

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

Assignment ID: PATI1609538

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
Intellectual Discovery Co., Ltd		02/13/2026
RECEIVING PARTY DATA		
Company Name:	Magnova, LLC	
Street Address:	2021 Guadalupe Street	
Internal Address:	Dobie Center, Suite 260	
City:	Austin	
State/Country:	TEXAS	
Postal Code:	78705	
PROPERTY NUMBERS Total: 11		
Property Type	Number	
Application Number:	62511280	
Application Number:	63650790	
Application Number:	19275610	
Patent Number:	10469119	
Patent Number:	11101838	
Patent Number:	11863223	
Patent Number:	12052044	
Patent Number:	12081257	
Patent Number:	12388482	
Patent Number:	12224788	
Patent Number:	12191902	
CORRESPONDENCE DATA		
Fax Number:		
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
Phone:	2122028191	
Email:	albert.lee@aju-ipg.com	
Correspondent Name:	Mr. Albert Lee	
Address Line 1:	1800 Diagonal Road	
Address Line 2:	Suite 600	

Address Line 4: Alexandria, VIRGINIA 22314	
NAME OF SUBMITTER:	Albert Lee
SIGNATURE:	/Albert Lee/
DATE SIGNED:	02/14/2026
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 2 source=Patent Assignment Agreement - ID to Magnova 20260213#page1.tiff source=Patent Assignment Agreement - ID to Magnova 20260213#page2.tiff	

EXHIBIT B

PATENT ASSIGNMENT AGREEMENT

WHEREAS, **Intellectual Discovery Co. Ltd**, having a place of business at 33rd Fl., 152, Teheran-ro, Gangnam-gu, Seoul, 06236, Republic of Korea (hereinafter "SELLER") is the sole and exclusive owner of certain United States and/or foreign patents and/or patent applications listed in Schedule A annexed hereto (collectively referred to as the "Patents"); and

WHEREAS **Magnova, LLC**, having a place of business at 2021 Guadalupe Street, Dobie Center, Suite 260, AUSTIN, 78705, U.S.A (hereinafter "PURCHASER") is desirous of acquiring the right, title and interest in, to and under the said Patents (and all foreign counterparts and related foreign patents).

Now, Therefore,

For good and valuable consideration, the receipt of which is hereby acknowledged, SELLER does hereby sell, assign, transfer and set over to PURCHASER, the Patents aforesaid, and any inventions claimed in said Patent, any reissue or reissues of said Patents already granted and which may be granted, any certificates of reexamination already granted and which may be granted the same to be held and enjoyed by PURCHASER for its own use and enjoyment, and for the use and enjoyment of its successors, assigns or other legal representatives, to the end of the term or terms for which said Patents are or may be granted, reissued or extended as fully and entirely as the same would have been held and enjoyed by SELLER, if this assignment and sale had not been made; together with all claims for damages by reason of past, current, and future infringement and/or provisional rights under said Patents, with the right to sue for, and collect the same for its own use and behalf, and for the use and behalf of its successors, assigns or other legal representatives.

And, SELLER, hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all Letters Patents of the United States on said inventions to PURCHASER as assignee of the entire interest.

In Witness Whereof, SELLER has executed this Assignment by its duly authorized representative.

SELLER

By: _____

Name: Dongsuk Bae

Title: Executive Vice President (IP Head)

Date: _____

Feb 13, 2026

Schedule A

List of Patents

No.	Country	Application No.	Filed	Patent No.	Issued
1	KR	2024-0066976	2024.05.23	-	-
2	KR	2024-0075462	2024.06.11	-	-
3	US	62-511280	2017.05.25	-	-
4	US	15-989033	2018.05.24	10469119	2019.11.05
5	US	16-581596	2019.09.24	11101838	2021.08.24
6	US	17-443183	2021.07.22	11863223	2024.01.02
7	US	18-518265	2023.11.22	12052044	2024.07.30
8	US	18-518303	2023.11.22	12081257	2024.09.03
9	US	18-535674	2023.12.11	12388482	2025.08.12
10	US	18-660932	2024.05.10	12224788	2025.02.11
11	US	63-650790	2024.05.22	-	-
12	US	18-768599	2024.07.10	12191902	2025.01.07
13	US	19-275610	2025.07.21	-	-

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

Assignment ID: PATI1490152

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Spigen, Korea Co., Ltd.	12/12/2025
RECEIVING PARTY DATA	
Company Name:	Intellectual Discovery Co. Ltd.
Street Address:	7th Floor, 419 Teheran-ro
Internal Address:	Gangnam-gu
City:	Seoul
State/Country:	KOREA, REPUBLIC OF
Postal Code:	06160
PROPERTY NUMBERS Total: 11	
Property Type	Number
Application Number:	62511280
Application Number:	63650790
Application Number:	19275610
Patent Number:	10469119
Patent Number:	11101838
Patent Number:	11863223
Patent Number:	12052044
Patent Number:	12081257
Patent Number:	12388482
Patent Number:	12224788
Patent Number:	12191902
CORRESPONDENCE DATA	
Fax Number:	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	+8(210)262-74193
Email:	albert.lee@aju-ipg.com
Correspondent Name:	Albert Lee
Address Line 1:	1800 Diagonal Road
Address Line 2:	Suite 600

Address Line 4: Alexandria, VIRGINIA 22314	
NAME OF SUBMITTER:	Albert Lee
SIGNATURE:	/Albert Lee/
DATE SIGNED:	12/19/2025
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 2 source=Patent Purchase Agreement (Spigen X ID)_251212#page1.tiff source=Patent Purchase Agreement (Spigen X ID)_251212#page2.tiff	

EXHIBIT B

PATENT ASSIGNMENT AGREEMENT

WHEREAS, **Spigen, Korea Co., Ltd.**, having a place of business at 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Republic of Korea (hereinafter “SELLER”) is the sole and exclusive owner of certain United States and/or foreign patents and/or patent applications listed in Schedule A annexed hereto (collectively referred to as the “Patents”); and

WHEREAS **Intellectual Discovery Co. Ltd**, having a place of business at 7th Fl., 419, Teheran-ro, Gangnam-gu, Seoul, 06160, Republic of Korea (hereinafter “PURCHASER”) is desirous of acquiring the right, title and interest in, to and under the said Patents (and all foreign counterparts and related foreign patents).

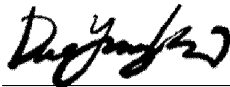
Now, Therefore,

For good and valuable consideration, the receipt of which is hereby acknowledged, SELLER does hereby sell, assign, transfer and set over to PURCHASER, the Patents aforesaid, and any inventions claimed in said Patent, any reissue or reissues of said Patents already granted and which may be granted, any certificates of reexamination already granted and which may be granted the same to be held and enjoyed by PURCHASER for its own use and enjoyment, and for the use and enjoyment of its successors, assigns or other legal representatives, to the end of the term or terms for which said Patents are or may be granted, reissued or extended as fully and entirely as the same would have been held and enjoyed by SELLER, if this assignment and sale had not been made; together with all claims for damages by reason of past, current, and future infringement and/or provisional rights under said Patents, with the right to sue for, and collect the same for its own use and behalf, and for the use and behalf of its successors, assigns or other legal representatives.

And, SELLER, hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all Letters Patents of the United States on said inventions to PURCHASER as assignee of the entire interest.

In Witness Whereof, SELLER has executed this Assignment by its duly authorized representative.

SELLER

By: _____

Name: Daeyoung Kim

Title: CEO

Date: 12-12-2025

Schedule A
List of Patents

No.	Country	Application No.	Filed	Patent No.	Issued
1	KR	2024-0066976	2024.05.23	-	-
2	KR	2024-0075462	2024.06.11	-	-
3	US	62-511280	2017.05.25	-	-
4	US	15-989033	2018.05.24	10469119	2019.11.05
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6	US	17-443183	2021.07.22	11863223	2024.01.02
7	US	18-518265	2023.11.22	12052044	2024.07.30
8	US	18-518303	2023.11.22	12081257	2024.09.03
9	US	18-535674	2023.12.11	12388482	2025.08.12
10	US	18-660932	2024.05.10	12224788	2025.02.11
11	US	63-650790	2024.05.22	-	-
12	US	18-768599	2024.07.10	12191902	2025.01.07
13	US	19-275610	2025.07.21	-	-

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4460698

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	DAE-YOUNG KIM	06/13/2017
RECEIVING PARTY DATA		
Name:	SPIGEN KOREA CO., LTD.	
Street Address:	GASANDIGITAL 1-RO 128, STX-V TOWER #1709, GASAN-DONG, GEUMCHEON-GU	
City:	SEOUL	
State/Country:	KOREA, REPUBLIC OF	
PROPERTY NUMBERS Total: 1		
	Property Type	Number
	Application Number:	62511280
CORRESPONDENCE DATA		
Fax Number:	(213)863-6332	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
Phone:	2133873630	
Email:	patent@ewpat.com	
Correspondent Name:	EAST WEST LAW GROUP, PC	
Address Line 1:	660 S FIGUEROA ST. SUITE 1200	
Address Line 4:	LOS ANGELES, CALIFORNIA 90017	
ATTORNEY DOCKET NUMBER:	7108PAT252	
NAME OF SUBMITTER:	HEEDONG CHAE	
SIGNATURE:	/HC/	
DATE SIGNED:	06/14/2017	
	This document serves as an Oath/Declaration (37 CFR 1.63).	
Total Attachments: 2		
source=7108PAT252-Assignment-signed#page1.tif		
source=7108PAT252-Assignment-signed#page2.tif		

ASSIGNMENT

WHEREAS, I, Dae-Young Kim (hereafter, together with any successors, legal representatives or assigns thereof, called "Assignors"), invented certain new and useful invention and/or improvements disclosed in an application for United States Letters Patent titled:

"MAGNETIC MOUNT FOR ELECTRONIC DEVICES"

Filed: 5/25/2017

Application Serial No.: 62/511,280

AND WHEREAS, SPIGEN KOREA CO., LTD., residing at Gasandigital 1-ro 128, STX-V tower #1709, Gasan-dong, GEUMCHEON-GU, SEOUL, Republic of Korea (hereafter, together with any successors, legal representatives or assigns thereof, called "Assignees"), wants to acquire the entire right, title and interest in and to said improvements and application:

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, Assignors have sold, assigned, transferred and set over, and do hereby sell, assign, transfer and set over to Assignees the entire right, title and interest in and to said invention and/or improvements, and said application and all divisions, substitutions, continuations, and continuations-in-part thereof, and all United States Letters Patents (and all other patents) which may be granted thereon and all reissues and extensions thereof, and all priority rights under the International Convention for the Protection of Industrial Property for every member country, and all applications for patents (including related rights such as utility-model registrations, inventor's certificates, and the like) heretofore or hereafter filed for said invention and/or improvements in any foreign countries, and all patents (including all extensions, renewals and reissues thereof) granted for said invention and/or improvements in any foreign countries.

ASSIGNORS HEREBY authorize and require the United States Patent and Trademark Office to issue all patents for said invention and/or improvements to Assignees in accordance with the terms of this assignment. The right, title and interest is to be held and enjoyed by Assignees and Assignees' successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made.

AND ASSIGNORS HEREBY covenant that Assignors have full right to convey the entire interest herein assigned, and that Assignors have not executed, and will not execute, any agreement in conflict herewith;

AND ASSIGNORS HEREBY further covenant and agree that Assignors will communicate to Assignee any facts known to us respecting said invention and/or improvements, and testify in any legal proceeding, sign all lawful papers, execute all divisional continuation, continuations legal proceeding, sign all lawful papers, execute all

divisional, continuation, continuations-in-part, substitute and reissue applications, make all rightful oaths or declarations and generally do everything possible to aid Assignees to obtain and enforce proper patent protection for said invention and/or improvements in the USA and all countries.

IN TESTIMONY WHEREOF, ASSIGNORS hereunto set our hands:

Signature:  Date: 6/13/2017
Dae-Young Kim

STATE OF _____)
_____) ss.
COUNTY OF _____)

On _____, 2017 before the undersigned, a Notary Public for the State and County aforesaid, personally appeared _____ known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the above assignment, and acknowledged that he/she executed the same.

(Notary Public)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
62/511,280	05/25/2017		130	7108PAT252		

CONFIRMATION NO. 4066

FILING RECEIPT



000000091793600

107876

East West Law Group, PC
3600 Wilshire Blvd. Suite 702
Los Angeles, CA 90010

Date Mailed: 06/02/2017

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Dae-Young KIM, Seoul, KOREA, REPUBLIC OF;

Applicant(s)

SPIGEN KOREA CO., LTD., Seoul, KOREA, REPUBLIC OF;

Power of Attorney:

Heedong Chae--69240

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/01/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 62/511,280**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

MAGNETIC MOUNT FOR ELECTRONIC DEVICES

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

page 1 of 3

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

SCORE Placeholder Sheet for IFW Content

Application Number: 62511280

Document Date: 05/25/2017

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via eDAN using the Supplemental Content tab, or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	7108PAT252
		Application Number	
Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Dae-Young		KIM		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Seoul	Country of Residence	i	KR	
Mailing Address of Inventor:					
Address 1	Gasandigital 1-ro 128, STX-V tower #1709				
Address 2	Gasan-dong, Geumcheon-gu				
City	Seoul	State/Province			
Postal Code		Country	i	KR	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					
Add					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.			
For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	107876		
Email Address	patent@ewpat.com	Add Email	Remove Email
Email Address	iplaw.advocate@gmail.com	Add Email	Remove Email

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	7108PAT252
		Application Number	
Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES		

Application Information:

Title of the Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES		
Attorney Docket Number	7108PAT252	Small Entity Status Claimed	☒
Application Type	Provisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:			
☒	Customer Number	US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	107876		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			
Add			

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	7108PAT252	
		Application Number		
Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES			
This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).				
				Remove
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed	
			Yes	No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				Add

Authorization to Permit Access:

✕ Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	7108PAT252
		Application Number	
Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES		

Applicant	1		
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Remove			
• Assignee	Legal Representative under 35 U.S.C. 117		
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			

Name of the Deceased or Legally Incapacitated Inventor :			
If the Assignee is an Organization check here. ☒			
Organization Name	SPIGEN KOREA CO., LTD.		
Mailing Address Information:			
Address 1	Gasandigital 1-ro 128, STX-V tower #1709		
Address 2	Gasan-dong, Geumcheon-gu		
City	SEOUL	State/Province	
Country	KR	Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Signature:				Remove
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications				
Signature	/HC/		Date (YYYY-MM-DD)	2017-05-25
First Name	Heedong	Last Name	Chae	Registration Number
				69240
Additional Signature may be generated within this form by selecting the Add button.				Add

