



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.03.2019 Bulletin 2019/11

(51) Int Cl.:
B42D 15/02 (2006.01) B42D 15/04 (2006.01)

(21) Application number: **17196344.0**

(22) Date of filing: **13.10.2017**

(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 MD

(71) Applicant: **Shenzhen Winpsheng Craft Company Limited**
ShenZhen, Guangdong (CN)

(72) Inventor: **Sun, JingYun**
Shenzhen, Guangdong (CN)

(74) Representative: **Sun, Yiming**
HUASUN Patent- und Rechtsanwälte
Friedrichstraße 33
80801 München (DE)

(30) Priority: **08.09.2017 CN 201710808052**

(54) **THREE-DIMENSIONAL ELECTRONIC CARD**

(57) The present application discloses a three-dimensional electronic card including a first sheet-like portion and a second sheet-like portion which are foldably connected together, and a three-dimensional assembled portion connected between the first sheet-like portion and the second sheet-like portion. The three-dimensional assembled portion can be erected and formed into a three-dimensional structure when the first and second sheet-like portions are unfolded, and can be folded up,

formed into a sheet-like structure, and held between the first and second sheet-like portions when the first and second sheet-like portions are folded. The first or second sheet-like portion is provided with a circuit board. The circuit board is provided with an audio chip, a speaker and a power supply. The first or second sheet-like portion is further provided with a trigger switch electrically connected to the circuit board. The trigger switch is activated to operate the speaker.

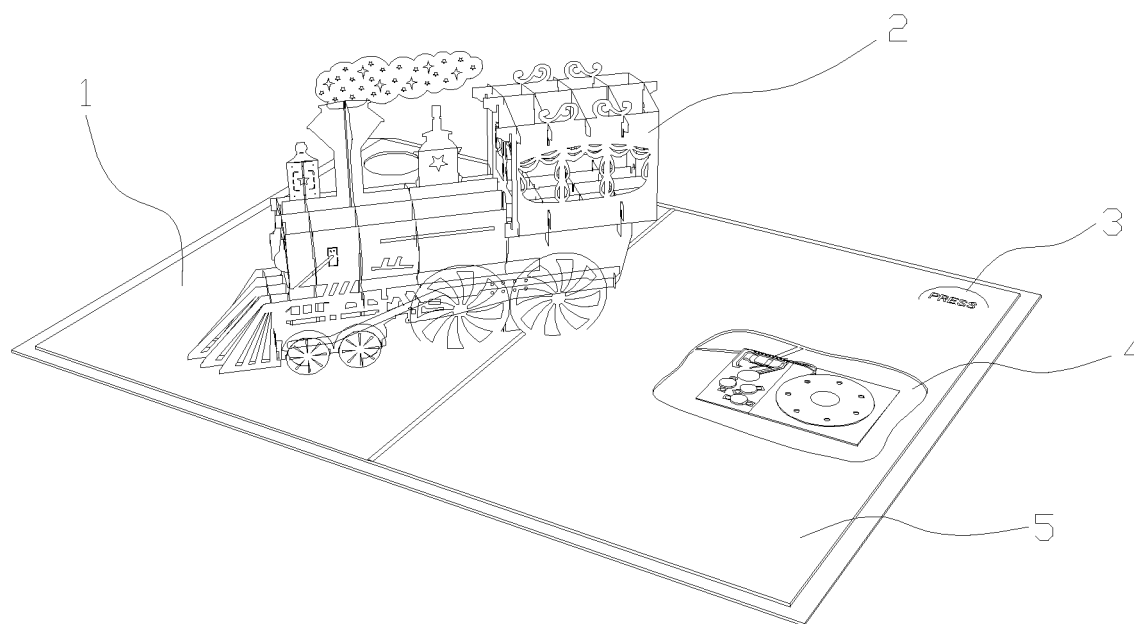


Fig. 1

Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of Chinese Patent Application No. 201710808052.5 filed on September 8, 2017. All the above are hereby incorporated by reference.

TECHNICAL FIELD

[0002] The present application relates to a greeting card, and more particularly to a three-dimensional electronic card having three-dimensional visual effect and electronic function.

BACKGROUND

[0003] Greeting cards are mainly used as gifts for the celebration of birthday and festival. For some greeting cards, sweet and blessing music will be played after the cards are opened. The traditional musical greeting cards usually only have a single music playback function, and therefore, festive and celebrating effects are not plentiful enough. Nowadays, there are two types of commonly used greeting cards on the market. The first type of card is a pure traditional art and craft card, which can achieve a special effect through a variety of pattern designs with the addition of parts and accessories. In recent years, paper card processing technology continues to improve, and the design is diversified. The most typical one is the laser three-dimensional card. The second type of card is the pure electronic card, wherein an electronic circuit is added on the card to produce sound and light effects.

