United States Patent

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[31] **No. 53350-A/67**

[54] **SWITCH CONTROL AND KEYBOARD LOCKING DEVICE FOR AN ELECTRIC TYPEWRITER**
2 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **197/12,** 197/17, 197/110, 197/186, 197/193
[51] **Int. Cl.** **B41j 23/32**
[50] **Field of Search** ..... 197/12, 17, 98, 107, 108, 110, 186, 186(A), 186(B), 193

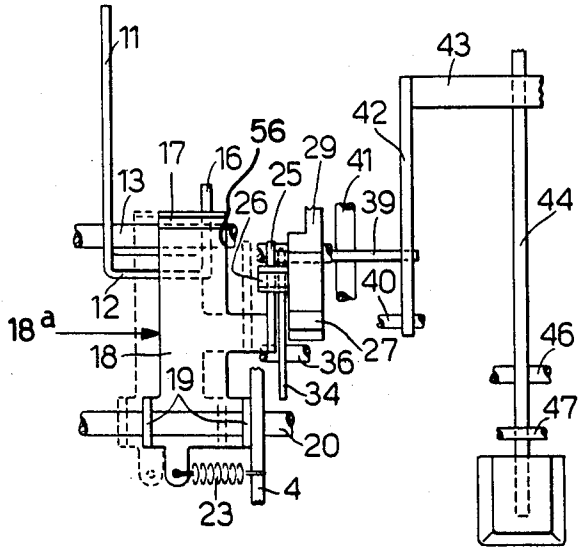
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ABSTRACT: A cover of a typewriter by its displacement to an open position acts, via a mechanism, normally on a power supply switch to move it to open-circuit condition and/or to hold it there. Said mechanism embodies means which, after the cover has been opened, is then settable to render the power supply switch freely operable between open and closed-circuit positions. A next effected movement of the cover to closed position will render said mechanism again operatively conditioned to act on said switch to move it to open-circuit condition upon the cover being next displaced.



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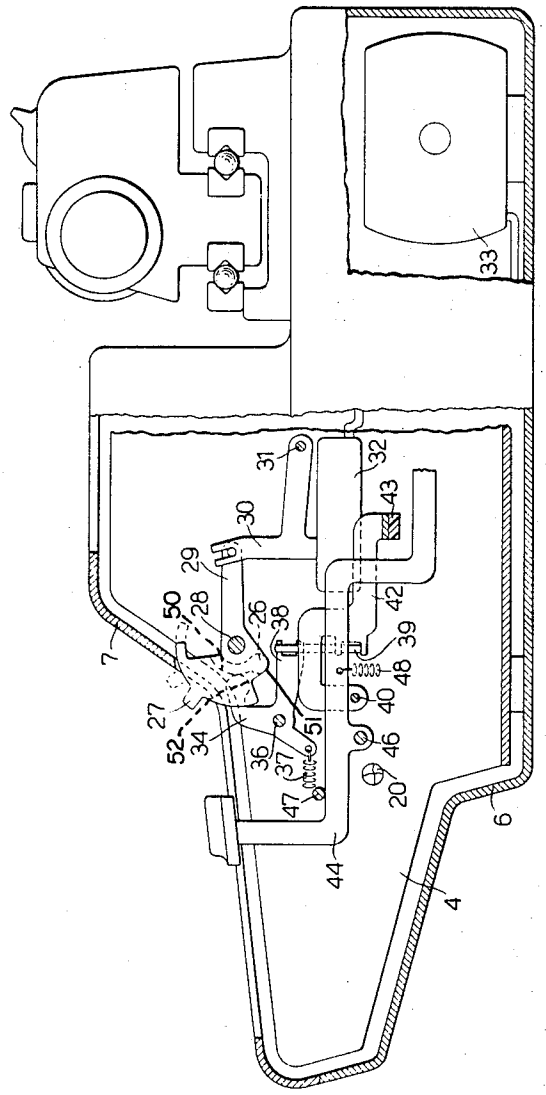


