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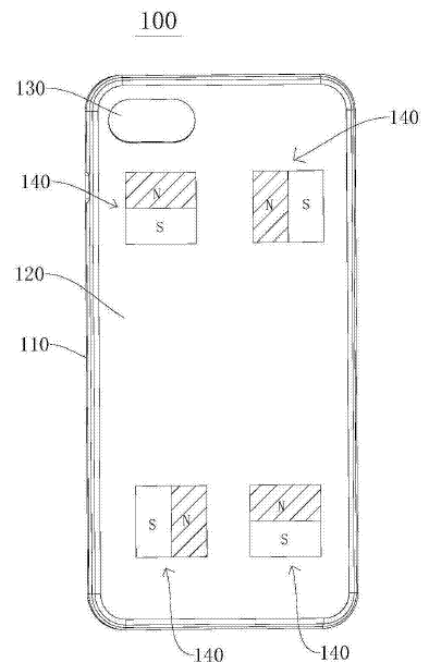
1 page of claims, 4 pages of description, and 5 pages of drawings

(54) Title of the Invention

MOBILE PHONE CASE ASSEMBLY, MOBILE PHONE
CASE THEREOF, MOBILE PHONE CLIP AND
COMBINATION METHOD THEREOF

(57) Abstract

A mobile phone case assembly, a mobile phone case thereof, a mobile phone clip and a combination method thereof, wherein the mobile phone case comprises a body, a plurality of first magnet groups are fixedly provided on the back of the body, the plurality of first magnet groups are arranged in at least two rows and at least two columns, each first magnet group has magnets arranged flatly with magnetic poles arranged alternately, some first magnet groups have magnets arranged horizontally, and the remaining first magnet groups have magnets arranged vertically. A back plate of the mobile phone clip is fixedly provided with a plurality of second magnet groups, each second magnet group has magnets arranged flatly with magnetic poles arranged alternately, some second magnet groups have magnets arranged horizontally, and the remaining second magnet groups have magnets arranged vertically. The mobile phone case assembly comprises the mobile phone case and the mobile phone clip described above. The method comprises placing the mobile phone case on the back plate of the mobile phone clip, wherein each magnet in the second magnet groups interacts with a corresponding magnet in a corresponding first magnet group to accurately position and fix the mobile phone clip to the mobile phone case. The present invention can quickly and accurately combine and fix the mobile phone clip with the mobile phone case.



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1. A mobile phone case, comprising a body, characterized in that: a plurality of first magnet groups are fixedly provided on the back of the body, the plurality of first magnet groups are arranged in at least two rows and at least two columns on the back of the body, each first magnet group has magnets arranged flatly on the back of the body with magnetic poles arranged alternately, at least one first magnet group has magnets arranged horizontally, and at least one first magnet group has magnets arranged vertically.

2. The mobile phone case according to claim 1, characterized in that: the number of the first magnet groups is four, the four first magnet groups are arranged in a rectangle, the magnets of two first magnet groups are arranged horizontally, and the magnets of the other two first magnet groups are arranged vertically.

3. The mobile phone case according to claim 2, characterized in that: the two first magnet groups are located at two diagonal corners of the rectangle, and the other two first magnet groups are located at the other two diagonal corners of the rectangle.

4. The mobile phone case according to claim 1, characterized in that: a second concave cavity is formed at the center of the back of the body, the second concave cavity is used to removably mount a magnetic attraction member connected to a mobile phone holder, and the second concave cavity is located at an inner end of the back of the body.

5. The mobile phone case according to claim 1, characterized in that: a plurality of first concave cavities are formed at an outer end of the back of the body, and the plurality of first magnet groups are correspondingly provided in the plurality of first concave cavities and fixed by a soft rubber layer provided on the back of the body.

6. A mobile phone clip, comprising a back plate, a panel and a flexible connecting portion connecting the back plate and the panel, characterized in that: the back plate is fixedly provided with a plurality of second magnet groups, each second magnet group has magnets arranged flatly on the back plate with magnetic poles arranged alternately, at least one second magnet group has magnets arranged horizontally, and at least one second magnet group has magnets arranged vertically.

