

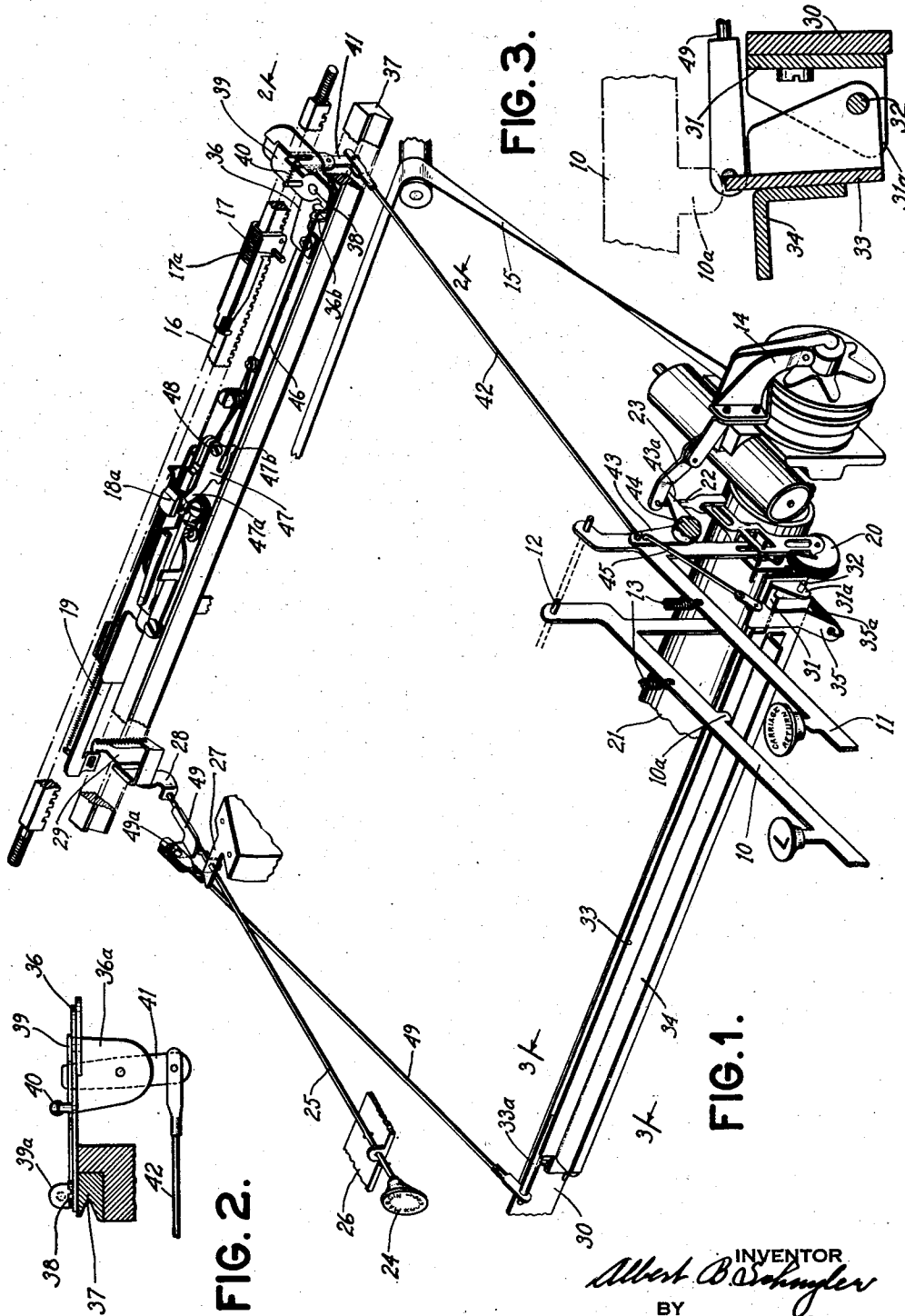
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KEY LOCKING DEVICE FOR POWER OPERATED TYPEWRITING MACHINES

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KEY LOCKING DEVICE FOR POWER OPERATED TYPEWRITING MACHINES

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This invention relates to typewriting machines. The main object of the present invention is to provide a key locking device for power operated typewriting machines.

An object is to provide a key locking device which is automatically set in locking condition by the approach of the carriage to the marginal position and automatically released when the power carriage return mechanism is operated.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

Fig. 1 is a perspective view showing parts of a typewriting machine with the invention attached thereto.

Fig. 2 is a vertical section on the line 2—2 in Fig. 1.

Fig. 3 is a vertical section on the line 3—3 in Fig. 1.