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	7108PAT252
		Application Number	
Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	MAGNETIC MOUNT FOR ELECTRONIC DEVICES
As the below named inventor, I hereby declare that: This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____. The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR Inventor: <u>Dae-Young Kim</u> Date (Optional) : <u>05/25/2017</u> Signature: <u>/dae-young kim/</u>	
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

FIG. 1(a)

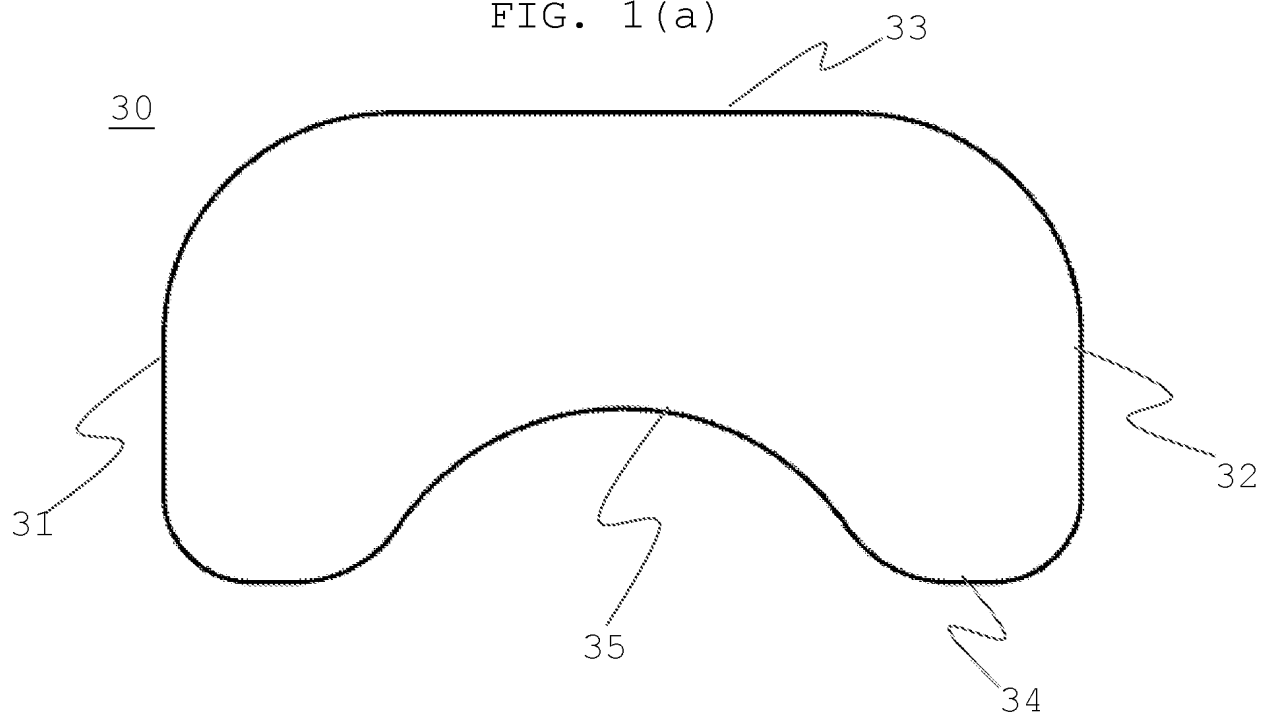


FIG. 1(b)

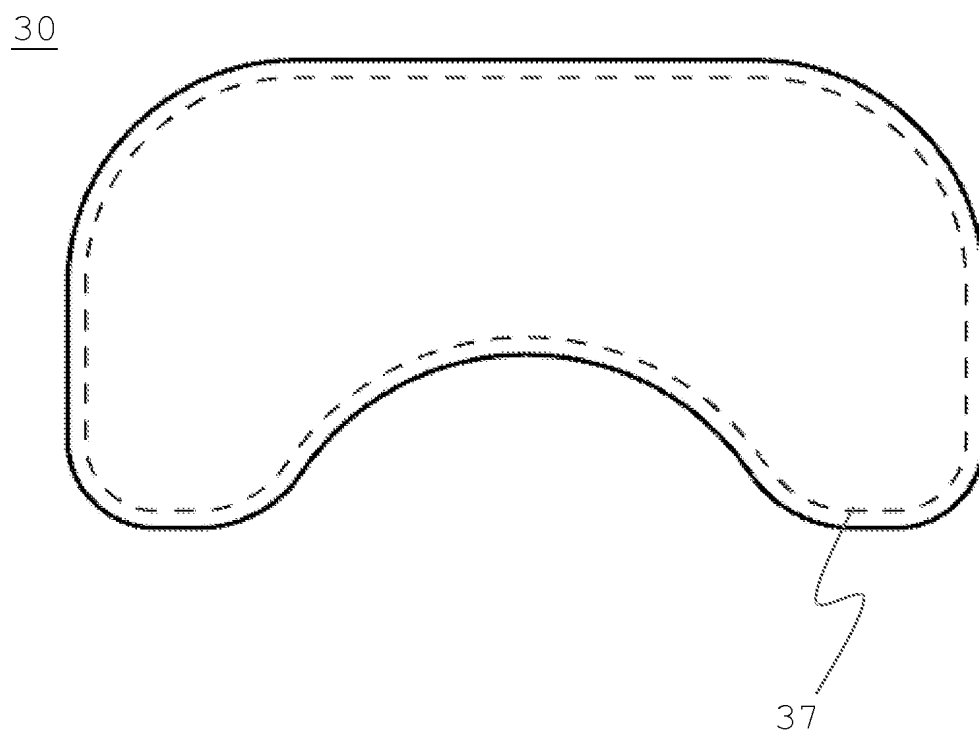


FIG. 1 (c)

30

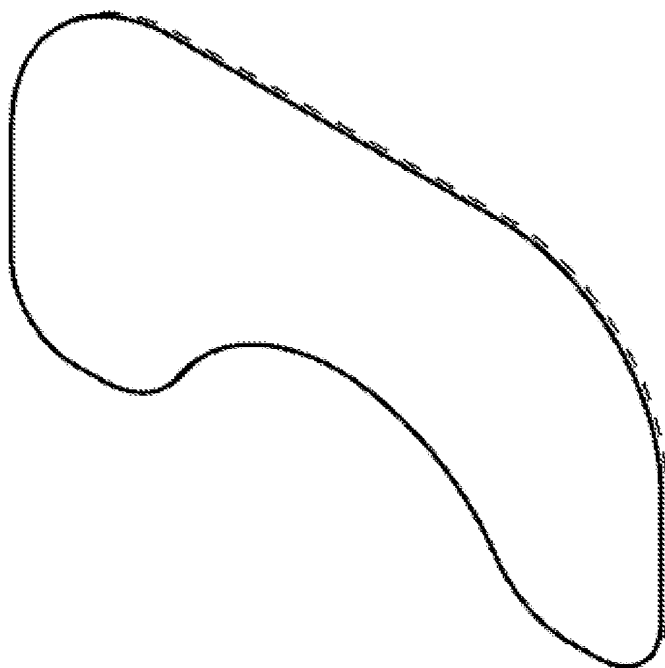


FIG. 1 (d)

30

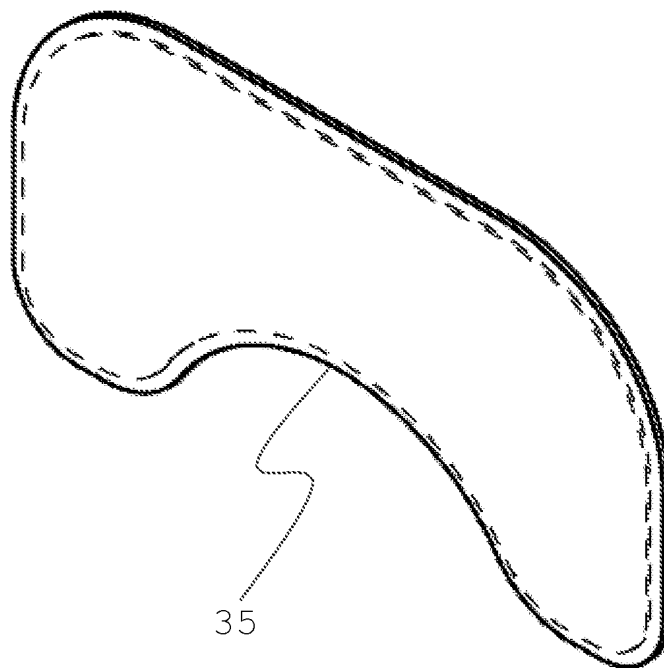


FIG. 2(a)

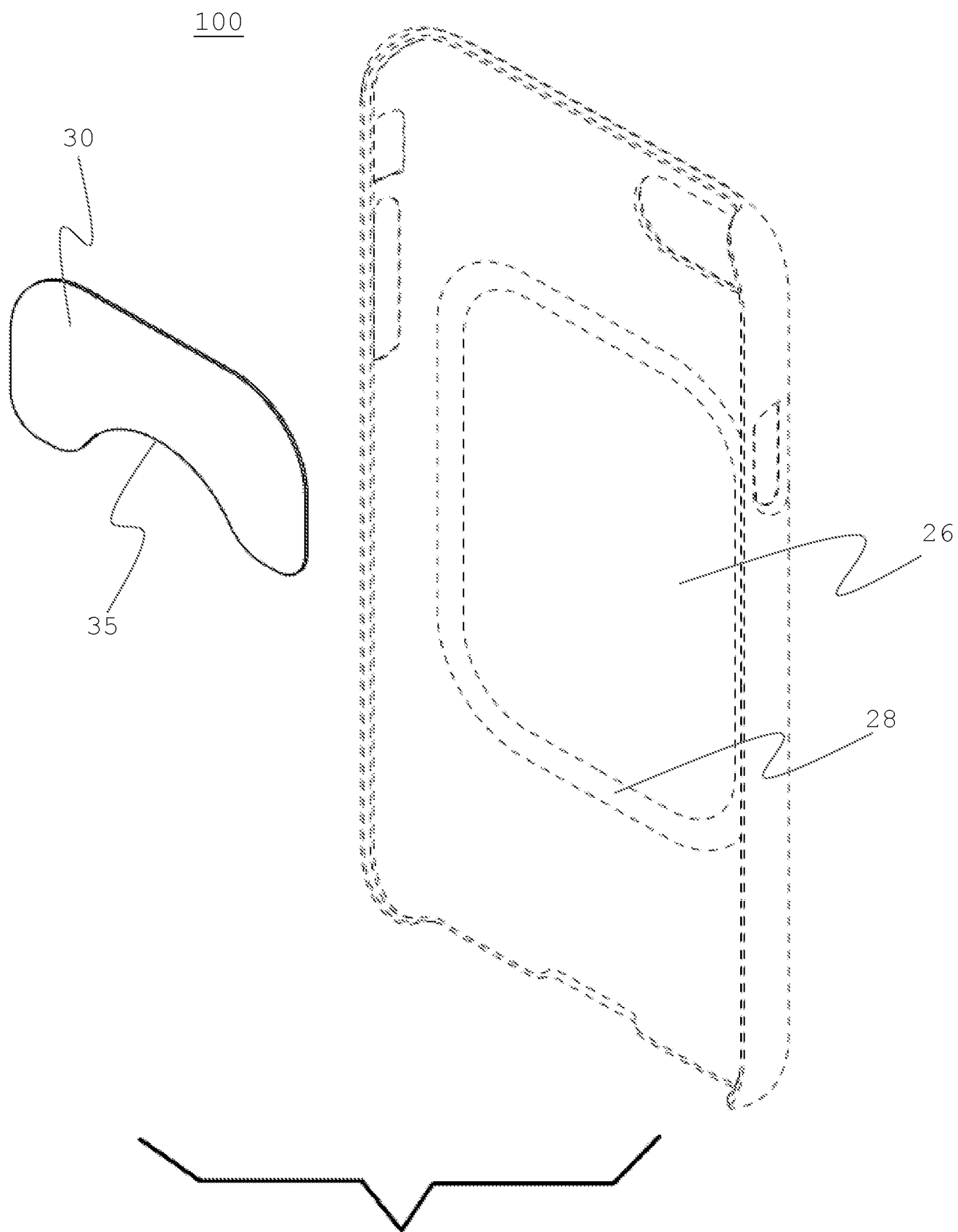
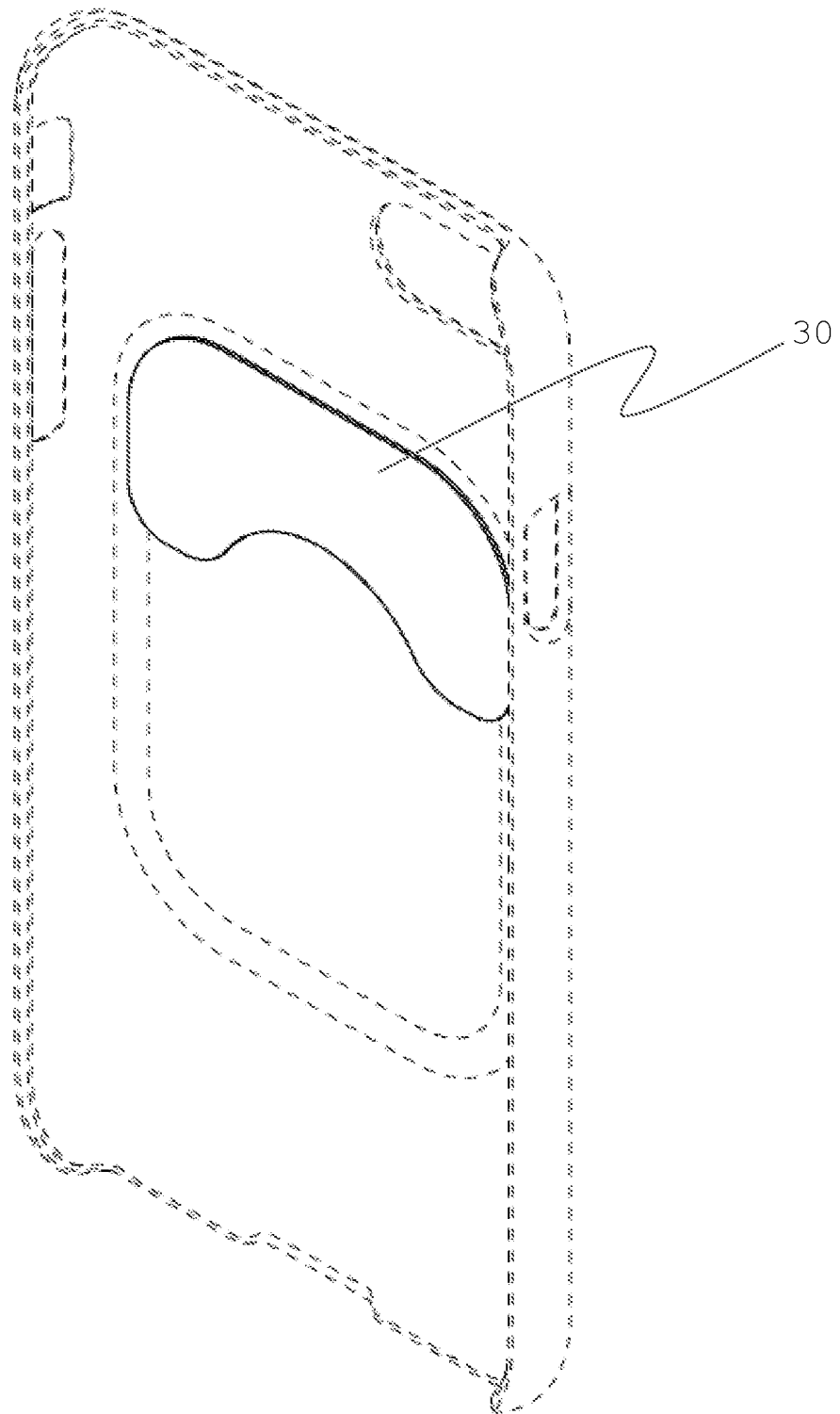


