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MICROPHONE

Abstract

A microphone includes a shell assembly, a sound pickup assembly, a control assembly and a light-emitting assembly. The shell assembly includes a shell body with a first accommodating chamber. The sound pickup assembly includes a microphone head for sound pickup, wherein the microphone head is arranged on the shell assembly. The control assembly includes a first circuit board. The first circuit board is arranged in the first accommodating chamber, and is electrically connected to the microphone head. The light-emitting assembly includes a light-emitting unit. The light-emitting unit is arranged in the first accommodating chamber and is electrically connected to the first circuit board. The light-emitting unit is configured to allow emitted light to pass through a portion of the shell body.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a Continuation-in-Part of the U.S. application Ser. No. 18/825,047 filed on Sep. 5, 2024, and entitled “MICROPHONE” now pending, which claims priority to Chinese Patent Application CN202323133044.5, filed on Nov. 20, 2023, the entire disclosures of which are incorporated herein by reference.

TECHNICAL FIELD
[0002] The present disclosure relates to the technical field of microphones, and in particular, to a luminous microphone.
BACKGROUND
[0003] The application for microphones can be traced back to the late 19th century. Scientists were dedicated to finding better ways to pick up sounds to improve applications such as telephones. With the emergence of ribbon microphones in the 1920s, there are more and more styles of microphones over time, and their functions have become more diverse. Improving the user experience of microphones and creating an optimal sound pickup environment remain a significant technical challenge in the industry.
SUMMARY
[0004] In the first aspect, the present invention provides a microphone.
[0005] A microphone includes a shell assembly, a sound pickup assembly, a control assembly and a light-emitting assembly. The shell assembly includes a shell body with a first accommodating chamber. The sound pickup assembly includes a microphone head for sound pickup, wherein the microphone head is arranged on the shell assembly. The control assembly includes a first circuit board. The first circuit board is arranged in the first accommodating chamber, and is electrically connected to the microphone head. The light-emitting assembly includes a light-emitting unit. The light-emitting unit is arranged in the first accommodating chamber and is electrically connected to the first circuit board. The light-emitting unit is configured to allow emitted light to pass through a portion of the shell body.
[0006] In one embodiment, the shell body includes an outer shell having a circumferentially arranged sidewall structure and a bottom plate connected to one end of the sidewall structure; the first accommodating chamber is enclosed by the sidewall structure; at least one of the sidewall structure and the bottom plate has light transmittance, and is configured to allow light emitted by the light-emitting unit to pass through either the sidewall structure or the bottom plate.
[0007] In one embodiment, the bottom plate includes a main body portion and a connecting portion; the connecting portion is connected to an outer side of the main body portion and is connected to the outer shell; the connecting portion has light transmittance, and is configured to allow the light emitted by the light-emitting unit to pass through the connecting portion.

