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C. R. BALDWIN ETAL

3,197,588

DOOR ALARM

Filed March 6, 1961

2 Sheets-Sheet 1

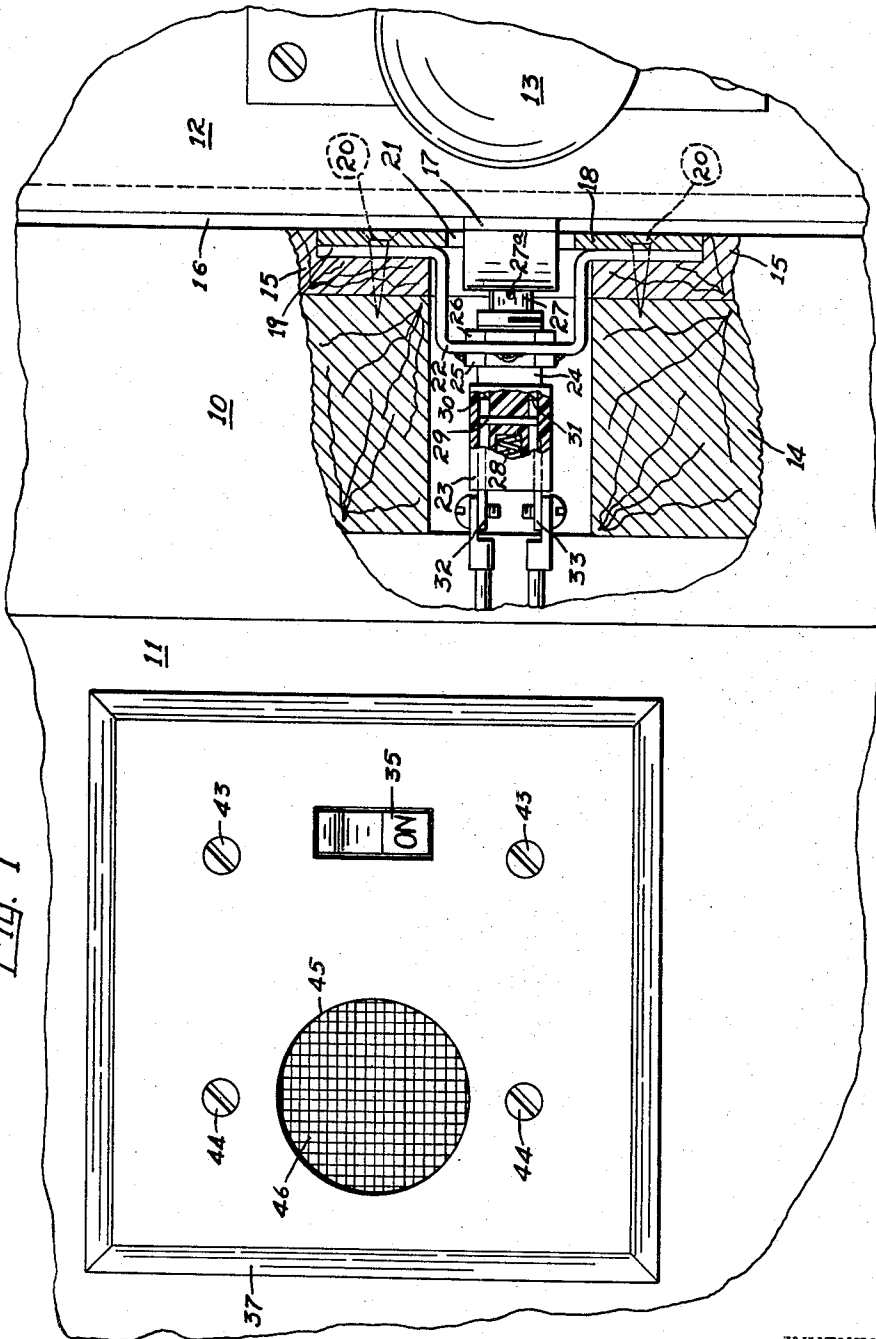


Fig. 1

INVENTORS.
Charles R. Baldwin
BY William Baldwin
Wells & St. John
Attys.

