(19) Europäisches Patentamt
European Patent Office
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(11) EP 3 113 130 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.01.2017 Bulletin 2017/01

(51) Int Cl.:
G08B 13/14 *(2006.01)*

(21) Application number: **15158129.5**

(22) Date of filing: **08.03.2015**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

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(54) Embedded alarm and safety system for artworks

(57) The present invention relates to an electronic safety and alarm system which can be embedded in artworks, specifically in painting, canvas, papyrus, printed masterpieces. It can also be used in marble, wood, concrete artworks and the like.

Clear advantage of using the present invention respect to the former technologies is that the electronics and power supply system can be embedded in the artworks and in case of robbery can be even fold or wrapped together with the artwork; and the thief cannot detect the presence or remove it easily during the robbery.

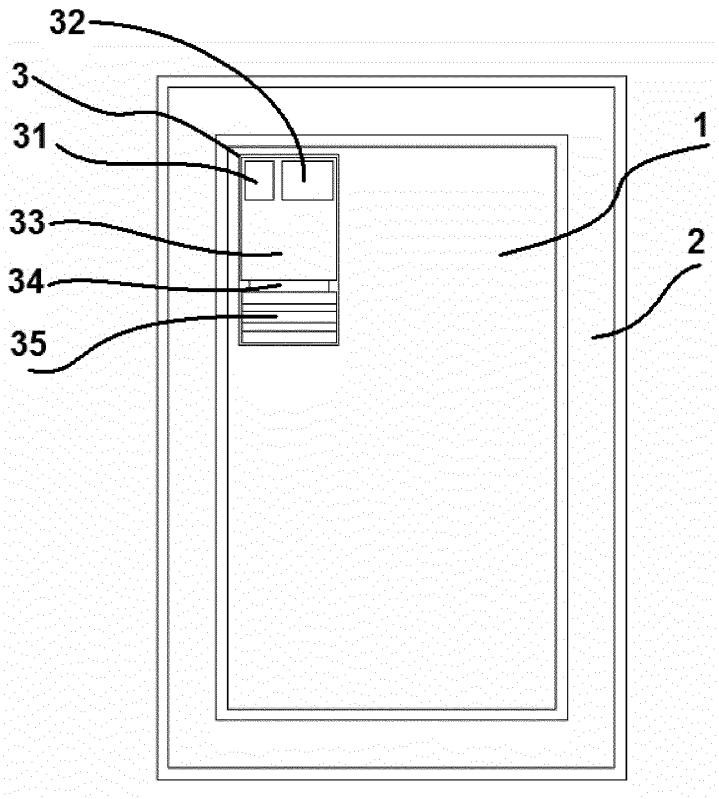

Figure 2.

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Description

[0001] The present invention relates to an electronic safety and alarm system which can be embedded in artworks, specifically in painting, canvas, papyrus, printed masterpieces. It can also be used in marble, wood, concrete artworks and the like.

[0002] Present State-Of-The-Art of alarm and safety systems for artworks uniquely relates to a complex systems, like mentioned in the patents WO2014198970 or like for instance in patents US2003163289 and US7657914, where the electronic protection systems are external to the masterpiece and having wide and large dimensions which do not allow embedding neither integration into the masterpiece itself. The mentioned systems, for instance, are frequently installed in the frame and are not effective or even not working once the canvas has been stolen and removed from the frame as instead is possible with the present invention.

[0003] According to the present invention, there is provided a system, consisting of electronic and/or electromechanical device(s), which are capable to provide protection and safety system monitoring of the artworks. Said system is composed of a thin foldable electronics and a thin and foldable battery which allow to be incorporated or embedded into the masterpiece itself.

