

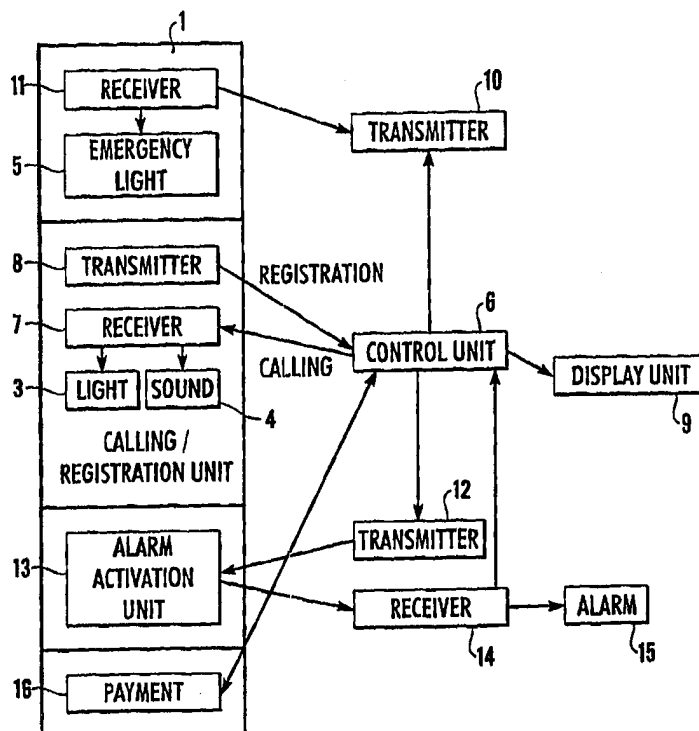


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G08B 3/10	A1	(11) International Publication Number: WO 98/24071 (43) International Publication Date: 4 June 1998 (04.06.98)
(21) International Application Number: PCT/NO97/00315 (22) International Filing Date: 25 November 1997 (25.11.97) (30) Priority Data: 965015 25 November 1996 (25.11.96) NO (71) Applicant (for all designated States except US): SECURITY SIGNS & SERVICE AS [NO/NO]; P.O. Box 2494, N-9002 Tromsø (NO). (72) Inventor; and (75) Inventor/Applicant (for US only): BJØRN, Per, Ole [NO/NO]; P.O. Box 2132, N-9000 Tromsø (NO). (74) Agent: ONSAGERS PATENTKONTOR – DEFENSOR AS; P.O. Box 265 Sentrum, N-0103 Oslo (NO).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>In English translation (filed in Norwegian).</i>

(54) Title: SECURITY AND ALARM DEVICE FOR KEYS/KEY CARDS**(57) Abstract**

A security and alarm device for keys/key cards (1), especially for use in hotels, ships, etc. in connection with guest bedrooms, cabins, etc. comprises an electronic circuit which is built into the key or permanently connected thereto and can be remotely activated from a control unit (6). This circuit can influence or be influenced by a dedicated electromagnetic field for activation of an alarm signal (13), and/or the circuit comprises at least one transmitter (8, 10, 12, 16) and/or receiver circuit (7, 11, 14) for registering the key's presence in a specific area, or activating a light source (3, 5) in the key, and/or emitting a call signal (4, 15).



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SECURITY AND ALARM DEVICE FOR KEYS/KEY CARDS

The invention concerns a security and alarm device for keys/key cards, especially for use in hotels, ships, etc. in connection with guest bedrooms, cabins, etc.

5 All over the world today demands are being made on security in connection with lounges and guest bedrooms in hotels or on means of transport. For this purpose sign systems have been developed to ensure that people in a crisis situation can find an emergency exit, and special direction signs, both physical and electronic, have also been developed. One problem which has
10 not been solved, however, is that of checking which and how many people are located, for example, in a hotel in the event of a fire or other emergencies. A great many hotel guests, for example, take their key or key card with them when they leave the hotel. Even though they are within the hotel area, they are difficult to find. The alarm systems which are currently
15 used to warn hotel guests are based to a great extent on the telephone, radio or television as a alarm means.

