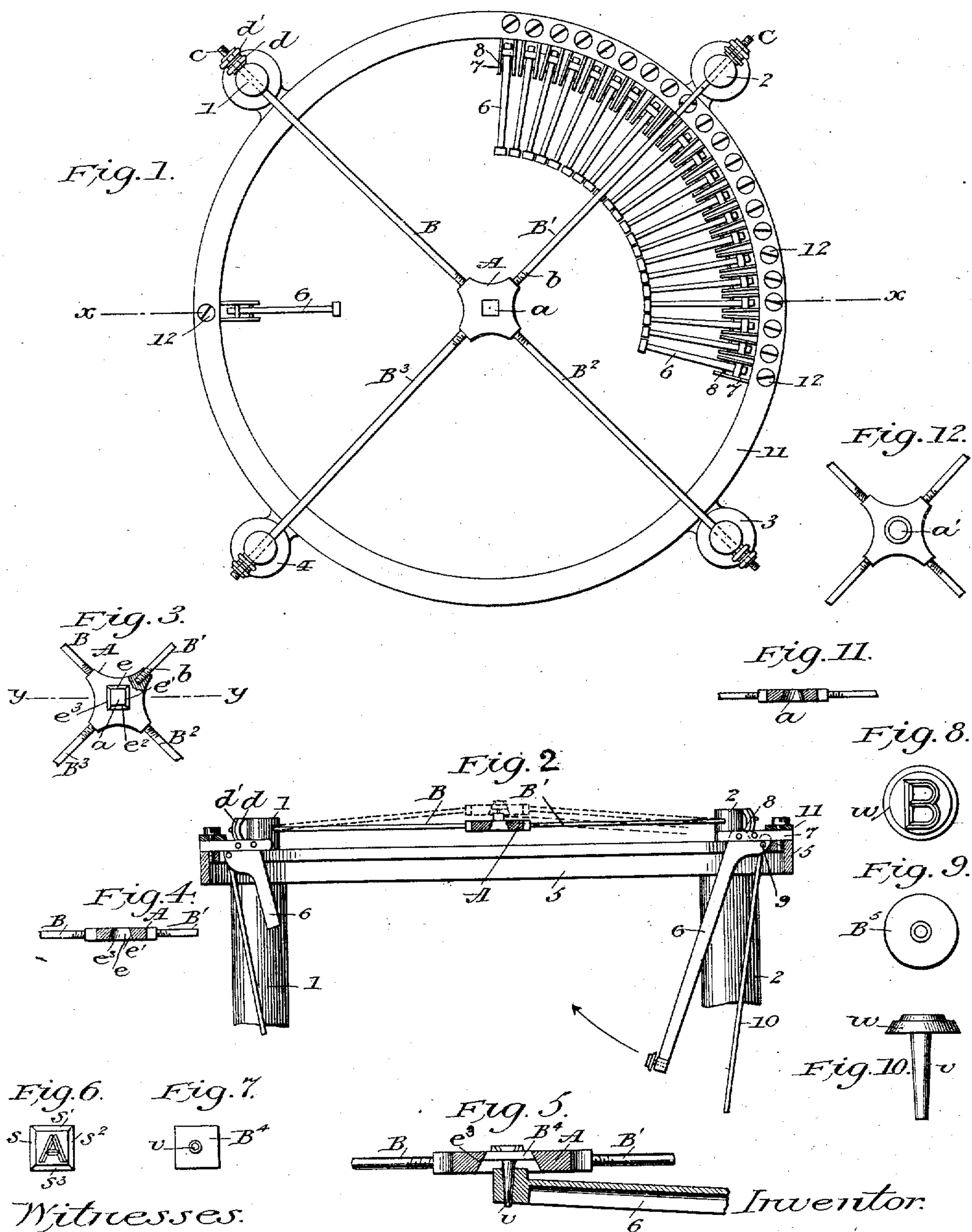


(No Model.)

M. G. MERRITT.  
TYPE WRITING MACHINE.

No. 550,990.

Patented Dec. 10, 1895.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

MORTIMER G. MERRITT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR, BY  
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## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 550,990, dated December 10, 1895.

Application filed March 24, 1887. Serial No. 232,230. (No model.)

*To all whom it may concern:*

Be it known that I, MORTIMER G. MERRITT, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Previous to my invention it has been suggested to employ a guide at the printing-point of type-writing machines to direct the type to the center of the circle around which the type-levers are arranged, and thus secure a true or approximately true alignment of the printing. The idea is a commendable one, and when properly carried out in practice results in the production of a very superior type-writing machine.

