BURGLAR ALARM ACTUATOR
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3 Claims. (Cl. 340—378)

This application relates to burglar alarms and more particularly to an alarm actuator for protecting sliding elevator floor doors.

Two basic types of burglar protection have been utilized until now for sliding elevator floor doors namely tapes and protective screens or panels. On the older type of passenger elevator floor door which was constructed with a recessed panel, electrical tape lining was used because the recess provided sufficient space to apply the tape and a protective cover. Sliding contacts, parts of which were fastened to both the door and lintel were used to transmit the signal from the tape to the alarm reception point. To protect the tape against damage a protective covering was utilized which was usually fastened to the panel with a dozen or more screws. From the point of appearance this method of protecting an elevator door left much to be desired because if the panel were removed, the door was left very unsightly due to the presence of the screw holes. On those occasions when a building owner refused to permit any screw holes in the elevator door and trim, protection had to be provided in the form of tape panels or lattice screens which were either permanently hinged to or removable from the door during the day. But these, too, required the presence of fastening hardware and electrical contacts which marred the appearance of the elevator trim.

The modern elevator floor door has no recessed panel. It is constructed with plain surfaces which slide past a buck with tolerances so close as to prohibit application of the usual tape lining directly to the door. The prior form of protection remaining was therefore screens or panels. This fact was grudgingly accepted by owners and subscribers because at the daily nuisance associated with removing such screens or panels which rapidly deteriorate in appearance due to constant handling. Consequently, there has been continuous pressure from both building owners and alarm subscribers to devise a form of protection for passenger elevator doors which would exclude unignificantly features, eliminate or greatly reduce the number of holes in the door trim and still afford an effective and economical primary defense against unauthorized entrance. Our invention provides such a form of protection.

The accompanying drawing illustrates the preferred embodiment of our invention. However, it is not intended to be limited to the application illustrated therein since it is obvious that the invention is suitable for use with other forms of sliding closures.

FIGURE 1 is a diagrammatic illustration of one form of sliding elevator floor door with the alarm actuator in place.

FIGURE 2 is an enlarged sectional view looking upwardly toward the lintel of said installation as shown in FIGURE 1.

FIGURE 3 is an end view of the interior of our device as seen from 3—3 of FIGURE 2.

FIGURE 4 is a wiring diagram for said actuator installation.

Referring more particularly to the drawing, 1 indicates applicants' device properly located beneath the lintel and properly spaced from the elevator floor or hall door 3. Extending from the casing and supporting frame 10 through an opening 11 is a roller 12 which is supported by a lever arm 13 pivotally fastened to the frame at 14. Fastened to the lever arm 13 is a vibration detection device 15 of a standard construction, well known in the art. Fastened to the lever arm at the end opposed to the roller is a flat spring 16 which extends outwardly from said arm to a superimposed position over an actuator 17 for micro-switch 18 and 19 which are suitably fastened to the frame 18. Fastened to the inner arm it its extreme end are the pivot point 20 and near the roller 12 is a stop bracket 21 substantially at right angles to said arm which prevents the lever arm from extending beyond the boundaries of the frame. This bracket 20 has an extended portion 21 which moves with the lever arm 13 should the latter be moved inwardly during an attempted or accidental jambing. Obviously bracket 20 may be fastened to the lever arm as recited above or it may be an integral part of the arm. As extension 21 is carried inwardly it will actuate an over-travel switch 22 fastened to the frame 23 and fastened to the frame is a terminal strip 24 to which the necessary line and interior wiring connections are made. Mounting holes 24 are used to join the device to the under side of the lintel. Mounting posts 25 permit a cover to be joined to the frame. The wiring hole 26 permits a ready access for the wiring from the exterior of the attachment to the interior.

The operation of our device is as follows: The roller 12 bears on a sliding elevator floor door shown here as 3 with a firm pressure produced by both the action of the springs in the trap switches 18 and 19 and the flat spring 16. Failure of either one of the pressure sources will not interfere with the roller being in good contact with the door. As the door is opened, the roller falls off the edge of the door after a movement of a predetermined distance has occurred, as shown in FIG. 2. When this occurs the arm acting under spring pressure, moves further out of its housing by about an eighth of an inch. This action causes the operation of a combined break and short spring switch 18 together with the operation of a secondary break spring switch 19. The purpose of this latter contact is to guard against possible failure of the switch 18. It is of course possible to reverse the positions of these switches. These switches are then carried by the proper wiring circuit into the subscriber's alarm set (see FIG. 4).

In addition directly attached to the lever arm is a miniature vibration contact 15 of well-known construction, the contacts of which are in line with the roller which normally rests against the door. For all practical purposes, therefore, this vibration attachment is in direct contact with the door just as if it were securely fastened to it. A dust cover not shown is provided to protect the vibration contacts. In case of attack this device should react first.

To further guard against the possibility of accidental or purposeful jambing of the contact in a "closed" position a third switch has been employed in the circuit and placed within the housing as shown at 22 in such a manner that a "short" is produced when the roller is pushed in a short distance beyond its normal position. It is thus seen that what is attained is a very small unit which is mounted inconspicuously, does not require any attention from the subscriber but still gives a primary defense against attack by unauthorized entrants. If it is desired this device could be fastened at a point approximately midway between the sides of the door, and utilizing a small block fastened to the door. This would negate the necessity of placing the device at the "break" of the door in order to cause an alarm before the door has opened more than approximately the desired approximate two inches. Secondly, an alarm would be received before any portion of the unit comes into view, thereby precluding any possibility of tampering with the unit from
3. A burglar alarm switch mechanism for a sliding elevator floor door comprising a casing for retaining said mechanism adjacent said door, a lever arm having one end pivotally fastened to the interior of said casing, a roller fastened to said lever arm near the end opposite said pivotally fastened end, said roller extending through an opening in said casing for rolling contact with said door, means for urging said arm and said roller outwardly of said casing, a switch fastened to said casing adjacent said pivot end of said arm, means between said arm and said switch for actuating said switch to turn in an alarm when said roller is released outwardly from contact with said door, a device fastened to said lever arm for detecting vibrations transmitted through said roller from said door to said arm and for turning in an alarm upon the occurrence of such vibrations, an additional switch fastened to said casing near the end of said lever arm opposite said pivotally fastened end, means at the end of said lever arm opposite said pivotally fastened end for actuating said additional switch to turn in an alarm when said contact means is forced inwardly of said casing out of contact with said door.

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