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(54)

A cosmetic product packaging

(57)

A cosmetic product packaging (1) comprising an electronic display (13), wherein the packaging further-

more comprises a photovoltaic panel (6) arranged on at least one surface of the packaging, said photovoltaic panel being connected to said electronic display.

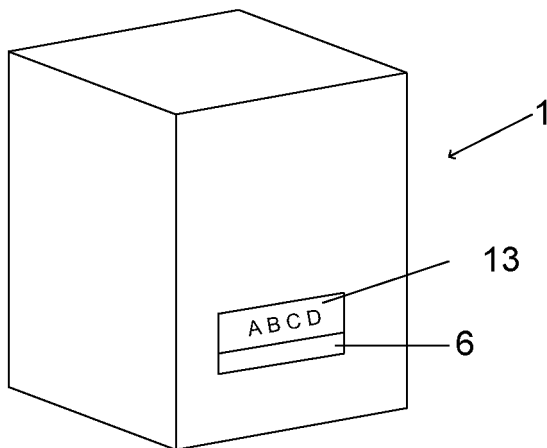


Figure 1A

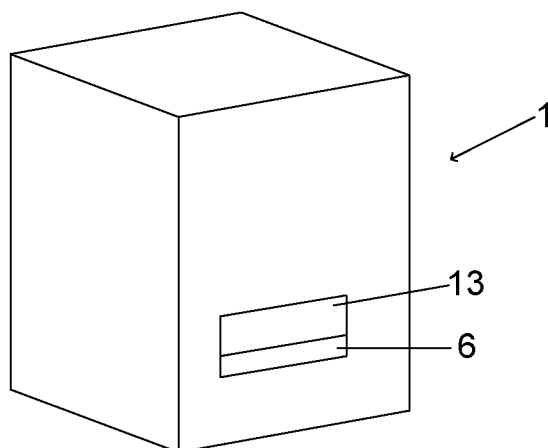


Figure 1B

Description

[0001] The present invention relates to a cosmetic product packaging, such as a glass or plastic bottle, a cardboard box or the like, which comprises an electronic display with the aim of improving the appearance of the packaging and/or attracting the attention of potential customers and/or provide information to (potential) customers.

[0002] It is known e.g. to provide a perfume bottle with a light source (such as a LED) for bringing about an attractive appearance by illuminating the liquid, and an electronic circuit including a battery to feed the light source and a switch or sensor system to switch the light on or off. Examples of such cosmetic packages are disclosed e.g. in W02007/035516 or EP1155972.

[0003] These known devices require manual intervention in order to be switched off when they don't have to operate. Indeed, due to the relatively high power consumption of the LEDs, if such devices weren't switched off a relevant part of the time, the batteries would have to be replaced often.

[0004] For example, the batteries may easily become exhausted even before the product is sold, if the power is not switched off during transport and storage, which can last for several months; or, when the product is being exhibited in a shop, the power needs to be switched off e.g. during commercial closing hours to avoid quick exhaustion of the batteries.

[0005] This thus requires that a shop attendant or the like takes care of switching on the power when the product is first received in the shop to be exhibited, and then switching on and off each individual product daily. This of course requires a significant amount of time and effort. As a result, it may happen that the power is never switched on, and the packaging thus loses its function, or that the power is not switched off during closing hours, which causes early battery exhaustion.

[0006] It is an object of the present invention to provide a cosmetic product packaging which at least partly solves the above disadvantages. Cosmetic product packaging is to be understood as any packaging adapted for or suitable for containing a cosmetic product. Cosmetic products in this sense include e.g. perfumes, fragrances, eau de cologne, dermatological products, personal care products and toiletry products.

[0007] In particular, an object of the present invention is to provide a cosmetic product packaging having an electronic display for attracting attention and/or for providing an original aesthetic effect, which may be stored for a relatively long time, and later displayed in a shop and/or in the house or premises of a customer, without losing its displaying capabilities and with no need for frequent user intervention.

[0008] In a first aspect of the invention, the invention provides a cosmetic product packaging comprising an electronic display, **characterised in that** the packaging furthermore comprises a photovoltaic panel arranged on

at least one surface of the packaging, said photovoltaic panel being connected to said electronic display.

[0009] Supplying the electronic display with a photovoltaic panel allows a very long life without the need of maintenance, since the operation life of the packaging depends solely on the operation life of the photovoltaic cell panel, which may be of several years. It is not necessary to provide switches or other devices to switch the power supply to the LCD screen on and off, because of the inherent long life of the components and also because the absence of light during storage, transport, commercial closing hours, etc. will automatically switch off the display.

[0010] Preferably, the electronic display comprises an LCD screen. The LCD screen has a low power consumption, such that the required photovoltaic panel for supplying it does not require a large surface and can be easily arranged on an outer surface of the packaging, where it receives light e.g. from a window. The artificial light inside a store, even if received in a substantially disadvantageous direction, allows the photovoltaic panel to supply enough power for the LCD screen to function properly.

[0011] In preferred embodiments of the present invention, at least a part of said LCD screen comprises a transparent state and an opaque state. Optionally, the whole LCD screen comprises a transparent and an opaque state, the packaging further comprising a non-electronic display arranged with the LCD screen, such that in the transparent state of the LCD screen the non-electronic display is visible and in the opaque state of the LCD screen the non-electronic display remains concealed.