Fig. 1

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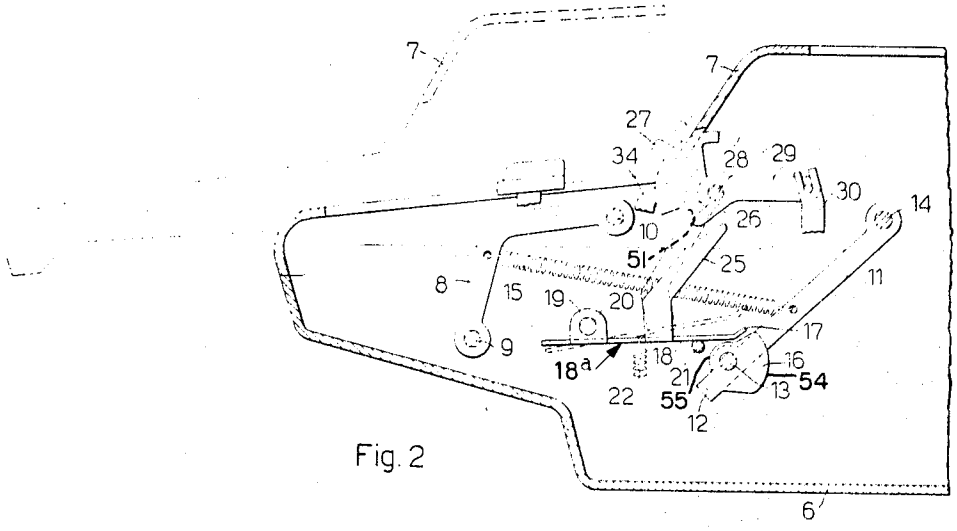


Fig. 2

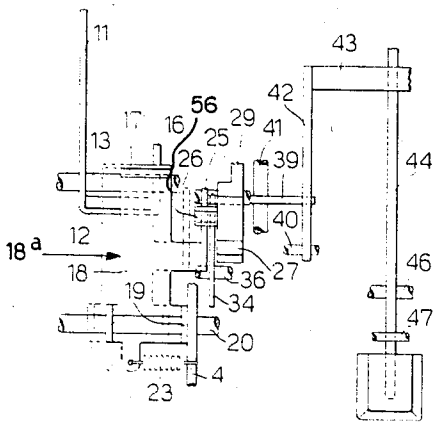


Fig. 3

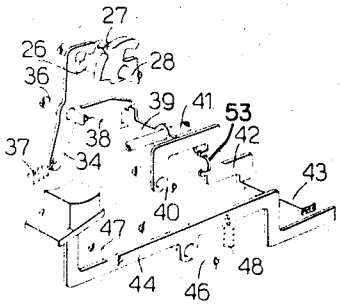


Fig. 4

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SWITCH CONTROL AND KEYBOARD LOCKING DEVICE FOR AN ELECTRIC TYPEWRITER

This invention relates to electric typewriters which embody a displaceable cover for facilitating access to parts of its inner structures and wherein the cover through being displaced will operate a mechanism to move a power supply switch for a motor to an open-circuit position or, if such switch happens to be already in open-circuit position, to hold it there. Subsequently to the restoration of the cover, the open-circuit condition will prevail until the power supply switch is manually closed by a manipulative control therefor. Thus, obviously power operations of the machine are prevented while the cover is displaced. Moreover, it is old also to operate a key locking device incidental to movement of the stated manipulative control to its open-circuit position.

So far as servicemen are concerned, it will be seen that the presence of the stated mechanism is detrimental to carrying out conveniently certain service tasks which necessarily require the manipulative control to be in closed-circuit position. In other words the serviceman cannot readily test and operate the machine and at the same time have visual access to the interior of the machine, because the cover needs to be in machine masking position to provide a closed-circuit condition. If it is desirable for him to observe the interior of the machine in operation he must either remove the cover completely or he must somehow disconnect the stated mechanism from the stated manipulative control and later he must reassemble the parts involved to their original operative condition. Obviously, these procedures are time consuming, involved and inconvenient.

It is the object of the present invention to provide means whereby said cover-operable mechanism for opening said switch can be temporarily incapacitated, preferably after the cover has been moved to the displaced position. It is a further, adjunct object of the invention, to provide a construction to capacitate said cover-operable mechanism through the movement of the cover thereafter to its normal position.

These and other objects and characteristics of the invention will become evident from the following description of a preferred embodiment of the invention.

