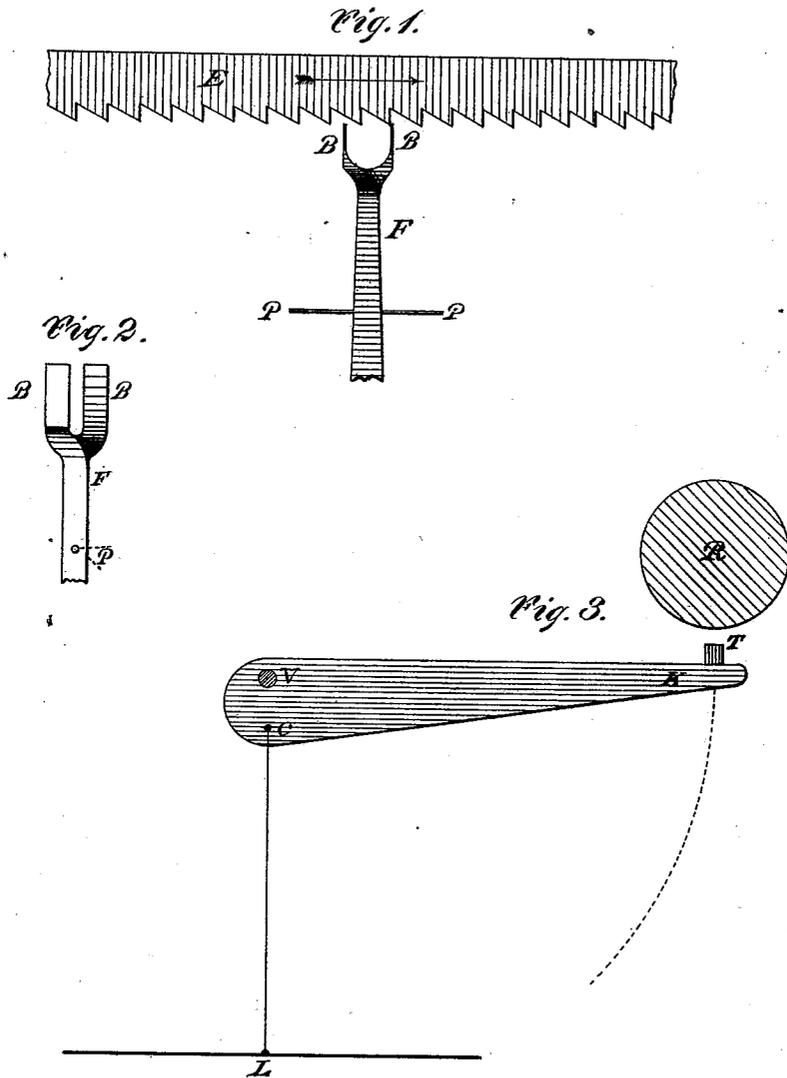


P. DEMING.
Type-Writing Machine.

No. 215,048.

Patented May 6, 1879.



Witnesses.

Charles Seckitt.
J. G. Harris.

Philander Deming
Inventor

UNITED STATES PATENT OFFICE.

PHILANDER DEMING, OF ALBANY, NEW YORK.

IMPROVEMENT IN TYPE-WRITING MACHINES.

Specification forming part of Letters Patent No. **215,048**, dated May 6, 1879; application filed January 6, 1879.

To all whom it may concern:

Be it known that I, PHILANDER DEMING, of the city and county of Albany, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full and exact description.

My invention relates to the mode of controlling the movement of the carriage bearing the paper upon which the impression is printed, and to the mode of operation of the type-bars; and it consists in combining, with the rack commonly employed for holding the carriage at the required point for imprinting the letters, a forked detent, constructed and arranged to operate as hereinafter described; and it also consists in arranging the movement of the type-bar in the manner herein set forth.

In the accompanying drawings, which form a part of this specification, and to which reference is herein made, Figure 1 is a side elevation of the rack and forked detent; Fig. 2, an end view of the arms of the forked detent; and Fig. 3 shows the arrangement of the type-bar and paper-roller, and the mode of arranging the type-bar, the relative positions of the pivotal point, and point of connection for the rod connecting the said type-bar with the finger-lever.