FIG. 2 (b)

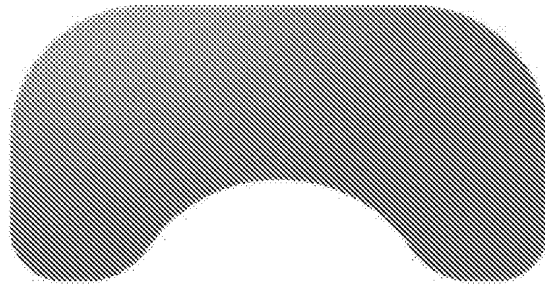
100



A

30

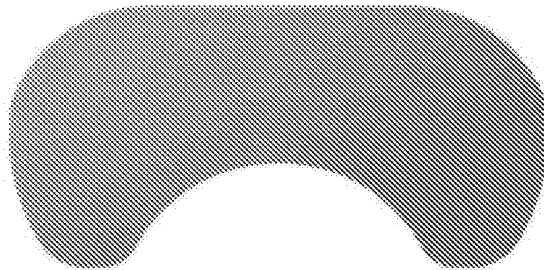
FIG. 3(a)



B

30

FIG. 3(b)



C

30

FIG. 3(c)

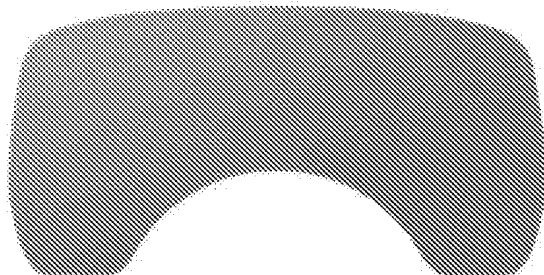


FIG. 4(a)

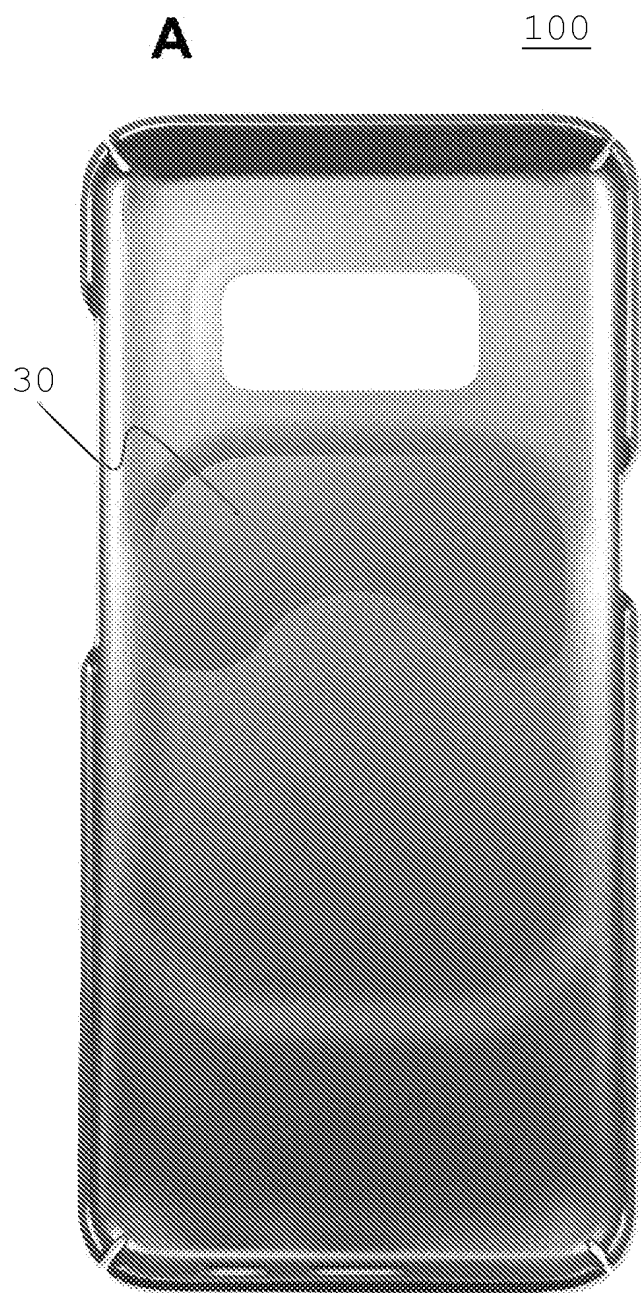


FIG. 4(b)

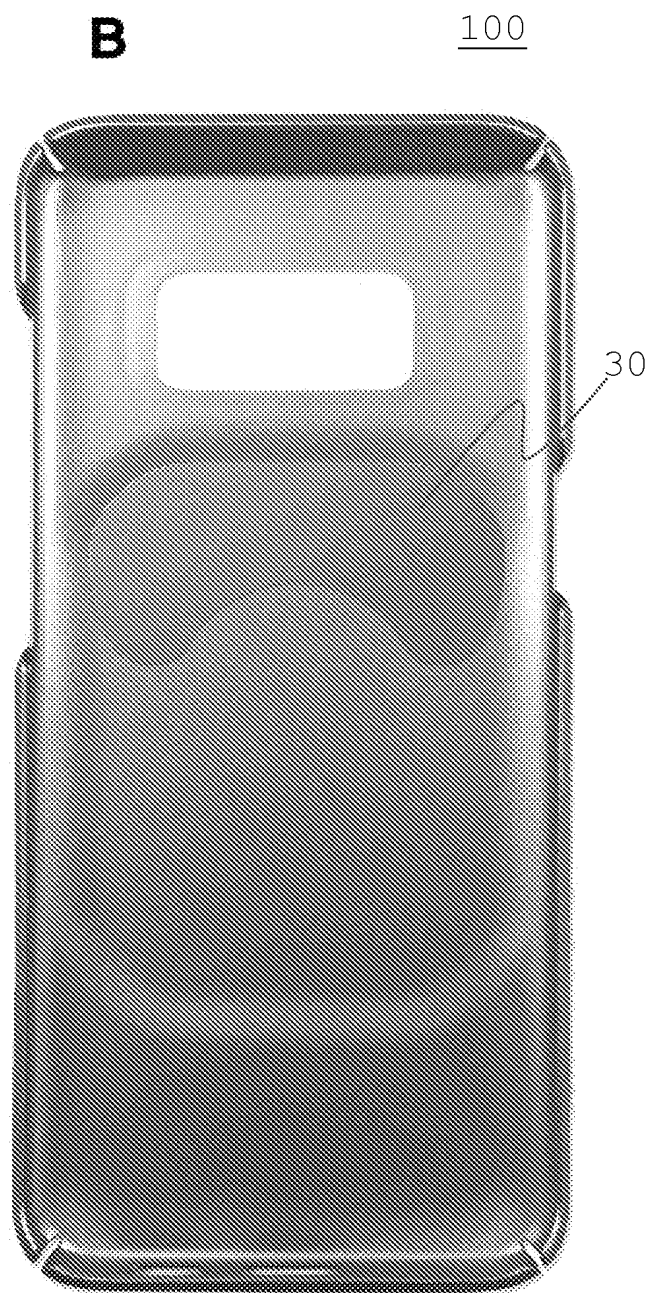


FIG. 4 (c)

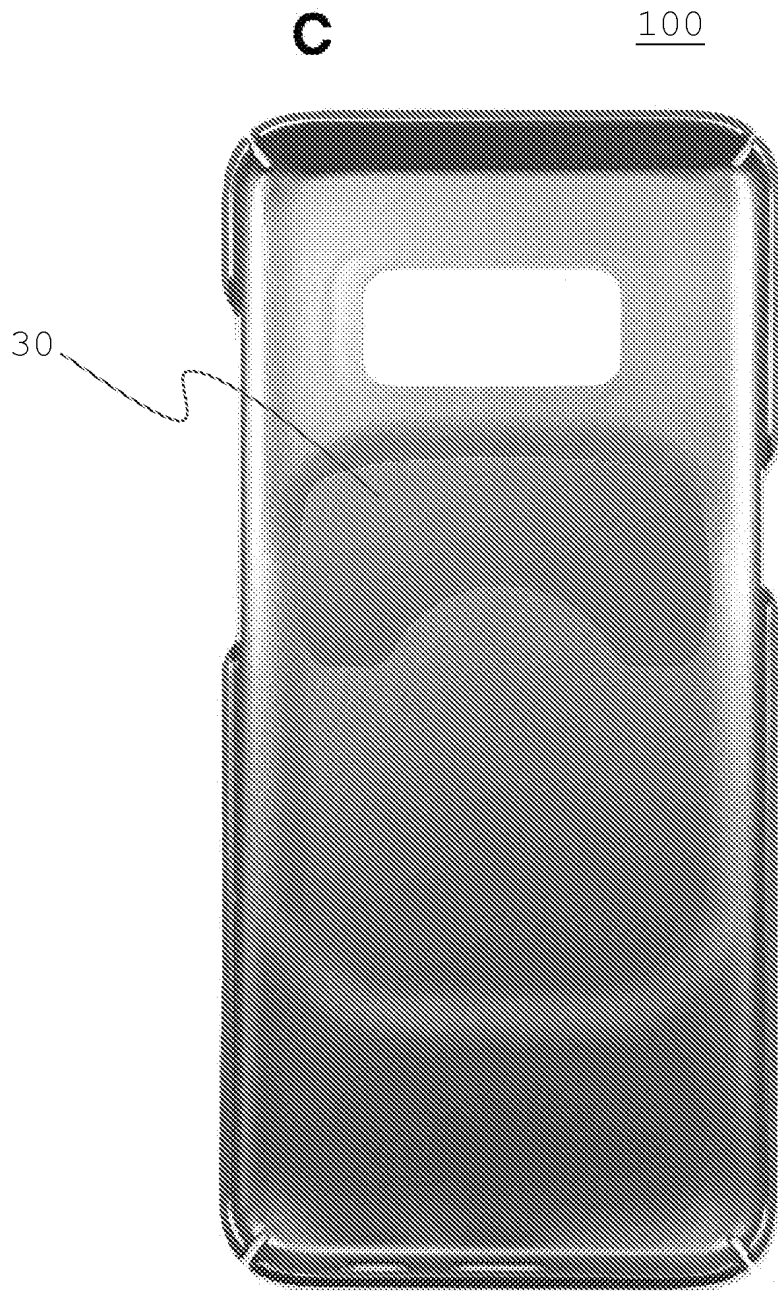


FIG. 5 (a)

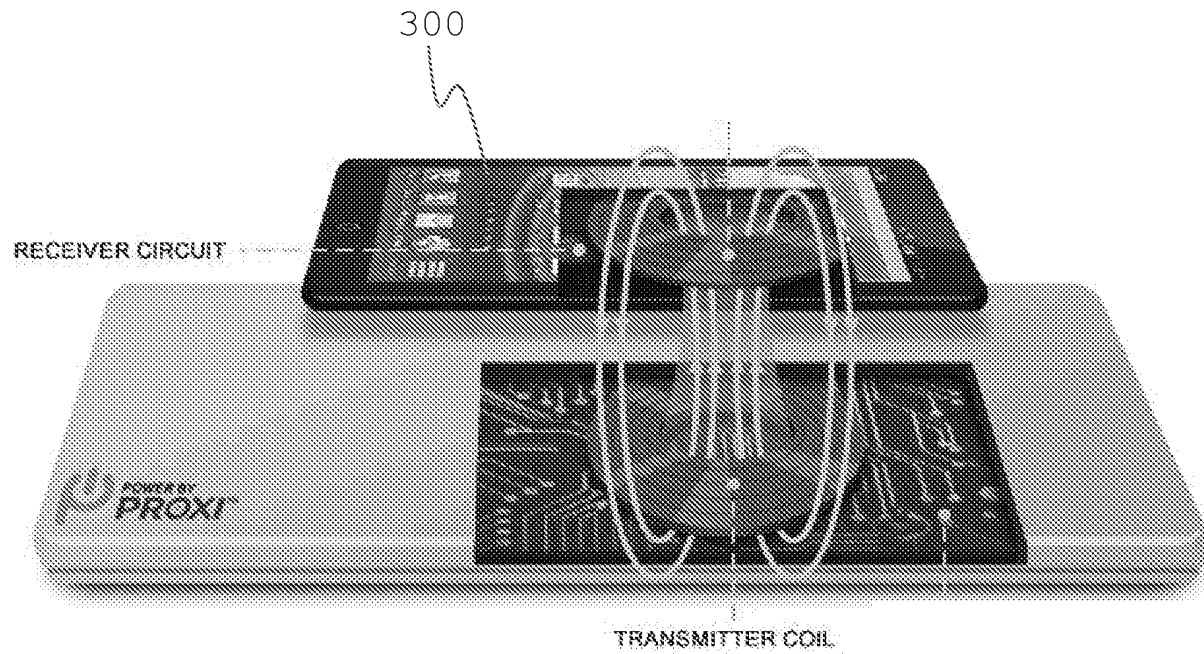
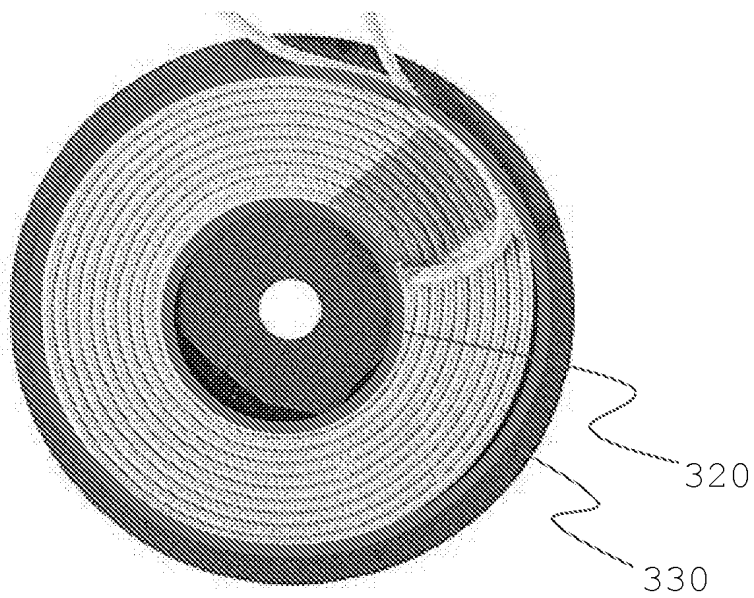