[0012] According to this embodiment of the invention, the LCD screen merely switches between a state in which it is transparent and thus shows a non-electronic display arranged with it and an opaque state and thus does not show the non-electronic display arranged with it. The non-electronic display may be a simple printed cardboard. The print on the cardboard can be text or image (s) or both. Other examples of non-electronic displays that may be used are a sticker or a label. Since the LCD screen merely switches between a display state and a hide state, it uses less energy than devices using "active" LCD screens (in which the LCD screens themselves display images or moving images). In contrast to these "active" LCD screens, the LCD screens in the packaging according to the present invention do not display images themselves, but merely hide or show images displayed on a non-electronic display (which does not use electricity) arranged with it.

[0013] Preferably in this embodiment, said LCD screen is in its transparent state when it is not powered with electric current and the LCD screen is in its opaque state when it is powered with electric current. In the event that the electronic circuit does not work properly, no electric current will be applied to the LCD screen which thus remains in its transparent state. In this state, the text or image(s) on the non-electronic display will still be visible, even if the electronic circuit fails.

[0014] In another embodiment of the present invention, only a part of said LCD screen comprises a transparent state and an opaque state, said part forming an image to be displayed. In this embodiment, a part of the LCD screen only is able to switch between a transparent state and an opaque state; the rest of the screen remains transparent at all times. If said determined part is in its opaque state, by contrast with the other part that remains in its transparent state, it forms an image. This image may be a logo, a figure or a text or a combination of these. One advantage of this embodiment is that the image that is displayed to potential customers can be relatively clear, since the image is formed closer to the surface of the packaging than in the embodiment comprising the non-electronic display.

[0015] Preferably, the packaging further comprises means for causing the LCD screen to periodically switch between said transparent and said opaque state. This allows the packaging to attract the attention of a potential customer with a flashing effect when the packaging is disposed, for example, on the shelves of a store, while at the same time ensuring a long product life without the need of batteries and/or switches. Said means for causing the LCD screen to periodically switch between said transparent state and said opaque state may be e.g. an electronic oscillator arranged in the power circuitry of the LCD screen.

[0016] In some embodiments, the electronic display is powered with electric current only when the environmental light surrounding the packaging is above a predetermined level. If the cosmetic products are stored in a dark storage room, where potential customers cannot see the products, the electronic display can be temporarily inactive. Only when placed in a sufficiently light room, the photovoltaic panel can generate sufficient electricity and provide power for the electronic display.

[0017] In some embodiments, the packaging may further comprise at least one rechargeable battery which is chargeable by the photovoltaic panel and can feed the electronic display. If the packaging comprises a rechargeable battery, this battery can be charged at least at times when the photovoltaic panel generates more electricity than is necessary for powering the display. The display may thus be operated for a longer period of time and even (at least temporarily) in darker environments using electricity from the rechargeable battery. Alternatively, the photovoltaic panel may be made smaller than in other embodiments that do not comprise the rechargeable battery, thus saving cost. Naturally, the power from the battery (provided by the photovoltaic panel) may also be used to power any additional available mechanism.

[0018] In embodiments of the invention, the electronic display may further comprise at least one LED. The LED may be provided instead of the LCD screen or in combination with the LCD screen. The packaging can be rendered even more attractive by combining the LCD screen with at least one LED. The at least one LED may be powered using the electronic circuit comprising a photo-

voltaic panel and optionally a rechargeable battery.

[0019] In some embodiments, the electronic display comprises at least two LCD screens, the packaging furthermore comprising means for coordinating said at least two LCD screens. The LCD screens may be provided on a single outer surface of the packaging or the screens may be provided on at least two different surfaces. The LCD screens may be coordinated in such a way that a first screen displays a first part of a message, while the second screen displays a second part of a message. Another option for coordinating the at least two LCD screens is that one screen is in its display state while the other is in its display state and vice versa. The means for coordinating may in this case be e.g. electronic oscillators or relays.

[0020] In some embodiments of the invention, the packaging further comprises a power switch.

[0021] In preferred embodiments of the invention, the electronic display and photovoltaic panel are provided on the same surface of the packaging. In principle, the photovoltaic panel may be arranged on more than one outer surface of the packaging. And the display does not necessarily need to be provided on either one of these surfaces. When the photovoltaic panel and electronic display are provided on the same surface, manufacturing of the packaging is easier; the electronic parts can be manufactured in one separate module.

[0022] In some embodiments, the packaging furthermore comprising a mechanism for controlling the electronic display, said mechanism comprising at least one sensor. The mechanism for controlling the electronic display may also comprise e.g. means for switching the LCD screen between a display state and a hide state. The sensor may be e.g. a motion detector for detecting the presence of a customer. When the presence of a potential customer is detected, the display may be activated and start switching between a hide state and a display state for a determined period of time.

[0023] Another option is that a message is displayed on a plurality of packagings. As a customer passes by the packagings, the packaging closest to the customer at every moment may be in display state, whereas the others are in a hide state. It will be obvious for the person skilled in the art that many more ways of controlling the electronic display using sensors are possible. As motion detectors, infrared sensors may be used. It is also possible to employ other types of sensors, such as pressure sensors.

