J. ALEXANDER.

TYPE WRITER KEY AND TYPE BAR MECHANISM.

APPLICATION FILED NOV. 17, 1908. RENEWED OCT. 19, 1911.

1,013,096.

Patented Jan. 2, 1912.

2 SHEETS—SHEET 1

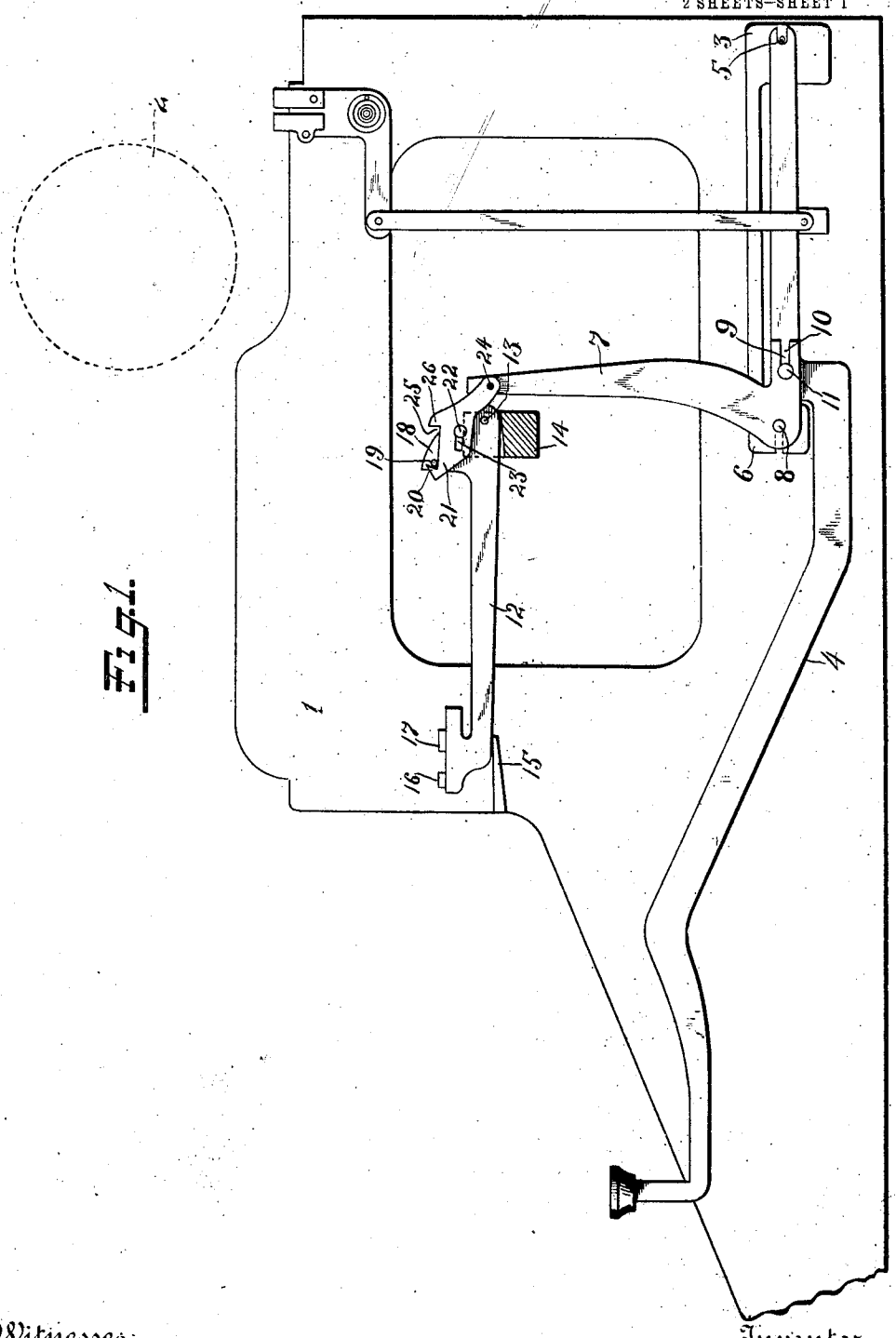

Fig. 1.