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Fig. 2

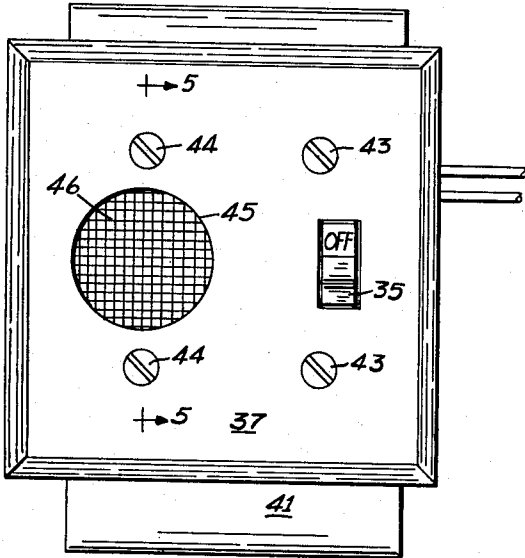


Fig. 3

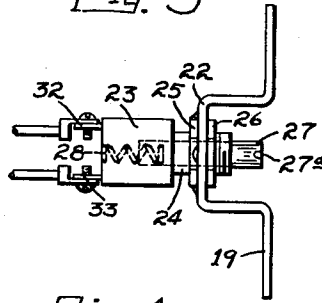


Fig. 4

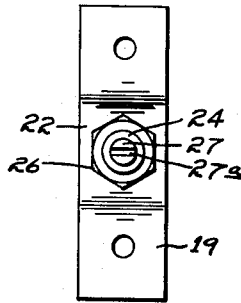


Fig. 5

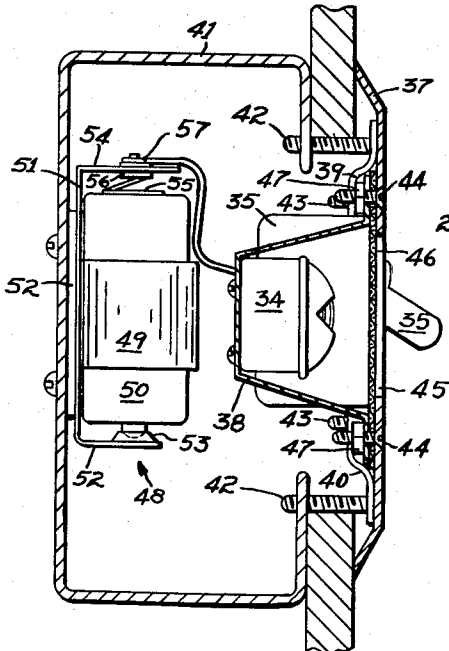
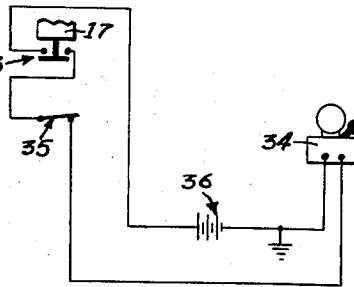


Fig. 6



INVENTORS.
 Charles R. Baldwin
 BY William Baldwin
 Welles & St. John
 Attys.

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3,197,588

DOOR ALARM

Charles R. Baldwin, 1124 S. Adams, and William Baldwin,
W. 4115 Broad St., both of Spokane, Wash.

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1 Claim. (Cl. 200-61.68)

The present invention relates to a door alarm adapted to set off an alarm whenever an unauthorized attempt is made to open the door. It is the principal purpose of our invention to provide an alarm device for doors, the operation of which is controlled by the bolt or latch pin that extends between the door and the adjacent wall. Although not limited thereto our invention is particularly adapted for use on the doors of apartments and houses.

People frequently have the door latches so set that they can be opened from the inside but cannot be opened by turning the outside knob and frequently the doors are not locked at all so that turning the outside knob will move the bolt. This gives a prowler ready access without any warning to those within the house. Even if the door lock is set so that it can be opened by turning the inside knob but the outside knob is not effective to withdraw the bolt, a prowler can, with very little difficulty, force the bolt out of the socket and thus gain entrance. Our invention provides a simple effective means to give warning of such unauthorized entry attempt in either case, before the door is opened.

