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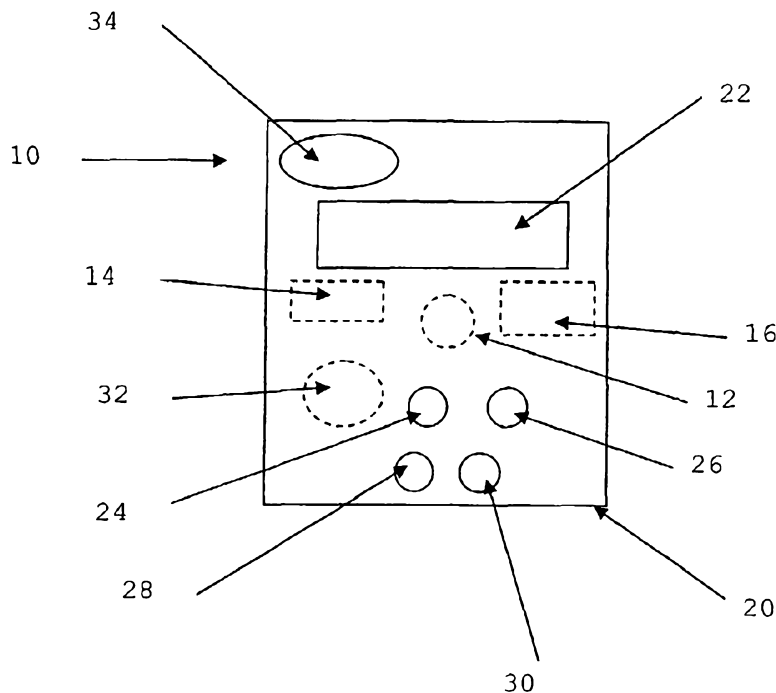
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(54) Title: ALARM COMMUNICATION DEVICE



(57) Abstract: An alarm messaging device (10) incorporates a motion detector (12), subscribed identification module (SIM) and control circuitry (16). When the motion detector (12) is active and detects movement, the control circuitry (16) causes a text message to be sent to a user's cell phone to indicate to a user that the motion detector (12) has been triggered.

Samsung v. Fendgo
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Exhibit 1018



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Alarm Communication Device

This invention relates to an alarm communication device and to a method of communicating an alarm.

5

Alarm devices, particularly vehicle alarms, typically make use of motion detectors to indicate when an attempt at unauthorised entry to a vehicle is being made. If a break-in attempt is detected, then the alarm sounds to indicate to people within earshot that further action is needed to prevent theft of the vehicle.

Disadvantages arise with this type of arrangement, because it can only be effective within earshot of the alarm. Very loud alarms are in themselves disadvantageous, because of the intrusive nature of the alarm, particularly if false alarms occur.

It is an object of the present invention to address the above mentioned disadvantages.

According to a first aspect of the present invention an alarm communication device incorporates alarm activation means and messaging means, wherein the messaging means is operable to send a message to a remote receiver on activation of the alarm activation means.

The messaging means is preferably only programmable by means of an incoming message.

30

Alternatively, a control section, preferably a SIM card, may only be programmable outside the alarm communication

device by a separate programming device operable to receive the control section.

Preferably, the alarm communication device has no screen
5 and/or no alphanumeric keypad.

Preferably, the alarm communication device has no audio input and/or output means.

10 The alarm activation means may be a motion detector, which may be a mercury switch or an electronic motion detector.

The alarm activation means may be self-triggering.

15 The alarm activation means may be a user-activated alarm activation means, which may be a button/switch.

The messaging means preferably incorporates a text message facility, which may be a short messaging system (SMS)
20 facility, operable to send a text message to the remote receiver, which may be a cellphone. The messaging means may incorporate a SIM card. The messaging means may use cellphone technology, preferably a reduced service cellphone technology.

25

The messaging means may be operable to send a message to a control system separate from the alarm communication device and remote receiver. The messaging means may be operable to send a message to the control system at
30 specified time intervals. The message may be a text message or a message to a voice mail facility.