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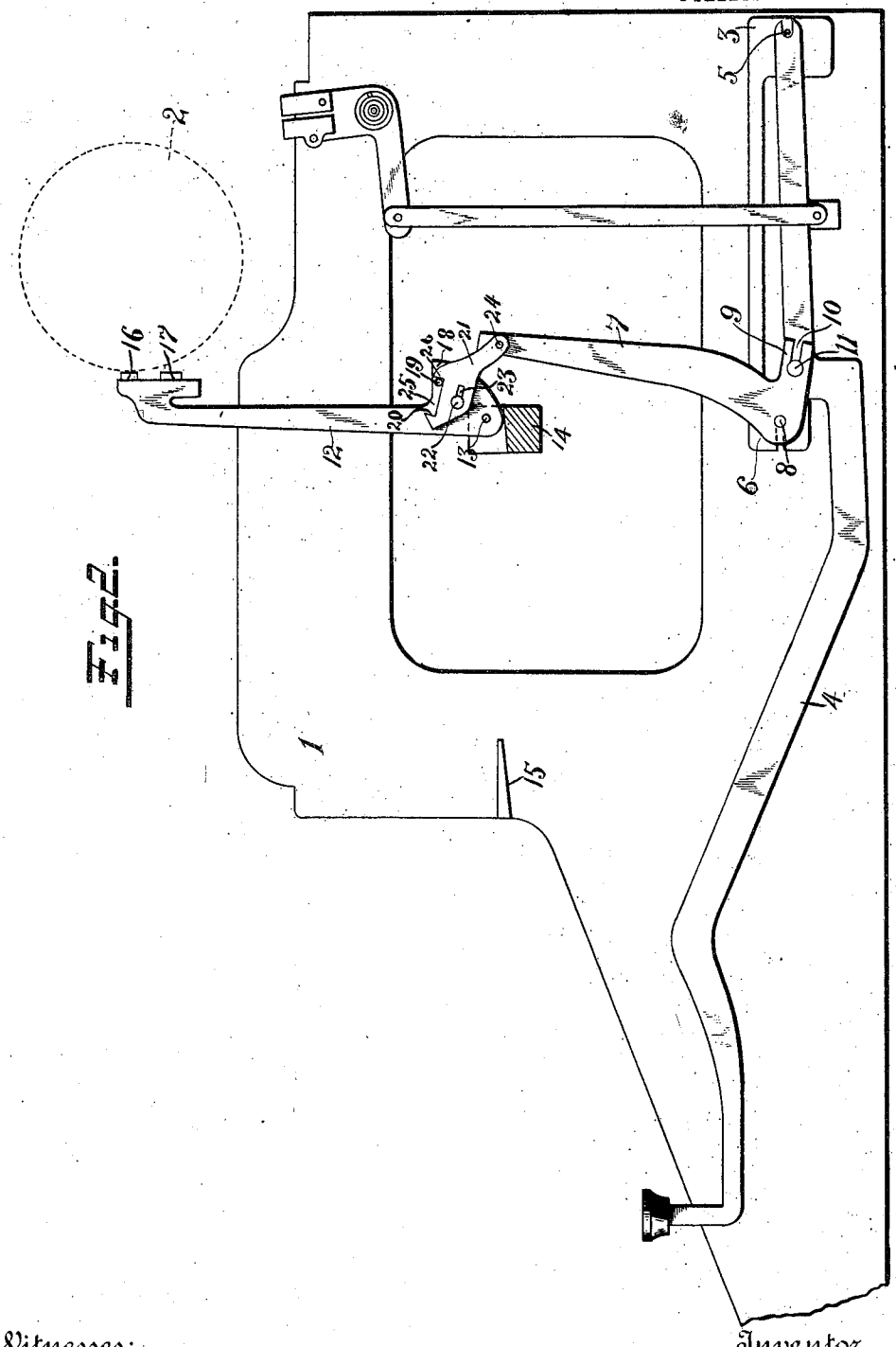

Fig. 2.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITER KEY AND TYPE-BAR MECHANISM

1,013,096. Specification of Letters Patent. Patented Jan. 2, 1912.

Application filed November 17, 1908, Serial No. 462,990. Renewed October 19, 1911. Serial No. 655,237.

To all whom it may concern:

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

My invention relates to typewriting machines, and is more particularly concerned with improvements in the construction of the key and type-bar mechanism and connections for operating the same.

The object of the invention is to secure the lightest possible touch upon the key levers to actuate the type, while at the same time securing an effectual blow of the type against the platen to make a clear impression.

A further object is to simplify the key and type-bar mechanism and to reduce it to the fewest parts.

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

Figure 1 is a vertical sectional view of a typewriting machine, showing the type-bar at rest, Fig. 2 is a similar view showing the type-bar in printing position.

In the embodiment of my invention herein selected for illustration, the typewriting machine consists of the usual frame or body portion 1, and platen 2, the latter being indicated in dotted outline.

3 indicates the support upon which the levers 4 are pivoted at 5.

Mounted upon a suitable support 6 extending over the key levers is a series of type-bar actuating levers 7 which are pivoted to said support at 8, and each of which has a rearwardly extending arm 9 provided with a slot 10 which engages an actuating pin 11 on the corresponding key lever 4.