The object of the present invention is to provide a security and alarm system whereby contact can be achieved with a guest, regardless of where he is in the hotel, and which preferably also registers whether the hotel guest leaves
20 the hotel with his key, and alerts him to hand in his key.

It is a further object of the invention to be able to give the guest a signal if, for example, there is a telephone call for him and he is in one of the public rooms, without the necessity of calling the guest's name over a loudspeaker system or the like.

25 Yet another object of the invention is to provide a device which can give the hotel guest better security, for example in the form of a light source which can help him to find signs or the like which can show the way to an emergency exit. Another practical use of the invention is that it will also be able to be employed as an "internal" payment credit card, and billed to the
30 guest's room.

These objects are achieved with a security and alarm device which is characterized by the features which are presented in the patent claims.

The invention concerns use of the device in a system for monitoring the number of people present in a building at a specific time, or for summoning people.

5 By means of the device according to the invention it will be possible to alert persons who are about to leave the hotel in the same way as shops secure their exits against thieves. In the key device, for example, there is a built-in electronic circuit which influences a thereto adapted detector which is set up in the hotel's exits. When the guest passes the detector in the exit it will emit a whistle signal, or the detector can be connected to a central unit where it is
10 registered that the guest is leaving the building with the key, thus enabling a registration to be made as to whether he is within the hotel area or not. This will give a clear indication of which persons are in the hotel and which have left the building.

The key device may also comprise of a transmitter and/or receiver circuit,
15 which can transmit signals which indicate whether the guest, for example, is in the dining room or in his room, thereby making it easy to reach the guest if a message should come for him. This system can be designed in such a manner that it does not supply information on where the guest is in the hotel. The key device, being equipped with a receiver, thus permits a signal to be
20 transmitted to the guest's key card from, for example, the hotel reception without knowing where the guest is. This signal being received, for example, in the form of a flashing light or as a alarm signal, causes the guest to register that there is a message for him and enables him to acknowledge his presence either by telephone or by going to reception.

25 Furthermore, the key may be equipped with a light source, with the result that in a crisis situation a light is automatically switched on in the key, and in the event of a power cut the guest is given a light by which to find his bearings and enabling him, for example, to search for reflecting or luminous signs in order to find the way out.

30 The device according to the invention can be adapted to a diversity of uses, thereby permitting it, for example, to be designed without a beeper function or also without a alarm function when the person leaves the hotel. The hotel can still register that the person is outside the building due to the fact that he cannot be reached through the beeper part.

In this connection the key can also be developed for use as an internal credit card, when, for example, the guest is paying in the restaurant, he uses the key to charge the bill to his room. A credit card system of this kind can also be developed for a wider use than this.

5 It will be possible to design the electronic circuits in the key device with miniaturised components, thus using very little space. With the device in a key card, for example, it will be possible quite simply to make the gripping part of the key card a few millimetres thicker, thus making room for the necessary elements. The electronic circuits will be of a known type, the
10 invention thereby comprising only the special use and the device in a key system.

The invention will now be illustrated in more detail by means of an embodiment, which is illustrated purely schematically in the drawing.

15 Figure 1 illustrates a key together with a key card for use in a device according to the invention.

Figure 2 illustrates a device according to the invention.

Figure 3 illustrates an alternative design of the registration unit according to the invention.

20 Fig. 1a illustrates a card 1 with a key part 2, a light-emitting diode 3, a sound emitter 4 and an emergency light 5. The system also comprises a control unit 6 (fig. 2) for controlling the various elements in the card.

The key part 1 may be of the piped key, magnetic strip key type, etc.

Fig. 1b shows a similar card attached to an ordinary key.

25 The function of the different elements will now be explained in more detail with reference to fig. 2.

Fig. 2 illustrates the device according to the invention. The device is connected to a control unit 6 which controls transmission and reception of the different signals and which may, for example, be a computer, which co-operates with several transmitter/receiver circuits, an alarm 15 and a display unit 9. The figure illustrates the existing possibilities and it will be possible
30 to vary the number and type of circuits.