7. A mobile phone case assembly, comprising a mobile phone case and a mobile phone clip, characterized in that: the mobile phone case is the mobile phone case according to any one of claims 1 to 5, and the mobile phone clip is the mobile phone clip according to claim 6.

8. A method for combining a mobile phone clip and a mobile phone case, characterized in that the method comprises:

providing the mobile phone case according to any one of claims 1 to 5 and the mobile phone clip according to claim 6; and

placing the mobile phone case on the back plate of the mobile phone clip, wherein each magnet in the plurality of second magnet groups interacts with a corresponding magnet in a corresponding first magnet group to accurately position and fix the mobile phone clip to the mobile phone case.

**MOBILE PHONE CASE ASSEMBLY, MOBILE PHONE CASE THEREOF, MOBILE
PHONE CLIP AND COMBINATION METHOD THEREOF**

Technical Field

[0001] The present invention relates to the field of mobile phone accessories, and in particular to a mobile phone case, a mobile phone clip, a mobile phone case assembly consisting of the mobile phone case and the mobile phone clip, and a method for combining the mobile phone case and the mobile phone clip.

Background Art

[0002] Mobile phone cases and mobile phone clips are commonly used mobile phone accessories, which are used to protect the appearance of mobile phones from scratches, wear, etc. A mobile phone case can only protect the back and sides of a mobile phone but cannot protect the screen of the mobile phone. However, a mobile phone clip includes a back plate and a panel, and the back plate and one side of the panel are connected by a flexible connecting portion, so that the panel can be easily covered to the mobile phone screen and opened from the mobile phone screen, which can effectively protect the screen of the mobile phone. The mobile phone case and the mobile phone clip are combined to form a mobile phone case assembly, which can be conveniently used in different environments. For example, in most cases, the combination of the two can fully protect the back, sides and screen of the mobile phone. If the mobile phone case assembly needs to be mounted on a mobile phone holder, for example, when using a car navigation system or being mounted on a selfie stick, the mobile phone clip is removed, and the mobile phone case can still provide some protection for the mobile phone.

[0003] Magnetic connection is a commonly used connection method, but an ordinary magnetic connection structure can only realize the connection function and cannot accurately position two connected bodies. If this magnetic connection structure is used for combining a mobile phone case and a mobile phone clip, it is necessary to manually adjust the positions of the two to align them during use, which is not convenient to use.

Summary of the Invention

[0004] One object of the present invention is to provide a mobile phone case which can automatically and accurately position a connected body (such as a mobile phone clip) when it is connected to the connected body.

[0005] A second object of the present invention is to provide a mobile phone clip which can be used in cooperation with the mobile phone case, wherein the two can be automatically positioned.

[0006] A third object of the present invention is to provide a mobile phone case assembly in which a mobile phone clip and a mobile phone case can be automatically positioned when they are combined.

[0007] A fourth object of the present invention is to provide a method for combining a mobile phone clip and a mobile phone case.

[0008] To achieve the above-mentioned first object, the present invention provides a mobile phone case comprising a body, wherein a plurality of first magnet groups are fixedly provided on the back of the body, the plurality of first magnet groups are arranged in at least two rows and at least two columns on the back of the body, each first magnet group has magnets arranged flatly on the back of the body with magnetic poles arranged alternately, at least one first magnet group has magnets arranged horizontally, and at least one first magnet group has magnets arranged vertically.

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[0009] In the above-mentioned mobile phone case, preferably, the number of the first magnet groups is four, the four first magnet groups are arranged in a rectangle, the magnets of two first magnet groups are arranged horizontally, and the magnets of the other two first magnet groups are arranged vertically.

[0010] In the above-mentioned mobile phone case, preferably, the two first magnet groups are located at two diagonal corners of the rectangle, and the other two first magnet groups are located at the other two diagonal corners of the rectangle.

[0011] In the above-mentioned mobile phone case, preferably, a second concave cavity is formed at the center of the back of the body, the second concave cavity is used to removably mount a magnetic attraction member connected to a mobile phone holder, and the second concave cavity is located at an inner end of the back of the body.