FIG. 1 is a right-hand view, partly in elevation and partly in section, of a typewriter embodying a manipulative switch control and related keyboard locking device;

FIG. 2 is a partial right-hand sectional view of the typewriter illustrating a mechanism to operate a manipulative switch control to open-circuit position through displacement of said cover;

FIG. 3 is a plan view of the mechanism shown in FIG. 1; and

FIG. 4 is a perspective view of the keyboard locking device shown in FIG. 1.

Referring now to the drawing, an electric typewriter comprises an inner frame 4 which is carried fast on a lower shell or machine masking member 6. A top cover 7 complementing the lower shell 6 is mounted thereon for forward displacement from a solid line, normal position. For mounting the top cover 7 for such displacement a pair of laterally spaced forward arms 8 and at least one rearward arm 11 is provided. The two forward arms 8 are part of a bail structure including a shaft 9, pivotally carried within the lower shell 6, and their upper ends have pivotal connections at 10 with the top cover 7. The rearward arm 11 is part of a short bail 12 which is pivoted on a stud 13, carried on the frame 4 and includes a cam 16 which is provided with a high cam portion 54 and a lower cam portion 55. At the top the arm 11 has a pivotal connection with the cover 7 at 14.

A spring 15 extending between one of the arms 8 and the arm 11 influences the cover 7 to its normal rearward position when in being moved it nears such position and reversely influences the cover 7 to a forward limit position when in being moved it nears such position. A manipulative control 27 or lever for an electric switch 32 is fulcrumed on a pivot 28 and has a rearwardly reaching arm 29 (FIG. 1) which is pin-and-slot connected with a lever 30 fulcrumed on a pivot 31. The lever 30 controls switch 32, which in turn controls an electric motor 33 secured to the inner framework 4 in a known manner. In the positions of the manipulative control 27 shown in full lines in FIGS. 1 and 2, the switch 32 is in closed-circuit position, whereas when the manipulative control 27 is in the dotted line position, the switch 32 is in open-circuit position. In the closed position of the cover 7 the manipulative control 27 is always freely operable from the open-circuit, upper position, to the closed-circuit, lower position, and vice versa.

The manipulative control 27 has on the left side projecting from it a cam element 26 to control a lever 34 fulcrumed on a stationary pivot 36. A spring 37 constantly urges said lever 34 rearwardly against said cam element 26 which has a major dwell portion 50 on the top and a forwardly facing knoll 51 at the bottom. In the closed switch position of said manipulative control 27, (see FIG. 1), a nose-ended upper end 52 of the lever 34 contacts the dwell 50 of the cam 26, whereas in the open switch position the knoll 51 is contacted so that the lever 34 assumes a counter clockwise-moved position. Said lever 34 includes a forked arm 38 (FIG. 4) in engagement with a lever 39 fulcrumed on a pivot 41 and engaging a recess 53 in an arm 42, the latter being part of a bail structure which includes a universal locking bar 43 for locking the keyboard. Said bail structure includes a second arm, similar to the arm 42, not shown in the drawing, each such arm being carried on a fixed pivot 40. Obviously, the manipulative control 27, through its cam 26, when moved to its upper, open-circuit position will lower the locking bar 43, and conversely when moved to its lower, closed-circuit position will raise it. Key levers 44 are pivoted on a stationary rod 46 and individual springs 48 urge them downwardly at the rear to contact a stop bar 47 forwardly of the pivot rod 46. It will be observed that if the manipulative control 27 is in the closed-circuit position of FIG. 1, the locking bar 43 resides in ineffective position above the key levers 44 and thus permits operations of the latter. Contrarily, when the manipulative control 27 is in open-circuit position, the locking bar 43 overlies directly the key levers 44 and blocks or locks them against operation.

The stated cam 16 which is part of the short bail 12 is normally in operative alinement with a lip 17 of a flat plate 18 which is part of an intermediate member formed of a lever 18″ and includes also an upreaching arm 25. Two spaced lugs 19 on the plate 18 have holes to carry the lever 18″ pivotally and also axially shiftably on a stationary shaft 20. The lever 18″ is urged clockwise by a spring 22, and its plate 18 is normally in downward contact with a stationary pin 21 so that the lip 17 thereon is out of contact with the cam 16, see FIG. 2. Furthermore, the lever 18″ is under the constant rightward urge of a spring 23 (FIG. 3) and under such urge is normally in rightward contact with the left side of the inner frame 4, as shown in FIG. 3, so that normally the plate 18 is in operative alinement with the cam 16 and, furthermore, the arm 25 is in operative alinement with the lower edge of the cam element 26 which projects leftwardly from the manipulative control lever 27 (see FIGS. 3 and 2).

