

⑫

EUROPEAN PATENT APPLICATION

⑰ Application number: 86850077.8

⑤① Int. Cl.⁴: **G 08 B 13/06, E 05 B 47/06**

⑱ Date of filing: 03.03.86

③① Priority: 04.03.85 SE 8501040

⑦① Applicant: **ERIKSSON, Berndt, P.O. Box 36, S-146 00 Tullinge (SE)**
Applicant: **Karlsson, Karl-Göran, Aftonvägen 11, S-146 00 Tullinge (SE)**

④③ Date of publication of application: 10.09.86
Bulletin 86/37

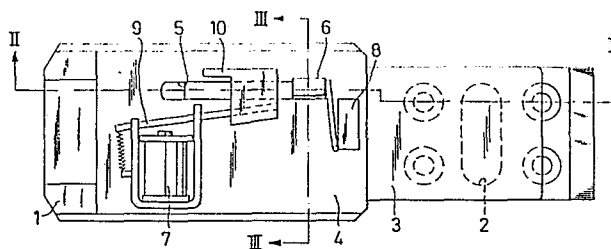
⑦② Inventor: **ERIKSSON, Berndt, P.O. Box 36, S-146 00 Tullinge (SE)**
Inventor: **Karlsson, Karl-Göran, Aftonvägen 11, S-146 00 Tullinge (SE)**

⑧④ Designated Contracting States: **AT CH DE FR GB IT LI SE**

⑦④ Representative: **Norén, Per Bo Arne, SWEDPATENT AB P.O. Box 21021, S-100 31 Stockholm 21 (SE)**

⑤④ **Device for preventing unintentional unlocking of burglary alarm protected doors.**

⑤⑦ A device for burglary alarm protected doors intended to prevent unintentional unlocking of the lock mechanism of a door when the alarm circuit is operative, including a slide (3), displaceably arranged at the outside door plane, arranged to be locked by means of an electromagnet (7) in a position extending across the key hole of the lock mechanism when the alarm circuit is operative. According to the invention, the slide (3) is arranged to influence an electrical switch means (8) when in a position extending across the key hole, thereby interrupting a voltage feed from the alarm circuit to the electromagnet (7). An initial displacement movement of the slide (3) in direction away from the key hole results in that the switch means (8) closes the voltage feed circuit to the electromagnet (7) from the alarm circuit, whereby the electromagnet (7) locks the slide (3) after an initial displacement movement against further movement away from the key hole. As soon as the slide (3) is no longer manually influenced, the slide (3) after an initial displacement movement against further movement away from the key hole. As soon as the slide (3) is no longer manually influenced, the slide (3) returns to the position influencing the switch means (8), and the voltage supply to the electromagnet (7) is interrupted.



Device for preventing unintentional unlocking of burglary alarm
protected doors

The present invention relates to a device for burglary alarm protected doors, intended to prevent unintentional false alarm indication.

A device for this purpose is previously disclosed in SE, A, 419 879, and
5 includes a movable slide member located by the outside door plane, in a first position located extending across a key hole for a lock mechanism arranged in the door, being manually movable to a second position, in which the key hole is uninterrupted and free. An electromagnet, connected to the alarm circuit, locks the slide member in the position extending
10 across the key hole when the alarm system is switched on, thereby preventing unintentional unlocking of the door when the alarm system has not been disconnected. This previously known device has been proved very efficient in practical use, and the number of false alarms caused by unintentional influence have been considerably reduced. However, a
15 disadvantage with this previously known device is that the electromagnet in locked position receives its voltage supply from the alarm circuit, and an alarm circuit must be operable for a long period of time after an interruption of the mains voltage supply, during which time period voltage is supplied from electric accumulators. As a result, existing
20 standby power must be dimensioned considering the power consumption of the electromagnet, which results in a larger number of electric accumulators being required, and thus also an increased cost for standby power, and same also requires an increased space. With regard to the previously known device, it has therefore been proposed examples of
30 embodiments, in which the electromagnet causes a locking action when no voltage is supplied, releasing the slide member from locked position when a voltage is supplied. However, such an embodiment involves voltage feed from an independent supply circuit, and this supply circuit must be switched via the alarm circuit, which involves additional wiring,
35 separate voltage source, and special switching equipment for switching a relay on/off.