The type bars 12 are pivotally mounted at 13 upon the usual cradle or support 14, said type-bars being supported at their outer ends, when at rest, upon a ledge or plate 15. Upon each type-bar is indicated the usual lower and upper case type 16 and 17 although the shift mechanism for bringing the upper case type into operation is here omitted as this forms no part of the present invention.

The heel of the type-bar is provided with an offset 18 which carries an actuating pin 19 with which a shoulder 20 upon the link 21, which forms the connection between the type-bar and actuating lever 7, engages. Also upon the heel of the type bar is a second actuating pin 22 which engages a slot 23 in the link 21. Link 21 is connected with actuating lever 7 preferably by pivot connection 24.

In the normal position of the type-bar, or when it is at rest, as shown in Fig. 1, actuating pin 19 engages the shoulder 20 of the link 21 while the second actuating pin 22 rests in the rear end of the slot 23 in said link. As the key lever 4 is depressed and the upper end of the actuating lever 7 is moved to the rear, an initial impulse is given to the type-bar through shoulder 20 of the link 21 against the actuating pin 19, whereby owing to the considerable distance between the pivot point 13 of the type-bar and actuating pin 19 the lightest touch upon the key will serve to start the travel of the type-bar to the printing point. As the link 21 is drawn to the rear, the forward end of the slot 23 therein is brought against the pin 22 and the remaining travel of the type-bar is effected through this connection, while at the same time pin 19 by reason of its greater distance from the type-bar pivot 13 leaves the shoulder 20 and completes its travel along the recess 25 at the upper edge of the link 21 until said pin brings up against the shoulder 26 at the rear end of said recess.

Owing to the short distance between the pivot point 13 of the type-bar and the pivot pin 22, a powerful impulse is given to the type-bar during the latter part of its travel to the printing position, whereby clear printing impression is secured. Furthermore, the pin 19 and shoulder 26 at the rear of the recess 25 are so relatively positioned that said pin engages said shoulder just before the type of the type-bar reaches the platen, whereby after the printing blow is delivered, the type, by the resiliency of the type-bar, is freed from the paper and quickly returned to position of rest.

It will be observed that the several advantages of light touch upon the key lever for

imparting initial movement to the type-bar; strong impulse for delivery of the printing blow, the freeing of the type from the paper instantly after the impression is made and quick return, are secured mainly through the peculiar construction and arrangement of the link connection 21 between the type-bar and the actuating lever 7.

While I have herein described the particular embodiment of my invention, it is to be understood the same may be altered in detail and arrangement of parts without departing from the spirit or scope thereof.

What I claim is—

1. A key and type-bar mechanism, comprising a key lever, a type-bar, an intermediate actuating lever for said bar, a link connecting said actuating lever and said bar, a connection between said link and bar remote from the pivot of the latter to impart easy initial movement thereto and a lost motion connection between said link and bar adjacent to the pivot point of the bar to impart a strong printing impulse to the latter.

2. A key and type-bar mechanism, comprising a key lever, a type-bar, an intermediate actuating lever for said bar, a link connecting said actuating lever and bar, said link having a slidable connection with said bar remote from the pivot point thereof, and having a lost motion connection with said bar adjacent to said pivot point, said second connection arranged to continue the printing stroke of the bar after initial movement from said first connection.

3. A key and type-bar mechanism, comprising a type-bar, a bar actuating lever, a link connecting said parts, a slidable connection between said link and bar at a point remote from the pivot point of the latter to impart easy initial movement to said bar, and a pin and slot connection between said link and bar adjacent to the pivot point of the bar to continue said movement and to impart a strong printing impulse to the bar.

4. A key and type-bar mechanism, comprising a type-bar, an actuating lever therefor, a link connecting said parts, said link having means to free the type-bar from the platen at the completion of the printing stroke.

5. A key and type-bar mechanism, comprising a type-bar, an actuating lever therefor, a link connecting said parts and a slidable connection between said link and bar to impart initial movement to the latter and to free the type-bar from the platen at the completion of the printing stroke.

6. A key and type-bar mechanism, comprising a type-bar, and an actuating link therefor, a shoulder on one of said parts, a pin on the other of said parts engaging said shoulder whereby to impart initial movement to said bar, and a second shoulder on one of said parts arranged to stop said pin at the completion of the printing stroke to free the type-bar from the platen and an actuating lever connected with said link.

7. A key and type-bar mechanism comprising a type-bar, an actuating lever therefor, a link connecting said parts, a slidable connection between said link and bar remote from the bar pivot arranged to impart initial movement to said bar and to free the bar from the platen upon completion of the printing stroke and a pin and slot connection between said link and bar adjacent to the pivot point of the latter arranged to take up said initial movement and impart a strong printing impulse to said bar.

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