As shown in the drawings, E is a rack, whose teeth are spaced at a distance equal to the space required between the centers of the letters when printed. It is secured to the carriage of the device for holding the paper on which the printing is effected, said carriage being moved by the weights, springs, or other suitable appliances commonly used for that purpose. A forked detent, F, is arranged to vibrate on its pivot P, and is operated by the finger-levers, to which suitable connections are made for the purpose of imparting a vibration in one direction when a finger-key is depressed, and in the contrary direction on the rising movement of said key. Said detent is provided with the two arms B, whose working-faces are spaced at such distance in relation to the spaces from tooth to tooth of the rack E that while the face of one of said arms is in contact with one of the teeth of the rack, the face of the other arm shall stand midway in the space between any two adjoining

teeth. The arms B are arranged one forward of the other, as shown in Fig. 2. The movement of the forked detent is transverse to the line in which the rack E moves, and the arms B are thereby brought alternately into position to engage with different teeth on the rack. By this arrangement it is obvious that the rack E moves forward one-half of the space from tooth to tooth at each vibration of the detent in either direction, or, in other words, that the rack moves forward one tooth when the detent has moved through both phases of its vibration.

The feeding movement of the carriage in my improvement differs from that commonly employed in type-writing machines, for the reason that in my arrangement the movement required for the space between the letters is divided into two distinct parts or impulses, while in the ordinary machines the entire movement over the space is made at once. By my arrangement an easy gliding movement is obtained, free from any shock or jar, which renders my machine capable of being operated with much greater rapidity than machines wherein the common feeding device is used.

The type-bar K turns on its pivotal point V, and has its moving mechanism constructed and arranged in relation to the roller R for holding the paper in such a manner that the impact of the type T with the paper is produced by the momentum acquired by the type-bar. This is effected by placing the point of connection, C, for the rod connecting the type-bar K with the finger-lever at L in such position that when the points V, C, and L are in a direct line with each other, (which position is obtained in my arrangement when the finger-lever is at its lowest depression,) and all the parts are in a state of rest in the position described, the face of the type T will not come in contact with the roller R, but will stand at a distance therefrom. I have found that good work is done when this distance is one-eighth, or one-fourth, or one-half, or three-fourths of an inch, and that the distance may be varied as occasion requires to distances greater or less than those here named.

When the finger-levers are in their normal position, the type end of each type-bar is at its low-

est position, and its point C is carried rearward of the point V into a position where the movement of the finger-lever will give motion to the type-bar. If the finger-lever is depressed, the type end of the type-bar is thrown upward, its movement being controlled by the finger-lever, until the points V, C, and L are in a direct line, as hereinbefore described, from which point the type is carried by the momentum of the type-bar until the type strikes the paper, from which it is instantly drawn back by the continued pressure on the finger-lever and the rebound of the type from the roller until the points V, C, and L regain their position in a direct line, from which they were carried by the momentum of the type-bar. The parts return to their normal position as soon as the pressure of the finger is removed from the finger-lever.

In type-writing machines as ordinarily constructed, the type-bar is completely under the control of the finger-lever during the entire time the pressure is maintained upon said lever. The letters are printed while the type-bars are so controlled by the finger-lever, and the contact of the type can be maintained for an indefinite period so long as the pressure on the finger-lever continues. In that class of machines the printing is effected while the carriage carrying the paper is at rest, the feeding motion being imparted to the carriage while the type-bar is falling away from the paper, and for that reason no insuperable objection exists against producing the impression of the type by a direct continued pressure imparted through the finger-lever and type-bar to the type; but in my improvement, in order to permit of the division of the feeding movement of the carriage, as hereinbefore set forth, and as one part of the feeding movement occurs while the type makes its imprint, it becomes necessary that the impression should be made and the types cleared from the paper instantly, in order to prevent any blurring of the letters, which would inevitably occur from holding the

type against the paper during the feeding movement of the carriage. This instantaneous action I produce in the manner herein set forth. This mode of effecting the printing of the letters entirely relieves the arm of the operator from the distressing and injurious effects of the dead blow usually given by the types against the paper-roller; and while this new mode of operation is absolutely necessary to produce a clear impression of the letters on the moving paper in my arrangement, it is on sanitary grounds as necessary in machines in which the letter is printed while the paper is held stationary.

I claim as my invention—

1. In a type-writing machine, the combination, with a finger-lever and platen or roller for the paper, of a type-bar, K, having its pivotal point V and its point of connection, C, for the connecting-rod which connects said type-bar with the finger-lever arranged in relation to each other and to the roller R, and to the point of connection, L, of the rod with the finger-lever, in the manner herein described, so that when the points C, V, and L are brought in a direct line with each other the type T will be clear from the roller R, and at a convenient distance from it, as set forth.

2. In a type-writing machine, the combination, with a platen, of a finger-lever and type-bar, the three being arranged substantially as herein described with reference to each other, so that when the finger-lever is at its lowest point of depression the type will rest clear from the platen, and at a convenient distance from it, as set forth, the connection of the type-bar with the finger-lever also being such as to permit the movement of the type-bar onward to the platen and return, substantially as and for the purposes set forth.

PHILANDER DEMING.

Witnesses:

E. F. BENHAM,
WM. H. LOWE.