My invention has for its aims to provide a construction of guide and type whereby the type may be easily aligned or assembled and a construction of machine in which the alignment of the printing may be always preserved; and to these main ends and objects my invention consists in the features of construction and combinations of parts hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top view of so much of a type-writing machine as is necessary to illustrate my improvements. Fig. 2 is a transverse vertical section taken at the line  $xx$  of Fig. 1. Fig. 3 is a bottom view of the guide or directrix and a portion of the means for suspending the same. Fig. 4 is a transverse vertical section taken at the line  $yy$  of Fig. 3. Fig. 5 is an enlarged vertical section of the guide and a type-lever, the type being shown in elevation. Fig. 6 is an enlarged face view of a type involving my invention, and Fig. 7 is a bottom view thereof. Fig. 8 is an enlarged top view of another type involving my invention. Fig. 9 is a bottom view thereof, and Fig. 10 is a side elevation of the same. Fig. 11 is a vertical cross-section of another directrix involving my invention, and Fig. 12 is a bottom view thereof.

1, 2, 3, and 4 are uprights or posts extend-

ing from the base of the machine and to which the type ring or frame 5 is preferably connected.

6 represents the type-levers, which, as usual, are arranged to vibrate within the type-frame 5.

In order to avoid complicating the illustration shown at Fig. 1, I have omitted to show all of the type-levers used; but it will be understood that they extend all around the type-frame in the customary manner. Each type-lever is journaled in a bracket or bifurcated arm 7 by a pin or pivot 8, and to the outer arm of the lever is pivoted at 9 the upper end of the usual connecting-rod 10, which is jointed to the key-levers (not shown) at its lower end in the well-known way. The brackets 7 are secured in place upon the type-frame by the clamping-ring 11 and the screws 12 12, as heretofore.

A represents a guide or directrix, which is suspended in the center of the type-circle by horizontal rods  $B B' B^2 B^3$ , the inner ends of which are threaded as at  $b$  and screwed into threaded holes in the corners of the directrix, as indicated particularly at Fig. 3, where a portion of one of the corners of the guide is broken away. The outer ends of the rods pass through holes in the posts 1, 2, 3, and 4 and are likewise threaded, as at  $c$ . Binding or clamping nuts  $d d'$  are screwed onto the projecting outer ends of the rods and serve to hold the same properly in position and the guide at the desired tension. The suspending-rods are preferably made of round steel wire of a springy nature and permit a slight upward movement of the guide A during the operation of the machine.

The guide shown at Figs. 1, 2, 3, and 4 is formed or provided with a rectangular opening  $a$  at its center. The walls  $e e' e^2 e^3$  of the opening are beveled or inclined, so that the opening shall be largest at the under side of the guide.

$B^4$  represents the type used in conjunction with the guide just referred to. It is made rectangular in contour and is provided with inclined sides  $s s' s^2 s^3$  to match the inclined



walls of the guide and with a tapering shank or stem *v* to fit into a tapering socket on the inner end of the type-lever 6.

The guide shown at Figs. 11 and 12 is formed or provided with a conical opening *a'*, the greatest diameter thereof being on the under side of the guide.

B<sup>5</sup> represents the type employed in connection with the last-mentioned guide and is formed or provided with a frusto-conical base or bed *w*, upon which the type-face or character is located, and with a centrally-arranged shank or stem *v* for connection with the type-bar 6. By having the parts thus constructed the type is guided positively always to the same point and the alignment of the printing thus made perfect without any liability of the type sticking or getting caught in the opening of the guide. The type heretofore used in connection with the guide was not constructed to correspond in shape with the opening in the guide and was liable to go through too far and stay fixed after the release of the stem-key.

By having the interior of the guide and the bed or base of the type provided or formed with matching-surfaces the entrance of the type within the guide is limited. This is an important consideration and enables me to provide against the great defect in all machines employing type-levers of the liability of the periods and other sharp or narrow characters striking through and embossing the paper when their respective stem-keys are struck too violently by the fingers of the operator.

By having the guide suspended by the spring-like or yielding arms the guide and the type are free to move upward slightly under the blow of the type-lever, as indicated by dotted lines at Fig. 2, and ease the shock, as well as compensate for any lack of parallelism of the platen or paper-roller, or for any irregularities in the surface thereof.

