J. B. SECOR.

TYPE BAR KEY ACTION.

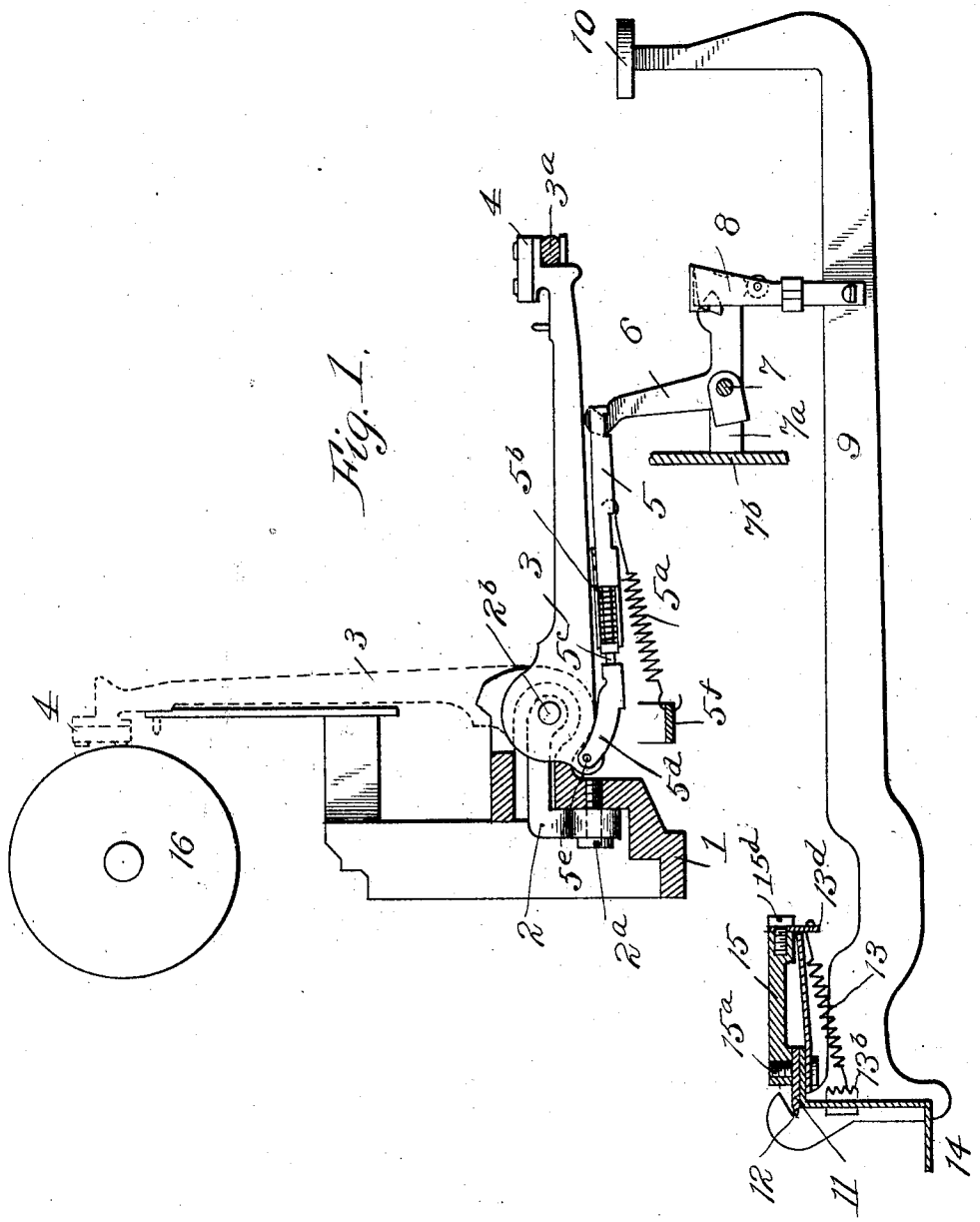
APPLICATION FILED OCT. 25, 1911.

1,037,339.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

H. H. Knight

Ray T. Ernst.

Jerome B. Secor Inventor

By his Attorneys

English Bros.

J. B. SECOR.

TYPE BAR KEY ACTION.

APPLICATION FILED OCT. 25, 1911.

1,037,339.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 2.

Fig. 2.

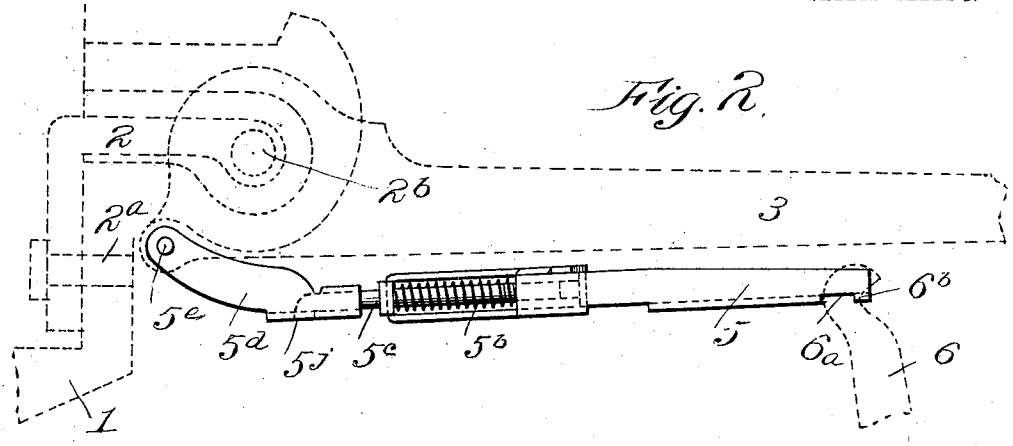


Fig. 3.

