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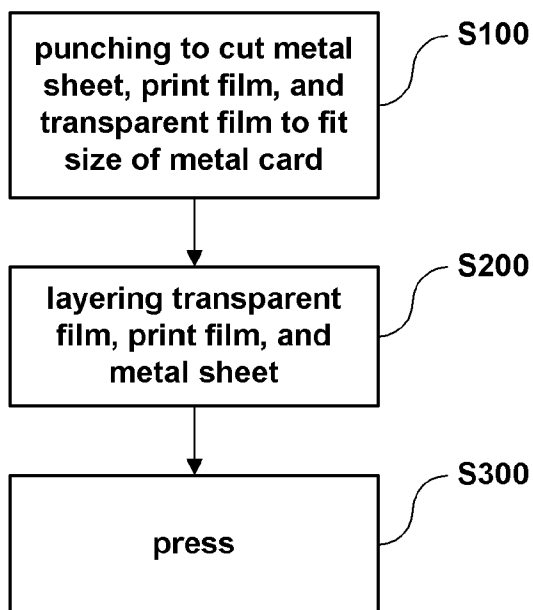
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(54) Title: METAL CARD AND MANUFACTURING METHOD OF THE SAME

[Fig. 1]



(57) Abstract: Disclosed herein are a metal card having a metal sheet and a method of manufacturing the metal card. The method includes punching to cut the metal sheet, a print film, and a transparent film to fit a size of the metal card, layering the transparent film, the print film, and the metal sheet, and pressing the layered transparent film, print film, and metal sheet using a press. According to the present invention, the print film is punched to fit a size of the metal card, and thereafter is pressed against the upper or lower surface of the metal card. Thus, the present invention prevents the print film from being torn due to the use of a metal punching machine.

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Description

METAL CARD AND MANUFACTURING METHOD OF THE SAME

Technical Field

- [1] The present invention relates, in general, to a metal card and a method of manufacturing the metal card and, more particularly, to a metal card and a method of manufacturing the metal card, in which a print film attached to the top or bottom of a metal sheet is prepared so as to have the same size as the metal card, and is then pressed against the metal sheet. Further, the present invention is directed to a metal card and a method of manufacturing the metal card, in which a metal sheet is cut in advance to have the same size as the metal card, and a print film is pressed against the top or bottom of the metal sheet, and thereafter the print film is cut to fit the size of the metal sheet.

Background Art

- [2] Recently, various kinds of plastic cards have been used, for example, financial cards, which are issued by banking institutions, such as cash cards, debit cards, credit cards, or securities cards, membership cards, which are issued by various shopping malls, mobile communication companies, or hospitals, and identification cards, which are used in libraries, schools, or companies.
- [3] In the past, such plastic cards were used merely as payment means. However, recently, plastic cards have come to be used for various purposes, as described above. In order to use the plastic cards for various purposes, several devices including information storing media, such as an IC chip, are provided in the plastic cards. Further, in order to show a user's unique individuality, provide a good appearance, and display various kinds of text data, offset printing is performed on a synthetic resin sheet which constitutes a plastic card, so that various colored patterns or characters are displayed on the plastic card.
- [4] In order to improve the appearance of the plastic cards, most plastic cards are decorated by offset printing. However, offset printing has limits in expressing a special texture or providing a luxurious appearance to a card so as to elevate the status of the card. Thus, offset printing is insufficient to meet consumers' desires to express their individuality.
- [5] As another example for improving the appearance of a card, a plastic card, which is manufactured by thermally attaching a decorative sheet, having an inherent luster and made of a precious metal, to the surface of a synthetic resin sheet constituting the card, thus providing a special texture, has been proposed. However, this manufacturing

method has limited ability to provide a luxurious appearance to the plastic card. Further, since the decorative sheet made of the metal material, which is different from the material of the synthetic resin sheet, is attached to the synthetic resin sheet, an attached portion between the decorative sheet and the synthetic resin sheet may loosen after the card has been manufactured. Further, this plastic card is problematic in that its strength is low because of the properties of the plastic material, and thus the card may be easily bent or broken by external force.

[6] In order to solve the problems with the conventional plastic card, a metal card which has the same size and thickness as a general credit card has been proposed. However, the metal card is problematic in that it is difficult to attach a magnetic tape, which serves as a recording medium for inputting information about the card and is made of synthetic resin, to a metal surface through lamination or the like, and thus an adhesive must be used. However, when the magnetic tape is attached to the metal surface using the adhesive, the attached portion may loosen after a predetermined period of time. Thereby, currently, the metal card is used merely as a business card.

[7] In order to manufacture this metal card, a print film and a transparent film are provided on the top and bottom of a metal sheet. In this state, the print film, the transparent film, and the metal sheet are punched to fit the desired appearance of the card. However, because the metal card is very hard, the metal card requires greater punching strength than that required for the conventional plastic card. When the card is manufactured using the great strength, excessively strong punching is also conducted on the print film and the transparent film, which are attached to the top and bottom of the metal sheet. Thus, the print film or the transparent film, to which the magnetic tape is attached, may be torn.

