

June 24, 1958

M. E. HALPERN
WARNING SIGNAL FOR MOVABLE CLOSURES SUCH
AS DOORS, WINDOWS AND THE LIKE

2,840,654

Filed Aug. 26, 1956

2 Sheets-Sheet 1

FIG-1-

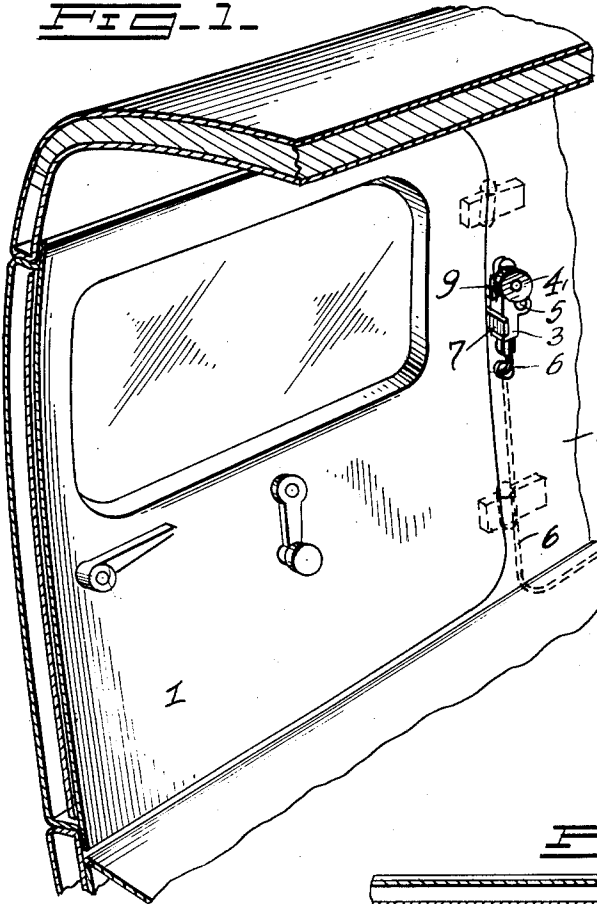


FIG-2-

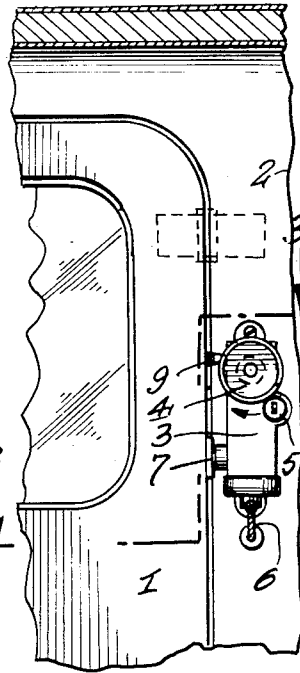


FIG-3-

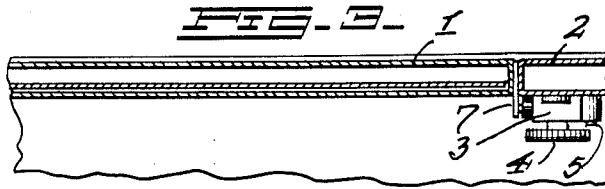


FIG-10-

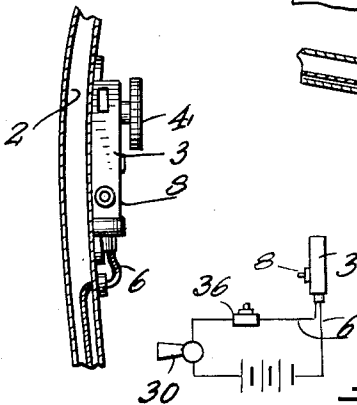


FIG-4-

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FIG-11-

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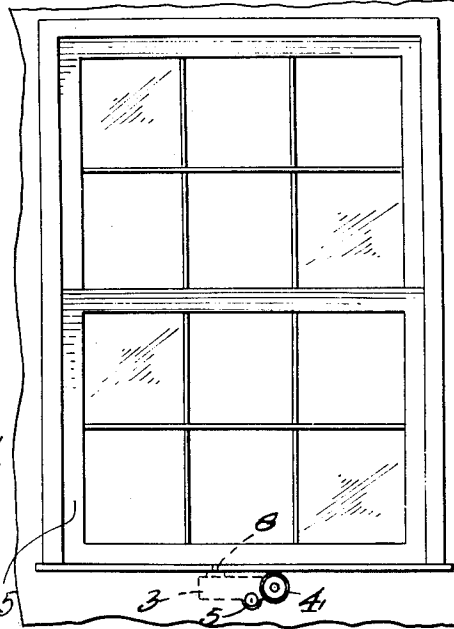
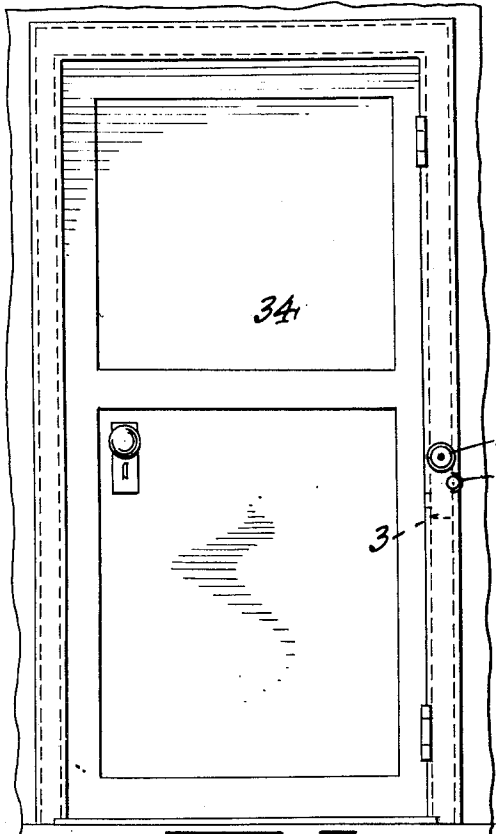
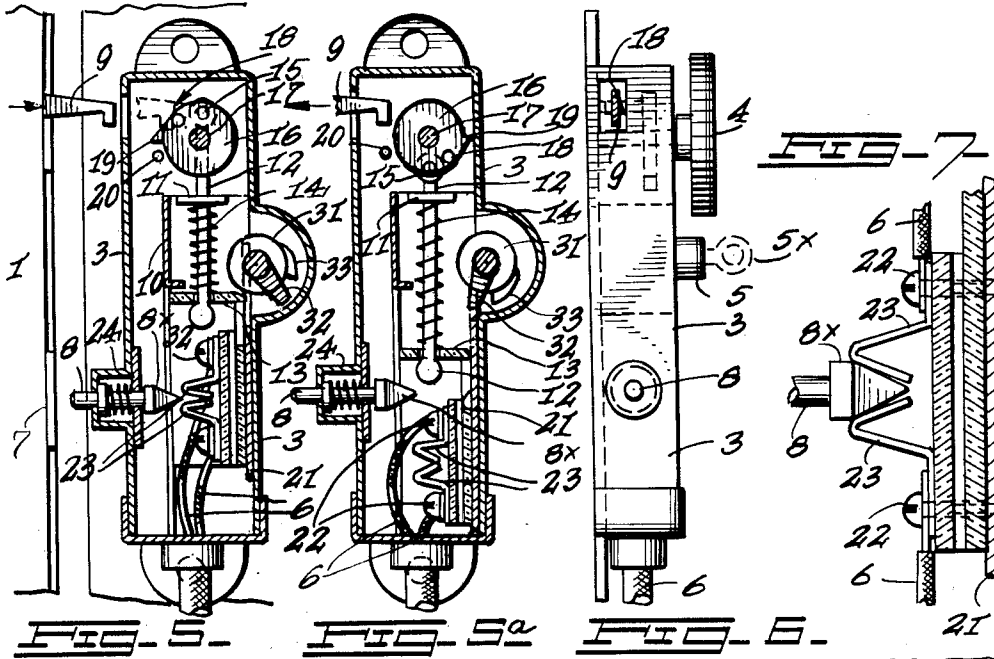


FIG. 9.

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WARNING SIGNAL FOR MOVABLE CLOSURES SUCH AS DOORS, WINDOWS AND THE LIKE

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4 Claims. (Cl. 200—61.8)

The object of the present invention is to provide a simple and inexpensive device which can be so set preliminary to the opening of a door or a window, as for example an automobile door, that upon opening of the door a continuous horn blast or other signal will be set in action and continued regardless of the closing of the door or window, and also the device cannot be reset to shut off the signal without the operation of a key operated lock or latch. By means of the invention protection is given against entry into an automobile by a thief, and entry into a house by an unauthorized person through a door or window.

