

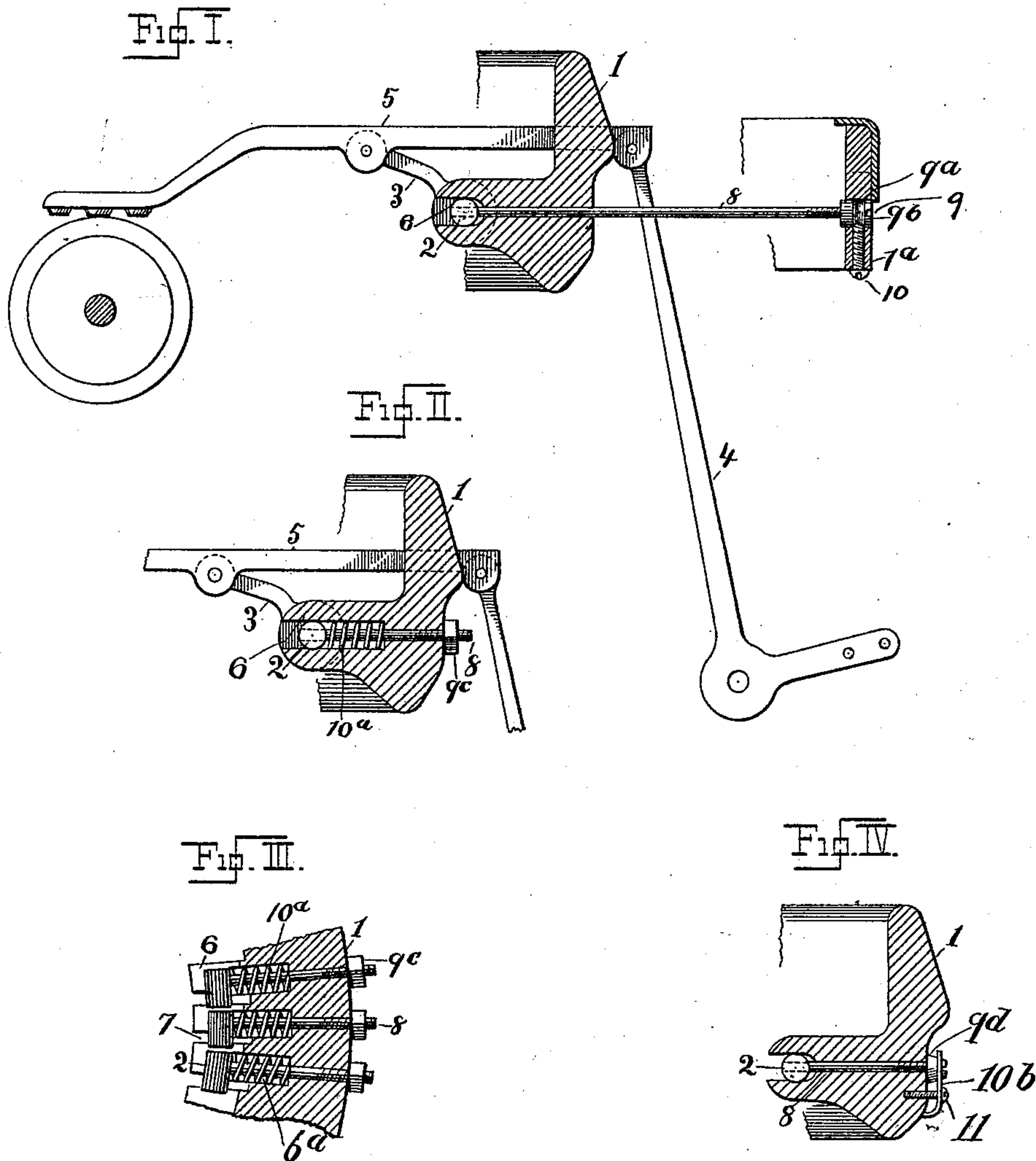
(No Model.)

2 Sheets—Sheet 1.

J. N. WILLIAMS.  
TYPE WRITING MACHINE.

No. 528,578.

Patented Nov. 6, 1894.



Witnesses  
W. H. Courtland.  
L. Hoolsey.

Inventor  
John Newton Williams  
By *[Signature]*  
Attys.