[0008] In one embodiment, the main body portion has light-shielding properties or the shell assembly further includes a light shielding member; the light shielding member is arranged on the main body portion, and the light shielding member is configured to shield the light emitted by the light-emitting unit from being transmitted to outside through the main body portion.
[0009] In one embodiment, the connecting portion includes an annular light-transmitting structure, and is configured to allow the light emitted by the light-emitting unit to pass through the connecting portion and form an annular light-emitting strip.
[0010] In one embodiment, the shell assembly further includes an inner shell arranged in the first accommodating chamber and connected to the outer shell; the inner shell is a hollow cylindrical structure configured to abut against the outer shell to reinforce support strength of the outer shell; the inner shell has light-shielding properties.
[0011] In one embodiment, the shell assembly further includes a cover plate connected to one side of the outer shell away from the bottom plate, and the cover plate has light-shielding properties.
[0012] In one embodiment, the bottom plate has light-shielding properties; the outer shell has light transmittance, and is configured to allow the light emitted by the light-emitting unit to pass through the outer shell and allow the sidewall structure to emit light overall.
[0013] In one embodiment, the shell assembly further includes an inner shell arranged in the first accommodating chamber; the inner shell is provided with a second accommodating chamber; and the first circuit board is arranged in the second accommodating chamber; the inner shell has light transmittance; the light-emitting unit is arranged in the second accommodating chamber; and the light-emitting unit is configured to allow emitted light to sequentially pass through the inner shell and the outer shell.
[0014] In one embodiment, an interval space is provided between the inner shell and the outer shell; the light-emitting unit is arranged in the inner shell or the interval space; the inner shell is a semi-transparent shell.
[0015] In one embodiment, the light-emitting assembly includes a second circuit board, the light-emitting unit is electrically connected to the second circuit board, and the second circuit board is electrically connected to the first circuit board; the second circuit board is arranged in the first accommodating chamber adjacent to the bottom plate, and the second circuit board is arranged in parallel with the bottom plate; the light-emitting unit is arranged on a surface of the second circuit board facing the bottom plate, and is configured to emit light toward the connecting portion.
[0016] In one embodiment, the light-emitting assembly further includes an indicator lamp, the indicator lamp is electrically connected to the second circuit board, and the indicator lamp is configured to allow emitted light to pass through the outer shell; the light-emitting assembly further includes a light guide member, the outer shell is provided with a through hole, a portion of the light guide member is arranged in the through hole, the indicator lamp is arranged on a surface of the second circuit board facing the microphone head, the light guide member is arranged adjacent to the indicator lamp, and the light guide member is configured to transmit the light emitted by the indicator lamp to outside of the outer shell.
[0017] In one embodiment, the control assembly further includes a function key; the function key is configured to pass through the outer shell, is electrically connected to the first circuit board, and is disposed on a same side of the outer shell as the through hole; the function key is configured to adjust a signal amplification level input to the microphone and/or a signal strength output by the microphone, and/or to enable or disable a mute function of the microphone.
[0018] In one embodiment, the shell assembly further includes a mounting frame and a balancing weight; a longitudinal direction of the mounting frame is consistent with a longitudinal direction of the microphone; the mounting frame is arranged in the first accommodating chamber; the balancing weight and the first circuit board are arranged on opposite sides of the mounting frame; the balancing weight is configured to balance a weight of the shell assembly for adjusting a center of gravity of the microphone.

[0019] In one embodiment, the microphone further includes a base and a supporting assembly; the supporting assembly includes a support; one end of the support is connected to the base; the shell body is configured to be rotatably connected to one end of the support away from the base, thereby enabling the shell assembly to rotate the sound pickup assembly relative to the base for adjusting a sound pickup angle.
[0020] In one embodiment, one end of the support away from the base is rotatably connected to a side surface of the shell assembly.
[0021] In one embodiment, one end of the support away from the base is rotatably connected to one end of the sidewall structure away from the bottom plate.
[0022] In one embodiment, the microphone further includes a shell compensation structure, the shell compensation structure is arranged on the shell assembly, and the shell compensation structure is configured to reinforce strength of the shell assembly; the supporting assembly further includes a rotating shaft, the rotating shaft is arranged at one end of the support away from the base; the outer shell is provided with a mounting hole communicating with the first accommodating chamber, the rotating shaft is arranged in the mounting hole in a penetrating manner, the outer shell is configured to be rotatably connected to the rotating shaft; the shell compensation structure includes a protrusion; and the protrusion is annularly arranged at the mounting hole and is connected to the outer shell; the supporting assembly further includes a first gasket with a through hole, the first gasket is arranged between the outer shell and the support, the rotating shaft is arranged in the through hole in a penetrating manner; the first gasket includes a first portion and a second portion, a portion adjacent to the base is defined as a second portion, and a thickness of the second portion is greater than a thickness of the first portion.
[0023] In one embodiment, the support includes a first connecting section, a second connecting section, and a third connecting section; the first connecting section is parallel to the third connecting section, the second connecting section is connected to the first connecting section and the third connecting section and forms a certain angle with the first connecting section and the third connecting section; one end of the first connecting section away from the second connecting section is connected to the base, and one end of the third connecting section away from the second connecting section is configured to be rotatably connected to the shell assembly; the first connecting section is connected to the base.
[0024] In one embodiment, the support includes a U-shaped support or a V-shaped support; both ends of the U-shaped support or the V-shaped support are configured to be rotatably connected to the shell assembly, and a bottom of the U-shaped support or the V-shaped support is configured to be connected to the base to support the microphone on an external object.
[0025] Compared with the prior art, the microphone provided in the present disclosure employs the light-emitting unit to transmit the emitted light through the bottom plate to the outside of the shell assembly, thereby enabling the microphone to produce colorful lighting effects during use. This configuration not only enhances the functionality of the microphone but also allows users to enjoy both auditory and visual effects simultaneously, which significantly improves the product's entertainment value. Additionally, the provision of the connecting bracket facilitates the rotation of the shell assembly, enabling users to adjust the angle and enabling multi-scenario use.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0026] In order to explain the technical solutions of the embodiments of the present disclosure more clearly, the following will briefly introduce the accompanying drawings used in the embodiments. Apparently, the drawings in the following description are only some embodiments of the present disclosure. Those of ordinary skill in the art can obtain other drawings based on these

