

No. 894,769.

PATENTED JULY 28, 1908.

E. L. WOOD.  
TYPE WRITER.

APPLICATION FILED JULY 13, 1907.

2 SHEETS—SHEET 1.

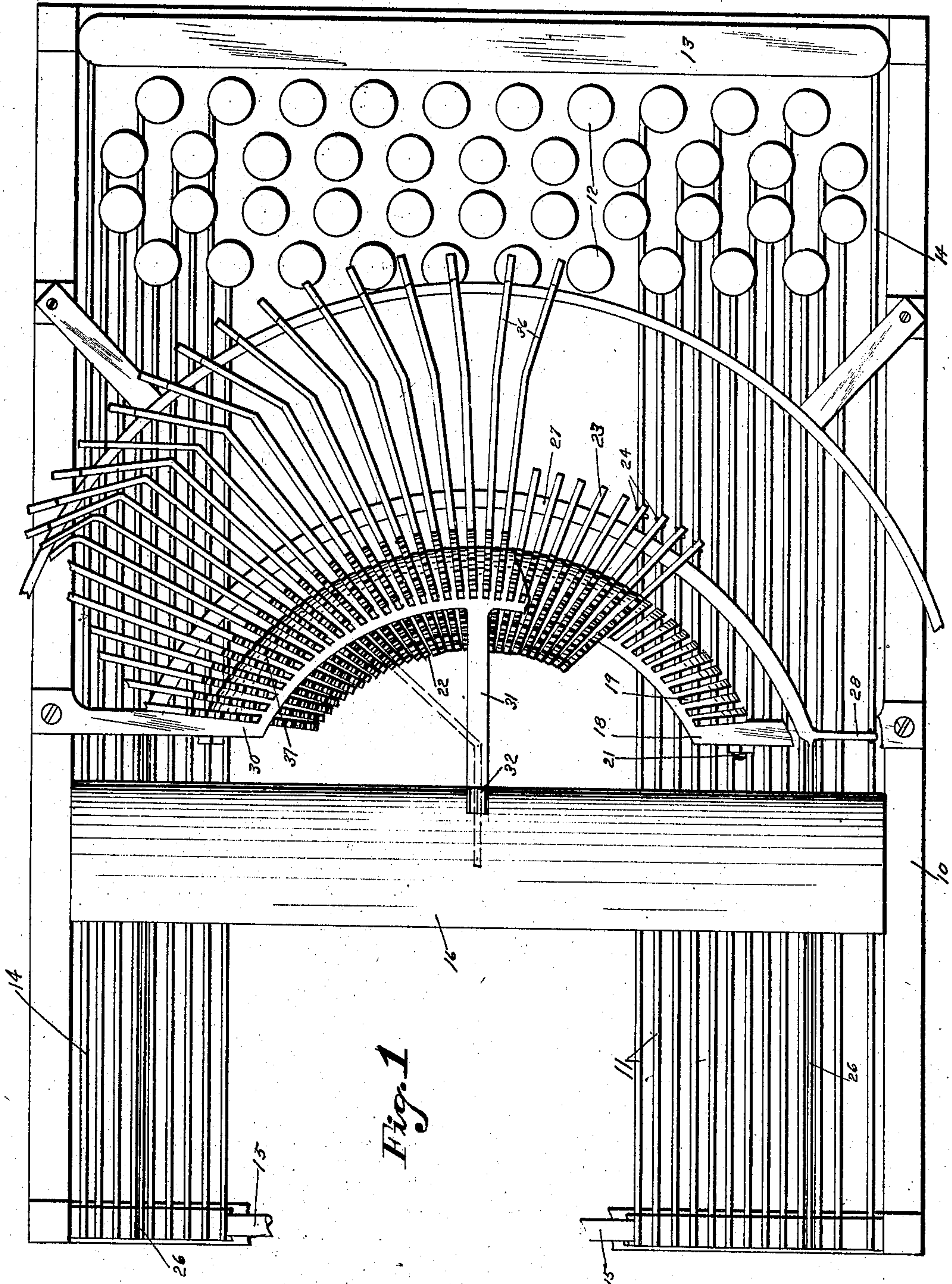


Fig. 1

Witnesses.