Disclosure of Invention

Technical Problem

[8] Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a metal card and a method of manufacturing the metal card, in which a metal sheet, provided in the metal card, is punched to have the same size as the actual card, and thereafter, a print film having a printed description is punched to fit the size of the metal sheet, is placed on the top or bottom of the metal sheet, and is pressed against the metal sheet, unlike a conventional card, which is manufactured by pressing a print film against a plastic sheet and thereafter punching the plastic card and the print film at the same time.

Technical Solution

[9] In order to accomplish the above object, the present invention provides a method of

manufacturing a metal card having a metal sheet, including punching to cut the metal sheet and a transparent film to fit a size of the metal card; layering the transparent film, the metal sheet, and the transparent film in sequence in a direction from a bottom to a top of the metal card; and pressing the layered transparent film and metal sheet, using a press. In addition to the metal sheet and the transparent film, a print film may be layered on and pressed against the metal sheet.

[10] Further, the present invention provides a method of manufacturing a metal card having a metal sheet, including punching to cut the metal sheet to fit a size of the metal card; layering a transparent film, the metal sheet, and a transparent film in sequence in a direction from a bottom to a top of the metal card; pressing the layered transparent film and metal sheet, using a press; and punching to cut the transparent film to fit the size of the metal card. In addition to the metal sheet and the transparent film, a print film may be layered on and pressed against the metal sheet.

[11] The metal sheet is selected from one of a steel card, a pure-gold card, a silver card, an aluminum card, a titanium card, and other alloy cards. One jewel or a plurality of jewels is inlaid into a center or a side of the metal sheet. The jewel comprises a diamond, a sapphire, zircon, and an emerald.

[12] A method of inlaying the jewel into the metal sheet comprises one of a method of boring a hole in the metal sheet, and inserting a jewel which is appropriately sized for the hole into the hole, a method of fastening the jewel to the metal sheet by riveting, and a method of directly inserting the jewel into the metal sheet.

[13] The metal sheet may have an embossed pattern and/or a depressed pattern. The embossed pattern and/or the depressed pattern may be formed on a surface of the metal sheet through carving or etching. The metal sheet further includes a recess in which a pattern essential for the metal card is provided.

[14] The present invention provides a metal card manufactured through the above-mentioned manufacturing method.

Advantageous Effects

[15] According to the present invention, a print film is punched to fit the size of a metal card, and thereafter is pressed against the upper or lower surface of the metal card. Thus, the metal card and the method of manufacturing the metal card, according to the present invention, prevent the print film from being torn by a metal punching machine. Further, the present invention prevents failure in the punching of the metal card attributable to the use of a plastic punching machine.

[16] Further, if it is possible to cut a print film and a transparent film such that they fit the size of a metal card using a plastic punching machine, which is manufactured to be delicate, the print film and the transparent film, which are attached to the front and

back surfaces of the metal card and are larger than the metal card, can be punched using the plastic punching machine. Therefore, mass production of metal cards is possible.

Brief Description of the Drawings

[17] FIG. 1 is a flowchart illustrating a method of manufacturing a metal card, according to the first embodiment of the present invention;

[18] FIG. 2 is an exploded perspective view showing the metal card which is manufactured using the manufacturing method, according to the first embodiment of the present invention;

[19] FIG. 3 is a view showing various shapes of metal cards which are manufactured using the manufacturing method, according to the first embodiment of the present invention;

[20] FIG. 4 is a flowchart illustrating a method of manufacturing a metal card, according to the second embodiment of the present invention; and

[21] FIG. 5 is an exploded perspective view showing the metal card which is manufactured using the manufacturing method, according to the second embodiment of the present invention.

Mode for the Invention

[22] Hereinafter, the preferred embodiments of the present invention will be described in detail with reference to accompanying drawings.

[23] FIG. 1 is a flowchart illustrating a method of manufacturing a metal card according to the first embodiment of the present invention, FIG. 2 is an exploded perspective view showing the metal card which is manufactured using the manufacturing method, according to the first embodiment of the present invention, and FIG. 3 is a view showing various shapes of metal cards which are manufactured using the manufacturing method, according to the first embodiment of the present invention.

[24] As shown in the drawings, in order to manufacture a metal card 100, a metal sheet 110 having the same size as a general card is prepared. Since the size of the card is standardized, the metal sheet 110 having a width and a length, which are set according to the standardized size, is prepared.

[25] Further, since the height of the card, that is, the thickness of the card, is also standardized, the metal card 100 must comply with the preset standard. A general card has a thickness from 0.7mm to 0.84mm. Thus, a suitable metal sheet 110 must be prepared so that the thickness of the card including the metal sheet 110 is within the above-mentioned range.