SUMMARY

[0004] In order to overcome the drawbacks of the prior art, it is an object of the present application to provide a three-dimensional electronic card having three-dimensional visual effect and electronic function.

[0005] The three-dimensional electronic card of the present application is achieved by the following technical measures. A three-dimensional electronic card which may include a first sheet-like portion and a second sheet-like portion which are foldably connected together; a three-dimensional assembled portion connected between the first sheet-like portion and the second sheet-like portion, wherein the three-dimensional assembled portion is erected and formed into a three-dimensional structure when the first sheet-like portion and the second sheet-like portion are unfolded, and the three-dimensional assembled portion is folded, formed into a sheet-like structure, and held between the first sheet-like portion and the second sheet-like portion when the first sheet-like portion and the second sheet-like portion are folded; a circuit board provided on the first sheet-like portion or the second sheet-like portion; an audio chip, a speaker

and a power supply provided on the circuit board; and a trigger switch provided on the first sheet-like portion or the second sheet-like portion and electrically connected to the circuit board, whereby the trigger switch is activated to operate the speaker.

[0006] In a preferred embodiment, an iBeacon module is further provided on the first sheet-like portion or the second sheet-like portion, and the iBeacon module is electrically connected to the circuit board.

[0007] In a preferred embodiment, a near-field communication (NFC) tag is provided on a surface of the first sheet-like portion or the second sheet-like portion.

[0008] In a preferred embodiment, the NFC tag stores a website link.

[0009] In a preferred embodiment, the first sheet-like portion and the second sheet-like portion are formed by folding and overlaying of paper, wood, or bamboo board.

[0010] In a preferred embodiment, the three-dimensional assembled portion is in the form of a human model, an animal and plant model, a building model, a landscape model, a car model, or a boat model assembled from paper, cloth or silk processing parts.

[0011] In a preferred embodiment, an optical fiber is provided on the first sheet-like portion and the second sheet-like portion, and the optical fiber is electrically connected to the circuit board.

[0012] In a preferred embodiment, the circuit board is provided with a sound-recording module.

[0013] In a preferred embodiment, a surface of the first sheet-like portion and the second sheet-like portion is provided thereon with a laser layer.

[0014] In a preferred embodiment, the three-dimensional assembled portion is provided with a laser layer.

[0015] The three-dimensional electronic card of the present application involves the addition of a circuit board to the traditional three-dimensional card. It has the exquisite effect of a three-dimensional card, and can also enhance rendering of the sound and light effects. It gathers together the advantages of the three-dimensional card and the electronic card, and brings out the best in each other.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

Fig. 1 is a schematic view of an unfolded three-dimensional electronic card according to an embodiment in the present application.

Fig. 2 is a schematic view of an unfolded three-dimensional electronic card with the addition of a near-field communication tag according to an embodiment in the present application.

Fig. 3 is a schematic view of a folded three-dimensional electronic card with the addition of a near-field communication tag according to an embodiment in

the present application.

DETAILED DESCRIPTION

[0017] The three-dimensional electronic card of the present application will now be described in further detail with reference to the accompanying drawings.

[0018] A three-dimensional electronic card, as shown in Figs. 1-3, may include a first sheet-like portion 1 and a second sheet-like portion 5 which may be foldably connected together. A three-dimensional assembled portion 2 may be connected between the first sheet-like portion 1 and the second sheet-like portion 5. The three-dimensional assembled portion 2 can be erected and formed into a three-dimensional structure when the first sheet-like portion 1 and the second sheet-like portion 5 are unfolded. The three-dimensional assembled portion 2 can be folded up, formed into a sheet-like structure, and held between the first sheet-like portion 1 and the second sheet-like portion 5 when the first sheet-like portion 1 and the second sheet-like portion 5 are folded. A circuit board 4 may be mounted in the middle of the second sheet-like portion 5. Furthermore, an audio chip, a speaker, and a power supply may be mounted on the circuit board 4. A trigger switch 3 electrically connected to the circuit board 4 may be mounted at a corner of the second sheet-like portion 5. In the present embodiment, the trigger switch 3 is a press button switch. In other embodiments, other forms of switch may be used. When the first sheet-like portion 1 and the second sheet-like portion 5 are unfolded, pressing the trigger switch 3 causes the speaker to operate.

