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SHIFT MECHANISM FOR TYPE WRITERS.

APPLICATION FILED NOV. 20, 1914. RENEWED SEPT. 3, 1918.

1,296,717.

Patented Mar. 11, 1919.

3 SHEETS—SHEET 1.

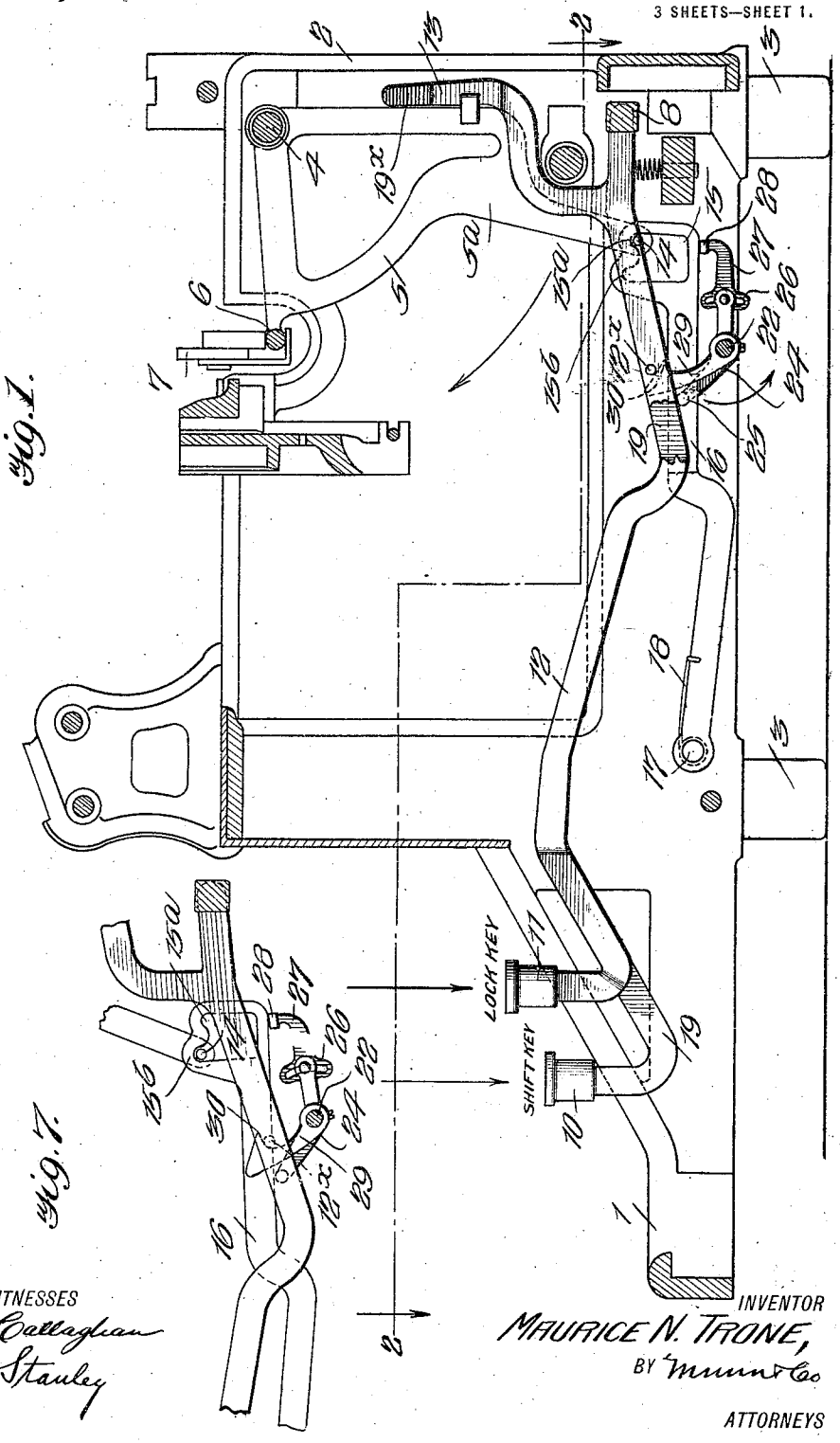


Fig. 1.

Fig. 7.

WITNESSES

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3 SHEETS—SHEET 2.

Fig. 2.

