Sept. 11, 1923.

1,467,723

C. GABRIELSON

TYPEWRITING MACHINE

Filed May 15, 1922

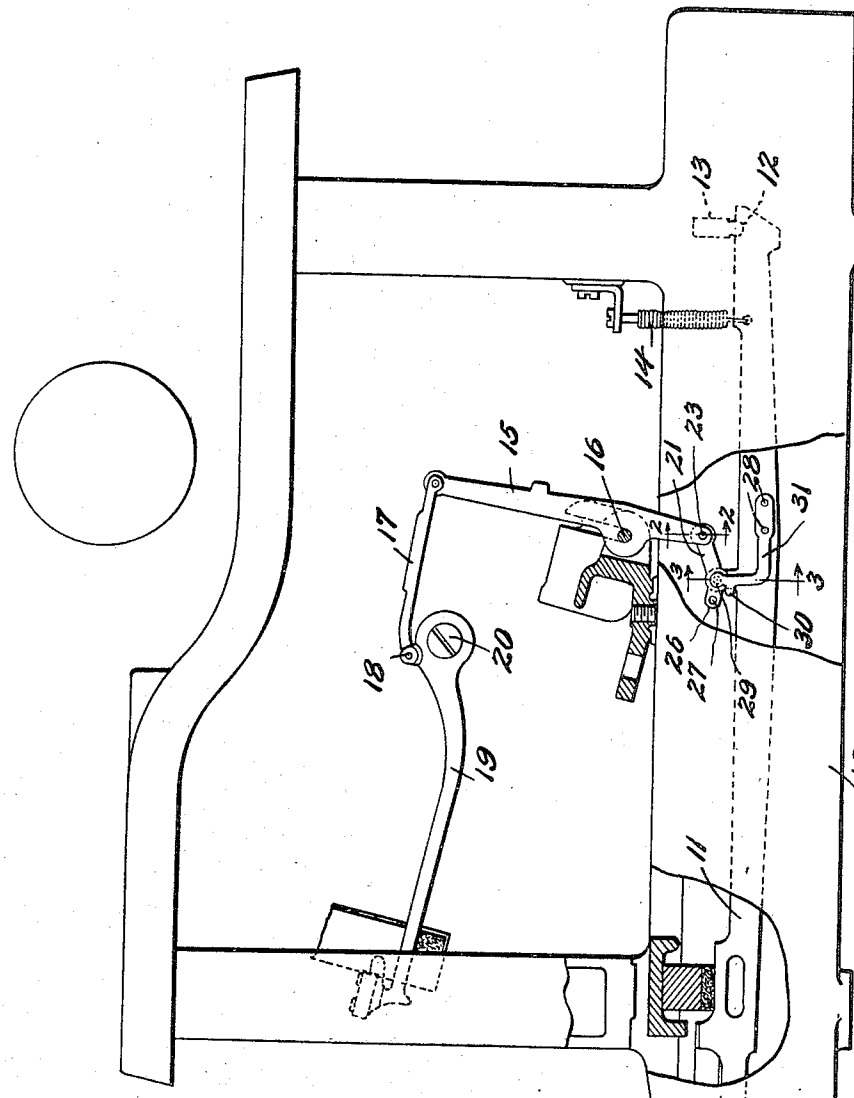

FIG. 1.

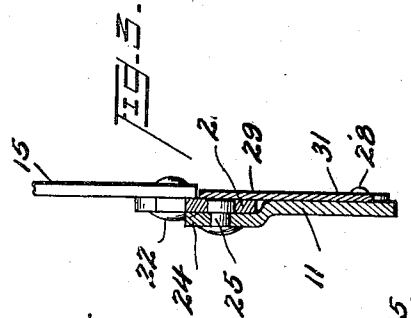

FIG. 3.

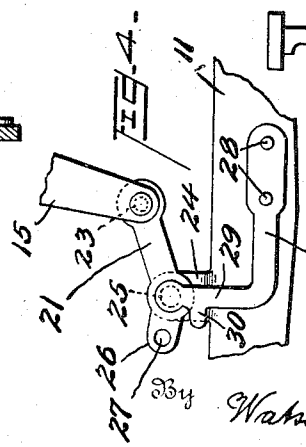

FIG. 4.

