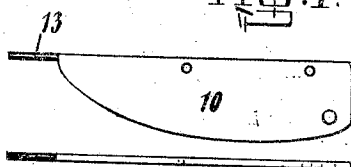
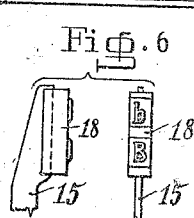
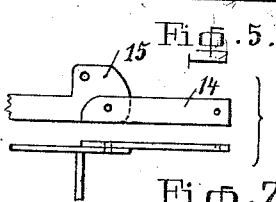
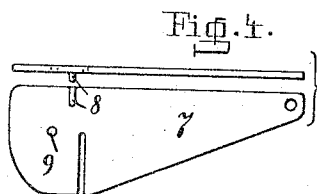
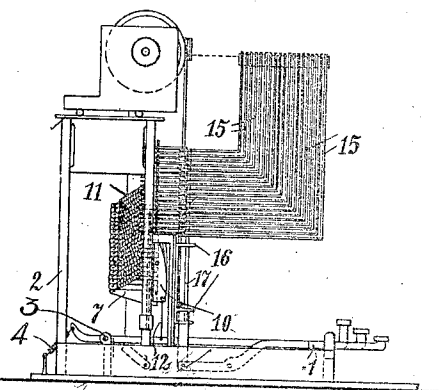
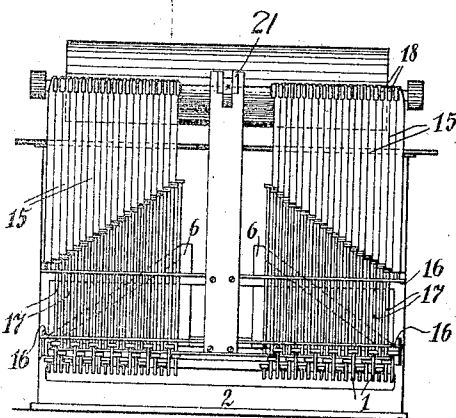
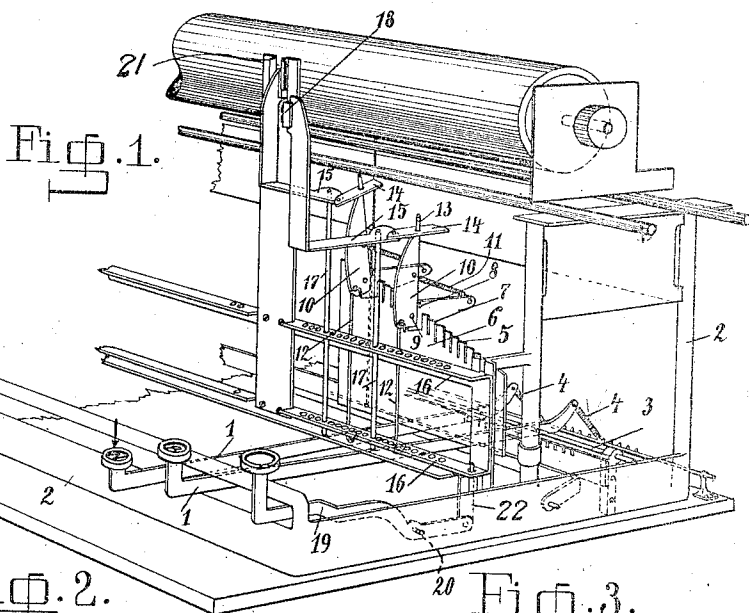


974,210.

R. TOEPPER.  
TYPE WRITER.  
APPLICATION FILED SEPT. 25, 1909.

Patented Nov. 1, 1910.



Witnesses:  
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per *B. Singer*  
Attorney.

# UNITED STATES PATENT OFFICE.

RICHARD TOEPPER, OF BERLIN, GERMANY.

TYPE-WRITER.

974,210.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed September 25, 1909. Serial No. 519,598.

*To all whom it may concern:*

Be it known that I, RICHARD TOEPPER, a citizen of the Empire of Germany, residing at Berlin, in the Empire of Germany, have invented new and useful Improvements in Type-Writers, of which the following is a specification.

This invention relates to improvements in typewriters and has for its object an improved arrangement of the typebars and the construction thereof with a view of especially adapting the same for visible typewriters.

A further object of the invention is to provide bar actuating mechanism of a simple and effective type which is especially adapted for the character of bar herein shown.

A further object of the invention is to provide for a relatively short or reduced movement for certain of the type bars and to dispose letters of most frequent use on the type bars having the shortest movement and letters of less frequent use on type bars having the greatest movement.

The invention includes other features of novelty which will be more fully described in connection with the accompanying drawing and which will be more particularly pointed out in and by the appended claims.

In the drawings:—Figure 1 is a perspective view of a typewriter embodying the main features of my invention and illustrating two type bars and corresponding parts thereof. Fig. 2 is a front elevation of the machine. Fig. 3 is a side elevation thereof. Fig. 4 illustrates an end and side view of an anchor element. Fig. 5 illustrates a plan and end view of a portion of one of the type bars and the actuating link thereof. Fig. 6 illustrates a side and front view of an upper portion of the type bar with the type block carrying the letters thereon. Fig. 7 illustrates a side and end view of an actuating element.

Like numerals of reference designate similar parts throughout the different figures of the drawing.

