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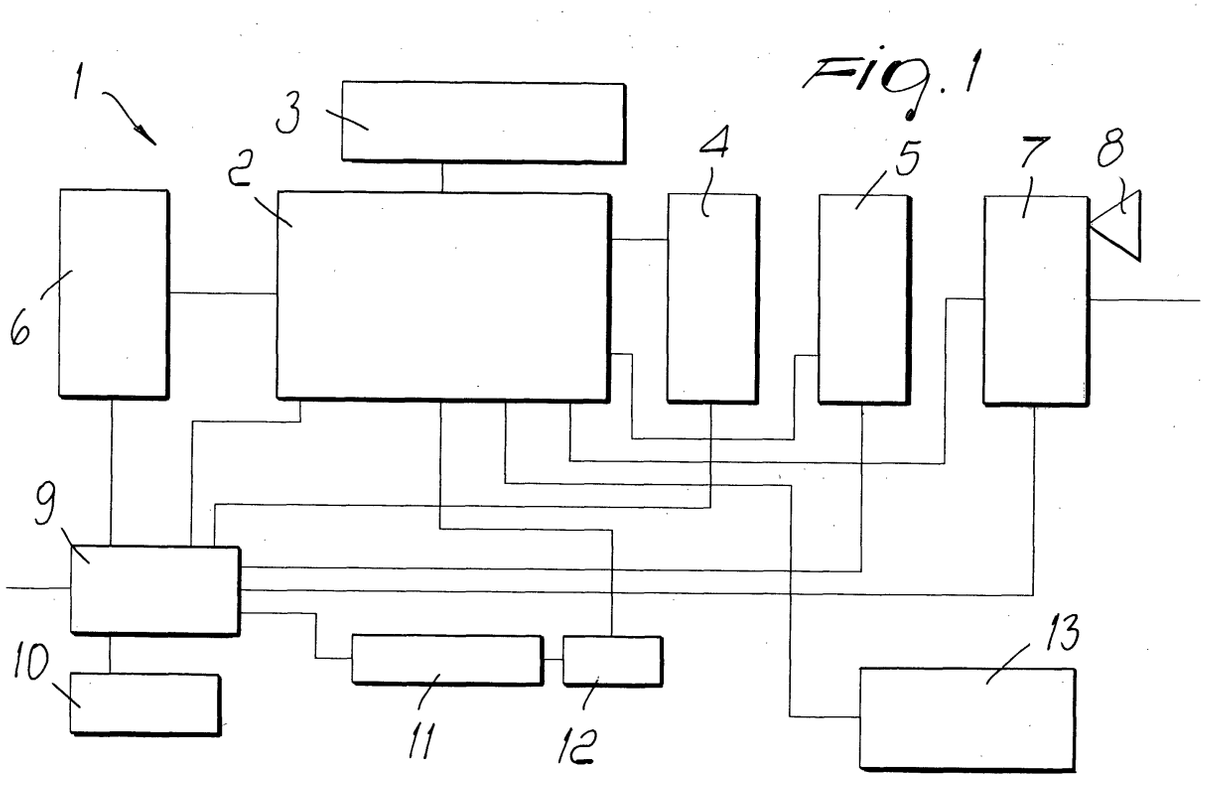
(54) Anti-theft protection device for protecting items on display for sale and/or showcases

(57) An anti-theft protection device for protecting items on display for sale and/or showcases, comprising a central control unit (1) and at least one peripheral unit (20) suitable to be associated with at least one item to be protected, the at least one peripheral unit being linked by radio to the central control unit, in order to send an alarm signal to the central control unit (1) in case of an attempt to steal the item associated with the peripheral unit (20) or an attempt to tamper with the peripheral unit (20).



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Description

[0001] The present invention relates to an anti-theft protection device for protecting items on display for sale and/or showcases. More particularly, the invention relates to an anti-theft device that allows to protect each individual item on display for sale and to optionally protect the showcases.

[0002] As is known, the problem of thefts in points of sale such as department stores and the like is strongly felt, since they are difficult to control and in any case, even if anti-theft devices of a known type are used, said devices require a complicated installation because it is necessary to provide holes in the brackets on which the products are put on display, in order to pass the cables connecting the anti-theft devices and a central unit suitable to detect the removal of the item connected to the anti-theft device.

[0003] Substantially, known devices are not flexible, and if one wishes to change the arrangement of the shelves and/or brackets it is necessary to refit the cables of said shelves and brackets, in order to lead the cables to which the individual anti-theft devices, which in turn must be then connected to the items on sale, are meant to be connected.