The invention will be described with reference to the accompanying drawings, in which

Fig. 1 is a fragmentary isometric view, partly in dotted line, showing the device applied to the door of an automobile, and as an attachment;

Fig. 2 is a view in front elevation showing the device of Fig. 1 in position adjacent an automobile door;

Fig. 3 is a vertical section on the line 3—3 (Fig. 2) showing the door closed;

Fig. 4 is a view similar to Fig. 1 showing the door partly open;

Fig. 5 is a vertical section through the casing of the control switch and certain elements of the latter showing at the left part of a door frame;

Fig. 5-a is a view similar to Fig. 5 showing the position of the switch elements after they have been set for action, the door closed and then opened;

Fig. 6 is a view in elevation of the switch casing taken at right angles to its position in Fig. 2;

Fig. 7 is an enlarged fragmentary view showing the switch finger opened by the door operated plunger;

Fig. 8 is a schematic view in elevation, partly in dotted line, showing the switch casing mounted within the frame of a building door;

Fig. 9 is a view in elevation showing the switch casing mounted below the sash of a double hung window;

Fig. 10 is a fragmentary view showing in vertical section part of an automobile door and the switch casing mounted thereon; and

Fig. 11 is a wiring diagram between the switch casing, a horn signal, and an independent circuit breaker.

Referring to the drawings, I have shown in Figs. 1 to 4 inclusive and also in Fig. 10 my device applied to an automobile at the door area of the latter. The door is shown at 1, 2 indicating the side of the body into which the door is hinged. At 3 is a switch casing having a control thumb wheel at 4, and a key slot at 5 leading to a latch for member 4. At the lower end of the casing is a wire conductor 6 which in practice will be entirely concealed. The door carries a finger 7 adapted to operate a plunger 8 (Fig. 4) when the door is closed. Also the door carries a push-arm 9.

As shown in Figs. 5 and 5-a casing 3 has within it a bracket 10 formed with an inturned arm 11 apertured to receive a rod 12 which passes through horizontal plate 13 of a switch-slide. The switch slide is adapted to be

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moved downward by the coil spring 14 surrounding rod 12, the spring at its top bearing upon bracket arm 11 and at its bottom bearing upon plate 13 of the switch slide.

At its upper end rod 13 is pivoted at 15 upon an actuated disk 16, the latter being mounted on a shaft 17 extending through casing 3 and carrying an exposed thumb wheel 4. Control disk 16 carries a projecting stud 18 for a purpose later to be described, and the disk is also formed with a stop lug 19 adapted to meet a stop pin 20 carried interiorly of casing 3.

The switch slide consists of a plate 21 which slides up and down in abutment with an inner wall of casing 3 and to which is secured, as by screws 22, and with an intermediate insulation piece, normally closed switch fingers 23 connected to the circuit wires 6 as indicated in Fig. 11.

The plunger 8 normally is held outward by a spring 24, but when the parts are in the position of Fig. 5, upon closing the door the plunger is moved inwardly and its switch-breaking head 8x separates the switch fingers 23 and breaks the circuit.

In the operation of the device applied to an automobile door it will be assumed that a concealed master switch breaker, as indicated at 26 (Fig. 11) will be released, as by pressing a button, such devices being well known, whereupon a circuit is established to the switch fingers 23. This is not done, however, until control disk 16 is moved to the position of Fig. 5 by operation of the thumb wheel 4, in which position the switch fingers are opposite the insulation head 8x of plunger 8 and the door closed so that the plunger will be actuated to separate switch fingers 23. When the head of plunger 8 passes between the switch fingers the switch slide obviously is held against downward movement; and in the final closing of the door push arm 9 carried by the door engages pin 18 of the control disk 16 and moves the control disk so that pivot point 15 is moved to the right of dead center. Therefore when the door is opened to carry plunger head 8x away from the switch fingers 23 the latter will close into mutual contact and also spring 14 will move the switch slide to the position of Fig. 5-a.

In the said position of Fig. 5-a the door can be quickly closed by a thief, but inasmuch as the switch fingers 23 have been moved out of registration with plunger head 8x the closing of the door will not break the circuit and the signal, whether a warning siren or otherwise, and as indicated at 30 (Fig. 11) will continue to sound until the circuit is broken. Furthermore operation of thumb wheel 4 is prevented so that the thief cannot restore the switch to the position of Fig. 5. To this end there is provided a latch or lock for the switch slide. The key slot member 5 is associated with a key-operated rotary member 31 carrying a latch finger 32. Member 31 is weighted, as by weight 33, to normally fall into the position of Fig. 5-a when a key is removed from the key slot member 5, such key being indicated in Fig. 6 at 5-x. Thus when spring 14 moves the switch slide into the position of Fig. 5-a the latch finger 32 will automatically move over above the top of plate 21 of the switch slide, and hence the switch slide is held against upward movement by such latching or locking action and finger wheel 4 cannot be operated to bring switch fingers 23 into register with plunger 8 until the key 5-x is operated to retract the said finger 32.

