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J. B. SECOR.

SHIFT MECHANISM FOR TYPE WRITING MACHINES.

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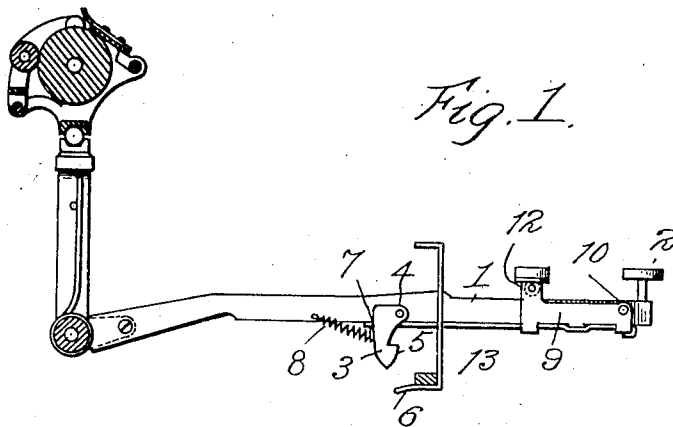


Fig. 1.

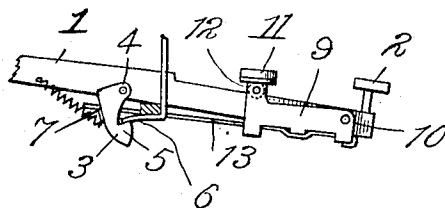


Fig. 2.

Fig. 3.

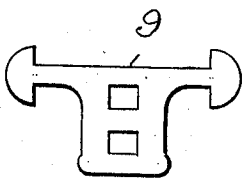
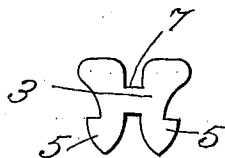


Fig. 4.



Witnesses
E. L. Erickson
L. Lynn.

Inventor
Jerome B. Secor
By his Attorney
J. A. B. Secor

UNITED STATES PATENT OFFICE.

JEROME B. SECOR, OF DERBY, CONNECTICUT, ASSIGNOR TO THE WILLIAMS TYPEWRITER COMPANY, OF DERBY, CONNECTICUT, A CORPORATION OF IOWA.

SHIFT MECHANISM FOR TYPE-WRITING MACHINES.

No. 878,244.

Specification of Letters Patent.

Patented Feb. 4, 1908.

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To all whom it may concern:

Be it known that I, JEROME B. SECOR, a citizen of the United States, and resident of Derby, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Shift Mechanism for Type-Writing Machines, of which the following is a specification.

My invention is applicable to either any of the shifting mechanisms of typewriting machines such as the ink ribbon shifting mechanism or the platen shifting mechanism of typewriting machines and to either top or bottom strike machines, in which the platen is shifted horizontally, or to front strike machines in which the platen is shifted either up or down to bring the printing line thereof opposite either of a plurality of characters carried by the respective type-bars or it may be applied to machines in which the type-bar system is shifted relatively to the platen, for the same purpose. I have here illustrated its application to the shifting of the platen of a top strike typewriter.

My improvement consists in applying to an ordinary vertically moving shift key lever, a vertically vibrating sub-lever pivoted at one end to the said key lever and having at the other end a key for depressing it; also a pendent latch pivoted to the shift key lever and normally retracted by a spring to prevent engagement with its keeper; also an arm projecting rearward from the sub-lever in position to bear on the heel of the latch so that when the sub-lever key is used to depress the main key lever, the latch will be pressed into engagement with its keeper, in opposition to the tension of its spring and the shift key lever will then be locked in depressed position by friction of the latch on its keeper until this is relieved by subsequent pressure directly on the main key lever.

The prior art as exemplified in patents heretofore granted to myself and other inventors disclosed a platen shift lever and a locking key mounted thereon so as to be manipulated at one operation. In my Patent No. 827,041, granted July 24th, 1906, I described a secondary key lever pivoted on the main key-lever by which the platen is shifted; the said secondary lever serving to control a locking latch in such manner that when the platen shift lever is depressed by means of its own key without intervention of

the secondary key-lever the platen will automatically return to normal position when the said shift lever is released, but when the shift lever is depressed by means of the secondary lever the platen will be automatically locked in shifted position and will so remain until released by pressure on the primary shift key. In my present improvement the same effect is produced by a novel manner of combining with the primary shift-lever and its locking latch the secondary key lever and the arm by which this operates the locking latch.