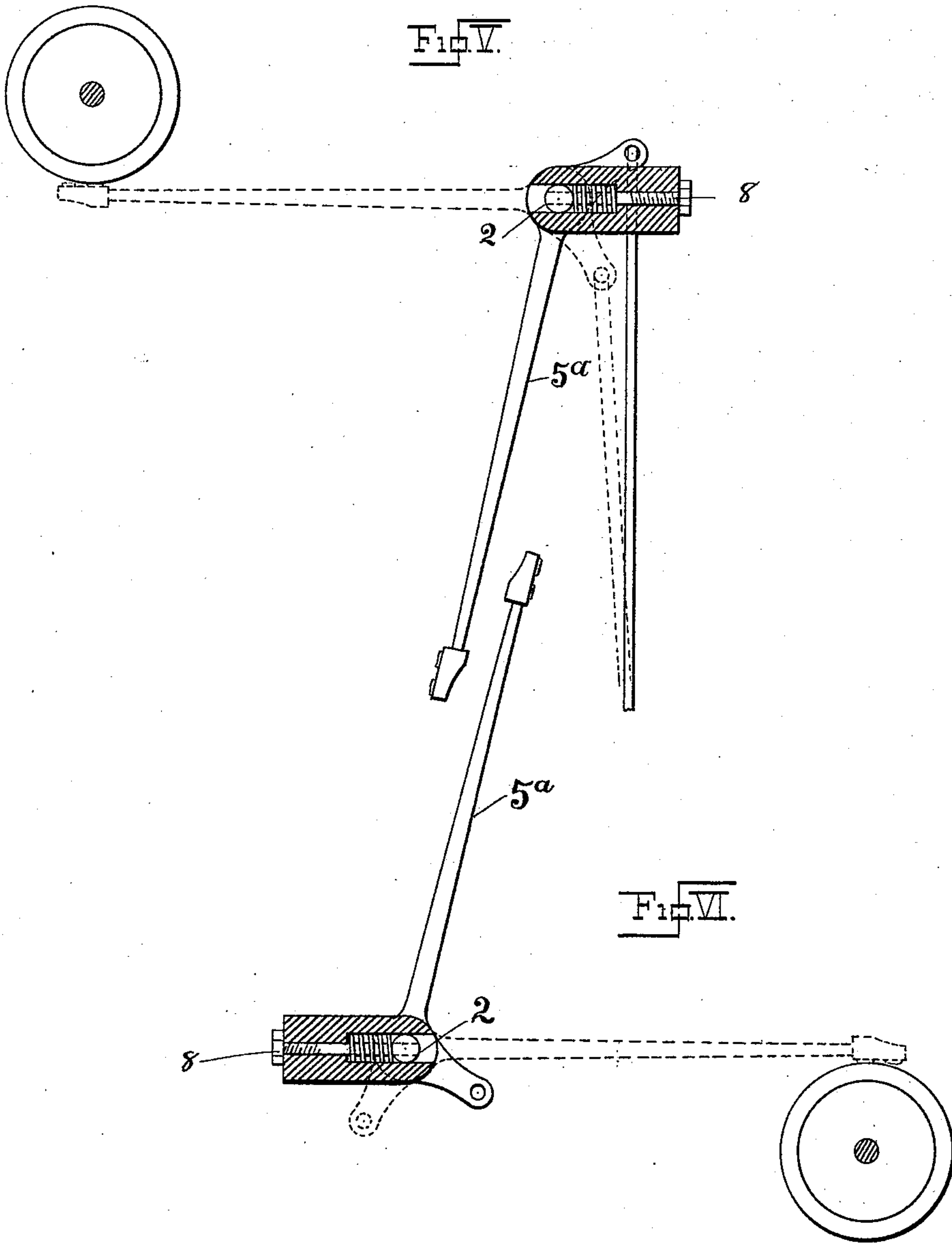
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# UNITED STATES PATENT OFFICE.

JOHN N. WILLIAMS, OF NEWARK, NEW JERSEY.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,578, dated November 6, 1894.

Application filed December 6, 1893. Serial No. 492,907. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN NEWTON WILLIAMS, a citizen of the United States, residing in the city of Newark, in the county of Essex, in the State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to the type-bar mechanism and consists in devices enabling the ready and convenient adjustment of such mechanism to alignment.

Referring to the accompanying drawings, which form a part of this specification, Figure I is a sectional elevation of part of a type-writing machine illustrating my invention. Fig. II is a partial sectional elevation illustrating another form of the invention. Fig. III is a horizontal sectional view of the same, the plane of section being through the type-carrier supporting ring. Fig. IV is a vertical sectional view illustrating another form of the invention. Figs. V and VI are sectional elevations illustrating my invention applied to two other forms of type bars.

I have had particularly in view the improvement of machines such as that described in my Letters Patent No. 442,697, dated December 16, 1890, in which a type-bar is carried by two arms or links, of which one forms a swinging fulcrum for the type-bar and the other forms part of a lever which actuates the type-bar. Figs. I to IV illustrate the application of the invention to this form of type bar but my improvements are applicable also to other forms of type bars as is illustrated in Figs. V and VI.

