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(54) ALARM SYSTEM FOR WINDOWS AND DOORS

(57) The present invention relates to an alarm system for windows and doors. The system of the invention goes completely unnoticed, the users thereof not having to concern themselves with its activation/deactivation, memorizing passwords or using controls, switches or the like. To that end, the system is made up of an integrated electric circuit built into a motherboard (1), intended for being implemented in the leaf (3) of the window or door concerned, and a magnet (2) which is fixed to the frame (4) of said door or window, it having been envisaged that the circuit of the motherboard (1) includes a battery (9), a microprocessor (10), an audible warning device (12), as well as a circuit activation contact (13) associated with the handle or means for opening/closing the door or window, and a trigger contact (14) associated with the magnet (2) arranged in the frame (4).

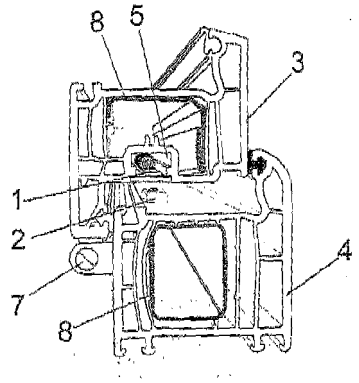

FIG. 2

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Description

Object of the Invention

[0001] The present invention relates to an audible alarm system, especially developed for detecting the forced opening of windows and doors due to an unwanted intrusion.

[0002] The object of the invention is to provide an audible alarm system which allows warning its user of an attempted robbery in his/her home by means of forcing open the windows and doors from the outside.

[0003] Another object of the invention is that the described system is independent for each window or door unit such that an occasional failure in one circuit does not affect the remaining devices installed throughout the home.

[0004] The proposed invention does not need any cables or electrical connection, assuring the correct operation as long as the window is forced open, nor does it need controls or auxiliary elements, being simple and thus inexpensive, preventing accidental triggers that have nothing to do with a possible forced opening of the window or door concerned, as well nor is it necessary to have to remember passwords or to turn said alarm system on and off frequently.

[0005] Therefore, the system of the invention is encompassed in the field of security alarms or devices.

Background of the Invention

[0006] A wide range of alarm systems with very different configurations are known in the scope of practical application of the invention, most of them having a series of technical problems that can be summarized below:

- They have circuits which usually depend on the power supply circuits of the home such that the circuits are voided if said service is interrupted.
- Likewise, these circuits must be activated/deactivated, such that on many occasions they are not activated due to haste or by mistake, with the subsequent risk that it entails.
- They are usually installed in an easily accessible junction box and with the subsequent risk of manipulation.
- They are complex, therefore expensive systems which also negatively affect the look of the home.
- In most cases they require passwords which must be memorized, said passwords being able to be copied or sabotaged, and the user him/herself may forget them.
- They have a network configuration which complicates system installation.

Description of the Invention

[0007] The alarm system for windows and doors proposed by the invention solves in a completely satisfactory manner the problems described above with respect to each and every mentioned aspect.

[0008] To that end, the system of the invention is intended for being built into each of the windows or doors concerned, being completely concealed in a closed situation of the windows or doors, which increases its deterrence capability by means of the element of surprise.

[0009] The system is located in the circuit of the fittings channel of the windows and doors, the purpose of which is to activate and deactivate the locking and unlocking bolts, being built into same.

[0010] The exact location of the alarm system can vary depending on the fittings used according to the functionality thereof, but it will always be at the end of the chain of the possible necessary elements, i.e., it will always be the last element, the possibility that the alarm system acts as a link with another fittings option being excluded.

[0011] More specifically, the system is made up of a glass fiber board into which there is built the actual alarm circuit, intended for being placed in the leaf of the window or door concerned, and a magnet which will be conveniently arranged facing said board in the frame of the window or door concerned.

[0012] The mentioned alarm circuit has an energy saving microprocessor associated with a long-life battery, as well as with a buzzer or audible warning device, such that a circuit activation contact is arranged therein, and it has a trigger contact.

[0013] The circuit activation contact will be mechanically associated with the corresponding mechanism of the handle or element for opening and closing the door, such that when the door is open, the circuit is deactivated, the microprocessor going into a standby state with minimum consumption, a situation in which the alarm system would not be triggered in the event of opening the window.

[0014] On the other hand, when the handle or element for opening and closing the door is in a closed situation, the movement of the mechanisms which cause the displacement of the elements for closing the door will entail the activation of the activation contact, the microprocessor going into a vigilance state, such that any attempt to force open the window or door concerned will entail the separation of the magnet located in the frame from the trigger contact, the alarm being automatically triggered through the buzzer.

[0015] The circuit activation contact will be mechanically associated with the corresponding mechanism of the handle or element for opening and closing the door through a movable arm which can be linked to a spring.