My improved lever is produced by bending into U-form a sheet metal blank formed with three connecting bands to which the elastic arm to operate the locking latch is secured by reeving it in and out between said bands and bending its heel over the front one dispensing with the necessity for a separate cross pin to depress the arm as described in my prior patent above referred to and also affording better play to the elastic arm. I also improve the ease and freedom of operation by locating the secondary key at the extreme rear end of the sub-lever.

In the accompanying drawing Figure 1 is a side view of a shift key lever with my improvement applied, representing the parts in normal position and showing also a fixed keeper with which the locking latch engages in operation. Fig. 2 is a view of the same parts, representing the shift key lever depressed and held in depressed position by the locking latch. Fig. 3 is a plan view of a suitable sheet metal blank, from which the vibrating sub-lever is formed, as hereinafter described. Fig. 4 is a plan view of a suitable sheet metal blank from which the locking latch is formed.

Similar reference numerals indicate corresponding parts in the several figures.

1 indicates a shift key lever which may be of common form and has fixed thereto a customary finger key 2 for depressing it. This shift key lever may have any of the usual and suitable connections with platen supports for shifting it vertically in a front-strike machine or with the type bar system for shifting this relatively to the platen or by customary elbow levers or their equivalent for shifting the platen support horizontally back and forth as in a top-strike or bottom-strike machine or for shifting the inking ribbon to bring new fields thereon to the printing point.

As my improvement relates wholly to means for automatically locking the shift lever in depressed position when depressed by a selected key and is not dependent upon or limited to any particular connections between the shift key lever and part to be shifted, such connections need not be shown or described.

3 indicates a pendent latch which is formed with two parallel sides by bending, from a blank such as shown in Fig. 4, so that its upper part will embrace the key lever 1, to which it is pivoted at 4 by its front upper corner. The two cheeks of the latch are formed as shown, to provide a forwardly presented tooth 5 to engage with a stationary keeper 6 fixed on the frame of the machine and the bond 7 between the cheeks forms a heel or bearing by which the latch is forced into engaging position or its retraction limited as hereinafter described.

8 indicates a tension spring by which the latch is normally held in the retracted position shown in Fig. 1.

To press the latch forward and effect its engagement with the keeper when the shift key lever 1 is depressed, I employ a secondary key lever 9 formed with two parallel cheeks by bending up from a blank such as shown in Fig. 3 and adapted to embrace the shift key lever 1, to which it is pivoted by its forward end at 10, as shown in Figs. 1 and 2. On the cheeks of the lock lever 9 which project above the shift lever 1, is mounted a key 11 and said cheeks are connected by a transverse pin 12 to bear on the shift lever 1, when the lock lever 9 is depressed. On this pin, an antifric-tion roller may be mounted as indicated in dotted line. Beneath the shift lever 1, the lock lever 9 carries an elastic arm 13 fixed thereto by reeving between the bars 14 which connect the cheeks of said lock lever and bending its end around the front bar 14 as shown. This elastic arm extends backward beneath the shift key lever 1 and its rear end is interposed between the bottom of the said main shift key lever 1 and the heel 7 of the latch 3, so that when the rear end of the locking key lever 9 is depressed by means of its key 11, the pressure of the arm 13 on the heel of the latch will deflect the latch forward in opposition to the tension of the spring 8 in position to engage the keeper 6, so that, when the lever 1 reaches its lowest position, the elastic arm 13 yielding to permit the passage of the tooth of the latch 3 over the keeper 6, presses it into locking engagement therewith. It is held in such engagement by friction between the latch and its keeper and the parts are thus retained in the position shown in Fig. 2 until the friction is relieved by pressure on the fixed key 2 of the shift lever 1, enabling the spring 8 to retract the latch 3 and restore the arm 12 and locking key lever 9 to the normal position shown in Fig. 1.