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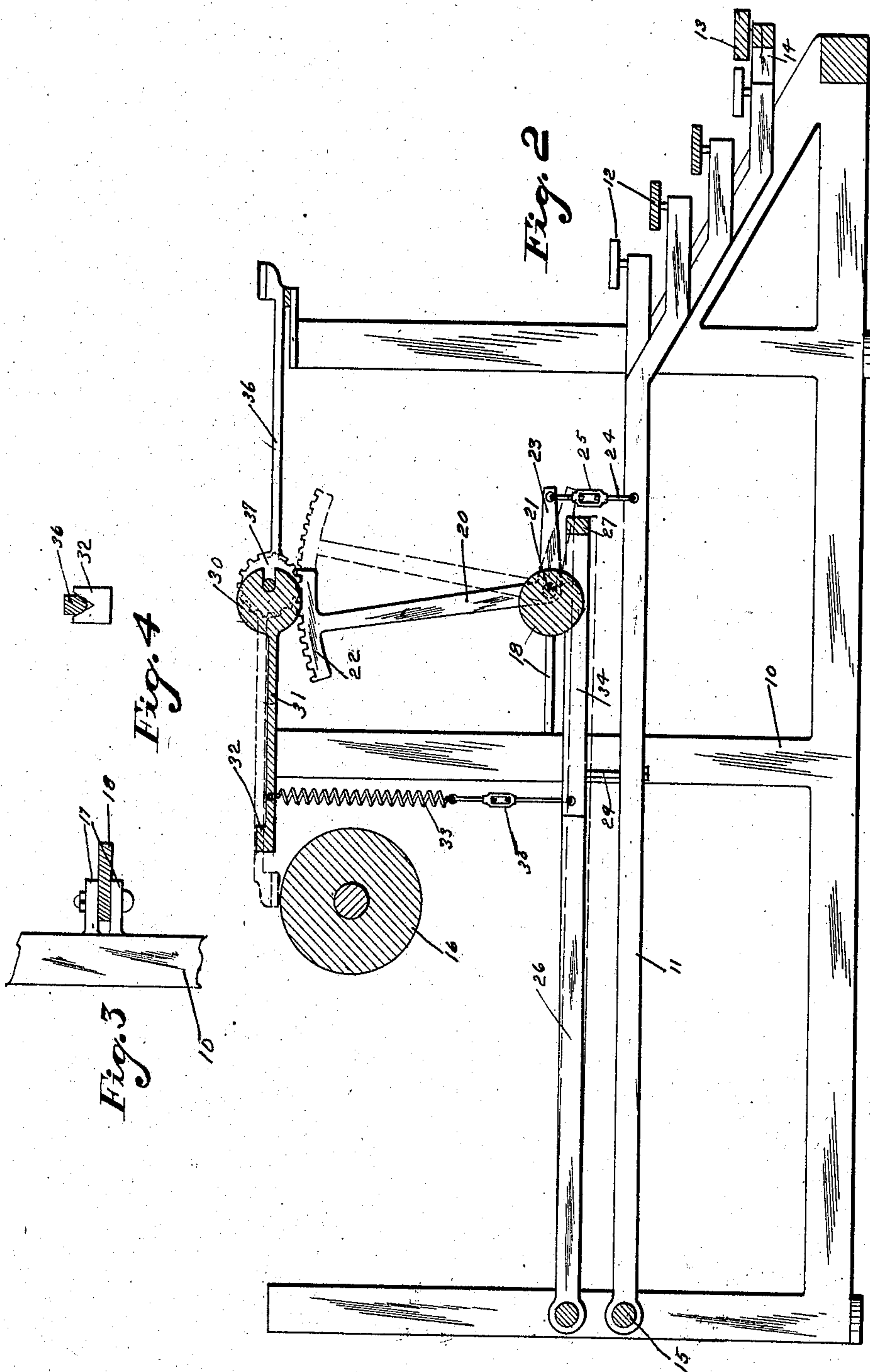
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Witnesses.  
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# UNITED STATES PATENT OFFICE.