FIG. 5 (b)

Receiver circuit or receiver coil 310

310



310

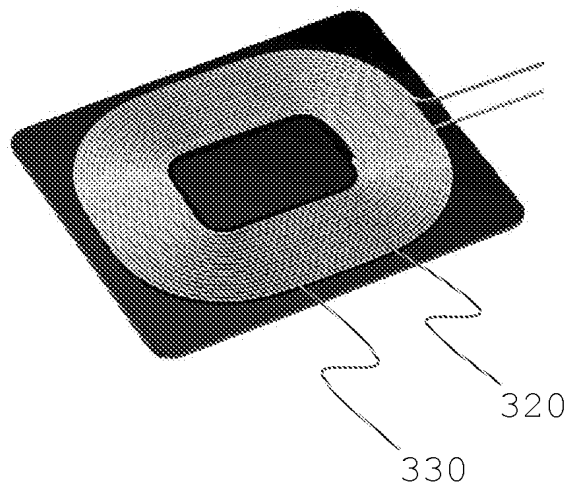


FIG. 6(a)



케이스 없는 상태

170~250mA
평균 210mA



샘플 B 착용

90~230mA
평균 190mA



샘플 C 착용

40~180mA
평균 80mA

FIG. 6(b)

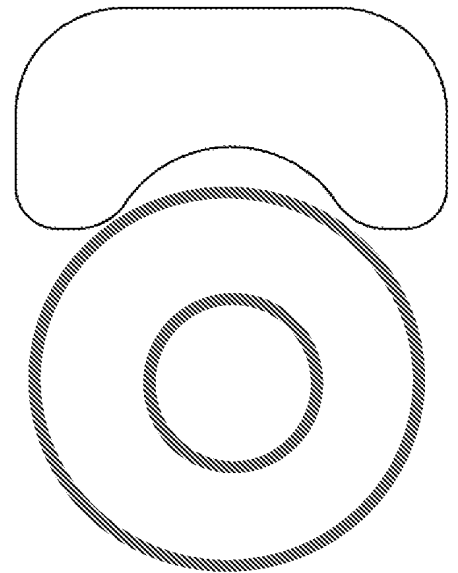
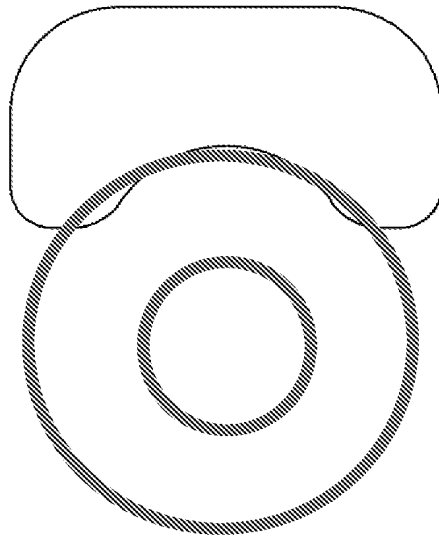
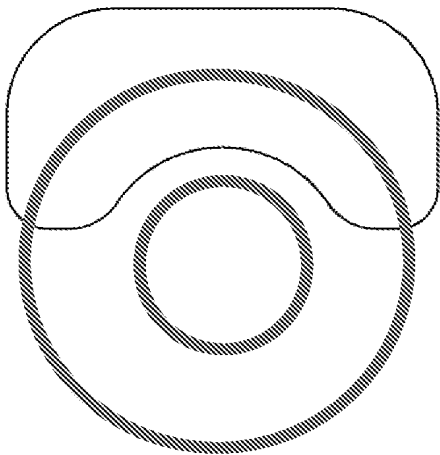