It will now be understood that, in operation, if only one or a few capitals or other secondary characters are to be printed, the operator simply presses and holds down the shift lever 1 by its usual key 2 in customary manner, but if it be desired to lock the platen in shifted position, for printing a whole line of capitals or other long succession of secondary characters, the shift lever is depressed by pressure on the key 11 instead of the key 2; the effect of which is to lock the parts in shifted position as already explained.

The term "shift mechanism" used in this specification and the appended claims applies to any reciprocating so called "case shift" device by which relative movement is effected between the platen and the type bar system so as to bring selected characters on the respective type bars to printing position relatively to the platen; whether the platen be shifted relatively to the type-bar system or the type-bar system relatively to the platen. It will be apparent that the improvement specified in each of the several claims applies to locking a shift lever in shifted position whether said shift lever operates to shift the ribbon or the type-bar system or the platen either vertically or horizontally.

In applying the invention to a front strike machine, the bell crank connection shown between the key lever and platen-shifting arms will be dispensed with and any usual and suitable connection employed to shift the platen in a vertical direction, as will be well understood by those skilled in the art.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a shift mechanism for typewriting machines, the combination of a shift lever having a finger key fixed thereto for depressing said shift lever; a secondary lever pivoted at one end to the shift lever and having at its other end a key for depressing it, a locking latch pivoted independently to the main shift lever, a suitable keeper for said latch, a spring retracting the locking latch to normal inoperative position and a yielding connection between the secondary lever and the locking latch pressing the locking latch, in opposition to its retracting spring, into position to engage its keeper when the secondary lever is depressed.

2. In a shift mechanism for typewriting machines, the combination of a vertically vibrating shift key lever, a locking latch pivoted thereto, a keeper with which said latch may be made to engage to hold the said lever in shifted position, a spring retracting the latch to normal position out of reach of its keeper, a secondary lever pivoted by its front end near the front end of the shift key lever and having at its rear end a key adapted for use alternatively with the usual shift lever key to depress the shift lever and a rearwardly

extending arm forming a connection between the secondary lever and the locking latch, forcing said latch in opposition to the stress of its retracting spring into position to engage its keeper when said secondary lever key is used to depress the shift-lever.

3. In a shift mechanism for type-writing machines, the combination of a shift key-lever of common form, a secondary key-lever pivoted at its forward end to the shift lever, capable of limited vibration thereon and having at its rear end a finger-key adapted for use alternatively with the usual shift-lever-key to depress said shift-lever, a locking latch on the shift-lever, a keeper with which the latch may be forced into engagement, a connecting arm between the secondary key-lever and the latch, forcing the latch into position to engage its keeper when the secondary lever is depressed, and a spring normally retracting the locking latch out of reach of its keeper and, through the medium of the connecting arm, holding the secondary lever in its upper position relatively to the shift-key lever.

4. In a mechanism for typewriting machines, the combination of a shift-key-lever, a secondary lever of U-shape in transverse section, straddling the shift key-lever from beneath, pivoted thereto at its front end, bifurcated, and projecting at its rear end above the shift key-lever and capable of limited vertical motion relatively thereto, a

finger key on the upwardly projecting rear end of the secondary lever, a locking latch on the shift key-lever normally retracted from engagement with its keeper and an arm fixed by its forward end to the lower part of the secondary key-lever, extending longitudinally beneath the shift key-lever and engaging with the locking latch to force the latter into position to engage its keeper when the secondary key-lever is depressed.

5. In a shift mechanism for typewriting machines, the combination of a shift key lever, a secondary lever of U-shape straddling the shift lever from below, pivoted thereto at its front end and formed at bottom with a plurality of transverse connecting bars, a flat spring attached by its front end to the front transverse bar of the secondary lever extending in and out between said transverse bars and projecting rearward beneath the shift lever, a locking latch pivoted to the shift lever and depending therefrom in position to be deflected by the rearwardly projecting arm, a keeper in position to be engaged by the pivoted latch when depressed and deflected and a spring connected to the pivoted latch and serving to retract the same to normal position out of engagement with its keeper.

JEROME B. SECOR.

Witnesses:

F. L. OSTERHAUDT,
G. A. ALLINGHAM.