No. 724,773. PATENTED APR. 7, 1903.

J. ALEXANDER.

TYPE WRITER BAR MOVEMENT.

APPLICATION FILED FEB. 27, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

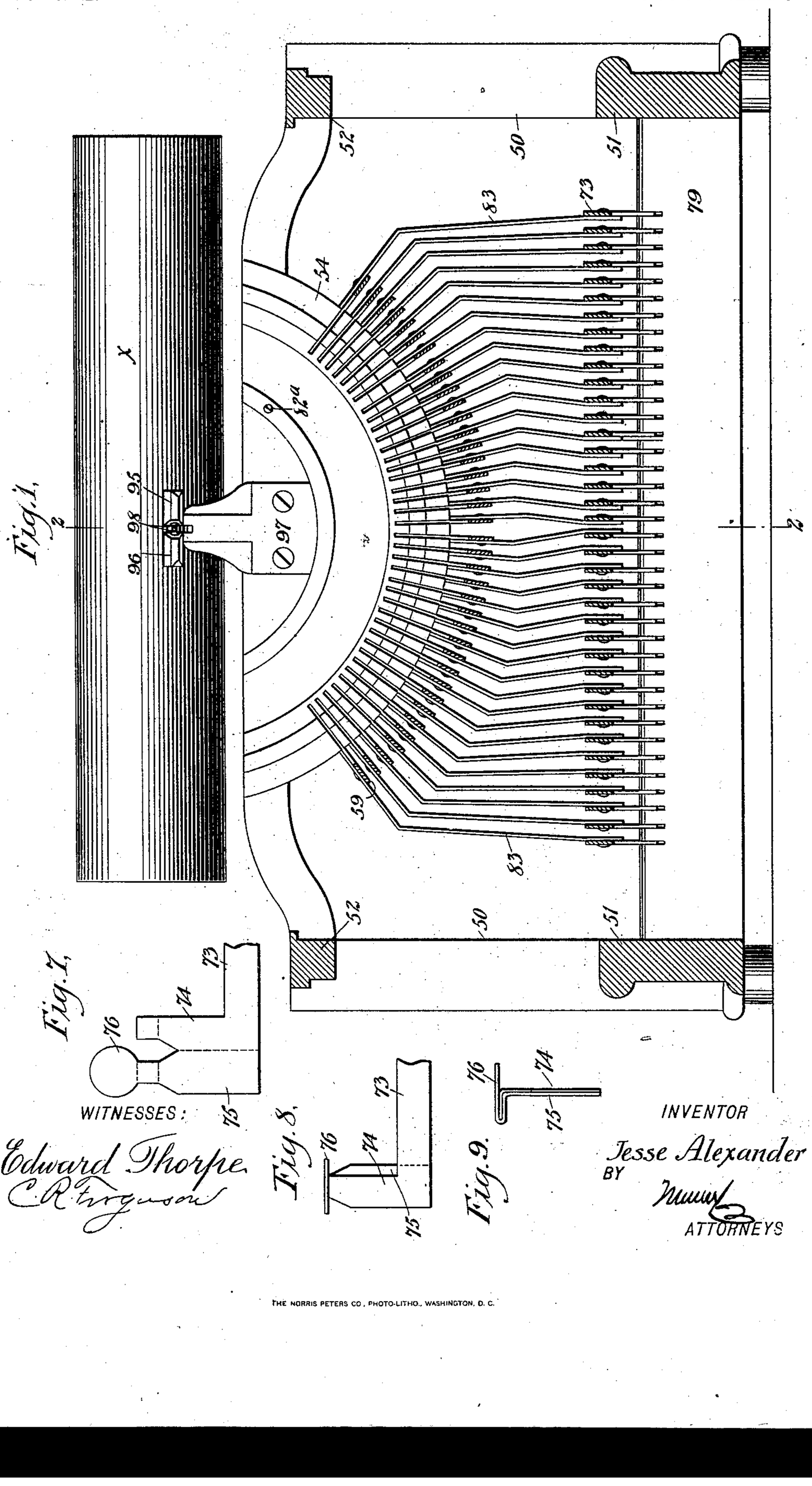

Fig. 1.

Fig. 8.

Fig. 9.