FIG. 7

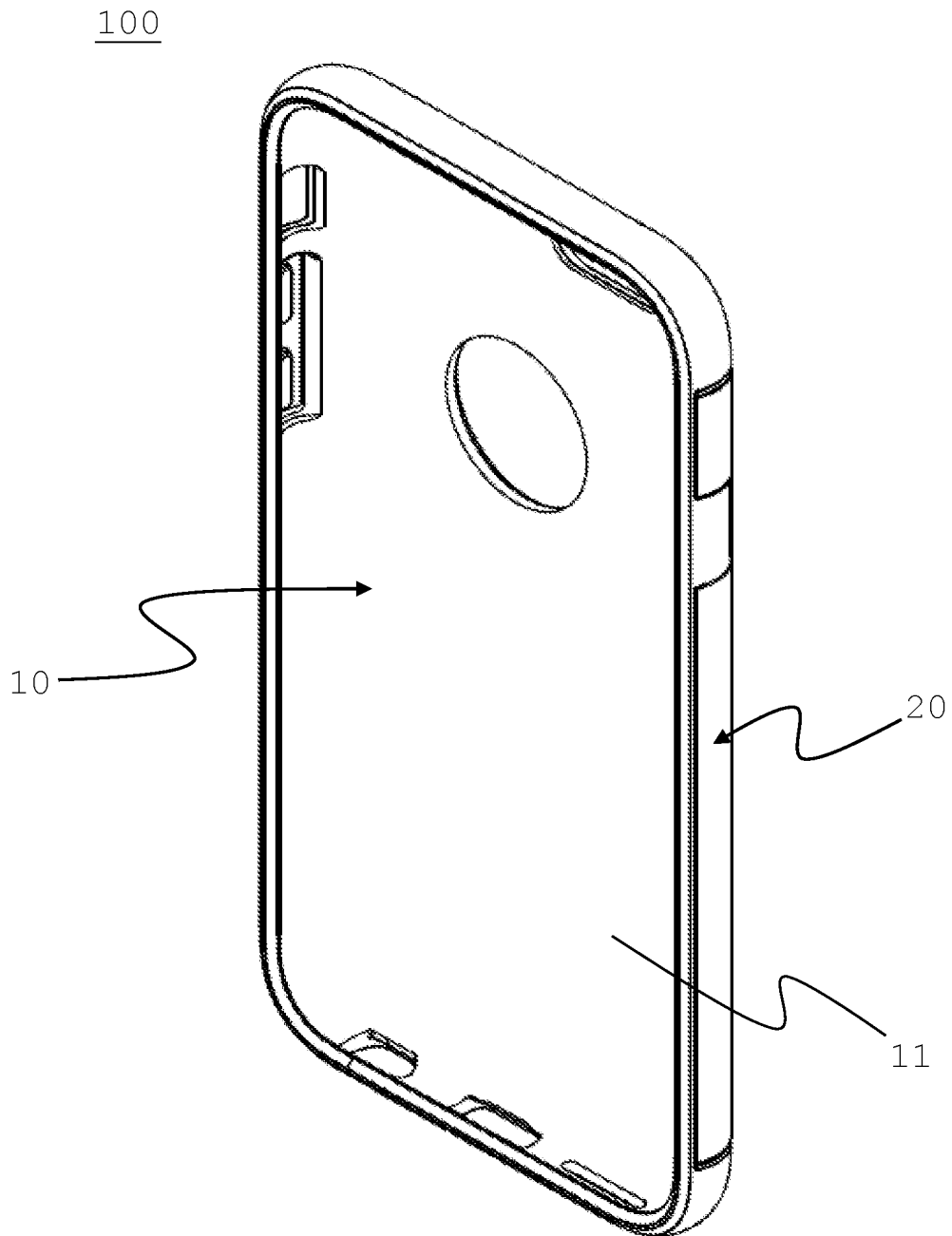


FIG. 8

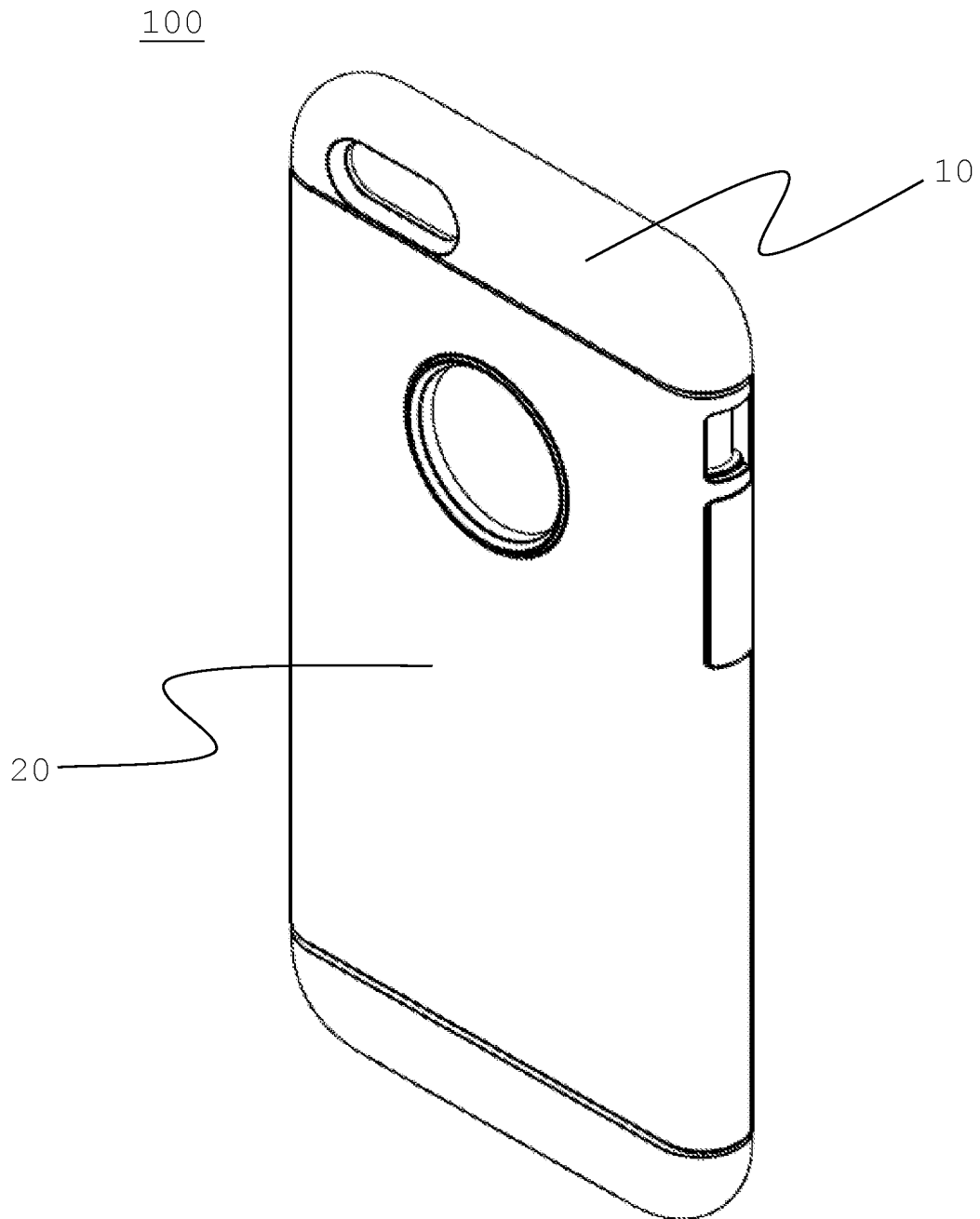


FIG. 9

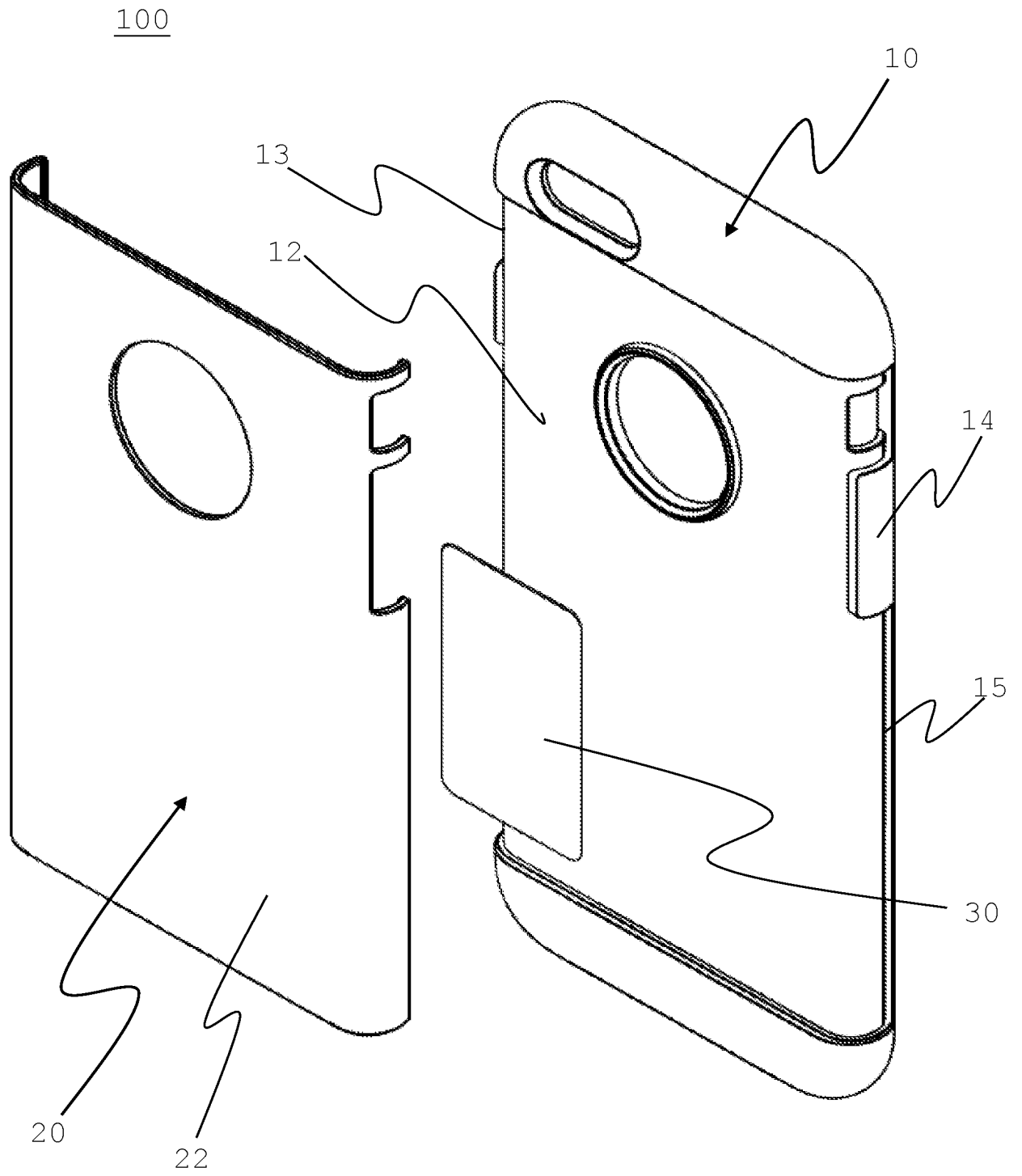


FIG. 10

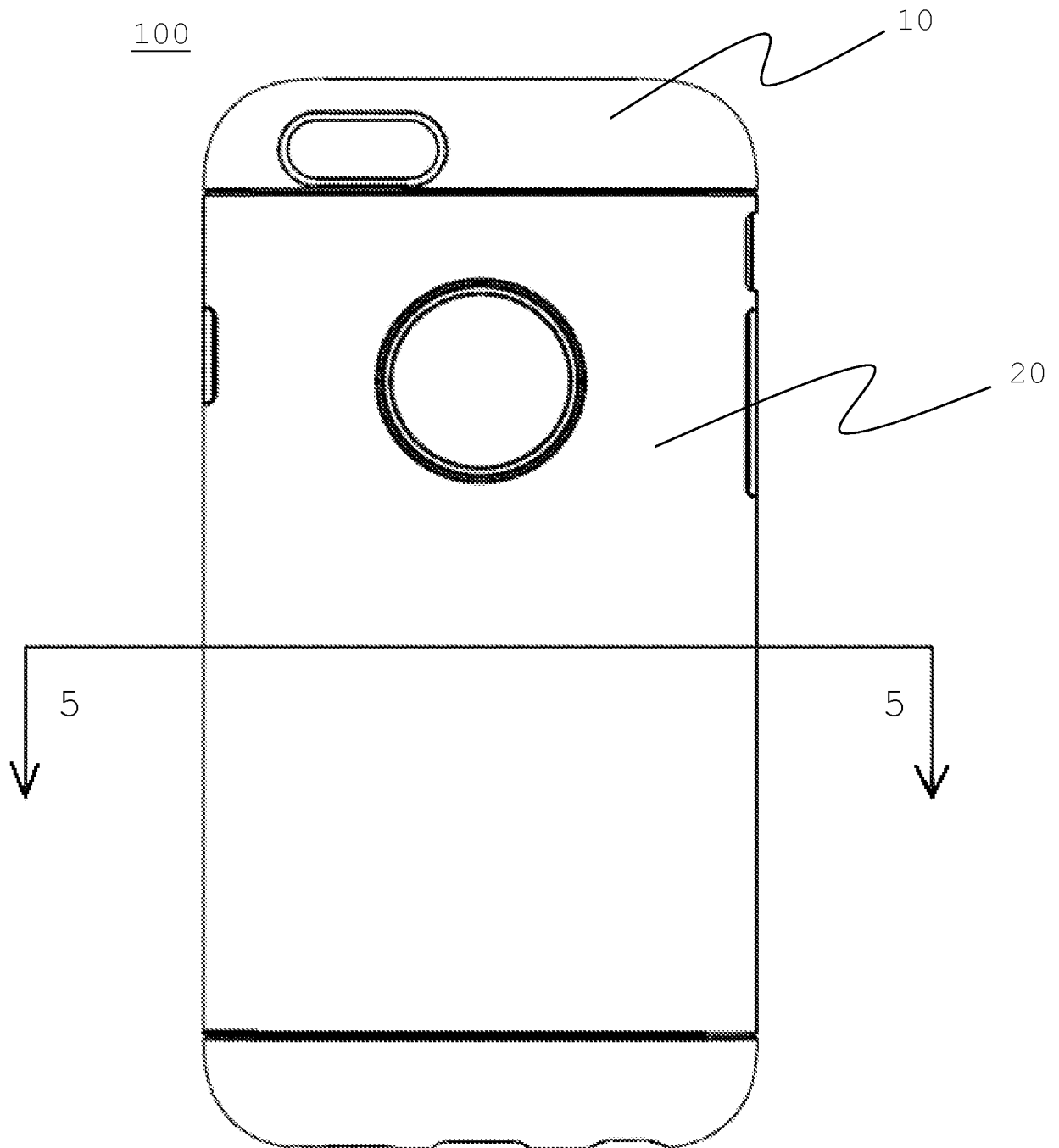


FIG. 11

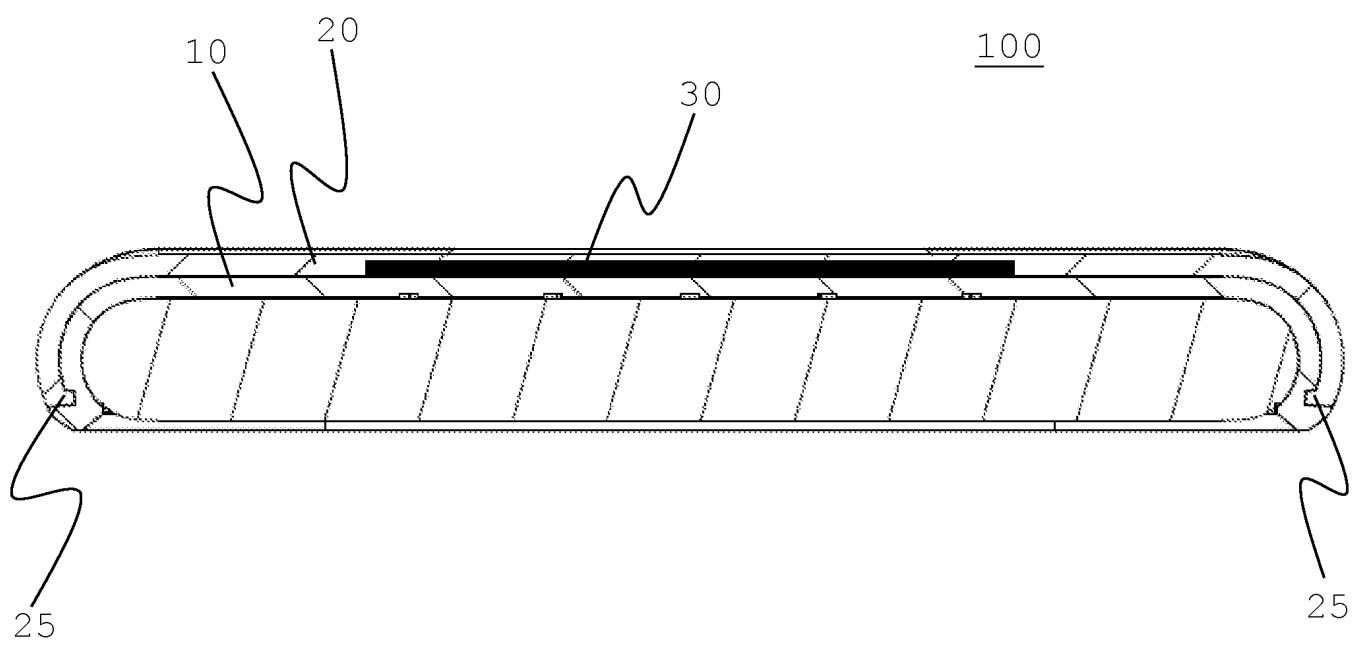


FIG. 13

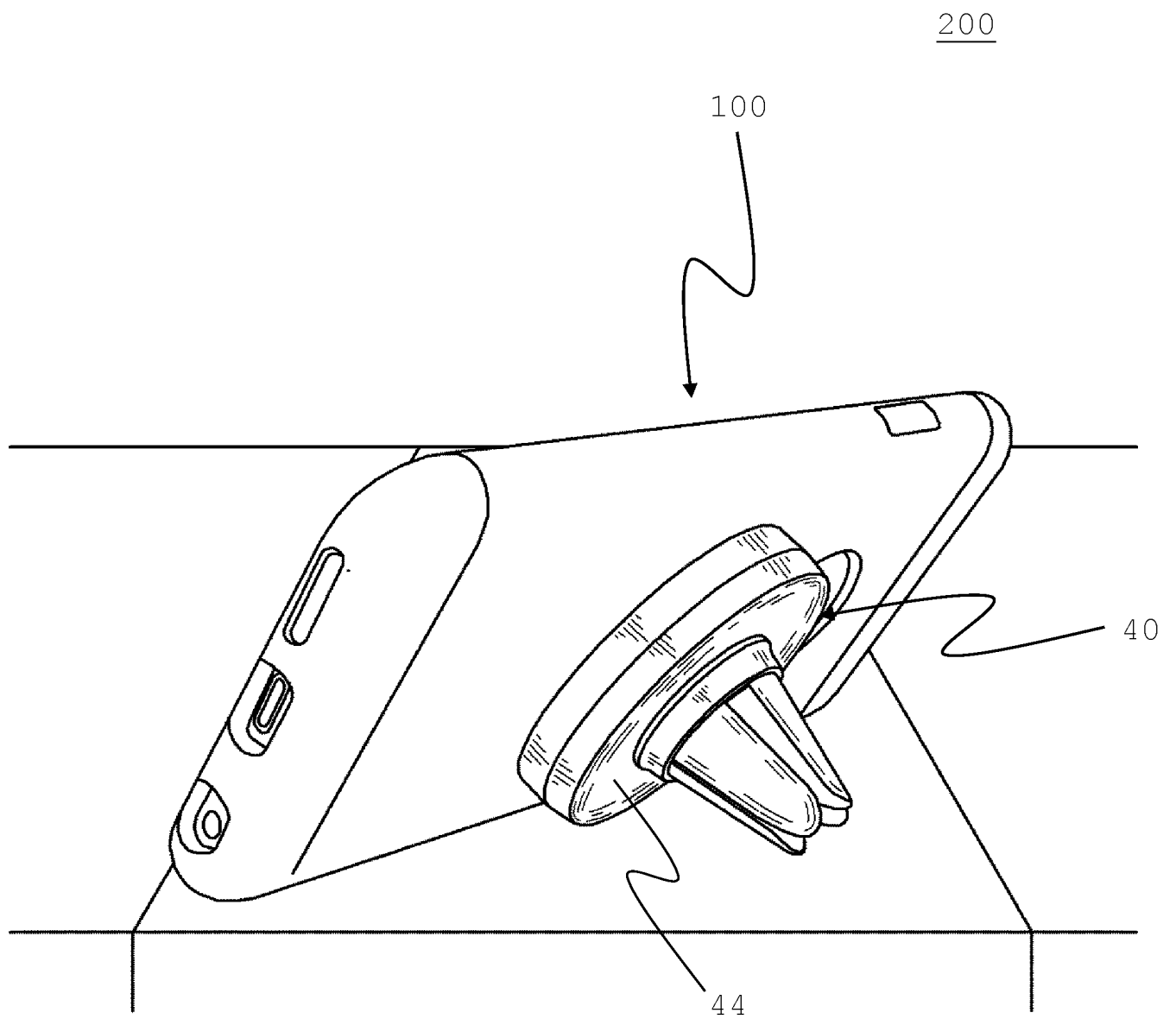


FIG. 14

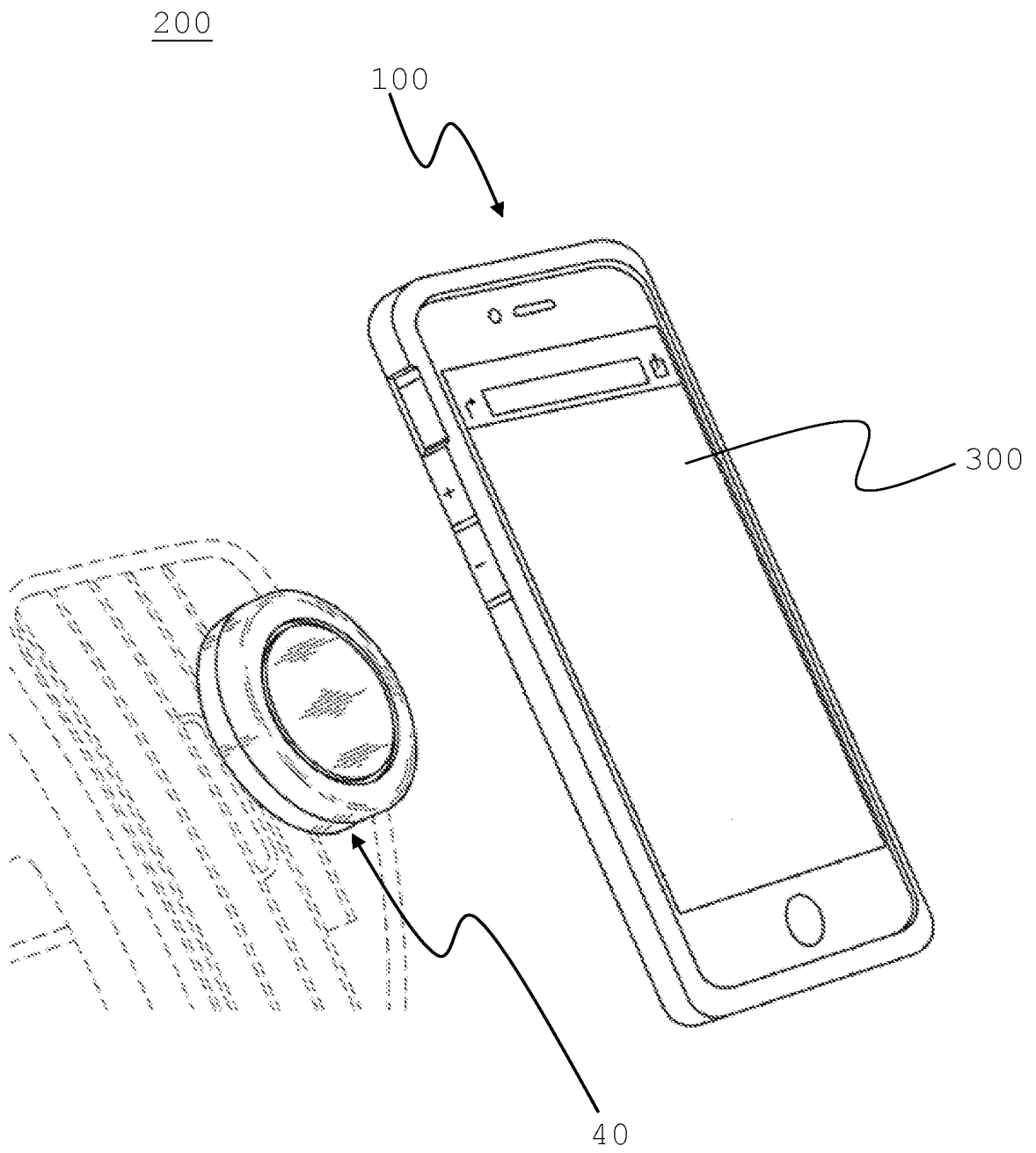


FIG. 15

100

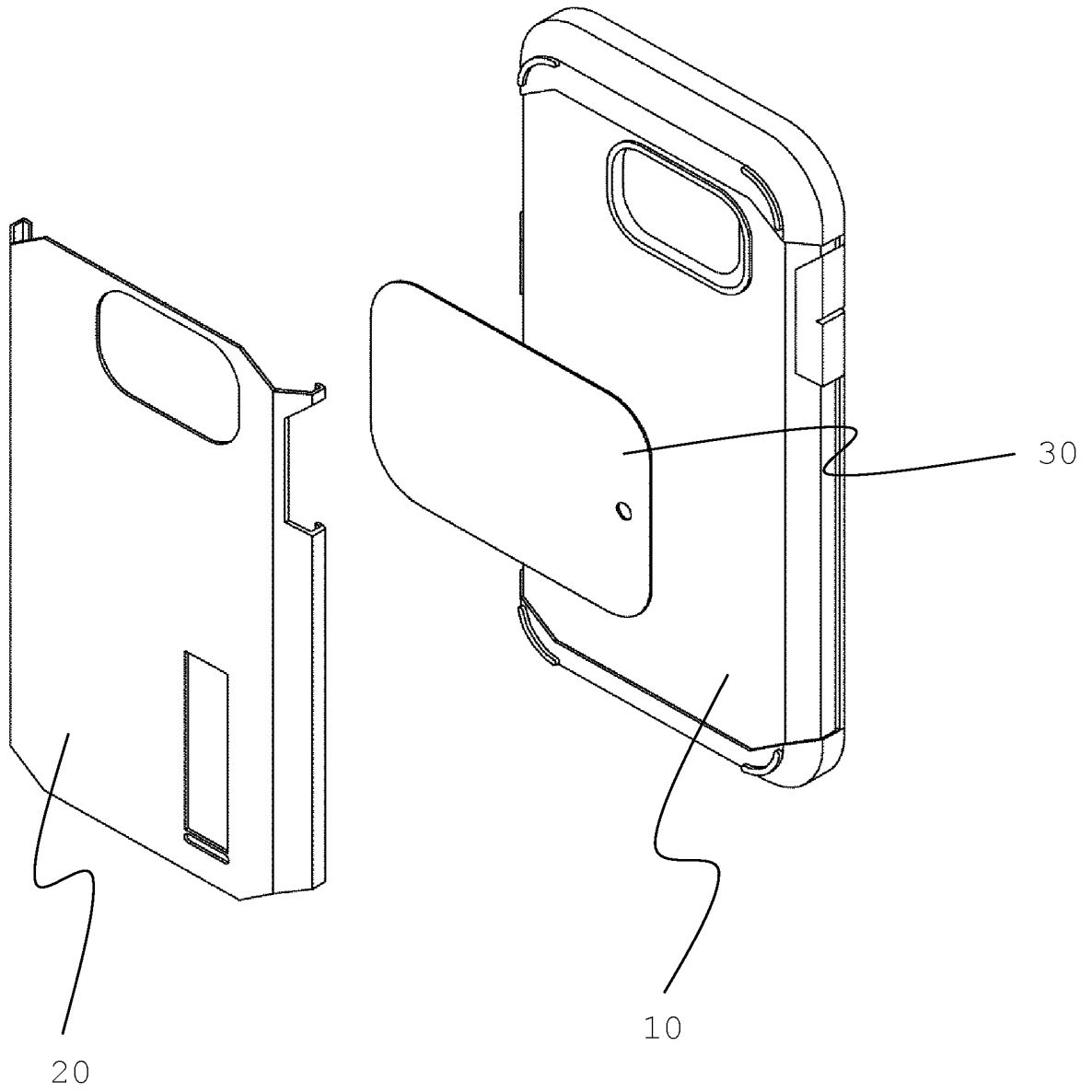


FIG. 16

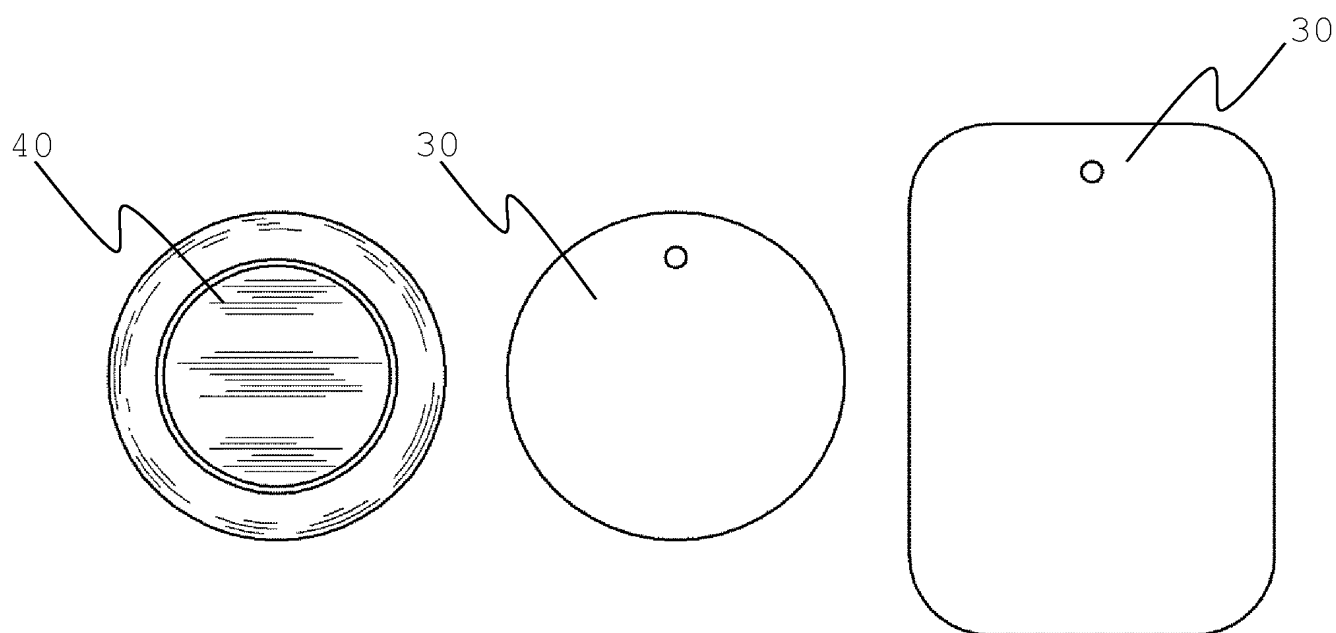


FIG. 17

