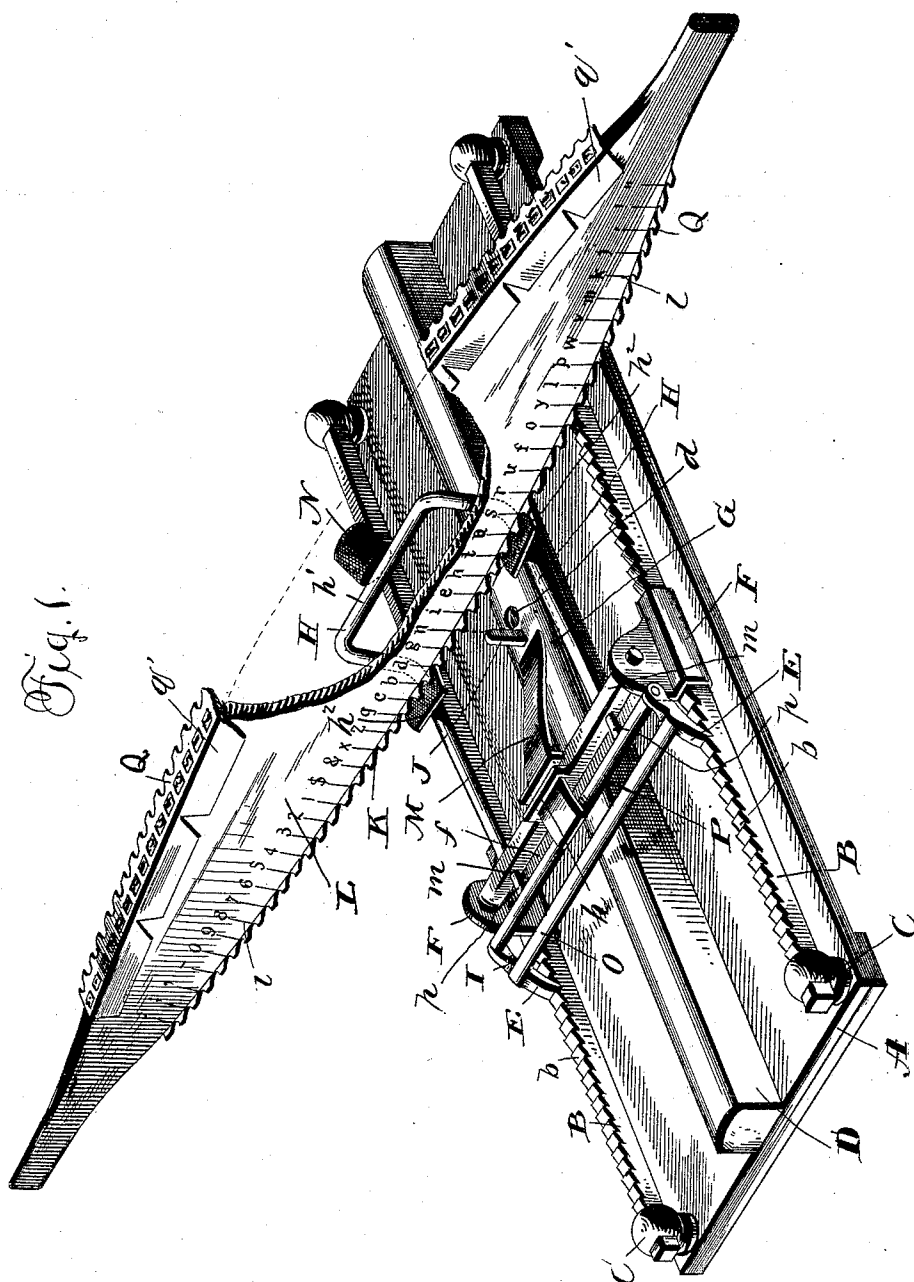


M. K. MORRIS.
TYPE WRITING MACHINE.

No. 473,945.

Patented May 3, 1892.



Witnesses
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E. W. Hough.

Inventor
Matthias K. Morris,
by Franklin H. Hough
Att'y.

