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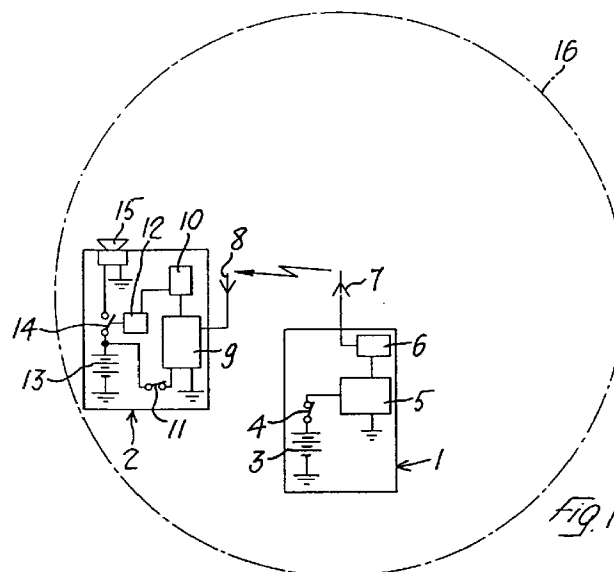
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(54) **An electronic anti-theft and/or anti-loss device**

(57) Anti-loss and/or anti-theft electronic device
comprising:

- a transmitter (1) integrated or carried by an object or by a person to be watched, including a coding unit (6) and a transmission unit (5) for giving off a coded radio signal having a fixed range of action (16), and
- a receiver (2) including a unit (9) for receiving the signal given off by its linked transmitter (1), a decoding unit (10) and a signalling device (15), the decoding unit (10) being set up to relay the connection of the signalling device (15) when it does not recognise the code of its linked transmitter (1).



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Description

[0001] This invention relates to an anti-loss and/or anti-theft electronic device and its objective is to provide a simple, compact and low-priced portable device which would enable to verify that an object or a person (for instance a child) constantly stays within a fixed range of action in relation to the person checking the device.

[0002] According to this invention, such objective is achieved by a device whose characteristics constitute the subject of the main claim.

[0003] The electronic device according to this invention includes two separate and portable apparatuses: a transmitter and a receiver. The transmitter can be integrated with or fixed to an object to be watched or it can be carried by or applied to a person to be kept an eye on. The transmitter generates and gives off a radio signal with a fixed range of action. When the receiver does not receive the radio signal coming from its linked transmitter it means that the transmitter and the receiver have moved away for a distance which is higher than the range of action of the transmitter. This circumstance is signalled by the activation of a signalling device carried by the receiver.

[0004] In order to prevent interference from radio signals extraneous to the anti-loss and/or anti-theft device, the radio signal is coded by the transmitter and is decoded by the receiver. A decoding system located on the receiver sees to the activation of the signalling device when it does not recognise the signal code of its linked transmitter. This invention will now be described by referring to the enclosed diagrams, in which:

- Figure 1 illustrates a schematic representation of the transmitter and receiver, where the receiver is positioned inside the signal transmission range, and
- Figure 2 illustrates another schematic representation of the transmitter and receiver shown in Figure 1, where the receiver is positioned outside the signal transmission range.

[0005] With reference to the figures, the electronic device according to the invention is essentially made up of a transmitter 1 and a receiver 2. The transmitter 1 includes a current generator or power supply 3, an on/off switch 4, a transmission unit for giving off the radio signal and by a coding unit 6.

[0006] The radiofrequency part of the transmitter consists of an oscillator using a superficial acoustic wave (SAW) device for frequency stabilisation. A radiating element 7 consists of a loop antenna directly cut into a printed circuit. Preferably, the effective radiated power (ERP) will be lower than about 10 mW, which represents the limit imposed by Law for this type of application.

[0007] With this power limit one obtains a radio signal with a range of action which is lower than a fixed value and normally between 5-8 m. The transmitter device 1

can be integrated with an object to be watched, such as for instance a portable phone or computer or with any other commonly used object which normally stays within the user's immediate proximity (suitcases, handbags, etc.). Should the transmitter be integrated with an object equipped with a power supply, the power for the transmitter could be supplied by the object to be watched. As an alternative, the transmitter 1 might be physically separated from the object to be watched and it could be equipped with means for connecting it to such an object. The transmitter 1 could also be applied to a person (particularly to a child) to prevent this person from moving excessively away from the person watching him, for example, to prevent losing a child in crowded places. In this case the transmitter could be equipped with a bracelet or small chain to be applied on the person that needs keeping an eye on.

[0008] The receiver 2 includes an antenna 8, a receiving unit 9 and a decoding unit 10. The radiofrequency part of the receiver preferably consists of a hybrid integrated circuit with an integrated antenna, of the type available on the market. The decoding unit 10 can also be composed of an integrated circuit which is commercially available.

[0009] In addition, the receiver 2 includes a power source 13, an on/off switch 11 and a signalling device 15 which can for instance be activated by an actuator 12, 14. The actuator 15 can be made up of a piezoelectric buzzer or by a luminous LED and possibly by a small alphanumeric display for visualising an alarm message.

[0010] When the transmitter 1 and the receiver 2 are at a reciprocal distance which is lower than the transmitter range of action (situation illustrated in Figure 1) the decoding unit 10 of the receiver 2 recognises the code signal of its linked transmitter and keeps the signalling device 15 disconnected.

[0011] Figure 2 illustrates a situation where the receiver 2 is outside the transmission range 16 of the signal given off by the transmitter 1. In this condition the receiver 2 no longer picks up a signal from the transmitter 1. The decoding unit 10 of the receiver is set up to relay the connection of the signalling device 15 when it does not recognise the signal code of its linked transmitter. The connection of the signalling device alerts, through an acoustic and/or visual signal, the user to the fact that the distance between himself and the object or person to be watched has gone over the safety limit. As a result of the signal, the user will then be able to take the necessary measures to avoid losing the object or the person to be watched.

Claims

1. Anti-loss and/or anti-theft electronic device characterised by the fact that it comprises:

- a transmitter (1) integrated with or carried by an object or person to be watched, including a

coding unit (6) and a transmission unit (5) for giving off a coded radio signal having a fixed range of action (16), and

- a receiver (2) including a unit (9) for receiving a radio signal given off by its linked transmitter (1), a decoding unit (10) and a signalling device (15), the decoding unit (10) being set up to relay the connection of the signalling device (15) when it does not recognize the code of its linked transmitter (1).

2. Device according to claim 1, characterised by the fact that the power of the electric signal radiated from the transmitter (1) will be lower than 10 mW.

3. Device according to claim 1 or claim 2, characterised by the fact that the range of action (16) of the signal given off by the transmitter (1) is lower than the fixed value.

4. Device according to any of the previous claims, characterised by the fact that the signalling device (15) includes acoustic and/or visual means of signalling.