ELBERT L. WOOD, OF NEVADA, IOWA.

## TYPE-WRITER.

No. 894,769.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed July 13, 1907. Serial No. 383,609.

*To all whom it may concern:*

Be it known that I, ELBERT L. WOOD, a citizen of the United States, residing at Nevada, in the county of Story and State of Iowa, have invented a certain new and useful Type-Writer, of which the following is a specification.

The object of my invention is to provide a type-writer of the class known as the "visible writing" machine, in which the type bearing bars are so arranged that all of them may be returned automatically by means of a single spring, to thereby provide a uniform tension for each key, and to simplify and cheapen the construction.

A further object is to provide a device of this kind that will have a comparatively light touch, for the reason that each type bearing bar will move through the greater portion of its stroke without engaging or affecting the tension spring, and during the latter part of the stroke the momentum of the type bearing bar itself will be sufficient to store power in the tension spring for returning the type bearing bar.

My invention consists in the construction, combination and arrangement of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a plan view of a part of a typewriter embodying my invention, some of the type bearing bars, keys, and other parts being omitted in order to clearly illustrate the essential features of my invention. Fig. 2 shows a vertical, central sectional view through the typewriter frame, showing the platen and one of the type bearing bars, and the mechanism for actuating it. The dotted lines in this figure show the position of the type bearing bar when in contact with the platen. Fig. 3 shows a detail view illustrating the means for attaching the guide frame of the rack levers to the typewriter frame, and Fig. 4 shows a detail view illustrating the guide device for centering the type bearing bars when they strike the platen.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the part of the typewriter frame shown.

A series of key bars 11 are fulcrumed to the rear of the frame, and are provided with the keys 12 at their forward ends. A spacing bar 13 is mounted at the forward end of the typewriter frame, and is provided with two levers 14 at its sides, which levers are pivoted at their rear ends to the rod 15, which rod also supports the levers 11.

The reference numeral 16 indicates a platen of ordinary construction.

Formed on each side of the typewriter frame, near its central portion, are the lugs 17, designed to receive the ends of a guide frame 18. The central portion of the guide frame 18 is of segmental shape, as clearly shown in Fig. 1, and is formed with a series of notches 19. Arranged in each of said notches is a rack lever 20, pivotally connected with the frame 18 by means of the rod 21 passed through the frame, and through the levers 20. At the top of each of the levers 20 is a segmental rack 22, and at the lower end of each lever is a forwardly projecting arm 23. These arms 23 are connected with the key levers 11 by means of the rods 24, each of which is preferably provided with a turn buckle 25. In this way, a depression of any of the keys 12 will cause its rack 22 to move forwardly, as shown by dotted lines in Fig. 2.

Pivoted to the rear of the frame are two arms 26, at opposite sides of the machine, said arms being extended forwardly to about the center of the machine. They are connected with the segmental bar 27, which extends across the machine, as clearly shown in Fig. 1, directly under the arms 23 of the levers 20. At the ends of the segmental bar 27 are the lateral extensions 28, each end being connected by a rod 29 with one of the levers 14, of the spacing bar. In this way, the depression of a spacing bar will operate to also depress the segmental bar 27. The mechanism for advancing the platen upon a depression of any of the key bars, or the spacing bar, forms no part of my present invention, and is therefore not illustrated or described, it being understood that I may employ any of the ordinary devices now in common use for this purpose.

In order that a uniform tension may be applied to all of the key bars, I provide a



stationary guide frame 30, near the top of the machine, said guide frame having at its central portion a rearwardly projecting arm 31, having at its top a V shaped centering guide 32, as shown in Fig. 4. Fixed to this arm 31 is a contractible coil spring 33, extended downwardly and connected to an arm 34, which arm is fixed to the bar 27, and extended rearwardly for the purpose of receiving the spring 33. A turn buckle 35 is provided for said spring, whereby its tension may be adjusted. The guide frame 30 has its central portion of segmental form, as shown in Fig. 1, and is provided with a series of notches designed to receive the type bearing bars 36, each of which has a pinion 37 on its end, which pinion rests in a notch in the frame 30, and is in mesh with the corresponding rack 22. A curved support 38 is provided for the forward ends of the type bars 36, and each of the type bars is of such shape that when in printing position, it will enter the guide 32, so that the type will be centered accurately on the platen.