It is also a purpose of our invention to provide an alarm operated by the locking bolt of a door which is entirely free of any physical connection to the door itself apart from the bolt, and which is operated by the bolt while the bolt is in position to hold the door closed.

Our invention embodies a simple complete unit that can be installed in the wall adjacent to a door opening without defacing the door casing or trim and requires no modification of the hardware commonly used in door locks now.

The nature and advantages of our invention will appear more fully from the following description and the accompanying drawings illustrating the preferred form of the device. It should be understood, however, that the drawings and description are illustrative only and that various minor changes may be made within the scope of the claims which define the invention.

In the drawings:

FIGURE 1 is a fragmentary side view with parts broken away of a door and the adjacent casing and wall showing our invention applied thereto;

FIGURE 2 is a front view of the alarm device when unmounted;

FIGURE 3 is a side view of the alarm control unit that is operated by the locking bolt of the door;

FIGURE 4 is a face view of the alarm control unit as seen from the right of FIGURE 3;

FIGURE 5 is a sectional view of the alarm device taken substantially on the line 5-5 of FIGURE 2; and

FIGURE 6 is a wiring diagram showing the electrical connections necessary for the door alarm.

Referring now to the drawings, our invention is shown as applied to a door installation wherein the door casing is indicated at 10 and the adjacent wall at 11. The door is indicated at 12 and the door knob at 13. A typical door frame construction includes a main frame structural member 14, a casing member 15 and a door stop 16. The door locking mechanism includes a bolt or latch member 17 that is normally extended, as shown in FIGURE 1, and is spring pressed outward to this position. The door knob acts to retract the bolt into the door so that the door can be opened.

The door casing member 15 is generally recessed to receive a striker plate 18 that is conventional. Accord-

ing to our invention this casing member 15 is further recessed to receive a switch mounting member 19 which is a metal strip apertured to receive the screws 20 (shown dotted in FIGURE 1) that secure the striker plate 18.

The striker plate 18 has an aperture 21 therein to receive the door bolt 17. The member 19 has a U-shaped central portion 22 aligned with the aperture 21. The casing member 15 and the frame member 14 are apertured to receive the portion 22 of the member 19.

A switch 23 is mounted on the member 19 in the center of the portion 22. The switch has a threaded sleeve 24 extending through the portion 22 and secured therein by nuts 25 and 26. The nut 25 is preferably welded to the portion 22. The switch has a stem 27 of insulating material projecting from the sleeve 24 toward the bolt 17 and adapted to engage the bolt when the door is in closed position.

It will be noted that the switch 23 is a normally closed switch, as illustrated in FIGURES 1 and 6. There is a spring 28 which urges the stem 27 into position where a bridging member 29, carried by the stem 27, engages two contacts 30 and 31 that are carried by two wiring terminals 32 and 33 of the switch 23. If the stem 27 is pushed against the spring 28 the bridging member 29 is moved away from the contacts 30 and 31 to break the circuit between the terminals 32 and 33.

As illustrated diagrammatically in FIGURE 6 of the drawing, the switch 23 is connected in series with an alarm device, such as a bell 34 and a manual shut off switch 35, across a source of electric current 36 such as a dry cell battery. When both switches 23 and 35 are closed, current is supplied from the source 36 to the alarm device to actuate the alarm. The form of alarm 34 and the connections thereto are quite simple and may, of course, be varied by one skilled in the art to suit the particular need as to type of alarm. We have found, however, that alarm bells of simple construction are readily available. Such an alarm bell 34 is shown in FIGURE 5 of the drawings, as mounted upon a face plate 37 by a bracket 38. The face plate 37 is in turn mounted upon the mounting bars 39 and 40 of the switch 35 which is a conventional household switch, such as is commonly used to control the lighting circuits in a home.

The switch 35 is mounted through the wall to an open sided box 41 by screw bolts 42 which are covered by the face plate 37. Other screw bolts 43 secure the mounting bars 39 and 40 to the face plate. A pair of screw bolts 44 secure the ends of the bracket 38 to the face plate 37.