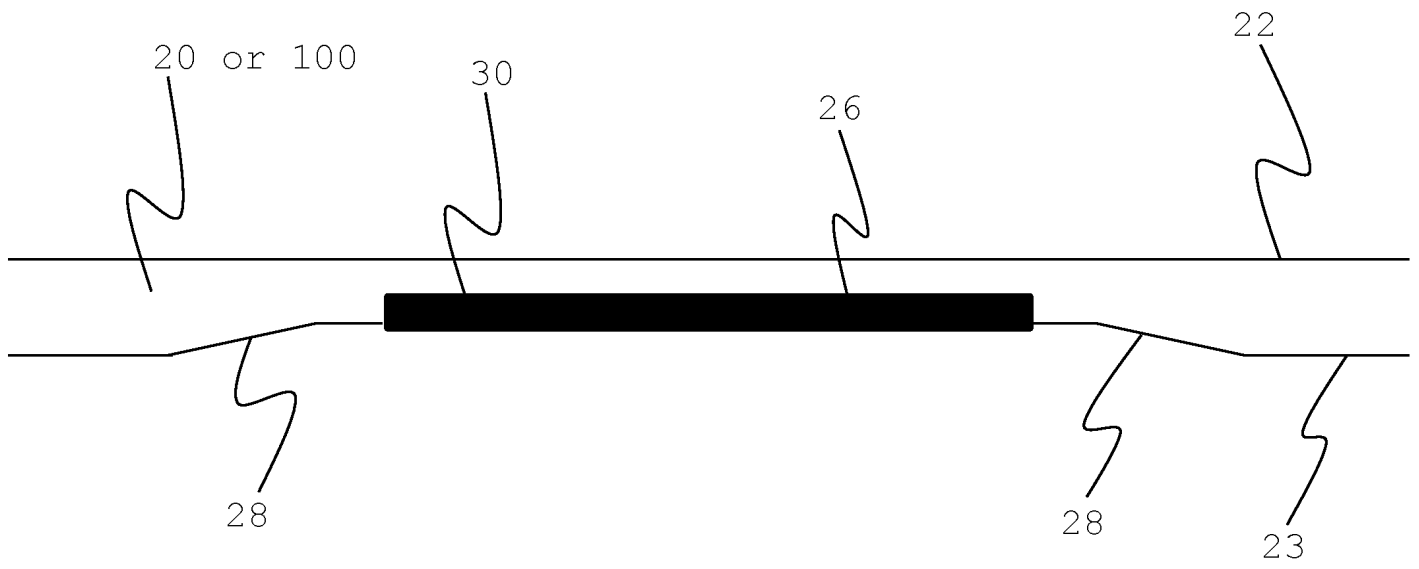
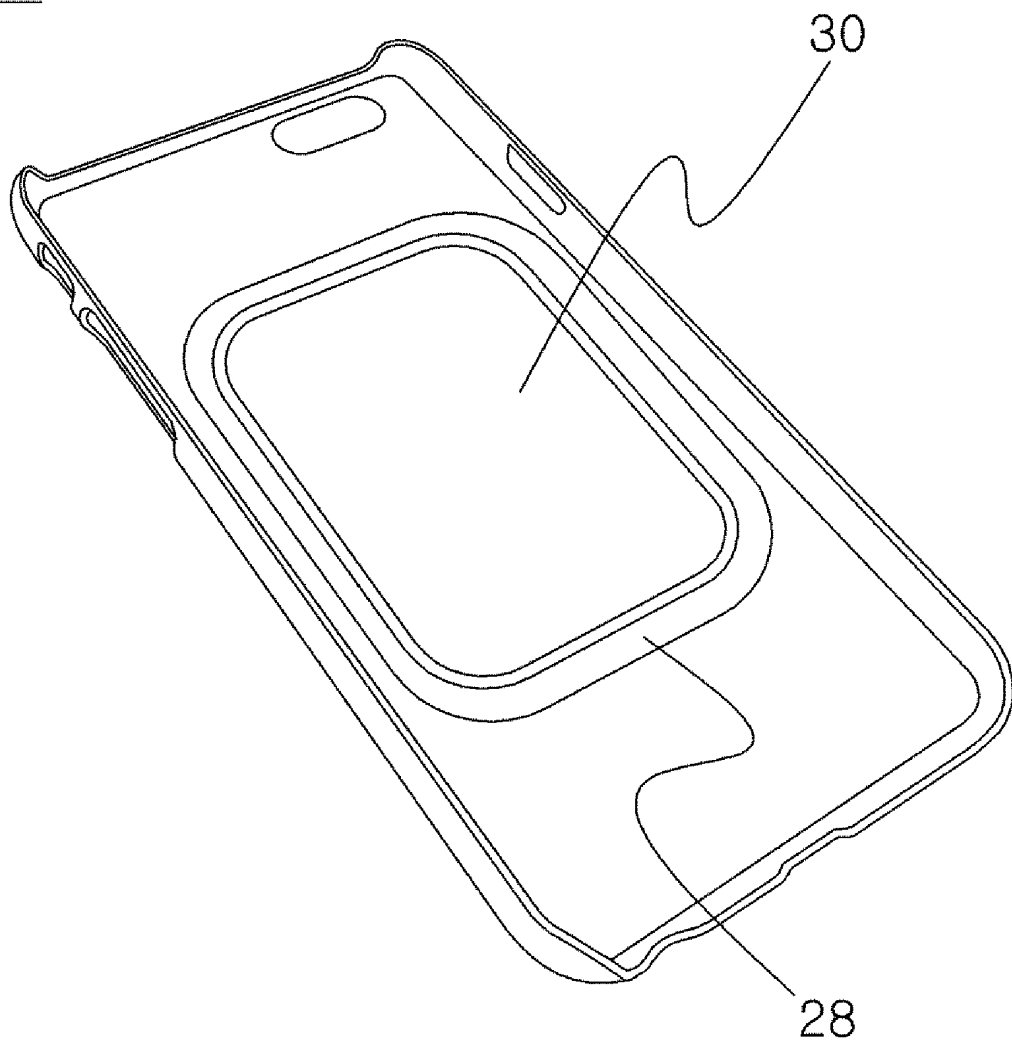


FIG. 18

100



MAGNETIC MOUNT FOR ELECTRONIC DEVICES

BY

DAE-YOUNG KIM

5 CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable.

FIELD OF THE INVENTION

 The present invention relates to a case having a metal plate for magnetically mounting the case with an electronic
10 device installed therein to a support having a magnet, and more particularly, to a metal plate having a rounded concave edge.