[0016] For the device to have a longer service life, it has been envisaged that the device is marketed with the battery disconnected, such that when the equipment is installed for the first time, the battery is automatically con-

nected, a series of beeping sounds indicating the activation thereof and the correct operation of the system being emitted. In one embodiment variant, the battery is connected through a manual mounting, removing to that end the activation jumper.

[0017] The assembly making up the system can be mounted in a casing, preferably a plastic easing, forming a protector for all the electronic components and means involved in the system itself.

[0018] Accordingly, the alarm is turned on and off in an extremely simple and mechanical manner, by simply turning the handle for opening or closing the window or door, such that if the handle is in the "closed" situation the alarm will be activated, whereas if in contrast the handle is in the "open" position, the alarm will be deactivated, it being unnecessary to devote attention to turning the system on and off since this will be linked to simply turning the handle when opening or closing the window or door, avoiding the obligation which other systems have of providing complementary accessories for this function, such as switches, push-buttons, remote controls, etc., with the subsequent structural simplicity and cost savings, using passwords which must be memorized in advance not being necessary.

[0019] Likewise, with this system it is impossible to trigger "false alarms", which is very common in conventional alarm systems.

[0020] Evidently, the system of the invention is not exclusive with respect to other alarm systems which may be implemented in the home, being able to coexist with any of them without altering, influencing, or decreasing the functions and purposes of each of them, being able to be used for increasing the protection capability of other already installed systems with standard features, making up the first anti-robbery barrier for preventing intruders from entering the home.

[0021] Finally and as mentioned above, the installation of the system of the invention in no way affects the appearance, image or look of the actual window or door, which is fundamental today due to the high consumer requirements concerning doors and windows, not only as elements with a good insulation level that look good both from inside and outside the home, the outer look of the handle for operating the window or door concerned not being altered.

Description of the Drawings

[0022] To complement the description that is being made and for the purpose of aiding to better understand the features of the invention according to a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description in which the following has been depicted with an illustrative and non-limiting character:

Figure 1 shows a perspective view of a door or window in the open situation, provided with an alarm system carried out according to the object of the present invention.

Figure 2 shows a perspective, cross-section view of how the system of the invention is arranged in a door or window when the door or window is closed.

Figure 3 shows a plan view of the actual circuit included in the system of the preceding figures.

Figure 4 shows a perspective depiction of the protective casing for protecting the system object of the invention.

Figure 5 shows a perspective view of an embodiment of the arm involved in the link between the circuit activation contact and the mechanism or the handle for opening and closing the door.

[0023] Finally, Figure 6 shows a depiction corresponding to a perspective view of the system with the protective casing of the invention.

Preferred Embodiment of the Invention

[0024] In view of the mentioned drawings, it can be observed how the proposed device is made up of an integrated electric circuit built into a glass fiber motherboard (1) and a magnet (2), the motherboard (1) being intended for being implemented in the leaf (3) of the window or door concerned, whereas the magnet (2) is fixed to the frame (4) of said door or window.

[0025] More specifically, the motherboard (1) has an elongated rectangular configuration, which in the chosen practical embodiment has dimensions of the order of 161 mm, including the buzzer and excluding the arm, which will be described in detail below, the motherboard (1) intended for being located in the fittings channel (5), which will be 16 mm, through which the catches or elements (6) for locking the door or window which are operated by the handle or knob concerned move.

[0026] Conventionally, the leaf (3) of the window will be articulated to the frame (4) through the corresponding set of hinges (7), both frame (4) and leaf (3) being able to be provided with respective inner reinforcements (8).

[0027] As can be seen in Figure 3, on the motherboard (1) there is arranged a long-life lithium battery (9) powering a microprocessor (10), a circuit in which there are arranged an audible warning device (12) through which the alarm signal is emitted by means of the microprocessor (10), for which a circuit activation contact (13) is arranged in the mentioned circuit, and a trigger contact (14).

[0028] The circuit activation contact (13) will be mechanically associated with the corresponding mechanism of the handle or element for opening and closing the door through a movable arm (15) that can move against the tension of a spring (16), which arm is associated with a second magnet (17) through which the activation contact (13), which will be a Reed type contact, is controlled.

[0029] Therefore, when the window or door is open,

the circuit is deactivated, the microprocessor going into a standby state with minimum consumption, a situation in which the alarm system would not be triggered in the event of opening the window.

[0030] In turn and once the window is closed and the circuit activated accordingly, the trigger contact (14), also a Reed type contact, will be facing the magnet (2) of the frame (4), such that any attempt to separate one element from another, like what would happen in the event of forcing open the door or window, will involve the closing of said contact and the subsequent triggering of the alarm through the audible warning device (12).