[26] Print films 120 are provided on the upper and lower portions of the metal sheet 110, that is, the front and back surfaces of the metal sheet 110. Each print film 120 is used

to provide a pattern to the card. Generally, a print film 120 having a previously printed description is attached to the metal sheet 110. Further, the print film 120 may be prepared to have the same size as the card. However, if all contents of the card can be represented using only the pattern formed on the metal sheet 110, the print film need not be attached to the upper or lower portion of the metal sheet 110.

- [27] A transparent film 130 is attached to the upper surface of the print film 121, which is attached to the upper surface of the metal sheet 110, or to the lower surface of the print film 122, which is attached to the lower surface of the metal sheet 110. The transparent film 130 serves as a coating layer of the card. Magnetic tape is usually provided on transparent film 132, which is attached to the lower surface of the print film 122.
- [28] The method of manufacturing the metal card 100 will be described below in detail. The layering sequence of the metal card 100 is as follows. First, the transparent film 132 having the magnetic tape is provided at the lowermost position. The transparent film 132 having the magnetic tape must be cut to fit the size of the card.
- [29] The print film 122 is layered on the transparent film 132. Contents which are to be provided on the back surface of the card, and which may have decorative effects, are provided on the print film 122. The print film 122 must be cut to have the same size as the card. If the metal sheet 110 contains all of the contents of the card, the print film 122 need not be provided.
- [30] The metal sheet 110 is provided on the upper portion of the print film 122 or the transparent film 132. The metal sheet 110 must also have the same size as the card. The entire thickness of the card is determined by the thickness of the metal sheet 110. Thus, it is preferable that the thickness of the metal sheet 110 be determined to meet the standardized thickness of the card.
- [31] The metal sheet 110 may use several kinds of metal sheets 110 having a decorative effect, for example, a steel card, a pure-gold card, a silver card, an aluminum card, a titanium card, or other alloy cards. A metal sheet 110 having no pattern or uneven part on its front or back surface may be used as the metal sheet 110 of the present invention.
- [32] Further, a jewel 112, such as a diamond, may be inlaid into the center or side of the metal sheet 110. In order to inlay the jewel 112 into the metal sheet 110, various methods may be used. That is, after a hole is bored through the metal sheet 110, a jewel which is suitable for the hole may be inserted into the hole. Further, after a hole is bored through the metal sheet 110, a jewel may be fastened to the metal sheet 110 by riveting. Furthermore, a jewel may be inlaid directly into the metal sheet 110.
- [33] The jewel 112 inlaid into the metal sheet 110 may be a jewel having a decorative effect, such as a diamond, a sapphire, zircon, or an emerald.
- [34] The metal sheet 110 may comprise a flat metal sheet 110. Further, the metal sheet

110 may use a metal sheet having an embossed pattern, a metal sheet having a depressed pattern, or a metal sheet having both embossed and depressed patterns. That is, when the metal sheet is manufactured in relief or intaglio, the embossed or depressed pattern formed on the metal card 100 provides a special texture to a user.

[35] The embossed or depressed pattern of the metal sheet 110 may be formed on the surface of the metal sheet 110 through carving or etching.

[36] Meanwhile, in the case where a credit card is manufactured, a predetermined pattern (e.g. a pattern spelling "VISA") must essentially be provided at a predetermined position on the credit card. The pattern 111, such as "VISA", is provided on the print film through printing. Further, the pattern 111 may be provided on the metal sheet 110. Even in the case where the metal sheet 110 must be provided with an IC chip 113, the pattern 111 may be provided on the metal sheet 110.

[37] That is, when the metal card 100 is manufactured, a recess is formed in the card at a predetermined portion, so that a pattern, which must be essentially formed on the card, is provided in the recess.

[38] The print film 121 is provided on the upper portion of the metal sheet 110. Several contents, including the contents of the card or other designs having a decorative effect, may be printed on the print film 121 which is provided on the upper portion of the metal sheet 110. The above-mentioned contents are usually printed on the print film 121. The print film 121 is punched in advance to fit the size of the card. Preferably, the print film 121 is prepared to meet the standard of the card, using a plastic punching machine or the like. If the contents described on the metal sheet 110 contain all contents of the card, the print film 121 need not be provided.

[39] The transparent film 131 is provided on the upper portion of the print film 121 or the upper portion of the metal sheet 110. The print film 121, which is provided on the front surface (upper surface) of the card, is coated with the transparent film 131. In order to provide a good appearance to the entire card, the transparent film 131 is pressed against the print film 121 or the metal sheet 110, thus preventing the elements of the metal card 100 from being undesirably removed.

[40] The transparent film 132, the print film 122, the metal sheet 110, the print film 121, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. The transparent film 132, the print film 122, the metal sheet 110, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. Further, the transparent film 132, the metal sheet 110, the print film 121, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. Furthermore, the transparent film 132, the metal sheet 110, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. In this case,

the transparent film 130, the print film 120, and the metal sheet 110 have the same size as the card. Therefore, the present invention provides a method of manufacturing a metal card 100 that does not require an additional cutting operation after the transparent film 130, the print film 120, and the metal sheet 110 are pressed against each other.