The invention is shown applied to the well-known "Electromatic" typewriter purely for purposes of illustration and it will be understood that it may be applied to other forms of typewriters both manual and power operated.

In Fig. 1, the numeral 10 designates one of the usual character keys of the keyboard while 11 designates the carriage return key, all of the keys usually being mounted on the fulcrum rod 12 and restored by springs 13. The usual carriage return mechanism is generally designated 14 in Fig. 1 and may be of the form disclosed in Patent No. 2,104,559. The carriage return mechanism includes a flexible draw band 15 which is connected to the carriage in the usual way. The carriage includes a marginal stop bar 16 on which the usual right-hand marginal stop 17 is mounted. The marginal stop 17 determines the right-hand margin on the work sheet in cooperation with a horizontal lug 18a carried by the usual tabular lever 19.

When the carriage return key 11 is depressed, it renders the cam unit 20 operable by the power roller 21 and the cam unit, by drawing down a link 22, rocks counterclockwise (Fig. 1) a lever 23 which engages the clutch of the power carriage return mechanism 14 to thereby return the carriage.

The machine is also provided with a margin release button 24 which is secured to the front end of a rod 25 slidably mounted in brackets 26, 27 suitably mounted in the frame work of

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the machine. The rear end of the rod 25 abuts a lever 28, one arm of which has attached to it a hook shaped link 29 engaging the left-hand end of the tabular lever 19. When the button 24 is pushed inwardly, or to the right in Fig. 1, the lever 28 is rocked counterclockwise raising the link 29 and the left-hand end of the tabular lever 19. This results in depressing the lug 18a out of the path of the marginal stop 17, permitting the carriage to be moved beyond the marginal position when necessary.

The description so far has dealt exclusively with such usual details of construction of the "Electromatic" as may be involved in the present invention.

All of the keys of the keyboard, which not only include the character keys 10, but also the special function keys, such as the back space and the tabular keys, are formed with a locking lug 10a (Fig. 1) but the carriage return key 11 is not provided with such a lug. In Fig. 1, the numeral 30 designates a portion of the frame work of the machine on which is secured a long bracket 31 having at its ends ears 31a supporting the cross rod 32 (see Fig. 3 also). Pivoted on the rod 32 is a bar 33 having ears at its end through which the rod 32 passes. Secured to the front side of the bar 33 is an angle strip 34 for the purpose of stiffening the bar 33. The bars 33, 34 comprise the key locking bar which extends under all of the keys which are provided with lugs 10.

Secured to the right-hand end of the bar 33 is a bracket 35 which extends above and below the bar 33 and at its lower end has attached to it a spring 35 suitably anchored at its other end to a part of the frame work of the machine. The spring 35 urges the key locking bar 33 in a counterclockwise direction (Fig. 1) but, in the normal use of the machine in writing matter on the work sheet, the key locking bar is held in an ineffective position by a latching mechanism.

This mechanism is mounted on a bracket or plate 36 (Figs. 1 and 2) secured to the top of the rear rail 37 on which the carriage rides. Pivoted at 38 on the bracket 36 is a latch 39 urged in a clockwise direction (Fig. 1) by a spring 40 anchored to pins carried by the latch 39 and the plate 36, respectively. Cooperating with the latch 39 is a lever 41 which is pivoted on a downwardly extending lug 36a (Fig. 2) formed in the plate or bracket 36. The lower arm of the lever 41 is connected by a link 42 with one arm of a lever 43 which is pivoted at 44 on the main frame work. This same arm is connected by a

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link 45 to a bent over lug formed in the upper end of the bracket 35.

While the operator is writing a line the lever 41 is held in the positions of Figs. 1 and 2 by the latch 39 in which case the keys are free to be operated since the edge of the locking bar 33 occupies a position rearwardly of the lug 18a.

The bracket or plate 36 is formed with the vertical lug 36b guiding a horizontal rod 46, the right-hand end of which abuts a vertical lug 39a formed in the latch 39. The left-hand end of the link 46 is pivotally connected to a trip lever 47 below the pivot 48 of the trip lever to a suitable bracket mounted on the rear rail 37. The trip lever 47 has a nose or cam projection 47a which is normally in the path of a pin 17a carried by the right-hand marginal stop 17. The trip lever 47 is formed with a stop lug 47b which limits clockwise rotation of the trip lever 47 under the influence of the latch spring 40 which holds the trip lever 47 in the position of Fig. 1 with nose 47a in the path of the pin 17a.

