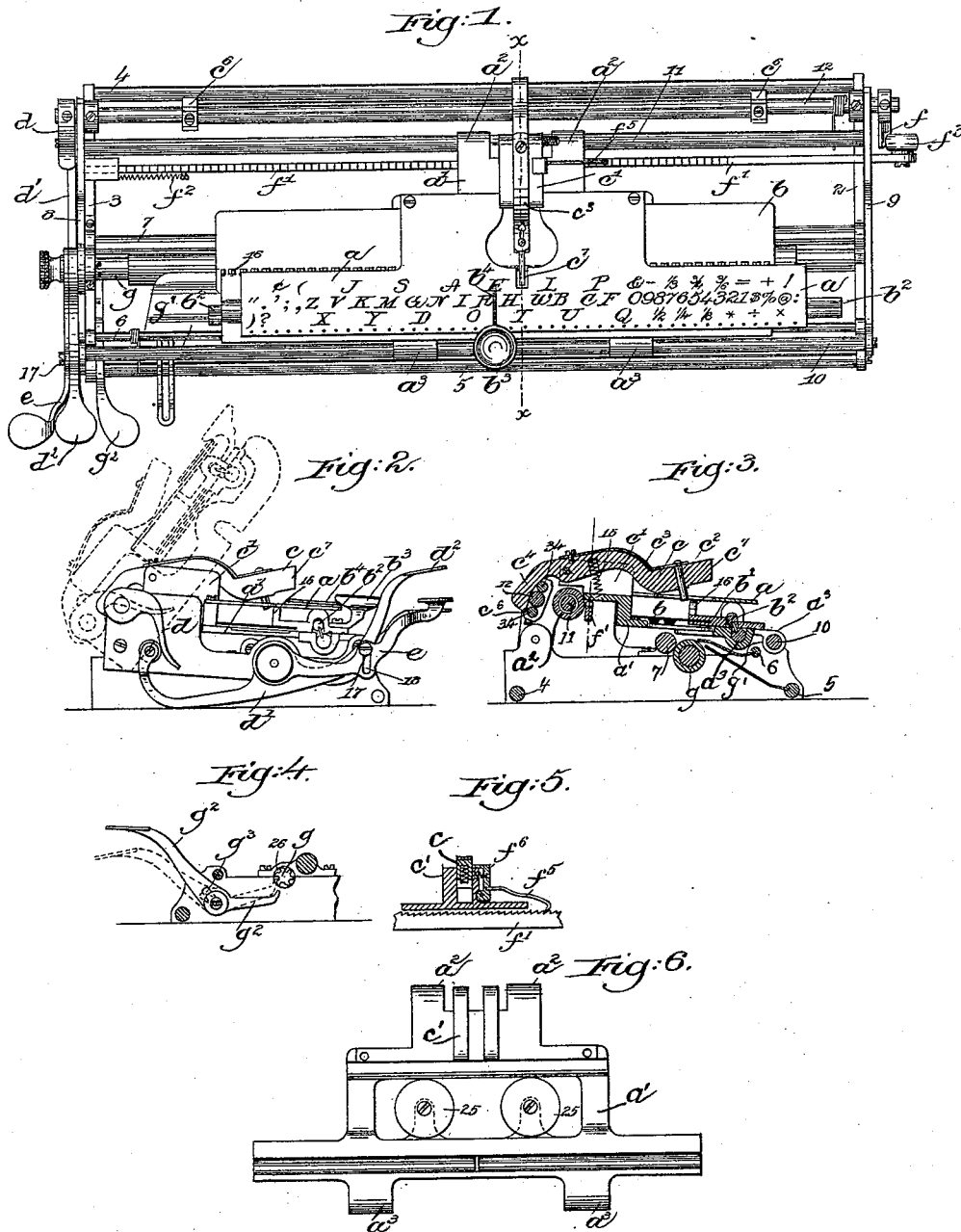


(No Model.)

G. BECKER.  
TYPE WRITING MACHINE.

No. 455,299.

Patented July 7, 1891.



Witnesses.  
Francis L. Emery.  
Fred. S. Gendle & Co.

Inventor.  
George Becker.  
by Crosby & Gregory attys

# UNITED STATES PATENT OFFICE.

GEORGE BECKER, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO THE POPE MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 455,299, dated July 7, 1891.

Application filed April 5, 1888. Serial No. 269,705. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE BECKER, of New York, county and State of New York, have invented an Improvement in Type-Writing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to construct a type-writing machine which may be cheaply made, easily operated, and adapted to print both capitals and small letters.