[41] As necessary, after the transparent film 130 and the print film 120 are first pressed against each other, the pressed transparent film 130 and print film 120 may be placed on the front or back surface of the metal sheet 110, and may be pressed against the metal sheet 110.

[42] Further, materials other than the above-mentioned materials may additionally be provided between the transparent film 130, the print film 120, and the metal sheet 110.

[43] FIG. 4 is a flowchart illustrating a method of manufacturing a metal card, according to the second embodiment of the present invention, and FIG. 5 is an exploded perspective view showing the metal card which is manufactured using the manufacturing method, according to the second embodiment of the present invention.

[44] As shown in the drawings, in order to manufacture a metal card 100, a metal sheet 110 having the same size as a general card is prepared. Since the size of the card is standardized, the metal sheet 110 having a width and a length, which are set according to the standardized size, is prepared.

[45] Further, since the height of the card, that is, the thickness of the card, is also standardized, the metal card 100 must comply with the preset standard. A general card has a thickness from 0.7mm to 0.84mm. Thus, a suitable metal sheet 110 must be prepared so that the thickness of the card including the metal sheet 110 is within the above-mentioned range.

[46] Print films 120 are provided on the upper and lower portions of the metal sheet 110, that is, the front and back surfaces of the metal sheet 110. Each print film 120 is used to provide a pattern to the card. Generally, a print film 120 having a previously printed description is attached to the metal sheet 110. Unlike the first embodiment, the print film 120, which is larger than the card, is prepared. However, if all contents of the card can be represented using only the pattern formed on the metal sheet 110, the print film 121 or 122 need not be attached to the upper or lower portion of the metal sheet 110.

[47] Transparent films 131 and 132 are attached, respectively, to the upper surface of the print film 121, which is attached to the upper surface of the metal sheet 110, and to the lower surface of the print film 122, which is attached to the lower surface of the metal sheet 110, or the lower surface of the metal sheet 110. The transparent films 131 and 132 serve as coating layers of the card. Magnetic tape is usually provided on transparent film 132, which is attached to the lower surface of the print film 122.

[48] The method of manufacturing the metal card 100 will be described below in detail.

The layering sequence of the metal card 100 is as follows. First, the transparent film 132 having the magnetic tape is provided at the lowermost position. Unlike the embodiment illustrated in FIG. 1, it is unnecessary to cut the transparent film 132 so that it has the same size as the card.

- [49] The print film 122 is layered on the transparent film 132. Contents which are to be provided on the back surface of the card, and which may have decorative effects, are provided on the print film 122. Unlike the embodiment illustrated in FIG. 1, it is unnecessary to cut the print film 122 so that it has the same size as the card. If the metal sheet 110 contains all of the contents of the card, the print film 122 need not be provided.
- [50] The metal sheet 110 is provided on the upper portion of the print film 122 or the transparent film 132. The metal sheet 110 must also have the same size as the card. The entire thickness of the card is determined by the thickness of the metal sheet 110. Thus, it is preferable that the thickness of the metal sheet 110 be determined to meet the standardized thickness of the card.
- [51] The metal sheet 110 may use several kinds of metal sheets 110 having a decorative effect, for example, a steel card, a pure-gold card, a silver card, an aluminum card, a titanium card, or other alloy cards. A metal sheet 110 having no pattern or uneven part on its front or back surface may be used as the metal sheet 110 of the present invention.
- [52] Further, a jewel 112, such as a diamond, may be inlaid into the center or edge of the metal sheet 110. In order to inlay the jewel 112 into the metal sheet 110, various methods may be used. That is, after a hole is bored through the metal sheet 110, a jewel which is suitable for the hole may be inserted into the hole. Further, after a hole is bored through the metal sheet 110, a jewel may be fastened to the metal sheet 110 by riveting. Furthermore, a jewel may be inlaid directly into the metal sheet 110.
- [53] The jewel 112 inlaid into the metal sheet 110 may be a jewel having a decorative effect, such as a diamond, a sapphire, zircon, or an emerald.
- [54] The metal sheet 110 may comprise a flat metal sheet 110. Further, the metal sheet 110 may use a metal sheet having an embossed pattern, a metal sheet having a depressed pattern, or a metal sheet having both embossed and depressed patterns. That is, when the metal sheet is manufactured in relief or intaglio, the embossed or depressed pattern formed on the metal card 100 provides a special texture to a user.
- [55] The embossed or depressed pattern of the metal sheet 110 may be formed on the surface of the metal sheet 110 through carving or etching.
- [56] Meanwhile, in the case where a credit card is manufactured, a predetermined pattern (e.g. a pattern spelling "VISA") must essentially be provided at a predetermined position on the credit card. The pattern 111, such as "VISA", is provided on the print

film through printing. Further, the pattern 111 may be provided on the metal sheet 110. Even in the case where the metal sheet 110 must be provided with an IC chip 113, the pattern 111 may be provided on the metal sheet 110.