[0019] The three-dimensional electronic card of the present application involves the addition of a circuit board to a traditional three-dimensional card. It has the exquisite effect of a three-dimensional card, and can also enhance rendering of the sound and light effects. It gathers together the advantages of the three-dimensional card and the electronic card, and brings out the best in each other.

[0020] In the embodiment of the three-dimensional electronic card, shown in Figs. 1 and 2 and based on the above-mentioned technical scheme, an iBeacon module may also be mounted on the circuit board 4 of the second sheet-like portion. Since an iBeacon transmission module is mounted on the circuit board 4, the circuit board 4 has the function of iBeacon transmission. When the trigger switch 3 is pressed to enable the circuit board 4 to operate, an intelligent terminal such as an iBeacon mobile phone within a valid range can receive information transmitted by the iBeacon module (methods include automatic receiving the iBeacon information, or receiving the information by shaking and activating the phone, etc.). Thus, a corresponding intelligent terminal such as a mobile phone can open a web page link and start a playback according to the information transmitted from the iBeacon module (a preset web page link, such as the same music stored on the circuit board 4, or a message

pre-recorded and posted on the internet, etc.).

[0021] In the embodiment of the three-dimensional electronic card, shown in Figs. 2 and 3 and based on the above-mentioned technical scheme, a near-field communication (NFC) tag 6 may be provided on a surface of the second sheet-like portion 5. The NFC tag 6 can store an internet accessing link (a preset web page link, such as the same music stored on the circuit board 4, or a message pre-recorded and posted on the internet, etc.). When the NFC tag 6 is close to a mobile terminal such as a mobile phone with NFC reading function, the mobile terminal reads the website link in the NFC tag 6 and starts the playback. In order to prevent an unauthorized mobile phone from reading the website link in the NFC tag 6, the NFC tag 6 can be provided on an inner surface of the second sheet-like portion 5. In addition, metal sheets 7, acting as shielding layers, may be provided on an outer surface of the second sheet-like portion 5 and a corresponding surface of the first sheet-like portion 1 such that the information in the NFC tag 6 can be read from the inner surface of the second sheet-like portion 5 only when the electronic card is opened.

[0022] In the embodiment of the three-dimensional electronic card, shown in Figs. 1-3 and based on the above-mentioned technical scheme, the first sheet-like portion 1 and the second sheet-like portion 5 may be printed with pattern design. The first and second sheet-like portions may have laser engraving. The first and second sheet-like portions may be a whole piece of paper that can be folded. The first and second sheet-like portions may be made by overlaying an upper sheet on top of a lower sheet. The material of the first and second sheet-like portions may be paper, wood, bamboo board, etc. The theme can be brought out mainly through the pattern design on the electronic card.

[0023] In the embodiment of the three-dimensional electronic card, shown in Figs. 1-3 and based on the above-mentioned technical scheme, the three-dimensional assembled portion 2 can be a three-dimensional assembly of laser pieces. This three-dimensional assembled portion can be assembled from a number of laser pieces as processing parts. The material of the three-dimensional assembled portion may mostly be paper, but may also be cloth, or other silk material. This three-dimensional assembled portion can be a model of a human, animal and plant, architecture, landscape, car, boat and other man-made tools, toys, etc.

[0024] In the embodiment of the three-dimensional electronic card, based on the above-mentioned technical scheme, the second sheet-like portion 5 may also be provided with a light bulb, an optical fiber, and a sound-recording module electrically connected to the circuit board.

[0025] The above is a description that assists the understanding of the three-dimensional electronic card of the present application. The embodying of the three-dimensional electronic card of the present application is not limited by the above-described embodiments. Any

alteration, modification, substitution, combination, and addition that do not depart from the principle of the three-dimensional electronic card of the present application should be equivalent replacements that are encompassed within the scope of protection of the appended claims.

