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TYPE WRITER KEY AND TYPE BAR MECHANISM.

APPLICATION FILED JAN. 5, 1909. RENEWED OCT. 8, 1910.

978,531.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

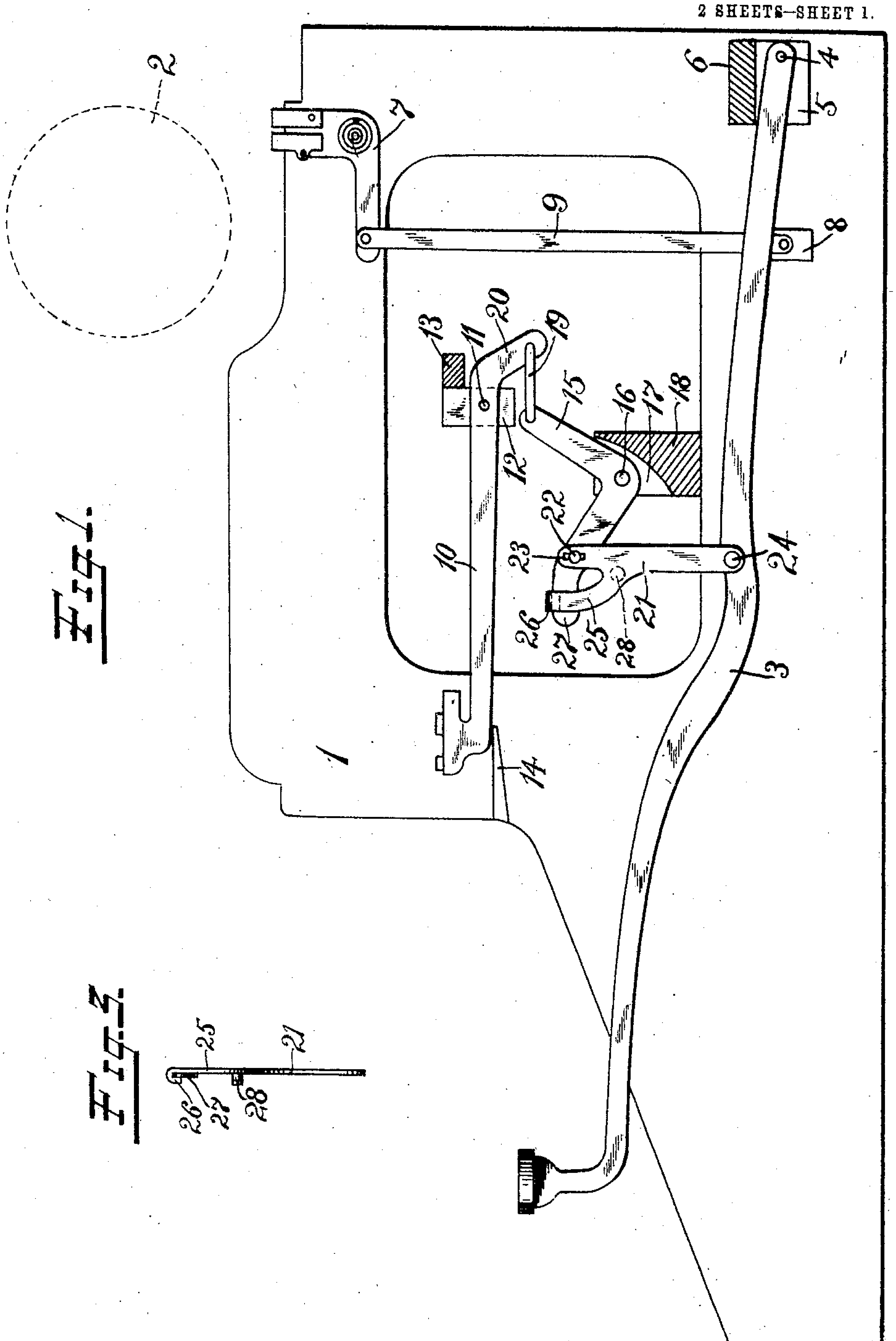

Fig. 2.