- [57] That is, when the metal card 100 is manufactured, a recess is formed in the card at a predetermined portion, so that a pattern, which must be essentially formed on the card, is provided in the recess.
- [58] The print film 121 is provided on the upper portion of the metal sheet 110. Several contents, including the contents of the card or other designs having a decorative effect, may be printed on the print film 121 which is provided on the upper portion of the metal sheet 110. The above-mentioned contents are usually printed on the print film 121. It is unnecessary to cut the print film 121 in advance so that it has the same size as the card, unlike the embodiment illustrated in FIG. 1. If the contents described on the metal sheet 110 contain all contents of the card, the print film 121 need not be provided.
- [59] The transparent film 131 is provided on the upper portion of the print film 121 or the upper portion of the metal sheet 110. The print film 121, which is provided on the front surface (upper surface) of the card, is coated with the transparent film 131. In order to provide a good appearance to the entire card, the transparent film 131 is pressed against the print film 121 or the metal sheet 110, thus preventing the elements of the metal card 100 from being undesirably removed.
- [60] The transparent film 132, the print film 122, the metal sheet 110, the print film 121, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. The transparent film 132, the print film 122, the metal sheet 110, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. Further, the transparent film 132, the metal sheet 110, the print film 121, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. Furthermore, the transparent film 132, the metal sheet 110, and the transparent film 131 may be layered in sequence in a direction from the bottom to the top of the metal card 100. In this state, the transparent film 130, the print film 120, and the metal sheet 110 are pressed against each other so that they are not separated from each other. After pressing, it is possible to cut the transparent film 130 and the print film 120, which are larger than the card, using a punching machine.
- [61] As necessary, after the transparent film 130 and the print film 120 are first pressed against each other, the pressed transparent film 130 and print film 120 may be placed on the front or back surface of the metal sheet 110, and may be pressed against the metal sheet 110.
- [62] Further, materials other than the above-mentioned materials may additionally be

provided between the transparent film 130, the print film 120, and the metal sheet 110.

[63] Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

- [1] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet and a transparent film to fit a size of the metal card;
layering the transparent film, the metal sheet, and the transparent film in sequence in a direction from a bottom to a top of the metal card; and
pressing the layered transparent film and metal sheet, using a press.
- [2] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet, a print film, and a transparent film to fit a size of the metal card;
layering the transparent film, the print film, the metal sheet, and the transparent film in sequence in a direction from a bottom to a top of the metal card; and
pressing the layered transparent film, print film, and metal sheet, using a press.
- [3] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet, a print film, and a transparent film to fit a size of the metal card;
layering the transparent film, the metal sheet, the print film, and the transparent film in sequence in a direction from a bottom to a top of the metal card; and
pressing the layered transparent film, print film, and metal sheet, using a press.
- [4] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet, a print film, and a transparent film to fit a size of the metal card;
layering the transparent film, the print film, the metal sheet, the print film, and the transparent film in sequence in a direction from a bottom to a top of the metal card; and
pressing the layered transparent film, print film, and metal sheet, using a press.
- [5] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet to fit a size of the metal card;
layering a transparent film, the metal sheet, and a transparent film in sequence in a direction from a bottom to a top of the metal card;
pressing the layered transparent film and metal sheet, using a press; and
punching to cut the transparent film to fit the size of the metal card.
- [6] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet to fit a size of the metal card;
layering a transparent film, a print film, the metal sheet, and a transparent film in sequence in a direction from a bottom to a top of the metal card;
pressing the layered transparent film, print film, and metal sheet, using a press;