The object of the present invention is to overcome the disadvantages associated with the previously known device. An installation with
40 voltage supply from the alarm circuit is also advantageous, both with

regard to simplified installation and lower cost, but has not previously always been possible, due to existing regulations relating to standby power in case of mains supply interruption. According to the present invention, it is now possible to obtain such a simplified installation,
5 without increasing the power consumption of the alarm installation.

The device according to the present invention includes a displaceably arranged slide at the outer plane of the door, arranged to be secured in a position extending across the key hole of the lock mechanism by means
10 of influence from an electromagnet when the alarm circuit is switched on, and is mainly characterised in that the slide is arranged to influence an electrical switch means when in a position extending across the key hole, and thereby interrupt a voltage supply from the alarm circuit to the electromagnet, and that a first displacement movement of
15 the slide in direction from the key hole is arranged to make the switching means close the voltage supply to the electromagnet from the alarm circuit, thereby causing the electromagnet to lock the slide against further displacement movement intended to open the key hole. As a further characteristic feature can be stated, that the slide is
20 arranged to return from a position locked by the electromagnet to a position influencing the electrical switching means under influence of a return spring member or similar, thereby interrupting the voltage feed from the alarm circuit to the electromagnet.

30 A basic embodiment of a device according to the present invention is more fully described below with reference to the accompanying drawings, in which:-

Fig. 1 shows a plan view of an embodiment of a device according to the
35 present invention, with an associated protective housing removed, and with the device shown in a first uninfluenced position.

Fig. 2 shows a longitudinal sectional view along line II-II in Fig. 1.

40 Fig. 3 shows a cross-sectional view along line III-III in Fig. 1.

Fig. 4 shows a plan view corresponding to Fig. 1 with the device influenced into a second position facilitating insertion of a key into a

key hole located behind the device.

Fig. 5 shows a plan view corresponding to Fig. 1 during an attempt to move the protecting slide while an associated alarm system is switched
5 on.

Fig. 6 shows an electrical circuit diagram with included components shown in a position corresponding to Fig. 1.

- 10 The device shown in Figs. 1 - 5 includes a base part 1, intended to be attached against an outer door surface by means of screws or similar. With regard to the portion of the base plate 1 having a larger width, same is intended to be covered by a protective housing in use, but in order to simplify the disclosure, said housing is not shown. The narrow
15 portion of the base plate 1 is arranged with a through slot 2, which when attached is located over the key hole to be protected (indicated by broken lines in Fig. 4). A longitudinally extending slide member 3 is displaceably arranged in relation to the base plate 1, partly covered by a supporting plate member 4 attached against the wider portion of the
20 base plate 1. The supporting plate member 4, which advantageously may comprise of a circuit board arranged to support and electrically interconnect utilized components, is arranged with a through slot 5, extending in the direction of movement for the slide 3. An abutment means 6 extends upwards from the slide 3 through the slot 5, preferably
30 having the free end portion enlarged by means of a folded portion, as shown in Fig. 3. The plate member 4 supports a relay 7, but also an electrical switch means 8, e.g. a micro-switch. The armature of the relay 7 is designed as a longitudinally extending member 9, pivotably attached against an edge portion of the relay 7, and arranged having a
35 substantially U-shaped locking member 10 attached to the free end portion. Furthermore, a not shown return spring member is also arranged, acting on the slide 3 in such a manner, that same takes up the position shown in Fig. 1 when the slide 3 is not manually operated.
- 40 With reference to the position shown in Fig. 1, the not shown return spring member applies a pressure moving the slide 3 towards the end portion of the narrow part of the base plate 1, said movement being restricted by contact between the abutment means 6 against an end

portion of the slot 5. In this position, the abutment means 6 also takes up contact against a contact lever extending from the switch means 8, thereby influencing same into a non-closed position. This position is also illustrated as a circuit diagram in Fig. 6, and results in no voltage feed to the coil of the relay 7. Accordingly, if the circuit shown in Fig. 6 is connected for voltage supply from an operative alarm circuit, no voltage is supplied in this position to the coil of the relay 7, and the device is thus not causing any power drain from the alarm circuit.

10

Should the alarm circuit be disconnected, a voltage can obviously not be supplied to the coil of the relay 7, even if the switch means 8 is closed, i.e. if the abutment means 8 is moved towards the other end portion of the slot 5, and thus no longer maintains contact with the contact lever of the switch means 8. Such a movement is facilitated past the locking member 10, since its U-shape does not prevent a movement of the abutment means 6, as shown more in detail in Fig. 3. When the alarm circuit is disconnected, the slide 3 can thus be moved into the position shown in Fig. 4, by means of manual application of force by means of a finger applied against the outer portion of the slide 3. Hereby is the slot 2 located above the key hole, and a key can be inserted to unlock the door against which the device is attached. When the key has been removed, the slide 3 returns into the position shown in Fig. 1 by means of influence from the previously mentioned return spring member.