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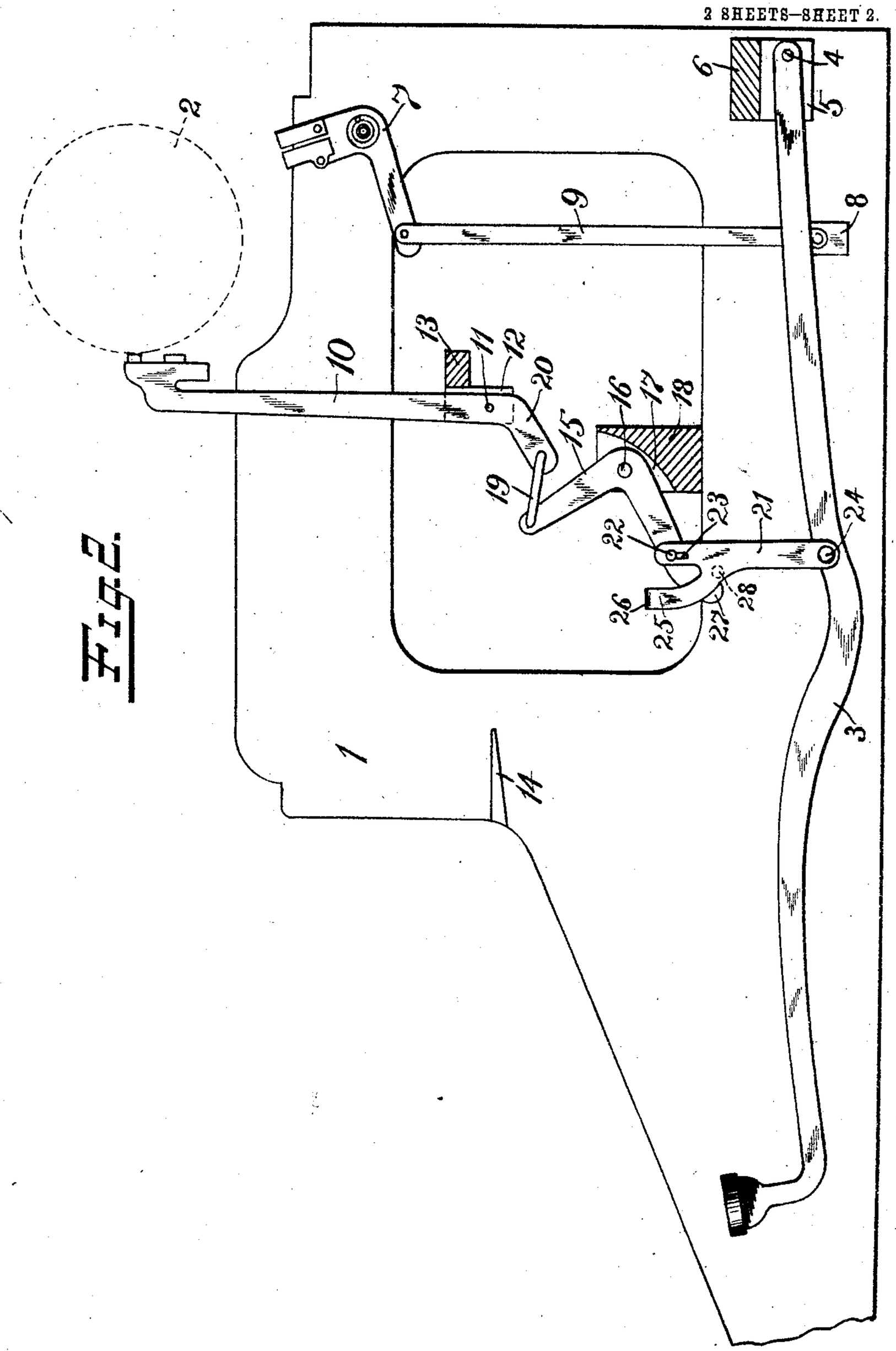

FIG. 2.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITER KEY AND TYPE-BAR MECHANISM.

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To all whom it may concern:

Be it known that I, JESSE ALEXANDER, a citizen of the United States, residing at Brooklyn, Kings county, 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 typewriting machines and is particularly concerned with improvements in the key and type-bar operating mechanism.

The object of the invention is to provide a mechanism of this character, of simple construction, few parts and one which may be readily assembled and disassembled.

A further object of the invention is to provide actuating connections between the key lever and type-bar, whereby the initial movement of the latter may be effected by light touch upon the key lever and whereby accelerated movement of the type-bar may be effected during the printing stroke in order to deliver a firm printing impression.

A further object is to provide for quick return of the type-bar after the delivery of the printing impression to secure a clear impression and prevent blurring thereof.

A further object is to so provide for these various movements of the type-bar that the same may be effected smoothly and without jar to the operator.

With these and other objects in view, the invention consists in the construction and arrangement of parts, a preferred embodiment of which is illustrated in the accompanying drawings, in which,

Figure 1 is a central sectional view of so much of a typewriting machine as is necessary to illustrate my invention, and showing the type-bar at rest. Fig. 2 is a view similar to Fig. 1 showing the type-bar in printing position, and, Fig. 3 illustrates a detail of the connection between the type-bar and its actuating mechanism.

The embodiment of my invention herein selected for illustration comprises the usual machine frame 1 and platen 2, the latter being indicated in dotted outline, the key levers 3 which are pivoted at 4 within slots 5 of a bar 6 arranged transversely of the machine frame.

