April 13, 1954 T. A. MERCHANT 2,675,439

BURGLAR ALARM

Filed March 17, 1950 2 Sheets-Sheet 1

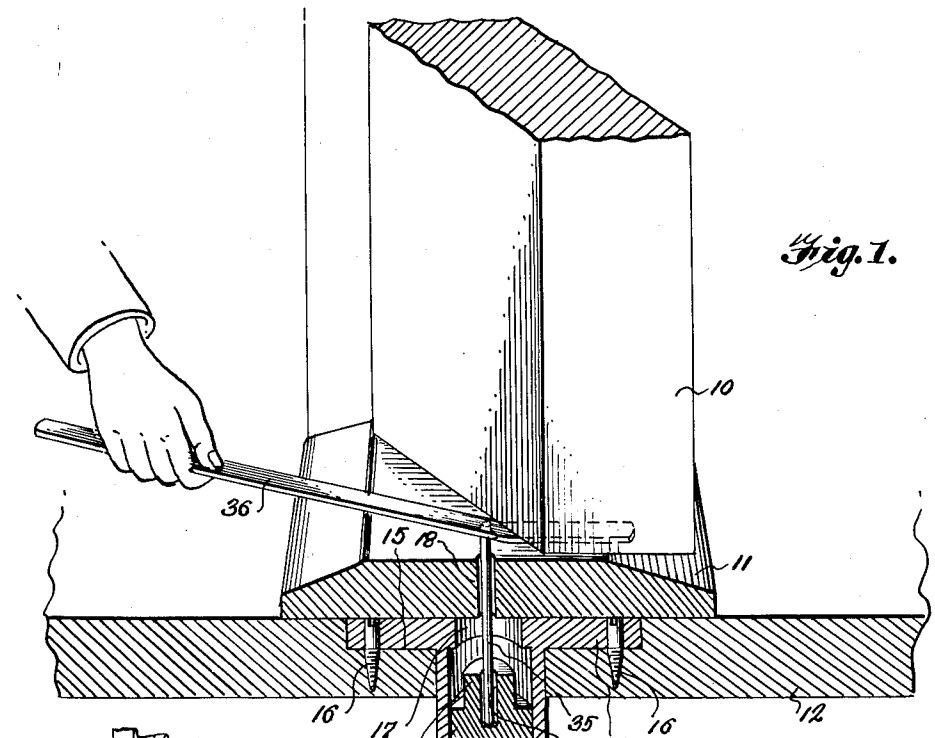


Fig. 1.

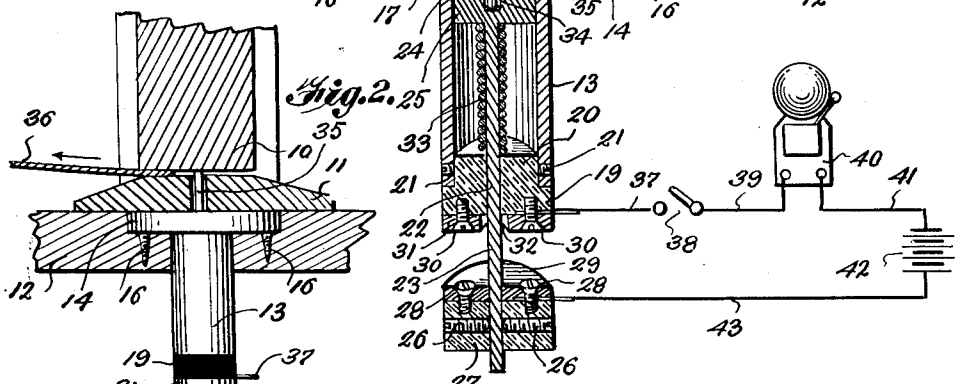


Fig. 2.

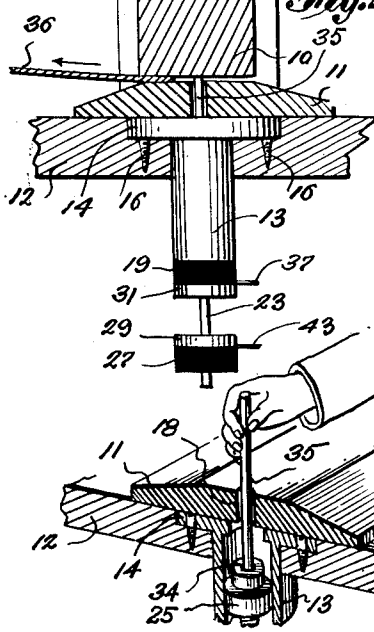


Fig. 3.

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April 13, 1954 T. A. MERCHANT 2,675,439

BURGLAR ALARM

Filed March 17, 1950 2 Sheets-Sheet 2

Fig. 4.

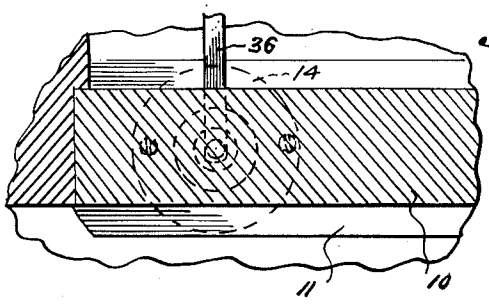


Fig. 8.