[0024] Particular embodiments of the present invention will be described in the following, only by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a perspective view of a first embodiment of the packaging according to the invention;

Figure 2 is an exploded view of the embodiment shown in figure 1;

Figures 3 and 4 show vertical cross-sections of the

embodiment shown in figure 1;

Figure 5 shows an exploded view of a second embodiment according to the present invention;

Figure 6 shows a cross-section of the embodiment shown in figure 5;

Figure 7 shows an isometric view of a third embodiment according to the invention;

Figure 8 shows an exploded view of the third embodiment;

Figure 9 shows a cross-section of the third embodiment;

Figure 10 shows a plurality of packagings according to the third embodiment;

Figure 11 shows a fourth embodiment according to the present invention;

Figure 12 shows an exploded view of the fourth embodiment;

Figure 13 shows a cross-section of the fourth embodiment;

Figure 14 shows an exploded view of a fifth embodiment according to the present invention;

[0025] Figure 1 shows a first embodiment according to the present invention. A cosmetic packaging is indicated with reference sign 1. Although the packaging is shown as a cardboard box, within the scope of the present invention, the packaging may also take the shape of a glass or plastic bottle or any other suitable shape. The packaging 1 comprises a photovoltaic panel 6 and an electronic display 13. In figure 1A, the electronic display shows an image (which may comprise text and drawings, such as a commercial message or a trademark), whereas in figure 1B the electronic display is in a state in which no image is shown. By switching between the state shown in figure 1A and the state shown in figure 1B, the packaging can attract the attention of a potential customer with a flashing effect when the packaging is disposed, for example, on the shelves of a store, while at the same time ensuring a long product life without the need of batteries and/or switches.

[0026] Figure 2 shows an exploded view of the packaging shown in figure 1. The electronic display is destined to be integrated in area 12 on a surface 11 of packaging 1. The display is built up from various components. Reference sign 2 indicates a plastic protective rear cover which is to be arranged inside the packaging. The display further comprises an electronic circuit 3 and a non-electronic display 4. Electronic circuit 3 may comprise an integrated circuit board. Non-electronic display 4 may be a cardboard comprising an image, but can also be any other display comprising a drawing or text which does not use electricity. The display further comprises an LCD screen 5 and a protective front cover 7. Power for the LCD screen is provided by a photovoltaic panel 6 which is to be arranged behind protective cover 7 with its photovoltaic cells directed toward an outer surface of packaging 1.

[0027] Figure 3 shows a vertical cross-section of the

packaging of the previous figures. Figure 4 shows a more detailed view of the same cross-section. As can be more clearly seen in these cross-sections, the non-electronic display 4 is arranged behind the LCD screen 5. The LCD screen 5 can be in a transparent state, which allows non-electronic display 4 to be visible. The LCD screen 5 can also be in an opaque state, which renders the non-electronic display 4 invisible. The display arranged between rear cover 2 and front cover 7 is built as a module which can be easily arranged in packaging 1.

[0028] Figure 5 shows an exploded view of a second embodiment according to the present invention and figure 6 shows a vertical cross-section of this second embodiment. The only difference with the first shown embodiment is that a rechargeable battery 8 is arranged with the display. The battery 8 can be charged with electricity generated by photovoltaic panel 6. Battery 8 can then be used to power LCD screen 5. Only a single rechargeable battery 8 is shown in figure 5 and 6, but within the scope of the present invention, a plurality of batteries may also be provided. Using the rechargeable battery, the electronic display can still be powered, even after the packaging has been under circumstances of relative darkness for a prolonged period of time.

[0029] Figure 7 shows a third embodiment of a cosmetic packaging according to the present invention. Figure 8 shows an exploded view of this embodiment and figure 9 shows a detailed cross-sectional view. Cosmetic packaging 1 in this embodiment comprises a display 13 and a photovoltaic panel 6. The display is provided between rear cover 2 and front cover 7 and comprises electronic circuit 3, a LED matrix 9. Power for the display is provided by photovoltaic panel 6 and rechargeable battery 8. In this embodiment, the photovoltaic panel is shown enlarged with respect to previous embodiments, since the LED matrix 9 uses more electricity than the LCD screen of previous embodiments. The LED matrix 9 can be programmed to repetitively show a text or image. The LED matrix may also be programmed to, in combination with at least one other packaging properly arranged on e.g. the shelf of a store, show a coordinated message. This preferred option has been schematically indicated in figure 10.

[0030] Figure 11 shows a fourth embodiment according to the present invention. Figure 12 shows an exploded view of this embodiment, whereas figure 13 shows a detail of the vertical cross-section of this embodiment. The fourth embodiment is essentially a simplification of the third embodiment previously shown. Instead of a LED matrix, a single LED 10 has been provided. The goal of this simplification is to reduce the required photovoltaic surface (which represents cost savings), or to increase the life-span of the electronic display. It will be clear that instead of a single LED, also a plurality of separate LEDs may be incorporated.

[0031] In a fifth embodiment according to a present invention, a single LED 10 is combined with LCD screen 5, which switches between a transparent state and an

opaque state to display or hide a non-electronic display 4. This embodiment has been shown in an exploded view in figure 14. This combination may render the packaging even more attractive. The combination LED and LCD screen may be powered using the same electronic circuit. Even though in figure 14, the LED 10 is shown to be arranged in front of LCD screen 5, within the scope of the present invention, the LED may also be arranged next to, on top of, or underneath LCD screen 5.

[0032] The packaging according to the present invention may optionally be provided with a power switch to turn the electronic display on or off. When the packaging is stored for a period of time in a storage room, where it is generally not seen by potential customers, the display may be turned off so as to save energy and increase the life-time of the display.

[0033] Although in all figures the photovoltaic panel was provided on the same surface of the packaging as the electronic display, within the scope of the invention, the photovoltaic panel may be provided on a first surface and the electronic display may be provided on a second, different surface.

[0034] In the figures, the photovoltaic panel was generally indicated as comprising a single panel. It is to be understood that the photovoltaic panel can also be built up from several separate panels. The panel(s) may be made from any suitable material known in the art.

