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(71) Applicant: **GOERTEK INC.** [CN/CN]; No. 268 Dongfang Road, Hi-Tech Industry District, Weifang, Shandong 261031 (CN).

(72) Inventor: **SAITO, Katsumi**; No. 268 Dongfang Road, Hi-Tech Industry District, Weifang, Shandong 261031 (CN).

(74) Agent: **UNITALEN ATTORNEYS AT LAW CO., LTD.**; 7th Floor, Scitech Place, No. 22 Jian Guo Men Wai Ave., Chaoyang District, Beijing 100004 (CN).

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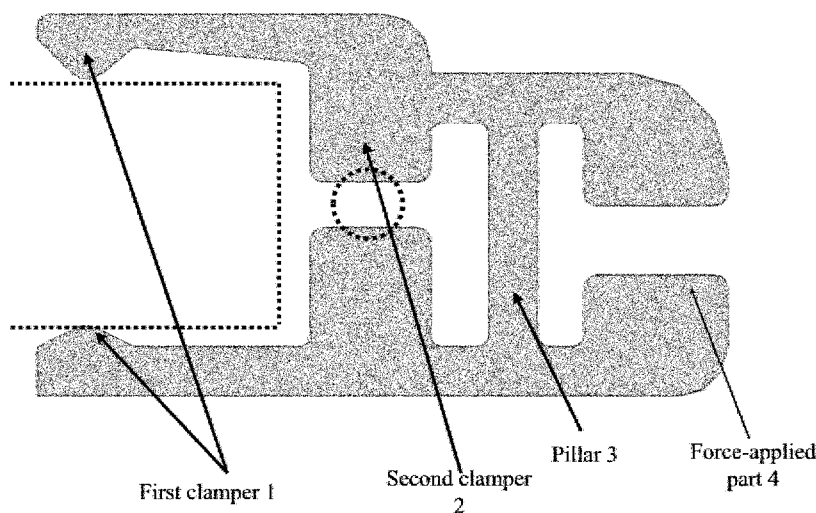


Figure 5

(57) Abstract: A connector for connecting an antenna and a cable, an antenna assembly and a glass style AR device are provided. The connector comprises a first clasper for clamping the antenna, a second clasper for clamping the cable. The antenna and the cable are electrically connected to each other when the antenna and the cable are clamped by the first clasper and the second clasper respectively. In this way, the antenna and the cable can be electrically connected to each other by the connector, which is simple for connecting, with no damage to base material of the antenna and low cost.



CONNECTOR, ANTENNA ASSEMBLY, AND GLASS STYLE AR DEVICE

TECHNICAL FIELD

5 **[0001]** The present disclosure relates to the field of antenna technology, and in particular, to a connector, an antenna assembly and a glass style AR device.

BACKGROUND

10 **[0002]** Antenna development is progressing in various fields. To be work as an antenna in electronic devices and in case of high frequency antenna, wiring is required between the antenna and an RF circuit mounted on a main board of the electronic device, and a micro coaxial cable is usually used for such wiring.

15 **[0003]** Soldering is the most commonly used method for connecting the antenna and the micro coaxial cable. The antenna has a GND pad (ground pad) and a Feed pad. The micro coaxial cable connecting to the RF circuit is fixed on the GND pad and the Feed pad by soldering. In this way, the antenna is electronically connected to the RF circuit by the micro coaxial cable. However, soldering process will damage to base material of antenna due to high temperature, and it also decreases productivity.

20 **[0004]** Low temperature soldering can also be used for connecting the antenna and the micro coaxial cable, which uses high heat resistance material and Induction heating (IH) reflow. However the low temperature soldering has problems of low reliability or necessity of special equipment. It also decreases productivity and takes high cost.

SUMMARY

25 **[0005]** In view of the above, a connector, an antenna assembly and a glass style AR device are provided according to embodiments of the present disclosure, so as to provide a simple way for connecting an antenna and a cable, with no damage and low cost.

30 **[0006]** In one aspect, a connector for connecting an antenna and a cable is provided, comprising: a first clamper for clamping the antenna; a second clamper for clamping the cable; wherein the antenna and the cable are electrically connected to each other when the antenna and the cable are clamped by the first clamper and the second clamper respectively.

[0007] In an embodiment, the connector further comprises a pillar and a force-applied part, wherein the clampers and the force-applied part are located at two ends of the connector, and the pillar is located between the clampers and the force-applied part, and wherein deformation of the force-applied part changes clamping forces of the first clamber and the second clamber through the pillar.

[0008] In an embodiment, the force-applied part has an open space for accommodating a force-applied device, and the force-applied device is configured to apply force on the force-applied part to cause the connector to deform.

[0009] In an embodiment, the force-applied device is a flip, the flip includes a shaft and at least one cam, and the at least one cam apply forces on the force-applied device to cause the connector to deform when the flip is flipped along the shaft.

[0010] In an embodiment, an edge of the force-applied part for contacting with the force-applied device is slant.

[0011] In an embodiment, the force-applied device is a spring, and the spring cause the connector to deform when the spring is released.

[0012] In an embodiment, the force-applied device is an extension-type support, and the extension-type support cause the connector to deform when the extension-type support is extended.

[0013] In an embodiment, the pillar is straight.

[0014] In an embodiment, the pillar is curved, with bulge of the curved pillar facing the force-applied part.

[0015] In an embodiment, one or more notches are provided on the pillar.

[0016] In an embodiment, the second clamber is formed by two platforms and the cable is clamped by the two platforms.

[0017] In an embodiment, the connector further comprises an extension-type support, the first clamber and the second clamber are located at two ends of the connector with the extension-type support being located between the first clamber and the second clamber, and extension of the extension-type support changes clamping forces of the first clamber and the second clamber.

[0018] In an embodiment, a conducting wire is connected between the first clamper and the second clamper, the antenna is contact with one end of the conducting wire when the antenna is clamped by the first clamper and the cable is contact with another end of the conducting wire when the cable is clamped by the second clamper.

5 **[0019]** In an embodiment, material of the connector connecting the first clamper and the second clamper is conductive.

[0020] In an embodiment, the connector is integrated molding and is made of metal.

[0021] In an embodiment, the antenna includes a GND pad and a Feed pad, and the cable is a micro coaxial cable including an outer-conductor and a center-conductor, the first clamper includes two first clamping chucks, and the two first clamping chucks are configured to clamp the GND pad and the Feed pad respectively, the second clamper includes two second clamping chucks, and the two second clamping chucks are configured to clamp the outer-conductor and the center-conductor respectively, and wherein the first clamping chuck configured to clamp the GND pad is electrically connected to the second clamping chuck configured to clamp the outer-conductor, and the first clamping chuck configured to clamp the Feed pad is electrically connected to the second clamping chuck configured to clamp the center-conductor.

[0022] In an aspect, an antenna assembly is provided, comprising an antenna, a cable, and the above mentioned connector.

20 **[0023]** In an aspect, a glass style AR device is provided, comprising: a lens, wherein an antenna is formed on the lens with GND pad and Feed pad of the antenna being formed on an edge of the lens; a rim for fixing the edge of the lens; an RF circuit; a micro coaxial cable for connecting the antenna and the RF circuit; and a connector located between the rim and the edge of the lens, wherein the connector comprises a first clamper and a second clamper, the first clamper comprises two first clamping chucks configured to clamp the GND pad and the Feed pad of the antenna respectively, the second clamper comprises two second clamping chucks configured to clamp outer-conductor and center-conductor of the micro coaxial cable, the GND pad of the antenna and the outer-conductor of the cable are electrically connected to each other and the Feed pad of the antenna and the center-conductor of the cable are electrically connected to each other when the antenna and the cable are clamped by the

25

30

clamping chucks respectively.

[0024] In an embodiment, the antenna and the first clamper are transparent.

[0025] In an embodiment, the micro coaxial cable is arranged along outline of the lens.

[0026] According to the embodiments of present disclosure, the connector for connecting
5 an antenna and a cable includes a first clamper for clamping the antenna and a second clamper
for clamping the cable, where the antenna and the cable are electrically connected to each
other when the antenna and the cable are clamped by the first clamper and the second clamper
respectively. In this way, the antenna and the cable can be electrically connected to each other
by the connector, which is simple for connecting, with no damage to base material of the
10 antenna and low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] For clearer illustration of the technical solutions according to embodiments of the
present disclosure or conventional techniques, hereinafter briefly described are the drawings
15 to be applied in embodiments of the present disclosure or conventional techniques.
Apparently, the drawings in the following descriptions are only some embodiments of the
present disclosure, and other drawings may be obtained by those skilled in the art based on
the provided drawings without creative efforts.

[0028] Figure 1 is a schematic structural diagram of an antenna according to an
20 embodiment of the present disclosure.

[0029] Figure 2 is a schematic structural diagram of an antenna forming on a substrate
according to an embodiment of the present disclosure.

[0030] Figure 3 is a schematic structural diagram of an antenna forming on a film and a
substrate according to an embodiment of the present disclosure.

25 [0031] Figure 4 is a schematic structural diagram of a micro coaxial cable according to an
embodiment of the present disclosure.

[0032] Figure 5 is a schematic structural diagram of a connector according to an
embodiment of the present disclosure.