drawings without creative work.

[0027] FIG. **1** is a three-dimensional diagram of a microphone according to a first embodiment of this application;

[0028] FIG. **2** is a three-dimensional diagram of a microphone in another angle according to a first embodiment of this application;

[0029] FIG. **3** is a three-dimensional diagram of a microphone in a usage state according to a first embodiment of this application;

[0030] FIG. **4** is an exploded diagram of a microphone according to a first embodiment of this application;

[0031] FIG. **5** is an exploded diagram of a microphone in another angle according to a first embodiment of this application;

[0032] FIG. **6** is an enlarged view of part A of the microphone shown in FIG. **5**;

[0033] FIG. **7** is a cross-sectional diagram of the microphone shown in FIG. **1** along line VII-VII;

[0034] FIG. **8** is a three-dimensional diagram of an outer shell of the microphone shown in FIG. **1**;

[0035] FIG. **9** is a three-dimensional diagram of an inner shell of the microphone shown in FIG. **1**;

[0036] FIG. **10** is a cross-sectional diagram of some structures of the microphone shown in FIG. **1** along line X-X;

[0037] FIG. **11** is a three-dimensional diagram of then inner shell of the microphone in another shown in FIG. **1**;

[0038] FIG. **12** is a cross-sectional diagram of an inner shell of the microphone shown in FIG. **7** along line VII-VII;

[0039] FIG. **13** is a schematic diagram of a control assembly of the microphone shown in FIG. **1**;

[0040] FIG. **14** is a schematic diagram of a light-emitting assembly of the microphone shown in FIG. **1**;

[0041] FIG. **15** is another schematic structural diagram of a light-emitting assembly of a microphone according to a first embodiment of this application;

[0042] FIG. **16** is still another schematic structural diagram of a light-emitting assembly of a microphone according to a first embodiment of this application;

[0043] FIG. **17** is a three-dimensional diagram of a first gasket of the microphone shown in FIG. **1**;

[0044] FIG. **18** is a three-dimensional diagram of a microphone according to a second embodiment of this application;

[0045] FIG. **19** is a three-dimensional diagram of the microphone in another angle according to the second embodiment of this application;

[0046] FIG. **20** is a three-dimensional diagram of the microphone in a usage state according to the second embodiment of this application;

[0047] FIG. **21** is an exploded diagram of the microphone according to the second embodiment of this application;

[0048] FIG. **22** is an exploded diagram of the microphone in another angle according to the second embodiment of this application;

[0049] FIG. **23** is an enlarged view of part B of the microphone shown in FIG. **22**;

[0050] FIG. **24** is a cross-sectional diagram of the microphone shown in FIG. **18** along line XXIV-XXIV;

[0051] FIG. **25** is an enlarged view of part C of the microphone shown in FIG. **24**;

[0052] FIG. **26** is a three-dimensional diagram of the outer shell of the microphone shown in FIG. **18**;

[0053] FIG. **27** is a cross-sectional diagram of the microphone shown in FIG. **18** along line XXVII-XXVII;

[0054] FIG. **28** is an enlarged view of part D of the microphone shown in FIG. **27**;

[0055] FIG. **29** is a three-dimensional diagram of the first gasket of the microphone shown in FIG. **17**; and

[0056] FIG. **30** is a three-dimensional diagram of a microphone according to another embodiment of this application.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0057] In order to facilitate understanding the present disclosure, the present disclosure will be described more comprehensively below with reference to related accompanying drawings. Preferred implementations of the present disclosure are provided in the drawings. However, the present disclosure can be implemented in many different forms, and are not limited to the implementations described herein. On the contrary, these implementations are provided to make the content disclosed in the present disclosure understood more thoroughly and comprehensively.