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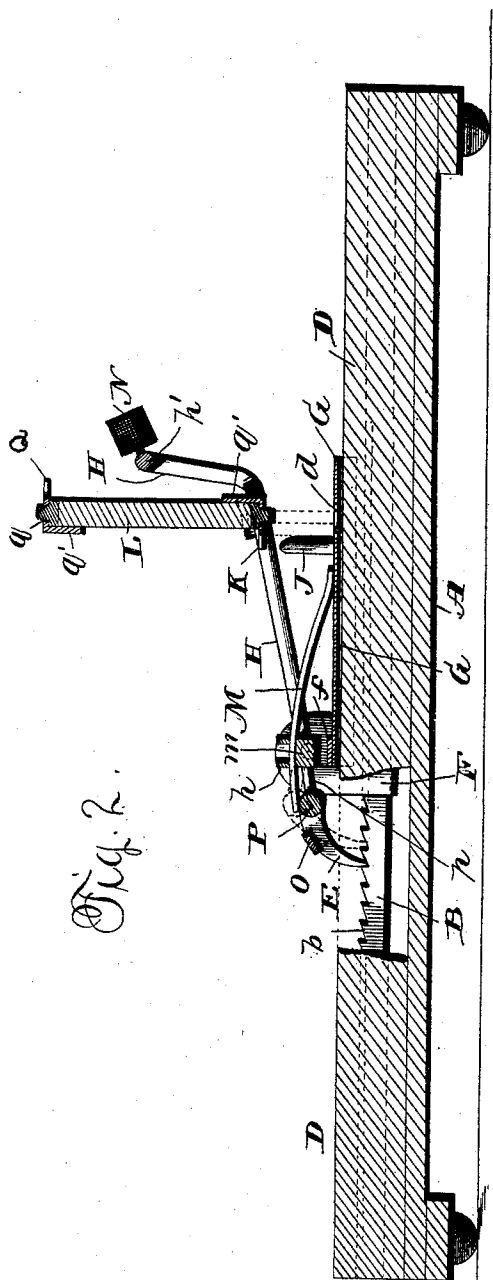


Fig. 2.

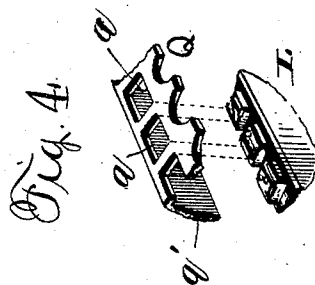


Fig. 4.

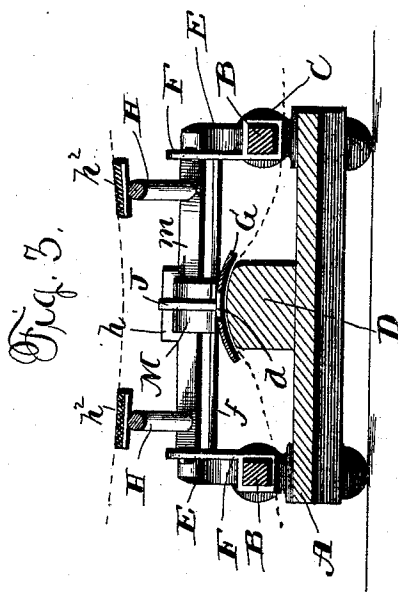


Fig. 3.

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UNITED STATES PATENT OFFICE.

MATTHIAS K. MORRIS, OF HOLLIDAY'S COVE, WEST VIRGINIA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 473,945, dated May 3, 1892.

Application filed January 30, 1892. Serial No. 419,767. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS K. MORRIS, a citizen of the United States, residing at Holliday's Cove, in the county of Hancock and State of West Virginia, have invented certain new and useful Improvements in Type-Writing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to type-writers or type-writing machines in which the type-bar is separated from and adapted to be held in the hand and applied to the machine, with which it co-operates at the proper point to permit the desired letter or character to print. The depression of the type-bar compresses a spring, which, upon its regaining itself after the elevation of the type-bar, moves the carriage over the paper-support a distance equal to the width or space of a letter or character through the intervention of a relatively-fixed rack-bar and a pawl mounted upon a frame, which is pivotally connected with the carriage, which moves over the paper-support after the printing of each letter or character or after the said pawl-carrying frame is actuated or depressed, either for purposes of spacing between the words or moving the carriage to bring the letters or characters in proper relation on the paper.

The object of the invention is to increase the efficiency of this class of machines, first, by improving the machine proper and the adjuncts mounted thereon, and, second, by changing the form of the type-bearing surfaces of the type-bar, making them curved outward, and providing guides on the said type-bar which coact with a guide upon the carriage to insure the correct position of the letter or character to be printed.

The improvement will be more particularly set forth hereinafter and noted in the claims, and is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a type-writing machine embodying my invention, the type-bar being shown in co-operative relation

thereto. Fig. 2 is a longitudinal section of the machine. Fig. 3 is a transverse section showing the guide serving as a fastening means for the type. Fig. 4 is a detail view of a portion of the type-bar guide detached from the type-bar.

The base A of the machine is preferably rectangular, and is provided on its upper side, near each longitudinal edge, with rack-bars B, which are supported at their ends in suitable standards C, and midway of its longitudinal edges with the paper-support D, which extends parallel with the rack-bars B. The rack-bars are of metal, the preferable form being square in cross-section, the teeth or notches *b* being on the upper side to be easily accessible by the pawls E, which engage therewith and feed the carriage over the paper-support.

The carriage is composed of side pieces F, which are constructed to embrace the rack-bars at their lower ends and slide freely thereon and which are connected together by the cross-bar *f*, which carries the paper-holder G, the type-bar-carrying frame H, and the pawl-carrying frame I.

