United States Patent

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[15] **3,653,022**

[45] **Mar. 28, 1972**

[54] BURGLAR AND FIRE ALARM SYSTEM

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[22] Filed: **May 9, 1969**

[21] Appl. No.: **823,384**

[52] **U.S. Cl.** **340/274,** 340/333
[51] **Int. Cl.** **G08b 13/22**
[58] **Field of Search** 340/420, 274

[56] **References Cited**

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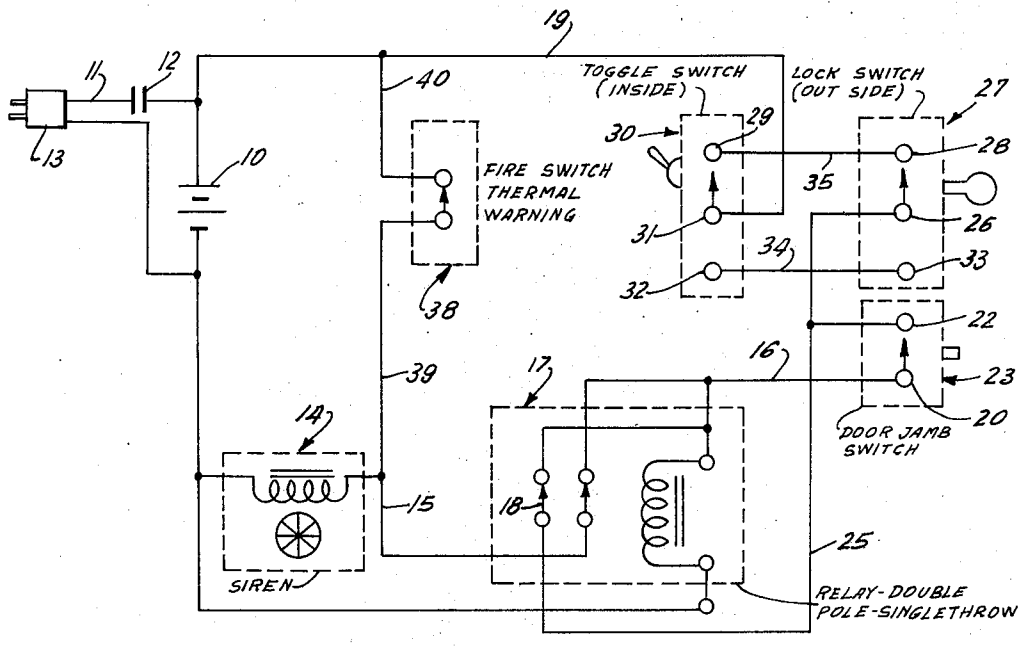
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Attorney—Joseph Hirschmann

[57] **ABSTRACT**

A self-contained burglar alarm system having an audible alarm operated by a low voltage battery, the circuit of the alarm being energized upon opening of a door or window only after being set by a switch which is closed by a key operated from the outside of the door or window. Once energized upon opening of the door, the alarm circuit remains energized upon closing of the door, and is broken only by manual opening of a concealed switch inside the door. A parallel fire alarm circuit operates the same alarm device independently of the burglar alarm circuit.