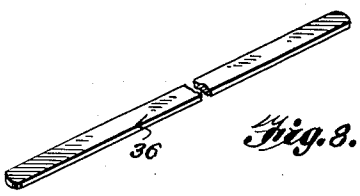


Fig. 5.

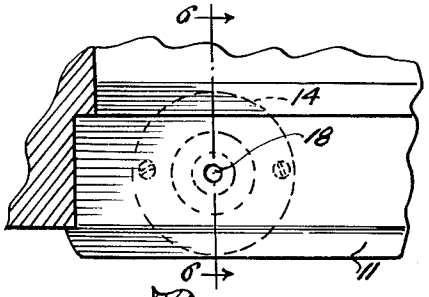


Fig. 6.

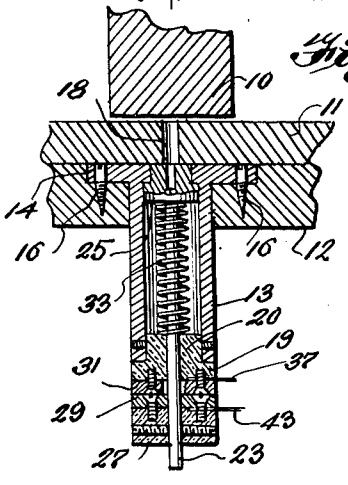


Fig. 7.

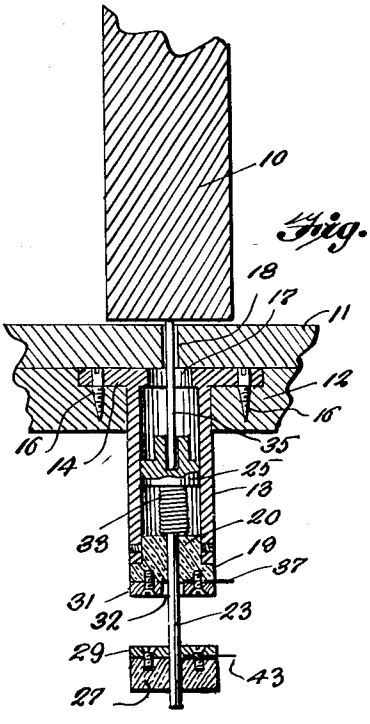
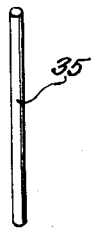


Fig. 9.



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BURGLAR ALARM

Thomas A. Merchant, Jamaica, N. Y.

Application March 17, 1950, Serial No. 150,167

1 Claim. (Cl. 200—61.82)

1

The present invention relates to a burglar alarm and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

Generally there is provided a burglar alarm which may be utilized in conjunction with the edges of windows or doors but which is preferably mounted beneath a door sill and it consists essentially of a switch preferably but not necessarily of the normally closed type, which may be opened by a downward pressure to thereby complete a circuit including a source of electrical energy and a bell. A pin is removably mounted in the upper portion of the switch mechanism and extends through an opening, for example, in the door sill to protrude slightly thereabove, when the switch is in closed condition. An essential part of the invention is an elongated flexible tool which may be placed beneath the door and against the top of the removable pin to force the same downwardly and hence to open the switch when the door is closed. When the device is not in use, the pin may be removed from the opening in the door sill so that there is presented to the eye of the casual observer only the opening.

It is accordingly an object of the invention to provide a burglar alarm having novel means of concealment.

Another object of the invention is the provision of a novel tool for the setting of a burglar alarm of the character above set forth.

Another object of the invention is the provision of a novel removable pin forming a part of the invention.

A still further object of the invention is the provision of a device of the character set forth which is simple in construction, inexpensive to manufacture and install and yet effective and efficient in use.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawings, in which:

Figure 1 is a vertical sectional view, partly in perspective, and partly schematic, illustrating an embodiment of the invention,

Figure 2 is a fragmentary vertical sectional view, partly in elevation, illustrating the switch in open or "set" condition,

Figure 3 is a perspective view partly in section, illustrating the manner of positioning a removable pin forming a part of the invention,

Figure 4 is a fragmentary horizontal sectional view illustrating the manner of use of a tool forming a part of the invention,

2

Figure 5 is a fragmentary plan view of a door sill utilizing the present invention,

Figure 6 is an enlarged fragmentary vertical sectional view taken along line 6—6 of Figure 5 and showing a switch forming a part of the invention in closed condition,

Figure 7 is a view similar to Figure 6 but showing a removable pin forming a part of the invention in its operative position and further showing the switch of Figure 6 in open condition,

Figure 8 is a perspective view of a tool utilized in the invention, and

Figure 9 is a perspective view of a removable pin forming a part of the invention.