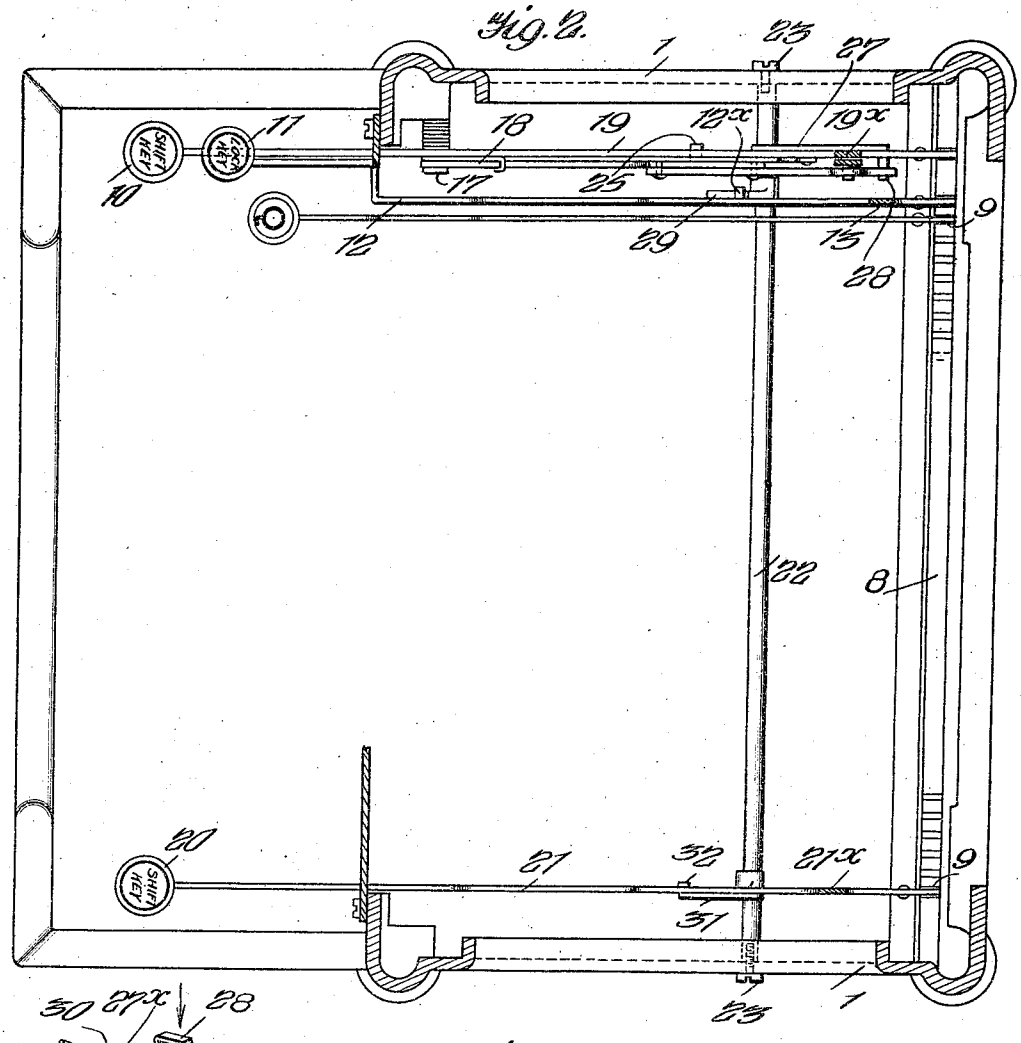
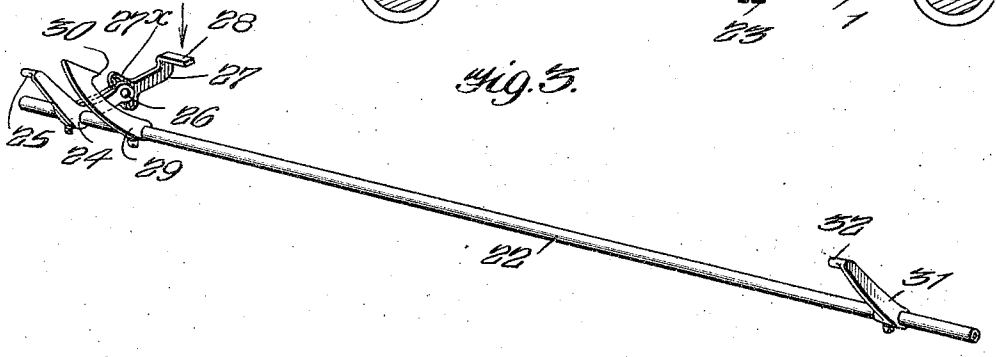


Fig. 3.