[0012] In the above-mentioned mobile phone case, preferably, a plurality of first concave cavities are formed at an outer end of the back of the body, and the plurality of first magnet groups are correspondingly provided in the plurality of first concave cavities and fixed by a soft rubber layer provided on the back of the body.

[0013] To achieve the above-mentioned second object, the present invention provides a mobile phone clip comprising a back plate, a panel and a flexible connecting portion connecting the back plate and the panel, wherein the back plate is fixedly provided with a plurality of second magnet groups, each second magnet group has magnets arranged flatly on the back plate with magnetic poles arranged alternately, at least one second magnet group has magnets arranged horizontally, and at least one second magnet group has magnets arranged vertically.

[0014] To achieve the above-mentioned third object, the present invention provides a mobile phone case assembly comprising a mobile phone case and a mobile phone clip, the mobile phone case is the mobile phone case described in any one of the above items, and the mobile phone clip is the mobile phone clip described in any one of the above items.

[0015] To achieve the above-mentioned fourth object, the present invention provides a method for combining a mobile phone clip and a mobile phone case, comprising: providing the mobile phone case and the mobile phone clip described in any one of the above items; and placing the mobile phone case on the back plate of the mobile phone clip, wherein each magnet in the plurality of second magnet groups interacts with a corresponding magnet in a corresponding first magnet group to accurately position and fix the mobile phone clip to the mobile phone case.

[0016] Compared with the prior art, the present invention has at least the following beneficial technical effects:

[0017] By setting the number of magnet groups, the arrangement direction of the magnets in each magnet group and the direction of the magnetic poles, the magnet groups not only function to attract and fix the mobile phone case and an connected object (such as a mobile phone clip), but also can finely adjust the relative position of the connected object and the mobile phone case by using the magnetic force of unit magnets forming the magnet groups, so that the connected object and the mobile phone case are automatically and accurately positioned.

Brief Description of the Drawings

[0018] Fig. 1 is a schematic structural diagram of a mobile phone case of a first embodiment;

[0019] Fig. 2 is a distribution diagram of magnet groups of the mobile phone case of the first embodiment;

[0020] Fig. 3 is a distribution diagram of magnet groups of a mobile phone case of a second embodiment;

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[0021] Fig. 4 is a distribution diagram of magnet groups of a mobile phone clip of a third embodiment; and

[0022] Fig. 5 is a schematic structural diagram of a mobile phone case assembly of a fourth embodiment.

Detailed Description of the Preferred Embodiments

[0023] The present utility model will be further described below with reference to the accompanying drawings and embodiments.

[0024] Fig. 1 shows a front structure of a mobile phone case 100 of a first embodiment, and Fig. 2 shows a back structure of the mobile phone case after a soft rubber layer 150 is removed. Referring to Figs. 1 and 2, the mobile phone case 100 of the first embodiment includes a body 110. Four first magnet groups 140 are fixedly provided on the back 120 of the body 110. The four first magnet groups 140 are arranged in two rows and two columns on the back 120 of the body 110. Each first magnet group 140 consists of two magnets 141 and 142. The magnets 141 and 142 of each first magnet group 140 are arranged flatly on the back 120 of the body, with the N pole of one magnet facing upward and the S pole of the other magnet facing upward (that is, the magnetic poles are arranged alternately). The magnets 141 and 142 of at least one first magnet group 140 are arranged horizontally, and the magnets 141 and 142 of at least one first magnet group 140 are arranged vertically.

[0025] A plurality of first concave cavities are formed in an outer end of the back 120 of the body 110, and the four first magnet groups 140 are correspondingly arranged in the plurality of first concave cavities and fixed by the soft rubber layer 150 arranged on the back 120 of the body. The soft rubber layer 150, on the one hand, fixes the first magnet groups 140, and, on the other hand, provides anti-slip and anti-wear functions.