In practical use, and assuming the parts to be in the position shown by solid lines in Fig. 2, and assuming further that an operator depresses one of the keys, the first movement caused thereby will be the downward movement of the arm 23, and the forward movement of the rack 22, which will cause the type bar 36 to swing upwardly and rearwardly. The parts are preferably so proportioned that this type bar 36 will swing upwardly to a point past a vertical line, before the arm 23 will strike upon the bar 27, hence this much of the movement of the type bar 36 will be accomplished very easily, and with a slight touch of the key bar, because said movement is not opposed by any spring, and all the power required is just so much as is necessary to raise the weight of the type bar 36. When the type bar has gone through this much of its movement, it will have attained a considerable momentum, and hence when the arm 23 strikes upon the bar 27, it will depress said bar against the tension of the spring 33, and only a comparatively slight pressure of the operator's finger is necessary to complete the movement of the type bar 36, toward the platen, because of the momentum of the type bar. When the bar 27 is depressed against the pressure of the spring 33, as shown by dotted lines in Fig. 2, then sufficient power is stored in the spring to instantly elevate the type bar, and throw it back to its normal position, and since there is only one spring for all of the key bars, it is obvious that the same amount of tension will be applied to each key, and in this way the printing produced by the machine will be uniform, as the operator will soon learn to strike every key with the same

pressure. Furthermore, it is obvious that a very simple and durable construction is provided, which will be inexpensive in manufacture, and easily kept in repair.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, therefor, is—

1. In a typewriter, the combination of a series of pivoted type bars, each having a pinion thereon centered at the pivotal point of the type bar, a series of levers, each having a rack thereon in mesh with said pinions, a series of key bars operatively connected with said levers, and a spring actuated tension bar so positioned as to engage each of said levers when it has partially completed its stroke.

2. In a typewriter, the combination of a series of pivoted type bars, each having a pinion centered at the pivotal point of the type bar, a series of levers, each having a rack thereon, in mesh with said pinions, an arm on each lever, a series of key bars connected with said arms, a tension bar adjacent to said arms, and so arranged as to be engaged by said arms after the key bars have partially completed their movement, and a yielding pressure device connected with the tension bar.

3. In a typewriter, the combination of a series of key bars, a segmental frame above the key bars, a series of levers mounted therein, each having a forwardly projecting arm at its lower end, and a segmental rack at its upper end, a second segmental frame arranged in a horizontal plane above the first, a series of type bearing bars, each having a pinion mounted in the upper frame, said pinions in mesh with said rack bars, a rearwardly projecting arm connected with the upper frame, and having a V shaped guide at its rear, designed to receive said type bearing bars when in printing position, a segmental tension bar arranged beneath said arms on the levers, and so disposed that the arms may be depressed throughout the major part of their stroke before engaging said tension bar, and a contractible coil spring fixed to the upper frame and connected to the tension bar, as a means for adjusting the tension of said spring.

4. In a typewriter, the combination of a series of key bars, a segmental frame above the key bars, a series of levers mounted therein, each having a forwardly projecting arm at its lower end, and a segmental rack at its upper end, a second segmental frame arranged in a horizontal plane above the first, a series of type bearing bars, each having a pinion mounted in the upper frame, said pinions in mesh with said rack bars, a rearwardly projecting arm connected with the upper frame and having a V shaped guide at its rear, designed to receive said type bearing bars when in printing position, a segmental



tension bar arranged beneath said arms on the levers, and so disposed that the arms may be depressed throughout the major part of their stroke before engaging said tension bar,  
5 a contractible coil spring fixed to the upper frame, and connected to the tension bar, means for adjusting the tension of said

spring, and a spacing bar connected with said tension bar.

Des Moines, Iowa, May 6, 1907.

ELBERT L. WOOD.

Witnesses:

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GEO. A. KLOVE.