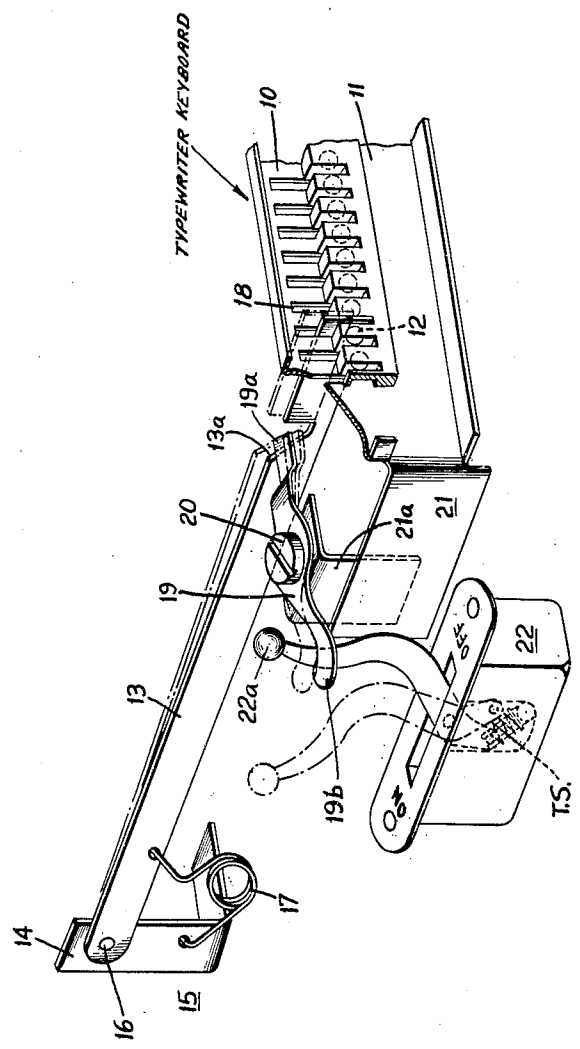


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KEYBOARD LOCKING DEVICE
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KEYBOARD LOCKING DEVICE

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The present invention relates to locking systems and more particularly to a locking system for keyboards of power driven typewriters or the like.

The invention embodies novel locking means whereby the keyboard of a power driven typewriter or the like is automatically locked when power is disconnected from the machine.

More specifically, the device embodying the invention is provided for the purpose of coordinating the operation of a power switch for a keyboard device and an interlock for the keyboard whereby upon movement of the power switch to deenergized position, the interlock of said keyboard is automatically converted to a key-locking device and upon operation of said power switch to its energized position the interlock of said keyboard automatically reassumes its interlock function.

In devices of the prior art, when a power driven keyboard device was deenergized, one or several of the keys thereof could be inadvertently operated thereby loading the device or, in other words, placing the mechanism of the device in position to be automatically and immediately operated, upon energization of the unit. Erroneous or undesired characters would therefore either be transmitted to a remote point, locally indicated, or both. One of the objects of the present invention, therefore, is to provide a novelly controlled interlock for a power driven keyboard device whereby upon deenergization of the device the interlock is converted to a key-locking device so that none of the keys can be operated either inadvertently or designedly.

Another object is to provide a novel interlock device whereby upon operation of a power switch to its deenergized or "off" position, the keys of the device are automatically locked.

Still another object is to provide a novel interlock device whereby upon operation of a power switch to its energized or "on" position, the interlock device of a keyboard is automatically conditioned so that at least one of the key levers may be operated.

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

In the drawing:

The sole figure is a fragmentary perspective view illustrating the essential elements only of an embodiment of the invention.

As illustrated in the drawing, the invention is shown as applied to the keyboard of a typewriter, but it is to be expressly understood that this is for the purpose of illustration only and that the invention is not to be so limited but may be applied to any locking means for any type of record making device utilizing a keyboard or the like.

Referring to the drawing, a comb 10 is illustrated as indicative of the keyboard of a typewriter. Attached to the comb 10 is an interlock mechanism comprising the interlock roller guide or race 11 provided in a manner well known with a series of interlocking rollers 12, one for each key lever plus one, these rollers being of such a diameter and so spaced that only one key lever or the locking lever only, can be pressed downwardly between the rollers 12, at any one time.

Novel means are now provided, in addition to the normal keyboard, whereby the locking mechanism may be controlled upon operation of a two way power switch to thereby convert the interlocking means of the keyboard to a key-locking device by operation of the power switch in one direction. A locking lever 13, similar to a key lever of the typewriter keyboard is pivotally mounted on leg 14 of bracket 15 by means of a pivot screw 16. A coil spring 17 is so tensioned as to constantly urge the locking lever 13 upwardly to the top limit of a guide slot 18 formed in the comb 10.

A lever 19 is pivotally mounted for oscillation by means of a pivot screw 20 on a bracket 21a connected to the frame 21. One end of lever 19 is twisted out of the horizontal plane to form a cam portion 19a cooperating with the inclined plane or cam follower surface 13a formed as a notch in lever 13 to thereby provide cam and cam follower means for operating the lever 13. The other end 19b of lever 19 is formed to cooperate with operating arm 22a of a power switch 22 which switch is resiliently held in the "on" or in the "off" position by a well known internal toggle spring arrangement T. S.

Lever 19 is continually biased in a clockwise direction by means of the force exerted by spring 17, acting through lever 13 and the cam follower and cam arrangement 13a, 19a, so that the end 19a of lever 19 is constantly urged towards the bottom of the inclined plane or cam follower surface 13a, and locking lever 13 constantly seeks to raise its free end to the top of slot 18 to thereby place the interlock means in normal condition. The toggle spring arrangement T. S., however, tends to hold the operating arm 22a

in its "on" or in its "off" position. When in the "on" position, spring 17 exerts its force through lever 13, cam follower 13a and cam 19a to rotate lever 19 clockwise until cam 19a is at the bottom of the inclined surface 13a and the free end of lever 13 is raised to the top of guide slot 18 and the interlock is in its normal condition.