[0033] Figure 6 is a schematic structural diagram of applying a force-applied device on the

force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure.

5 [0034] Figure 7 is a schematic structural diagram of applying a force-applied device on the force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure.

[0035] Figure 8 is a schematic structural diagram of applying a force-applied device on the force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure.

10 [0036] Figure 9 is a schematic diagram of the force-applied device in Figure 8 according to an embodiment of the present disclosure.

[0037] Figure 10 is a schematic diagram of a connector according to an embodiment of the present disclosure.

[0038] Figure 11 is a schematic diagram of a connector according to an embodiment of the present disclosure.

15 [0039] Figure 12 is a schematic diagram of a connector according to an embodiment of the present disclosure.

[0040] Figure 13 is a schematic diagram of a connector according to an embodiment of the present disclosure.

20 [0041] Figure 14 is a schematic diagram of a connector according to an embodiment of the present disclosure.

[0042] Figure 15 is a schematic diagram of a connector connecting an antenna and a cable according to an embodiment of the present disclosure.

[0043] Figure 16 is a schematic diagram of a glass style AR device according to an embodiment of the present disclosure.

25 [0044] Figure 17 is a schematic diagram of connection between an antenna and a cable via a connector in a glass style AR device according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0045] Hereinafter technical solutions in embodiments of the present disclosure are

described in conjunction with the drawings in embodiments of the present disclosure. The described embodiments are only some rather than all of the embodiments of the present disclosure. Any other embodiments obtained based on the embodiments of the present disclosure by those skilled in the art without any creative effort fall within the scope of protection of the present disclosure.

[0046] As described in the background, conventionally soldering is used for wiring between an antenna and a cable. However such soldering method will damage to base material of antenna pattern due to high temperature and decrease productivity.

[0047] According to embodiments of the present disclosure, a connector is provided for connecting an antenna and a cable. The connector includes a first clamber for clamping the antenna and a second clamber for clamping the cable. The antenna and the cable are electrically connected to each other when the antenna and the cable are clamped by the first clamber and the second clamber respectively. In this way, the antenna and the cable can be electrically connected to each other by the connector, which is simple for connecting, with no damage to base material of the antenna and low cost.

[0048] The structures of the antenna and the cable will be described first.

[0049] Figure 1 illustrates a schematic structural diagram of an antenna according to an embodiment of the present disclosure. The antenna includes a GND pad and a Feed pad. The GND pad is connected to a ground, and the Feed pad is connected to a RF circuit. In a scene where the antenna is applied to an AR glass, the antenna may be formed by transparent material.

[0050] It should be noted that the antenna may be formed in other patterns, which is not limited herein.

[0051] Figure 2 illustrates a schematic structural diagram of an antenna forming on a substrate according to an embodiment of the present disclosure. In an embodiment, the antenna pattern is formed directly on a substrate.

[0052] For example, in a scene where the antenna pattern is applied to an AR glass, the antenna pattern may be formed on a transparent plastic, such as Polycarbonate (PC) or polymethyl methacrylate (PMMA), around 1 mm in thickness.

[0053] Figure 3 illustrates a schematic structural diagram of an antenna pattern forming on

a film and a substrate according to an embodiment of the present disclosure. In an embodiment, the antenna pattern is formed on a film, and then the film is pasted on a substrate.

5 [0054] For example in also the scene where the antenna pattern is applied to an AR glass, the antenna pattern is formed on a transparent film such as Polyethylene terephthalate (PET), Polycarbonate (PC) and Polyimide (PI), around 0.1mm in thickness, and then the transparent film is pasted on a substrate such as a transparent plastic.

10 [0055] Figure 4 illustrates a schematic structural diagram of a micro coaxial cable according to an embodiment of the present disclosure. The micro coaxial cable includes a center-conductor for conducting, a dielectric-layer for isolation, an outer-conductor for shielding and a jacket for protection from inner to outer.

[0056] It is to be noted that the micro coaxial cable is illustrated above as an example. The present disclosure is also applicable to other cables or wires which have conducting function.

[0057] Now connectors for connecting the antenna and the cable are described below.

15 [0058] Figure 5 illustrates a schematic structural diagram of a connector according to an embodiment of the present disclosure. As shown in Figure 5, the connector includes a first clamper 1, a second clamper 2, a pillar 3, and a force-applied part 4. The first clamper 1 is arranged at one end of the connector and is configured to clamp the antenna. The second clamper 2 is arranged beside the first clamper 1 and is configured to clamp the cable. The
20 force-applied part 4 is located at the other end of the connector. The pillar 3 is located between the clampers and the force-applied part. The connector is deformable. When a force is applied on the force-applied part 4, deformation of the force-applied part 4 changes clamping forces of the first clamper 1 and the second clamper 2 through the pillar 3 as a fulcrum shaft.

25 [0059] In an implementation, the connector is integrated molding, and is made of metal which has property of elastic deformation and property of conducting.

[0060] In an implementation, the connector is integrated molding, and is made of plastic which has property of elastic deformation. Since the plastic does not have the function of conducting, a conducting wire may be added between the first clamper and the second
30 clamper for electronically connecting the antenna and the cable. The conducting wire may be

arranged inside the connector or may be pasted on the connector.

[0061] In an implementation, the connector is made of plastic which has property of elastic deformation and metal which has property of elastic deformation and property of conducting. The metal may be formed between the first clamber and the second clamber for electronically
5 connecting the antenna and the cable, and the plastic may be formed as a frame.

[0062] In an embodiment, the first clamber is formed by two protrudes and the antenna is clamped by the two protrudes.

[0063] In an embodiment, the second clamber is formed by two platforms and the cable is clamped by the two platforms.

10 [0064] In an embodiment, deformation of the force-applied part 4 is caused by a force-applied device. The force-applied part 4 has an open space for accommodating a force-applied device, and the force-applied device is configured to apply force on the force-applied part to cause the force-applied part to deform, so as to changes clamping forces of the first clamber and the second clamber.

15 [0065] Figure 6 illustrates a schematic diagram of applying a force-applied device on the force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure. The force-applied device 5 is an extension-type support that can be controlled to be stretched or shortened. For example the extension-type support is a telescopic sleeve. When the extension-type support 5 is stretched, an upward force is applied on point A of the
20 force-applied part 4, and the force is passed to the first and second clammers at points B and C via the pillar 3 and the points B and C subject a downward force, as thick arrows shown in Figure 6. In this way, the clammers 1 and 2 clamp the antenna and the cable.

[0066] Therefore, in the embodiment, by stretching the extension-type support 5, the clammers 1 and 2 can clamp the antenna and the cable and thus the antenna and the cable can
25 be electrically connected to each other.

[0067] Accordingly, a method for connecting the antenna and the cable via the extension-type support 5 may include: inserting the antenna into the first clamber 1; inserting the cable into the second clamber 2; and stretching the extension-type support 5 to connect the antenna and the cable. In this way, the antenna and the cable can be electrically connected to
30 each other by the connector, which is simple for connecting, with no damage to base material

of the antenna and low cost.

[0068] Figure 7 illustrates a schematic diagram of applying a force-applied device on the force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure. The force-applied device 5 is a spring. When the connector is to be used for connecting an antenna and a cable, the spring is firstly pressed. For example, people may press the force-applied part 4 at upper side of the force-applied part 4 by using for example his fingers, to press the spring. In this case, the point A is subjected a downward force. The force is passed to the first and second clampers at points B and C via the pillar 3 and thus the points B and C subject an upward force, as shown by black thick arrows in Figure 7. In this way, the clampers 1 and 2 are opened for inserting the antenna and the cable.

[0069] After the antenna and the cable are inserted into the first and second clampers, the spring can be released. In this case, an upward force is applied on point A of the force-applied part 4, and the force is passed to the first and second clampers at points B and C via the pillar 3 and thus the points B and C subject a downward force, as shown by white thick arrows in Figure 7. Therefore the clampers 1 and 2 clamp the antenna and the cable.

[0070] Therefore, in the embodiment, by loosening the spring 5, the clampers 1 and 2 can clamp the antenna and the cable and thus the antenna and the cable can be electrically connected to each other.

[0071] Accordingly, a method for connecting the antenna and the cable via the extension-type support 5 may include: pressing the spring; inserting the antenna into the first clamber 1; inserting the cable into the second clamber 2; and loosening the spring 5 to connect the antenna and the cable. In this way, the antenna and the cable can be electrically connected to each other by the connector, which is simple for connecting, with no damage to base material of the antenna and low cost.

[0072] Figure 8 illustrates a schematic diagram of applying a force-applied device on the force-applied part of the connector in Figure 5 according to an embodiment of the present disclosure. The force-applied device 5 is a flip that can be controlled to be flipped. When the flip is flipped, an upward force is applied on point A of the force-applied part 4, and the force is passed to the first and second clampers at points B and C via the pillar 3 and thus the points B and C subject a downward force, as thick arrows shown in Figure 8. In this way, the

clampers 1 and 2 clamp the antenna and the cable.