In the course of writing a line of characters, the marginal stop 17 travels toward the left and, just before the margin stop 17 strikes the lug 18a, the pin 17a engages the nose 47a and depresses the left-hand end of trip lever 47. This thrusts the link 46 to the right rotating the latch 39 in a counterclockwise direction and thereby releasing the upper arm of the lever 41. This permits lever 41 to rotate clockwise in Fig. 2 thereby thrusting the link 42 to the left. This of course rocks the lever 43 in a counterclockwise direction and, through the link 45, rocks the key locking bar 33 in the same direction to the position of Fig. 3 thereby locking all the keys with the exception of the carriage return key. The aforementioned movement of the lever 43 raises the end of an arm 43a of said lever into contact with the lever 23. If the operator now depresses the carriage return key to return the carriage the cam unit 20 is rendered operative in the usual way to pull down the link 22 and engage the carriage return clutch. This movement of the lever 23 rocks the lever 43 clockwise, thereby thrusting the links 42 and 45 to the right restoring lever 41 to latched position and at the same time moving the key locking bar 33 out of cooperation with the lugs 18a.

It is desirable to disable the key locking bar when typewriting beyond the right-hand marginal position which is made possible by pushing inwardly on the button 24 as explained above. For this purpose there is attached to the left-hand end of bar 33 a short extension 33a to which is pivoted a link 49 the other end of which is pivoted at 49a to a bracket 49 secured to the rear end of the rod 25 adjacent the lever 28. Thus, when the button 24 is pushed inwardly to release the lug 18a from the marginal stop 17, the key locking bar 33 will be rocked to ineffective position permitting the keys to be operated when the carriage is beyond the marginal position, it being necessary to hold the margin release button in release position while typing the first two or three characters beyond the marginal position. This is due to the fact that the carriage stops with the pin 17a in engagement with the notch 47a holding the latch 39 disengaged.

While there have been shown and described and pointed out the fundamental novel features of the invention, by means of a single embodiment, it will be understood that various omissions and substitutions and changes in the form and

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details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In a power operated typewriting machine having a power carriage return mechanism, a carriage return key, character keys, and a marginal stop, the combination of a key locking member common to the character keys, means to hold the key locking member in a released position, means controlled by the marginal stop for releasing the holding means to permit the locking member to lock the character keys; and means, rendered operative when the carriage return key is operated to initiate operation of the carriage return mechanism, for positively restoring the key locking member to released position.

2. In a typewriting machine having character keys, a marginal stop, and a power carriage return mechanism; the combination of a key locking member common to the character keys, means to move said member into a key locking position, a latch normally holding the key locking member in a non-key locking position, means controlled by the marginal stop for releasing said latch at a predetermined position of the carriage, and means connected to the carriage return mechanism for restoring the key locking member to latched position when the carriage return mechanism is rendered operative.

3. In a power operated typewriting machine having a power carriage return mechanism, a carriage return key, character keys, a marginal stop, and margin release mechanism; the combination of key locking means common to the character keys, means to hold the key locking means in a released position, means controlled by the marginal stop for releasing the holding means to permit the locking means to lock the character keys; means rendered operative, when the carriage return key is operated to initiate operation of the carriage return mechanism, for positively restoring the key locking means to released position; and means whereby operation of the margin release mechanism positively restores the key locking means to released position.

4. In a typewriting machine having character keys, a marginal stop, margin release mechanism, and a power carriage return mechanism; the combination of a key locking member common to the character keys, means to move said member into a key locking position, a latch for normally holding the key locking member in a non-key locking position, means controlled by movement of the marginal stop for releasing said latch at a predetermined position of the carriage, means actuated by a part of the carriage return mechanism for restoring the key locking member to latched position when the carriage return mechanism is rendered operative; and means connected to the margin release mechanism for restoring the key locking member to latched position without returning the carriage.

5. In a machine of the class described the combination of a key locking device, a marginal regulator, means controlled by the marginal regulator for rendering the key locking device effective, carriage return mechanism including a carriage return clutch and a clutch actuating lever, and means operated by said lever for releasing the key locking device.

6. In a machine of the class described the

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combination of a key locking device, a latch for holding said device in a non-key locking position, a trip lever for releasing said latch to render the key locking device effective, a carriage moved element engageable with said trip lever for releasing said latch, a power roller, a cam unit cooperating with said power roller and connected to said locking device for restoring said device to latching position, and a key for controlling said cam unit.

7. In a typewriting machine having character keys, power carriage return mechanism, and margin regulating means, the combination of a key locking bar extending transversely of the character keys and movable from a non-locking position to a key locking position, means to urge the locking bar to locking position, a latching device normally holding the key locking bar in non-key locking position, means rendered operative by the margin regulating means for releasing

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said latch when the carriage is in a predetermined marginal position, and means connected to the carriage return mechanism for restoring said locking bar to latched position when the carriage is returned from the predetermined marginal position.

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