1, 1<sup>a</sup> represent two of the segmental bars or parts of the frame of a typewriter such as described in my said patent. In one bar, 1, are the pivots 2, of arms or links 3 which with arms or levers 4 carry the type-bars 5. The pivots 2 are mounted in horizontal slots 6 in the frame 1 and project across the radial vertical slots 7 in said frame (see Fig. III) which receive the lower ends of the arms or links 3. In Fig. III said arms or links are omitted. Each pivot has connected to it a rod or pin 8 which extends to the outside of the frame-piece 1<sup>a</sup> and is there threaded to receive a cylindrical nut 9 which is seated in the bar 1<sup>a</sup>. The nut is grooved at 9<sup>a</sup> to receive the

end of a screw 10 which has a screw-threaded seat in the bar 1<sup>a</sup> of the frame and is adapted to be adjusted from below by a screw-driver or otherwise. The nut 9 has also a nick 9<sup>b</sup> or other means of enabling it to be turned by a screw-driver otherwise. The engagement of the screw 10 with the groove of nut prevents axial movement of the nut so that when the nut is turned by a screw-driver, the rod or pin 8 is shifted axially and so the alignment of the type carried by the type-bar is adjusted and corrected as desired.

The improvement brings the alignment of the machine under the immediate control of the operator, instead of requiring a machinist every time the alignment needs adjusting. In "assembling," the nuts 9 and their holding screws 10 may be first put in and the rods 8 with their attached pivots may then be put in place and made to engage the nuts by moving the latter. The assembling may be thus done quickly and conveniently.

Another form of my invention is shown in Figs. II and III. Here helical spring 10<sup>a</sup> surrounding pin 8 and seated in socket 6<sup>a</sup> at the bottom of the slot 6, tends to press the pivot in the direction of the mouth of said slot. Thus, in this form of the invention, by turning the nut 9<sup>c</sup>, the pin 8 and pivot 2 which bears against the outer face of bar 1 of the frame, are either drawn positively in by the action of the screw-thread, or released to the action of the spring which forces the pivot and pin outward. By a slight turning of the nut therefore, the position of the pivot is readily adjusted and the type on bar 5 is promptly brought and held to alignment.

The modification illustrated in Fig. IV involves the substitution of a flat plate spring 10<sup>b</sup> for the helical spring 10<sup>a</sup>. The opposite ends of spring 10<sup>b</sup> engage respectively the frusto-conical surface of a nut 9<sup>d</sup> and the rear of frame-piece and may be tightened thereon by set-screws 11. As the nut 9<sup>d</sup> is thus held against the rear of frame-piece 1 however much the nut is turned, it is apparent that such turning will adjust the pin 8 out or in and correspondingly adjust the alignment of the type.

It is obvious that an equivalent though inferior form of my invention would be one in which the screw-pins 8 screw into the pivots



2 or into the frame and are turned to effect adjustment of the pivots.

In Figs. V and VI, I have shown the invention applied to ordinary forms of typewriters one upward striking and the other downward striking, and in both of which the pivots 2 of the type bars 5<sup>a</sup> are directly connected thereto instead of being connected through the fulcrum links 3, as shown in Figs. I to IV.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with a type-bar, an adjusting screw or nut having operative connection with the type bar pivot or support adapted to be turned to adjust the type radially of the printing point and control the alignment of the type, substantially as set forth.

2. In a typewriter, in combination with a type-bar, a pivot therefor, a screw-pin, connected to said pivot and a nut on said pin adapted to hold the same or to be turned to adjust the pin, the pivot and type-bar radially of the printing point, substantially as set forth.

3. In a typewriter, the combination of a type-bar, a pivot therefor, a screw pin connected to said pivot and mounted on the typewriter frame, and a spring and nut adapted to act in opposite directions on said pin, substantially as set forth.

4. In a typewriter, the combination of the frame-piece 1 having slots 6, the type-bars having pivots 2, the screw-pins 8 and springs and nuts all arranged and adapted to operate, substantially as set forth.

5. In a typewriter, the combination of the frame-piece 1, having horizontal slots 6 and vertical radial slots 7, the type bars 5, the carrying and actuating arms 3, 4 and the adjusting pins 8, substantially as set forth.

6. In a typewriter, the combination of the frame-piece 1, having horizontal slots 6, the type-bars having pivots mounted in said slots, the adjusting pins for said pivots and the springs located in said slots and arranged to act on said pivots, substantially as set forth.

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Witnesses:

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