30

Should an attempt be made to move the slide 3 from the position shown in Fig. 1 to the position of Fig. 4, while the alarm circuit is operative, a first and minor displacement movement of the slide 3 results in that the abutment means 6 no longer maintains the switch means 8 in open position, and when same is closed, the coil of the relay 7 receives a voltage supply from the alarm circuit, whereby the the relay armature takes the position shown in Fig. 5, i.e. with the locking member 10 extending across the slot 5, thereby preventing movement of the abutment means 6 past the locking member 10. Thereby is also a movement of the slide 3 past the slot 2 prevented, and the key hole located below is not made available. As soon as the the manually applied force against the slide 3 for causing a displacement movement is no longer maintained, the slide 3 is moved back to the position shown in Fig. 1 by influence from

40

the return spring member, thereby operating the switch means 8 again, and interrupting the voltage supplied to the coil of the relay 7.

- By utilizing a micro-switch as a switch means 8, a rapid and distinct switching operation is obtained, thereby securing that the relay 7 can lock the slide 3 by moving the locking member 10 to a contact position against the abutment means 6. The portion of the locking member 10 that contacts the abutment means 6 is preferably when uninfluenced, as illustrated in Fig. 1, arranged located adjacently in a sideways relationship to the slot 5, and at a small distance from the adjacent portion of the abutment means 6, in order to secure that the locking member 10 takes up intended position within the time period necessary for moving the slide 3 to the position in which same is locked.
- 15 The described and shown embodiment thus facilitates a locking action only when the alarm circuit from which voltage is supplied is switched on, and results in no power consumption when the slide 3 is not manually influenced. In difference to previously known type, a locking action does not occur when the alarm system is switched on, but only when the slide 3 is manually influenced, in order to open the key hole protected by the device.

- It should be emphasized, that the shown and described embodiment is only intended to serve as an example of an embodiment within the scope of the inventive thought and the following claims, since obviously many modifications can be made with regard to the design of included components. The method in which the relay 7 is arranged to cause a locking action can thus obviously be further modified, as well as associated components used to accomplish locking action. Furthermore, it is obviously also possible to include an optical indication device, e.g. a light emitting diode, connected to the alarm circuit and indicating whether or not the alarm circuit is operative or disconnected. By using a light emitting diode or similar for this purpose, the resulting power drain will be extremely low, thereby not noticeably affecting the standby power system for the alarm system, whereby actions for increasing the standby power system will not be required. Such an optical indication can also be arranged between the switch means 8 and the relay 7, thus resulting in optical indication only when the slide 3 is influenced,

i.e. as further indication to the person trying to open the key hole that the alarm system is switched on. In this latter case, an acoustic signal source, e.g. a buzzer, can obviously also be used.

5

10

15

20

30

35

40

Claims:

1. Device for burglary alarm protected doors intended to prevent unintentional unlocking of the lock mechanism of a door when the alarm
5 circuit is operative, including a displacably arranged slide (3) at the outer plane of the door, arranged to be secured in a position extending across the key hole of the lock mechanism by means of influence from an electromagnet (7) when the alarm circuit is switched on, characterised in
10 that the slide (3) is arranged to influence an electrical switch means (8) when in a position extending across the key hole, and thereby interrupt a voltage supply from the alarm circuit to the electromagnet (7), and that a first displacement movement of the slide (3) in direction from the key hole is arranged to make the switching means (8)
15 close the voltage supply to the electromagnet (7) from the alarm circuit, thereby causing the electromagnet (7) to lock the slide (3) against further displacement movement intended to open the key hole.
2. Device according to claim 1, characterised in that the slide (3)
20 is arranged to return from a position locked by the electromagnet (7) to a position influencing the electrical switching means (8) under influence of a return spring member or similar, thereby interrupting the voltage supplied from the alarm circuit to the electromagnet (7).
- 30 3. Device according to claims 1 and 2, characterised in that the slide (3) is arranged with an abutment means (6), arranged to influence the electrical switching means (8) in a first restricting position for displacement of the slide (3), and in combination with an associated means (5) serve as a displacement restricting member during a
35 displacement movement of the slide (3) towards a second restricting position.
4. Device according to claim 3, characterised in that the abutment means (6) is arranged to serve as a co-acting member to a locking member
40 (10) operable by means of the electromagnet (7), in order to facilitate locking of the slide (3) against further displacement movement when the slide (3) has been moved a shorter distance from a position extending across the key hole of the lock mechanism.

