No. 773,772. PATENTED NOV. 1, 1904.

J. ALEXANDER.

TYPE WRITER KEY AND TYPE BAR MECHANISM.

APPLICATION FILED SEPT. 9, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

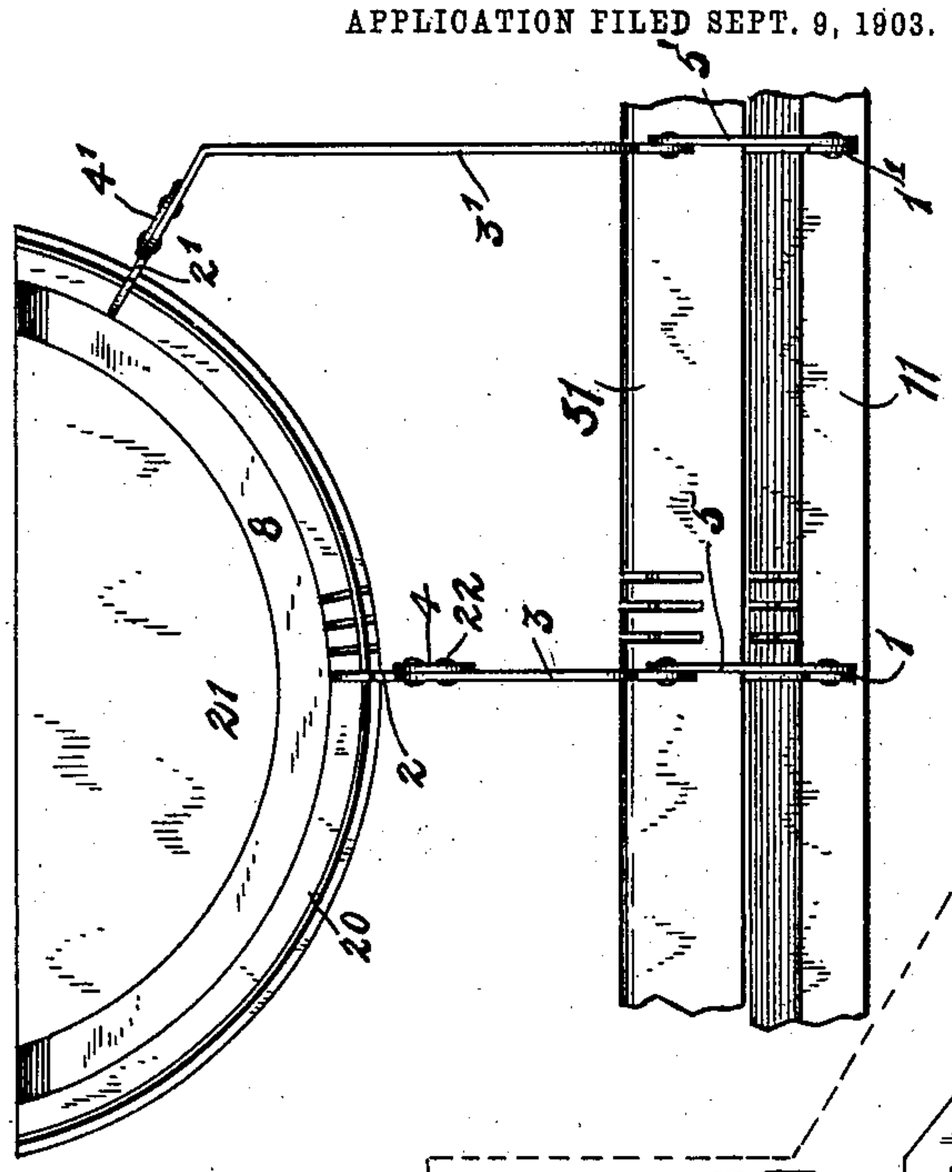
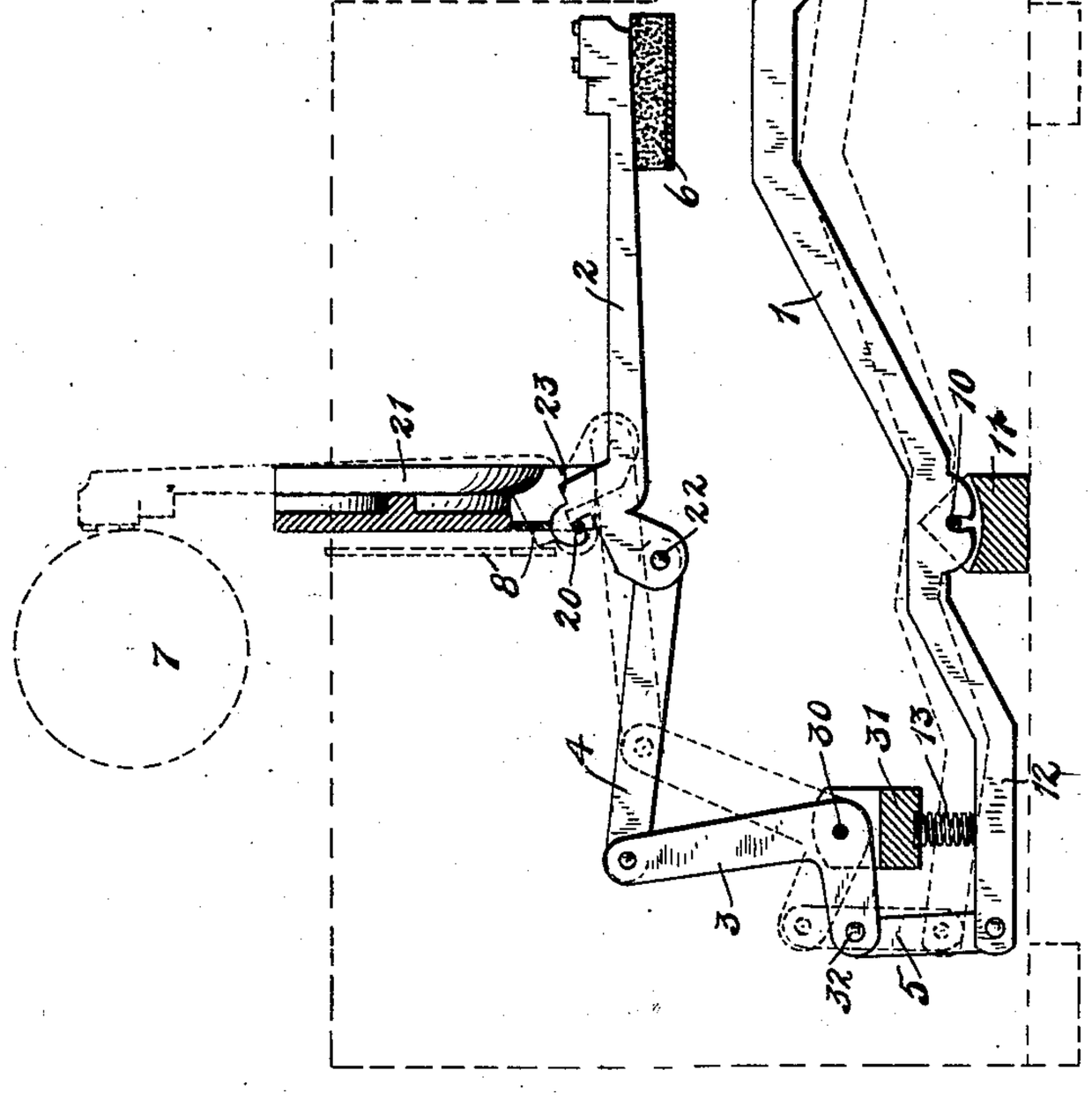