[0031] Said system can be mounted in a protective casing (18), as depicted in Figure 4, with an area for mounting the components and another area (19) for mounting the corresponding battery (9), said casing having been depicted in Figure 4, whereas Figure 6 specifically shows such casing (18) housing the different components of the system, including an embodiment variant of the arm (15), which in this case has reference number (15') in that same Figure 6, and even in Figure 5, where such arm (15') is shown with one end (19) through which it is linked with the activation contact (13).

Claims

1. An alarm system for windows and doors, **characterized in that** it is made up of an integrated electric circuit built into a motherboard (1), intended for being implemented in the leaf (3) of the window or door concerned, and a magnet (2) which is fixed to the frame (4) of said door or window, it having been envisaged that the circuit of the motherboard (1) includes a battery (9), a microprocessor (10), an audible warning device (12), as well as a circuit activation contact (13), associated with the handle or means for opening/closing the door or window, and a trigger contact (14) associated with the magnet (2) arranged in the frame (4).

2. The alarm system for windows and doors according to claim 1, **characterized in that** the circuit activation contact (13) is mechanically associated with the corresponding mechanism of the handle or element for opening and closing the door through a movable arm (15) that can move against the tension of a spring (16), which arm is associated with a second movable magnet (17) that can move on the activation contact (13).

3. The alarm system for windows and doors according to claim 1, **characterized in that** it includes a mounting and protective casing (18) for mounting and protecting all the elements making up the system itself.

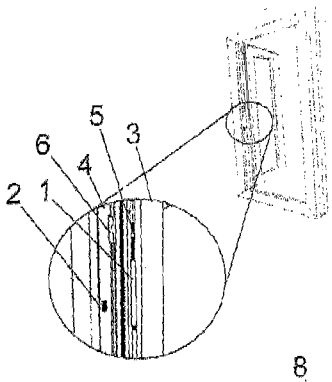

FIG. 1

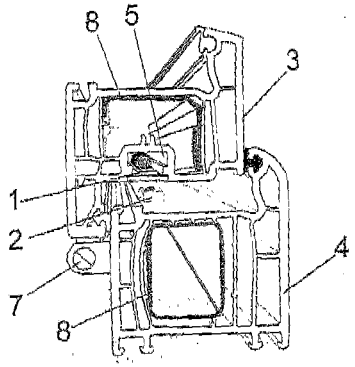

FIG. 2

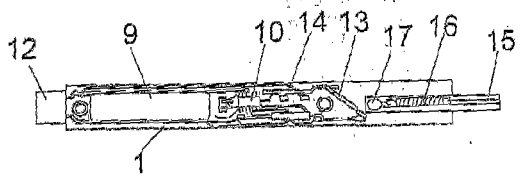

FIG. 3

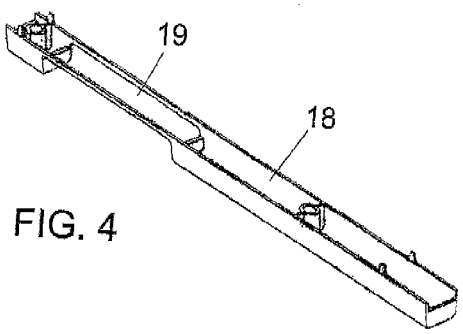

FIG. 4

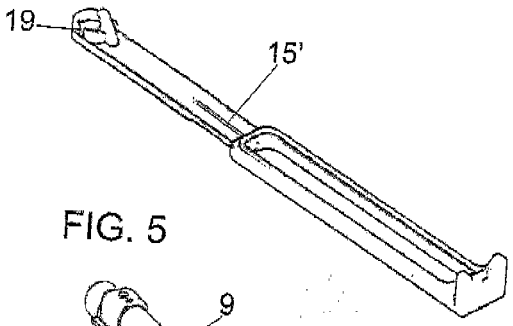

FIG. 5

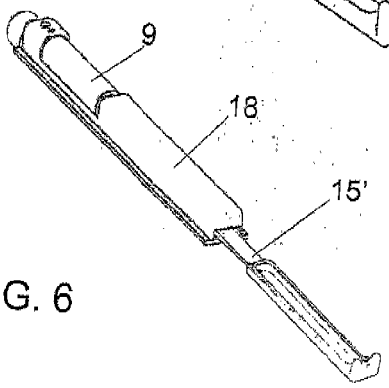

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2011/000013

A. CLASSIFICATION OF SUBJECT MATTER

G08B13/08 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	ES 2321758 T3 (WERU AG) 10/06/2009, the whole the document.	1-3
A	GB 2286423 A (MCCRACKEN JAMES) 16/08/1995, page 5, line 30 - page 9, line 28; figure 3.	1-3
A	DE 3911884 A1 (MARODE KLAUS) 18/10/1990, abstract; figures.	1-3

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure use, exhibition, or other means.
"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search	Date of mailing of the international search report
22/06/2011	**(28//06/2011)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer J. Calvo Herrando Telephone No. 91 3495578

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
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Form PCT/ISA/210 (patent family annex) (July 2009)