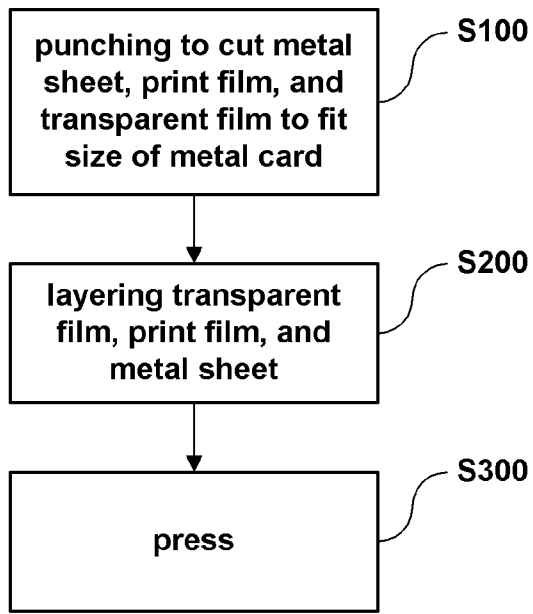
- and
punching to cut the print film and the transparent film to fit the size of the metal card.
- [7] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet to fit a size of the metal card;
layering a transparent film, the metal sheet, a print film, and a transparent film in sequence in a direction from a bottom to a top of the metal card;
pressing the layered transparent film, print film, and metal sheet, using a press;
and
punching to cut the print film and the transparent film to fit the size of the metal card.
- [8] A method of manufacturing a metal card having a metal sheet, comprising:
punching to cut the metal sheet to fit a size of the metal card;
layering a transparent film, a print film, the metal sheet, a print film, and a transparent film in sequence in a direction from a bottom to a top of the metal card;
pressing the layered transparent film, print film, and metal sheet, using a press;
and
punching to cut the print film and the transparent film to fit the size of the metal card.
- [9] The method according to any one of claims 1 to 8, wherein the metal sheet is selected from one of a steel card, a pure-gold card, a silver card, an aluminum card, a titanium card, and other alloy cards.
- [10] The method according to any one of claims 1 to 8, wherein one jewel or a plurality of jewels is inlaid into a center or an edge of the metal sheet.
- [11] The method according to claim 10, wherein the jewel comprises one of a diamond, a sapphire, zircon, and an emerald, or comprises two or more selected from among the diamond, the sapphire, the zircon, and the emerald.
- [12] The method according to claim 10, wherein a method of inlaying the jewel into the metal sheet comprises one of:
a method of boring a hole in the metal sheet, and inserting a jewel which is appropriately sized for the hole into the hole;
a method of fastening the jewel to the metal sheet by riveting; and
a method of directly inserting the jewel into the metal sheet.
- [13] The method according to any one of claims 1 to 8, wherein the metal sheet comprises a metal sheet having an embossed pattern and/or a depressed pattern.
- [14] The method according to claim 13, wherein the embossed pattern and/or the depressed pattern are formed on a surface of the metal sheet through carving or

etching.

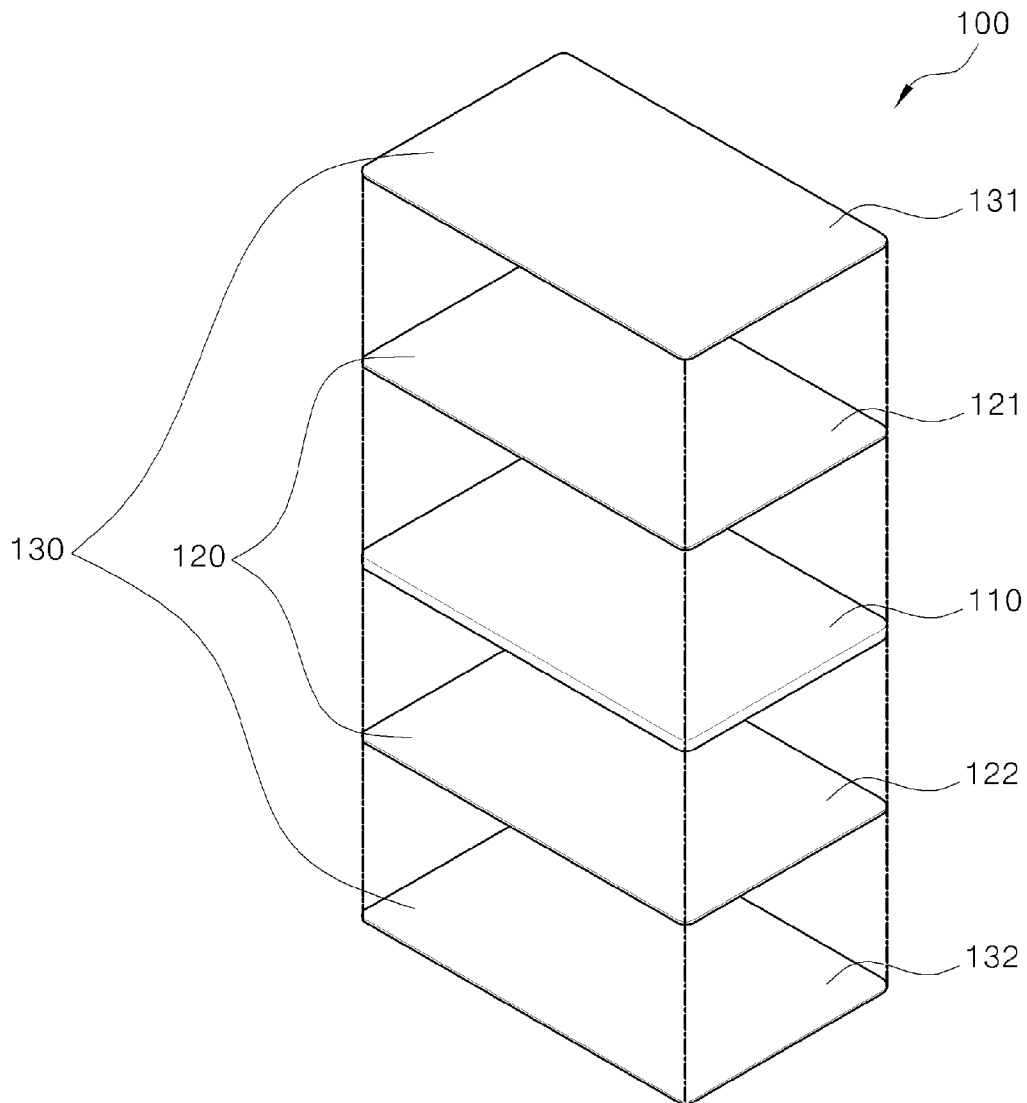
[15] The method according to any one of claims 1 to 8, wherein the metal sheet further comprises a recess in which a pattern essential for the metal card is provided.