[0073] Figure 9 illustrates a schematic diagram of a flip according to an embodiment of the present disclosure. As shown in Figure 9, the flip includes a shaft 51 and at least one cam 52. The shaft 51 is arranged along one side of the flip, and the at least one cam 52 is rotated as the shaft 51 being rotated. After the flip is inserted into the force-applied part 4 and by tilting the flip upwardly, the cam 52 of flip lifts up the force-applied part 4 at point A, and points B and C of the connector go down due to the force from point A. In this way, the clampers 1 and 2 clamp the antenna and the cable.

[0074] Therefore, in the embodiment, by flipping the flip 5, the clampers 1 and 2 can clamp the antenna and the cable and thus the antenna and the cable can be electrically connected to each other.

[0075] Accordingly, a method for connecting the antenna and the cable via the flip 5 may include: inserting the antenna into the first clamber 1; inserting the cable into the second clamber 2; and flipping the flip 5 to connect the antenna and the cable. In this way, the antenna and the cable can be electrically connected to each other by the connector, which is simple for connecting, with no damage to base material of the antenna and low cost.

[0076] In an implementation, the edge of the force-applied part 4 contacting with the force-applied device is slant, as shown in Figure 10. In this way, it is easy to slide the flip into the open space of the force-applied part 4 and the flip can be locked into the open space.

[0077] In an implementation, the pillar 3 is curved, with bulge of the curved pillar 3 facing the force-applied part 4, as shown in Figure 11. In this way, it is easy for the pillar 3 to transfer the force from the force-applied part 4 to the clampers 1 and 2.

[0078] In an implementation, one or more notches are provided on the pillar 3, as shown in Figure 12. In this way, it is easy for the pillar 3 to transfer the force from the force-applied part 4 to the clampers 1 and 2.

[0079] Figure 13 illustrates a connector for connecting an antenna and a cable according to an embodiment of the present disclosure. As shown in Figure 13, the connector includes a first clamber 1, a second clamber 2 and an extension-type support 6. The first clamber 1 and the second clamber 2 are located at two ends of the connector, and the extension-type support 6 is located between the first clamber 1 and the second clamber 2. The extension-type support

6 can be controlled to be stretched or shortened. For example, the extension-type support may be a telescopic sleeve. When the extension-type support is stretched, as thick arrows shown in Figure 13, an upward force is applied on point A, and the force is passed to the first and second clampers at points B and C and thus the points B and C subject a downward force. In this case, the clampers 1 and 2 clamp the antenna and the cable.

[0080] Figure 14 illustrates a connector for connecting an antenna and a cable according to an embodiment of the present disclosure. As shown in Figure 14, the connector includes a first clamber 1, the second clamber 2 and a conducting wire 7. The first clamber 1 is configured to clamp the antenna. The second clamber 2 is configured to clamp the cable. The conducting wire 3 is configured to electrically connect the first clamber 1 and the second clamber 2. When the first and second clampers clamp the antenna and the cable, the conducting wire 3 electrically connecting the antenna and the cable.

[0081] In Figure 14, the first clamber 1 and the second clamber are the same. In other embodiments, the second clamber may be different from the first clamber, for example the second clamber may be formed by two platforms.

[0082] Figure 15 illustrates a schematic diagram of a connector connecting an antenna and a micro coaxial cable according to an embodiment of the present disclosure. In this embodiment, the connector includes a first clamber for clamping the antenna and a second clamber for clamping the micro coaxial cable. The first clamber includes two first clamping chucks, and the two first clamping chucks are configured to clamp GND pad and Feed pad of the antenna respectively. The second clamber includes two second clamping chucks, and the two second clamping chucks are configured to clamp outer-conductor and center-conductor of the cable respectively. The first clamping chuck configured to clamp the GND pad of the antenna is electrically connected to the second clamping chuck configured to clamp the outer-conductor of the cable, and the first clamping chuck configured to clamp the Feed pad of the antenna is electrically connected to the second clamping chuck configured to clamp the center-conductor of the cable. Therefore, after the clamping chucks clamp the GND pad and Feed pad of the antenna and the outer-conductor and center-conductor of the cable, the GND pad of the antenna is electronically connected to the outer-conductor of the cable and the Feed pad of the antenna is electronically connected to the center-conductor of the cable.

[0083] In the above embodiment, the distance between the two platforms of the second

clamping chuck configured to clamp the center-conductor of the cable is less than the distance between the two platforms of the second clamping chuck configured to clamp the outer-conductor of the cable. Those skilled in the art can design appropriate distance in view of different diameter of cable to be clamped.

5 [0084] In the above embodiment, when the antenna is formed on a substrate, the substrate including the antenna pattern may be inserted into the first clamper 1 for clamping.

[0085] It is to be noted that the connector including two first clamping chucks and two second clamping chucks can be applied to any of the above structures of connector. For example, for the structure of connector shown in Figure 14, there may be two first clampers
10 and two second clampers, and a pair of first and second clampers is used for connecting GND pad of the antenna and outer-conductor of the cable and the other pair of first and second clampers is used for connecting Feed pad of the antenna and the outer-conductor of the cable.

[0086] In addition, in this embodiment, there are two clamping chucks for each clamper, it should be noted that there may be any number of clamping chucks as needed, which is not
15 limited in this disclosure.

[0087] An antenna assembly is further provided according to an embodiment of the present disclosure. In the embodiment, the antenna assembly includes an antenna, a cable, and a connector. The connector may be any of the above connectors.

[0088] According to the solutions of the above connector and antenna assembly, the antenna
20 and the cable can be electrically connected via a connector, without soldering. In this way, the antenna and the cable can be electrically connected to each other in a sample way, with no damage to base material of the antenna and low cost.

[0089] The above connector and antenna assembly can be applied in various fields. The field of glass style AR devices is taken as an example in the disclosure. Figure 16 illustrates a
25 glass style AR device. The AR glass includes a lens and a rim. A transparent antenna including a GND pad and a Feed pad is formed on the lens, and the transparent antenna is connected with an RF circuit via a micro coaxial cable. Conventionally soldering is used for connecting the transparent antenna and the micro coaxial cable, which will damage to base material of the antenna due to high temperature. In this embodiment, a connector is used for
30 connecting the transparent antenna and the micro coaxial cable. The connector may be any of

the above connectors.

[0090] Figure 17 illustrates a schematic diagram of connection between an antenna and a micro coaxial cable via a connector in a glass style AR device according to an embodiment of the present disclosure. In the glass style AR device, the rim fixes the lens, and there is an open space between the lens and the rim. In the embodiment, the connector is formed in the open space between the lens and the rim, to save space and does not affect appearance of the glass style AR device. In this way, the micro coaxial cable for connecting the antenna and the cable can be arranged along outline of the lens, which saves space and has no affection on transparency of the glass.

[0091] As shown in Figure 17, the antenna pattern is formed on the lens with the GND pad and the Feed pad formed near the edge of the lens fixed by the rim. The connector includes two first clamping chucks for clamping the GND pad and the Feed pad and two second clamping chucks for clamping outer-conductor and center-conductor of the micro coaxial cable. In this way, the GND pad is electrically connected to the outer-conductor of the cable and the Feed pad is electrically connected to the center-conductor of the cable. The other end of the cable is connected to a RF circuit which may be located on the main board arranged at the leg of the glass.

[0092] In this way, the antenna and the cable can be electrically connected to each other by the connector, which is simple for connecting, with no damage to base material of the antenna and low cost. In addition, the space of the glass style AR device can be used reasonably with no affection on appearance of the glass style AR device.

[0093] The schematic diagrams in the Figures illustrate the architecture, functionality, and operation of possible implementations of systems according to various embodiments. In this regard, the architecture, functionality, and operation of possible implementations of systems may include additional components, fewer components, different components, or differently arranged components than those depicted in the Figures.

[0094] In specification, claims, and drawings of the present disclosure, the terms "first", "second", and the like are intended to distinguish similar objects but do not necessarily indicate a specific order or sequence. It should be understood that data described in such manner is interchangeable where appropriate, so that embodiments of the present disclosure

described herein may be implemented in an order other than that is illustrated or described herein. Moreover, the terms "include", "comprise", and any other variants thereof are intended to cover non-exclusive inclusion. For example, a process, a method, a system, a product, or a device that includes a list of steps or units is not necessarily limited to these expressly listed steps or units, but may include another step or another unit that is not expressly listed or that is inherent to such process, method, system, product, or device. No element, act, or instruction used herein should be construed as critical or essential unless explicitly described as such. Also, as used herein, the articles "a" and "an" are intended to include one or more items, and may be used interchangeably with "one or more". Furthermore, as used herein, the term "set" is intended to include one or more items (e.g., related items, unrelated items, a combination of related and unrelated items, etc.), and may be used interchangeably with "one or more". Where only one item is intended, the term "one" or similar language is used. Also, as used herein, the terms "has", "have", "having", or the like are intended to be open-ended terms. Further, the phrase "based on" is intended to mean "based, at least in part, on" unless explicitly stated otherwise.

[0095] The embodiments of the present disclosure are described in a progressive manner, and each embodiment places emphasis on the difference from other embodiments. Therefore, one embodiment can refer to other embodiments for the same or similar parts.