The key levers 1 are shown mounted upon a pivot rod 3 secured in suitable bearings to the frame 2. Springs 4 normally return said levers to their position of rest. Anchor plates 6 are provided on each side of the machine frame and the upper portions of said plates are provided with notched stepped portions 5 the highest portions of

which are near the center and the lowest portions of which are near the sides of the frame. Anchor elements 7 are mounted on said plates and preferably said elements are provided with notches engaging the notched portions of the plates whereby they are removably held in place. Said anchoring elements are provided with lugs 8 constituting stops for actuating elements 10. Said actuating elements 10 are secured to the anchoring elements 7 by pivots 9 and project vertically upwardly therefrom and are arranged to swing vertically during operation. As will be seen by reference to Fig. 1 the lugs 8 limit movement of the actuating elements 10 rearwardly. Said actuating elements 10 are normally held in the position shown by springs 11 connected therewith and to the anchoring elements 7. The upper ends of the elements 10 terminate in reduced extensions or pins 13. Said pins 13 extend through openings or apertures in links 14 as shown in Fig. 1.

Type bars 15 are shown arranged in banks on opposite sides of the longitudinal center of the machine and each bar carries a type block 18 upon which the letters are disposed. Said bars 15 each comprise vertical portions or arms and horizontal portions or arms and the horizontal portions are mounted to swing on vertical pivots 17. As will be seen by reference to Figs. 1 and 5 the links 14 are connected with the bars 15 at one side of the pivots thereof so that when the links 14 are moved forwardly the bars 15 will be swung inwardly to the printing position as shown in Fig. 1.

The bars 15 are so arranged that the blocks 18 are all disposed in horizontal alinement and the bars, in their position of rest project forwardly at right angles to the longitudinal axis of the plates. The bars 15 are arranged to swing from their position of rest to a printing position through an arc of approximately 90° and the innermost bars are preferably shorter than the outermost bars, said bars increasing gradually in length from the innermost to the outermost bar. The pivots 17 on which the bars 15 swing are disposed transversely of the longitudinal axis of the machine and in alinement with each other.

The vertical and horizontal arms of the type bars also gradually increase in length from the innermost to the outermost bars.

It will thus be seen that the innermost bars swing through arcs of shorter radii than the outermost bars and I preferably take advantage of this arrangement by disposing the characters most frequently used upon the blocks of the innermost bars and the characters less frequently used upon the blocks of the outermost bars thereby insuring ease and rapidity of operation. Any form of block guiding means, such as is indicated at 21, may be disposed abreast of the plates and at the printing position. Connections are provided between the key levers 1 and the actuating elements 10 and as shown said connections are in the form of rods 12.

A type shifting device is provided for altering the elevation of the type bars for printing different characters.

As shown the pivots 17 are in the form of rods which are mounted in a vertically shiftable frame 16. Said frame 16 is shifted by a lever 19 which may be pivotally supported at 20 on the frame 2. The inner or shorter end of said lever 19 is connected at 22 to the shift frame 16. The pins 13 on the actuating elements 10 are of sufficient length to retain engagement with the links 14 when the bars 15 are raised by the shifting device.

I claim:—

1. In a typewriter, the combination with a frame, type bars provided with type blocks and having horizontal portions, vertical pivots for said horizontal portions of said bars, horizontally disposed links pivotally connected with said horizontal portions at one side of the pivots thereof, vertically swinging elements for actuating said links, key levers, and connections between said key levers and said elements.

2. In a typewriter, the combination with a frame, type bars provided with horizontal portions and having type blocks, vertical pivots for said horizontal portions, links pivoted to said bars at one side of the pivots thereof, vertically swinging elements for actuating said links, notched anchoring plates, notched anchoring elements removably mounted on said plates, and pivotally supporting said swinging elements, key levers, and connections between said key levers and said vertically swinging elements.

3. In a typewriter, the combination with a frame, type bars arranged in banks on op-

posite sides of a central printing position, vertical pivots for said type bars, links pivoted to said bars at one side of the pivots thereof, actuating members slidably connected with said links, key levers, and connections between said key levers and said actuating members.

4. In a typewriter, the combination with a frame, type bars having horizontal portions, vertical pivots for said type bars, links pivotally connected with said bars at one side of the pivots thereof, actuating elements slidably connected with said links and pivoted to swing vertically, a shifting device connected with said bar pivots for shifting the type carried by said bars, key levers, and connections between said key levers and said vertically swinging members.

5. In a typewriter, the combination with a frame, type bars having horizontal portions, vertical pivots for said horizontal portions, a slidably mounted shifting frame supporting said vertical pivots, means for shifting said frame, horizontally disposed links connected with said bars at one side of the pivots thereof, vertically swinging actuating elements slidably connected with said links, key levers, and connections between said key levers and said vertically swinging elements.

6. In a typewriter, the combination with a frame, type bars provided with horizontal portions, vertically disposed pivots for said horizontal portions, horizontally disposed links pivoted to said bars at one side of the pivot thereof, vertically disposed actuating elements connected with said links, anchoring elements supporting said actuating elements and provided with notches, an anchor plate provided with notches for supporting said anchoring elements, the notches in said anchoring elements engaging the notches in said plates, key levers, and connections between said key levers and said actuating elements.

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

RICHARD TOEPPER.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.