COAT HANGER HAVING THEFT ALARM.

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ABSTRACT

A garment hanger having an alarm buzzer and actuating battery, and a key the insertion of which disables the alarm system and the removal of which places the system in actuable condition. One or more switches are provided in the circuit adapted to be maintained in the open condition when a garment is supported by the hanger and to close the circuit to actuate the alarm when the garment is removed while the key is not disposed in the key socket of the hanger for instituting the disabling condition.

4 Claims, 15 Drawing Figures
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BACKGROUND OF THE INVENTION

As those who have occasion to leave their coat and other outer garments hanging in public places are only too well aware, many such coats and garments are lost each year either because of outright theft or because people occasionally take another person's coat by mistake when the garments resemble each other. In an effort to prevent such theft or accidental misappropriation, many devices have been developed. For example, in U. S. Pat. No. 1,105,504, a coat hook is disclosed which sounds an alarm when a garment is surreptitiously removed therefrom. Other devices have been disclosed in the form of garment hooks which, when the garment is removed, sound an alarm. However, the prior art devices have been deficient in one or more of several respects. Some of them are too expensive or are not sufficiently attractive in appearance to merit use in the luxurious surroundings of a good hotel or restaurant. Others do not operate with precision, while still others can be easily disabled by a thief so that the alarm does not sound when the garment is removed.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an alarm device which can be disabled by the insertion of a key or like device, and which when actuated by removing the key or other device, sounds an alarm when the condition is achieved against which a warning is to be sounded.

It is a further object to provide a garment hanger arranged to sound an alarm when a garment is removed from the hanger after the owner of the garment has previously removed the disabling key from the hanger.

It is still further an object to provide a garment hanger having an alarm which is aesthetically attractive.

It is still further an object to provide a garment hanger which can be easily produced at market-acceptable cost.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the garment hangers hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of the various ways in which the principle of the invention may be used.

BRIEF DESCRIPTION OF THE DRAWINGS

In the annexed drawings:

FIG. 1 is an end elevational view of one embodiment of the present invention and is shown hanging on a horizontal rod of a clothes rack.

FIG. 2 is a rear elevational view taken at the line 2—2 of FIG. 1, looking in the direction of the arrows.

FIG. 3 is a front elevational view of the embodiment of FIGS. 1 and 2 taken at the line 3—3 of FIG. 1, looking in the direction of the arrows.

FIG. 4 is a rear elevational view of the invention taken at the line 4—4 of FIG. 1, looking in the direction of the arrows.

FIG. 5 is a rear elevational view with cover removed similar to that of FIG. 4, but showing in broken lines a garment hanging on the hanger, and showing the switching apparatus in the condition in which it is actuated by the weight of the garment.

FIG. 6 is a fragmentary cross-sectional view with the garment removed, taken at the line 6—6 of FIG. 5, looking in the direction of the arrows.

FIG. 7 is a cross-sectional view taken at the line 7—7 of FIG. 5, looking in the direction of the arrows.

FIG. 8 is an end elevational view of another embodiment of the invention.

FIG. 9 is a front elevational view taken at the line 9—9 of FIG. 8, looking in the direction of the arrows.

FIG. 10 is a rear elevational view taken at the line 10—10 of FIG. 8, looking in the direction of the arrows.

FIG. 11 is a front elevational view with covers removed taken at the line 11—11 of FIG. 8, looking in the direction of the arrows.

FIG. 12 is a front elevational view similar to that of FIG. 11, but showing a garment in broken lines hanging on the hanger and the switching system actuated as a result of the applied weight.

FIG. 13 is a fragmentary cross-sectional view taken at the line 13—13 of FIG. 12, looking in the direction of the arrows.

FIG. 14 is a fragmentary cross-sectional view taken at the line 14—14 of FIG. 12, looking in the direction of the arrows; and

FIG. 15 is a fragmentary cross-sectional view similar to that of FIG. 14, but showing a key inserted in the mechanism thereby placing the alarm system in the disabled condition.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

Referring more particularly to FIGS. 1—7, a garment hanger 10 is shown, comprising a body member 11 and a cover member 12 (FIGS. 1 and 2), affixed to the body member 11 by means of screws 17. Within the body member is mounted an electrical circuit disabling lock 13 provided with a key 14 having a chain 15 affixed at one of its ends to the key 14 and at the other end to an identifying tag 16. Affixed to the body member 11 is a rod engaging loop 18 shown mounted on a horizontal rod 19 of a clothes rack.