5. Device according to any of claims 1 - 4, characterised in that it includes an optical signalling device, for example a light emitting diode, connected to cause optical indication when a voltage is supplied to the electromagnet (7).

5

6. Device according to any of claims 1 - 5, characterised in that it includes an acoustical signalling device, for example a buzzer, connected to cause an acoustical indication when a voltage is supplied to the electromagnet (7).

10

7. Device according to any of claims 1 - 6, characterised in that it includes an optical signalling device, for example a light emitting diode, connected to cause optical indication when the alarm circuit is switched on, independently of whether or not a voltage is supplied to the electromagnet (7).

15

20

30

35

40

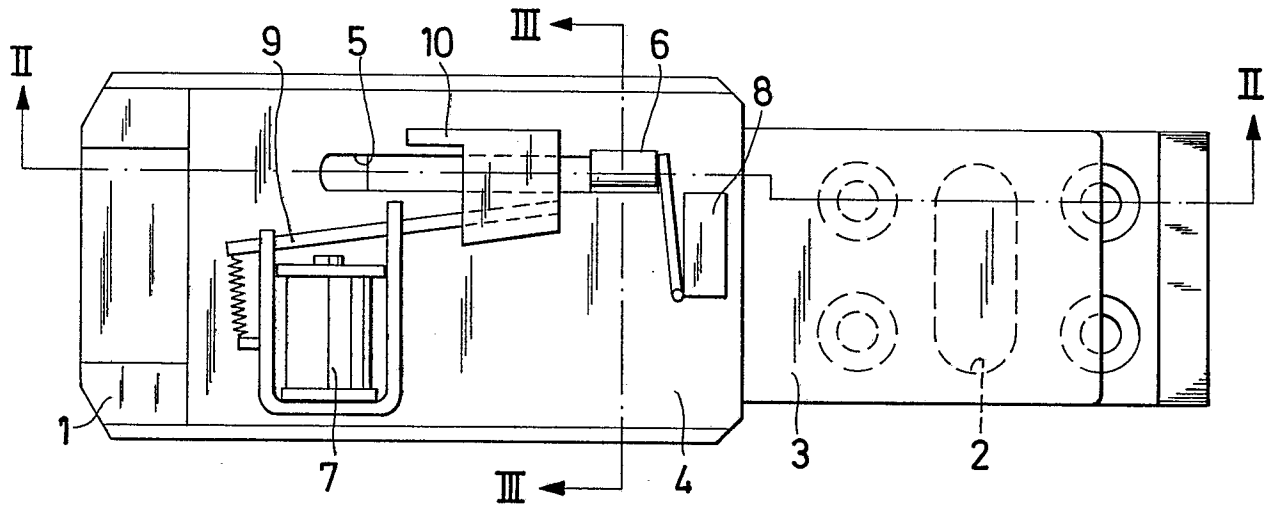
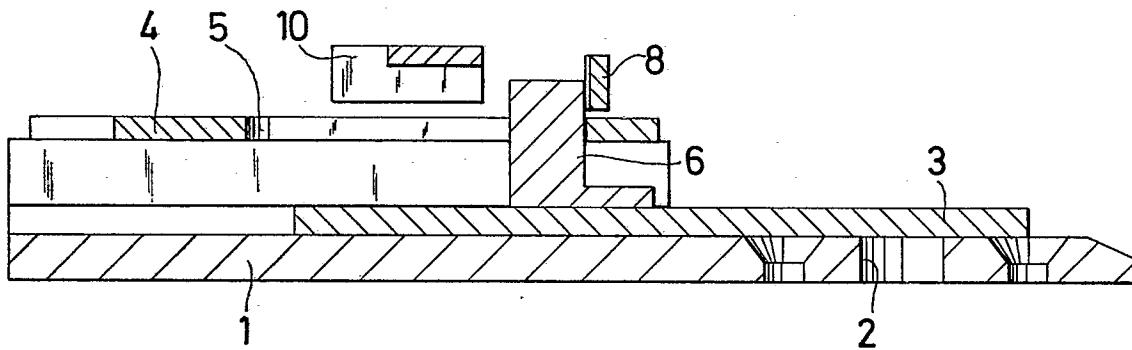
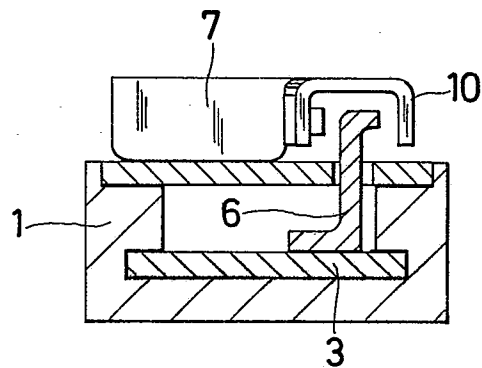
Fig. 1*Fig. 2**Fig. 3*