The control system may be operable to locate the alarm communication device, preferably by use of triangulation of a transmission signal of the messaging means, or by means of the Global Positioning System (GPS) network.

5

The alarm communication device may incorporate control means, operable to receive a signal from the alarm activation means. The control means may control the messaging means. The control means may be programmable,
10 preferably with a remote receiver address.

According to a second aspect of the present invention, a method of sending an alarm message from an alarm communication device comprises:

15 detecting an alarm condition;
 triggering alarm activation means; and
 sending a text message to a remote receiver with
messaging means.

20 The alarm messaging means may be located in a vehicle or in a user's personal effects.

The alarm condition may be detected by the alarm activation means, which may be a motion detector or a
25 user-activated button/switch.

The text message may be a SMS message.

The messaging means may send a message to a central
30 control system. The central control system may be operable to locate the alarm messaging device. The central control system may be operable to send location

information for the alarm messaging device to a user, who has the remote receiver, which is preferably a cellphone.

According to a third aspect of the invention an alarm messaging system comprises a plurality of alarm messaging devices as described in the first aspect and a control system operable to receive location signals from one or more of the alarm messaging devices.

10 The control system is preferably operable to transmit location information for an alarm messaging device to a user of that alarm messaging device, preferably to a user's cellphone. The control system may also be operable to send location information to emergency services,
15 preferably for recovery of a vehicle in which the alarm messaging device is located or a user of the alarm messaging device.

All of the features described herein may be combined with
20 any of the above aspects, in any combination.

For a better understanding of the invention and to show how embodiments of the same may be brought into effect, specific embodiments will now be described, by way of
25 example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic perspective view of a first embodiment of alarm messaging device; and

30

Figure 2 is a schematic perspective view of a second embodiment of alarm messaging device.

An alarm messaging device 10 incorporates a motion detector 12 (shown schematically in dashed line within the alarm messaging device 10), a subscriber identification module (SIM) and control circuitry 16. When the motion
5 detector 12 is active and detects movement, the control circuitry 16 causes a text message (such as that using a short messaging system (SMS) service) to be sent to a user's cellphone to indicate to the user that the motion detector 12 had been triggered.

10

In more detail, the alarm messaging device 10 has a casing
20 which houses the parts mentioned above, as well as transmission circuitry for sending text messages, a screen 22, first button 24, second button 26, third button 28 and
15 fourth button 30.

The motion detector 12 may be a mercury switch or an electrical equivalent which can be activated or deactivated as required by the user. Deactivation may be
20 performed by using the first button 24.

The SIM card may be of a hybrid type which can allow only outbound text messages and also allow the alarm messaging device 10 to be located geographically via cell
25 triangulation, as will be described below. Location may also be achieved by GPS, with a suitable GPS transponder in the alarm messaging device 10.

The control circuitry 16 and SIM card 14 are programmable
30 to allow text messages (or messages to voice mail) to be sent to a selection of numbers, for example up to ten, for different cellphones. The programming may be achieved via another mobile phone, into which the SIM card 14 may be

inserted to allow a selection of cellphone numbers to be programmed onto the SIM card 14. The SIM card 14 can then be removed from the other mobile phone and inserted into the alarm messaging device 10. A user may select a
5 cellphone number programmed into the SIM card 14 by using the second button 26. The screen 22 may allow the user to scroll through the numbers stored on the SIM card 14 to allow selection of the required number. Additionally, the alarm messaging device 10 may be programmable to send text
10 messages to a number of different cellphones or other telecommunications devices having the facility to receive text messages.

The alarm messaging device 10 is preferably programmed by
15 means of an SMS message sent to the device 10 from cellphone or other SMS system. The SMS message provides an update to the SIM card in the same manner as is frequently used currently by telephone service providers. The SMS message incorporates details of a number or
20 numbers to which a standard alarm message should be sent.

The casing 20 also includes a battery 32 to provide power to the alarm messaging device 10.

25 A hanging loop 34 is also provided to allow a user to hang the alarm messaging device 10 from a suitable point in his car or elsewhere so that motion may more easily be detected by the motion detector 12.

