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(54) **TERMINAL, MOLDING METHOD AND ELECTRICAL CONNECTOR**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

11,196,197 B1 * 12/2021 Wen H01R 12/57
2018/0331441 A1 * 11/2018 Huang H01R 13/6461
(Continued)

FOREIGN PATENT DOCUMENTS

CN 207282768 U * 4/2018
CN 108281820 A * 7/2018 ..... H01R 12/52
(Continued)

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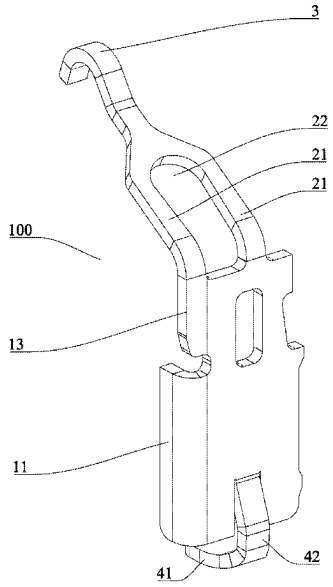
(57) **ABSTRACT**

The present application embodiments thereof provide a terminal, a molding method and an electrical connector. The terminal comprises a base, an elastic arm, a contact part and a connecting part, wherein the elastic arm is formed by obliquely extending upward from the base and toward one side in the thickness direction of the base, the elastic arm is opened with a limiting hole penetrating along the thickness direction thereof, and the limiting hole extending to the top surface of the base to divide the bottom of the elastic arm into two sub-arms spaced apart from each other, the top surface of the elastic arm and the side wall of the limiting hole adjacent to the top surface are provided as cambered surfaces which are convex in the upward direction, and two ends of the cambered surfaces along the circumferential direction are connected with the two sub-arms respectively.

11 Claims, 7 Drawing Sheets



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(58) **Field of Classification Search**
USPC 439/660
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2018/0331442	A1*	11/2018	Huang	H01R 12/585
2019/0173206	A1*	6/2019	Ju	H01R 13/2442
2019/0173207	A1*	6/2019	Ju	H01R 12/714
2019/0245289	A1	8/2019	Wu et al.	
2019/0280414	A1*	9/2019	Huang	H01R 12/707

FOREIGN PATENT DOCUMENTS

CN	108321572	A *	7/2018	H01R 12/716
CN	108448284	A	8/2018	
CN	109659723	A *	4/2019	H01R 12/714
CN	109687186	A *	4/2019	H01R 12/714
CN	109818174	A *	5/2019	H01R 12/712
CN	111244655	A *	6/2020	H01R 12/714
CN	108258467	B *	8/2020	H01R 12/70
CN	111987503	A *	11/2020	H01R 12/714
CN	213043077	U *	4/2021	
CN	213484025	U *	6/2021	