[0004] Clear advantage of using the present invention respect to the former technologies is that the electronics and power supply system can be embedded in the artworks and in case of robbery can be even fold or wrapped together the artwork. Even if the thief try to cut or fold the canvas once removed from the frame, the system can continue to operate giving for instance GPRS positioning of the canvas whilst the thieves cannot realize the presence of this embedded alarm system hereby described and claimed. Embodiments of the present invention with now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a front view of a painting, 1, including the frame, 2, where the invention is intended to be applied;

Figure 2 shows the rear view of the painting, 1, with the invention, 3, applied on the rear of the canvas, 2. The invention, 3, is hereby detailed in each part by means a transparency view of the external enclosure. From this view it is visible the GPRS module, 31, the main driver and power supply circuitry, i.e. 32 and 33, the power supply foldable connectors, 34, and the foldable battery, 35;

Figure 3 is a side view of the canvas, 2, including the system related to the present invention, 3, and without the frame, 2. The invention is hereby detailed in each part by means of a transparency view of the external enclosure, 3. From this view it is visible the GPRS module, 31, the main driver and power supply circuitry, 33, the power supply foldable connectors, 34, and the foldable battery, 35;

Figure 4 is a close up view of a side of the system related to the present invention in a real application. From this view it is visible the GPRS module, 31, the main driver and power supply circuitry, 33, the power supply foldable connectors, 34, and the foldable battery, 35;

Figure 5 shows a real application of the system related to the present invention. Figure 5 also show the capability of the present invention to be fold also once the canvas has been removed from the frame and completely wrapped. From this view it is visible the GPRS module, 31, the flexibility of the main driver and power supply circuitry, 33, the power supply foldable connectors, 34, and the foldable battery, 35;

[0005] For the purpose of illustration, this invention will now be described, for simplicity, in a real application, with reference to only one painted masterpiece fixed in a frame, but obviously it is also applicable to other artworks, like painting, canvas, papyrus, printing, marble and wood artworks and similar masterpieces.

[0006] In a corner of the rear side of a painted canvas, showed in position 1 of Figure 2, the present invention, position 3 of Figure 2, is hereby fixed. From this view it is visible the GPRS module, 31, the main driver and power supply circuitry, i.e. 32 and 33, the power supply foldable connectors, 34, and the foldable battery, 35.

[0007] The extremely thin and flexible system allows to embed the present invention in the painting itself. Usually thieves remove the painting from the frame cutting the canvas. Using the present invention, in this way, the eventual thief cannot immediately detect the presence of the system which is embedded in the canvas. During this period of time the alarm system provided with the present invention can detect the robbery and transmit alarm signals and the GPRS position through the integrated GPRS module, 32. Figure 5 shows the present invention, 3, which can be even fold together the wrapped canvas, 1.

[0008] The power supply of the system is fed through the foldable battery, 35. During the stand-by operations like for example when the painting is shown in a fair or in a museum, the battery is supplied via a specific magnetic connector 34 which is externally connected to the main via power supply. In case of robbery, once the thief cut the canvas from the frame, the magnetic connector is automatically detached from the external power supply and then from the grid. In this case the battery will ensure the system power supply continuity for several days or even months.

Claims

1. A thin electronic safety and alarm system which can be embedded in artworks, specifically in painting, canvas, papyrus or printed masterpieces and the like. Said system may have a thickness in the range of few hundred microns up to several millimetres

2. An electronic safety and alarm system which can be fold or wrapped together with the artworks.

3. An electronic safety and alarm system according to claim 1 and claim 2, wherein it will may comprise:

   one, or more than one, GPRS transmitter and/or transceiver module and eventual related driver circuitry, 31 and 32 in Figure 2,.
   One, or more than one, GPRS circuitry and thief detection sensor circuitry, 31 and 32 in Figures 2, 3, 4 and 5.

   A power supply system and a magnetic connector 34 of Figures 2, 3, 4, and 5 **characterising in that** said connector can be automatically detached as soon as a minimum force is applied.
   A battery or a similar isolated power supply solution, with the possibility to be fold, which continuity of the system after removing the external power supply.