WITNESSES:

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C. R. Ferguson

INVENTOR

Jesse Alexander

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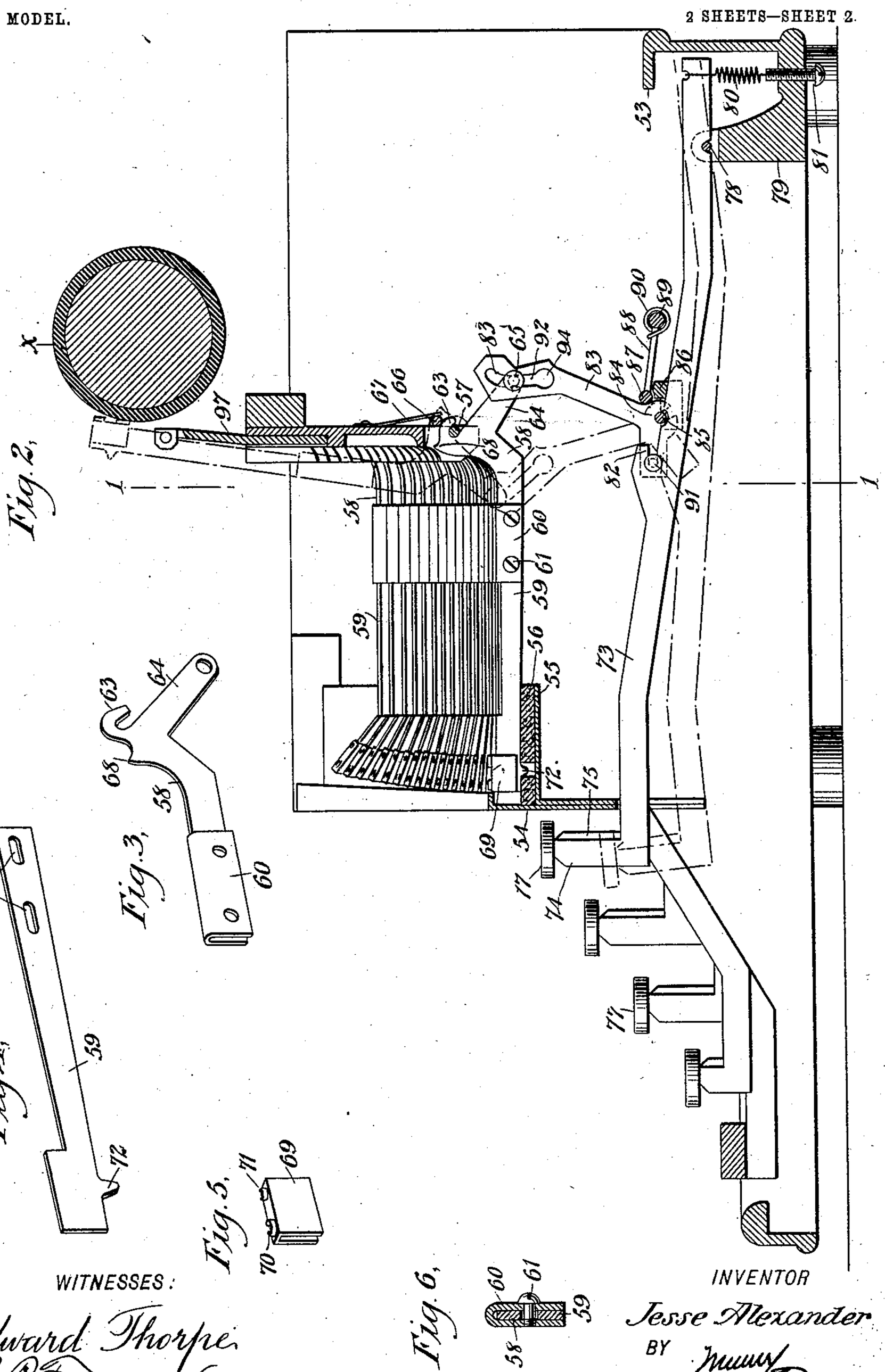

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UNITED STATES PATENT OFFICE.

JESSE ALEXANDER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO HERMAN BENKE, OF NEW YORK, N. Y.

TYPE-WRITER-BAR MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 724,773, dated April 7, 1903.

Original application filed October 1, 1901, Serial No. 77,184. Divided and this application filed February 27, 1902. Serial No. 95,851. (No model.)