[0096] According to the description of the disclosed embodiments, those skilled in the art can implement or use the present disclosure. Various modifications made to these embodiments may be obvious to those skilled in the art, and the general principle defined herein may be implemented in other embodiments without departing from the spirit or scope of the present disclosure. Therefore, the present disclosure is not limited to the embodiments described herein but confirms to a widest scope in accordance with principles and novel features disclosed in the present disclosure.

CLAIMS

1. A connector for connecting an antenna and a cable, comprising:

a first clamber for clamping the antenna; and

5 a second clamber for clamping the cable;

wherein the antenna and the cable are electrically connected to each other when the antenna and the cable are clamped by the first clamber and the second clamber respectively.

2. The connector according to claim 1, wherein the connector further comprises a pillar and a force-applied part,

10 wherein the clammers and the force-applied part are located at two ends of the connector, and the pillar is located between the clammers and the force-applied part, and

wherein deformation of the force-applied part changes clamping forces of the first clamber and the second clamber through the pillar.

3. The connector according to claim 2, wherein the force-applied part has an open
15 space for accommodating a force-applied device, and the force-applied device is configured to apply force on the force-applied part to cause the connector to deform.

4. The connector according to claim 3, wherein the force-applied device is a flip, the flip includes a shaft and at least one cam, and the at least one cam apply forces on the force-applied device to cause the connector to deform when the flip is flipped along the shaft.

20 5. The connector according to claim 4, wherein an edge of the force-applied part for contacting with the force-applied device is slant.

6. The connector according to claim 3, wherein the force-applied device is a spring, and the spring cause the connector to deform when the spring is released.

7. The connector according to claim 3, wherein the force-applied device is an
25 extension-type support, and the extension-type support cause the connector to deform when the extension-type support is extended.

8. The connector according to any one of claims 2 to 7, wherein the pillar is straight.

9. The connector according to any one of claims 2 to 7, wherein the pillar is curved, with bulge of the curved pillar facing the force-applied part.

10. The connector according to any one of claims 2 to 9, wherein one or more notches are provided on the pillar.

11. The connector according to any one of claims 2 to 11, wherein the second clamper is formed by two platforms and the cable is clamped by the two platforms.

5 12. The connector according to claim 1, wherein the connector further comprises an extension-type support, the first clamper and the second clamper are located at two ends of the connector with the extension-type support being located between the first clamper and the second clamper, and extension of the extension-type support changes clamping forces of the first clamper and the second clamper.

10 13. The connector according to any one of claims 1-12, wherein a conducting wire is connected between the first clamper and the second clamper,

the antenna is contact with one end of the conducting wire when the antenna is clamped by the first clamper and the cable is contact with another end of the conducting wire when the cable is clamped by the second clamper.

15 14. The connector according to any one of claims 1-12, wherein material of the connector connecting the first clamper and the second clamper is conductive.

15. The connector according to any one of claims 1-14, wherein the connector is integrated molding and is made of metal.

20 16. The connector according to any one of claims 1-15, wherein the antenna includes a GND pad and a Feed pad, and the cable is a micro coaxial cable including an outer-conductor and a center-conductor,

the first clamper includes two first clamping chucks, and the two first clamping chucks are configured to clamp the GND pad and the Feed pad respectively,

25 the second clamper includes two second clamping chucks, and the two second clamping chucks are configured to clamp the outer-conductor and the center-conductor respectively, and

wherein the first clamping chuck configured to clamp the GND pad is electrically connected to the second clamping chuck configured to clamp the outer-conductor, and the first clamping chuck configured to clamp the Feed pad is electrically connected to the second clamping chuck configured to clamp the center-conductor.

17. An antenna assembly, comprising an antenna, a cable, and the connector according to any one of claims 1-16.

18. A glass style AR device, comprising:

5 a lens, wherein an antenna is formed on the lens with GND pad and Feed pad of the antenna being formed on an edge of the lens;

a rim for fixing the edge of the lens;

an RF circuit;

a micro coaxial cable for connecting the antenna and the RF circuit; and

a connector located between the rim and the edge of the lens,

10 wherein the connector comprises a first clamper and a second clamper, the first clamper comprises two first clamping chucks configured to clamp the GND pad and the Feed pad of the antenna respectively, the second clamper comprises two second clamping chucks configured to clamp outer-conductor and center-conductor of the micro coaxial cable, the GND pad of the antenna and the outer-conductor of the cable are electrically connected to
15 each other and the Feed pad of the antenna and the center-conductor of the cable are electrically connected to each other when the antenna and the cable are clamped by the clamping chucks respectively.

19. The glass style AR device according to claim 18, wherein the antenna and the first clamper are transparent.

20 20. The glass style AR device according to claim 18, wherein the micro coaxial cable is arranged along outline of the lens.