The paper-holder G is secured at one end to the cross-bar *f* and extends parallel with and directly over the paper-support D a sufficient distance to retain the paper in place upon the said support and prevent the same from slipping. In order that the paper may be more firmly held between the support and the holder, the upper face of the said support curves upwardly between its edges, and the holder G is correspondingly curved, so that the paper is compressed between the two parallel curved surfaces. The opening *d* near the free end of the holder exposes the paper beneath to receive the imprint of the letter or character in the operation of the machine. The vertical guide J, secured to the holder G, co-operates with the guide K on the type-bar L and directs the letter or character to be printed to the opening *d* in the holder G. Under normal conditions the holder G presses slightly on the paper, so that the carriage can be moved easily over the paper without being impeded in its movements by undue friction. However, provisions are had to press the holder on the paper with more than usual firmness on the application of the type-bar to the

frame H, whereby the friction between the holder G and the paper on the support D will be increased to such a degree as to prevent the accidental slipping of the carriage when depressing the frame H and the type-bar. To this end the spring M is provided and attached to the frame H or the rock-shaft *m* thereof near one end and the other end of the spring touching the holder G at a point near its free end. The spring M, being firmly secured to the rock-shaft *m*, obviously on rocking the latter on its journals which obtain bearings in the side pieces F the spring M will be compressed and will press the holder G upon the support D, or the paper between the support and holder, with a greater degree of pressure. When the type-bar is elevated, the spring M will regain itself and elevate the free end of the frame H and relieve the holder G of the extra pressure.

The frame H is open and one end is secured to or provided with the rock-shaft *m*, which is journaled in the side pieces F, and which is provided midway of its ends with a clip *h*, the free ends of which extend vertically and are slotted to receive the spring M, which extends through the slots in the said clip. The outer end of the frame H is turned up, as shown at *h'*, to form a rest for the type-bar L when placed on the frame H. The type-bar L is further supported by the platforms *h*², one on each side bar of the frame H, which are padded to prevent injury to the type carried by the said type-bar. The ink-roller N is supported on the bent-up end *h'* of the frame H and is inclined to admit of the convenient inking of the type on the type-bar by passing the latter over the said roller. The platforms *h*² are sufficiently long to give a broad purchase to the type-bar, thereby preventing injury to the type, and are dipped toward the longitudinal center of the frame to conform to the curved outline of the type-bar, so that the latter may maintain a uniform bearing on the said platforms *h*².

The pawl-carrying frame is composed of a cross-bar O, having the pawls E secured to its outer ends and a bar P parallel with said rock-shaft *m*, and secured thereto by the arms *p*. The end of the spring M bears on the bar P, and the pawls *o* have pivotal connection with the said bar P and can be thrown up out of engagement with the rack-bars B at any time. On depressing the bent end of the frame H the bar P will be correspondingly elevated, causing the pawls to advance the distance of one tooth or notch on the rack-bars, and when the bent end of the said frame H is elevated the bar P is lowered, and the pawls engaging with the said tooth or notch push the carriage forward the distance of said notch or tooth.

The type-bar is curved outward between its ends and is preferably flat, the curved edges forming faces or beds for the type, the latter being preferably of rubber. The capital letters are provided on one edge or face

of the type-bar and the small letters upon the other. The side of the bar is provided with a suitable index *l*, contiguous to the type-faces, and the letters and characters upon the index correspond with the letters and characters on the type-bar. The guide Q, projecting laterally from the type-bar, is notched, the notches coming opposite the type or characters on the index and adapted to co-operate with the guide J to give proper position to the character to be printed on the paper. This guide Q extends across the type-face of the type-bar, and is flanged at *q'* to extend up and be secured to the side of the type-bar. The openings *q* permit the projection of the type through the guide Q. The latter serves to retain the type in place and strengthens the type-bar in the event of the latter being made of wood.

What I claim to be new, and desire to secure by Letters Patent, is—

1. In a type-writer of the character described, the combination, with the base, the rack-bars, and the paper-support mounted on the base, of a carriage mounted on the rack-bars, means for moving the carriage over the said base, a paper-holder secured to the carriage, a type-bar-supporting frame pivotally connected with the carriage, and a spring adapted to be compressed on depressing the said type-bar-carrying frame and press the said paper-holder more closely upon the paper-support, substantially as and for the purpose set forth.

2. In a type-writer of the character described, the combination, with the paper-support and a carriage adapted to be moved over the said paper-support, of a type-bar-supporting frame having pivotal connection with the carriage and having a rest *h'* and platforms *h*² at its free end, said platforms being dipped toward the center of the said frame, substantially as and for the purpose described.

3. The combination, with the base having rack-bars and a paper-support, of a carriage consisting of side pieces F, which are mounted on the rack-bars, and a cross-bar *f*, connecting the said side pieces, a paper-holder projected from the cross-bar *f*, a type-bar-carrying frame pivotally connected with said side pieces F by rock-shaft *m*, a bar P, secured by arms *p* to the bar *m* and having pawls *o* pivotally connected therewith, said pawls being adapted to engage with the rack-bars, and spring M, secured between its ends to the rock-shaft *m* and adapted to have its ends engaged, respectively, with the bar P and the said paper-holder, substantially as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

MATTHIAS K. MORRIS.

Witnesses:

ELLSON STEWART,
JAS. P. WRIGHT.