4. An electronic safety and alarm system according with claim 1, claim 2 and claim 3 wherein the GPRS module is replaced by a radio-transmission or similar wireless communication system, i.e. Bluethooth, Zigbee and similar transmission systems;

5. An electronic safety and alarm system according with claim 1, claim 2 and claim 3 wherein a monitoring system is used to monitor the artworks or masterpices condition , like temperature, humidity, light and the like;

6. An electronic safety and alarm system according with claim 1, claim 2 and claim 3 wherein the magnetic connector is replaced by a mechanical connector;

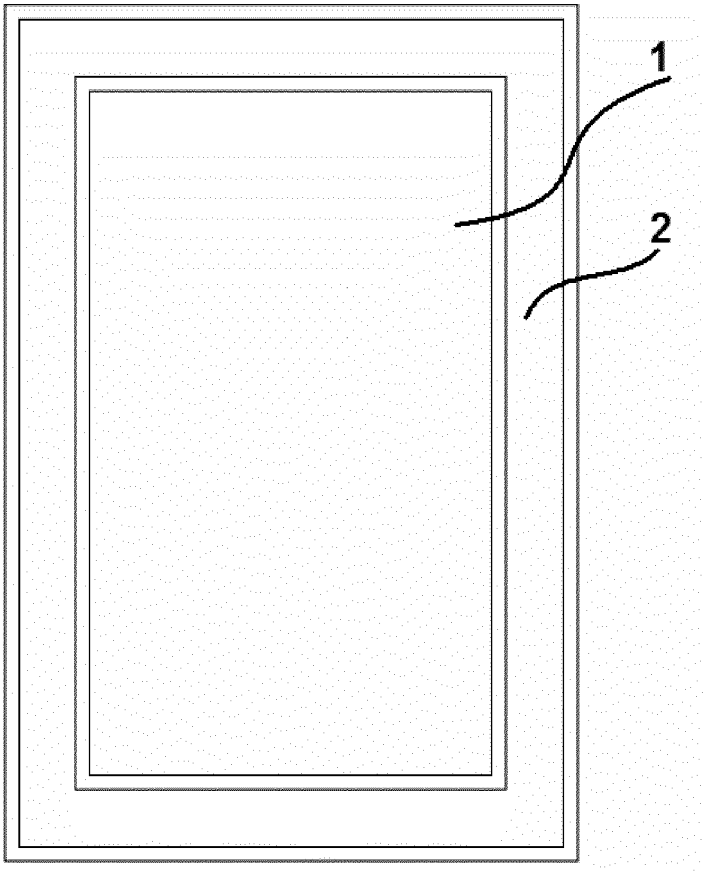

Figure 1.