Fig. 1.



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TYPE WRITER KEY AND TYPE BAR MECHANISM.

APPLICATION FILED SEPT. 9, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

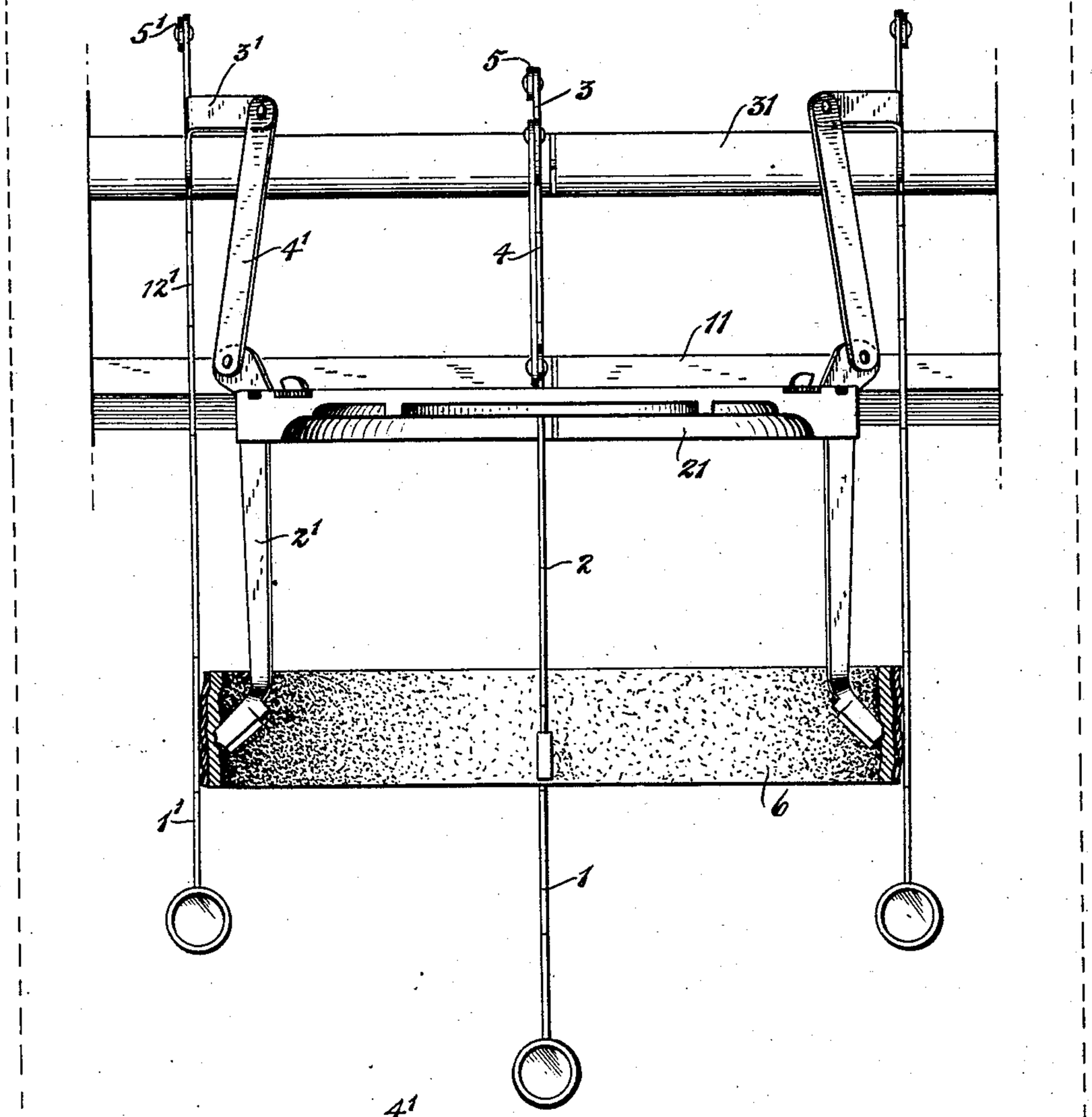
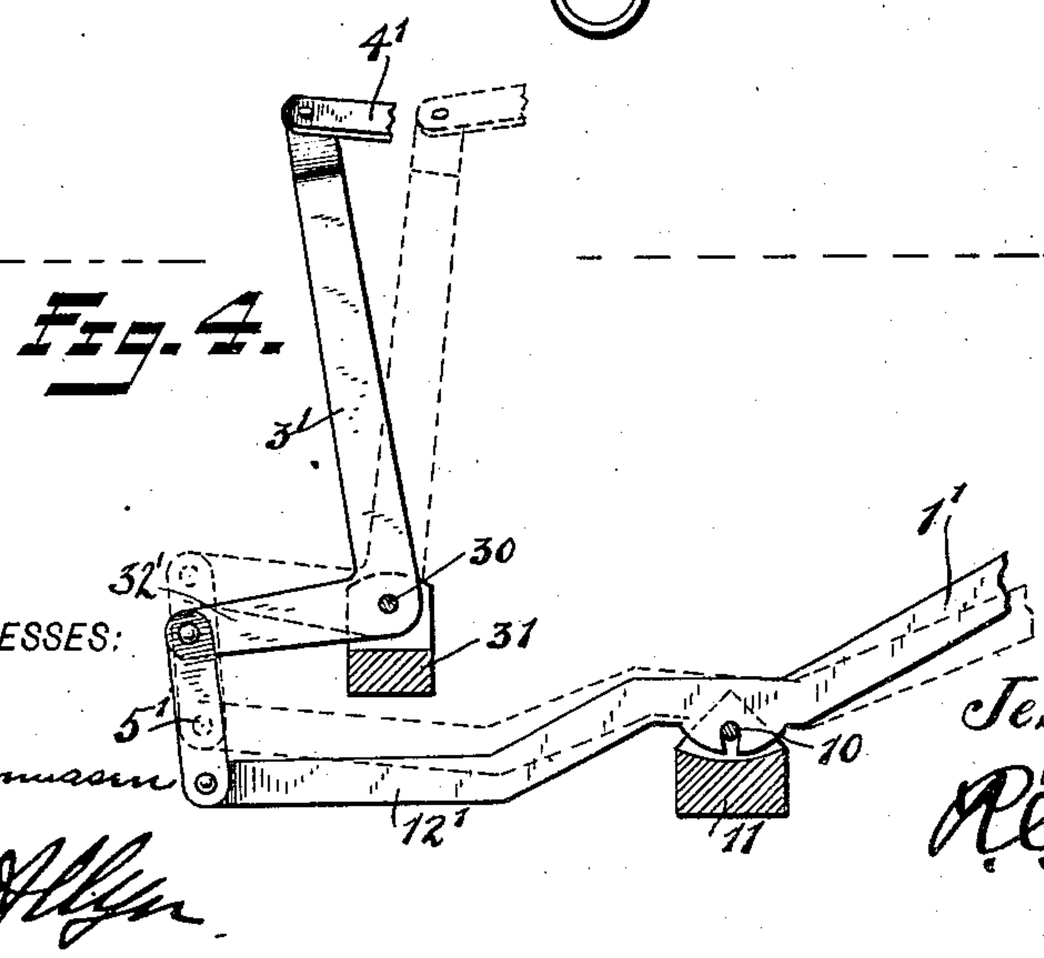