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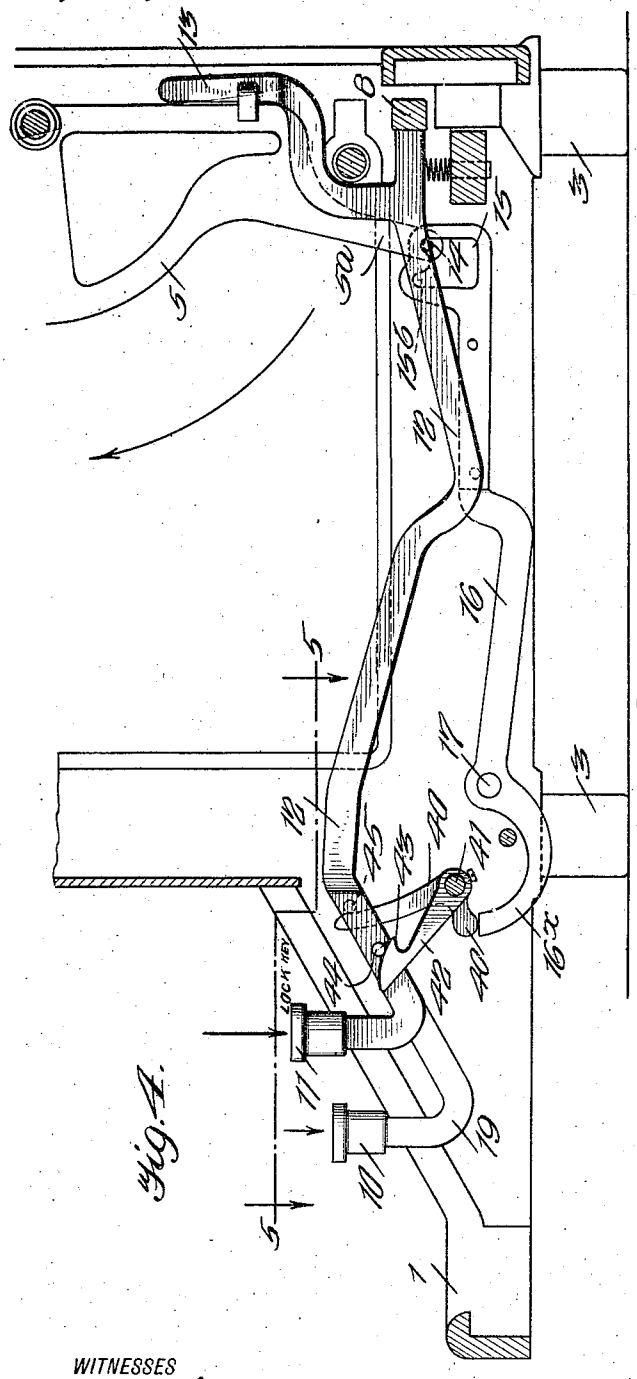


Fig. 4.

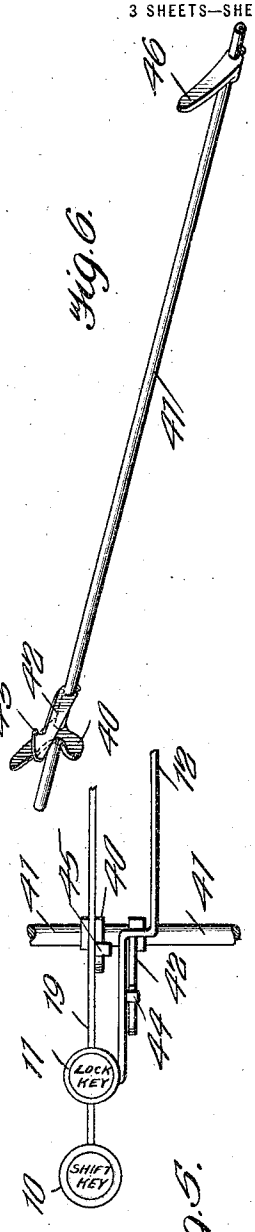


Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

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SHIFT MECHANISM FOR TYPE-WRITERS.