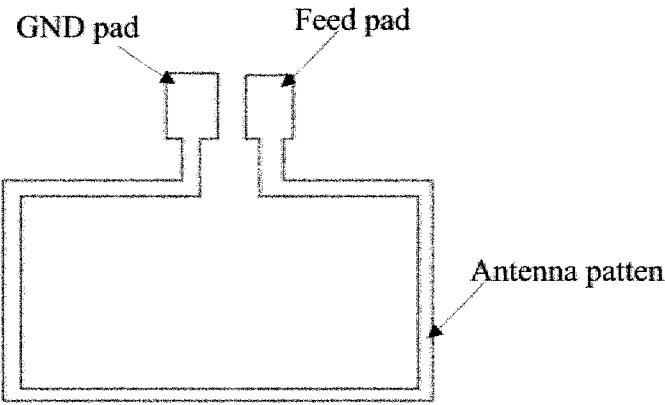


Figure 1

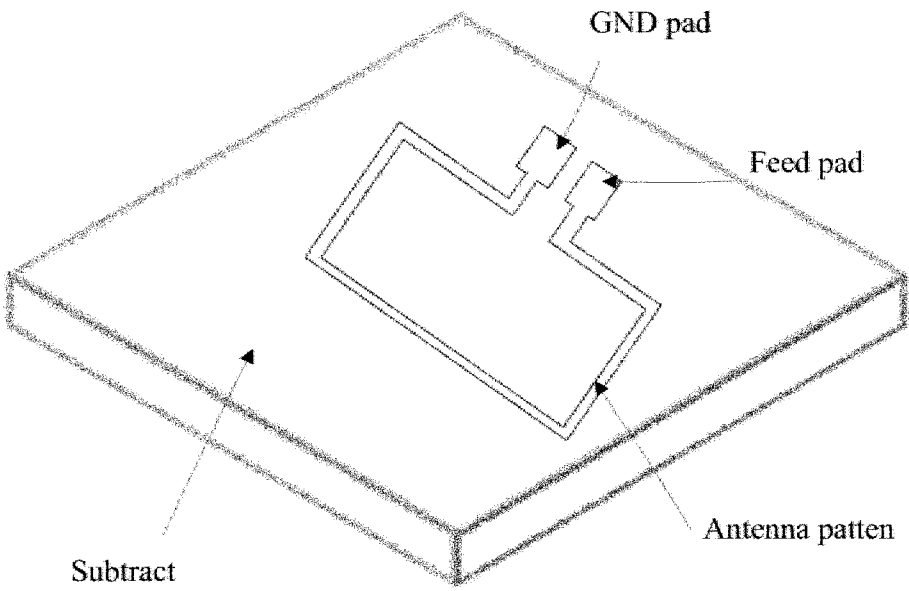


Figure 2

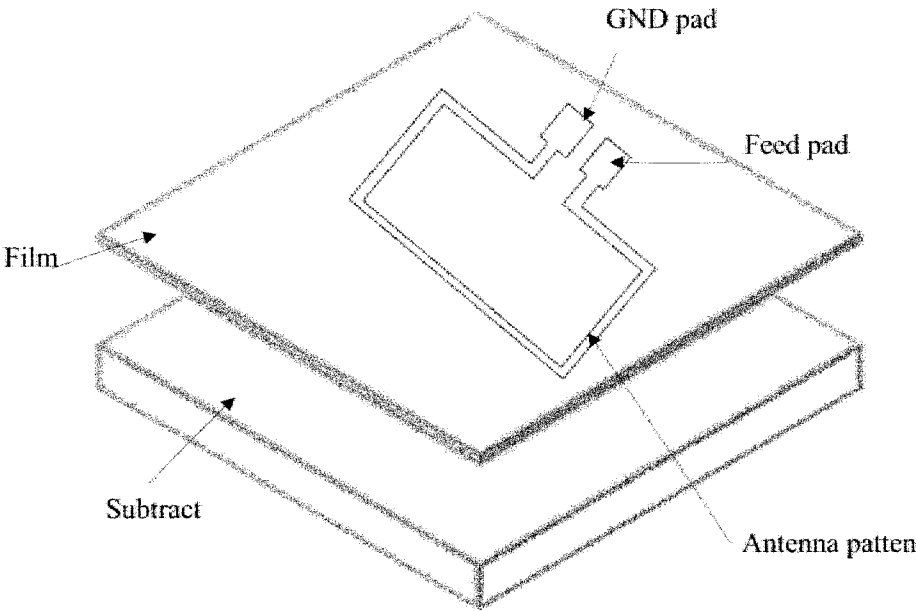


Figure 3

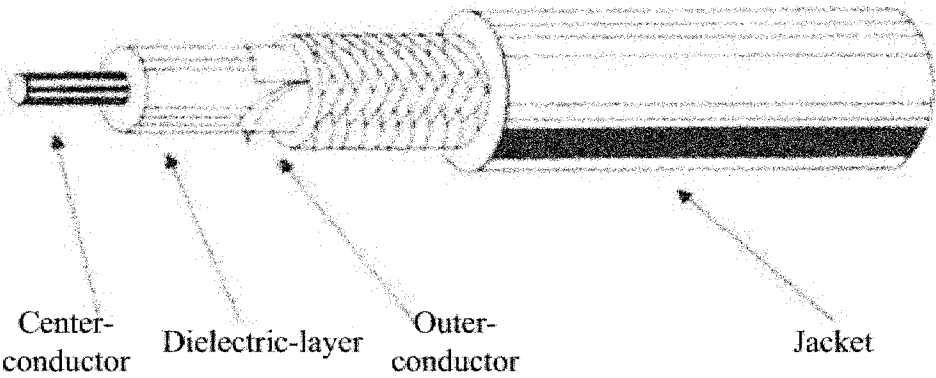


Figure 4

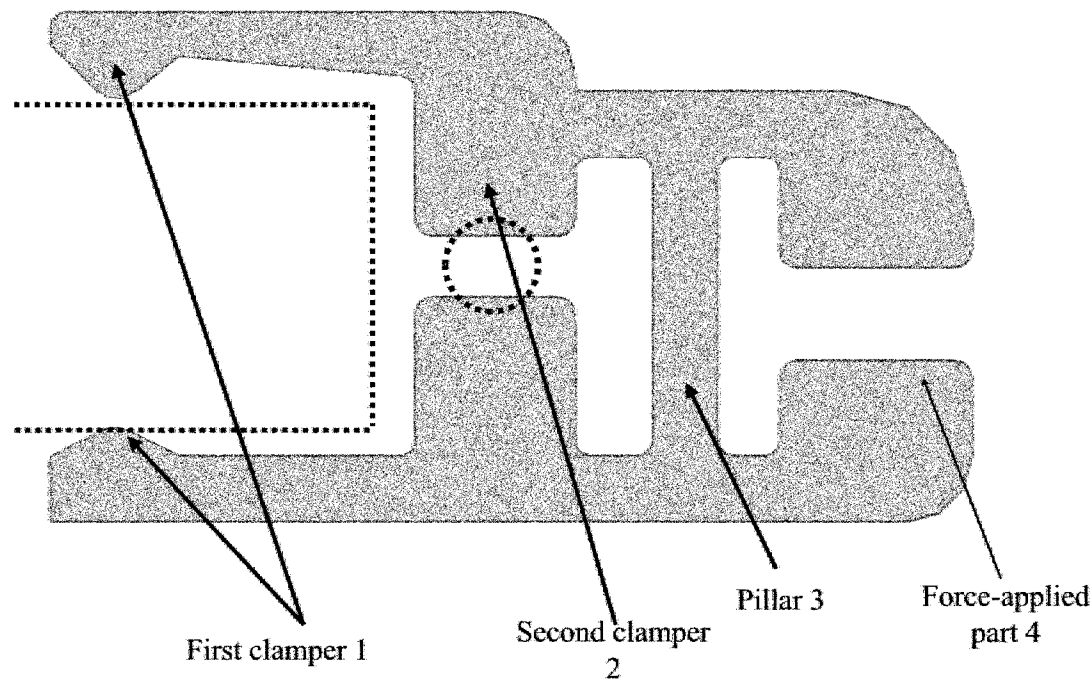


Figure 5

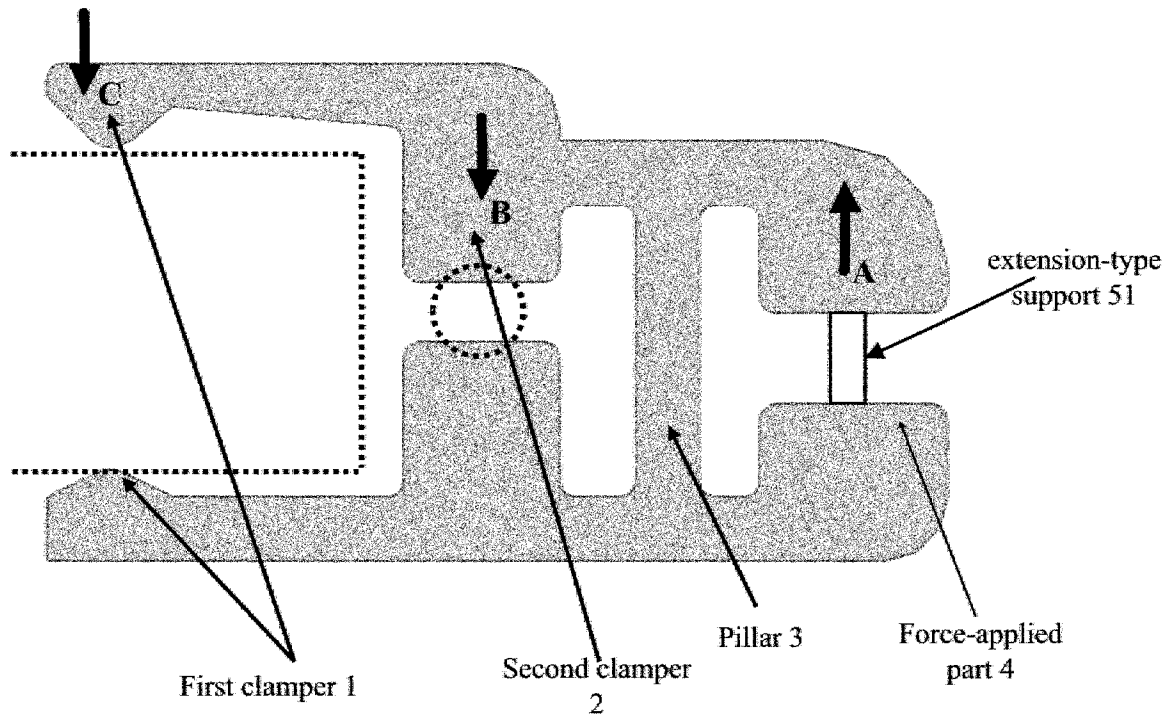


Figure 6

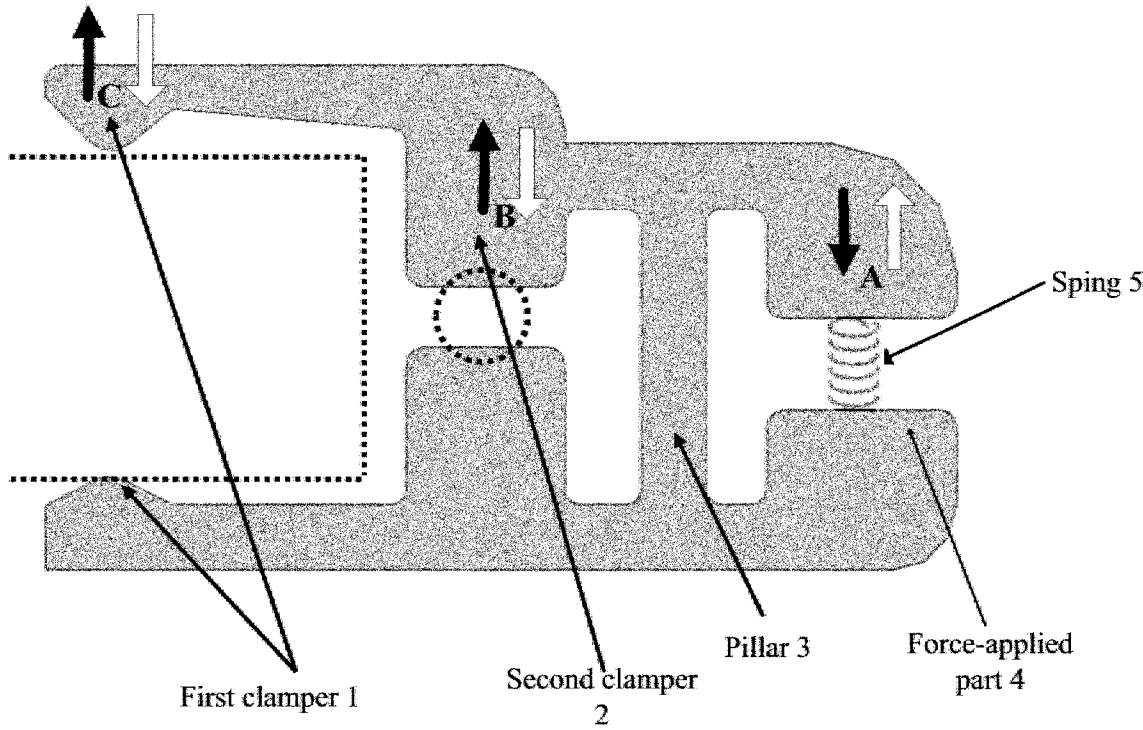


Figure 7

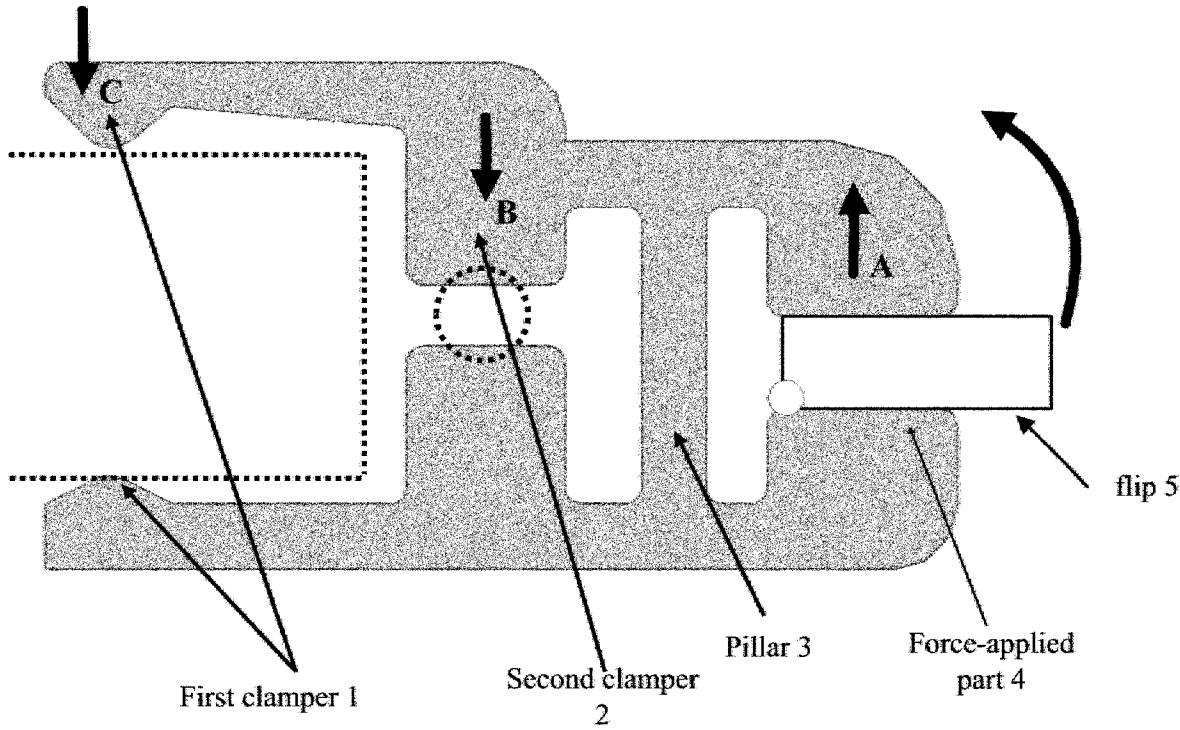


Figure 8

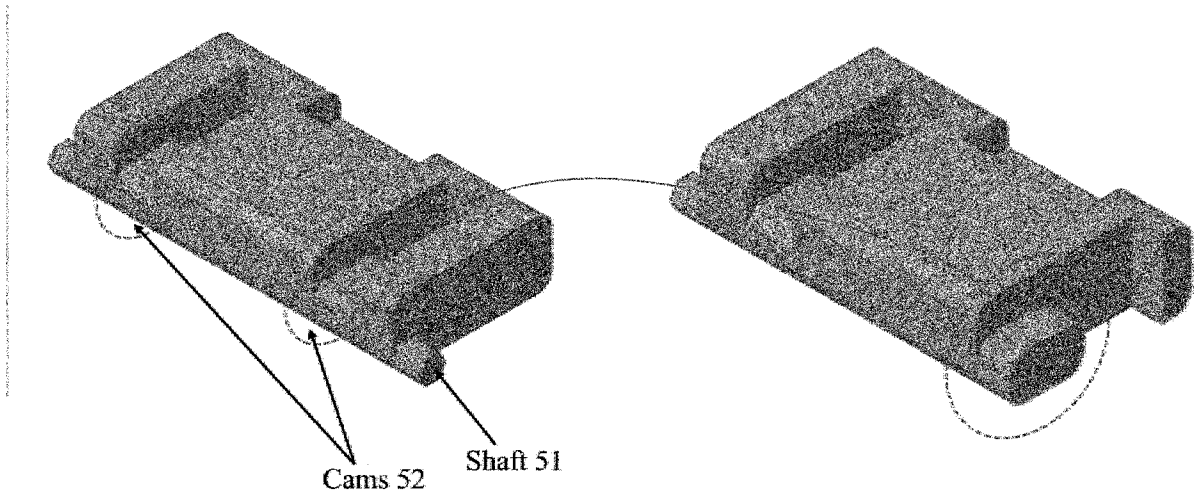


Figure 9

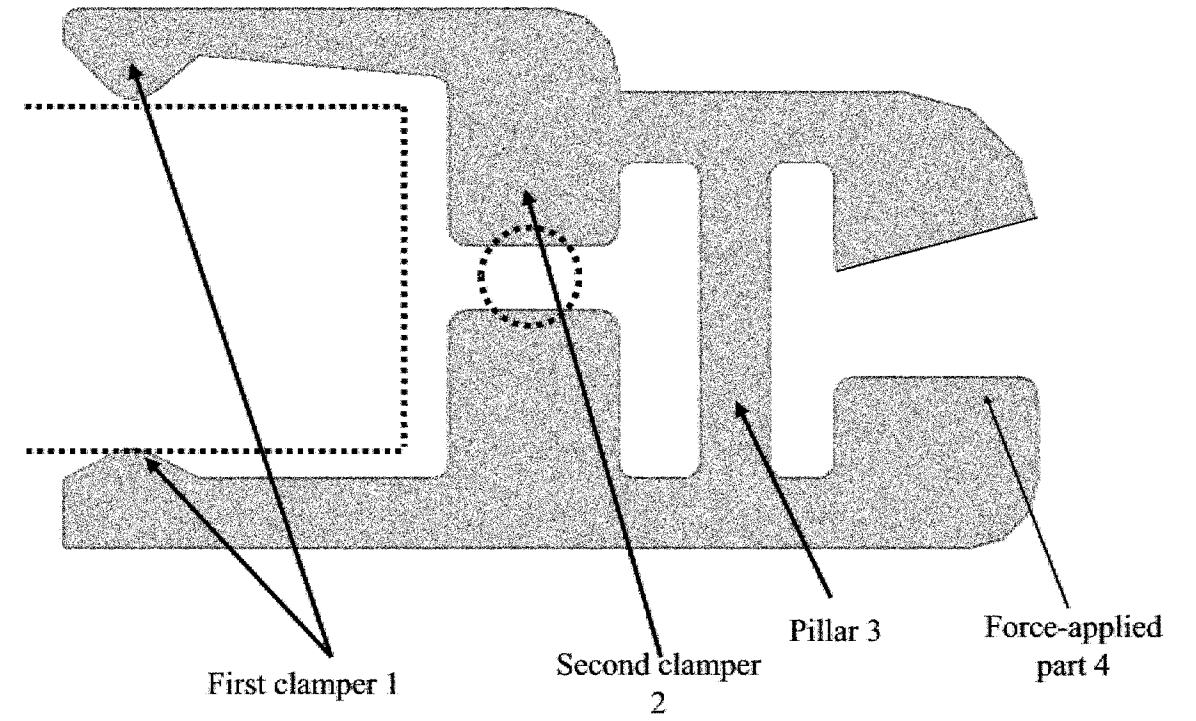


Figure 10

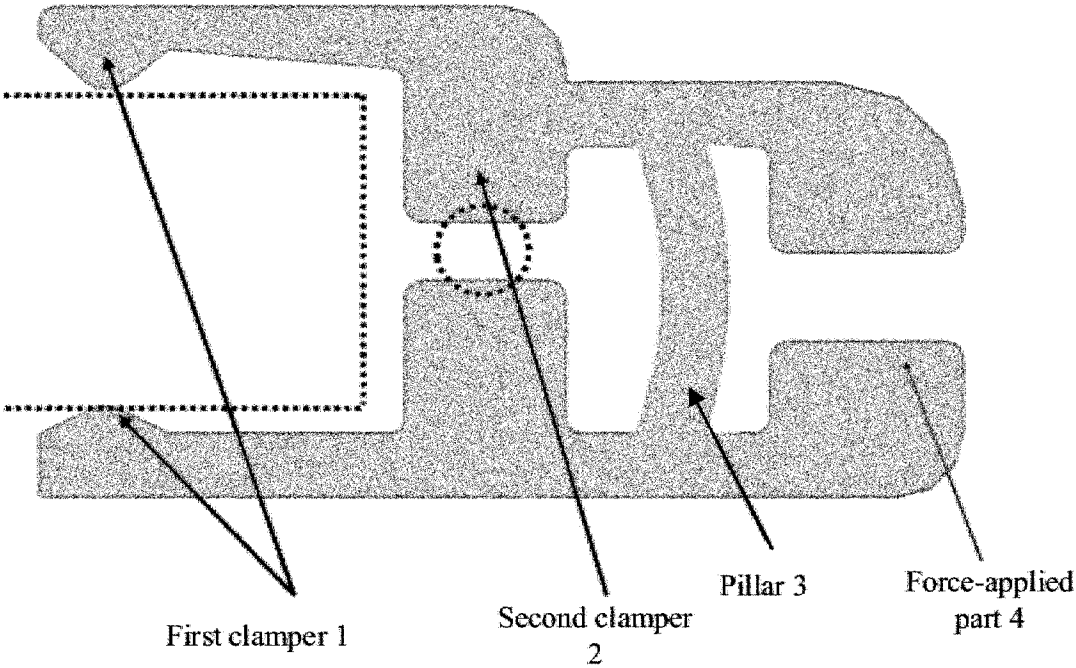


Figure 11

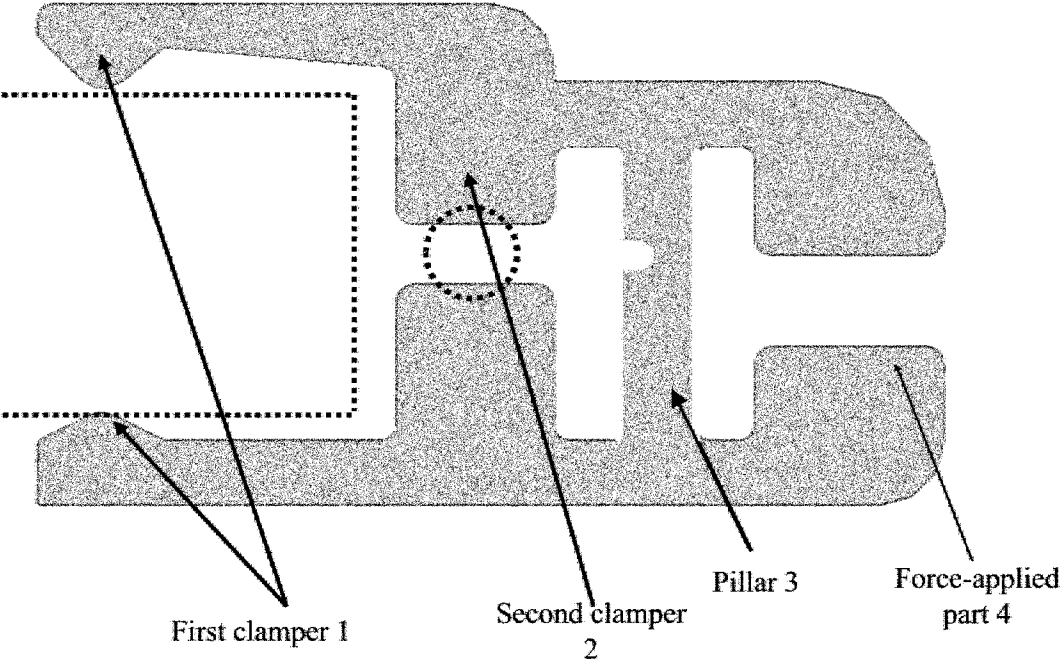


Figure 12

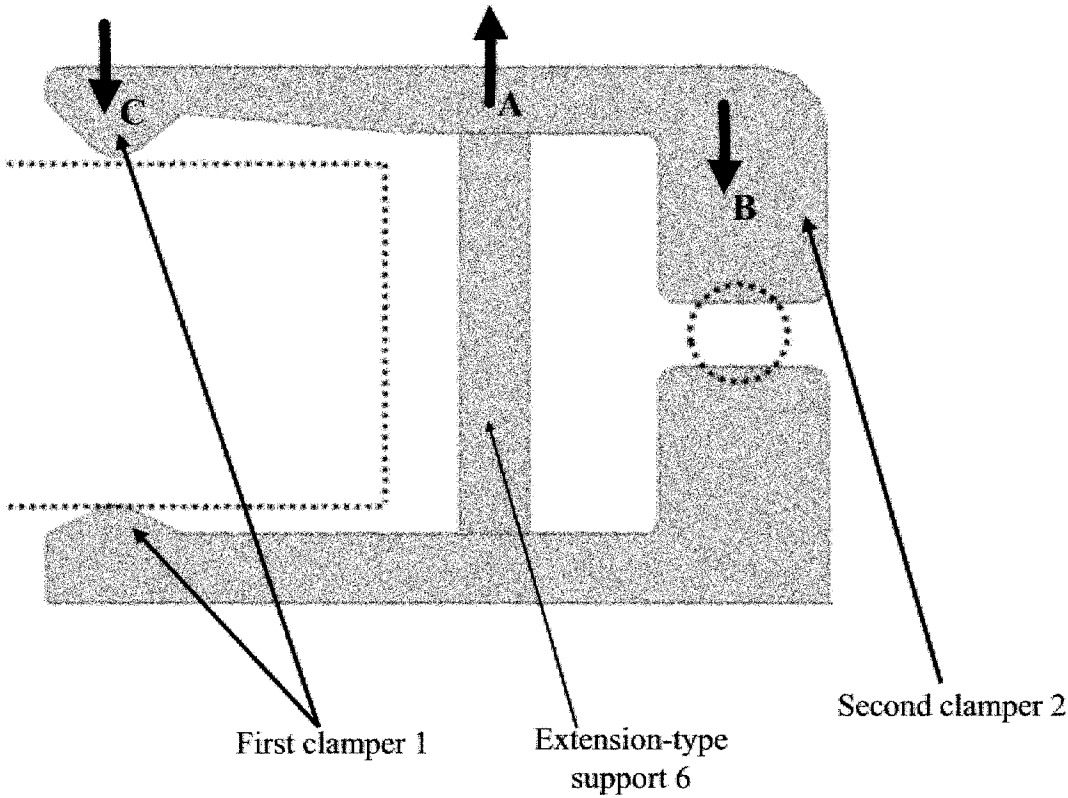


Figure 13

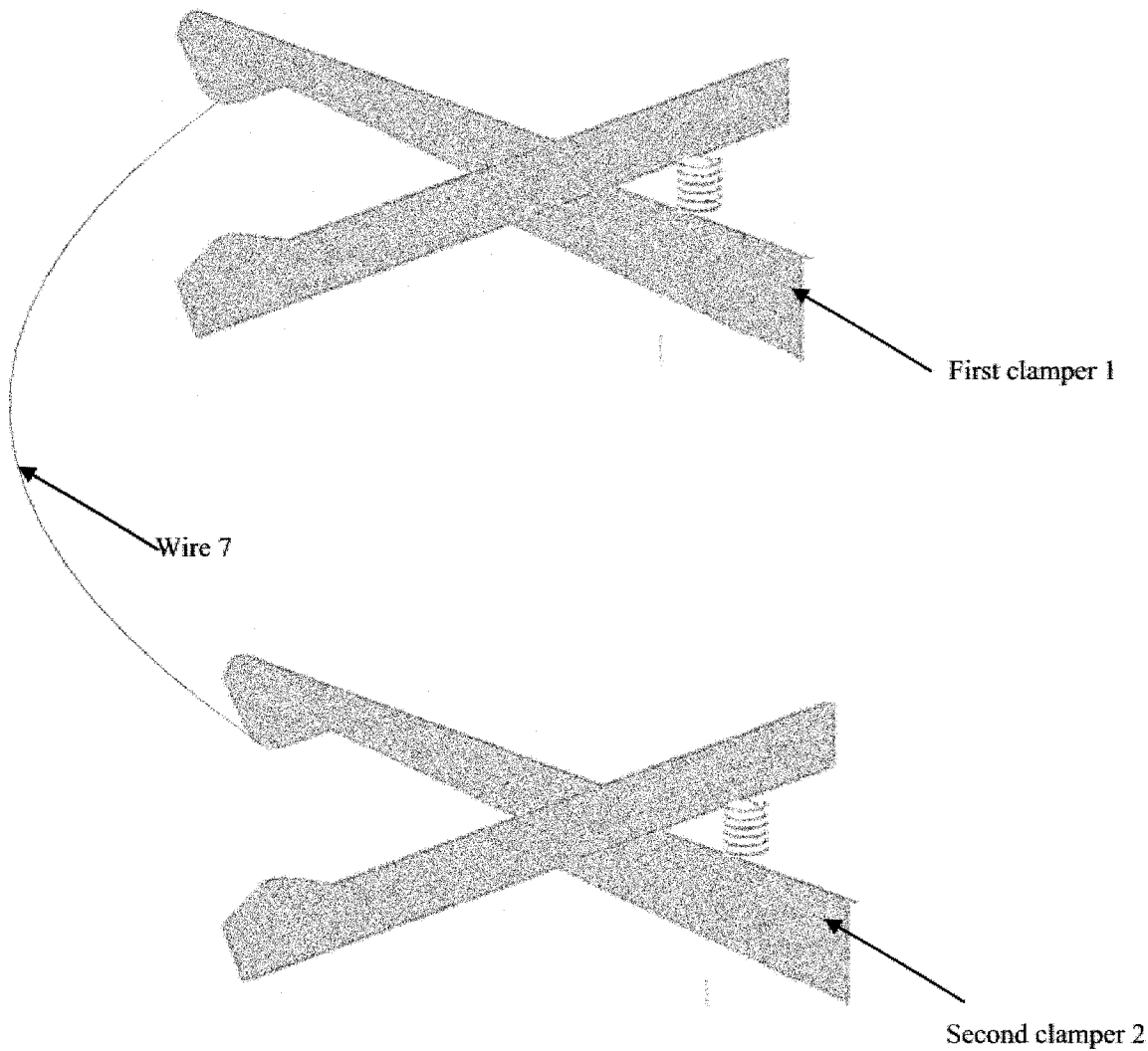