* cited by examiner

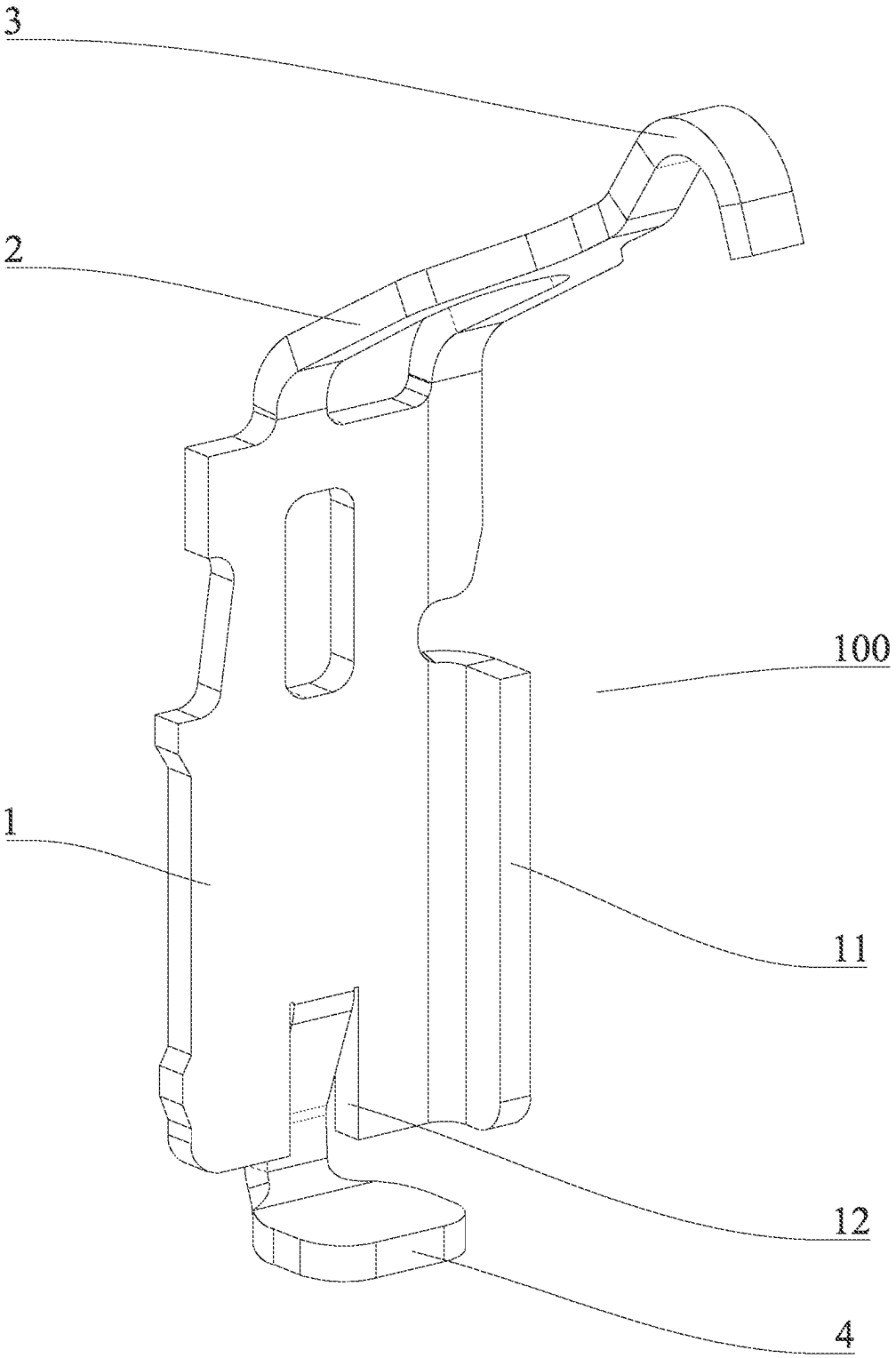

FIG. 1

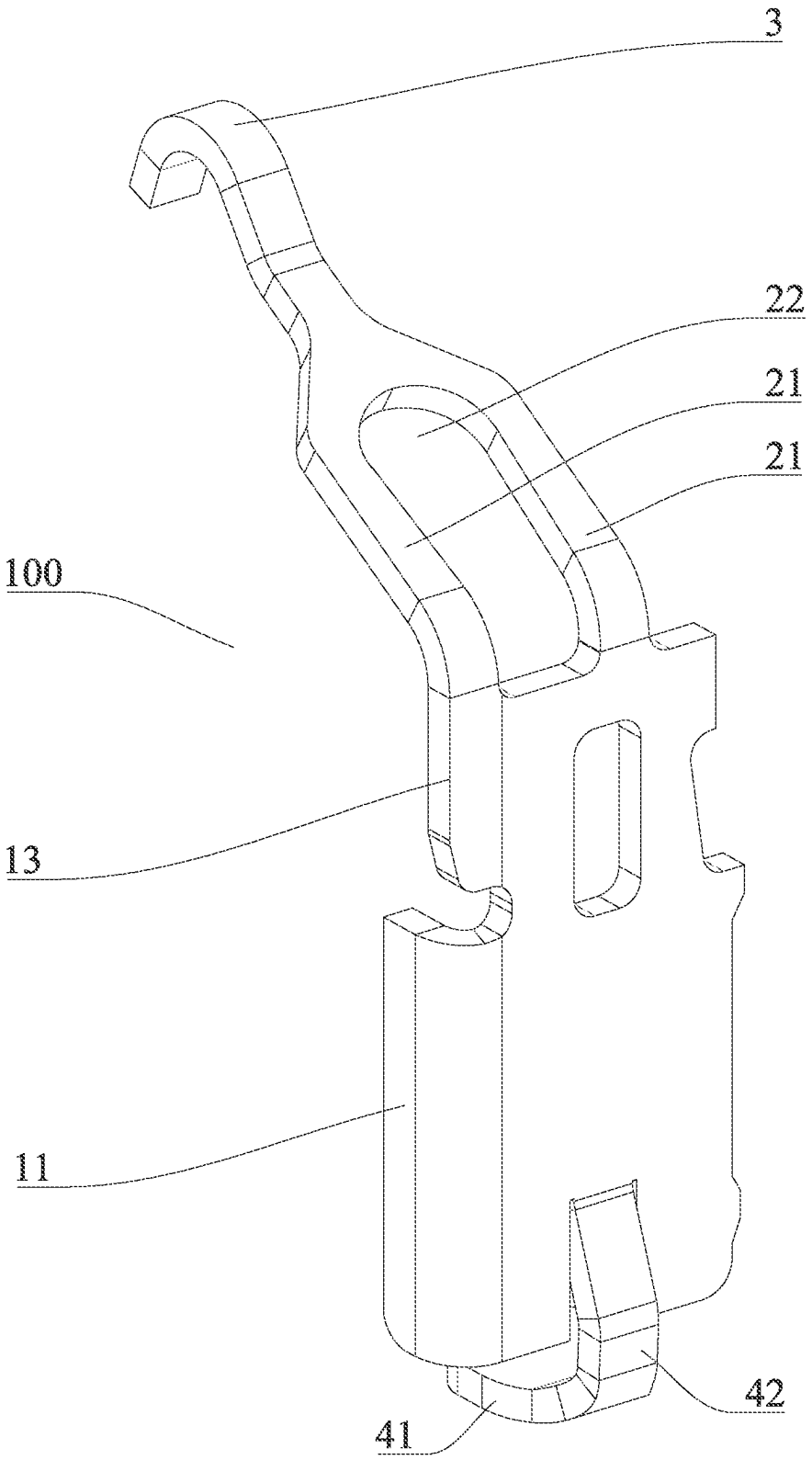

FIG. 2

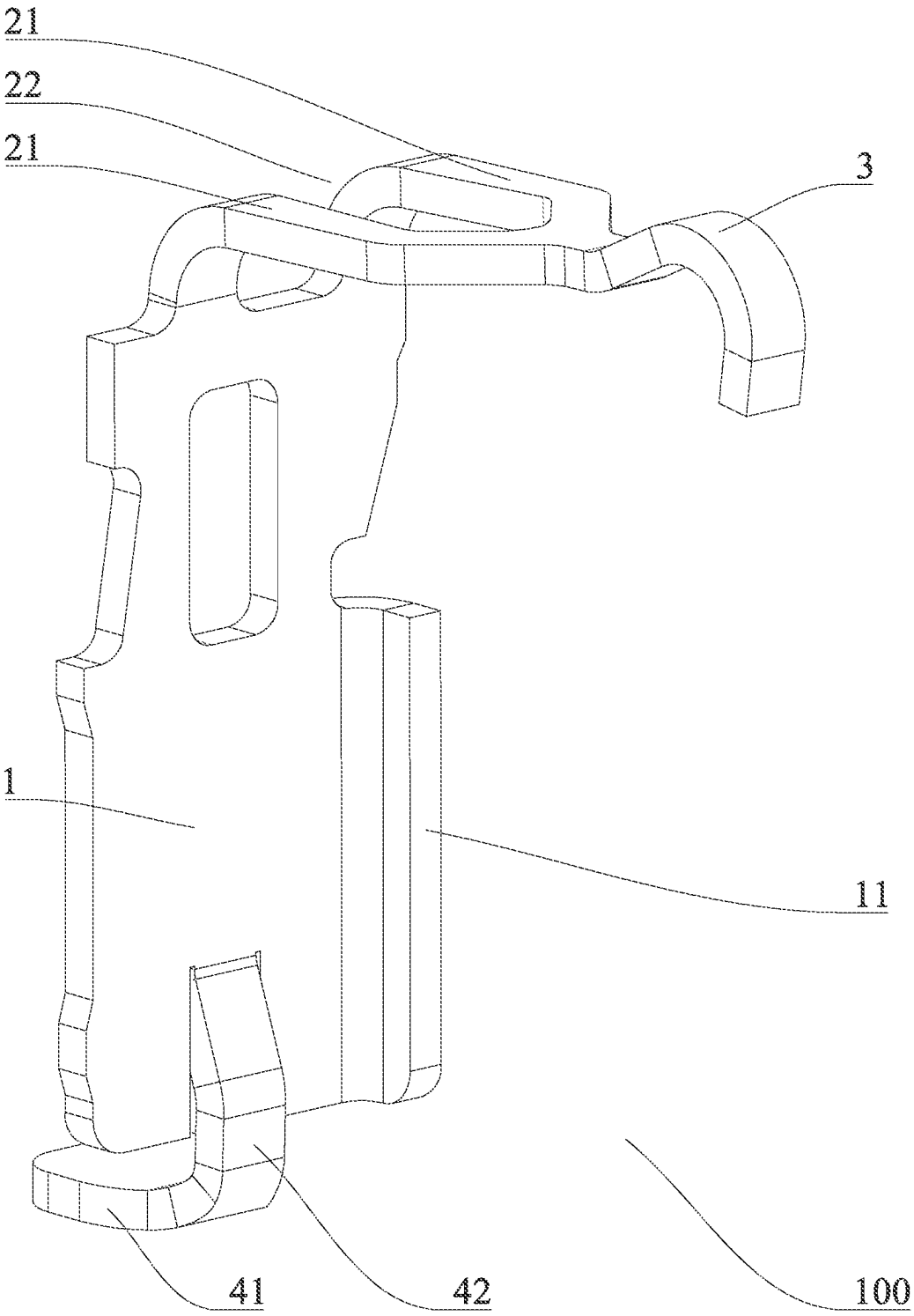

FIG. 3

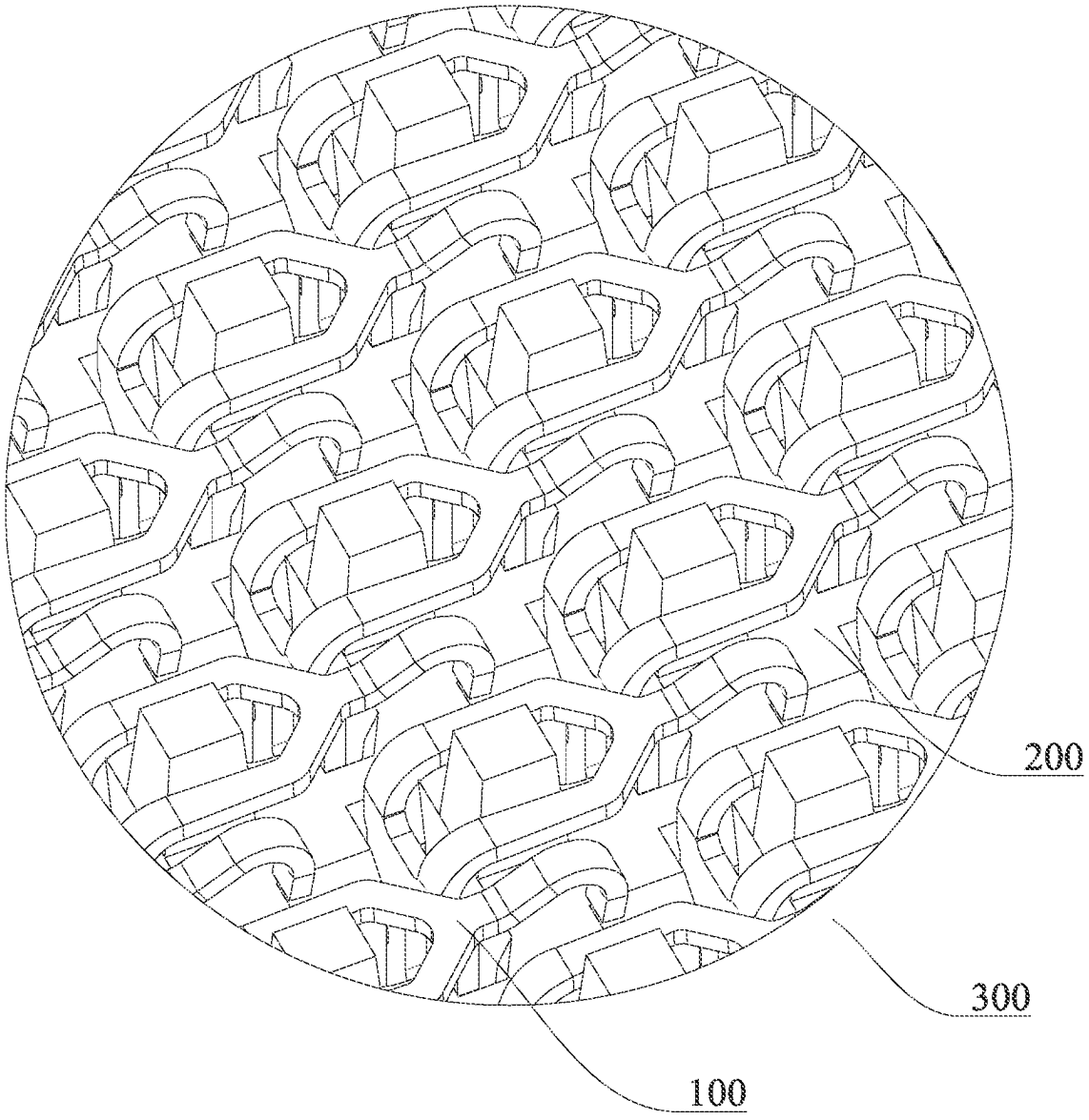

FIG. 4

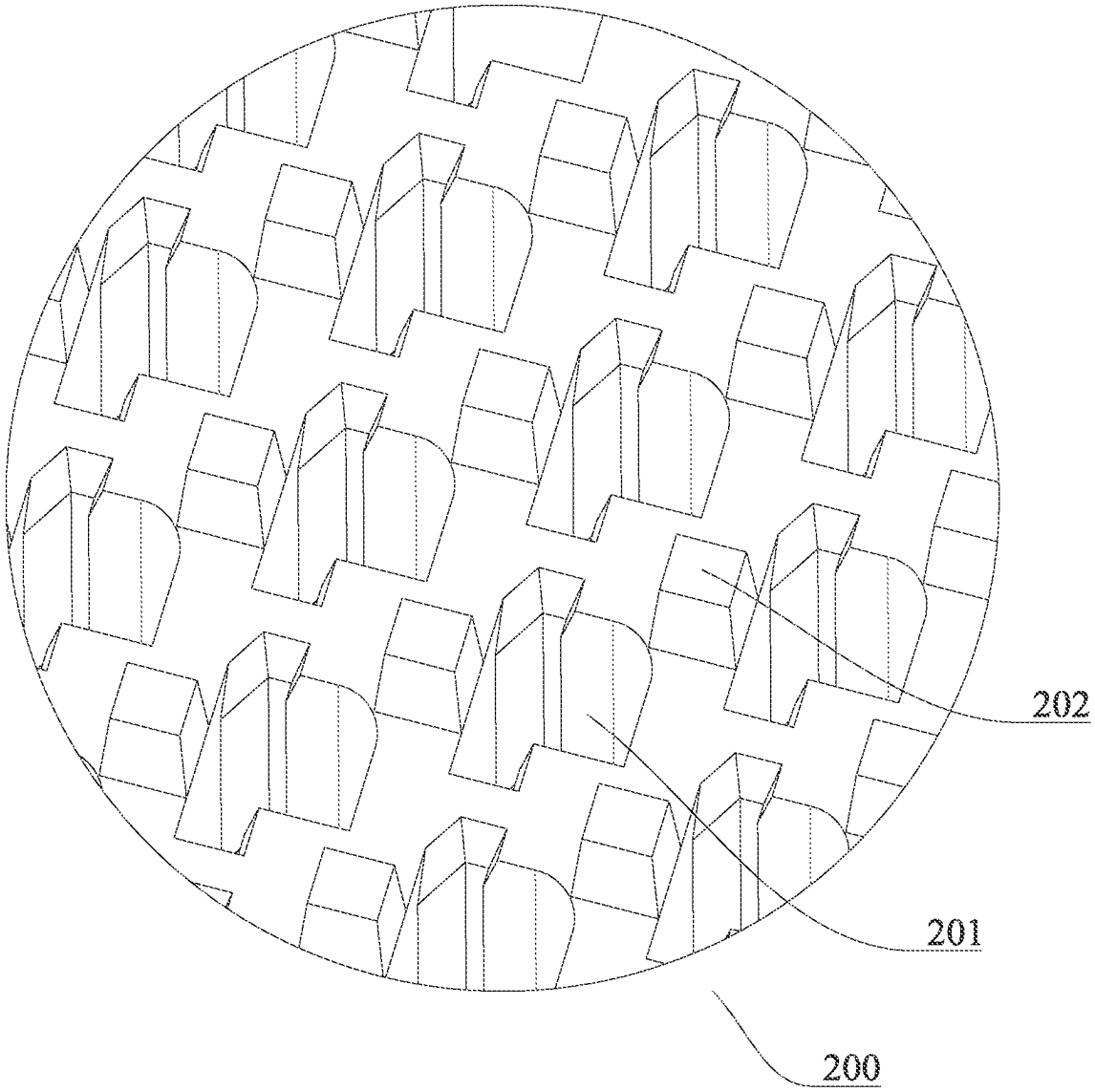

FIG. 5

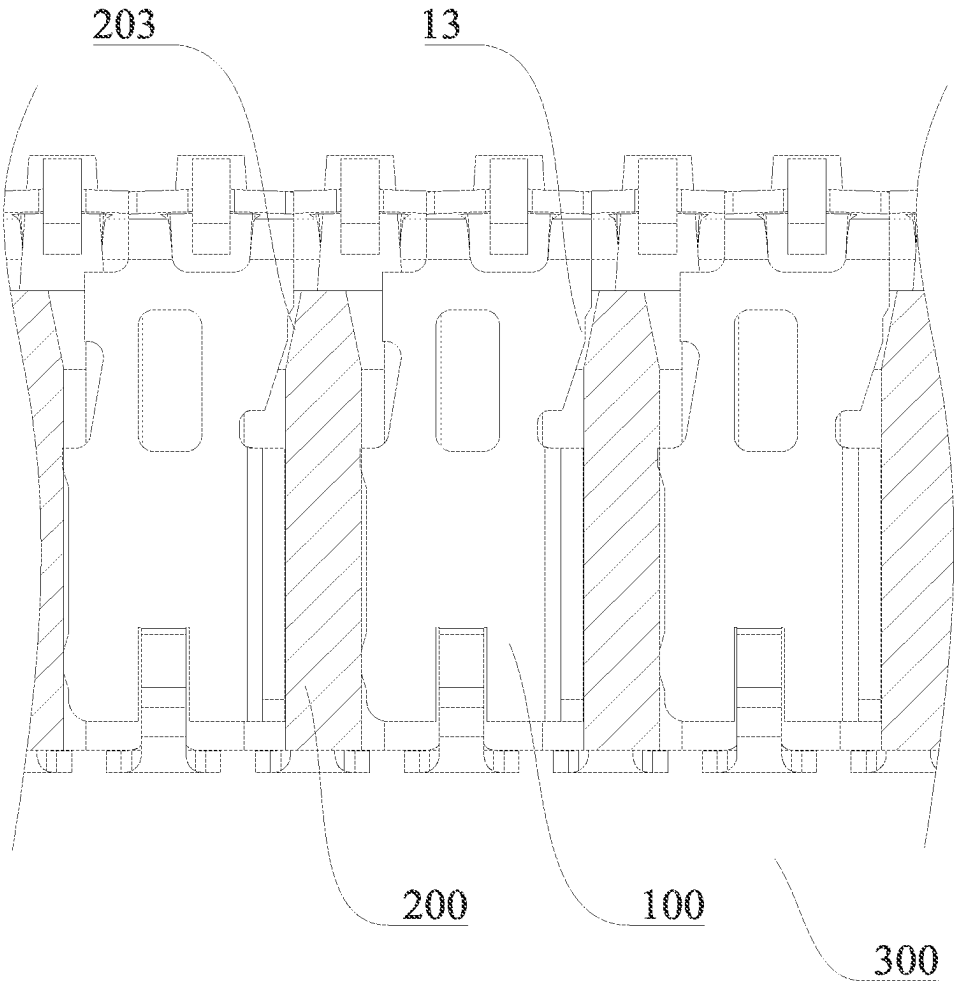

FIG. 6

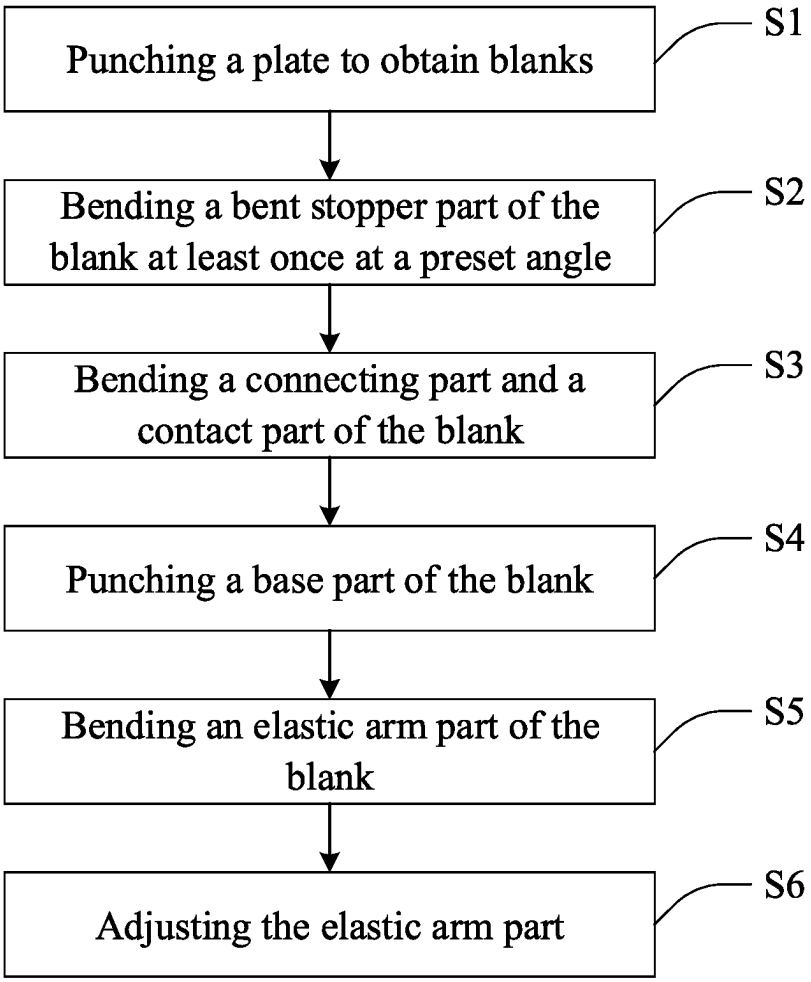
Punching a plate to obtain blanks
S1
Bending a bent stopper part of the blank at least once at a preset angle
S2
Bending a connecting part and a contact part of the blank
S3
Punching a base part of the blank
S4
Bending an elastic arm part of the blank
S5
Adjusting the elastic arm part
S6

FIG. 7

TERMINAL, MOLDING METHOD AND ELECTRICAL CONNECTOR

CROSS-REFERENCE TO RELATED APPLICATION

The present application claims priority to Chinese Patent Application No. 2021114615571, filed with the Chinese Patent Office on Dec. 2, 2021, titled "A TERMINAL, MOLDING METHOD AND ELECTRICAL CONNECTOR", the entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

The present application relates to an electrical connector, and in particular, relates to a terminal, a molding method and an electrical connector.

BACKGROUND

At present, terminals assembled in electrical connectors generally have an elastic arm extending out of the plastic structure. In order to make the elastic arm have good elastic performance, the elastic arm is designed to be relatively long, and the part of the elastic arm extending out of the plastic structure is elastically