To all whom it may concern:

Be it known that I, JESSE ALEXANDER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Type-Writer-Bar Movement, of which the following is a full, clear, and exact description.

This invention relates to improvements in type-writing machines, and particularly in the construction of the type-carrying bars and the mechanism for operating the same, the object being to simplify the construction of the parts and to so arrange them that they may be readily adjusted, assembled, or separated when required, this application being a division of my application for patent on type-writers filed October 1, 1901, Serial No. 77,184.

I will describe a type-writer-bar movement embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a section on the line 1 1 of Fig. 2, showing a type-bar mechanism embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of a portion of a type-bar employed. Fig. 4 is a perspective view showing the other portion thereof. Fig. 5 shows a type-block employed. Fig. 6 is a section showing the connection of the type-bar members. Fig. 7 shows a blank for forming a finger-lever. Fig. 8 is a side view showing the lever as formed, and Fig. 9 is an end view thereof.

The frame of the machine comprises corner uprights or posts 50, connected at the ends and at the bottom by bars 51 and at the top by bars 52. The rear uprights or posts are connected at the bottom by a cross-bar 53, and arranged in the front of the frame is a front plate 54. The front plate 54 at the top has a semicircular opening, and inward of this opening is a segmental plate 55, upon which is a cushion 56, of felt or other suitable material, upon which the type-bars are designed to strike upon their return movement, thus causing practically no sound upon said return of the type-bars. The front plate 54 at its lower edge is kerfed to receive the fulcrum parts of the type-bars, the type-bars being fulcrumed on a rod or wire 57, extended rearward of the said front plate. Each type-bar consists of a fulcrum-section 58 and a type supporting or bearing section 59, these sections being adjustably connected together. As here shown, the section 58 is provided with a portion 60, which is turned over and extends down parallel with the body of said section 58, and the said body and portion 60 form the side walls of a socket, in which the end of the type-bar section 59 is inserted and is held by means of screws 61. These screws 61 pass through openings in the portions 58 and 60 and through slots 62 in the portion 59. By this construction the type-bar may be readily adjusted longitudinally to cause the type to strike at the proper place over the impression-roller. The section 58 of the type-bar is provided with a hook-shaped fulcrum-bearing 63, designed to engage with the fulcrum-rod 57, as clearly shown in Fig. 2, and extended downwardly and rearwardly from this fulcrum-bearing is an arm 64, on the end of which is a headed pin 65, designed to engage with an actuating angle-lever, as will be hereinafter described. The several type-bars are held yieldingly yet removably on the rod 57 by means of a spring-pressed rod or wire 66. This wire 66 is longitudinally curved and is attached at its ends to the springs 67, the said springs being attached to the frame of the machine. This wire or rod 66 not only serves for the purpose above described, but serves as a yielding abutment for the upward or striking movement of the type-bars by engaging with projections 68 on the said type-bars.

Attached to the free end of each type-bar is a type-block 69. This type-block 69 consists of a plate of metal bent to engage the upper edge of the type-bar and also to engage against the side thereof. It may be secured in any desired manner, such as by pressure or swaging or by soldering. On

each type-block are the upper and lower case type 70 71. On the lower or outer edge of each type-bar, near its free end, is a projection or lug 72. This projection or lug is designed to prevent the striking of type of another type-bar against any type-bar that may be in printing position, and therefore the projection or lug is located at a position to engage between the type on a type-block. When the type-bars are in their lowermost position, the projections or lugs 72 will rest in a recess or recesses formed in the cushion 56, as clearly indicated in Fig. 2.

The finger-levers 73 are each formed of a single sheet of metal, the blank for forming the same being clearly shown in Fig. 7. At the outer end this blank has an upwardly-extended portion 74 and an upwardly-extended portion 75. The portion 75 is designed to be folded against the portion 74, and then the upper ends of said portions 74 and 75 are to be turned at right angles or on a horizontal plane, after which a cap-plate 76 on the portion 75 is to be turned downward, and on this plate 76 the cap 77 is to be placed, the said cap having printed thereon letters, numerals, or other characters. The general construction of the finger-lever when formed is shown in Figs. 8 and 9. At the rear end the several finger-levers are fulcrumed on a rod 78, mounted on a bar 79 at the rear side of the machine-frame. This bar 79 is provided with slits or kerfs to receive the finger-levers, and the walls of said slits or kerfs will prevent to a great extent any lateral play of the levers. It will be noted that the bearings of the levers are in the form of notches, so that the levers may be readily removed when desired. The returning-springs 80 are connected at one end to the levers and at the other end to an adjusting-screw 81. By manipulating these screws 81 it is obvious that the tension of the springs may be readily adjusted. At the forward ends the several finger-levers are guided in slits formed in the lower edge of the front plate 54, and between its ends each lever is provided with a hook-shaped bearing 82.