[0004] Accordingly, the shopkeeper or department store are forced to resort to specialized personnel for the installation of the various anti-theft devices, with high costs.

[0005] The aim of the present invention is to provide an anti-theft protection device for protecting items on display for sale and/or showcases, which does not require complicated laying of cables between the central unit and the peripheral units meant to be connected to the items on sale.

[0006] Within this aim, an object of the present invention is to provide an anti-theft protection device for protecting items on display for sale and/or showcases that allows to store any alarm events, associating them with the date and time at which the events occurred.

[0007] Another object of the present invention is to provide an anti-theft protection device for protecting items on display for sale and/or showcases that can be connected to a personal computer for processing the data collected by the alarm device.

[0008] Another object of the present invention is to provide an anti-theft protection device for protecting items on display for sale and/or showcases that allows to connect to a single central unit a plurality of peripheral units meant to be connected to the individual products on sale.

[0009] Another object of the present invention is to provide an anti-theft protection device for protecting items on display for sale and/or showcases that is highly reliable, relatively simple to manufacture, and at competitive costs.

[0010] This aim and these and other objects that will become better apparent hereinafter are achieved by an anti-theft protection device for protecting items on display for sale and/or showcases, characterized in that it comprises a central control unit and at least one peripheral unit suitable to be associated with at least one item to be protected, said at least one peripheral unit being linked by radio to said central control unit, in order to send an alarm signal to said central control unit in case of an attempt to steal the item associated with said peripheral unit or an attempt to tamper with said peripheral unit.

[0011] Further characteristics and advantages of the invention will become better apparent from the following detailed description of preferred but not exclusive embodiments of the device according to the present invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a block diagram of the central unit of the anti-theft protection device according to the present invention;
Figure 2 is a perspective view of a peripheral unit of the anti-theft protection device according to the present invention; and
Figure 3 is a bottom perspective view of the peripheral unit of Figure 2.

[0012] With reference to the figures, the anti-theft protection device according to the present invention comprises a central control unit 1, shown schematically in Figure 1, with which it is possible to associate at least one peripheral unit, preferably a plurality of peripheral units 20, each meant to be associated with an item to be protected against theft.

[0013] The central control unit 1 conveniently comprises a central processing unit or CPU 2, to which a liquid-crystal display 3 is connected; said CPU is provided with memory means 4 and 5 suitable to store alarms that can be generated as a consequence of an attempt to steal an item to which a peripheral unit controlled by the control unit 1 is connected.

[0014] The central control unit is further provided with receiver means 6, which are suitable to receive a radio signal sent by transmitter means accommodated in the peripheral unit or units associated with the central control unit 1.

[0015] The receiver means 6, like the CPU 2 and the memory means 4 and 5, as well as means 7 for generating an alarm, connected to at least one siren 8, are powered by power supply means, which conveniently comprise at least one stabilized power supply driven by battery means 10.

[0016] The stabilized power supply 9 in turn drives a controller 11 that is suitable to control reset means 12, which allow to reset the state of the central processing unit 2. The reset means, by being also encoded, are recognizable by the central unit and their use is stored.

[0017] The central control unit 1 is further provided with an interface 13 for example of the RS232 type for

connection to a personal computer.

[0018] The particularity of the invention therefore resides in that the peripheral units 20 are linked by a radio frequency link to the central control unit 1 in order to send identifiable and recognizable signals in case of any attempted theft of the items associated with each peripheral unit 20.

[0019] For this purpose, each peripheral unit 20 is provided with the above cited transmitter means, which are suitable to transmit a radio frequency signal to the receiver means 6 of the central control unit 1.

[0020] Each peripheral unit 20 is further provided with a tamper switch 21 or motion sensor, which allows to attach the peripheral unit to a display surface so that any separation thereof causes the activation of an alarm signal.

[0021] Each peripheral unit is provided with rechargeable power supply means.

[0022] The peripheral unit is further provided with a connector 22 for the connection of a suitable cable 23, which allows the connection between the peripheral unit 20 and the item to be protected. In particular, the cable 23 is an extensible cable with a terminal having a different configuration so that it can be applied to different kinds of item. Figure 2 illustrates two examples of possible terminals, designated by the reference numerals 24 and 25 respectively.

[0023] Each peripheral unit, moreover, has at least one LED 26, which acts as a visual warning device and with which an acoustic warning device is preferably associated.