When switch 22, however, is operated to the "off" position, arm 22a is held by the spring T.S. in the "off" position against the force of spring 17 as exerted through lever 13, cam follower 13a and cam 19a, and lever 19 is rotated counterclockwise, upon such operation of switch 22, riding up the inclined surface 13a to depress the free end of lever 13 to the bottom of slot 18, between a pair of rollers 12, whereby the interlock is converted to a key-locking device.

The operation of the device is as follows:

When the power switch 22 is operated to the "on" position, the lever 19 is rotated in a clockwise direction by the spring 17 acting through lever 13, cam follower 13a and cam 19a and the end 19a of lever 19 is thereby positioned at the bottom of the inclined plane surface 13a, while spring 17 moves the free end of lever 13 upwardly to the top of guide slot 18 and out of contact with rollers 12 to thereby place the interlock in normal condition or in other words to release the same from its key-locking condition. The keyboard of the typewriter can thereupon be actuated in the normal fashion whereby at any one time, any one key lever may be depressed but no more than one, since depression of any one key lever operates the interlock means.

Upon actuation of the power switch 22 to the "off" position, lever 19 is rotated counterclockwise against the force of spring 17 as exerted through lever 13, cam follower 13a and cam 19a, thereby sliding the end 19a of lever 19 up the inclined surface 13a of lever 13 and depressing the free end of the lever to the bottom of guide slot 18 and between certain of the rollers 12 to convert the interlock to a key-locking device so that none of the key levers of the keyboard can now be depressed.

If it should be desired, for any reason, to lock the keyboard when the switch is in the "on" position instead of as described above, the inclined plane or cam follower surface would be reversed as well as the twist of cam 19a and the end 19b of the lever 19 would be located on the opposite side of operating arm 22a whereby the system would function as desired.

Novel means are therefore provided whereby the interlock of a typewriter keyboard or the like is automatically converted to a key-locking device or returned to normal condition, as desired, upon actuation of the power switch.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification it will be understood that various omissions and substitutions and changes in the form and 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 keyboard-controlled, power driven device of the character described, an interlock for the keys of the keyboard of said device including a plurality of spaced members cooperating with the respective key levers of said keyboard where-

by, upon depression of any key lever, said spaced members are compressed into engagement to prevent operation of any other key lever, means comprising a pivoted lever separate from said key levers for compressing said spaced members into engagement to prevent the operation of any key levers of said keyboard, an oscillatable lever in contact with said pivoted lever, a power switch, and operating means for said switch, said last named means directly engaging and controlling the position of said oscillatable lever to thereby control the position of said pivoted lever.

2. A locking device for the keys of a keyboard-controlled, power driven device comprising a keyboard interlock including a plurality of spaced members, movable into engagement upon operation of any key lever, means including a pivoted first lever for converting said keyboard interlock into a key-lock, spring means urging said lever into inoperative position with respect to said interlock, a rotatable lever, an inclined surface on said first lever, means on said rotatable lever cooperating with said inclined surface, a power switch, and an operating element for said switch also controlling the position of said rotatable lever to move the means on said lever over said inclined surface to thereby control the position of said first lever.

3. In combination a keyboard interlock comprising a plurality of spaced movable elements directly controlled by any key lever upon operation thereof, to reduce the space between said elements, and means for converting said keyboard interlock into a key-lock including a lever, means pivotally mounting said lever for actuation alternately into and out of contact with certain of said movable elements, a spring biasing said lever to one position of actuation thereof, cam follower means on said lever, a power switch, means for controlling said switch, and cam means directly controlled by said controlling means for cooperating with said cam follower means to actuate said lever.

4. In combination, a keyboard interlock including a plurality of movable elements directly moved by any one key lever upon operation thereof, to intercept any other key lever, a power switch and means for controlling said interlock upon operation of said power switch comprising means for operating said switch, a first pivoted lever directly controlled by said operating means, a second pivoted lever mounted for movement alternately into and out of contact with said movable elements to thereby convert said interlock to a key-lock and vice versa, means biasing said second pivoted lever to one position, and cam and cam follower means formed on said first and second pivoted levers whereby rotation of said first pivoted lever by said operating means produces movement of said second pivoted lever.

5. In a device of the character described, a keyboard, an interlock, for the key levers of said keyboard, comprising a plurality of roller elements positioned to be moved into closer association by any one key lever, upon operation thereof, a pivoted lever mounted for movement in one plane alternately into and out of contact with certain of said elements, means biasing said lever to a position out of contact with said elements, a second lever mounted for rotation in a plane at right angles to the plane of movement of said first lever, a power switch, an operating member for said power switch in engagement with said second lever for rotating the same, cam means on one of said levers, and follower means

on the other of said levers whereby upon rotation of said second lever said first lever is actuated.

6. In a device of the character described, an interlock for the key levers of a keyboard, comprising a plurality of spaced roller elements 5 positioned to be moved into more proximate relative positions by any key lever, upon operation thereof, a pivoted lever mounted for movement in one plane alternately into and out of contact with certain of said elements, a second lever, 10

means mounting said lever for oscillation in a plane at right angles to the plane of movement of said first lever, a power switch, an operating member for said power switch in engagement with said second lever for oscillating the same, cam follower means on said first lever, and cam means on said second lever whereby upon oscillation of said second lever said first lever is actuated.

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