With these operative alinements normally existing, it is evident that when the cover 7 is moved forwardly, the cam 16 of the short bail 12 will operate immediately the lever 18″ to the dotted line position indicated in FIG. 2 and then the high cam portion 54 of the cam 16 will maintain it there. It is also evident that if the manipulative control 27 has been in the lower, closed-circuit position shown in full lines in FIG. 2, the arm 25 of the lever 18″ will engage the lower edge of the cam element 26 on the manipulative control 27 and thereby will move the latter to its upper, open-circuit position and will maintain it there. Obviously, resultingly, the so effected movement of the manipulative control 27, through the knoll 51 on the cam 26, will operate the lever 34 and thus will actuate the key locking bar 43 to its effective position. If the manipulative control 27 has already been in open-circuit position it will be held there by the arm 25. Thus in any event the arm 25 of the lever 18″ will then block the manipulative control 27 against downward movement to closed-circuit position.

For the informed serviceman's use, the stated lever **18''** is axially shiftable on the shaft **20** leftwardly, so as to shift the plate **18** and the arm **25** respectively out of alinement with the cam **16** and the lower edge of the cam **26**, see the dotted line position of the plate **18** and the arm **25** in FIG. **3**. Furthermore, it is only in the displaced position of the cover **7** that said axial shift of the lever **18''** can be effected, because only then is access to the lever **18''** possible. When the lever **18''** is axially shifted leftwardly, against the tension of the spring **23**, the spring **22** will snap it down so that the plate **18** then will come to lie rightwardly against the left side of the high cam portion **54** of the cam **16**. The left side surface of the high cam portion **54** is now engaged by an element formed of the right edge **56** of the plate **18**, thus locking the lever **18''** in the axially shifted position. The serviceman, by reaching under the cover **7** from the rear can then operate the manipulative control **27** to closed-circuit position so as to enable him to test and visually observe mechanisms in operation. After the serviceman has carried out his task he simply restores the cover **7**. As the cam **16** restores consequently to its normal, FIG. **2** position, the high cam portion **54** frees the plate **18** for rightward movement by the spring **23** into the normal position over the cam **16** into operative alinement therewith as shown in FIG. **3**. The machine then is again in its normal state wherein, through the lever **18''**, forward displacement of the cover **7** again will cause the manipulative control **27** to become stationed and/or held in open-circuit position.

I claim:

1. In an electric typewriter having a machine mask including a cover movable from a masking to a displaced position, and an inner framework supporting an electric motor, the circuit of which includes an electric switch operable by a manipulative control to closed or open-circuit position, a series of typewriter control keys, and a universal bar operable by said manipulative control to lock said keys against operation upon operating said switch to said open-circuit position, the improvement comprising:

a pivotal pivotable member connected to said mask upon moving said cover from said masking to said displaced position;

a cam secured to said pivotable member;

an intermediate member located in a normal position in cooperative alinement with both said cam and said manipulative control, to cause said manipulative control to be located in said open-circuit position, when said cover is brought to said displaced position, said intermediate member being inaccessible when said cover lies in said masking position and becoming accessible for being manually operable only when said cover lies in said displaced position; and

means shiftably mounting said intermediate member from said normal position so as to be brought out of alinement with said cam and said manipulative control upon being so operated, whereby said manipulative control is manipulative at will to its open and its closed-circuit position notwithstanding said cover lies in said displaced position.

2. In an electric typewriter according to claim **1**, wherein said cam is provided with a high cam portion and a lower cam portion,

a shaft comprised in said shiftably mounting means, said intermediate member being rotatable on said shaft from a rotative rest position when engaged by said high cam portion, said intermediate member being axially shiftable on said shaft from said normal position upon being so operated,

spring means biasing said intermediate member to said rotative rest position and said normal position,

an element secured to said intermediate member and lying into adjacent relation to said cam upon so axially shifting said intermediate member,

said high cam portion upon operating said manipulative control holding said element and said intermediate member into said adjacent relation, and

the return of said cam incidental to the restoration of said cover to normal position causing said spring means to draw said intermediate member axially to its normal position.