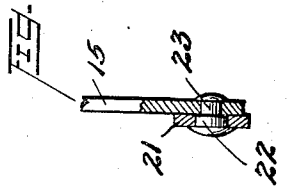

FIG. 2.

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UNITED STATES PATENT OFFICE.

CARL GABRIELSON, OF SYRACUSE, NEW YORK, ASSIGNOR TO L. C. SMITH & BROS. TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPEWRITING MACHINE.

Application filed May 15, 1922. Serial No. 560,985.

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and residing at Syracuse, Onondaga County, State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to the type actuating mechanism of typewriters and resides in the novel structural features of the key lever, sublever and in the means for operatively connecting them. In the form shown it is designed primarily for use in the well known L. C. Smith & Bros. typewriter, but in its broader aspects it is not limited to that use. It results in simplifying the construction, making the connection and disconnection of the parts easy and the action of the mechanism more efficient and reducing the cost of manufacture by avoiding the necessity for hardening the integral parts of either the key lever or sublever and the resulting tendency to warp and spring out of place while still permitting the necessary hardening of the wearing surfaces. The novel features will be more fully understood from the following description and claims taken with the drawings.

In the drawings:

Fig. 1 is a side view of so much of the typewriter machine as is necessary to illustrate the present invention and includes parts broken away and in vertical section;

Fig. 2 is a section on the line 2—2 of Figure 1;

Fig. 3 is a section on the line 3—3 of Figure 1; and

Fig. 4 is an enlarged side view of the lower end of the sublever and the means connecting it to the key lever.

In the form of invention shown the main frame 10 of the typewriter is of the usual construction and it embodies the usual number of key levers 11 which are composed of thin flat strips of metal having curved bearing notches 12 on their upper sides at the inner end bearing on the lower rounded edge of the bearing bar 13 and supported by the spring 14. Above each key lever there is a sublever 15 composed of a thin flat strip of metal pivoted at 16 for turning in a plane longitudinally of the key lever to which it is connected and extending upwardly therefrom at an angle approaching a right angle. The upper ends of these sublevers 15 are connected to links 17 which links are at their ends pivotally connected at 18 to a type bar 19 which is pivotally mounted at 20 on the segment, as is well known in devices of this kind.

The present invention relates to the novel structural means for connecting the lower end of the sublever 15 to the key lever 11 to impart the necessary rotary movement to the sublever in operating the type bar 19. The connecting means includes a link 21 made of metal which has a bearing opening at one end in which the larger portion of the shouldered pivot pin 22 fits and by which it is supported. The smaller end portion 23 of this shouldered pin passes through the lower end of the sublever 15 and is riveted thereto whereby the link is pivoted to the lower end of the sublever so as to have relative rotary movement in parallel planes. The link 21 extends toward the forward end of the machine from the lower end of the sublever 5 and at an angle to that sublever, as shown in Figure 1. The key lever 11 has an integral ear 24 a short distance from the lower end of the sublever towards the front of the machine and this ear may be offset laterally a distance equal to the thickness of the key lever. A pivot pin 25 passes laterally through this ear 24 projecting over the upper surface of the key lever, as shown in Figure 3, and may be riveted to the car so as to be permanently attached. The link 21 has a lateral bearing opening near its lower free end which is of such size as to rotatively fit the projecting end of the stud 25 with its outer surface in substantially the same plane as the outer end of stud 25. The link 21 may thus be connected to or disconnected from the key lever by a lateral movement inward as the stud enters the bearing opening and outwardly to release position, there being enough flexibility of the connections to permit this movement. In order to facilitate this connection and disconnection, the link 21 is provided with an extension 26 having an opening 27 therein through which the pointed end of a hook or other instrument may be inserted for the purpose of imparting this necessary movement to the link. In order to properly hold the link 21 in position engaging the end of the stud 25, a strip of spring metal 31 is rigidly secured to the side of the key lever

11 at one end by rivets 28 or other suitable means and has an end extension 29 projecting upwardly across and making yielding contact with the end of stud 25 so that it will prevent disconnection of the link from the stud and maintain the operative relations of the parts. For convenience of releasing this spring it is preferably provided with a projecting portion 30 which may be engaged by the point of an instrument or by the finger to move that end of the spring outwardly so as to permit the disengagement of the link 21 from the stud 25 and the key lever. The shouldered bearing pin and the stud and the link 21 may be hardened for the purposes of wear without hardening the key lever or the sublever.