When calling a guest the control unit 6 will transmit a call signal to the receiver 7 on the card 1, which in turn will activate the light-emitting diode 3 and/or the sound emitter 4. The guest is thereby informed that there is a message for him.

- 5 For registering the presence of a guest the card 1 has a transmitter 8 which emits a signal. The control unit records the presence and is, for example, connected to a display unit 9 which shows the number of people who are in the building at any time.

- 10 In the event of fire or another emergency situation the transmitter 10 connected to the control unit emits a signal which is received by a receiver 11 (in the card) and which activates the switching on of the emergency light 5.

- 15 In the event of a guest leaving the building without handing in his key, the card 1 will cross an electromagnetic field created by means of a transmitter 12 (for example an antenna) which continuously emits a signal in a specific area on the way out of the building. The alarm activation unit 13 on the card 1 will in turn emit a signal which is received by the receiver 14 and which activates the alarm 15. The guest's attention is thereby drawn to the oversight. Should the guest still go out with the card, the contact to the
20 receiver 14 will be broken after a short time due to the transmitter's limited range. The card may also contain a unit 16 which can emit a unique identifier, for example in connection with a payment.

- 25 Fig. 3 illustrates an alternative design of the registration part. Here a board is employed for placing keys/key cards. When they are placed in the pockets in the board a light beam is interrupted, which is detected by a sensor and a registration signal is transmitted to the control unit.

- 30 The examples show the diversity of possibilities offered by the invention. All the alternatives may be used or only some, depending on the local conditions. Thus many variations are possible, also with regard to the construction of circuits.

PATENT CLAIMS

1. A security and alarm device for keys/key cards, especially for use in hotels, ships, etc. in connection with guest bedrooms, cabins, etc., characterized in that the device comprises an electronic circuit built into the key or permanently connected thereto which can be remotely activated from a control unit, the circuit being able to influence or be influenced by a dedicated electromagnetic field for activation of an alarm signal, and/or that the circuit comprises at least one transmitter and/or receiver circuit for registering the key's presence in a specific area, or activating a light source in the key, and/or emitting a call signal.
2. A device according to claim 1, characterized in that the receiver circuit is in the form of a bleeper, which emits a light signal and/or a sound signal during calling.
3. A device according to claim 1, characterized in that the key's electronic circuits can be charged in a key switch in the guest bedroom.
4. A device according to claim 2, characterized in that the light signal is emitted by a light diode.
5. A device according to claim 2, characterized in that the receiver circuit is designed to emit several differentiated signals.
6. A device according to claim 1, characterized in that the electronic circuit is designed to emit a unique identifier when used in a payment service.
7. Application of the key device according to claim 1 or 2 in a system for monitoring the number of people present in a building at a specific time.
8. Application of the key device according to claims 1-3 in a system for summoning people.

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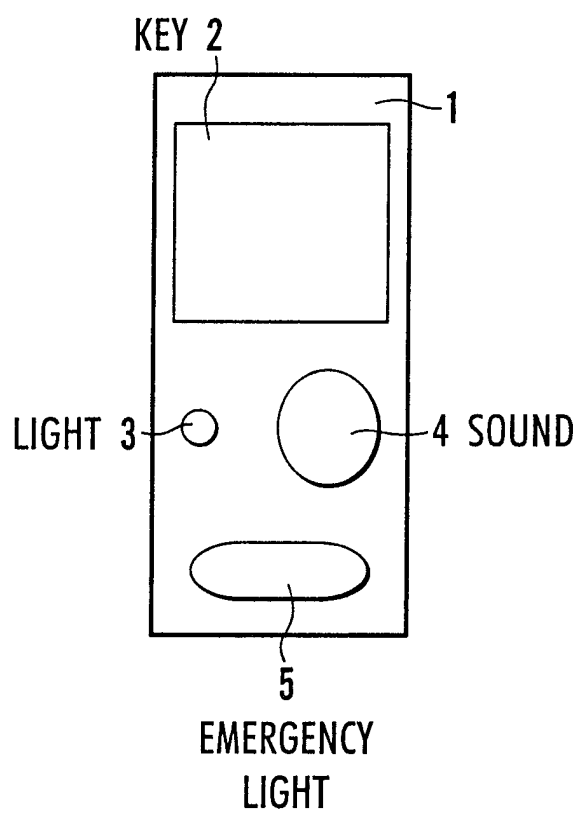