1 Claims, 4 Drawing Figures



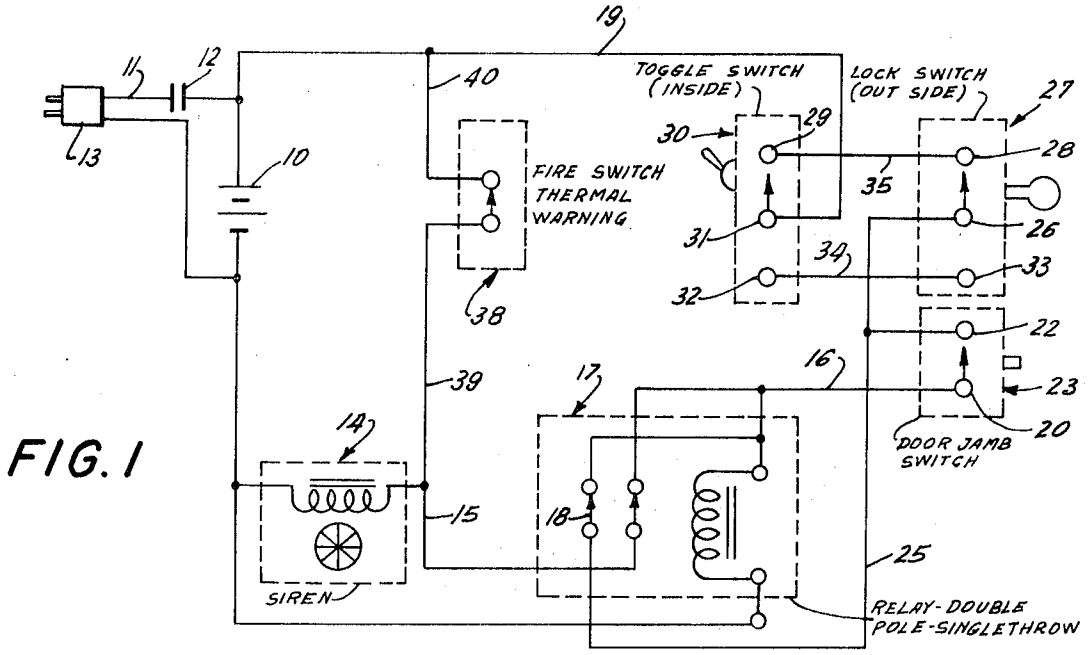


FIG. 1

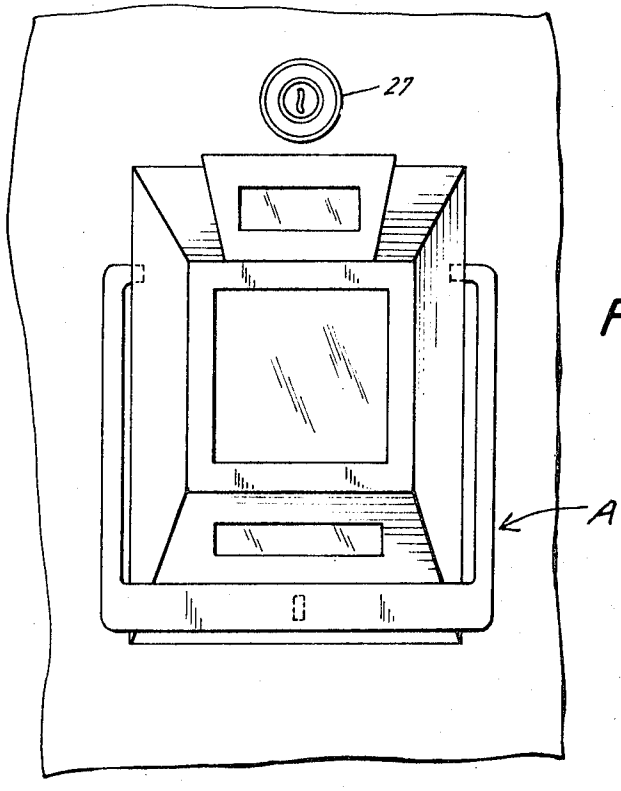


FIG. 4

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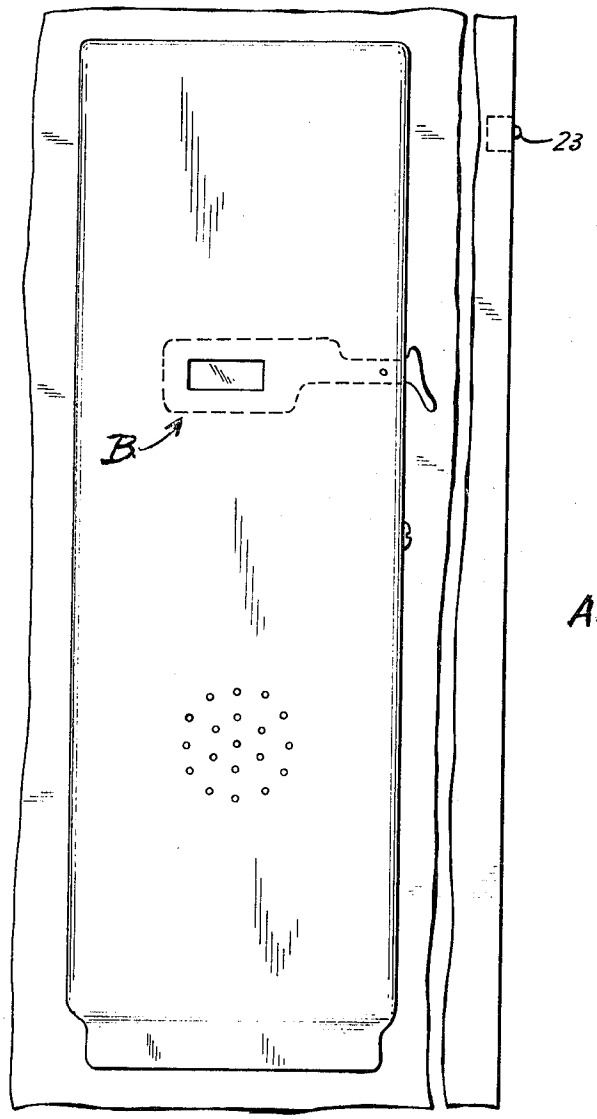
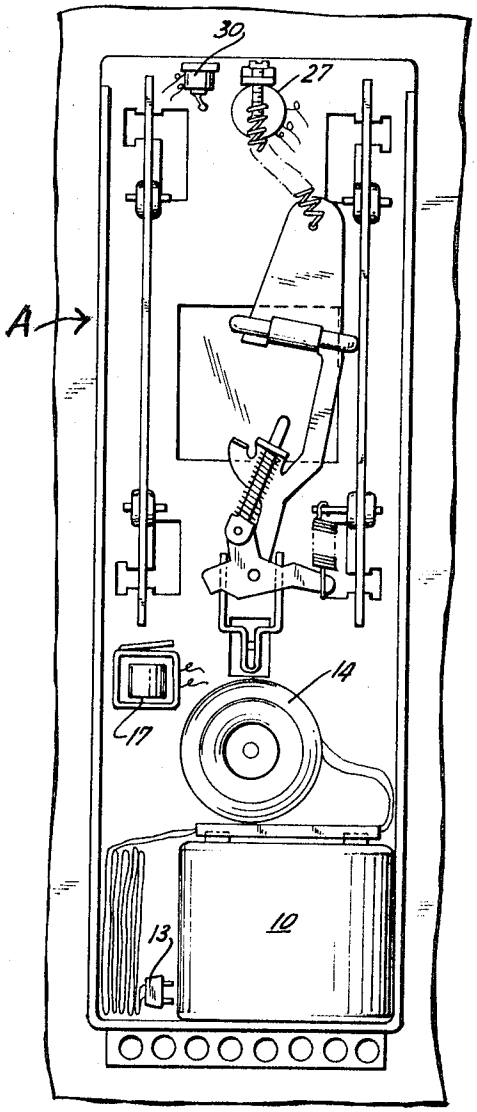


FIG. 2

FIG. 3



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BURGLAR AND FIRE ALARM SYSTEM

The present invention relates to a burglar alarm with which can be combined a fire alarm in a compact and foolproof system.

It is the general object of the invention to provide a burglar alarm which is self-contained and presents no exposed wires which might be cut by an intruder, and which can be arranged upon the door or window of a dwelling (or other premises) and sound an alarm upon opening of the door or window, the alarm continuing even after the door or window is closed.

It is also an object of the invention to provide a burglar alarm system which is set by a switch operated from outside the door or other point of ingress, or by a switch inside the door (which term hereinafter will be understood to include a window and other points of ingress) so that the alarm can be set either upon the owners leaving the dwelling or prior to retiring for the night.

It is a still further object of the invention to provide a burglar alarm system which includes means visible from outside the door and serving to give notice to a would-be intruder that the dwelling is protected by an alarm system and thereby serving as a deterrent.

Another object of the invention is to provide a fire alarm which operates an electric circuit coordinated with the circuit of the burglar alarm in such manner that the same alarm device, such as a siren or bell, serves both the fire alarm circuit and the burglar alarm circuit, but the two circuits are independent of each other; that is, the fire alarm circuit is permanently set for operation of the alarm, regardless of whether the burglar alarm circuit has been preset.

Still another object of the invention is to provide a combined burglar and fire alarm system which is so compact that with its batteries, preferably re-chargeable, it can be incorporated within the housing of a door chime and peephole or wicket device.