Fig. 4

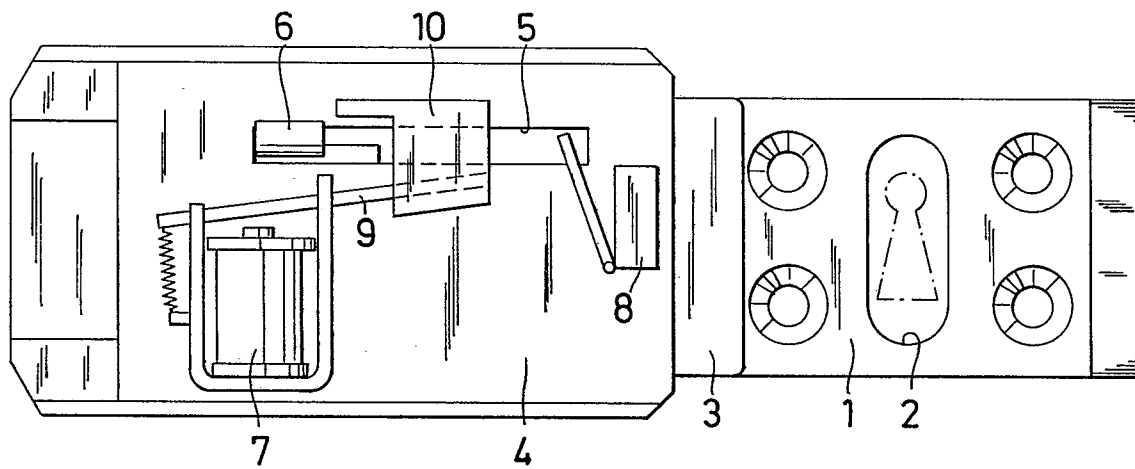


Fig. 5

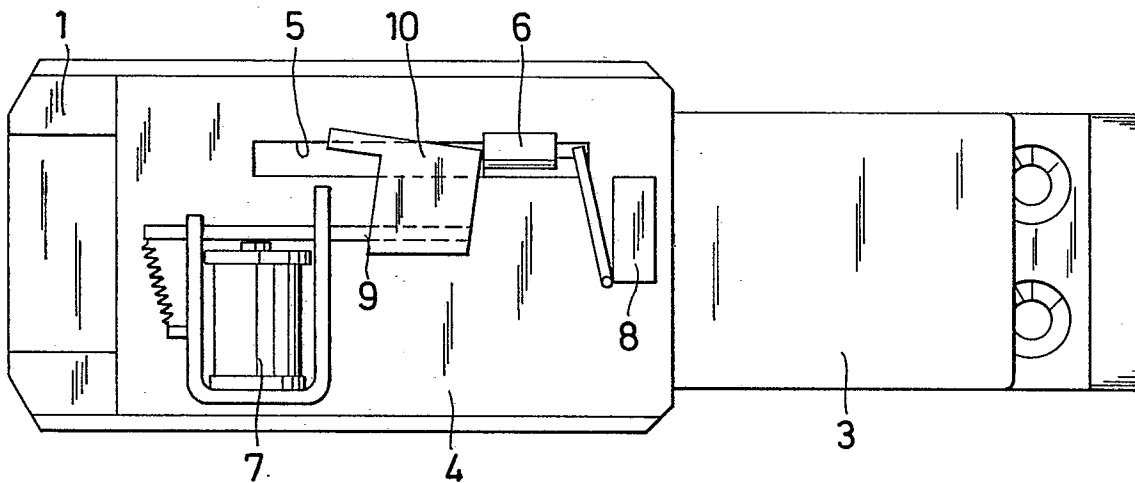


Fig. 6