Fig. 1A

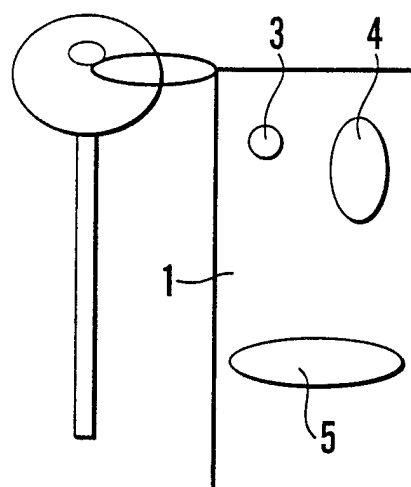


Fig. 1B

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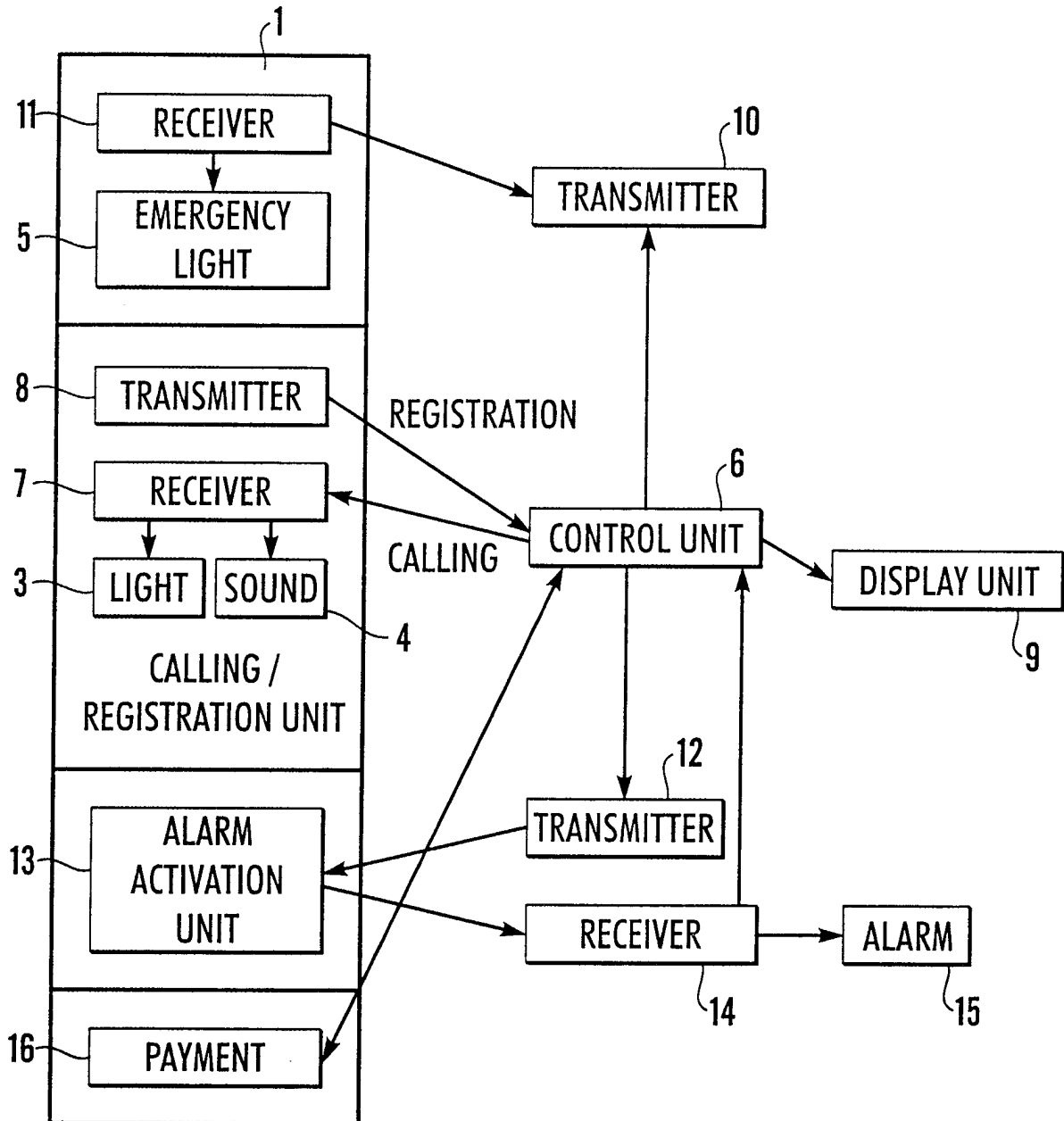
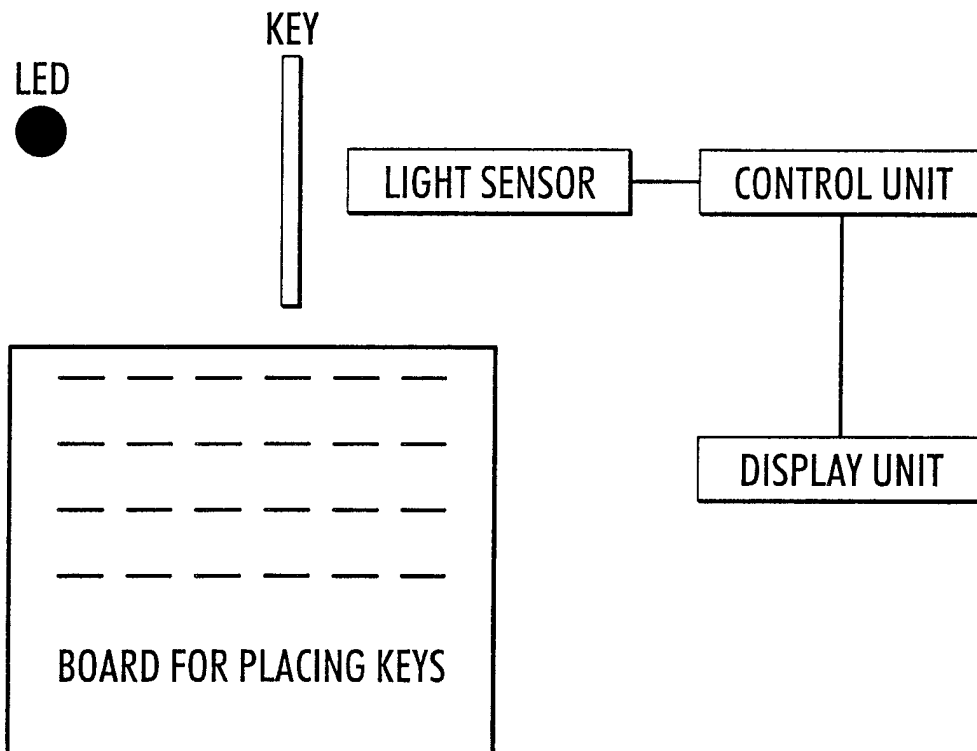


Fig.2

3/3**Fig.3**

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 97/00315

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G08B 3/10

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)

IPC6: G08B

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

SE,DK,FI,NO classes as above

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

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0416792 A2 (GAUTHIER MICHEL J. ET AL), 13 March 1991 (13.03.91), column 1, line 3 - column 10, line 49, figures 1-11, abstract	1-5
Y	column 1, line 3 - column 10, line 49, figures 1-11, abstract	6-8

X	EP 0202408 A2 (MAIMON, RAMBAM), 26 November 1986 (26.11.86), column 1, line 3 - column 6, line 26, figures 1A-3, abstract	1-3

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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C (Continuation). 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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Y	US 5218344 A (JAMES G. RICKETTS), 8 June 1993 (08.06.93), figures 1-11, abstract --	7
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X	WO 9510101 A1 (PAC/SCAN, INC.), 13 April 1995 (13.04.95), figures 1-3, abstract -- -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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