BACKGROUND OF THE INVENTION

 A magnetic mount for an electronic device such as a
15 smart phone, cellular phone, mobile phone, tablet computing device, etc. has been introduced. A mobile phone mount has magnetically attractable members, one of which is installed in a case and the other of which is installed in a support. The support supports the case so that the case stands or
20 the support can be mounted on an air vent of a vehicle. Such magnetic mount for electronic devices is disclosed in the U.S. Patent Application No. 15,359,465, filed on November 22, 2016, the disclosure of which is incorporated herein by reference in its entirety. The magnetically

attractable members are usually a metal plate and a magnet, and the metal plate is attached to an electronic device or a case.

However, such metal plate may impede or prevent
5 wireless charging of a cell phone because the metal plate blocks electromagnetic field for wireless charging. Wireless charging uses an electromagnetic field to transfer energy between two objects through electromagnetic induction, and FIG. 5(a) illustrates how it works using the
10 transmitter coil and the receiver circuit. Since the metal plate blocks the electromagnetic field, it substantially impedes or prevents wireless charging of an electronic device.

This invention is directed to solve this problem.

15 SUMMARY OF THE INVENTION

The present invention contrives to solve the disadvantages of the prior art. The present invention provides a metal plate, having a rounded concave edge, for magnetically mounting a case for an electronic device.

20 The object of the present invention is to provide a case for an electronic device wherein the electronic device has a receiver coil for wireless charging and the receiver coil is formed in between an inner circle and an outer circle, comprising: a hard protective frame constructed to

receive the electronic device therein wherein the hard
protective frame has a recess which faces the electronic
device; and a metal plate constructed to be received in the
recess. The metal plate is constructed to enable magnetic
5 retention or attachment of the case to a support having a
magnet. The metal plate has a rounded concave edge, and the
metal plate does not overlap with the inner circle.
Preferably, the rounded concave edge, the inner circle, and
the outer circle are substantially symmetrical with respect
10 to a same line.

Another object of the present invention is to provide
a metal plate for magnetically mounting a case for an
electronic device wherein the electronic device has a
receiver coil for wireless charging and the receiver coil
15 is formed in between an inner circle and an outer circle,
the metal plate comprising: a rounded concave edge. The
metal plate is constructed to be attachable to the case.
The metal plate is constructed to enable magnetic retention
or attachment of the case to a support having a magnet, and
20 the metal plate does not overlap with the inner circle.
Preferably, the rounded concave edge, the inner circle, and
the outer circle are substantially symmetrical with respect
to a same line.

The advantages of the present invention are: (1) the metal plate of the present invention helps a case with an electronic device installed therein magnetically attracted and retained by the support having a magnet, and at the same time, the case having the metal plate does not substantially impede or prevent wireless charging of the electronic device; and (2) the metal plate does not substantially impede or prevent wireless charging of the electronic device, and thus a user does not have to remove the metal plate for wireless charging.

Although the present invention is briefly summarized, the fuller understanding of the invention can be obtained by the following drawings, detailed description and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects and advantages of the present invention will become better understood with reference to the accompanying drawings, wherein:

FIGS. 1(a) through 1(d) are front view, rear view, front perspective view, and rear perspective view of the metal plate according to the present invention;

FIG. 2(a) is the view before the metal plate is attached to a case;

FIG. 2(b) is the view where the metal plate is attached to the case;

FIG. 3(a) through 3(b) shows alternative shapes of the metal plate;

5 FIG. 4(a) through 4(c) shows the metal plates of FIGS. 3(a) through 3(b) attached to the case;

FIG. 5(a) shows a schematic drawing to illustrate how wireless charging works using the transmitter coil and receiver circuit (receiver coil);

10 FIG. 5(b) shows the receiver circuit or receiver coil;

FIG. 6(a) shows test results;

FIG. 6(b) shows various positions of the metal plate relative to the receiver coil of the electronic device;

FIG. 7 shows a front perspective view of a case according to the invention for magnetic mount;

FIG. 8 shows a rear perspective view of the case according to the invention for magnetic mount;

FIG. 9 shows an exploded view of the case having a soft protective cover, a hard protective frame and a first member according to the invention for magnetic mount;

FIG. 10 shows a rear view of the case according to the invention for magnetic mount;

FIG. 11 shows a cross sectional view of FIG. 10;

FIG. 12 shows a schematic perspective view of a magnetic mount illustrating magnetic attraction between the support and the first member to support or retain an electronic device according to the invention for magnetic
5 mount;

FIG. 13 shows a perspective view of the magnetic mount having the case and the support such that the support magnetically attracts and retains the case so that the case can stand on a flat surface;

10 FIG. 14 shows a perspective view of the magnetic mount having the case and the support such that the support magnetically attracts and retains the case and the support is inserted and securely retained by an air vent of a vehicle;

15 FIG. 15 shows another exploded view of the case having the soft protective cover, the hard protective frame and the first member according to the invention for magnetic mount;

FIG. 16 shows the support, the first member shaped in
20 a circular metal plate, and the first member shaped in a rectangular metal plate;

FIG. 17 shows alternative cross sectional view of the case or the hard protective frame; and

FIG. 18 shows a perspective view of the case or the hard protective frame having the cross-sectional view of FIG. 17.

DETAILED DESCRIPTION EMBODIMENTS OF THE INVENTION

5 Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings, which form a part of this disclosure. It is to be understood that this invention is not limited to the specific devices, methods,
10 conditions or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed invention.

15 Also, as used in the specification including the appended claims, the singular forms "a", "an", and "the" include the plural, and reference to a particular numerical value includes at least that particular value, unless the context clearly dictates otherwise. Ranges may be expressed
20 herein as from "about" or "approximately" one particular value and/or to "about" or "approximately" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are

expressed as approximations, by use of the antecedent "about", it will be understood that the particular value forms another embodiment.

FIGS. 1(a) through 1(d) are front view, rear view,
5 front perspective view, and rear perspective view of the metal plate (30) according to the present invention. FIG. 2(a) is the view before the metal plate (30) is attached to a case (100), and FIG. 2(b) is the view where the metal plate (30) is attached to the case (100).

10 The case (100) for an electronic device (300) wherein the electronic device (300) has a receiver coil (310) for wireless charging and the receiver coil (310) is formed in between an inner boundary (320) and an outer boundary (330), comprises: a hard protective frame (20) constructed
15 to receive the electronic device (300) therein wherein the hard protective frame (20) has a recess (26) which faces the electronic device (300); and a metal plate (30) constructed to be received in the recess (26) of the hard protective frame (20). The metal plate (30) is constructed
20 to enable magnetic retention or attachment of the case (100) to a support (40) having a magnet (50).

The metal plate (30) is made of ferromagnetic material. The metal plate (30) has a rounded concave edge (35), and the metal plate (30) does not overlap with the inner

boundary (320). Here, "overlap" means when the metal plate (30) and the inner boundary (320) are viewed from the front, they do not overlap as illustrated in FIG. 6(b).

The rounded concave edge (35) may be circular,
5 elliptical, substantially circular, or substantially elliptical, including the rounded concave edge (35) formed by a smoothly curved line. Both ends of the rounded concave edge (35) may be rounded the other way as shown in FIGS. 3(a) through 3(c).

10 The case (100) may be made of a hard protective frame (20) alone, a soft protective cover (10) alone, or combination thereof. In any structure, the metal plate (30) is attached to the case (100). Preferably, the soft protective cover (10) is made of thermoplastic polyurethane
15 and the hard protective frame (20) is made of polycarbonate.

Preferably, the inner boundary (320) and the outer boundary (330) are circular as in FIG. 5(b). Alternatively, the inner boundary (320) and the outer boundary (330) may be rectangular with rounded corners as in FIG. 5(b).

20 As illustrated in FIG. 6(b), when the metal plate (30) is attached to the case (100) and the electronic device (300) is installed in the case (100), the rounded concave edge (35), the inner boundary (320), and the outer boundary (330) are substantially symmetrical with respect to the

same line. The inner boundary (320) and the outer boundary (330) are generally concentric, and the rounded concave edge (35) may or may not be concentric as well.

FIG. 6(b) shows various relative locations between the metal plate (35) and the boundaries (320, 330). The rounded concave edge (35) may be placed in between the inner boundary (320) and the outer boundary (330). Alternatively, the rounded concave edge (35) may overlap with the outer boundary (330). Or, the rounded concave edge (35) may be placed outside the outer boundary (330).

As in FIGS. 1(a)-1(d), the metal plate (30) may be substantially rectangular with one side (34) having the rounded concave edge (35). In addition, the metal plate (30) may have rounded corners, preferably, all four corners are rounded. In FIG. 1(a), sides (31, 32) are substantially parallel to each other and sides (33, 34) are substantially parallel to each other as well.

In the alternative embodiment as in FIG. 3(b), the metal plate (30) may be substantially trapezoidal wherein the rounded concave edge (35) is formed on a shorter side (34) of two parallel sides (33, 34). In addition, the metal plate (30) may have rounded corners, preferably, all four corners are rounded.

FIGS. 3(a), 3(b) and 3(c) show alternative designs of the metal plate (30), and FIGS. 4(a), 4(b) and 4(c) show them attached to the case (100).

The metal plate (30) is attached to the hard
5 protective frame (20) by an adhesive (37). Preferably, the adhesive (37) is a double-sided adhesive.

As in FIG. 1(b), the metal plate (30) may have an adhesive layer covered with transparent film. A user may remove the transparent film and attach the adhesive layer
10 to the case (100).

The hard protective frame (20) may further comprise a surrounding recess (28) which surrounds the recess (26) and gradually recesses from a flat surface (23) of the hard protective frame (20) to the recess (26).

15 The case, having the hard protective frame (20), may further comprises a soft protective cover (10) which comprises a back panel (12) to cover a back portion of the electronic device (300), and a side wall (14) extending from a top surface (11) of the back panel (12) along edges
20 (13) of the back panel (12).

In the alternative embodiment, a metal plate (30) for magnetically mounting an electronic device (300) or a case (100) with an electronic device (300) installed therein wherein the electronic device (300) has a receiver coil

(310) for wireless charging and the receiver coil (310) is formed in between an inner boundary (320) and an outer boundary (330), the metal plate (30) comprising: a rounded concave edge (35).

5 The metal plate (30) is constructed to be attachable to the case (100). The metal plate (30) is constructed to enable magnetic retention or attachment of the case (100) with the electronic device (300) installed therein to a support (40) having a magnet (50), and the metal plate (30)
10 does not overlap with the inner boundary (320).

 The metal plate (30) may be directly attached to the electronic device (300) or to the case (100) for magnetically mounting the electronic device (300) to a support (40). Alternatively, the metal plate (30) may be
15 attached to the electronic device (300) which is then installed in the case (100).

 The inner boundary (320) and the outer boundary (330) are circular, or rectangular with rounded corners.

 The rounded concave edge (35), the inner boundary
20 (320), and the outer boundary (330) are substantially symmetrical with respect to a same line.

 The rounded concave edge (35) may be placed in between the inner boundary (320) and the outer boundary (330). Alternatively, the rounded concave edge (35) may overlap

with the outer boundary (330). Or, the rounded concave edge (35) may be placed outside the outer boundary (330).

The metal plate (30) is substantially rectangular with one side (34) having the rounded concave edge (35), and the
5 metal plate (30) has rounded corners.

Alternatively, the metal plate (30) may be substantially trapezoidal, wherein the rounded concave edge (35) is formed on a shorter side (34) of two parallel sides (33, 34), and wherein the metal plate (30) has rounded
10 corners.

The metal plate (30) may further comprise an adhesive layer (37).

The metal plate (30) may be attached to the recess of the case, or the metal plate (30) may be attached to outer
15 side of the case or directly to the electronic device.

FIG. 6(a) shows test results. First one is for wireless charging without a case. Second and third ones are for wireless charging respectively with the cases of FIGS. 4(b) and 4(c). With the case having the metal plate, the
20 wireless charging is still very effective.

The metal plate of the present invention helps a case with an electronic device installed therein magnetically attracted and retained by the support having a magnet, and at the same time, the case having the metal plate does not

substantially impede or prevent wireless charging of the electronic device. In addition, the metal plate does not substantially impede or prevent wireless charging of the electronic device, and thus a user does not have to remove
5 the metal plate for wireless charging.

Below is the description of the invention disclosed in the U.S. Patent Application No. 15,359,465, filed on November 22, 2016, the disclosure of which is incorporated herein by reference in its entirety.

10 FIGS. 7 and 8 respectively show front and rear perspective views of a case 100 according to the present invention. FIG. 9 shows an exploded view of the case 100 having a soft protective cover 10, a hard protective frame 20 and a first member 30.

15 A magnetic mount 200 of the present invention for an electronic device 300 comprises: a case 100 and a support 40. The case 100 comprises a soft protective cover 10 which comprises a back panel 12 to cover a back portion of the electronic device 300, and a side wall 14 extending from a
20 top surface 11 of the back panel 12 along edges 13 of the back panel 12; a hard protective frame 20 constructed to removably mount over the soft protective cover 10; and a first member 30 placed between the soft protective cover 10 and the hard protective frame 20. The support has a second

member 50. In addition, the first and second members 30, 50 are magnetically attractable to each other for magnetically attracting and retaining the case 100 to the support 40.

FIG. 10 shows a rear view of the case 100 and FIG. 11
5 shows a cross sectional view of FIG. 10.

The soft protective cover 10 may have a recess (not shown) formed on the back panel 12 to receive the first member 30. In the alternative as shown in FIG. 11, the hard protective frame 20 may have a recess to receive the first
10 member 30. Or, the soft protective cover 10 may have a first recess formed on the back panel 12 and the hard protective frame 20 may have a second recess such that the first and second recesses form a housing to receive the first member 30 therein.

15 FIG. 12 shows a schematic perspective view of the magnetic mount 200 illustrating magnetic attraction between the support 40 and the first member 30 to support or retain the electronic device 300.

The support 40 comprises a body 42 and a plurality of
20 legs 46, wherein the body 42 is substantially in a form of a geometric prism or cylinder which has two bases 43, 44 facing each other wherein the legs 46 are attached to one 44 of the two bases 43, 44, wherein the second member 50 is

placed in the body 42. One base 43 of the support 40 has a flat surface to be magnetically attached to the case 100.

The body 42 is substantially in a shape of a prism, a right prism, a uniform prism, or cylinder. Preferably, the body is substantially cylindrical or substantially in a shape of a right prism having two bases of regular convex and rectangular sides, for example, regular hexagon right prism, regular octagon right prism, or the like.

When the case 100 is magnetically retained by the support 40, the base 43 of the body 42 and an outer surface 22 of the hard protective frame 20 create enough friction to prevent the case 100 from sliding on the base 43. To create such friction, the surface of the base 43 may be rough.