The door 34 in Fig. 8 is associated with the same device, carried by the door frame, and operating in the same manner as above described. Therefore only the exposed parts are indicated by reference characters the same as hereinabove used.

In Fig. 9 the lower window sash 35 normally holds plunger 8 between the switch fingers 23 of Figs. 5 and 5-a, the latter being held in the same casing 3 as hereinabove

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described. In the position of the window sash as shown in Fig. 9 the parts will be in the position of Fig. 8 after the plunger has been moved between the switch fingers and the lowering of the window sash has brought pivot point 15 of control disk 16 past the dead center. Therefore when the sash is raised the plunger will be released and immediately upon the movement of such release of the switch fingers the spring 14 will move the switch slide to the position of Fig. 5-a so that the signal will continue to sound notwithstanding the sash is lowered to initial position. Nor can the intruder, if he is then inside the house, operate the thumb wheel 4, because the device constructed for use with windows will obviously employ an ordinary non-gravitational lock for holding the slide in the position of Fig. 5-a, and the only reason for showing a gravitational lock or latch in Figs. 5 and 5-a is because of the vertical mounting of the casing and the simplicity of such a latch, thereby somewhat decreasing the cost of the device.

Having described my invention what I claim and desire to secure by Letters Patent is as follows:

1. A warning signal for movable closures and in combination with a casing, normally closed switch means having normally closed contact fingers in said casing, an electric circuit adapted to lead from the switch to a warning signal device, said switch means comprising a spring-engaged switch slide carrying the switch fingers and being slidably supported for longitudinal movement within said casing, a slide actuator having a hand-operating member exterior of the casing, means within the casing and actuated by said slide actuator to move the switch slide against spring tension thereon, a plunger mounted for reciprocating movement transversely of said casing into the longitudinal path of movement of said switch means adapted to open the switch when in registry therewith and adapted to be engaged by a movable closure, means including said slide actuator for holding the switch slide with the switch fingers in register with said plunger, and means associated with a closure to act in the closing thereof for releasing the switch slide for movement in response to spring action thereon by said spring tension to carry the switch fingers out of register with the plunger in further response to subsequent withdrawal of the plunger from said switch means when the closure is opened in a direction away from the plunger.

2. In a warning signal for movable closures, a signal initiating device comprising, in combination, a casing, normally closed switch means supported within said casing, said switch means being slidably supported for longitudinal movement within said casing, said switch means further comprising a pair of contacts normally spring biased into circuit closing engagement with each other, a dielectric plunger mounted for reciprocating

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movement transversely of said casing into the path of longitudinal movement of said switch means, a spring normally urging said plunger outwardly of said casing, additional spring means normally urging said switch means in a direction out of the path of movement of said plunger, manually operated means for longitudinally aligning said contacts for engagement by said plunger adjacent to one extremity of the longitudinal path of movement thereof to spread said contacts apart to circuit open position, the engagement of the enclosure in a closed position with said plunger maintaining said plunger in said engagement with said contacts against the action of said additional spring means, said spring acting upon said plunger in response to movement of said closure out of engagement with said plunger being operative to withdraw said plunger from engagement with said contacts of said switch means to permit movement of said contacts into said circuit closing position, and said additional spring means in response to said withdrawal of said plunger being operative to displace said switch means out of said aligned position adjacent to the opposite extremity of said longitudinal path of movement thereof with said contacts in said circuit closing position, and independent lock means acting between said casing and said switch means releasably preventing movement of said switch means out of said displaced position adjacent to said opposite extremity of said longitudinal path of movement.

3. In a warning signal as set forth in claim 2, wherein said manually operated means comprises a manually operated rotary member supported upon said casing, a link connected at one end to said switch means and at the opposite end eccentrically pivoted to said rotary member, said link in dead center position effecting said alignment of said switch means, and actuating means adapted to be displaced by movement of said closure to rotate said link and said rotary member out of said dead center simultaneously with the withdrawal of said plunger to permit said displacement of said switch means.

4. In a warning signal as set forth in claim 3, wherein said lock means comprises a key actuated mechanism having a gravity responsive abutment automatically movable into said path of longitudinal movement of said switch means in response to said displacement of said switch means, and key means for retracting said gravity responsive abutment independently of said manually operated means.

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