7 indicates the usual feed dog which is connected with universal bar 8 by link 9, said bar being located beneath the key levers 3 in the usual manner. The type-bars 10 are pivotally mounted at 11 within slots 12 upon a type-bar segment 13 such as is ordinarily employed in so-called "visible" writing machines. The outer ends of the type-bar when at rest, are supported upon a ledge 14, which is also segmental to correspond with the segmental form of the type-bar support.

The actuating mechanism for the type-bars intermediate of the same and the key levers, comprises the bell-crank levers 15 pivoted at 16 in slots 17 of a suitable support 18, located transversely of the machine frame, one of the arms of each of said bell-crank levers being connected by a link 19 with the heel 20 of the type-bar. To the other arm of each of said bell-crank levers is connected an actuating link 21 which has a lost motion connection with said bell-crank lever through a pin and slot connection 22—23, the lower end of said link 21 being pivoted to the key lever at 24.

In the normal inoperative position of the type-bars, the pin 22 of the pin and slot connection is located below the upper end of the slot 23, whereby the pin and slot connection is inoperative during the initial movement of the link 21 by the key lever 3. While I have here shown the pin 22 mounted upon the lever 15, and the slot formed within the link 21, it is to be understood that this arrangement may be reversed within the scope of my invention. The actuating link 21 is further provided with an off-set arm 25, having a hooked end 26, Fig. 3, adapted to engage over an extension 27 of the forward arm of the bell-crank lever 15, which hooked portion is in direct contact with said extension 27 when the type-bar is at rest, as illustrated in Fig. 1. By this construction, initial operation of the type-bar is effected through the hooked portion 26 of the actuating link 21 and the extension 27 of the bell-crank lever 15. Inasmuch as this connection is located at a considerable distance from the pivot point 16 of said bell-crank lever 15, whereby considerable leverage is secured, it is evident that initial movement of the type-bar 10 may be effected by a comparatively light touch upon the key lever 3.

In order to accelerate the movement of the type-bar during the latter part of its printing stroke, the pin and slot connection 22—23

is so arranged that the said connection will take up the actuation of the bell-crank lever 15 after the same has been moved a portion of its travel by the hook connection 26—27. With this means the latter portion of the stroke of the type-bar will be sufficiently accelerated to enable the type to deliver a firm printing impression, while at the same time, inasmuch as the actuation of the type-bar is taken up by the pin and slot connection after the bar is well under way, the change to such accelerated actuation will be substantially imperceptible to the operator.

In order to provide for quick return of the type-bar immediately after the printing impression, the actuating link 21 is provided with a pin or stop-shoulder 28 with which the extension 27 of the bell-crank 15 engages at the completion of the printing stroke, which connection serves to impart initial return movement to the bell-crank lever 15 and to the type-bar 10, as will be evident from an inspection of the relative position of the parts illustrated in Fig. 2. While I have here shown the pin or shoulder 28 mounted upon the link 21, arranged to contact with the projection 27, it is to be understood that these parts may be arranged in any other desired manner which will effect the result, within the scope of my invention.

While I have here shown a preferred embodiment of my invention, it is understood that the same may be varied in detail and arrangement of parts without departing from the spirit and scope thereof.

What I claim is:

1. In typewriter key and type-bar mechanism, a type-bar, a key lever, a bell-crank actuating lever for said type-bar, an actuating link connecting said bell-crank lever with said key lever, a connection between said link and said bell-crank lever located at a considerable distance from the pivot point of said bell-crank lever, and a lost motion connection between said link and said bell-crank lever intermediate of said first connection and the pivot point of said bell-crank lever to effect accelerated movement of the type-bar, and means on said link apart from said connections and coöperating with said bell-crank lever to produce quick return of the type-bar.

2. In typewriter key and type-bar mechanism, a type-bar, a key lever, a bell-crank actuating lever having one of its arms connected with said type-bar, an actuating link connected with the other arm of said bell-crank lever and with said key lever, and having a hooked portion to engage over the extremity of said arm leaving said arm otherwise free and a lost motion connection located between said hooked connection and the pivot of said bell-crank lever to effect accelerated movement of said type-bar.

3. In typewriter key and type-bar mechanism, a type-bar, a key lever, a bell-crank lever having one arm connected with said type-bar, an actuating link connecting the other arm of said bell-crank lever with said key lever, a hook on said link arranged to engage over the extremity of said arm leaving said arm otherwise free, and a lost motion connection between said link and said arm located intermediate of the hooked connection and the pivot point of said bell-crank lever to produce accelerated movement of said type-bar during the printing stroke, and a shoulder on said link apart from said connections and adapted to engage said bell crank lever to effect quick return of the type-bar after the printing stroke.

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