1,296,717. Specification of Letters Patent. Patented Mar. 11, 1919.

Application filed November 20, 1914, Serial No. 873,153. Renewed September 3, 1918. Serial No. 252,466.

To all whom it may concern:

Be it known that I, MAURICE N. TRONE, a citizen of the United States, and a resident of Hanover, in the county of York and State of Pennsylvania, have made certain new and useful Improvements in Shift Mechanism for Type-Writers, of which the following is a specification.

My invention relates to shift mechanism for typewriters, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a device for moving the platen of a typewriter into its upper position by temporary shift keys located at the left and right sides of the keyboard.

A further object of my invention is to provide a locking key which when depressed will shift the platen into its upper position and lock it in this position.

A further object of my invention is to provide means consisting of the shift keys themselves for releasing the locked platen and permitting its return to normal position thereby combining the two functions of shifting and releasing in both of the temporary shift keys.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a vertical section through a portion of the typewritter showing the shifting and locking mechanism,

Fig. 2 is a plan view of a portion of a typewriter showing those parts which constitute the novel features of the invention, the other parts of the typewriter being omitted for the sake of clearness,

Fig. 3 is a perspective view of a rock shaft,

Fig. 4 is a view similar to Fig. 1 showing a modified form,

Fig. 5 is a plan view of a portion of the shifting and locking mechanism of the modified form,

Fig. 6 is a perspective view of the rock shaft of the modified form, and

Fig. 7 is a view of a portion of the mechanism shown in Fig. 1, the parts being shifted to another position.

In carrying out my invention I make use of a typewriter, preferably of that form known as the "front strike." This consists of a base 1 upon which is mounted an integral frame 2 for supporting the parts of the typewriter. The base is provided with the usual legs 3.

Fulcrumed at 4 on the frame 2 is the movable carrier 5 to which is secured the rail or track 6, upon which the front portion 7 of the carriage is adapted to rest and to travel. This front portion carries a platen (not shown) in the usual manner. At 8 I have shown a rod or bar which is provided with a series of parallel slots 9 in which are pivotally mounted the various keys of the typewriter. Since this invention has to do mainly with the three keys mentioned above only one key for letters or characters is shown.

Referring now to Figs. 1 and 2, I have shown therein a shift key 10 and a lock key 11. The latter is at the end of a lever 12 (see Fig. 1) which extends rearwardly and is pivoted on the rod 8. It is provided with an arm 13 arranged for engagement with the rear portion of the carrier 5. This portion of the carrier has an extension 5^a which is provided with a pin 14 adapted to become seated in one or the other of the two recesses 15^a and 15^b which are located at the upper portion of an aperture 15 in the rear end of a lever 16, the fulcrum of which is indicated at 17 and which is provided with a spring 18 which tends to force the lever 16 downwardly.

The shift key 10 is at the end of a lever 19 which is also pivoted on the bar 8 and which is also provided with an arm 19^x corresponding with the arm 13 of the lever 12 (see Fig. 2), both of these arms being arranged to bear on the movable carrier 5. A second shift key 20 is at the end of a lever 21 which is pivotally mounted on the bar 8, this shift key 20 being at the right of the machine while the shift key 10 is at the left as clearly shown in Fig. 2, the key 20 acting on a portion (not shown) of the carrier 5 but which is substantially similar to that portion shown in Fig. 1 in connection with the arms 13 and 19^x.

In Fig. 3, I have shown a rock shaft 22, which I mount between the side members of the base 1, as shown in Fig. 2, preferably retaining the rock shaft in position by means of screws 23 so that the shaft may be rotated around its axis. Near one end of the shaft, *i. e.*, the left end, looking from the front of the machine, I provide a forwardly extending arm 24 which is provided with a laterally extending pin 25. This arm 24 is projected rearwardly and is provided with a locking bolt 26 which extends through a curved slot 27^{x} in an arm 27 loosely mounted on the rock shaft 22 and provided with a laterally extending portion 28. The arm 27 is adjustable with respect to the arm 24 and when adjusted may be secured in position by means of the bolt 26 so as to be held rigidly thereby and to rotate with the rock shaft 22. A locking member 29 is adjustably secured to the rock shaft 22 and is provided with a hook or shoulder 30 whose purpose will be explained later. An arm 31 is adjustably secured to the opposite end of the rock shaft 22 and is provided with a laterally extending pin 32.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