deformable. Due to the elongated structure of the elastic arm itself, the inductive reactance thereof is too large so that the impedance of the elastic arm is higher and the transmission impedance of high-frequency signals becomes larger. In addition, when the elastic arms of two adjacent terminals are crimped by the chip module, they are likely to contact with each other and cause short circuit.

SUMMARY

A technical problem mainly solved by embodiments of the present application is to provide a terminal, a molding method and an electrical connector, which have small inductive reactance and low impedance, enhance the transmission effect of high-frequency signals, reduce the shaking of terminals, and avoid short circuit caused by mutual contact of terminals.

In order to solve the above technical problem, a technical solution adopted by embodiments of the present application is to provide a terminal for being accommodated in an insulating body of an electrical connector, wherein the terminal comprises a base, an elastic arm, a contact part and a connecting part, the base is defined with a length direction, a width direction and a thickness direction which are perpendicular to each other, and the length direction is parallel to the up-down direction; the elastic arm is formed by obliquely extending upward from the base and toward one side in the thickness direction of the base, the elastic arm is opened with a limiting hole penetrating along the thickness direction thereof, and the limiting hole extending to the top surface of the base to divide the bottom of the elastic arm into two sub-arms spaced apart from each other, and the top surface of the elastic arm and the side wall of the limiting hole adjacent to the top surface are provided as cambered surfaces which are convex in the upward direction, and two ends of the cambered surfaces along the circumferential direction are connected with the two sub-arms respectively; the contact part is formed by extending upward from the elastic arm, the contact part is configured to electrically connect with a chip module; the connecting part is formed by extending downward from the base, the connecting part is used for welding with a circuit board, and the interval between the two sub-arms is larger than the width of the contact part.

Preferably, the connecting part comprises a welding section and a bent section connecting the welding section with the base.

Preferably, the welding section protrudes from the surface of the base towards one side of the thickness direction of the base, and the bent section protrudes from the surface of the base towards the other side of the thickness direction of the base.

Preferably, the bottom of the base is opened with a rectangular notch, and the bent section is connected to the bottom of the notch.

Preferably, one side of the base in the width direction is provided with a bent stopper close to the bottom surface of the base, and the bent stopper is bent toward the side where the elastic arm bends.

Preferably, the interval between the two sub-arms is greater than the width of the contact part.

Preferably, the tip of the contact part is bent toward the bottom of the base, and the tail of the contact part is lower than the highest point of the contact part in the height direction.

In order to solve the above technical problems, another technical solution adopted by the embodiments of the present application is to provide an electrical connector which comprises an insulating body and the terminal as described above, wherein the insulating body is provided with a plurality of accommodating grooves penetrating in the up-down direction, wherein the plurality of accommodating grooves are arranged on the insulating body in a plurality of rows, and one side of the top of the accommodating groove is provided with a limiting post; there are a plurality of the terminals, the plurality of terminals are arranged on the insulating body in a plurality of rows, and the limiting holes of the terminals are matched with the limiting posts.

Preferably, one side of the base along the width direction is provided with a positioning inclined plane, and a fitting inclined plane is arranged in the accommodating groove, and the fitting inclined plane is used for abutting against the positioning inclined plane.

Preferably, the accommodating grooves located in the same row are arranged at equal intervals, and the accommodating grooves located in two adjacent rows are arranged in a staggered manner.