30 In use, the alarm messaging device 10 may function as follows. A user may park his car outside a restaurant, pub or the like and activate the alarm messaging device 10 by using the first button 24. The device has a thirty

second arming delay before the motion detector 12 is engaged, to allow the user to leave his car. When the user has left his car and after the thirty second delay, the motion detector 12 is engaged. If motion is detected
5 by the motion detector 12, then a text message is sent to the user's cellphone 18, or whichever number/numbers have been programmed into the SIM card 14 to be advised of triggering of the alarm messaging device 10. The provision of a text message to the user immediately
10 advantageously allows him to be advised that his car may be under threat, allowing him to act.

In addition to the text message sent to the user, or program number, a message is also sent to a central
15 control system (not shown). The central control then makes use of the existing triangulation systems which are available to locate telecommunications devices such as the alarm messaging device 10 within a particular cell by triangulation of signal strength from adjacent cells in a
20 wireless cell network. Further information concerning the location of a telecommunications devices within a particular cell by triangulation can be found at Cambridge Positioning Systems (UK), www.cursor-system.com/sitefiles/cursor/tech_eotd.htm.

25

After triggering of the motion detector 12, a message is sent every sixty seconds to the central control to allow triangulation of the estimated location of the alarm messaging device 10 by provision of a location area
30 consisting of a radius and centre location to define a circular area. Hence the location of the user's car, for example if it has been stolen, is given every sixty seconds. The central control, having located the alarm

messaging device 10 then sends a street map address to the user's cellphone 18. This address location may assist the police in recovering the vehicle.

- 5 The alarm messaging device may also be used in a number of different situations. Such an example may be if a user is on a beach with bags etc but wishes to leave his bags briefly to go to a bar or the like. The user need only arm the alarm messaging device 10, place it in his bag and
10 take his cellphone with him. If the motion detector 12 is triggered, then as described above, the user will be sent a text message to be warned that his bags are being disturbed, to allow the user to take action.
- 15 Furthermore, if a user is concerned that unauthorised access to his personal belongings, such as those stored in a filing cabinet, is likely, then he may place the alarm messaging device 10 in a filing cabinet, in order to be warned of its being disturbed, for example by a cleaner or
20 the like, by receiving a text message, as described above.

The third button 28 may be an ON/OFF button.

- Figure 2 shows a second embodiment of alarm messaging
25 device 38. The second embodiment has the same internal SIM card 14, control circuitry 16, and battery 32, together with the same 1st to 4th buttons 24 to 30 described in relation to the first embodiment. The second embodiment also incorporates a panic button 36. The
30 second embodiment functions in the same way as the first embodiment except that the device is triggered by the panic button 36 rather than a motion detector.

When armed by using the first button 24 as described above in relation to the first embodiment, a user can press the panic button 36 three times in quick succession. This
5 will cause the device to automatically send a text message to a set cellphone. The device may be used by a child, for example, to send a text message to a parent's cellphone.

10 As mentioned above in relation to the first embodiment, once triggered the alarm messaging device 38 sends a signal to a central control to indicate its location. That signal is sent every sixty seconds, to allow the alarm messaging device 38, and hence it's user, to be
15 located.

The second embodiment of alarm messaging device 38 does not incorporate a screen, as shown in the first embodiment. The device can be programmed in the same way
20 as the first embodiment, but a user may select which cellphone to send a text message to by scrolling through a number of numbers programmed in the same way as above, using the second button 26, with no display of the number being given in the second embodiment.

25

A further alternative embodiment would have the same features of the alarm messaging device 10 described in relation to Figure 1, but would also incorporate the panic button 36 of the second embodiment.

30

The location by cell triangulation may be an optional additional service provided by an operator of the central control system. Thus, a user may be able to have a device

which does not use the cell triangulation, but simply sends a text message to his mobile phone when the device is triggered.

- 5 The alarm messaging device as described herein has significant advantages over prior methods of alerting a user of an alarm, because a user does not need to be within earshot to be aware of an alarm being triggered, but he can be notified almost immediately via his
10 cellphone.