It is believed that the operation of the device will be apparent from what has been said and what is shown in Figure 1. Since the link 21 connects the lower end of the sublever 15 with the key lever 11 on an angle, a downward movement of the key lever will have the effect of tending to straighten the line of connection between the stud 25 on the key lever and the pivot bearing 16 of the sublever, thus moving the lower end of the sublever towards the front of the machine and moving the upper end of the sublever to the rear thereby turning the type bar on its pivot 20 through the action of the connecting link 17.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In type actuating mechanism the combination with a key lever having a laterally projecting metal stud riveted thereto between its ends, of a sublever at an angle to said key lever pivotally mounted on a fixed support between its ends having a pivot pin riveted to its lower end and projecting laterally therefrom and a connecting link at an angle to said sublever having pivotal connection at one end to said stud on said key lever and at its other end to the pivot pin on the adjacent end of said sublever.

2. In a device of the class described for actuating type the combination with a key lever having a laterally projecting metal stud riveted thereto between its ends of a sublever pivoted between its ends for limited rotation extending upwardly at an angle to said key lever between its ends, having a pivot pin riveted to its lower end and projecting laterally therefrom, a link pivotally connected at one end to said pivot pin of said sublever and extending therefrom at an angle to said key lever and detachably and pivotally connected at its other end to said stud on said key lever.

3. In a device of the class described for actuating type the combination with a key lever of a sublever pivoted between its ends for limited rotation extending upwardly at an angle to said key lever between its ends having a pivot pin riveted to its lower end and projecting laterally therefrom, a link pivotally connected at one end to said pivot pin of said sublever and extending therefrom at an angle to said key lever and detachable pivot connecting means for the end of said link and key lever comprising a projecting stud riveted on said key lever entering a bearing opening in the link and a retaining spring carried by said key lever having yielding engagement with the end of said stud.

4. In a device of the class described for actuating type the combination with a key lever of a sublever pivoted between its ends for limited rotation extending upwardly at an angle to said key lever between its ends, a link pivotally connected at one end to one end of said sublever and extending therefrom at an angle to said key lever and detachable pivot connecting means for the end of said link and key lever comprising a projecting stud on said key lever entering a bearing opening in the link and a retaining spring carried by said key lever yieldingly pressing against the end of said stud, the said link and spring having projections adjacent said stud for use in detaching the link and key lever.

5. In a device of the class described for actuating type the combination with a key lever in the form of a thin metal strip having limited pivotal vertical movement, a laterally projecting metal stud riveted to said lever between its ends, a sublever of thin metal above said key lever pivotally supported between its ends for turning, a shouldered pivot pin the small end of which passes laterally through and is riveted to the sublever at its lower end, a link pivotally connected at one end to said pivot pin of said sublever and having near its other end a lateral opening in which said stud on said key lever rotatively fits and a spring on said key lever bearing against the end of said stud.

6. In a device of the class described the combination with a key lever of a sublever above said key lever extending therefrom at an angle, a shouldered pivot pin projecting laterally from said sublever riveted to the lower end of said sublever, a laterally projecting pivot stud riveted to said key lever spaced longitudinally of said key lever a short distance from a vertical line through said pin, a link pivotally mounted at one end on said pivot pin and at its other end having a bearing opening in which said stud fits and a thin strip of spring metal secured to the side of said key lever with its free end on the outer side of said link at said stud.

7. In a device of the class described the combination with a key lever in the form of

a thin metal strip having limited movement in a vertical plane corresponding to that of its sides having at a point between its ends an upwardly extending integral tab offset laterally a distance equal to the thickness of the lever, a pivot stud riveted to said tab and projecting laterally over said lever, a sublever of thin metal above said key lever but extending upward at a sharp angle thereto, a shouldered pivot pin having its small end passing through and riveted to the offset lower end of said sublever, a thin metal link pivotally connected at one end to said shouldered pin at an angle to said sublever having in its other end a bearing opening in which said stud on said tab on said key lever fits and a strip of thin spring metal secured at one end to the side of said key lever with its other free end extending upwardly across the end of said link at said stud yieldingly holding it on said stud.

In testimony whereof I hereunto affix my signature.

CARL GABRIELSON.