Mounted within the body member is an alarm buzzer 20 having a circular grille 51 mounted on the outer face of the body member. In suitable recesses provided therefor in the body member 11 are a pair of switch push buttons 21 and 22 pivotally mounted by means of hooks 23 and 24 molded into the body member 11. The push buttons 21 and 22 are provided with tabs 26 and 27 which limit the pivotal movement of the push buttons 21 and 22 within the opposite walls of a pair of recesses 28 and 29. The body member 11 is further provided with a dry cell battery compartment 30 in which a pair of dry cell batteries 31 and 32 are mounted.

The push buttons 21 and 22 are arranged when depressed to operate a pair of switches 33 and 34. The switch 33 operated by the push button 21 comprises a fixed contact 35 and a movable contact 36 spring loaded in the closed position. The push button 22 is arranged to operate the switch 34 which comprises a fixed contact 37 and a movable contact 38. The fixed contacts 35 and 37 and movable contacts 36 and 38 are mounted in slots provided in the body member 11. The fixed contact 37 is provided at its inner end with a terminal contact 39 engaging a terminal of the dry cell 32. The terminal contact 39 is electrically connected to the fixed contact 35 by means of a wire 40, and contact 36 is connected by a wire to a terminal 41 of the alarm buzzer 20. The other terminal 42 of the buzzer is connected by means of a wire 43 to a movable contact 44 of a disabling switch 45. The disabling switch additionally includes a fixed contact 46 which is mounted in a slot provided in the body member 11 and has at its remote end a terminal contact 47 engaging a terminal of the dry cell battery 31. The electrical system further includes a wire 48 connecting the movable contact 38 with the movable contact 36. The key lock 13, FIGS. 4 and 6 is provided with a tab 49 biased outwardly by means of a compression spring 50. The arrangement is such that when the key 14 is removed from its socket in the lock switch, the tab 49 is caused to recede, thereby permitting the switch 45 which is biased normally open to assume the open condition.

METHOD OF OPERATION

The garment hanger shown in FIGS. 1—7 and described above is placed in operation by placing the loop 18 over a
horizontal rod 19 of a garment rack, with the key 14 in place in the slot of the electrical switch lock 13. The device is now in the condition shown in FIGS. 1, 2, 3 and 4. The switches 33 and 34 are in closed condition, but the switch 45 is open, thereby disabling the circuit. A garment is then placed over the hanger 10 in the manner shown in FIGS. 5, 6 and 7. The weight of the garment depresses the push buttons 21 and 22 causing the switches 33 and 34 to open. The key 14 is then removed form the socket of the switch lock 14, thereby closing the switch 45 and activating the apparatus, the key and its accompanying tag being taken by the person who leaves his garment on the hanger. If the garment is subsequently removed by a person who has not first disabled the apparatus by inserting the key 14, the force is removed from either one or both of the push buttons 21 and 22 thereby permitting one or both of the switches 33 and 34 to close. When either of the switches 33 and 34 is closed while the switch 45 is also closed, the circuit to the buzzer alarm is completed and the alarm sounds, bringing attention to the unlawful or accidental removal of the garment. When the rightful owner returns to remove his garment, he first inserts the key into the lock, thereby disabling the alarm mechanism and permitting him to remove his garment without causing the alarm to sound.

FIGS. 8-14 illustrate a garment hanger combination 60 comprising another embodiment of the invention. The hanger 60 includes a body member 61 and additionally comprises a pair of lateral arms 62 and 63 and a loop 64 adapted to engage a horizontal rod 65 of a garment rack. The body member 61 has a turned-over flange 66 at its upper end and a pair of screws 67 mounted therethrough and engaging loops 68 and 69 provided at the upper ends of the arms 62 and 63, and loops 70 and 71 provided at the end of the loop 64. The lower ends of the arms 62 and 63 are provided with offsets 72 and 73. The body member 61 is comprised of a metallic plate 74 as one face having the flange 66 integrally connected to an upper end thereof. A housing 75 of a plastic material is affixed to the plate 74 by means of nut and bolt combinations 76 and 77. A second housing 78 of a plastic material is also mounted on the plate 74 by means of screws 79 threadedly engaged in holes provided in the plate. Covers 80 and 81 also of a plastic material are mounted on the housings 75 and 78, respectively. A key 82 having a chain 83 affixed at one end to the key and at the other end to a tag 84 is adapted to be inserted in a socket 85 (FIGS. 14 and 15). A louver 86 is provided in the cover 80.