The normal position of the parts is shown in Fig. 1. In this position it will be seen that the movable carrier 5 is locked in its lower position because of the fact that the pin 14 is in the recess 15^{a}. Now when it is desired to shift the platen as for writing a single capital letter either of the keys 10 or 20 may be depressed. The depression of either of these keys will cause the rotation of the rock shaft since if the key 10 is depressed the lever 19 which bears the key will engage the pin 25 on the arm 24, thus rotating the rock shaft 22 in the direction shown by the curved arrow in Fig. 1. This will cause the lever 16 to rise so as to free the pin 14 from the recess 15^{a} while the movement of the arm 19^{x} which corresponds to the arm 13 (see Fig. 1) will swing the carriage 5 so as to raise the platen 7. Immediately on the release of the shift key the weight of the platen and the carriage 5 will cause the latter to assume its original position, whereupon the lever 16 will be forced downwardly by the spring 18 so as to lock the carriage 5 by the engagement of the pin 14 in the recess 15^{a}.

If the shift key 20 should be depressed it will bear on the pin 32 at the end of the arm 31, thus rotating the rock shaft 22 and also lever 16. The lever 21 which bears the shift key 20 is provided with an arm 21^{x} similar to the arm 19^{x} which engages and swings the movable carrier 5 forward, thus raising the platen in the manner already explained. It will be apparent from this description that the keys 10 and 20 act as temporary shift keys, thus enabling the operator to use either hand in making a temporary shift and adding greatly to the rapidity of operation of the typewriter since he does not have to set or reset any levers to change the action of one of the shift keys, as for instance the right hand shift key, into a shift lock.

Now when it is desired to lock the platen in its shifted position, it is only necessary to press the lock key 11. The effect is to cause a pin 12^{x} carried by the lever 12 which bears the key 11, to ride down the inclined surface of the arm 29, thus rotating the arm slightly, rotating the rock shaft 22 and the arm 27 and causing the lever 16 to rise so as to release the pin 14. At the same time the arm 13 presses the movable carrier 5 forwardly, thus raising the platen. When the pin 12^{x} reaches the hook or shoulder 30 on the arm 29 it enters underneath the shoulder as shown in Fig. 7 and this entrance permits the lever 16 to descend slightly so as to cause the pin 14 to enter the recess 15^{b} (see Fig 7) thus locking the platen in its upper position. The key 11 is held in its depressed position by the engagement of the pin 12^{x} under the shoulder 30.

The operator may now write capital letters and when he wishes to return the platen he may press either of the shift keys 10 or 20. This will rock the shaft 22 thus raising the lever 16 so as to free the pin 14 from the recess 15^{b}. When the shoulder 30 leaves the pin 12^{x} the weight of the platen and the carrier 5 will cause the latter to move to its original position shown in Fig. 1.

In Figs. 4 to 6 inclusive I have shown a modified form of the device. In this form the lever 16 has its fulcrum at 17, but is provided with a curved extension 16^{x} which extends forwardly, as shown in Fig. 4. The end of this extension 16^{x} is arranged to engage a bell-crank lever 40 which is secured to a spindle 41 like that shown in Figs. 5 and 6. This spindle also bears an arm 42, which is similar to the arm 29 in Fig. 1 and which is provided with a shoulder 43 arranged to engage a pin 44 on the lever 12 which bears the lock key 11. The long arm of the bell-crank lever 40 projects upwardly and is designed to be engaged by a pin 45 on the lever 19 which bears the shift key 10. At the other end of the shaft or spindle 41 is an arm 46 which is arranged to be engaged by a pin (not shown) on the lever 21 which bears the shift key 20, this pin being precisely the same as the pin 45.

When the shift key 10 is depressed the pin 45 will cause the bell-crank lever to swing downwardly, thus pressing on the extension 16^{x} and raising the lever 16 and thus swinging the movable carrier 5 into its shifted position in the manner already described. When the shift key 10 is released

the platen will be returned to its orignal position, since there is nothing to lock the key in its depressed position. The shift key 20 may likewise be depressed and will cause the temporary shifting of the platen, and upon being released will permit the platen to return to its normal position.