In accordance with this invention the index-plate, free to slide horizontally upon a guide-rod, is moved forward thereon step by step by a suitable feeding device, the type-plate being reciprocated horizontally parallel with the index-plate by the finger or hand of the operator. The printing-lever is depressed by an oscillating bar pivoted to the framework, the bar being operated by a lever pivoted, preferably, at the left-hand side of the machine, the feeding device being adapted 25 to be operated by said oscillating bar. Suitable centering and spacing devices are provided, and also means for rotating the upper feeding-roll step by step to present a new line beneath the printing-lever to be printed. 30 Suitable means are also provided for returning the index-plate to its normal position or starting-point. The horizontally-moving index-plate is so held as to occupy two positions relatively to the index-plate to present 35 two different sets of characters beneath the printing-lever, all as will be hereinafter more fully described. Suitable inking-pads are provided for supplying ink to the type-plate.

Figure 1 shows in plan view a type-writing machine embodying this invention; Fig. 2, a left-hand end view of the machine shown in Fig. 1; Fig. 3, a cross-section of a machine shown in Fig. 1, taken on the dotted line  $xx$ ; Fig. 4, a detail of the device for rotating intermittingly the upper feeding-roll to be described; Fig. 5, a detail of the feeding device to be described; and Fig. 6, a detail of the inking-pads.

50 The main frame-work comprises the side pieces 2 3, joined by the rods or bars 4 5 6 7, and the frame carrying the printing devices

is pivoted to the main frame, said pivoted frame being composed of the side bars 8 9, joined by the rods 10 11 12. The index-plate  $a$  is secured to the frame  $a'$ , having brackets  $a^2$  at the rear side, by which it is mounted to slide horizontally upon the rod 11, and also having brackets  $a^3$  at the front side, by which it is mounted to slide horizontally upon the rod 10, the rods 10 and 11 thus serving as guide-rods. The type-plate  $b$  is secured to a carrier  $b'$ , placed beneath the index-plate  $a$ , said carrier  $b'$  being recessed to receive a rock-shaft  $b^2$ , mounted to rock in the frame  $a'$  near the front of the machine. The type-plate  $b$  has on its under side two sets of characters arranged parallel with each other, (see Fig. 3,) so that as the type-plate  $b$  and carrier  $b'$  are moved toward and from the operator upon the rock-shaft  $b^2$ , one or the other set of characters will be presented beneath the printing-lever. The type-plate carrier  $b'$  has secured to it a finger-piece  $b^3$ , which projects upwardly and has attached to it a pointer  $b^4$  which moves over the index-plate. It will thus be seen that the type-plate may be moved horizontally and also toward and from the operator at will.

The printing-lever  $c$ , pivoted to a block  $c'$  has extended through it loosely near its forward end a pin  $c^2$ , held by a spring  $c^3$ , secured to the upper side of the said lever. The rear end of the printing-lever  $c$  is cut away or bent to present a curved arm  $c^4$ , which bears against an oscillating bar or rod, made preferably by attaching to a single rod, as 12, two blocks  $c^5$ , one near each end, each block receiving the ends of two rods 34, one at each side of the rod 12, as best shown in Figs. 1 and 3. As the rod 12 is oscillated in one direction, it acts upon the arm  $c^4$  of the printing-lever  $c$  and depresses the forward end of the printing-lever  $c$ , causing the pin  $c^2$  to act upon the type-plate, and as the oscillating bar is returned to its normal position, the lever  $c$  is restored to its normal position by a spring 15.

The forward end of the lever  $c$  has a chisel-pointed projection  $c^7$ , which, when the lever is depressed, enters between one or another of a series of teeth 16, at the rear edge of the type-plate carrier  $b'$  to assist in accurately

positioning the said carrier to place the type or character next to be used in correct position. The oscillating rod 12 has secured to it at one end a bent arm  $d$ , (see Fig. 2), the free  
 5 or outer end of which is acted upon by one end of a lever  $d'$ , which extends forward, as at  $d^2$ , to the front of the machine, the depression of the lever  $d^2$  lifting the lever  $d$  and oscillating the rod 12 to depress the printing-  
 10 lever. Another lever  $e$  is pivoted to the main frame-work at the left-hand end of the machine and connected with the lever  $d^2$  by a pin 17, which passes through a slot 18 in the lever  $e$ . The lever  $d^2$  can thus be operated  
 15 without moving the lever  $e$ , as the pin 17 follows in the slot 18; but by depressing the lever  $e$ , the lever  $d^2$  will be partially depressed for purposes hereinafter to be described. The outer right-hand end of the oscillating  
 20 rod 12 has secured to it a cam-block  $f$ . A toothed rack or bar  $f'$ , having teeth at its upper side is mounted so as to be moved horizontally in side plates 8 9 of the frame. The toothed rack  $f'$  is normally drawn toward the left-hand end of the machine by a  
 25 spring  $f^2$ , and at its opposite end the said bar carries a friction-roll  $f^3$ , which bears upon the inclined or cam face of the block  $f$ , and consequently as the said cam-block is lifted  
 30 by the oscillating rod 12 by depressing the lever  $d^2$ , the toothed bar  $f'$  will be moved against the action of the spring  $f^2$  toward the right, a distance equal to one tooth of the bar. A toothed arm or detent  $f^5$  is secured to a  
 35 spring-controlled or yielding arm  $f^6$ , pivoted to the block  $c'$ , the other end of the said detent engaging the teeth of the bar  $f'$ , and as the said bar is moved ahead or toward the right one tooth the block  $c'$  and the frame to which  
 40 it is attached, together with the index-plate, are drawn forward one step in order that the next letter may be printed in its proper place. By depressing the lever  $e$  the rod 12 will be oscillated only enough to move the frame forward without pressing the type upon the paper.  
 45 When the toothed rack is reciprocated horizontally a sufficient number of times to complete a line, or at any other time desired, as when spacing, the pivoted arm  $f^6$  may be  
 50 pressed in toward the block  $c'$ , disengaging the toothed arm  $f^5$  from the toothed rack, thereby enabling the index-plate to be returned to its normal position.