- The devices have the advantage of a compact construction, because some or all embodiments do not have a telephone keypad, a loud speaker, a screen, and/or a microphone.
- 15 All embodiments may be enabled in use by top-up billing systems, whereby when purchased the device has a number of credits. After use and before credits run out the device is programmed to send a message to the specified cellphone (following a command from the central control) advising of
20 low credits. The device can then be topped-up with credit and the user billed accordingly.

- The reader's attention is directed to all papers and documents which are filed concurrently with or previous to
25 this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

- 30 All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination,

except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including
5 any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series
10 of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features
15 disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS:

1. An alarm communication device incorporates alarm activation means and messaging means, wherein the
5 messaging means is operable to send a message to a remote receiver on activation of the alarm activation means.
2. An alarm communication device as claimed in claim 1,
10 in which the messaging means is only programmable by means of an incoming message.
3. An alarm communication device as claimed in claim 1,
in which a control section of the alarm communication
15 device is only programmable when outside the alarm communication device by a separate programming device operable to receive the control section.
4. An alarm communication device as claimed in any
preceding claim, which has no screen and/no alphanumeric
20 keypad.
5. An alarm communication device as claimed in any
preceding claim, which has no audio input and/or output
25 means.
6. An alarm communication device as claimed in any
preceding claim, in which the alarm activation means is a
user activated alarm activation means.
- 30 7. An alarm communication device as claimed in any
preceding claim, in which the messaging means incorporates
a text message facility operable to send a text message to
the remote receiver.

8. An alarm communication device as claimed in claim 7,
in which the messaging means is operable to send a message
to control system separate from the alarm communication
5 device and remote receiver.

9. An alarm communication device as claimed in claim 8,
in which the messaging means is operable to send a message
to the control system at specified time intervals.

10

10. An alarm communication device as claimed in either
claim 8 or claim 9, in which the control system is
operable to locate the alarm communication device by use
of triangulation of a transmission signal of the messaging
15 means.

11. An alarm communication device as claimed in any
preceding claim, which incorporates control means operable
to receive a signal from the alarm activation means.

20

12. A method of sending an alarm message from an alarm
communication device comprises:

detecting an alarm condition;
triggering alarm activation means; and
25 sending a text message to a remote receiver with
messaging means.

13. A method as claimed in claim 12, in which the
messaging means sends a message to a central control
30 system operable to locate the alarm messaging device.

14. An alarm messaging system comprises a plurality of
alarm messaging devices as claimed in any one of claims 1

to 11 and a control system operable to receive location signals from one or more of the alarm messaging devices.

15. An alarm messaging system as claimed in claim 14, in
5 which the control system is operable to transmit the location information for an alarm messaging device to a user of that alarm messaging device.

16. An alarm messaging system as claimed in either 14 or
10 claim 15, in which the control system is also operable to send location information to emergency services.

17. An alarm messaging device substantially as described herein with reference to the accompanying drawings.
15

18. A method of sending an alarm message from an alarm communication device substantially as described herein with reference to the accompanying drawings.

20 19. An alarm messaging system substantially as described herein with reference to the accompanying drawings.