Other objects of the invention are to provide a burglar alarm system whose control or resetting means and energizing means are all mounted on the inside of the door; to provide a burglar alarm system which is so compact that it can be incorporated within the housing of a door chime mechanism, especially a non-electric chime; to provide a reliable alarm system operated by a low voltage battery which may be equipped with an electric cord for recharging from an electric outlet; to provide a burglar alarm circuit which is set by the operation of a switch by means of a key applied from outside the door, so that the occupant of the premises can open the door for egress without actuating the alarm; to provide a burglar alarm system which is free of mechanically moving devices; to provide a burglar alarm system in which no alarm or signalling device is set for operation upon opening of the door prior to egress of the occupant of the premises, the setting of the alarm circuit for activation on opening such points of entry occurring after the same has been closed and after a key -operated switch is closed from the outside of the door.

Still other objects and advantages of the invention will be apparent to those skilled in the art from the following more detailed description thereof, taken together with the accompanying drawing wherein:

FIG. 1 presents the circuit diagram of a combined burglar and fire alarm system;

FIG. 2 is a view in elevation of the inside of a door equipped with my improved alarm system, the housing containing also a known form of non-electric door chime and peephole mechanism;

FIG. 3 is a view similar to that of FIG. 2 with the cover removed; while

FIG. 4 is a view of the outside of the door.

The present invention provides a completely foolproof home safety device, both against intruders and against fire, which is of extremely compact construction and is provided with setting means and with disconnecting means which either require a special key or are controlled by a concealed switch. In the preferred form of the invention, both circuits are battery-operated and are self-contained, so that they present no exposed wires.

A key-operated switch is controlled from the outside of the door, and this is visible to would-be intruders who are thereby warned that the dwelling is protected by a burglar alarm system, which will deter many burglars.

The door itself is provided with a known form of switch between itself and the jamb which is open when the door is closed, and vice versa. When the occupant of an apartment or home owner leaves his premises, he sets or activates the alarm circuit by closing a switch, in series with the door switch, from outside the door by means of a key after closing the door. Thereafter, if the door is opened by a burglar, the door switch is closed and the alarm is immediately sounded, which continues to blast away even after the door is closed. The alarm can be shut off only by applying the proper key, or by manually opening a concealed toggle switch inside the door. Even if the intruder should have knowledge of such switch, the alarm will have been sounded and thereby alerted anyone in the dwelling or a neighbor who can then telephone the police and thereby avoid a possibly dangerous confrontation with the intruder, if an attempt was made to investigate the cause of the alarm.

The invention also provides means whereby the same protection can be provided to the occupants of a dwelling upon retiring, by operating a small toggle switch or the like which is partially concealed on the casing above referred to. Upon opening of the door by an unauthorized person, the siren or bell is actuated and continues to sound even after the door is closed. The alarm can be turned off only by use of the key for the outside lock or by opening the toggle switch. Even a short period sounding of the alarm will be sufficient to awaken an occupant who can then telephone the police.

In the preferred form of the invention, a fire alarm circuit is associated with the same siren or other signalling device in such manner that it operates independently of whether the burglar alarm has been activated or not.

Referring to the drawing, and particularly to FIG. 1, there is shown at **10** a preferably rechargeable electric battery composed of two cells in series, each of about 1.5 volts. There is provided with the battery an electric cord **11** which includes a condenser **12** and other known devices (not shown) of an AC charging circuit, and terminates in a plug **13**, the latter being inserted into an electric outlet for recharging the battery. One pole of the battery is connected in series with the activating circuit of a siren, bell or other signalling device **14**, such signalling device being connected by conductor **15** to a holding circuit or relay **17** which includes a double-pole single-throw switch **18**. The relay **17** is connected by conductor **16** to series switches about to be described which connect it with conductor **19** which runs to the other pole of the battery.

The relay **17** is connected by conductor **16** to a contact **20** on the jamb or frame of the door or the like, such contact being part of a switch **21** whose other contact **22** is mounted on the door, which is indicated schematically at **23** in FIG. 1. The contact **22** is connected by conductor **24** to a conductor **25** leading from the relay holding circuit and which short-circuits the opened switch **21** when the door is closed after being opened. The conductor **25** runs to the terminal **26** forming part of a single-pole, double-throw switch **27** on the outside of the door, whose terminal **28** is connected to the terminal **29** of a single-pole, double-throw toggle switch **30** located on the inside of the door. The terminal **31** of the toggle switch is connected to the battery by way of the conductor **19**. The other terminals **32** and **33** of the switches **30** and **27** are connected by conductor **34**, as are the terminals **29** and **28** by conductor **35**.