Two rotatable inking pads or surfaces 25  
 55 are pivoted to the frame to which the index-plate is attached, directly beneath the type-plate, so that as the type-plate is moved horizontally it rubs over the said surfaces and the printing-lever will depress the type-plate between the said inking-surfaces and press the  
 60 type down upon the cylindrical-surfaced rod 7. The paper is fed forward over the paper-feeding roll  $g$  and beneath the plate  $g'$ , bearing down upon said roll, and the roll is provided at one end with a series of recesses 26,  
 65 (see Fig. 4,) one or another of which receives the end of the bent arm  $g^2$ , having a slot  $g^3$ ,

through which passes a pin upon which the bent arm is pivoted, the slot serving as a loose connection permitting the arm to be  
 70 moved sufficiently to engage the next recess 26 of the feeding-roll. The bent arm  $g^2$  upon being depressed will move the roller  $g$  ahead to present a new line beneath the printing-lever.  
 75

If it is desired to look at the printing the pivoted frame 8 9 10 11 12, carrying the printing device and index-plate, may be lifted, as shown in dotted lines, Fig. 2.

I claim—

1. In a type-writing machine, the horizontally-movable index-plate, combined with the independent type-plate, its recessed carrier, and the rock-shaft therefor, said carrier being movable longitudinally and also toward  
 85 and from the front of the machine upon said rock-shaft, two sets of printing characters arranged in parallel lines on the type-plate and movable with the carrier, positioning-teeth on said carrier, and the printing-lever having a  
 90 projection to engage said teeth in either position of the carrier, substantially as described.

2. In a type-writing machine, the horizontally-movable index-plate, combined with the independent type-plate, its recessed carrier, and the rock-shaft therefor, said carrier being movable horizontally and also toward  
 95 and from the front of the machine upon said rock-shaft, and two sets of printing characters arranged in two parallel lines on the type-plate and movable with the carrier, substantially as described.  
 100

3. In a type-writing machine, the movable index-plate, its intermittent feeding device, and the type-plate, combined with the pivoted printing-lever and the oscillating rod 12 and its attached cam to operate the feeding device, the said rod also moving the printing-lever, substantially as described.  
 105

4. In a type-writing machine, the index-plate, the block  $c'$ , a spring-controlled arm  $f^6$ , pivoted thereto, and the detent  $f^5$ , attached thereto, combined with the horizontally-vibrating toothed bar  $f'$ , with which said detent co-operates to move the index-plate, substantially as described.  
 115

5. In a type-writing machine, the horizontally-movable index-plate, the type-plate, the pivoted printing-lever and the oscillating rod  
 120 for moving it, and the bent arm  $d$ , attached to said rod, combined with the lever  $d^2$  for co-operating with said bent arm and moving the said oscillating rod, substantially as described.  
 125

6. In a type-writing machine, the horizontally-moving index-plate and the printing-lever and the oscillating rod moving it, combined with the lever  $d^2$ , its pin 17, and the lever  $e$ , slotted at 18 and loosely connected  
 130 with the lever  $d^2$  by the pin 17, movement of the lever  $e$  actuating the lever  $d^2$  for a short distance to form spaces, substantially as described.

7. In a type-writing machine, the index-plate, the printing-lever, and the feed-rod, combined with the oscillating rod 12 and the cam-block *f*, attached thereto, substantially  
5 as described.

8. In a type-writing machine, the independent type-plate having fixed type thereon and mounted upon a rock-shaft and adapted to move horizontally thereon toward or from  
10 the front of the machine, combined with the index-plate and printing-lever pivoted thereon, substantially as described.

9. In a type-writing machine, the paper-feeding roll and its ratchet-wheel, combined with the slotted lever *g*<sup>2</sup> for moving it step  
15 by step, and a pivot for said lever extended through the slot, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. BECKER.

Witnesses:

BERNICE J. NOYES,  
J. C. SEARS.