Claims

1. A three-dimensional electronic card, comprising a first sheet-like portion and a second sheet-like portion which are foldably connected together; a three-dimensional assembled portion connected between the first sheet-like portion and the second sheet-like portion, wherein the three-dimensional assembled portion is erected and formed into a three-dimensional structure when the first sheet-like portion and the second sheet-like portion are unfolded, and the three-dimensional assembled portion is folded, formed into a sheet-like structure, and held between the first sheet-like portion and the second sheet-like portion when the first sheet-like portion and the second sheet-like portion are folded; a circuit board provided on the first sheet-like portion or the second sheet-like portion; an audio chip, a speaker and a power supply provided on the circuit board; and a trigger switch provided on the first sheet-like portion or the second sheet-like portion and electrically connected to the circuit board, whereby the trigger switch is activated to operate the speaker. 5 10 15 20 25 30
2. The three-dimensional electronic card as claimed in claim 1, wherein an iBeacon module is further provided on the first sheet-like portion or the second sheet-like portion, and the iBeacon module is electrically connected to the circuit board. 35
3. The three-dimensional electronic card as claimed in claim 1, wherein a near-field communication (NFC) tag is provided on a surface of the first sheet-like portion or the second sheet-like portion. 40
4. The three-dimensional electronic card as claimed in claim 3, wherein the NFC tag stores a website link. 45
5. The three-dimensional electronic card as claimed in claim 1, wherein the first sheet-like portion and the second sheet-like portion are formed by folding and overlaying of paper, wood, or bamboo board. 50
6. The three-dimensional electronic card as claimed in claim 1, wherein the three-dimensional assembled portion is in the form of a human model, an animal and plant model, a building model, a landscape model, a car model, or a boat model assembled from paper, cloth or silk processing parts. 55
7. The three-dimensional electronic card as claimed in claim 1, wherein an optical fiber is provided on the first sheet-like portion and the second sheet-like portion, and the optical fiber is electrically connected to the circuit board. 5
8. The three-dimensional electronic card as claimed in claim 1, wherein the circuit board is provided with a sound-recording module. 10
9. The three-dimensional electronic card as claimed in claim 1, wherein a surface of the first sheet-like portion and the second sheet-like portion is provided thereon with a laser layer. 15
10. The three-dimensional electronic card as claimed in claim 1, wherein the three-dimensional assembled portion is provided with a laser layer. 20