In order to solve the above technical problems, yet another technical solution adopted by the embodiments of the present application is to provide a molding method for molding the terminal as described above, and the molding method comprises the following steps: punching a plate to obtain blanks; bending a bent stopper part of the blank at least once at a preset angle; bending a connecting part and a contact part of the blank; punching a base part of the blank; bending an elastic arm part of the blank; adjusting the elastic arm part.

The terminal, molding method and the electrical connector according to the embodiments of the present application differ from the situation of the related art in that: by providing the elastic arm with bifurcation at the bottom, the width of the elastic arm can be increased to improve the original elongated structure while ensuring the elastic performance, thereby reducing the inductive reactance, reducing the impedance of the elastic arm, and enhancing the transmission effect of high-frequency signals of the electrical connector. The top of the elastic arm is "C"-shaped,

which makes the cross section of the signal transmission path change evenly, improves the smooth continuity of the overall high-frequency characteristic impedance of the terminal, reduces the fluctuation amplitude of the high-frequency characteristic impedance and improves the high-frequency performance. Furthermore, the limiting hole can be provided to match with the limiting post arranged on the insulating body, thereby reducing the shaking of the elastic arm in the direction parallel to the upper surface of the insulating body during installation or use, and avoiding the short circuit caused by the mutual contact of adjacent terminals. In addition, the two sub-arms spaced apart provide elastic force for the elastic arm at the same time so that the anti-bending performance of the elastic arm can be enhanced in the spacing direction of the sub-arms and the shaking of the elastic arm along the direction can be reduced.

BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments are illustrated by pictures in corresponding attached drawings, and this does not constitute limitation on the embodiments. Elements with the same reference numerals in the attached drawings are shown as similar elements, and the pictures in the attached drawings do not constitute scale limitation unless otherwise stated particularly.

FIG. **1** is a schematic structural diagram of a terminal according to an embodiment of the present application.

FIG. **2** is a schematic structural diagram of the terminal according to the embodiment of the present application from another perspective.

FIG. **3** is a schematic structural diagram of a terminal according to another embodiment of the present application.

FIG. **4** is a partial schematic structural diagram of an electrical connector according to an embodiment of the present application.

FIG. **5** is a partial schematic structural diagram of an insulating body according to an embodiment of the present application.

FIG. **6** is a partial cross-sectional view of an electrical connector according to an embodiment of the present application.

FIG. **7** is a flowchart diagram of a molding method according to an embodiment of the present application.

DETAILED DESCRIPTION

In order to make objectives, technical solutions and advantages of the present application clearer, the present application will be further described in detail hereinafter with reference to attached drawings and embodiments. It shall be appreciated that, the specific embodiments described herein are only used to explain the present application, and are not used to limit the present application.

It shall be noted that, all features in the embodiments of the present application may be combined with each other without conflict, and all the combinations are within the scope claimed in the present application. In addition, although functional module division is made in the schematic diagrams of the device and logical sequences are shown in the flowchart diagrams, in some cases, the steps shown or described can be executed with module division and sequences different from those in the schematic diagrams of the device and the flowchart diagrams.

Unless otherwise defined, all technical and scientific terms used in this specification have the same meanings as commonly understood by those skilled in the art of the present application. The terms used in the specification of the present application are only for the purpose of describing specific embodiments, and are not intended to limit the present application. The term "and/or" used in this specification comprises any and all combinations of one or more associated items listed.

Referring to FIG. **1** and FIG. **2**, a terminal **100** according to an embodiment of the present application is configured to be accommodated in an insulating body **200** of an electrical connector, and the terminal **100** comprises a base **1**, an elastic arm **2**, a contact part **3** and a connecting part **4**. The base **1** is used for holding the terminal **100**, the contact part **3** is used for electrically connecting with a chip module, the elastic arm **2** is used for providing elastic force to ensure that the contact part **3** is in close contact with the chip module, and the connecting part **4** is used for welding with a circuit board so as to electrically connecting the chip module with the circuit board indirectly.

The base **1** described above is defined with a length direction, a width direction and a thickness direction perpendicular to each other, and the length direction is parallel to the up-down direction. One side of the base **1** in the width direction is provided with a bent stopper **11** close to the bottom surface of the base **1**, and the bent stopper **11** is bent toward the side where the elastic arm **2** bends. The bent stopper **11** is used for contacting with the insulating body **200**, increasing the contact area between the terminal **100** and the insulating body **200** and improving the stability for fixing the terminal **100**. It can also enhance the capacitance effect between the bent stopper **11** and the base **1**, improve the impedance of the terminal **100**, and enhance the coupling effect between adjacent terminals **100**, thereby adjusting and control the impedance of the whole electrical connector **300** and improving the high-frequency performance.

In some embodiments, the bottom of the base **1** is opened with a rectangular notch **12**. By opening the notch **12**, the length of the connecting part **4** may be increased, the elasticity of the connecting part **4** may be increased, and the risk of being separated from the solder ball for the connecting part **4** may be reduced.

The elastic arm **2** described above is formed by obliquely extending upward from the base **1** and toward one side in the thickness direction of the base **1**, the elastic arm **2** is opened with a limiting hole **22** penetrating along the thickness direction thereof, and the limiting hole **22** extends to the top surface of the base **1** to divide the bottom of the elastic arm **2** into two sub-arms **21** spaced apart from each other, and the top surface of the elastic arm **2** and the side wall of the limiting hole **22** adjacent to the top surface are provided as cambered surfaces which are convex in the upward direction, and two ends of the cambered surface along the circumferential direction are connected with the two sub-arms **21** respectively so that the top of the elastic arm **2** is "C"-shaped. By providing the elastic arm **2** with bifurcation at the bottom, the interval between the two sub-arms **21** can be increased, i.e., the width of the elastic arm **2** can be increased to improve the original elongated structure while ensuring the elastic performance, thereby reducing the inductive reactance, reducing the impedance of the elastic arm **2**, and enhancing the transmission effect of high-frequency signals of the electrical connector **300**. The top of the elastic arm is "C"-shaped, which makes the cross section of the signal transmission path change evenly, improves the smooth continuity of the overall high-frequency characteristic impedance of the terminal, reduces the fluctuation

amplitude of the high-frequency characteristic impedance and improves the high-frequency performance.

Particularly, the interval between the two sub-arms **21** is larger than the width of the contact part **3**. In the spacing direction of the sub-arms **21**, the anti-bending performance of the elastic arms **2** can be enhanced, the shaking of the elastic arms **2** in this direction can be reduced, and short circuit caused by the mutual contact of adjacent terminals **100** can be avoided. It is also possible to increase the width of the elastic arms **2** by adjusting the width of the limiting hole **22**, shorten the distance between the elastic arms **2** of the adjacent terminals **100** while ensuring the mechanical properties and enhance the coupling effect between the adjacent terminals **100**, thereby reducing the impedance of the whole electrical connector **300**.