[0024] The central control unit is provided with a keypad for setting up a menu directly from the central control unit, or said setting can be performed by using a personal computer connected to the interface means 13 of the central control unit 1.

[0025] The central control unit 1 can be activated by means of a remote control, which can be entrusted to the manager of the department store or shop, while the various peripheral units 20 can be deactivated by using a specific remote control, which is useful when the store assistant wishes to remove the item connected to the peripheral unit to make a sale or in case of alarm in order to mute the main siren for a preset time.

[0026] The peripheral units 20 must be recognized beforehand by the central control unit 1, and are assigned an identification number, so that if an alarm sent by one of the peripheral units is tripped, the central control unit 1 is able to recognize which of the peripheral units 20 sent the alarm signal, so as to display the corresponding number of the peripheral unit on the display 3.

[0027] It is also possible to provide peripheral units 20 that are particularly suitable to protect hooks that support blister packages. In this case, the corresponding peripheral unit 20 is not provided with visual/acoustic alarm means and has no kind of switch suitable to detect the opening of contacts or other events, but is provided with a motion sensor that activates the transmission of an alarm signal when the price tab, over which the peripheral unit 20 is fitted, is turned about its axis: this operation occurs when the product is removed from the hook of the display.

[0028] In this manner, each peripheral unit can be placed independently on the chosen shelf or bracket by making the peripheral unit 20 adhere to the surface of the bracket, without the aid of any kind of wiring, subsequently connecting, by way of a single cable, the item to be protected to the corresponding peripheral unit 20. The connection to the central control unit 1 therefore occurs by means of a radio signal, without having to provide wiring between each peripheral unit 20 and the central control unit 1.

[0029] In this manner it is evident that the installation of the anti-theft protection device is extremely simplified with respect to known kinds of device, since wiring is not required and therefore the device is highly flexible, since it is in fact possible to vary in each instance and at will the arrangement of the various peripheral units 20 simply by removing them from the surface on which they have been attached and repositioning them. All these operations can be performed directly at the point of sale by unspecialized personnel, with evident time and labor savings.

[0030] Furthermore, the self-learning on the part of the central control unit 1 of the various peripheral units 20 associated therewith allows to indicate very simply the peripheral unit 20 that has sent an alarm signal, so as to be able to perform a targeted action to identify the cause of the alarm.

[0031] The extensible cables 23 connected between each peripheral unit 20 and the corresponding item to be protected have sensor means connected to the item to be protected for example by means of specific double-adhesive products.

[0032] In practice it has been found that the anti-theft protection device for protecting items on display for sale according to the present invention fully achieves the intended aim and objects, since it allows to protect items against theft by using peripheral units in which one unit is associated with each item or with multiple items, and connecting said peripheral units to a central control unit by means of a radio link, thus eliminating all kinds of wiring.

[0033] The device thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept; all the details may further be replaced with other technically equivalent elements.

[0034] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements and to the state of the art.

[0035] The disclosures in Italian Patent Application No. MI2002A000114 from which this application claims priority are incorporated herein by reference.

[0036] Where technical features mentioned in any

claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. An anti-theft protection device for protecting items on display for sale and/or showcases, **characterized in that** it comprises a central control unit and at least one peripheral unit suitable to be associated with at least one item to be protected, said at least one peripheral unit being linked by radio to said central control unit, in order to send an alarm signal to said central control unit in case of an attempt to steal the item associated with said peripheral unit or an attempt to tamper with said peripheral unit.

2. The device according to claim 1, **characterized in that** said central control unit comprises a central processing unit connected to receiver means that are suitable to receive said signal from said at least one peripheral unit, memory means being connected to said central processing unit in order to store alarm events that have occurred.

3. The device according to claim 2, **characterized in that** said central control unit comprises display means that are suitable to display the functions of said central control unit and to display which one of the peripherals associated with said central control unit is emitting an alarm signal.

4. The device according to one or more of the preceding claims, **characterized in that** said central control unit is provided with power supply means.

5. The device according to one or more of the preceding claims, **characterized in that** each one of said peripheral units is provided with rechargeable power supply means.

6. The device according to one or more of the preceding claims, **characterized in that** each one of said peripheral units is provided with connection means for at least one cable for connection between said peripheral unit and said item to be protected, said cable having sensor means at the end meant to be connected to said item.