Contained within the compartment 75 is a buzzer alarm 87 and a dry cell battery receptacle 88 containing a dry cell battery 89. Electrically the switch 101 operatively connects the battery 89 by means of terminal contacts 95 and 96. The contact 95 is connected to one terminal of the buzzer alarm 87 by means of a wire 97. The other terminal of the buzzer alarm 87 is connected by means of a terminal strip 98 to the plate 74 by the screw 77.

The offset ends 72 and 73 of the lateral arms 62 and 63 are mounted in recesses 99 and 100. A switch contact clip 101 is mounted in slots provided in the housing 78 and has fixed switch contacts 102 and 103 provided at the ends thereof. The offsets 72 and 73 are provided with compression springs 104 and 105 mounted in the recesses 99 and 100 biasing the offsets 72 and 73 against the switch contacts 102 and 103, respectively, cooperatively therewith to provide normally closed switches 106 and 107.

The disabling mechanism of the invention comprises a pair of adjustable switches 110 and 111. The switch 110 comprises a U-shaped contact 112 affixed to a metal strip 113 slidable mounted in a notch provided in the plastic housing 78. Cooperating with the U-shaped contact 112 is a movable contact comprising a helical spring 118 affixed at one end to the switch contact 110 and having its other end terminating in a straight wire contact 115 disposed intermediate the two contact surfaces of the U-shaped contact 112. The switch 111 is comprised of a U-shaped contact 116 having a metal strip 117 slidable mounted in a slot provided in the housing 78. The movable contact comprises a helical spring 118 affixed at one end to the switch contact 101 and having a straight wire contact 119 at the other end thereof positioned intermediate the contact surfaces of the U-shaped contact 116.

The key 82 is provided with two switch contact surfaces, as shown in FIG. 15. A first contact surface 120 has a small diameter and is adapted to engage the helical spring 118. A second contact surface 121 is adapted to engage the helical spring 114. The key terminates with an index tab 122 adapted to engage an opening 123 in the metal plate 74 which cooperates with the key opening 85 to maintain the key in proper position. Both U-shaped contacts 112 and 116 are connected together by a wire 124 and are connected to the terminal 96 of the battery by means of a wire 125.

OPERATION OF SECOND EMBODIMENT

To prepare the hanger for operation, the contacts are adjusted by inserting the key into the slot 85 with the index tab 122 engaging the opening 123. In this position the helical spring 114 is engaged and spread by the contact surface 121 and the helical spring 118 is engaged and spread by the contact surface 120. The U-shaped contact 112 is then moved back and forth until the contact 119 of the helical spring 114 is positioned precisely intermediate the contact surfaces 116 and 112, thereby placing the switch 110 in open position. The U-shaped contact 116 is then adjusted until the contact 119 is disposed precisely intermediate the contact surfaces of the U-shaped contact 116. In this position the electrical circuit to the buzzer alarm is completely disabled. The shape of the key, that is, the diameters of the two contact surfaces 120 and 121, may be provided in any of a large number of combinations of different diameters. It can thus be seen that a large number of different keys may be provided and the switches 110 and 111 of each hanger adjusted for its own particular key. Subsequently each device can be disabled only by the key to which it has been adjusted. Consequently, the alarm cannot be disabled by inserting any other key. After the adjustment has been made, the hanger is mounted on a horizontal rod 65 with the key in place, thereby disabling the alarm. In this position the switches 106 and 107 remain open due to the spring biasing of the offsets 72 and 73 by the compression springs 104 and 105. When a garment is placed on the hanger, as shown in FIG. 12, the weight of the garment bears down on the lateral arms 62 and 63 and causes the switches 106 and 107 to open. The key 82 may now be taken out of its socket, thereby placing the circuit in operating condition. Because the switch 106 and 107 remain open due to the weight of the garment, the circuit is still open and the alarm is not sounded. However, if a thief attempts to remove the garment, the alarm now sounds, since removal of the weight from either or both arms 62 or 63 causes one or both of the switches 106 and 107 to close, the closing of either switch being sufficient to close the circuit and cause the alarm to sound. When the owner of the garment returns, he may further disable the alarm by inserting the key thereby placing both switches 110 and 111 in open condition. Consequently, when the garment is removed and switches 106 and 107 are closed, the alarm still does not sound since the circuit is disabled by the key. Because of the precise adjustment of the U-shaped switch contacts 110 and 111 each hanger may be made operable by only a particular key.