Fig. 4.



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No. 773,772. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

JESSE ALEXANDER, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO WALTER E. SCOTT, OF BROOKLYN, NEW YORK.

TYPE-WRITER KEY AND TYPE-BAR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 773,772, dated November 1, 1904.

Application filed September 9, 1903. Serial No. 172,482. (No model.)

To all whom it may concern:

Be it known that I, JESSE ALEXANDER, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Type-Writer Key and Type-Bar Mechanism, of which the following is a full, clear, and exact description.

My invention relates to improvements in type-writers, and particularly to the key and type-bar mechanism therefor.

The construction of the machine in which this invention is adapted to be used is of the front-strike class, in which a horizontal platen is provided with mechanism for rotating it and for moving it longitudinally from side to side of the carriage. A suitable ribbon-operating mechanism is also provided in a machine of this class for moving the ribbon from one side to the other in order that the type may print upon the paper, as is customary; but since this invention involves only the mechanism for moving the type toward and from the printing position the other parts of the construction are omitted.

It is the object of this invention to construct mechanism which shall have a resilient and light touch for operating the type-bars and which may be simple in construction and such as to be but little likely to get out of order in usual operation.

The invention consists in mounting a series of type-bars on the arc of a circle and in providing a series of key-levers mounted on a horizontal axis beneath the type-bars. At the rear of the series of type-bars is mounted on a horizontal axis a series of intermediate levers having upwardly and rearwardly extending arms. The type-bars and key-levers each have rearwardly-projecting portions which are connected, respectively, to the upright and rearwardly-extending arms of the intermediate lever by suitable links. To assist in holding the parts in their normal position, I prefer to employ a spring. All these will be more readily understood from an inspection of the accompanying two sheets of drawings and the following specification.