[0035] In the embodiments shown in the figures, no sensors (such as motion detectors) were indicated. It should however be obvious to the person skilled in the art that these sensors may optionally be provided in all embodiments shown in the figures.

[0036] Although in all embodiments of the figures comprising an LCD screen, the whole LCD screen comprises a transparent and an opaque state to either show or hide a non-electronic display, within the scope of the present invention, other types of LCD screens may also be provided. Another preferred type of LCD screen is a screen in which only a part of said LCD screen comprises a transparent state and an opaque state, said part forming an image to be displayed. This part, when it is in its opaque state, forms an image by contrast with the rest of the screen which remains in a transparent state. The image to be displayed may be a logo, a text, a figure or a combination of these.

Claims

1. A cosmetic product packaging (1) comprising an electronic display (13), **characterised in that** the packaging furthermore comprises a photovoltaic panel (6) arranged on at least one surface of the packaging, said photovoltaic panel being connected to said electronic display.
2. A cosmetic product packaging according to claim 1, **characterised in that** the electronic display (13)

comprises an LCD screen (5).

3. A cosmetic product packaging according to claim 2, wherein at least a part of said LCD screen (5) comprises a transparent state and an opaque state.
4. A cosmetic product packaging according to claim 3, wherein the whole screen comprises a transparent and an opaque state, the packaging further comprising a non-electronic display (4) arranged with the LCD screen, such that in the transparent state of the LCD screen (5) the non-electronic display (4) is visible and in the opaque state of the LCD screen (5) the non-electronic display (4) remains concealed.
5. A packaging as claimed in claim 4, wherein said LCD screen (5) is in its transparent state when it is not powered with electric current and the LCD screen (5) is in its opaque state when it is powered with electric current.
6. A cosmetic product packaging according to claim 3, wherein only a part of said LCD screen (5) comprises a transparent state and an opaque state, said part forming an image to be displayed.
7. A packaging as claimed in any of claims 3-6, the packaging further comprises means for causing the LCD screen to periodically switch between said transparent and said opaque state.
8. A packaging as claimed in any of the preceding claims, wherein the electronic display further comprises at least one LED (10).
9. A packaging as claimed in any previous claim, wherein the electronic display (13) comprises at least two LCD screens (5), the packaging furthermore comprising means for coordinating said at least two LCD screens (5).
10. A packaging as claimed in any previous claim, wherein the electronic display is powered with electric current only when the environmental light surrounding the packaging is above a predetermined level.
11. A packaging as claimed in any of the preceding claims, further comprising at least one rechargeable battery (8) which is chargeable by the photovoltaic panel (6) and can feed the electronic display.
12. A packaging as claimed in any of the preceding claims, further comprising a power switch.
13. A packaging as claimed in any of the preceding claims, wherein the electronic display (13) and photovoltaic panel (6) are provided on the same surface

(11) of the packaging.

- 14.** A packaging as claimed in any of the preceding claims, furthermore comprising a mechanism for controlling the electronic display (13), said mechanism comprising at least one sensor.

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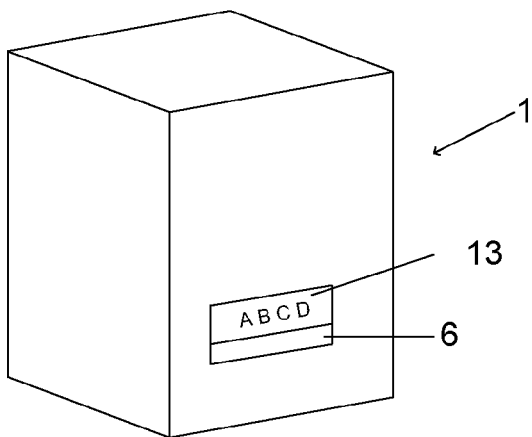