The lock switch **27** on the outside of the door is visible from outside the door and is operated by a key insertable in the lock. The switch is in series with the switch **30**, so that the circuit to the siren can be broken by operation of either switch. Upon opening of the door, the door switch **21** is closed, and thereby a complete circuit is established by way of such switch

and the conductor **25**, switches **27** and **30** and conductor **19** to the battery. Upon closing of the door, and hence opening of switch **21**, the circuit to the battery and to the siren nevertheless remains closed by way of the holding relay **17**, conductor **25**, switch **27**, switch **30**, and conductor **19**.

It will be apparent from the foregoing, that when the occupant of a dwelling, on leaving the premises, closes the lock switch **27**, across terminals **26** and **28**, and also switch **30** across terminals **29** and **31**, the holding relay **17** being then deenergized since switch **21** is open, the circuit is set for activation of the siren upon closing of switch **21** when the door is opened. The circuit to the siren can be broken only by opening of one of the series switches **27** and **30**, which then deenergizes relay **17**. The switch **30** will normally be closed, but should the occupant of the premises inadvertently open the door after the switch **27** has been closed, he can quickly turn off the alarm by manually throwing switch **30**.

As indicated above, the alarm circuit can be preset from inside the dwelling when the occupants retire for the night. The outside lock switch **27** is then in the open position in which the circuit is broken terminals **26** and **28**, but is closed across terminals **26** and **33**. The switch **30** is now thrown to connect terminals **31** and **32**, so that except for the open door switch **21**, the siren **14** and relay **17** are connected to conductor **19** by way of conductor **25**, terminals **26**, **33**, conductor **34**, and terminals **31**, **32**, and it will be apparent that upon opening of the door, the circuit to the siren will be closed. The alarm can be shut off by throwing the switch **30** to reverse position.

FIG. **4** shows the lock switch **27** mounted on the outside of the door, while FIG. **3** shows a casing **36** which contains the parts above described, except for the door switch **21** and the conductor running from said switch inside the door to casing **36**. The casing is designed to contain a mechanical chime **4** operated by pull rod **37** (FIG. **4**), but as such mechanism forms no part of the present invention, and is described in my U.S. Pat. No. 2,750,920, is has not been shown in detail. The casing may also contain a peephole device B which includes a one-way mirror mounted on the door.

If desired, a double-cylinder lock with two switches, constructed as indicated at **27** and **30**, can replace the single cylinder lock switch **27** and toggle switch **30**.

There is incorporated in the casing also a fire alarm circuit which operates, when the temperature reaches about 145° F., to close a switch **38** and thereby connect the siren **14** to conductor **19** by way of conductors **39** and **40**. As such temperature-operated switches are themselves known, switch **38** has not been shown in detail.

It will be noted that the fire alarm switch **38** controls the same signalling device **14** as do the other switches shown in FIG. **1**, but is independent of the closed or open condition of any of such switches.

If desired, the fire alarm device can be replaced by a known smoke-sensitive device which, when the smoke reaches a certain concentration, causes energization of the signalling mechanism.

As will be apparent to those skilled in the art, the switches and relays may be mechanical or electromechanical in nature, or they may be of the electronic or solid state types, and all such suitable devices are intended to be included within the scope of the subjoined claims.

The non-electric door chime mechanism indicated generally at A, and the wicket or peephole mechanism indicated generally at B, individually form no part of the present invention and may be the same as illustrated in my aforementioned U.S. Pat. No. 2,750,920, or may be in the form of any other known devices of this kind.

I claim:

1. A burglar alarm system comprising an electric switch which moves to closed position upon opening of a door or other point of ingress of a dwelling or other building, and an alarm circuit connected with said switch and mounted on the inside of the door and including a source of electric current in series with said switch, an electrically operated audible signalling device in series with said source of electric current and with said switch, a second switch in the circuit of the signalling device in series with the first switch and including an operating member passing through the door and visible on the outside of the door to reveal that the premises are protected by an alarm system, and a third switch in series with the second switch and manually operable from inside the building, the source of electric current being a rechargeable battery, all of the aforementioned parts being contained within a casing having no visible wiring externally thereof, said alarm system including a cable connected to the battery and provided with a plug for insertion into an electrical outlet for recharging the battery and housed within the casing.

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