The face plate 37 has a large aperture 45 therein between the screw bolts 44, and this aperture 45 is directly in front of the alarm 34. A screen 46 is laid between the face plate 37 and the alarm 34 and is secured in place against the face plate by the screw bolts 44 and the ends of the bracket 38. The screw bolts 44 pass through the screen 46 and the bracket 38 and are provided with nuts 47. The box 41 is threaded to receive the screw bolts 42 and the mounting bars 39 and 40 are apertured for these screw bolts. The mounting bars 39 and 40 are threaded to receive the screw bolts 43.

A dry cell battery mounting unit 48 is mounted on the box 41. This unit 48 has spring clips 49 between which a battery 50 is held. The unit 48 includes a bracket 51 resting on a pad 52 of yielding material. One end 52 of the bracket 51 is provided with a seat 53 for one battery contact and the other end 54 of the bracket 51 has an insulated contact 55 in the form of a coiled spring to engage the contact surface at the other end of the battery. The contact 55 is mounted on the end 54 by a plug 56 of insulating material to which a wiring terminal 57 is also mounted. The contact 55 and the terminal 57 are electrically connected through the plug to each other.

The current path is essentially as shown in FIGURE 6 of the drawings. One terminal of the alarm 34 and the seat 53 for the one contact of the battery 50 are grounded to the box 41. The other terminal of the alarm 34 is connected through the switch 35 to one terminal of the switch 23. The other terminal of the switch 23 is connected to the wiring terminal 57 and through this terminal and the contact 55 to the ungrounded end of the battery 50.

Thus it is evident that when the switch 35 is closed, any closure of the switch 23 will energize the alarm 34. When the door bolt 17 is in the locking position shown in FIGURE 1, it holds the switch bridging member 29 away from the contacts 30 and 31 and the alarm 34 cannot be energized. However, any slight movement of the bolt 17, sufficient to permit the member 29 to engage the contacts 30 and 31, will energize the alarm 34 by closing the only open point in the electrical circuit between the battery 50 and the alarm 34. The switch 23 can be adjusted by loosening the nut 26 and then turning the entire switch 23 to move it endwise with respect to the door bolt 17.

Note that the stem 27, which is of a tough hard insulating material, has a slot 27a across its end so a screw driver may be used to turn the switch sleeve 24 in the nut 25. When the alarm system is installed at a door the original setting of the sleeve 24 in the nut 25 is made so that the door bolt 17, fully extended, will be sure to hold the member 29 in the stem 27 out of contact with the contacts 30 and 31. Now to make the alarm system most sensitive, a screw driver can be used to move the stem 27 away from the door knob 17 until the slightest movement of the door knob 17 will result in the member 29 bridging the contacts 30 and 31 to energize the alarm 34. It is easy to adjust the stem 27 until the desired sensitivity is obtained. The alarm should always be energized before the bolt 17 is retracted far enough to clear the striker plate and permit opening of the door. If the alarm is to be made inoperative, it is only necessary to open the switch 35.

It is believed to be evident from the foregoing description that our safety alarm device for doors provides a simple device operating directly from the door bolt that keeps the door from opening, in such a way as to energize and sound the alarm while the door is held against closing by the bolt. The novel construction employed makes the device easy to install, adjust and main-

tain. The screened opening in the switch face plate prevents muffling of the sound from the alarm and permits the use of a small compact alarm bell.

Having described our invention, we claim:

A door bolt controlled device comprising:

a switch mounted in an aperture recessed behind a door striker plate in a fixed position, said switch having a projecting stem extending from said aperture into the recess which receives the door bolt, said stem being movable toward or away from said aperture; a mounting bracket secured to said switch and locked in place by said striker plate;

said switch having a pair of contacts closed when said stem is positioned outwardly away from said aperture;

a spring in said switch operatively connected to said contacts to normally bias said contacts to a closed position;

said bracket and said switch being connected by a threaded sleeve on the switch and a matching threaded nut fixed on the bracket; and

wherein said switch includes mechanical means for linking any rotational movement of said stem with said sleeve so that the switch and its stem can be adjusted endwise on the bracket by rotation of said stem.

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NEIL C. READ, *Primary Examiner.*

E. JAMES SAX, *Examiner.*