Figure 1A

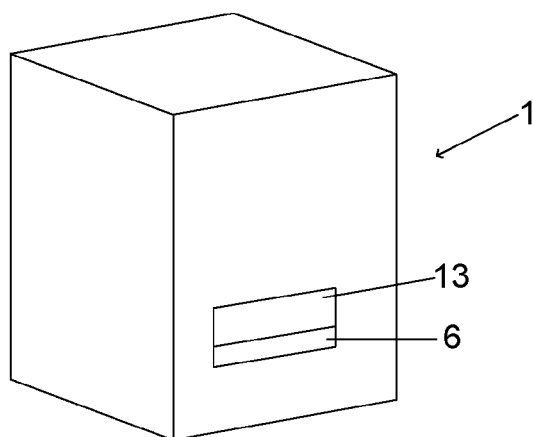


Figure 1B

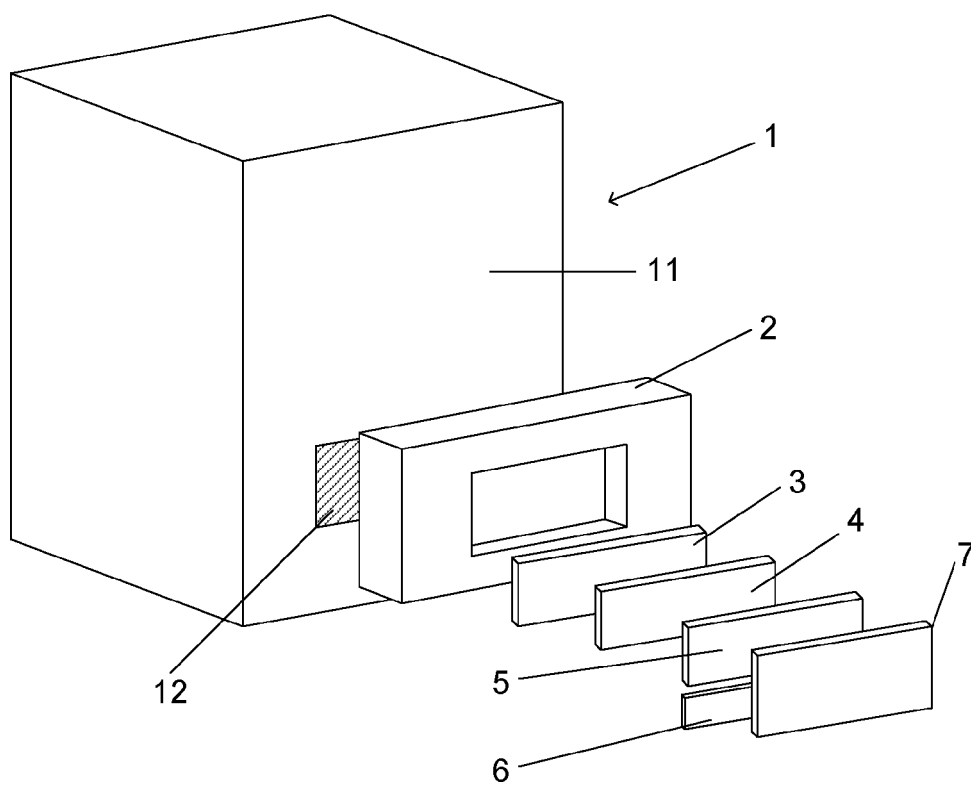


Figure 2

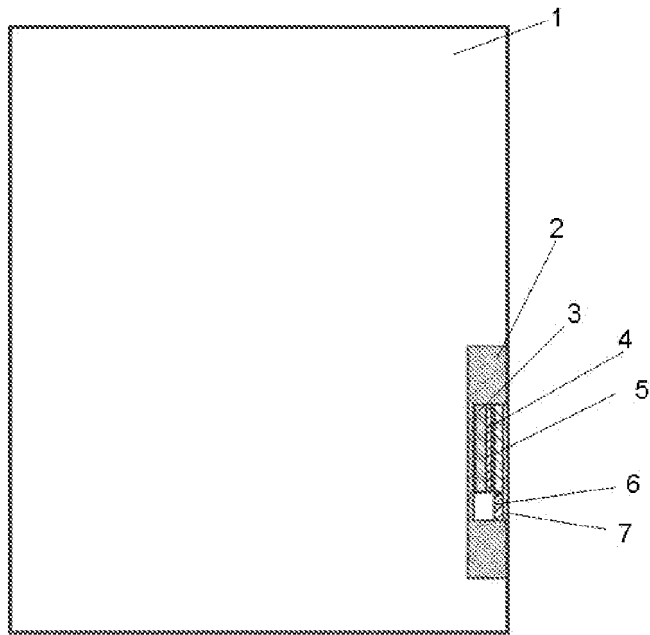


Figure 3

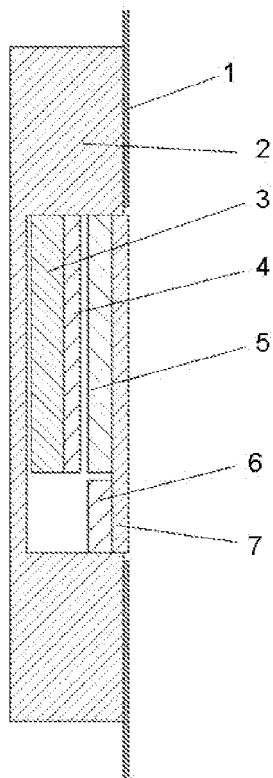


Figure 4

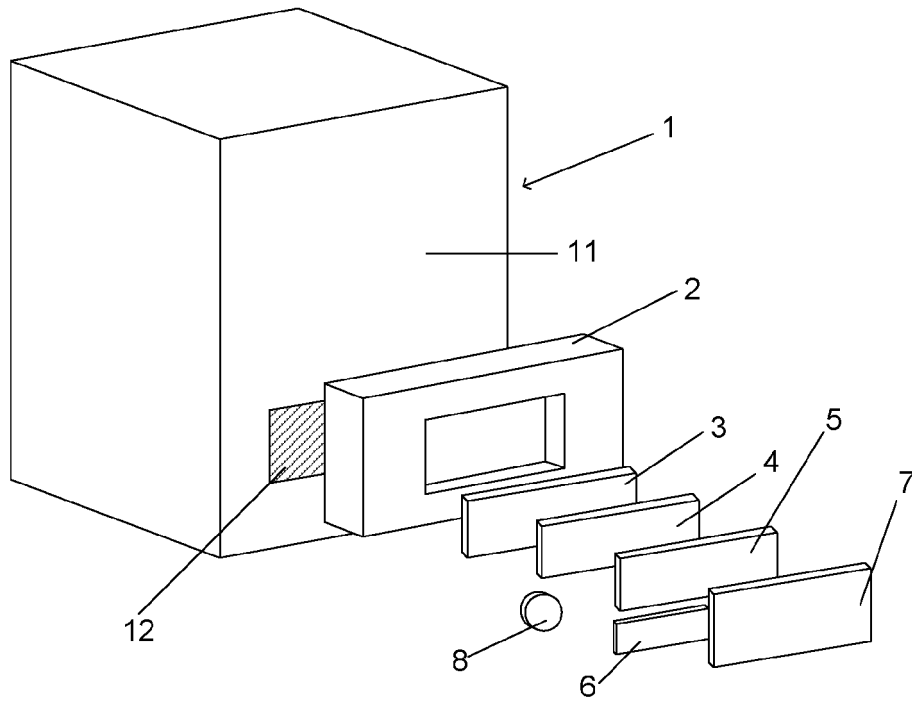


Figure 5

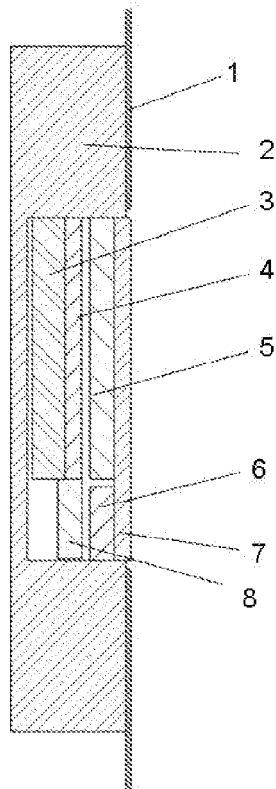


Figure 6

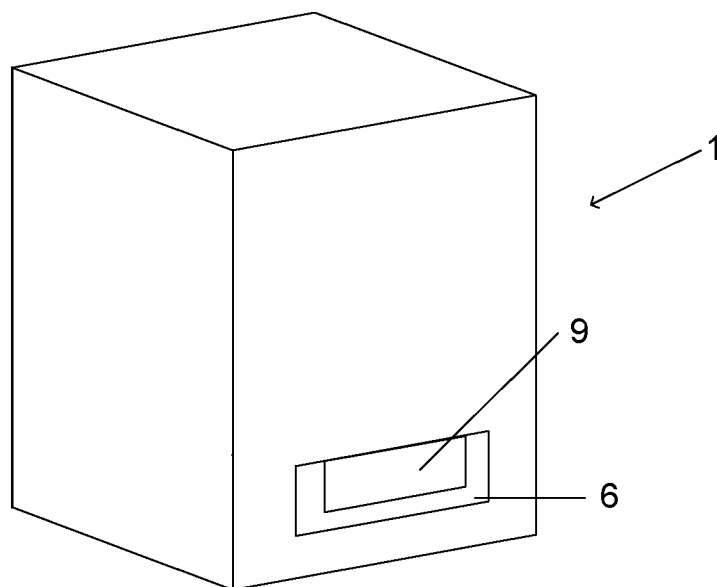


Figure 7

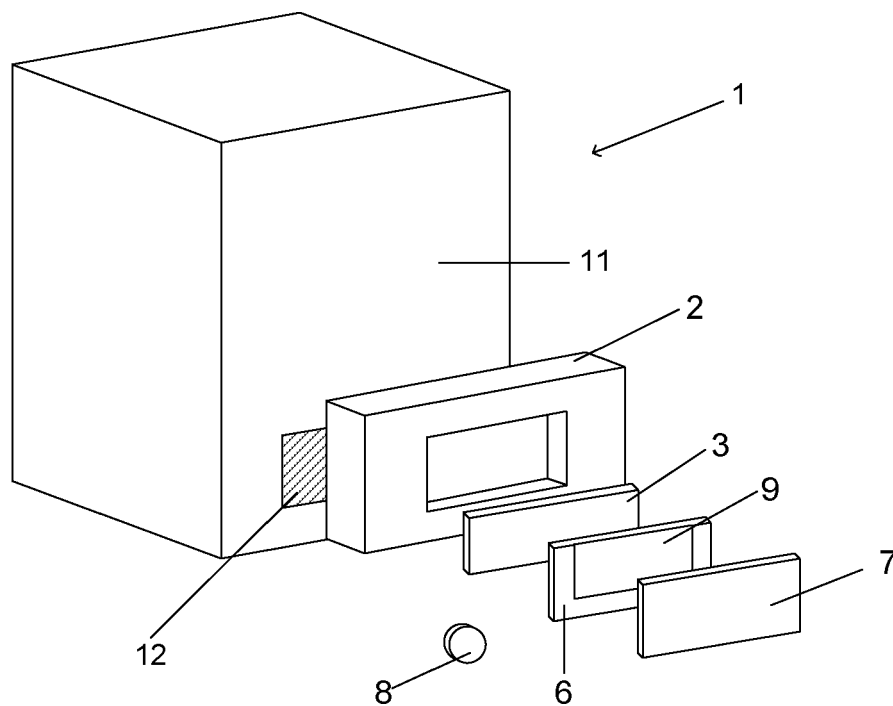


Figure 8

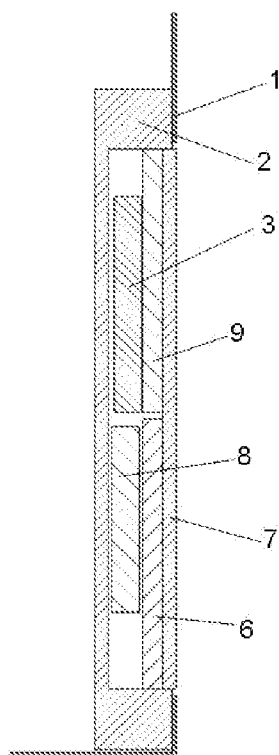


Figure 9

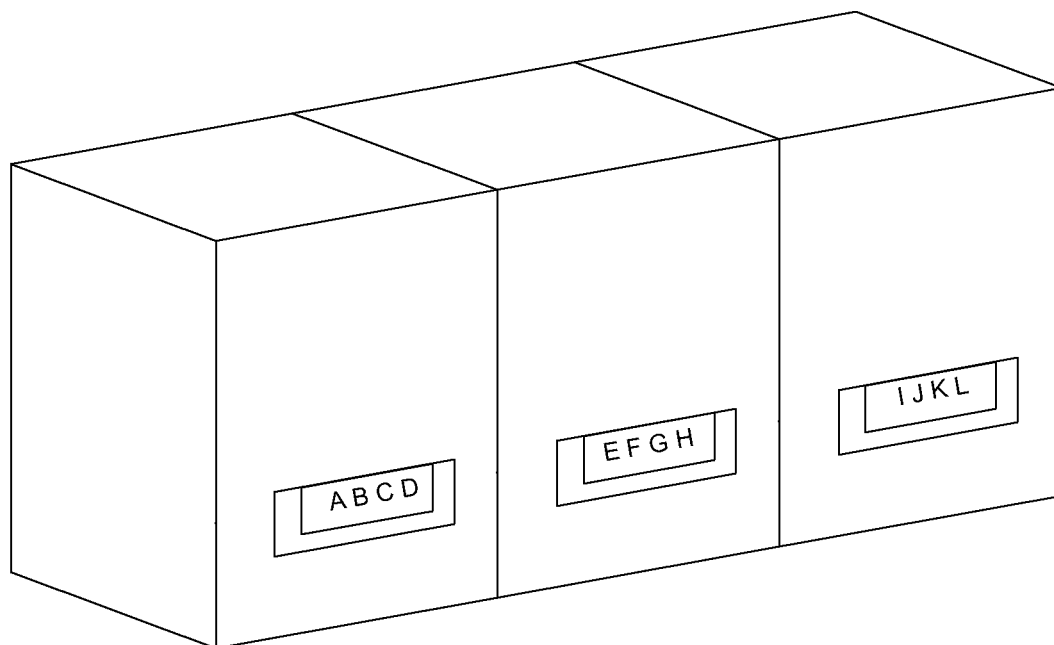


Figure 10

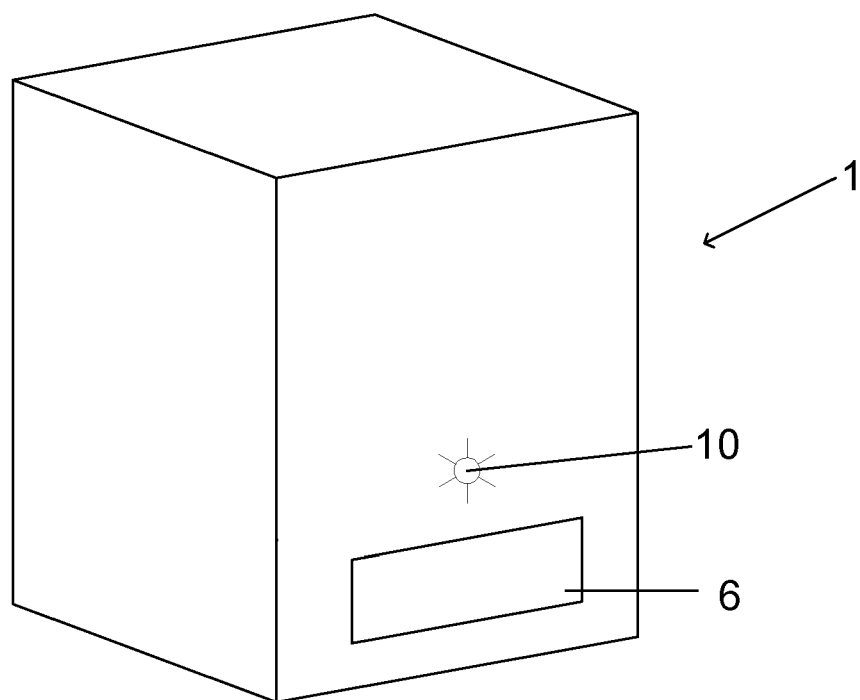


Figure 11