Particularly, the arrangement of the limiting hole **22** can be used to stabilize the elastic arm **2** and reduce the shaking of the elastic arm **2** in the direction parallel to the upper surface of the insulating body **200**, thereby avoiding the short circuit caused by the mutual contact between adjacent terminals **100**.

Particularly, the limiting hole **22** between the two sub-arms **21** described above can directly expose the top of the base **1** so that it is convenient for the top to serve as a point of force application for mounting the terminal **100**.

The contact part **3** described above is formed by extending upward from the elastic arm **2**, the tip of the contact part **3** is bent toward the bottom of the base **1**, and the tail of the contact part **3** is lower than the highest point of the contact part **3** in the height direction. The bending at the tip of the contact part **3** can prevent the chip module from being scratched by the sharp tip of the contact part **3**. Moreover, the curved surface formed by bending is smooth, which reduces the resistance between the contact part **3** and the chip module. In this way, the installation of the chip module is smoother, and strenuous installation due to excessive resistance and even the damage of the contact part **3** can be avoided.

The connecting part **4** described above is formed by extending downward from the base **1**, and the connecting part **4** comprises a welding section **41** and a bent section **42** connecting the welding section **41** with the base **1**. The welding section **41** is used for welding with the circuit board, and the bent section **42** is used for elastically connecting the welding section **41**, thereby reducing the stress between the welding section **41** and the circuit board and reducing the risk of being separated from the solder ball for the welding section **41**.

In some embodiments, the welding section **41** protrudes from the surface of the base **1** towards one side of the thickness direction of the base **1**, and the bent section **42** protrudes from the surface of the base **1** towards the other side of the thickness direction of the base **1**. The welding section **41** and the bent section **42** respectively protrude from both sides of the base **1**, so that the stress imposed on the bent section **42** is along the length direction of the base **1**, thereby avoiding extra stress, reducing stress damage and prolonging service life.

Referring to FIG. **1** and FIG. **3**, the bent section **42** of the terminal **100** may be bent in two directions. Since the position of the solder joint on the circuit board is fixed, the position of the contact part **3** relative to the insulating body **200** needs to be fixed, and thus the positions of the solder joints of the welding sections **41** of the two terminals **100** are the same. However, the position of the base **1** is changed relative to the circuit board, which results in different lengths of the elastic arms **2** of the two terminals **100**. The terminal **100**, for which the welding section **41** and the elastic arm **2** are arranged at the same side of the base **1**, features good strength and toughness and long signal transmission length. The terminal **100**, for which the welding section **41** and the elastic arms **2** are respectively arranged at both sides of the base **1**, features poor strength and toughness, short signal transmission length, low loss and good high-frequency performance.

In some embodiments, the bent section **42** is connected to the bottom of the notch **12**. In this way, the length of the bent section **42** is prolonged, the elasticity of the bent section **42** is increased, and the risk of being separated from the solder ball is reduced for the connecting part **4**.

Referring to FIG. **4**, the electrical connector **300** according to the embodiment of the present application comprises an insulating body **200** and the terminal **100** as described above, wherein the insulating body **200** has a plurality of accommodating grooves **201** penetrating in the up-down direction, the plurality of accommodating grooves **201** are arranged on the insulating body **200** in a plurality of rows. There are a plurality of terminals **100**, and the plurality of terminals **100** are arranged on the insulating body **200** in a plurality of rows. The terminals **100** are accommodated in the accommodating grooves **201** so that they are arranged neatly and held stably and are convenient for packaging and transportation.

For the insulating body **200** described above, one side of the top of the accommodating groove **201** is provided with a limiting post **202**, and the limiting hole **22** of the terminal **100** is matched with the limiting post **202**, so as to stabilize the elastic arm **2**, reduce the shaking of the elastic arm **2** in the direction parallel to the upper surface of the insulating body **200**, and prevent short circuit caused by the mutual contact between adjacent terminals **100**.

In one embodiment, the accommodating grooves **201** located in the same row are arranged at equal intervals, and the accommodating grooves **201** located in two adjacent rows are arranged in a staggered manner. The staggered arrangement of the accommodating grooves **201** can prevent mutual interference of the terminals **100** in two adjacent rows, and can also make full use of the space of the insulating body **200**, thereby reducing the size of the insulating body **200** or increasing the size of the terminals **100**.

For the terminal **100** described above, one side of the base **1** along the width direction is provided with a positioning inclined plane **13**, a fitting inclined plane **203** is arranged in the accommodating groove **201**, and the fitting inclined plane **203** is used for abutting against the positioning inclined plane **13**. Since the positioning inclined plane **13** of the terminal **100** abuts against the fitting inclined plane **203** of the accommodating groove **201**, the position of the terminal **100** in the accommodating groove **201** along the length direction can be positioned, and the assembly accuracy can be improved.

For the terminal **100** and the electrical connector **300** of the present application, by providing the elastic arm **2** with bifurcation at the bottom, the width of the elastic arm **2** can be increased to improve the original elongated structure while ensuring the elastic performance, thereby reducing the inductive reactance, reducing the impedance of the elastic arm **2**, and enhancing the transmission effect of high-frequency signals of the electrical connector **300**. The top of the elastic arm is "C"-shaped, which makes the cross section of the signal transmission path change evenly, improves the smooth continuity of the overall high-frequency characteristic impedance of the terminal, reduces the fluctuation amplitude of the high-frequency characteristic impedance

and improves the high-frequency performance. Furthermore, the limiting hole **22** can be provided to match with the limiting post **202**, thereby stabilizing the elastic arm **2**, reducing the shaking of the elastic arm **2** in the direction parallel to the upper surface of the insulating body **200**, and avoiding the short circuit caused by the mutual contact of adjacent terminals **100**. In addition, the two sub-arms **21** spaced apart provide elastic force for the elastic arm **2** at the same time so that the anti-bending performance of the elastic arm **2** can be enhanced in the spacing direction of the sub-arms **21** and the shaking of the elastic arm **2** along the direction can be reduced.

As shown in FIG. **7**, the molding method according to the embodiment of the present application is used to mold the terminal **100** as described above, and it comprises the following steps:

S1: punching a plate to obtain blanks.