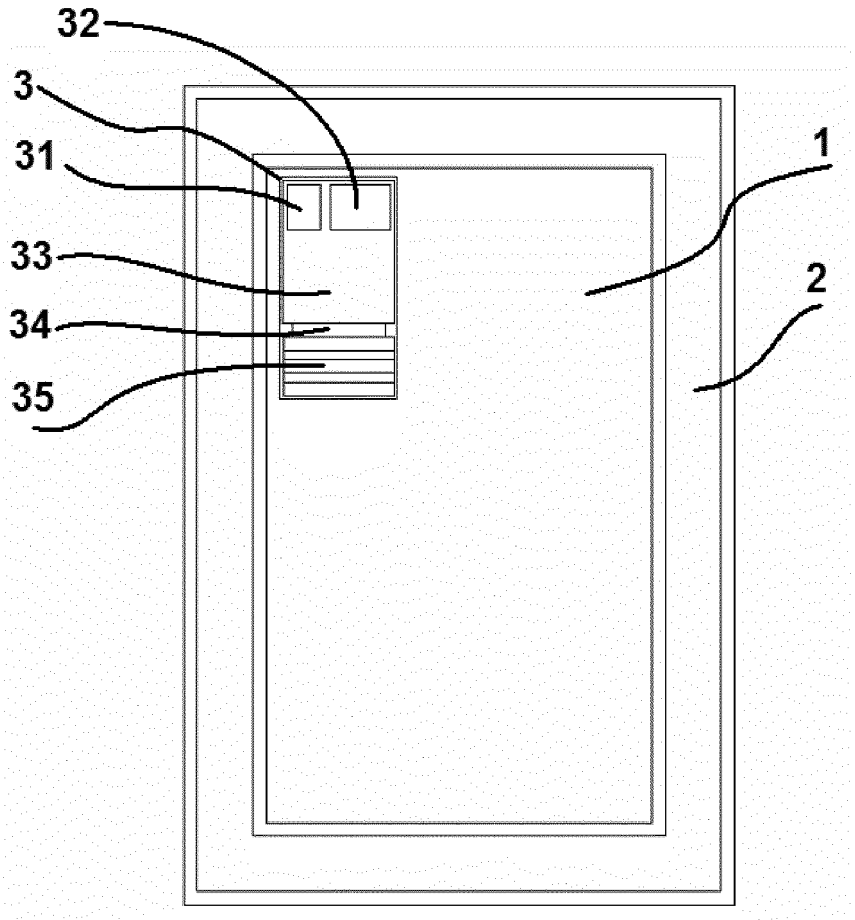

Figure 2.

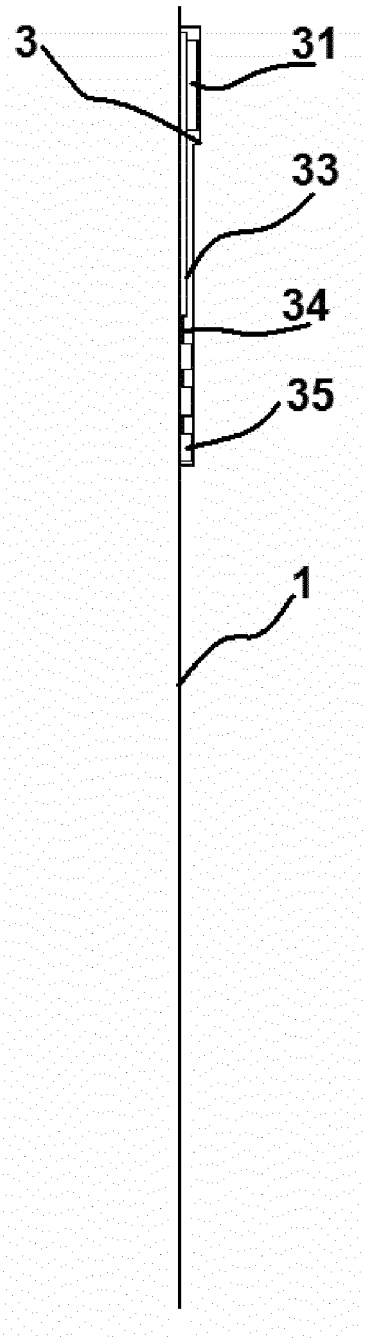

Figure 3.

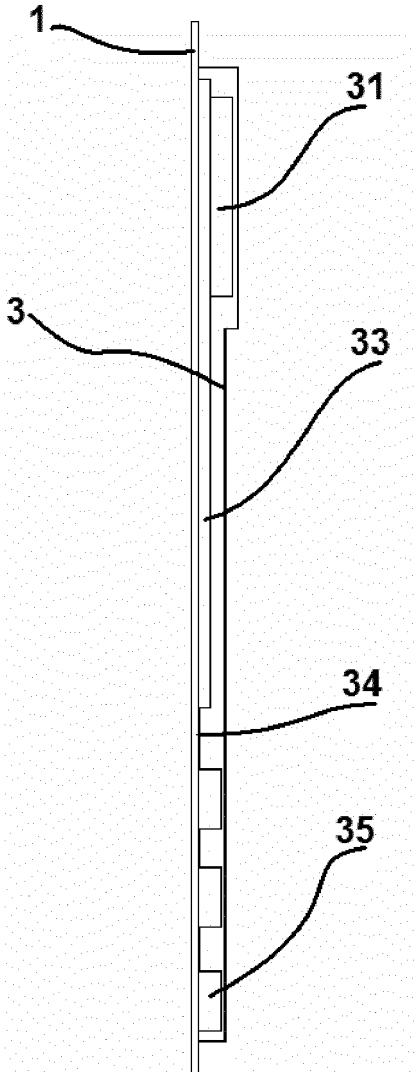

Figure 4.