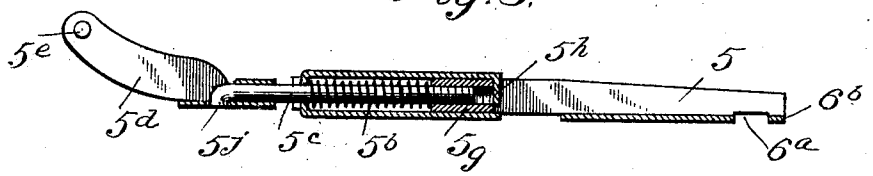


Fig. 4.

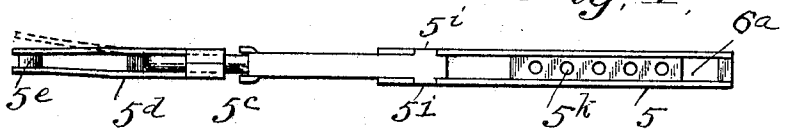
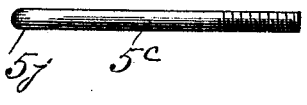


Fig. 5.



Witnesses:
H. H. Knight
Ray J. Ernst.

Inventor
Jerome B. Secor
By his Attorneys
Knight Bros.

UNITED STATES PATENT OFFICE.

JEROME B. SECOR, OF DERBY, CONNECTICUT.

TYPE-BAR KEY-ACTION.

1,037,339. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed October 25, 1911. Serial No. 656,590.

To all whom it may concern:

Be it known that I, JEROME B. SECOR, a citizen of the United States, residing at Derby, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Type-Bar Key-Actions, of which the following is a specification.

The objects of my invention are to provide an antifrictional fulcrum for the key-levers of a writing machine and a connecting link of special construction to be employed intermediate the key-levers and the type-bars of such a machine whereby the impact of the type in printing is not sensibly transmitted to the finger of the operator and the finger-key action is cushioned or softened, also, to so construct this link that desirable adjustments in the length of this link and the tension of associated springs may be conveniently made.

My invention relates to, and is applicable to any of the several forms of type-bar writing machines, but is especially adapted to that class of writing machines usually designated as front strike machines or machines where the type-bars are vibrated from a horizontal to a vertical position to strike rearwardly upon the front side of a platen.

In the drawings, in which as much of a Secor typewriter is shown as is necessary to illustrate my devices, Figure 1 is a sectional view of part of a Secor writing machine. Fig. 2 is an enlarged side view of my improved connecting link. Fig. 3 is a longitudinal section of my improved connecting link. Fig. 4 is a top plan view of the same link as in Fig. 3. Fig. 5 is a side view of the hooked screw member employed in my improved connecting link.

Referring to Fig. 1, 1 is the type-bar supporting segment of a typewriter which is usually supported by the side plates of the machine (not shown). 2 is a type-bar hanger attached to the segment 1 by the screw 2^a which bears the fulcrum stud 2^b upon which the type-bar 3 is pivoted to vibrate in printing operations. This type-bar 3 is shown in its normal position and in dotted outline in printing position. In this last position the type 4 is shown in contact with the platen 16. The type-bar 3 is operated to printing position by depressing the finger-key 10 which in turn actuates the key-lever 9, the link 8, the bell crank or sub-lever 6 and the link 5 which is attached to the short arm of the type-bar 3 by the pin 5^e. The rear end of the key-lever 9 is supported and vibrates on the rear edge of the horizontally disposed knife edged fulcrum plate 11 which extends across the rear of the machine and is supported by the bar 15 which is a part of the frame of the machine and to which it is attached by a series of screws one of which is shown at 15^a. These screws 15^a also serve to attach to the bar 15 the annular sheet metal reed-bar 14 which is provided throughout its length with a series of slots (not shown) within which the rear ends of the key levers 9 are disposed. The key-lever spring attaching plate 13^d which is perforated with a series of holes (not shown), for the entrance and attachment of the front ends of the key-lever springs 13 is also secured to the bar 15 by means of similar screws 15^d. The key-lever 9 is provided with a fulcrum engaging V-shaped notch 12 with its opening directed horizontally and embracing the rearwardly projecting edge of the knife edged fulcrum 11. Contact of the bottom of the V-shaped notch 12 with the edge of the fulcrum 11 is maintained by the spring 13 which is attached to the plate 13^b and draws forwardly in substantially a horizontal plane and longitudinally of the key-lever 9 and at a tension to sufficiently resist any endwise thrust that may ensue from the depression of the finger-key 10, and no more. By this arrangement, I secure a fulcrum which is antifrictional in character and so disposed with relation to thrust or load upon it as not to be impaired by long continued use and provides a constant and at the same time yielding contact of the parts whereby silent working is positively assured at all times. By mounting this knife-edged key-lever fulcrum to operate in a plane at right angles to the direction of finger-key thrust all tendency for the key-levers at the embracing V-shaped notch to become abraded or unduly indented is overcome and durability is secured.