The disabling switch and cylindrical key arrangement described and illustrated in FIGS. 8-15 may be utilized for disabling and activating alarms and may be other types of circuits where access disabling or activating is to be limited solely to the person having the key which is unique for the particular apparatus. These cylindrical keys may be formed of an inexpensive two or more engaging surfaces may be easily dimensioned so that in combination they are different from those of any other key. The switching arrangement is very precise and sensitive to detect when keys of improper dimensions have been inserted. In the present inven-
tion the switches have been so adjusted that the switching contacts are closed when the key is removed and opened when the key is inserted. Alternatively, they may be adjusted so that the switch contacts are closed when the key is inserted and opened when the key is removed. In either arrangement the proper adjustment may be readily made and will precisely retain its adjustment over extended periods of operation. The switch arrangement may be readily fabricated from commonly and inexpensively available materials.

The present invention in its several embodiments has many advantages. It may be made relatively inexpensively and is virtually foolproof with regard to disabling of the alarm to permit a thief to remove a garment. In one embodiment the alarm may be disabled only by the insertion of the proper metal key. In the second embodiment shown and described above, the alarm may be disabled only by the insertion of a cylindrical key having two precisely dimensioned contact surfaces. The switches actuated by pressure from the garment are very sensitive and precise and cannot readily be disabled by a thief.

From the foregoing it will be seen that novel and advantageous provision has been made for carrying out the desired ends. However, attention is directed to the fact that variations may be made in the garment hanger constructions disclosed herein without departing from the spirit and scope of the invention as herein shown and described.

Other modes of applying the principle of our invention may be employed, instead of those explained, change being made as regards the apparatus herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:

1. A theftproof garment hanger comprising a body having a pair of garment supporting lateral arms and means for being hooked to a support, an electrically operated alarm, a dry cell battery for operating said alarm, an electrical circuit means connecting said alarm with said battery, a pair of electrical switches one associated with each arm and electrically connected in parallel with each other and in series with said electrical circuit means, said switches being in normally closed position when said hanger is without a garment, and means for opening said switches when a garment is placed on said hanger comprising a push button pivotally mounted within each arm of said hanger and having a portion thereof extending above the upper surface of said arm, each of said push buttons being adapted when a garment is placed on said hanger to be depressed, thereby opening said switches, a circuit disabling switch arranged in series with said circuit means having a key socket and key, said disabling switch arranged to be opened when said key is inserted in said socket and to be closed when said key is removed, whereby removal of said key activates said circuit and whereby removal of a garment from said hanger during the activated condition causes said switches associated with said arms to close, thereby causing said alarm to sound.

2. A garment hanger according to claim 1, wherein each of said switches comprises a fixed and a movable contact, and wherein each of said push buttons is in engagement with said movable contact.

3. A garment hanger according to claim 1, wherein each of said arms comprises a V-shaped rod pivotally mounted at its upper end and having its lower end disposed within the body of said hanger, and means biasing said lower ends outwardly, said arms being arranged, when the weight of a garment is placed thereon, to move their lower ends inwardly against said spring means and to open said pair of electrical switches associated with said arms, and to extend outwardly and close said switches when said garment is removed.

4. A garment hanger according to claim 4, wherein each of the lower ends of said arms is offset and arranged to function as a movable contact of a switch of one of said pair of electrical switches, said offset ends being adapted to engage a fixed contact and to close said switch when weight is removed from said arms thereby permitting the ends thereof to move outwardly.
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,668,680 Dated June 6, 1972

Inventor(s) Donald P. Spalding and James G. Close

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 6, line 31, for "4" read --3--.

Signed and sealed this 10th day of October 1972.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR. ROBERT GOTTSCALK
Attesting Officer Commissioner of Patents
UNIVERSAL STATES PATENT OFFICE
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