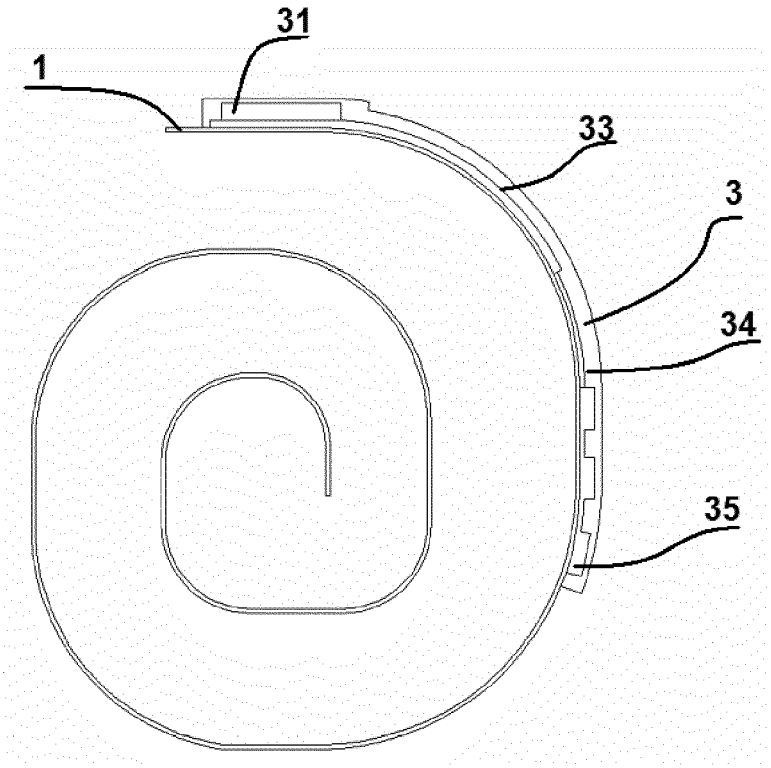

Figure 5.

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PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 15 15 8129

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 91/06934 A1 (CHECKPOINT SYSTEMS INC [US]) 16 May 1991 (1991-05-16)	1,2	INV. G08B13/14
A	* page 1, line 16 - page 2, line 9 * * page 7, line 16 - page 8, line 3 * * page 10, lines 6-26 * * page 15, lines 1-11 * * figures 2, 3 *	3-6	
X	US 2009/146808 A1 (HOVDEN KRISTIN [NO]) 11 June 2009 (2009-06-11) * paragraphs [0016] - [0022] * * paragraphs [0040] - [0053] * * paragraphs [0056] - [0057] * * paragraphs [0060] - [0066] * * figure 2 *	1-6	
X	WO 2004/068430 A1 (VITZTHUM ERNST [AT]) 12 August 2004 (2004-08-12) * page 3, lines 10-16 * * page 5, line 1 - page 6, line 8 * * page 7, lines 15-19 * * page 8, line 9 - page 9, line 6 *	1-6	

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TECHNICAL FIELDS SEARCHED (IPC)

G08B

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
The Hague	25 November 2016	Tanguy Michotte

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04E07)

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PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 15 15 8129

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 2012/323807 A1 (SABETA ANTON [CA]) 20 December 2012 (2012-12-20)	1,2	
A	* paragraphs [0061] - [0066] * * paragraphs [0070] - [0074] * -----	3-6	
			TECHNICAL FIELDS SEARCHED (IPC)

1

EPO FORM 1503 03.82 (P04C10)

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INCOMPLETE SEARCH
SHEET C

Application Number
EP 15 15 8129

Claim(s) searched incompletely:
1-6

Reason for the limitation of the search:

The wording of the various claims (embedded, automatically detached, "which continuity",...), the inclusion of various options or replacement of features previously claimed, the use of relative terms (thin, several, minimum,...), results to be achieved, and references to figures render the assessment of the scope of protection sought extremely difficult. Additionally, the application fails to provide the skilled reader with sufficient information as to how some of the claimed results can actually be achieved. The application therefore fails to meet the requirements of Articles 83 and 84 EPC to such an extent that a complete and meaningful search is impossible. The search has therefore been limited to an anti-theft transceiver that can be affixed behind a painting, can be connected to an external power source.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 15 8129

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-11-2016

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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- US 2003163289 A **[0002]**
- US 7657914 B **[0002]**