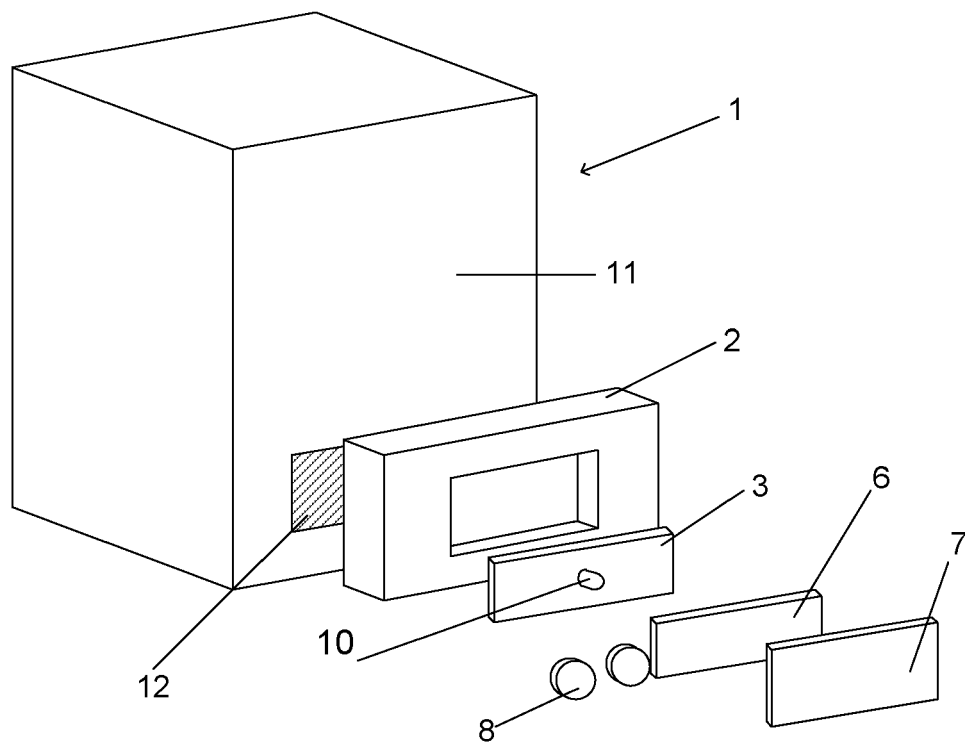


Figure 12

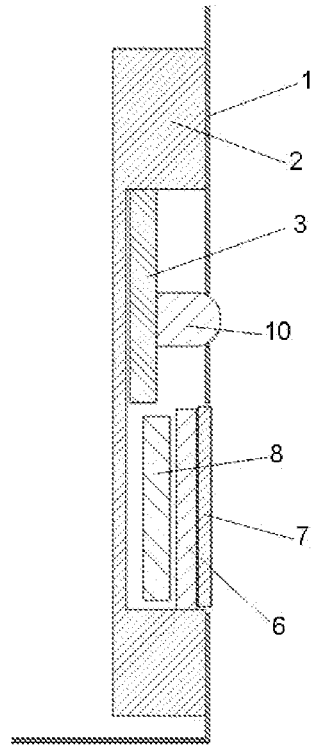


Figure 13

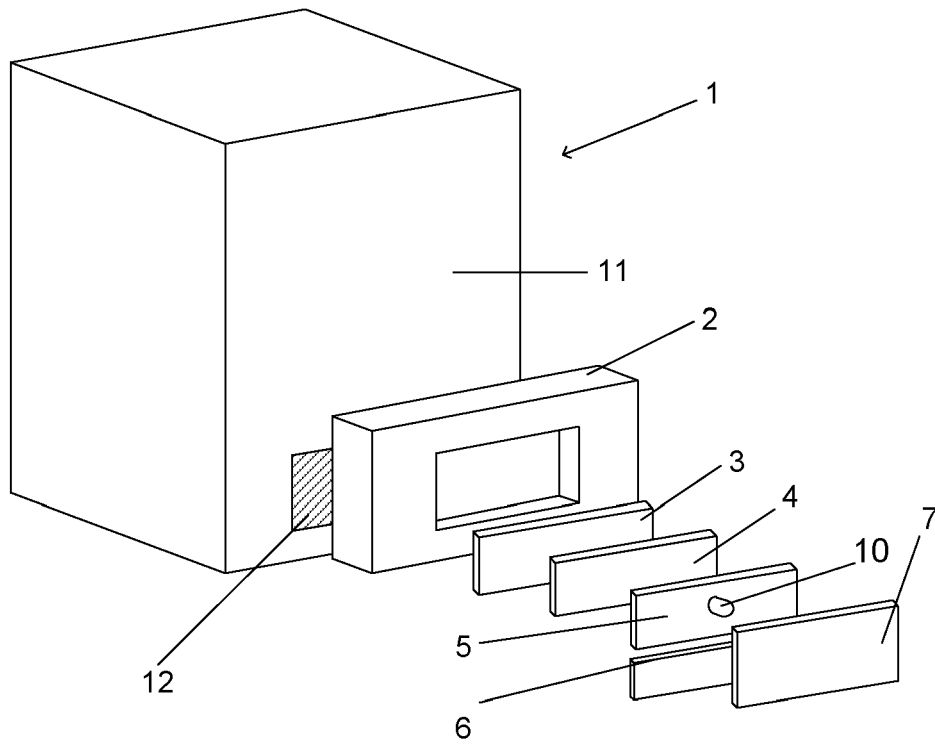


Figure 14



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 7193

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	W0 01/76669 A (SEYDOUX) 18 October 2001 (2001-10-18) * page 1, lines 3-8 * * page 2, line 1 - page 9, line 27 * * figures 1-4 *	1,2,8, 10-12,14	
X	EP 1 736 951 A (SCHOELLER ARCA SYSTEMS SERVICE) 27 December 2006 (2006-12-27) * paragraphs [0025] - [0033] * * claims 1-4,8,10-18 * * figures 1,2 *	2-5,7, 11,12	
X	US 2008/100469 A1 (GOLDBURT) 1 May 2008 (2008-05-01) * paragraphs [0016], [0017], [0019], [0021], [0024], [0026], [0029], [0030], [0033], [0034], [0037] * * figure 2 *	1,2,8, 10,11,13	A45D H01L A24F G04C G09F G08B
X	US 4 801 929 A (INSTANCE) 31 January 1989 (1989-01-31) * column 2, line 4 - column 5, line 2 * * figures 1-3 *	1,2,10, 12,14	
X	US 2008/038042 A1 (GUY) 14 February 2008 (2008-02-14) * paragraphs [0019] - [0033] * * figures 1-5 *	1,2,10, 12,13	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 June 2009	Examiner Witkowska-Piela, A
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			

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EPO FORM 1503 03.02 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 7193

DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 June 2009	Examiner Witkowska-Piela, A
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			

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EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 16 7193

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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15-06-2009

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