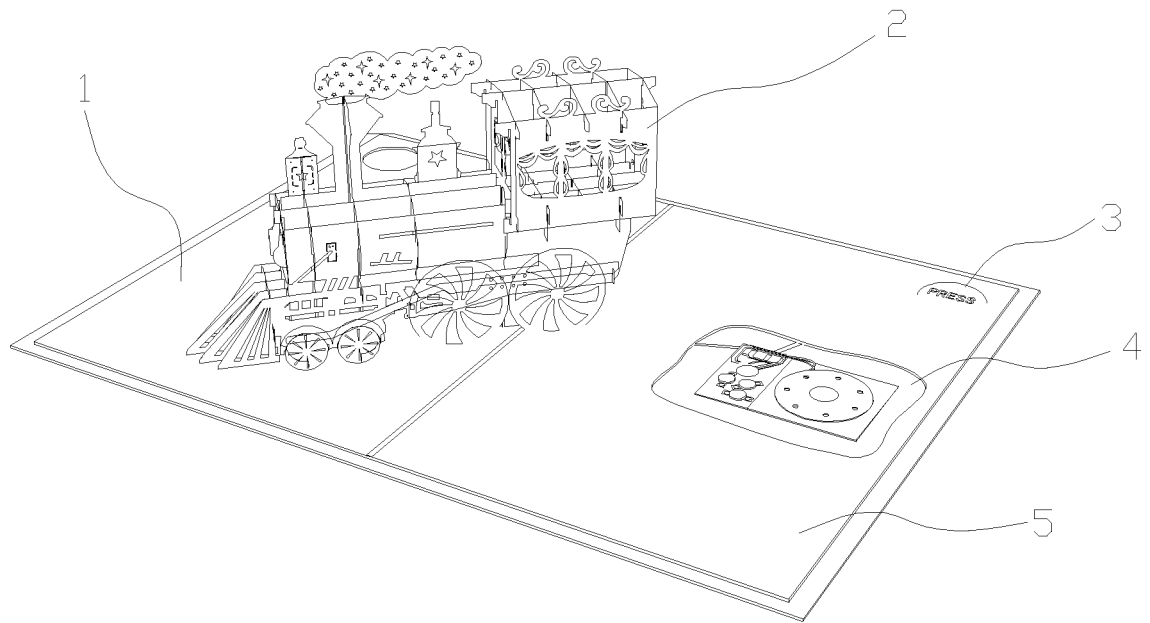


Fig. 1

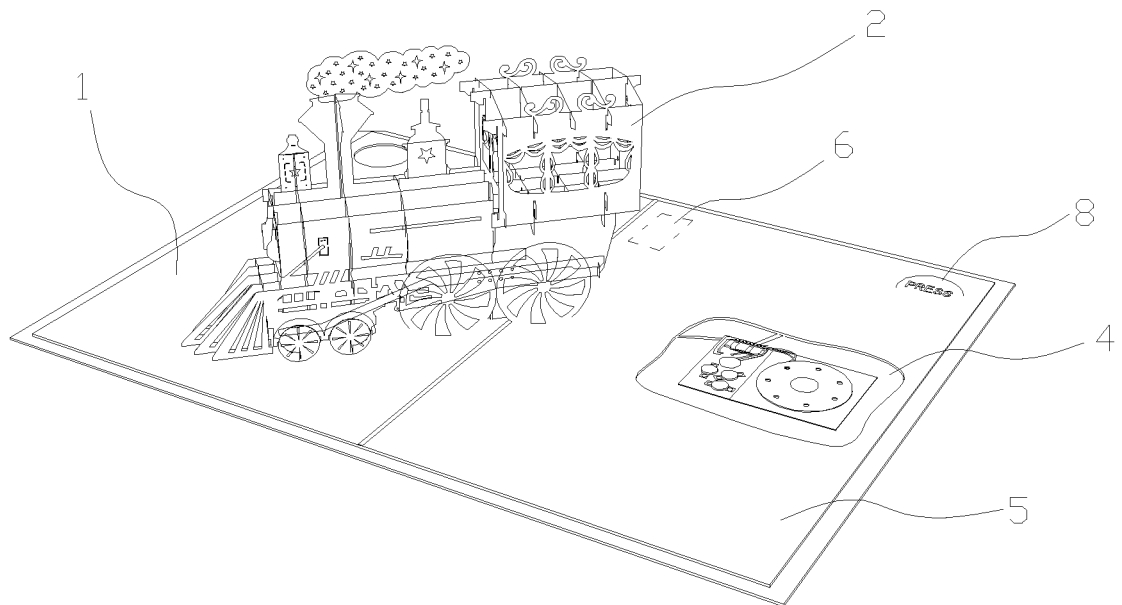


Fig. 2

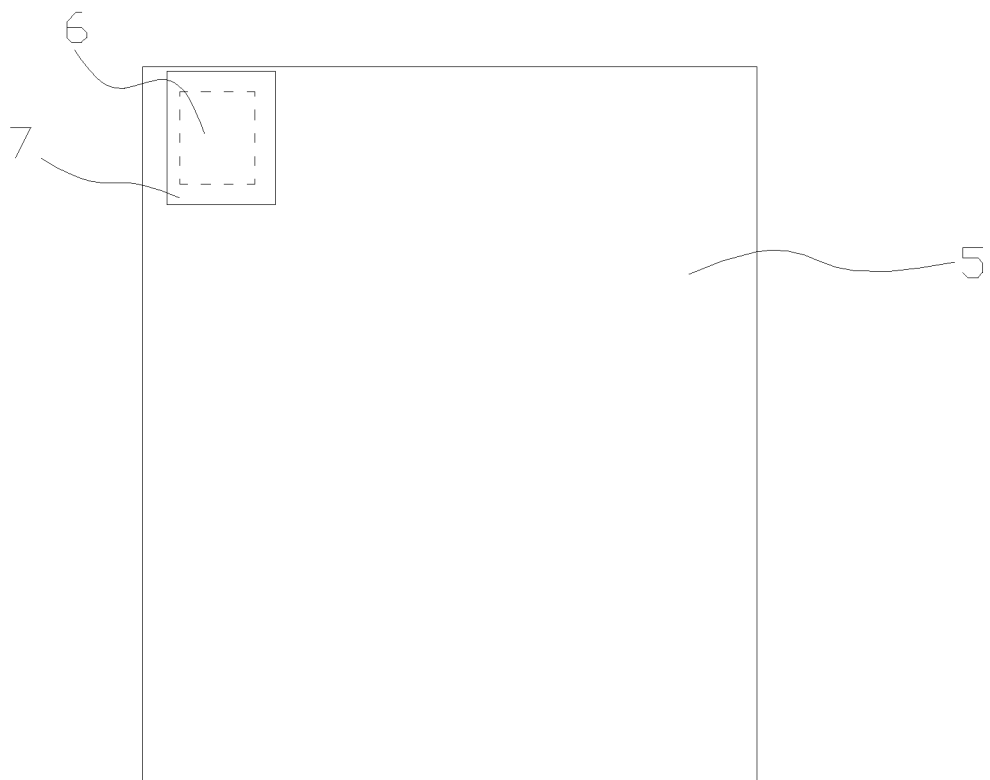


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 17 19 6344

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B42D
Place of search Munich Date of completion of the search 13 April 2018 Examiner Achermann, Didier			
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 (P04C01)

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

EP 17 19 6344

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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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REFERENCES CITED IN THE DESCRIPTION

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