Figure 1 is a side elevation of a single key and type-bar unit embodying the improvements of my invention, the same being shown with the pivotal supports or mounting devices for the members in section, the general outline of the machine and the platen being shown dotted, as also the key and type-bar mechanism in the printing position. Fig. 2 is a rear elevation of the type-bar-mounting structure and a fragment of the mounting-bars for the key-levers and the intermediate levers, a single key and type-bar unit being shown in the central portion of the mounting members and a single unit at the outer edge. Fig. 3 is a plan view of a construction embodying the improvements of my invention, the parts being shown in their normal position. Fig. 4 is a side elevation of a fragment of the outer key and type-bar construction, or that farthest from the center of the machine.

1 is a key-lever, mounted on the horizontal pivot-rod 10, carried by the slotted key pivot-support 11.

2 is a type-bar, which is pivoted on a rod 20, formed in the arc of a semicircle and mounted at the rear of the type-bar pivotal supporting-plate 21.

3 is an intermediate lever, mounted on the horizontal pivot-rod 30, carried by the slotted intermediate lever-supporting member 31 at the rear of the machine. The supporting-pivot for the key-levers is directly beneath the supporting-pivot for the type-bars.

4 and 5 are connecting-links which extend from the intermediate lever to the extension-arm 22 of the type-bar 2 and to the extension-arm 12 of the key-lever 1, respectively. The link 4 lies in its normal position with its forward end on a slightly lower plane than its rear end, so that when the mechanism is operating it passes from the position below the horizontal to the position slightly above the horizontal, and thus maintains, as nearly as possible, a uniform position and pressure. The link 5 in all its positions is substantially perpendicular, being connected to the rear arm extension 32 of the intermediate lever, so that a straight pull results.

The depression of the front end of the key-lever 1 causes the rear extension 12 to rise

against the pressure of the spring 13, and thus raises the type-bar 2 forcibly to the printing position by means of the intermediate mechanism. Both the links 4 and 5 in operation are put under compression, and since they are preferably formed of spring-like metal there is a yielding effect which would not be attained if these members were tensional members. This elasticity is of great value in improving the touch of the machine. It will be noted that although there is this elasticity of touch due to the compression members there is, nevertheless, a positive and not a sliding connection between the parts, so that the spring 13 can instantly return them to their normal position as soon as the key-lever 1 is released.

Figs. 2, 3, and 4 show, in addition to the unit just described, the counterpart unit at the extreme outer position—viz., the key-lever 1′, with the rear extension-arm 12′, the type-bar-connecting link 4′, the intermediate lever 3′, with its arm 32′, and the key-lever-connecting link 5′. It will be noted that the upper end of the intermediate lever 3′ is bent toward the type-bar plate 21, so as to obtain a direct and more uniform action of the type-bar.

In their normal positions the ends of the series of type-bars rest on a suitable pad-support 6, and in their operative position they are raised to print against paper wound about the platen, (indicated by the dotted circle 7 in Fig. 1.) As a type-bar is raised to the printing position a shoulder 23, carried thereby, is brought into contact with a universal bar 8, which is semicircular, as shown in Fig. 2, and mounted directly to the rear of the type-bar plate 21 and above the pivot-rod 20.

What I claim is—

1. A key and type-bar mechanism for a type-writer including, a series of type-bars mounted on the arc of a circle and having projecting lugs below their pivotal supports, a series of intermediate levers pivoted at the rear of said type-bars and below the same said levers having upwardly-extending arms connected to the lugs of the type-bars and horizontally and rearwardly extending arms, a series of key-levers pivoted intermediate their ends and connected at their rear ends with the rearwardly-extending portions of the intermediate levers.

2. A key and type-bar mechanism for a type-writer including a vertically-mounted type-bar plate, a series of type-bars pivotally carried thereby and having lugs projecting downwardly from their pivotal centers, a series of intermediate levers pivoted at the rear of said type-bars and below the same and having upwardly-extending arms and rearwardly-extending arms, a series of connecting-bars pivoted to said upwardly-extending arms of said intermediate levers and to said downwardly-projecting lugs of said type-bars, a series of key-levers, pivotal supports for said key-levers intermediate their ends and a series of connecting-bars pivoted to said rearwardly-extending arms of said intermediate levers and to the rear ends of said key-levers.

JESSE ALEXANDER.

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