Referring to Fig. 2, an enlarged view of my improved connection which is also shown in Fig. 1 is illustrated. This is an operating connection between the sub-lever 6 and the type-bar 3 as shown in Fig. 1. This improved connection is comprised of the following parts: a link comprising spaced side bars 5 integrally joined by a flat bottom plate provided with adjustment

apertures 5^k and a rear end socket with parallel walls for slidably housing an adjusting nut 5^g, and adjusting screw 5^c, the yoke 5^d with its apertured cross bar in which the hooked end 5^j of the screw 5^c engages and the pivot pin 5^e. The forward portion 5 of the link is preferably made from sheet metal and is first formed up with a U section having an extension which is bent at right angles at three points back upon itself to form the housing for the nut 5^g and the keeper or abutment 5^h. In order to secure the return member of this extension to the U section it is provided with tenons 5^i set into the latter. As illustrated in Fig. 2 this link comprises the forward end provided with a stirrup 6^b for engaging the upper end of the sub-lever 6, the central portion or housing and the rear or loop portion. The extremity of the loop portion is perforated to adapt it to slidably engage and support the adjusting screw 5^c which is threaded in the nut 5^g which is slidably mounted in the housing formed on the rear end of the link. The connecting screw 5^c serves as an axial support for the compression spring 5^b which is interposed between the nut 5^g and the rear end of the loop portion. The adjusting screw 5^c terminates at one of its ends with the hook 5^j which serves as one of the means of attachment to the clip 5^d. This clip 5^d is formed from sheet metal in U section, the forward end of which is closed upon and surrounds the adjusting screw 5^c to which it is attached. The portion of the part 5^d surrounding the screw 5^c serves to keep it in alinement therewith and the hook 5^j passing through a perforation in this part secures it against withdrawal. Beyond the U portion this part 5^d terminates in an upturned bifurcated portion which embraces the heel or short-arm of the type-bar 3 to which it is pivotally attached by the pin 5^e. The bottom of the forward end of the U portion of the body portion 5 is perforated at 6^a leaving a cross bar 6^b which engages the front edge of the upper end of the sub-lever 6 which passes through the perforation 6^a. Movement of this connecting link is generally forward in approximately a horizontal direction as it is here employed. Its forward movement is under the impulse of finger-key depression and its return movement is secured by the spring 5^a which is fixed at one of its ends upon the U bar 5^f, Fig. 1, which is supported by the frame of the machine. The other end of this spring 5^a engages the part 5 at one of a series of perforations in the bottom of the U portion, one of which perforations is indicated at 5^k. By engaging this spring 5^a with any one of the successive perforations 5^k the tension of that spring may be increased or diminished at will.

Referring to Fig. 1, the type-bar 3 is shown in normal position with its forward end supported upon the type-bar pad 3^a. Variations in the relative level of this pad and the fulcrum 2^b would ordinarily be transferred as variations in height to the finger-keys 10. These or other variations affecting the height or level of the finger-keys is easily compensated for in my improved connecting link by disengaging the link from the type-bar 3 and making the necessary adjustment by means of the screw 5^c and nut 5^g whereby the effective length of the link may be altered. In disengaging this link from the type-bar 3, one of the members of the clip 5^d is sprung aside as shown in Fig. 4 in dotted outline, leaving the pin 5^e attached to its opposing member. As hereinbefore described the nut 5^g is slidably mounted in the part 5. At the conclusion of any key-stroke this link has a tendency to elongate by reason of the compression of the spring 5^b between the abutments comprised in the nut 5^g and the end of the loop portion through which the adjusting screw 5^c passes, this adjusting screw now serving as a drawbar. By this arrangement of parts in their relation to each other, I secure by the use of the same parts desirable adjustment features and a yielding connection member from which I secure a soft and pleasant key-action which is highly desirable with respect to securing uniform type impressions, for which I claim:

1. In a type bar action for writing machines, a link comprising a type bar operating yoke provided with an aperture, a member provided with a housing with an aperture in the end thereof, an adjustment screw provided with a hook engaging the aperture in said yoke and extending through the aperture in said housing, an adjustment nut slidably mounted in said housing and threaded to said screw, and resilient means interposed between said nut and the end wall of said housing.

2. In a type bar action for writing machines, a link comprising a type bar operating yoke provided with an aperture, a key operated member provided with a housing, an adjusting screw extending through the aperture in said yoke and into said housing, a nut carried by said screw within said housing, and a spring mounted on said screw between said nut and the end wall of said housing.

JEROME B. SECOR.

Witnesses:
FRED EBEL,
T. H. COCKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."