[0026] Referring to Fig. 1, a second cavity is further formed at the center on the back of the body 110, and the second cavity is used to removably mount a magnetic attraction member 160 connected to a mobile phone holder. The second cavity is located at an inner end of the back of the body 110, that is, an end facing a mobile phone. The magnetic attraction member 160 is used to combine with the magnetic attraction member on the mobile phone holder to fix the mobile phone case 100 to the mobile phone holder. With this design, not only can the magnetic attraction fixation between the mobile phone case 100 and the mobile phone holder be conveniently realized, but also the magnetic attraction member 160 can be conveniently removed and attached to other parts of the mobile phone case 100, such as the top or bottom, so as to avoid affecting the charging effect during wireless charging. The magnetic attraction member 160 may be an iron sheet or a magnetic sheet coated with a micro-suction adhesive layer, or may also be a micro-suction adhesive sheet mixed with magnetic powder, etc. Through a micro-suction adhesive, the magnetic attraction member 160 can be adsorbed to and separated from the mobile phone case 100 for an unlimited number of times.

[0027] In the first embodiment, to avoid a lens hole 130, two unit magnets of one first magnet group 140 are provided on both sides of the lens hole 130, respectively.

[0028] Fig. 3 shows a distribution of magnet groups of a mobile phone case of a second embodiment. Referring to Fig. 3, the mobile phone case 100 of the second embodiment includes a body 110. Four first magnet groups 140 are fixedly provided on the back 120 of the body 110. The four first magnet groups 140 are arranged in a rectangle on the back 120 of the body 110. Each first magnet group 140 consists of two magnets 141 and 142. The magnets 141 and 142 of each first magnet group 140 are arranged flatly on the back 120 of the body with magnetic poles arranged alternately. The magnets 141 and 142 of two first

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magnet groups 140 are arranged horizontally, and the magnets 141 and 142 of the other two first magnet groups 140 are arranged vertically.

[0029] The two first magnet groups are located at two diagonal corners of the rectangle, and the other two first magnet groups are located at the other two diagonal corners of the rectangle. This structure can better realize the positioning of the mobile phone case 100. However, the present invention is not limited thereto. The number of magnets in each first magnet group may be more, and the arrangement direction only needs to meet the following conditions: the magnets of at least one first magnet group are arranged horizontally, and the magnets of at least one first magnet group are arranged vertically.

[0030] Fig. 4 shows a distribution of magnet groups of a mobile phone clip 200 of a third embodiment. Referring to Fig. 4, the mobile phone clip 200 of the third embodiment includes a back plate 210, a panel 230, and a flexible connecting portion 220 connecting the back plate 210 and the panel 230. Four second magnet groups 240 are fixedly provided on the back plate 210. Each second magnet group 240 includes two magnets 241 and 242. The magnets 241 and 242 of each second magnet group 240 are arranged flatly on the back plate 210, with the N pole of one magnet facing upward and the S pole of the other magnet facing upward (that is, the magnetic poles are arranged alternately). The magnets 241 and 242 of at least one second magnet group 240 are arranged horizontally, and the magnets 241 and 242 of at least one second magnet group 240 are arranged vertically.

[0031] The mobile phone clip 200 of the third embodiment cooperates with the mobile phone case 100 of the first embodiment to form a phone case assembly of a fourth embodiment mobile, as shown in Fig. 5. The mobile phone case 100 and mobile phone clip 200 of this mobile phone case assembly can be quickly and conveniently combined, and the mobile phone clip 200 and mobile phone case 100 can be automatically and accurately positioned.

[0032] The above-mentioned mobile phone clip 200 is only one embodiment. In specific applications, the number and arrangement of the second magnet groups in the mobile phone clip 200, and the number and arrangement direction of unit magnets forming each second magnet group are not limited to those in the third embodiment and may be any implementation corresponding to the first magnet groups in the mobile phone case 100.

[0033] In some embodiments, a method for combining a mobile phone clip and a mobile phone case include: providing the mobile phone case 100 and the mobile phone clip 200 described above; and placing the mobile phone case 100 on the back plate 230 of the mobile phone clip 200, wherein each magnet in the plurality of second magnet group 240 interacts with a corresponding magnet in a corresponding first magnet group 140 to accurately position and fix the mobile phone clip 200 to the mobile phone case 100.

[0034] In the embodiments described above, by setting the number of magnet groups, the arrangement direction of the magnets in each magnet group and the direction of the magnetic poles, the magnet groups not only function to attract and fix the mobile phone case 100 and the mobile phone clip 200, but also can finely adjust the relative position of the mobile phone case 100 and the mobile phone clip 200 by using the magnetic force of the unit magnets forming the magnet groups, so that the mobile phone case 100 and the mobile phone clip 200 are automatically and accurately positioned.