25

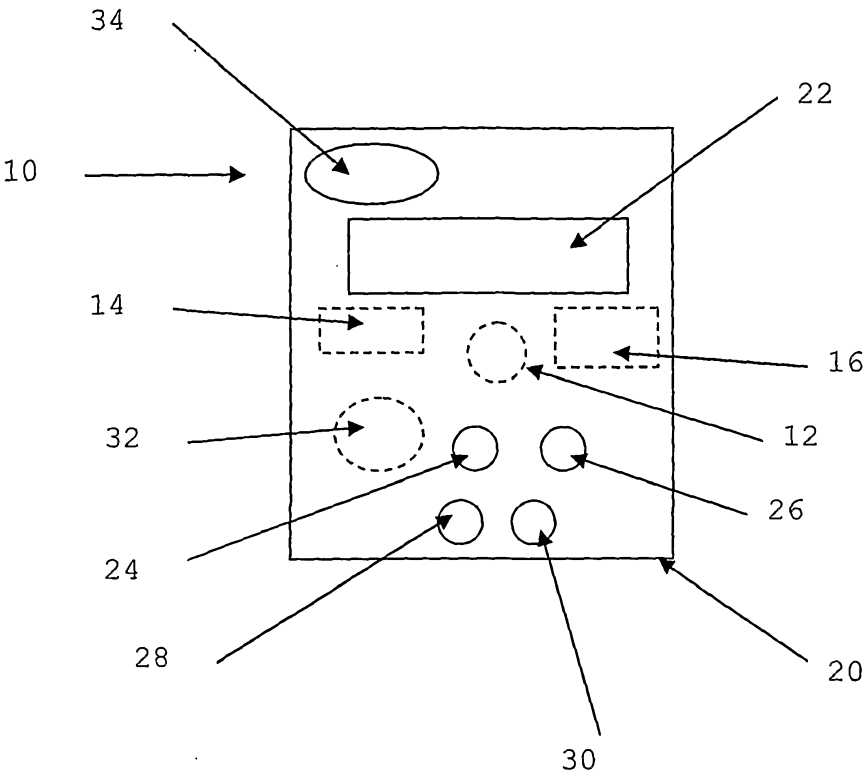


Fig. 1

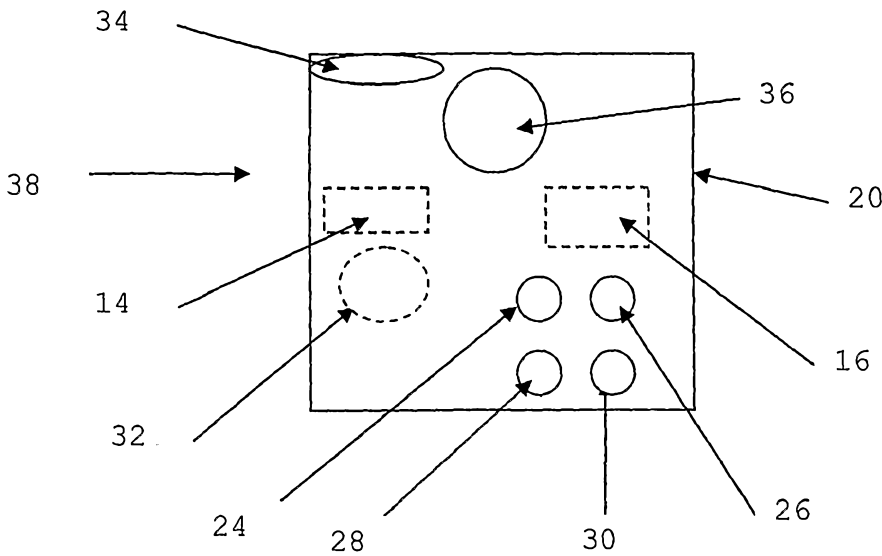


Fig. 2

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/04801

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G08B21/02 G08B25/01 G08B13/14 B60R25/10

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)

IPC 7 G08B B60R

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/038182 A1 (TSOI LEO S C ET AL) 28 March 2002 (2002-03-28) paragraphs '0008!', '0009! paragraph '0031! paragraph '0041! ---	1,3-5,8, 9,11-16
X	DE 201 08 069 U (HENKE ANJA ;HENKE JENS (DE)) 18 October 2001 (2001-10-18) page 1, line 28 -page 2, line 31 ---	1,2,4-7, 11,12
X	WO 02 058021 A (RODGERS STEPHEN FREDRICK) 25 July 2002 (2002-07-25) page 2, line 12 - line 26 page 4, line 19 - line 26 page 6, line 21 - line 26 page 12, line 31 -page 13, line 7 --- -/--	1,4,5, 7-16



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

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- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *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
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Internat Application No
PCT/GB 03/04801

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 243 039 B1 (ELLIOT BRUCE D) 5 June 2001 (2001-06-05) column 3, line 16 - line 56 column 4, line 52 - line 58 column 8, line 13 - line 25 -----	1,11-16
A	EP 1 099 606 A (MITSUBISHI ELECTRIC CORP) 16 May 2001 (2001-05-16) the whole document -----	8-10

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat

Application No

PCT/GB 03/04801

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