FIG. 13 shows a perspective view of the magnetic mount 200 such that the support 40 magnetically attracts and retains the case 100 so that the case 100 can stand on a flat surface. FIG. 14 shows a perspective view of the magnetic mount 200 such that the support 40 magnetically attracts and retains the case 100 and the support 40 is inserted into and securely retained by an air vent of a vehicle which is comprised of parallel vanes.

The plurality of legs 46 of the support 40 are configured to support the case 100 magnetically retained by

the support 40 so that the case 100 stands on a flat surface. When the case 100 is magnetically retained by the support 40, the case 100 can stand on a flat surface and the angle between the case 100 and the flat surface can be
5 adjusted by adjusting the location of the support 40 with respect to the case 100. The adjusted location can be maintained. The friction between the case 100 and the support 40 should be weak enough to allow such location adjustment, but strong enough to prevent slipping of the
10 case 100 away from the support 40.

In addition, the plurality of legs 46 of the support 40 is constructed to be received and retained by an air vent of a vehicle. FIG. 14 shows the support 40 inserted into and retained by the air vent of a vehicle. By the
15 magnetic attraction between the support 40 and the case 100, the case 100 can be mounted onto the air vent of a vehicle. The support 40 is detachably fixed to the air vent and the case 100 can rotate or slide a little with respect to the support 40. Because of friction between the support 40 and
20 the case 100, adjusted rotation or sliding of the case 100 can be maintained so that a user can adjust the angle of the case 100 suitable and convenient for him.

Preferably, the first member 30 is made of ferromagnetic material and the second member 50 is made of

a magnet which produces magnetic flux. More specifically, the first member 30 may be made of steel, stainless steel, or iron. As in FIGS. 15 and 16, the first member 30 may be made of ferromagnetic metal plate.

5 The first member 30 is close enough to an outer surface 22 of the hard protective frame 20 and the magnet produces enough magnetic flux so that the support 40 attracts and retains the case 100 with the electronic device 300 installed therein in place.

10 Additionally, the support 40 and the case 100 create enough friction to prevent the case 100 from sliding on or slipping from the support 40 when the case 100 is magnetically retained by the support 40.

 Alternatively, the second member 50 may be made of
15 ferromagnetic material and the first member 30 may be made of a magnet which produces magnetic flux.

 The body 42 of the support 40 may be geometrically a prism or cylinder. More preferably, the body 42 is substantially cylindrical as FIG. 12 or FIG. 13.
20 Cylindrical shape is preferable in rotating the support 40 or case 100 with respect to each other. The plurality of legs 46 is attached about a center of the base 44 and preferably, there are four legs 46. Four legs 46 may form a

square layout so that they can be easily inserted into an air vent of a vehicle.

As in FIGS. 15 and 16, the first member 30 may be a circular metal plate or a rectangular metal plate.

5 The soft protective cover 10 is made of soft material and the hard protective frame 20 is made of hard material. Preferably, the soft protective cover 10 is made of thermoplastic polyurethane and the hard protective frame 20 is made of polycarbonate.

10 As shown in FIG. 11, the soft protective cover 10 comprises a longitudinal recess 15 and the hard protective frame 20 comprises a longitudinal protrusion 25 such that the longitudinal recess 15 of the soft protective cover 10 receives the longitudinal protrusion 25 of the hard
15 protective frame 20 therein for secure coupling between the soft protective cover 10 and the hard protective frame 20.

 The soft protective cover 10 is sufficiently flexible to accept insertion of the electronic device 300 therein and sufficiently rigid to securely retain the inserted
20 electronic device 300.

 The magnetic mount 200 may further comprise a double-sided adhesive for attaching the first member 30 either to the soft protective cover 10 or to the hard protective

frame 20. The double-sided adhesive may be a double-sided adhesive tape or sheet.

If the soft protective cover 10 has a recess (not shown) formed on the back panel 12 to receive the first member 30, the double-sided adhesive may be located in the recess to attach the first member 30 to the soft protective cover 10. The double-sided adhesive may be a double-sided adhesive tape or sheet.

If the hard protective frame 20 has a recess to receive the first member 30, the double-sided adhesive may be located in the recess to attach the first member 30 to the hard protective frame 20.

Alternatively, the magnetic mount 200 may further comprise two double-sided adhesives one of which is for attaching the first member 30 to the soft protective cover 10 and the other of which is for attaching the first member to the hard protective frame 20.

In case that the soft protective cover 10 has a first recess formed on the back panel 12 and the hard protective frame 20 has a second recess, and the first and second recesses form a housing to receive the first member 30 therein, two double-sided adhesives may be located in both of the recesses for attaching the first member 30 to the soft protective cover 10 and the hard protective frame 20.

The first member 30 may be attached either to the soft protective cover 10 or to the hard protective frame 20 by an adhesive such as glue, bond, paste, tape, double-sided adhesive, etc. The double-sided adhesive may be a double-sided adhesive tape or sheet.

In the alternative embodiment, a magnetic mount 200 for an electronic device 300 may comprise: a case 100 for receiving an electronic device therein; a first member 30 attached to a back of the case 100 by an adhesive; and a support 40 having a second member 50. The first and second members 30, 50 are magnetically attractable to each other for magnetically attracting and retaining the case 100 to the support 40. The adhesive may be glue, bond, paste, tape, double-sided adhesive, etc. The first member 30 may be a circular metal plate or a rectangular metal plate.

The first member 30 may be made of ferromagnetic material and the second member 50 may be made of a magnet which produces magnetic flux. More specifically, the first member 30 may be made of steel, stainless steel, or iron. Preferably, the first member 30 may be made of ferromagnetic metal plate.

Alternatively, the second member 50 may be made of ferromagnetic material and the first member 30 may be made of a magnet which produces magnetic flux.

Still in the alternative embodiment of the present invention, a magnetic mount 200 for an electronic device 300 comprises: a first member 30 to be attachable to a back of the electronic device 300 by an adhesive; and a support 40 having a second member 50. The first and second members 30, 50 are magnetically attractable to each other for magnetically attracting and retaining the case 100 to the support 40. In addition, one side of the adhesive is attached to the first member.

10 The first member 30 may be made of ferromagnetic material and the second member 50 may be made of a magnet which produces magnetic flux. The magnet produces enough magnetic flux so that the support 40 attracts and retains the electronic device 300. The support 40 and the first
15 member 30 create enough friction to prevent the first member 30 from sliding on the support 40 when the electronic device 300 is magnetically retained by the support 40.

Another side of the adhesive may be covered with a
20 release tape so that after removing the release tape, the another side of the adhesive can be attached to the back of the case.

The adhesive may be glue, bond, paste, tape, double-sided adhesive, or the like known in the art, but

preferably, the adhesive is a double-sided adhesive. The double-sided adhesive may be a double-sided adhesive tape or sheet.

FIGS. 11 and 17 show cross-sectional views of the present invention. The embodiment of FIG. 11 is explained
5 above and the embodiment of FIG. 17 further comprises a surrounding recess 28.

In this embodiment, the hard protective frame 20 has a recess 26 to receive the first member 30 therein, and the
10 hard protective frame 20 may further comprise a surrounding recess 28 which surrounds the recess 26 and gradually recesses from a flat surface 23 of the hard protective frame 20 to the recess 26.

In the alternative, the case 100 may comprise a recess
15 26, formed on its back 23 facing the electronic device 300, for receiving the first member 30 therein, and the case 100 may further comprise a surrounding recess 28 which surrounds the recess 26 and gradually recesses from a flat surface 23 of the case 100 to the recess 26. FIG. 18 shows
20 a drawing of the case 100 according to this embodiment.

In FIG. 18, the recess 26 is formed on the inner surface 23 of the case 100 and the surrounding recess 28 is formed along the outer boundary of the recess 26 to surround the recess 26. The surrounding recess 28 may

gradually recess from a flat surface 23 of the case 100 (or the hard protective frame 20) to the recess 26. As shown in FIG. 17, the surrounding recess 28 gradually recesses and becomes flat toward the recess 26.

5 The first member 30 may be flush with the recess 26 or slightly protrude out of the recess 26. In other words, the height of the first member 30 may be about or slightly greater than the depth of the recess 26. However, the first member 30 does not protrude beyond the flat surface 23 of
10 the case 100 (or the hard protective frame 20).

Accordingly, the surrounding recess 28 forms space between the first member 30 and the electronic device 300 in order to prevent scratches or damages by the first member 30 to the electronic device 300. In addition,
15 without the surrounding recess 28, a boundary line of the recess 26 may be formed on the outer surface 22 of the case 100 or the hard protective frame 30 which is visible from outside. The surrounding recess 28 prevents such boundary line of the recess from being formed on the outer surface
20 22 and makes the part of the case 100 or the hard protective frame 20 in contact with the first member 30 less vulnerable to damages.

While the invention has been shown and described with reference to different embodiments thereof, it will be

appreciated by those skilled in the art that variations in form, detail, compositions and operation may be made without departing from the spirit and scope of the invention as defined by the accompanying claims.

ABSTRACT

A case for an electronic device wherein the electronic device has a receiver coil for wireless charging and the receiver coil is formed in between an inner circle and an outer circle, includes: a hard protective frame constructed to receive the electronic device therein wherein the hard protective frame has a recess which faces the electronic device; and a metal plate constructed to be received in the recess. The metal plate is constructed to enable magnetic retention or attachment of the case to a support having a magnet. The metal plate has a rounded concave edge, and the metal plate does not overlap with the inner circle. Preferably, the rounded concave edge, the inner circle, and the outer circle are substantially symmetrical with respect to a same line.

MAGNETIC MOUNT FOR ELECTRONIC DEVICES

What is claimed is:

1. A case (100) for an electronic device (300) wherein the electronic device (300) has a receiver coil (310) for wireless charging and the receiver coil (310) is formed in between an inner boundary (320) and an outer boundary (330), comprising:

a hard protective frame (20) constructed to receive the electronic device (300) therein wherein the hard protective frame (20) has a recess (26) which faces the electronic device (300); and

a metal plate (30) constructed to be received in the recess (26) of the hard protective frame (20), wherein the metal plate (30) is constructed to enable magnetic retention or attachment of the case (100) to a support (40) having a magnet (50), wherein the metal plate (30) has a rounded concave edge (35), wherein the metal plate (30) does not overlap with the inner boundary (320).

2. The case of claim 1, wherein the inner boundary (320) and the outer boundary (330) are circular.

3. The case of claim 1, wherein the rounded concave edge (35), the inner boundary (320), and the outer boundary (330) are substantially symmetrical with respect to a same line.

4. The case of claim 3, wherein the rounded concave edge (35) is placed in between the inner boundary (320) and the outer boundary (330).

5. The case of claim 3, wherein the rounded concave edge (35) overlaps with the outer boundary (330).

6. The case of claim 3, wherein the rounded concave edge (35) is placed outside the outer boundary (330).

7. The case of claim 1, wherein the metal plate (30) is substantially rectangular with one side (34) having the rounded concave edge (35).

8. The case of claim 7, wherein the metal plate (30) has rounded corners.

9. The case of claim 1, wherein the metal plate (30) is substantially trapezoidal wherein the rounded concave edge

(35) is formed on a shorter side (34) of two parallel sides (33, 34).

10. The case of claim 9, wherein the metal plate (30) has rounded corners.

11. The case of claim 1, wherein the metal plate (30) is attached to the hard protective frame (20) by an adhesive (37).

12. The case of claim 11, wherein the adhesive (37) is a double-sided adhesive.

13. The case of claim 1, wherein the hard protective frame (20) further comprises a surrounding recess (28) which surrounds the recess (26) and gradually recesses from a flat surface (23) of the hard protective frame (20) to the recess (26).

14. The case of claim 1, further comprising a soft protective cover (10) which comprises a back panel (12) to cover a back portion of the electronic device (300), and a side wall (14) extending from a top surface (11) of the back panel (12) along edges (13) of the back panel (12).

15. A metal plate (30) for magnetically mounting an electronic device (300) or a case (100) with an electronic device (300) installed therein wherein the electronic device (300) has a receiver coil (310) for wireless charging and the receiver coil (310) is formed in between an inner boundary (320) and an outer boundary (330), the metal plate (30) comprising:

 a rounded concave edge (35),
wherein the metal plate (30) is constructed to be attachable to the case (100),
wherein the metal plate (30) is constructed to enable magnetic retention or attachment of the case (100) with the electronic device (300) installed therein to a support (40) having a magnet (50),
wherein the metal plate (30) does not overlap with the inner boundary (320).

16. The case of claim 15, wherein the inner boundary (320) and the outer boundary (330) are circular.

17. The case of claim 15, wherein the rounded concave edge (35), the inner boundary (320), and the outer boundary (330) are substantially symmetrical with respect to a same

line.

18. The case of claim 17, wherein the rounded concave edge (35) is placed in between the inner boundary (320) and the outer boundary (330).

19. The case of claim 17, wherein the rounded concave edge (35) overlaps with the outer boundary (330).

20. The case of claim 17, wherein the rounded concave edge (35) is placed outside the outer boundary (330).

21. The case of claim 15, wherein the metal plate (30) is substantially rectangular with one side (34) having the rounded concave edge (35), and the metal plate (30) has rounded corners.

22. The case of claim 15, wherein the metal plate (30) is substantially trapezoidal, wherein the rounded concave edge (35) is formed on a shorter side (34) of two parallel sides (33, 34), and wherein the metal plate (30) has rounded corners.

23. The case of claim 15, wherein the metal plate (30)

further comprises an adhesive layer (37).

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First Named Inventor/Applicant Name:		Dae-Young KIM		
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	7108PAT252-ADS.pdf	1396108	no	6
			5308ddac14a99c4c9a1ab0d4fb883dda0f1bb682		
Warnings:					
Information:					
2	Oath or Declaration filed	7108PAT252-Declaration.pdf	173125	no	2
			180faf6ea3698a324c0d84a627d8b3ecbe37425a		
Warnings:					
Information:					
3	Drawings-other than black and white line drawings	7108PAT252-Dwgs.pdf	1146710	no	21
			fe4d846f0ce13999c435fe7a34614eb70a65ea10		
Warnings:					
Information:					
4	Specification	7108PAT252-Specification.pdf	208882	no	26
			2be4138daeeac47e25b132c26ddfd92b038d750		
Warnings:					
Information:					
5	Claims	7108PAT252-Claims.pdf	70827	no	6
			6b9923cbe53d294481e1a91a1c4808285924e683		
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	29556	no	2
			1ce6fbd5743da318b92c8cf35b547b141a621910		
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.