Figure 14

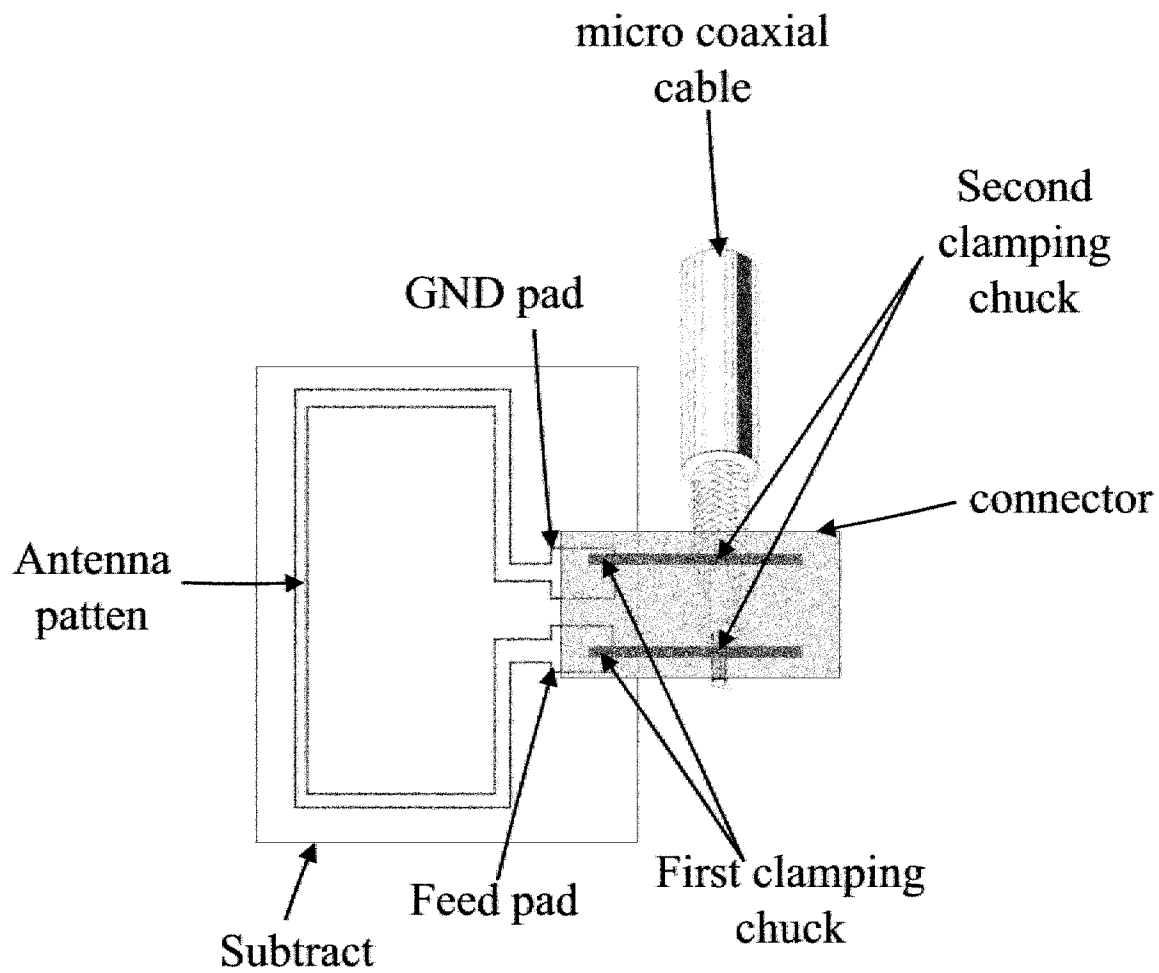


Figure 15

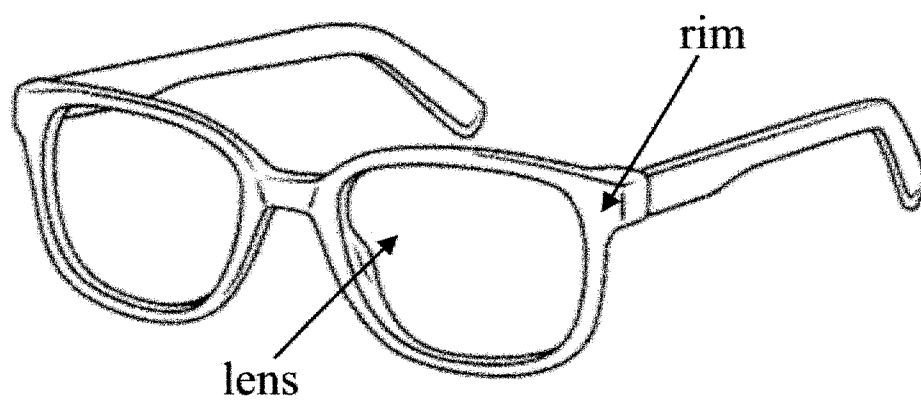
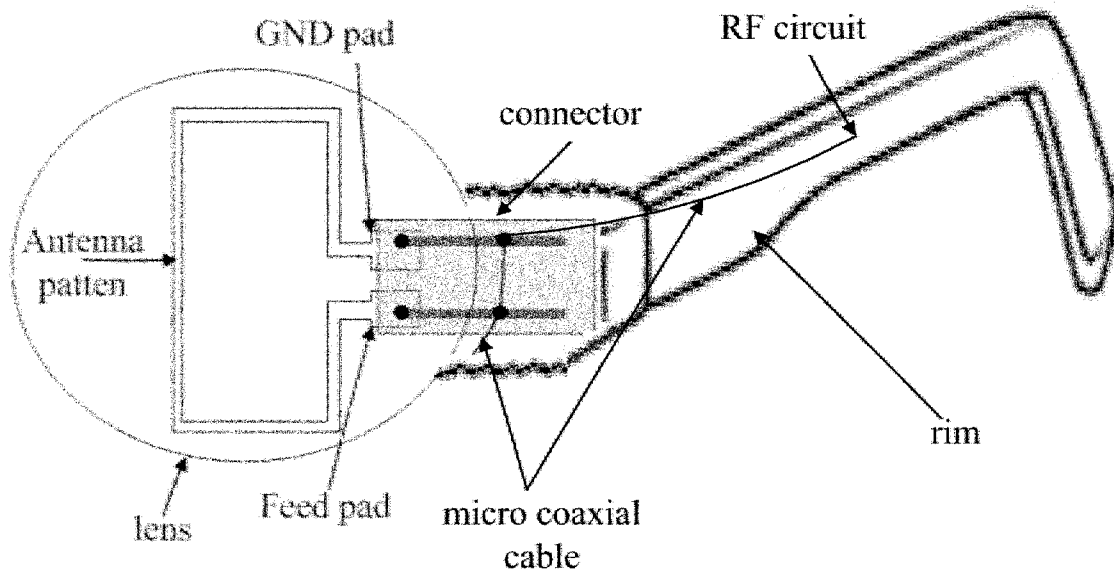


Figure 16

**Figure 17**

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2023/075799

A. CLASSIFICATION OF SUBJECT MATTER

H01R 13/02(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: H01R

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

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

CNTXT, ENTXT, ENTXTC, DWPI, CNKI: antenna, cable, connector, clamp, AR, RF

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 103579756 A (WISTRON NEWEB CORP) 12 February 2014 (2014-02-12) description, paragraphs [0039] to [0055], and figures 1 to 9	1-20
Y	CN 111355047 A (COMBA TELECOM SYSTEMS GUANGZHOU CO LTD) 30 June 2020 (2020-06-30) description, paragraphs [0030] to [0045], and figures 1 to 7	1-20
A	CN 108879092 A (UNIV HENAN NORMAL) 23 November 2018 (2018-11-23) the whole document	1-20
A	US 4161735 A (ZYLLA N R) 17 July 1979 (1979-07-17) the whole document	1-20

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

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“D” document cited by the applicant in the international application

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

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

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

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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

“&” document member of the same patent family

Date of the actual completion of the international search

16 October 2023

Date of mailing of the international search report

19 October 2023

Name and mailing address of the ISA/CN

**CHINA NATIONAL INTELLECTUAL PROPERTY
ADMINISTRATION**
6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing
100088, China

Authorized officer

ZHANG, YiFan

Telephone No. (+86) 62411347

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2023/075799

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	103579756	A	12 February 2014	CN	103579756	B	03 August 2016
CN	111355047	A	30 June 2020	CN	211605436	U	29 September 2020
CN	108879092	A	23 November 2018	None			
US	4161735	A	17 July 1979	None			