[0035] The present utility model has been described in detail by means of the specific embodiments above. These detailed descriptions are only intended to help those skilled in the art understand the content of the present utility model and should not be construed as limiting the scope of protection of the present utility model. Various modifications, equivalent transformations, etc. made by those skilled in the art to the above-mentioned solutions under the conception of the present utility model should be included in the scope of protection of the present utility model.

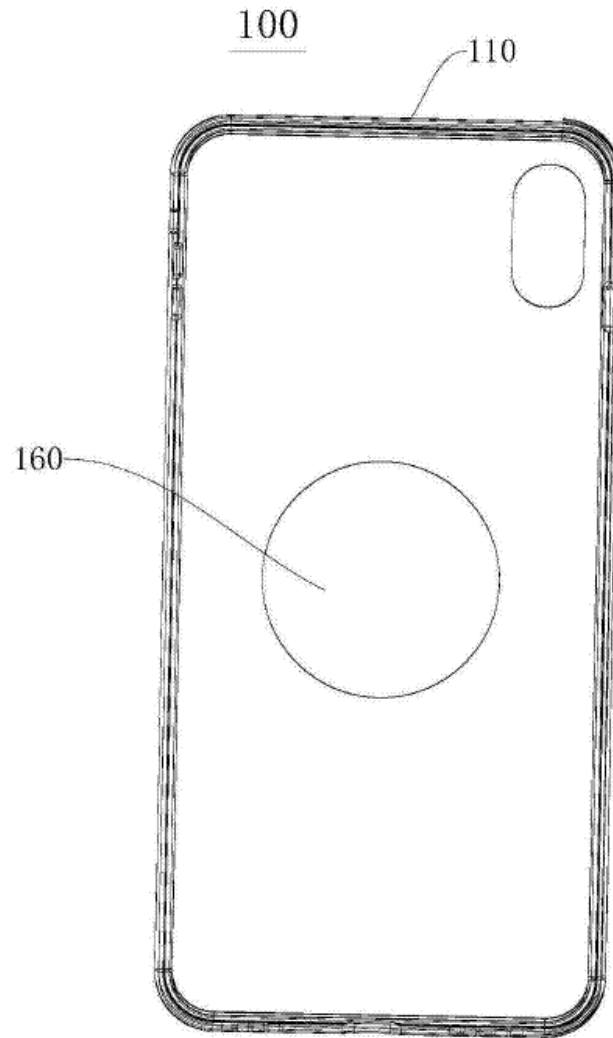


Fig. 1

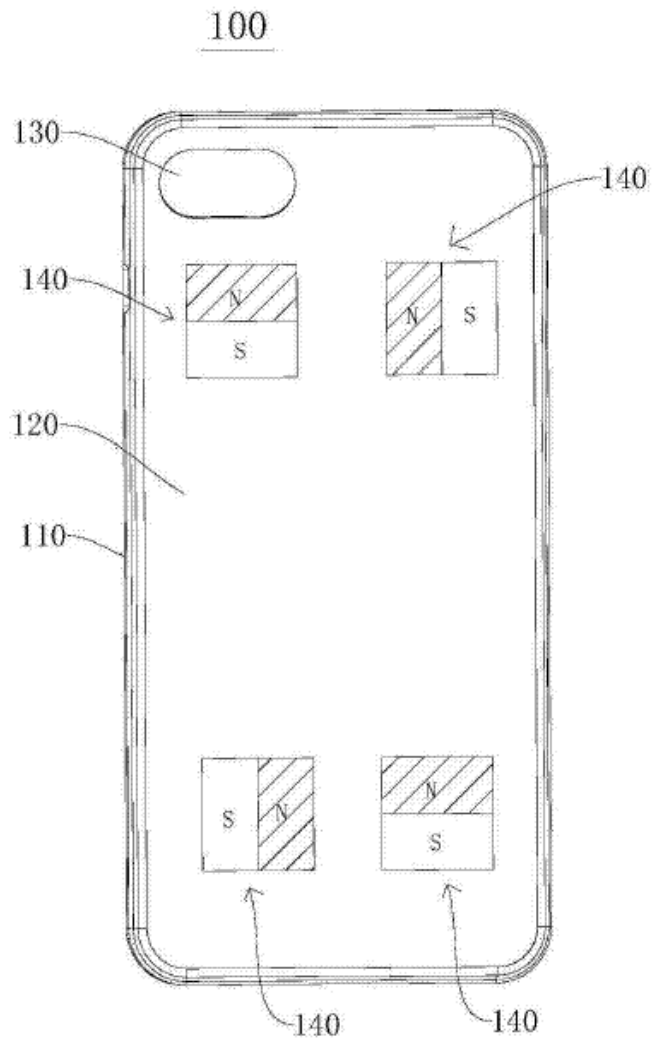


Fig. 3

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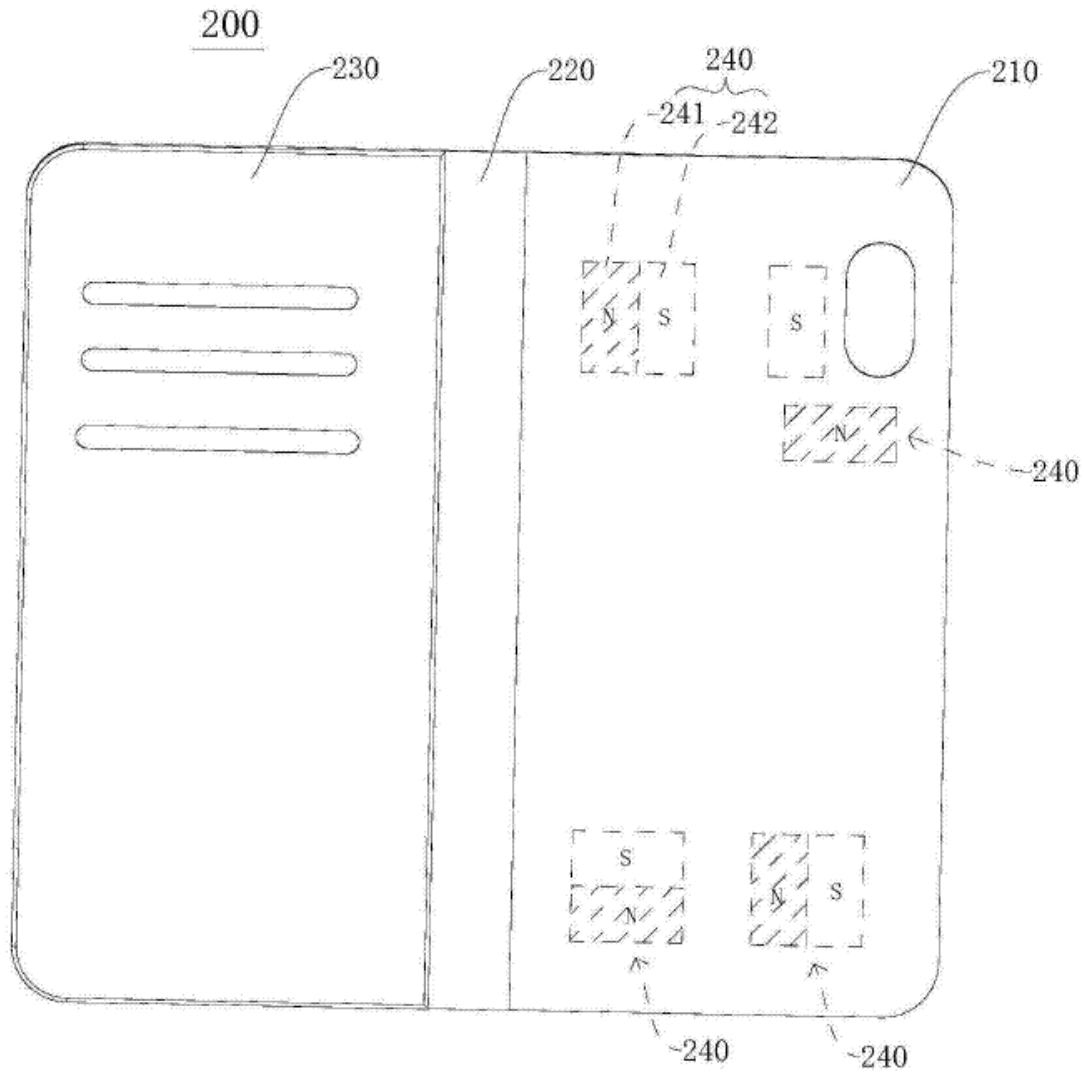