[16] A metal card manufactured through a manufacturing method according to claims 1 to 8.

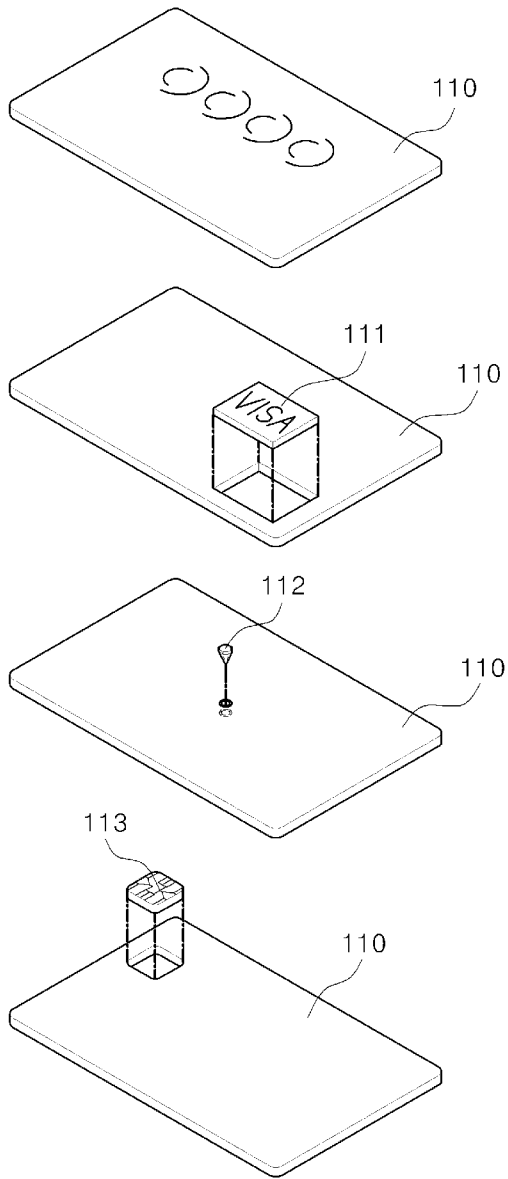
[Fig. 1]



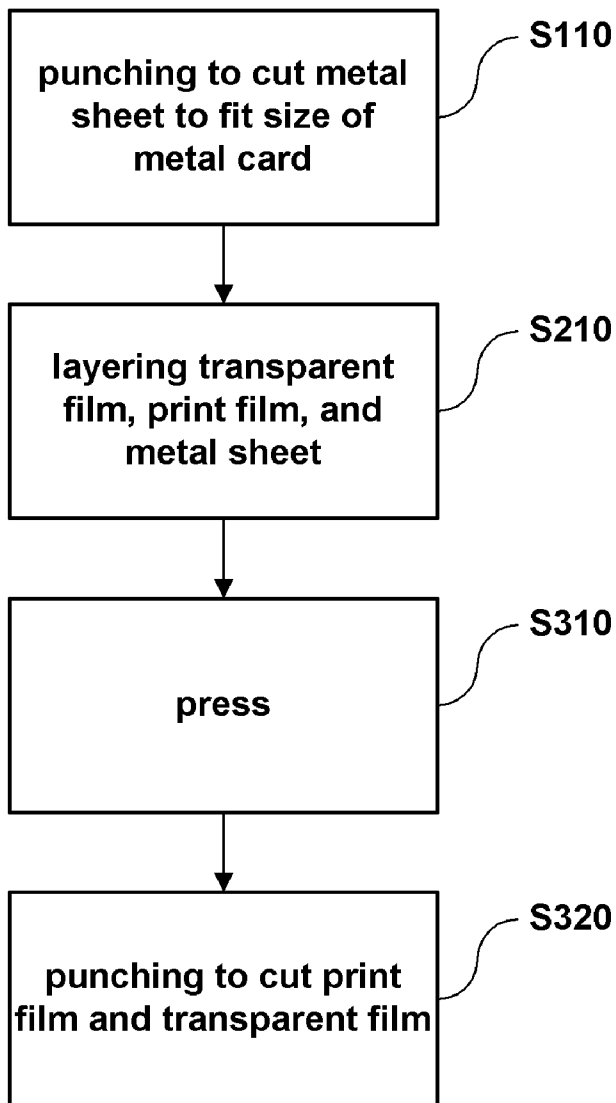
[Fig. 2]