The type for printing a period, owing to the practically sharp point, is often forced through the paper on the impression-roller *x*. To prevent such puncturing, I provide an adjustable stop-screw 82ª on the plate 54, which is in line of movement of the type-bar carrying said period.

Each finger-lever is connected to its type-bar by means of an angle-lever 83. These several angle-levers have fulcrum-bearings 84, which open outward, and these bearings receive a fulcrum-rod 85, mounted on the upper side of a comb-plate 86, extended across the machine-frame. The several angle-levers are held removably on the fulcrum-rod by means of a holding-bar 87, attached, by means of arms 88, to a rock-shaft 89, with which one end of a spring 90 connects, the other end of said spring engaging with the machine-frame. The forwardly-disposed lower member of the angle-lever 83 is provided with a headed pin 91 for engaging in the bearing 82, and the upper end of the upwardly-disposed portion of the angle-lever is provided with a slot 92 to receive the pin 65. The greater portion of this slot 92 has straight side walls. The upper portion, however, is curved rearward and upward, as at 83, and at the lower end of the slot is an enlargement 94, through which the head of the pin 65 may readily pass. By the curved portion 93 a very quick and positive final movement is given to the type-bar.

By the construction of the connections between the type-bar and finger-lever and angle-lever it is obvious that the several parts may be readily assembled or may be readily detached for replacement by others should occasion require from wear or other cause, and this, of course, without disturbing other portions of the machine.

To cause the type at all times to strike on the proper place or in proper alinement on the paper, I provide a guide just forward of the impression-roller *x* and consisting of tubular members 95 96, the space between the adjacent ends of which is sufficient to permit the end of the type-bar to pass through. These tubular members are mounted on the upper end of a post 97, attached to the front plate 54. Arranged in the inner end of each tubular member and projecting slightly outward therefrom is a movable bearing device, here shown as a hard-metal ball 98. These balls are prevented from moving too far outward by crimping or swaging the ends of the tubes. The balls are pressed yieldingly toward each other by means of springs.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A fulcrumed type-bar having a downward and rearward extension from its fulcrum-point, the fulcrum-bearing for said bar opening outward, a rod engaging in the bearing, means for holding the bearing yielding on the rod, a headed pin on said extension, a fulcrumed angle-lever having a slot in its upper portion to receive said pin, said slot having an enlargement through which the pin-head may pass, and a finger-lever having operative connection with the forwardly-disposed lower member of the angle-lever.

2. In a type-writer, a type-bar having a fulcrum-bearing opening outward, a fulcrum-rod for engaging in the bearing, means for holding the bearing yieldingly on the rod, the said type-bar having a rearward extension from its fulcrum-point, a pin on said extension, an angle-lever having an outwardly-opening fulcrum-bearing at its lower end, a fulcrum-rod for engaging in said bearing, means for yieldingly holding the bearing on the rod, a pin on the forwardly-disposed mem-

ber of said angle-lever, and a finger-lever provided with a bearing for said pin, the said bearing having an outward opening.

3. In a type-writer, a fulcrumed type-bar having an inclined extension from its fulcrum-point, a pin on said extension, a finger-lever, and a fulcrumed angle-lever having its forwardly-disposed lower member operatively connected to the finger-lever and having a slot in its upwardly-disposed member for receiving said pin, the said slot being curved at its upper portion whereby a quick motion will be imparted to the type-bar when the pin is moving in said curved portion of the slot.

4. In a type-writing machine, in combination with type-carrying bars, finger-levers, a fulcrum-rod for said finger-levers, a spring having connection at one end with each finger-lever rearward of its fulcrum, and an adjusting-screw with which the other end of the spring engages the said spring being entirely free between its ends.

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

JESSE ALEXANDER.

Witnesses:

JNO. M. RITTER,

C. R. FERGUSON.