Although I have shown a rectangular beveled opening in the guide and a type having a rectangular bed with inclined sides for use therewith and also shown a guide with a frusto-conical opening and a type with a similarly-shaped base to coact therewith, I desire it to be understood that so far as the main feature of my invention is concerned guides with openings of other shape and type with bases to correspond may be employed without departing from the spirit of my invention.

I prefer the rectangular opening and type-base (or others of polygonal form) for the reasons, first, that the alignment of the type may be more expeditiously and perfectly performed, and, secondly, that should the type in the process of writing get accidentally slightly turned in its bearing or socket in the type-bar it will "true" or right itself as the base passes into and comes in contact with the opening in the guide or directrix.

In the alignment of type heretofore a skilled

workman has been required and a great deal of time has been consumed in the operation. With my improved means any unskilled person may readily do the work and in a comparatively short space of time. There are several ways in which the type may be aligned. The type-levers may all be first set, as illustrated at Fig. 1, and connected to the key-levers and stem-keys ready for operation. The type may then be successively properly inserted in the directrix and the stem-keys successively operated to raise the type-bars, and as each type-bar is lifted the shank of the type belonging thereto may be inserted in its socket, after which one or two light blows upon the type or upon the under side of the lever may be given to secure the type in place, or in lieu thereof the stem-key may be struck sharply two or three times to drive the type firmly to its seat. There are one or two other ways in which the type may be properly positioned for printing, which will suggest themselves to those skilled in the art, and hence need not be here pointed out.

By the employment of the devices herein described I am enabled to avoid the great expense of the special "take-up" journal for the type-levers now so universally used to compensate for wear and to secure alignment when there is an undue looseness at the joint. In my machine a common wire pivotal pin is all that is required and looseness of joint insures a better alignment in the printing, as it enables the type to more easily center itself in the directrix.

The printing characters, it will be understood, are all formed upon the type bases or bodies and are all arranged at the requisite points thereon to secure perfect alignment in the printing.

From what has already been said and from what is illustrated it is believed that those skilled in the art to which my invention relates will be able to make and use machines involving my invention, and hence no further description appears to be necessary. I might remark in conclusion, however, that a great advantage in the use of my improved machine is that the operator may easily align the type or make a change from one style of type to another without sending the machine to the factory or calling in the services of one skilled in the construction of the machine, and also that in so far as the main feature of my invention is concerned some other means of suspending the directrix than that shown may be used and some other construction of type shank or body and mode of connecting it to the type-lever may be employed; and I would have it understood that although I have shown the type-bodies, bases, or beds made tapering all the way up to the point at which the type character is arranged the same is not absolutely necessary in order to secure the advantages of my improvements, for it will be seen that the body of the type may be made tapering at some lower locality than that



shown and the guide be constructed to correspond and permit the type to work in connection therewith in the manner set forth.

5 The type herein shown is claimed in my application filed June 4, 1888, Serial No. 275,970.

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

10 1. In a type-writing machine, the combination of a guide formed or provided with a tapering opening adapted to admit but one type at a time, and type formed or provided with correspondingly shaped bases or bodies; substantially as and for the purposes set forth.

15 2. In a type-writing machine, the combination of a guide formed or provided with a polygonal, tapering opening adapted to admit but one type at a time, and type formed or provided with correspondingly shaped bases  
20 or bodies; substantially as and for the purposes set forth.

25 3. The combination, in a type-writer, of a tapering type-shank and a member provided with a guide-hole corresponding in shape and dimensions with the base of the type-shank; substantially as described.

4. The combination, in a type-writer, of a

loosely-mounted type-bar, a type having a tapering shank or body and a perforated guide or centering-plate; substantially as de- 30 scribed.

5. In a type-writing machine, the combination of a series of type-arms or levers arranged in a circle and having type formed or provided with tapering beds, bodies, or shanks, 35 with a guide arranged at the center of said circle and formed or provided with a tapering opening of a size adapted to inclose and center each individual type as it is brought to the center of said circle; substantially as set 40 forth.

6. In a type-writing machine, the combination of the guide provided with threaded sockets, the threaded rods, the posts, and the binding or securing nuts; substantially as set 45 forth.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 14th day of March, A. D. 1887.

MORTIMER G. MERRITT.

Witnesses:

H. A. CHAPIN,  
EDWIN PEASE.