7. The device according to one or more of the preceding claims,
characterized in that each one of said peripheral units is provided with a tamper switch or motion sensor.

8. The device according to one or more of the preceding claims, **characterized in that** said central control unit is provided with at least one siren suitable to emit an acoustic alarm signal.

9. The device according to one or more of the preceding claims, **characterized in that** said central control unit is provided with interface means for connection to a personal computer.

10. The device according to one or more of the preceding claims, **characterized in that** each one of said peripheral units is provided with at least one LED for indicating the alarm signal.

11. The device according to one or more of the preceding claims, **characterized in that** said central control unit is controlled by means of a remote control.

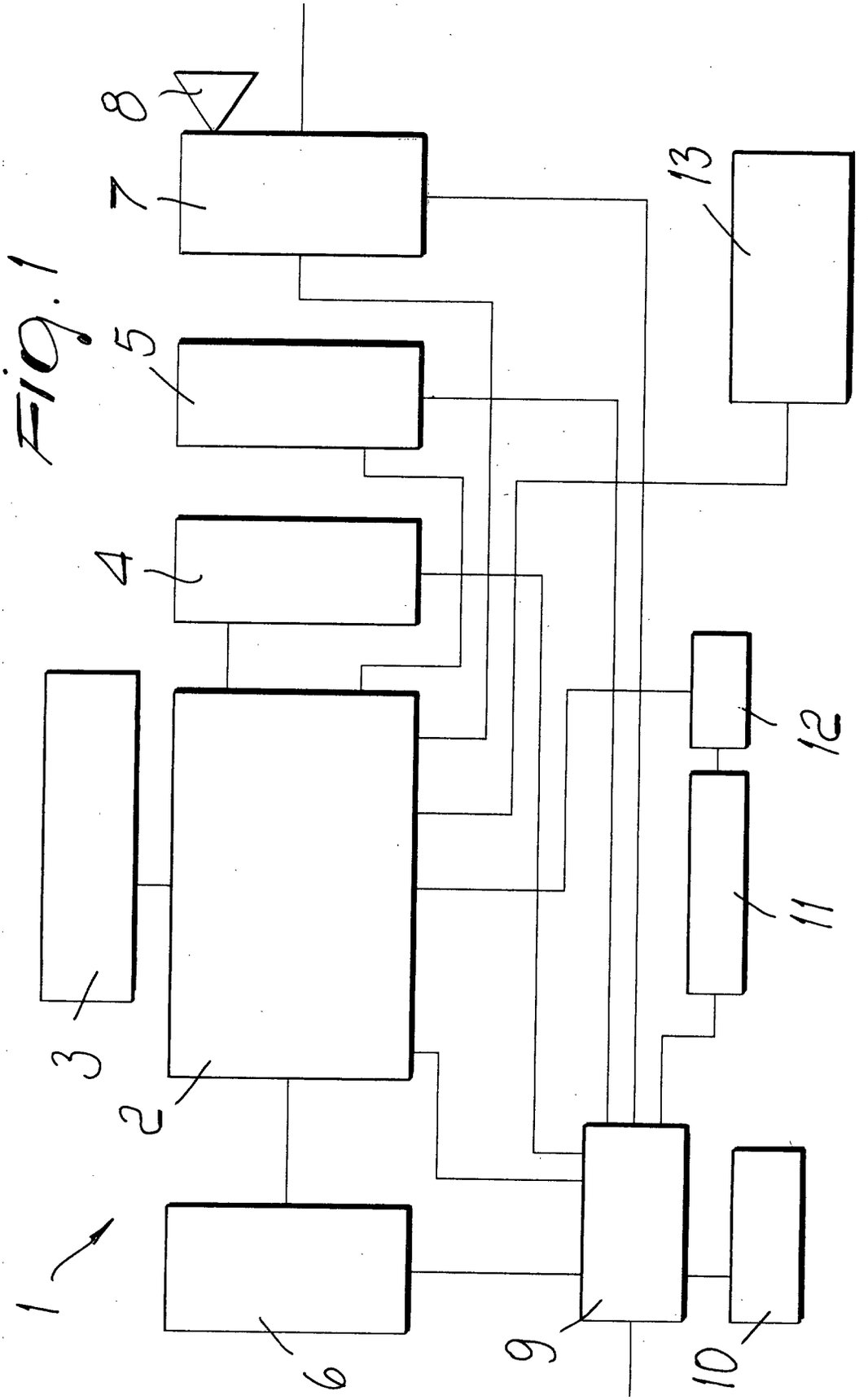

Fig. 1

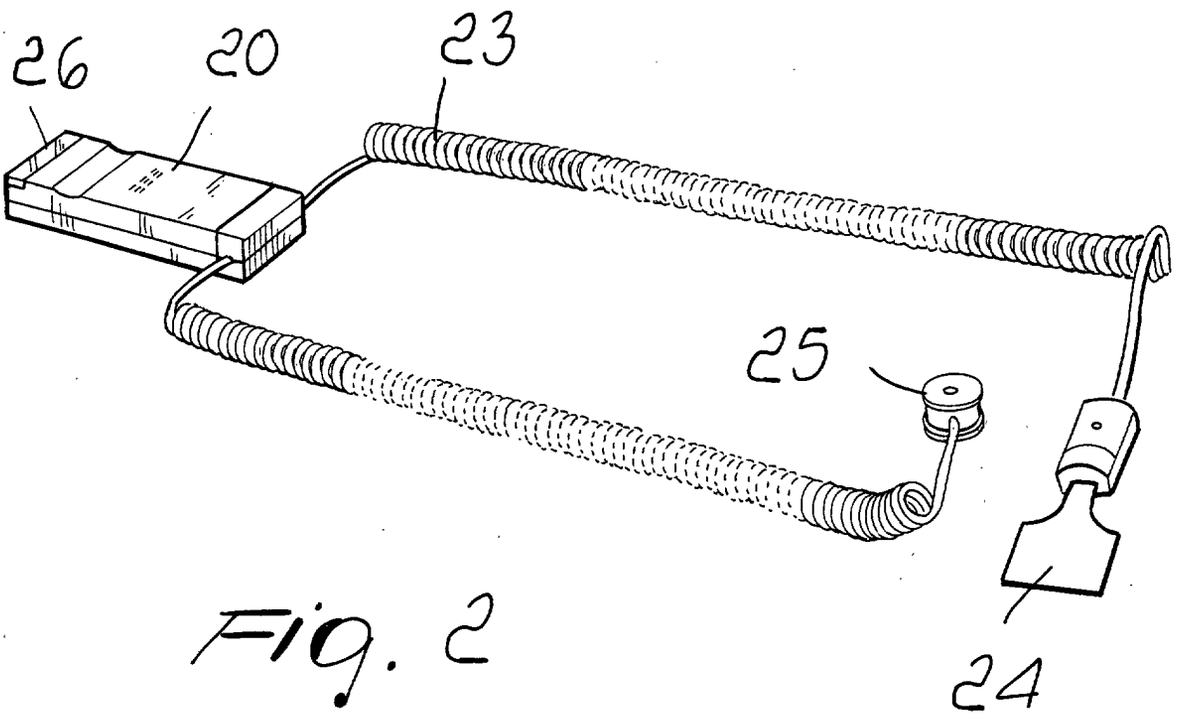

Fig. 2

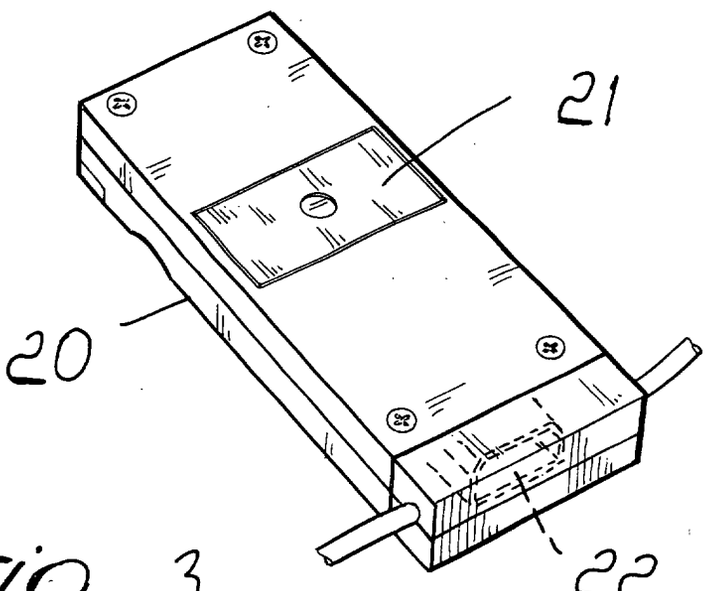

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 02 02 6906

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	6 February 2003	Meister, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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