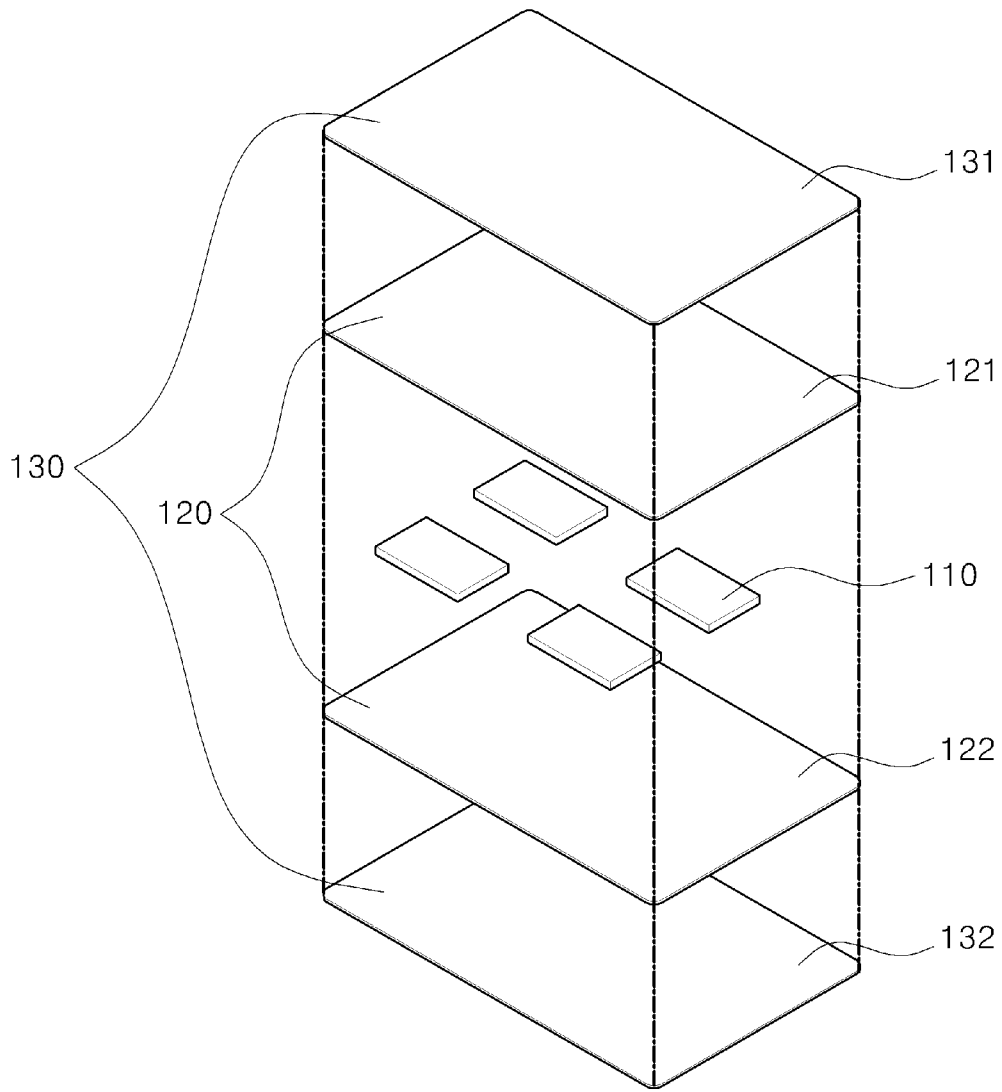
[Fig. 3]



[Fig. 4]



[Fig. 5]



A. CLASSIFICATION OF SUBJECT MATTER**G06K 19/077(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 8 : G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO Internal)

"Keywords: Metal card, sheet, transparent, press, jewel, boring, hole, riveting, pattern, recess"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,522,549 B2 (KENICHI KANO et al.) 18 February 2003 See column 4, line 21-column 6, line 28 and figure 1	1-16
Y	KR 10-2005-0114593 A (JT CO., LTD.) 6 December 2005 See pages 3-5 and figure 2	1-16
A	KR 10-2005-0019967 A (KDNSMARTEC CO., LTD.) 4 March 2005 See abstract and figure 1	1-16
A	US 2007-0152834 A1 (IKUO MIMURA et al.) 5 July 2007 See abstract and figures 1-2	1-16

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

29 SEPTEMBER 2008 (29.09.2008)

Date of mailing of the international search report

29 SEPTEMBER 2008 (29.09.2008)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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