Referring more particularly to the drawings, there is shown therein a door 10 having associated therewith a conventional door sill 11 which is attached to a floor 12 in conventional manner. A hollow cylindrical switch housing 13 is provided with an outwardly extending flange 14 at its upper end, which flange is mounted in a recess 15 formed in the floor 12 and which flange is fastened to the floor by means of screws 16.

The upper end of the housing 13 is provided with an opening 17 and the door sill 11 is provided with a vertically extending opening 18 which is concentric with the opening 17.

A plug 19 of dielectric material is provided at the lower end of the housing 13 to thereby close the same and is provided with an integrally formed upwardly extending portion 20 which closely fits the inner walls of the housing 13 and which is secured to the housing by means of Allen screws 21. The plug 19 is centrally provided with a vertically extending opening 22.

A shaft 23 is provided with an integrally formed head 24 and an integrally formed collar 25 which collar lies immediately below the head 24. The shaft 23 extends downwardly through the opening 22 in the plug 19 and has affixed thereto by means of Allen screws 26 a block 27 of dielectric material to the upper face of which is affixed by means of screws 28 a washer 29 formed preferably of brass or other electrically conducting material.

To the under face of the plug 19 there is affixed by means of screws 30 an annular ring 31 likewise preferably formed of brass and provided with a centrally disposed opening 32 to allow sufficient electrical clearance between the ring and the shaft 23.

A compression spring 33 surrounds the shaft 23 and bears against the upper side of the extension 20 and the lower side of the collar 25.

Extending downwardly and centrally in the head 24 is a vertical opening 34 whose sides

are tapered slightly downwardly and inwardly. A pin 35 may be extended vertically through the opening 18 and into the opening 34 and an elongated flat tool 36 formed of flexible material such as thin steel, Celluloid or the like and whose uses will be hereinafter described, is also provided.

A lead wire 37 is electrically connected to one of the screws 30 between the ring 31 and the lower end of the plug 19 and is connected at its other end with a control switch 38 which is, in turn, connected by a wire 39 to a bell 40. The bell is connected by a wire 41 with a battery 42 or other source of electrical energy and the battery is in turn connected by a wire 43 to one of the screws 28 between the washer 29 and the plug 27.

In operation, it will be apparent that ordinarily the pin 35 will be removed from the device and kept in a safe place and that in such condition the switch mechanism will be in closed condition due to the action of the spring 33 carrying the collar and hence the shaft 23 in an upward direction and thus causing the washer 29 to come into contact with the ring 31 thereby closing the electrical circuit to the bell. However, in such normal condition, the control switch 38 will be placed in an open condition so that the circuit to the bell is interrupted thereby.

When, however, it is desired to set the alarm system, the pin 35 is introduced through the opening 18 and into the opening 34, the tapering sides of the latter opening facilitating the insertion of such pin. The upper end of the pin 35 will now lie in a plane above the bottom of the door 10. The tool 36 is now inserted beneath the door 10 and above the sill 11 in such manner that one of its flat surfaces bears against the upper end of the pin 35. Closing the door 10 while the tool 36 is held in this manner, as well illustrated in Figure 1 of the drawings, will cause the lower end of the door to bear against the tool 36 and to thus cause the pin 35 to move downwardly. The tool 36 is then extracted from between the bottom of the door 10 and the top of the pin 35 and put in a safe place. As a consequence, the shaft 23 and its associated parts will move downwardly against the action of the spring 33 to thereby move the washer 29 away from the ring 31. The switch 38 is then closed and it will be apparent that any unauthorized opening of the door 10 will allow the pin 35 which has been abutting against the bottom of such door to move upwardly due to the action of the spring 33 to thus complete the circuit to the bell 40 to thus give an alarm. It will be understood that the bell 40 may be located in any secreted place where it will alarm neighbors, passing policemen and the like. Also, it will be apparent that the switch 38 may likewise be placed in some position of concealment so that it may be closed after the switch mechanism first described has been set.

Likewise it will be apparent that the first described switch mechanism, which is a normally closed switch, may have substituted therefor a normally open switch without detracting from the principal part of the invention, namely the removable pin 35 and the flexible tool 36, the use of the latter being possible, it will be seen, from either side of the door 10.

While but one form of the invention has been shown and described herein, it will be apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claim.

What is claimed is:

A device of the character described for use in conjunction with a door and a doorsill having a vertical opening therethrough, comprising a contact switch including a vertically extending hollow switch housing affixed immediately below and in registry with the opening in said doorsill, a plug of dielectric material mounted in the lower end of said housing and having a centrally disposed vertical passage therein, a contact plate carried on the lower side of said plug, an elongated shaft slidable in said passage, a head formed at the upper end of said shaft and slidable in said housing, said head having a centrally disposed downwardly and inwardly tapering pin-receiving opening extending from the top thereof, a block of dielectric material affixed to the lower end of said shaft, a contact plate carried on the upper side of said block and cooperative with said first-mentioned plate to close an electrical circuit, a compression spring surrounding said shaft and bearing against said head and said plug, and a pin removably mounted in the openings in said head and said doorsill.

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