Fig. 4

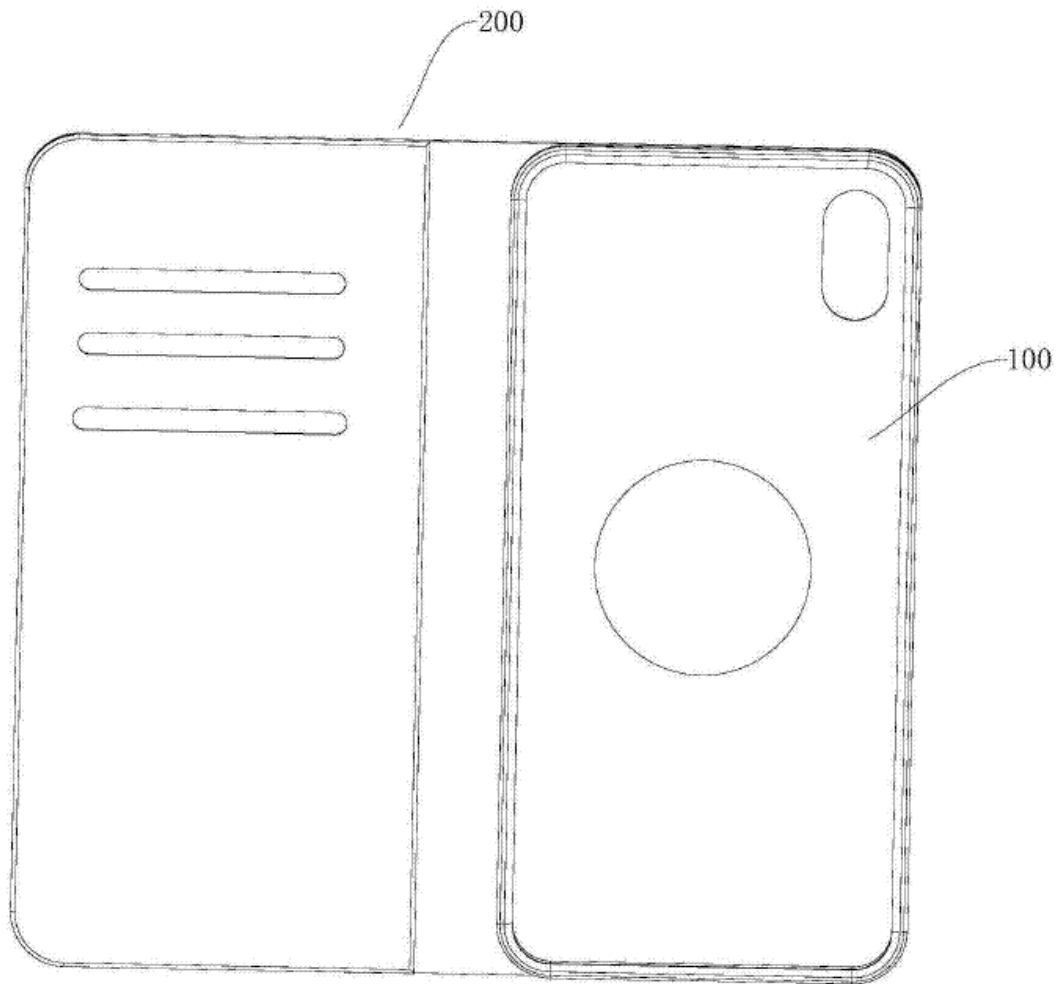


Fig. 5

TRANSLATION CERTIFICATION

Date: 2025/05/02

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