When the lock key 11 is depressed its pin 44 which is in engagement with the arm 42 will cause the rotation of the rock shaft 41, thus causing the lower end of the bell-crank lever 40 to press downwardly on the extension 16^{x} so as to raise the opposite end of the lever 16. The action therefore is the same as that which has been already described, the pin 44 entering underneath the shoulder 43 and locking the key in its depressed position, while at the same time the pin 14 on the extension 5^{a} of the movable carrier 5 enters the recess 15^{b} so as to lock the platen in its upper position.

When either of the shift keys 10 or 20 is depressed it will cause the rotation of the rock shaft 41 as described and will move the arm 42 away from the pin 44 so as to release the latter, thus permitting the return of the platen to its normal position when pressure is relieved from the shift key. It will thus be seen that I have provided two shift keys which may be used as temporary shift keys when desired, but which may serve as release keys for returning the platen to its normal position after it has been locked in its shifted position by the lock key.

I am aware that typewriters have been provided with two shift keys, one of these keys being a temporary shift key and the other being capable of two functions, to wit; that of a permanent shift key or locking key, and that of a temporary shift key, depending upon the way in which an adjusting lever is manipulated, that is to say, if the last named key is to be used as a permanent shift key the lever must be turned in one direction and when it is desired to use it as a temporary shift key the lever must be turned in another direction. Operators are apt to forget to shift this lever and the result is that many times one thinks he is writing capital letters when as a matter of fact he is writing small letters, and vice versa. In my device on the other hand, whenever one of the shift keys 10 or 20 is depressed and released, the operator knows immediately that the next letter which he writes will be a small letter unless he previously presses one of the two shift keys or the lock key. My invention is especially applicable to the use those operators who have legal documents, the paragraphs of which generally begin with a word or series of words whose letters are all capitals, and where the pressing of the lock key will insure the locking of the platen in its upper position and the pressing of either of the shift keys will insure the release of the platen. It is also useful because of the fact that both shift keys are temporary shift keys and thus may be used with either the right or left hand without the necessity of manipulating the lever to change one of the keys from a permanent shift key to the temporary shift key. Here again the danger of making mistakes is to a large extent done away with. It will also be observed that in making these changes I have not in any way interfered with the locking of the platen in its upper or lower position by means of the locking lever 16. I lay no claim to the specific locking lever by which the platen is locked.

I claim:

1. A typewriter having a movable platen carrier, a temporary shift key lever at each side of the key bank, a permanent shift lock key lever, means actuated by said last named lever for shifting the platen carrier independently of the temporary shift key levers, means for retaining the locking key lever in depressed position, and means actuated by each of said temporary shift key levers for releasing the shift lock key lever.

2. A typewriter having a movable platen carrier, a temporary shift key lever at each side of the key bank, a permanent shift lock key lever, means actuated by said last named lever for shifting the platen carrier independently of the temporary shift key levers, a rock shaft, means carried by said rock shaft for retaining said shift lock key lever in its depressed position, and means also carried by said rock shaft and arranged to be engaged by either of said shift key levers for rotating said rock shaft to release said shift lock key lever.

3. In a typewriter, a movable platen carrier, means for locking said movable platen carrier in its upper and lower positions, a pair of temporary shift key levers, means actuated by either of said levers for unlocking the movable carrier in its lower position and for simultaneously moving said carrier to its upper position, a shift lock key lever, means connecting said shift lock key lever with said platen carrier locking mechanism for moving the latter to unlock the movable carrier in its lower position and to simultaneously shift said movable carrier to its upper position independently of said temporary shift key levers.

4. In a typewriter, a movable platen carrier, means for locking said movable platen carrier in its upper and lower positions, a pair of temporary shift key levers, means actuated by either of said levers for unlocking the movable carrier in its lower position and for simultaneously moving said carrier to its upper position, a shift lock key lever, means connecting said shift lock

key lever with said platen carrier locking mechanism for moving the latter to unlock the movable carrier in its lower position and to simultaneously shift said movable carrier to its upper position independently of said temporary shift key levers, means for locking the shift lock key lever in its depressed position, and means actuated by either of said temporary shift key levers for releasing the shift lock key lever.

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