Multiple sheet-like blanks were obtained by punching a plate with thickness of 0.07 mm, wherein a copper plate is generally adopted as the plate. A base part, an elastic arm part, a contact part and a connecting part, which respectively correspond to the base **1**, the elastic arm **2**, the contact part **3** and the connecting part **4** of the terminal **100**, are formed by punching on the blanks, and the elastic arm part is provided with a limiting hole part.

S2: bending a bent stopper part of the blank at least once at a preset angle.

The bent stopper part is bent to be perpendicular to the base part, wherein the bent stopper part may be directly molded through being bent by 90 degrees at one time, or the bent stopper part may be molded through multiple times of bending. For example, the multiple times of bending may include 45-degree bending for two times, 30-degree bending for three times, or 40-degree bending for one time followed by 50-degree bending for one time.

It is relatively difficult to bend the bent stopper part by 90 degrees at one time, and the molding effect is poor. As compared to bending for one time, multiple times of bending can be completed simply by performing multiple times of stamping, and the bending is carried out by pressing and exerting force on both sides, so that the bending effect is good and the surface of the bent stopper part will not be scratched.

S3: bending a connecting part and a contact part of the blank.

The connecting part on the blank is bent by nearly 90 degrees, e.g., 87 degrees, so as to facilitate further bending and make the connecting part perpendicular to the base part. The contact part on the blank is stamped and bent to form an arc-shaped convex structure, and the outer arc side of the convex structure is used for contacting with the conductive part on the chip module, so that the chip module can be prevented from being scratched when it is installed.

S4: punching a base part of the blank.

One side of the base part connected with the connecting part is punched so as to obtain a strip-shaped bent part which connects the connecting part and the base part. Moreover, in the punching process, the bent part is stamped to bend it into a "C" shape, and the connecting part is also perpendicular to the base part.

S5: bending an elastic arm part of the blank.

One end of the elastic arm part connected with the base part is bent by 60 degrees, so that the angle included between the elastic arm part and the base part is 120 degrees. Because the elastic arm part has great elasticity, it will rebound greatly after being bent. Therefore, it is necessary to bend the elastic arm part excessively in order to make the angle after rebounding approach 120 degrees.

S6: adjusting the elastic arm part.

Due to the large elasticity of the elastic arm part, it is still difficult to reach the preset angle after excessive bending, so further adjustment is required. The elastic arm part may be placed into a mold to be heated and molded quickly, or it can be bent excessively again according to its deviation from the preset angle so as to correct the deviation.

The molding method of the terminal **100** according to the embodiment of the present application punches the plate to quickly obtain the desired blanks by fully taking into account the structure of the terminal **100** of the embodiment of the present application. Parts at both ends of the blank are bent and punched first, so that the blank is always in an approximate plane state before the last bending step and it is convenient for processing. Finally, the middle part of the blank is bent and adjusted, which is unlikely to affect the previous bending step; the steps are simple and reasonable, and the molding effect of the terminal **100** is good.

Finally, it shall be noted that, the above embodiments are only used to illustrate the technical solutions of the present application, and are not intended to limit the present application. Under the idea of the present application, technical features in the above embodiments or different embodiments may also be combined, the steps may be implemented in any order, and many other variations in different aspects of the present application as described above are possible, and these variations are not provided in details for conciseness. Although the present application has been described in detail with reference to the foregoing embodiments, those of ordinary skill in the art shall appreciate that, the technical solutions described in the foregoing embodiments may still be modified or some of the technical features may be equivalently replaced. These modifications or replacements do not make the essence of the corresponding technical solutions deviate from the scope of the technical solutions of various embodiment of the present application.

What is claimed is:

1. A terminal for being accommodated in an insulating body electrical connector, being characterized in that, comprising:

a base, being defined with a length direction, a width direction and a thickness direction which are perpendicular to each other, and the length direction being parallel to the up-down direction;

an elastic arm, being formed by obliquely extending upward from the base and toward one side in the thickness direction of the base, the elastic arm being opened with a limiting hole penetrating along the thickness direction thereof, and the limiting hole extending to the top surface of the base to divide the bottom of the elastic arm into two sub-arms spaced apart from each other, and the top surface of the elastic arm and the side wall of the limiting hole adjacent to the top surface are provided as cambered surfaces which are convex in the upward direction, and two ends of the cambered surface along the circumferential direction being connected with the two sub-arms respectively;

a contact part, being formed by extending upward from the elastic arm, the contact part being configured to electrically connect with a chip module;

a connecting part, being formed by extending downward from the base, the connecting part being used for welding with a circuit board;

wherein the interval between the two sub-arms is larger than the width of the contact part;

the connecting part comprises a welding section and a bent section connecting the welding section with the base; and

the bottom of the base is opened with a rectangular notch, and the bent section is connected to the bottom of the notch.

2. The terminal according to claim **1**, being characterized in that, the welding section protrudes from the surface of the base towards one side of the thickness direction of the base, and the bent section protrudes from the surface of the base towards the other side of the thickness direction of the base.

3. The terminal according to claim **2**, wherein both ends of the bent section are in the plane where the base is located.

4. The terminal according to claim **1**, being characterized in that, one side of the base in the width direction is provided with a bent stopper close to the bottom surface of the base, and the bent stopper is bent toward the side where the elastic arm bends.

5. The terminal according to claim **1**, being characterized in that, the tip of the contact part is bent toward the bottom of the base, and the tail of the contact part is lower than the highest point of the contact part in the height direction.

6. An electrical connector, being characterized in that, comprising:

an insulating body, being provided with a plurality of accommodating grooves penetrating in the up-down direction, wherein the plurality of accommodating grooves are arranged on the insulating body in a plurality of rows, and one side of the top of the accommodating groove is provided with a limiting post;

a plurality of the terminals according to claim **1**, wherein the plurality of the terminals are arranged on the insulating body in a plurality of rows, and the limiting holes of the terminals are matched with the limiting posts.

7. The electrical connector according to claim **6**, being characterized in that, one side of the base along the width direction is provided with a positioning inclined plane, and a fitting inclined plane is arranged in the accommodating groove, and the fitting inclined plane is used for abutting against the positioning inclined plane.

8. The electrical connector according to claim **6**, being characterized in that, the accommodating grooves located in the same row are arranged at equal intervals, and the accommodating grooves located in two adjacent rows are arranged in a staggered manner.

9. The terminal according to claim **1**, wherein the top of the elastic arm is C-shaped.

10. The terminal according to claim **1**, wherein the top of the base is exposed.

11. The terminal according to claim **1**, wherein one side of the base along the width direction is provided with a positioning inclined plane.

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