[0058] It should be noted that when an element is referred to as being "fixed to" another element, the element can be directly on another component or there can be a centered element. When an element is considered to be "connected" to another element, the element can be directly connected to another element or there may be a centered element. The terms "inner", "outer", "left", "right", and similar expressions used herein are for illustrative purposes only and do not necessarily represent the only implementation.

[0059] Unless otherwise defined, all technical and scientific terms used herein have the same meaning as those commonly understood by a person skilled in the art to which the present disclosure belongs. Terms used in the specification of the present disclosure herein are merely intended to describe objectives of the specific embodiments, but are not intended to limit the present disclosure. The term "and/or" used herein includes any and all combinations of one or more related listed items.

[0060] Referring to FIG. **1**, FIG. **2**, and FIG. **3**, FIG. **1** and FIG. **2** are three-dimensional diagrams of a microphone **100** according to an embodiment of the present disclosure in two different angles. When not in use, the microphone **100** can be rotated to a state shown in FIG. **1** or FIG. **2** for convenient storage and carrying. FIG. **3** is a three-dimensional diagram of a usage state of a microphone **100** according to an embodiment of the present disclosure. When using the microphone **100**, a user will rotate and adjust the microphone **100** to a proper angle for better sound pickup, such as a usage state shown in FIG. **3**, which is only a schematic diagram of a rotation angle. The microphone **100** disclosed in the present disclosure can be rotated according to a need of the user and maintained in different angles. The present disclosure will not show and elaborate them one by one again.

[0061] Referring to FIG. **4** and FIG. **5**, the microphone **100** according to an embodiment of the present disclosure includes a shell assembly **1**, a sound pickup assembly **2**, a control assembly **3**, and a light-emitting assembly **4**. The shell assembly **1** includes a shell body **10** with a first accommodating chamber **11***d* and a mounting seat **12**. The mounting seat **12** is connected to the shell body **10**, and at least a portion of the shell body **10** has light transmittance. The sound pickup assembly **2** includes a microphone head **20** for sound pickup. The microphone head **20** is mounted at the mounting seat **12**. The control assembly **3** includes a first circuit board **30**. The first circuit board **30** is arranged in the first accommodating chamber **11***d* and is electrically connected to the microphone head **20**. The light-emitting assembly **4** includes a light-emitting unit **40**. The light-emitting unit **40** is arranged in the first accommodating chamber **11***d* and is electrically connected to the first circuit board **30**. The light-emitting unit **40** is configured to allow emitted light to pass through at lease a portion of the shell body **10**. In this embodiment, the shell body **10** includes an outer shell **11** having a circumferentially arranged sidewall structure and a bottom plate **15** connected to one end of the sidewall structure.

[0062] In the microphone product, a shell occupies a large area of the product. According to the microphone **100** provided in the present disclosure, the transparent outer shell **11** is used, and the light-emitting unit **40** is arranged in the first accommodating chamber **11***d*, so that light emitted by the light-emitting unit **40** can be transmitted through the outer shell **11**. Therefore, during pickup transmission of the microphone **100**, a user or another person can observe a large-area lighting

effect achieved by the microphone **100**, thereby creating a more intense and cooler lighting atmosphere, achieving an effect of foiling the atmosphere and attracting the attention of people, and enhancing the user experience.

[0063] The light-transmittance intensity of the outer shell **11** provided in the embodiments of the present disclosure is flexible. The outer shell may have full light transmittance, or may have high-intensity light transmittance or low-intensity light transmittance. The outer shell **11** can be made of different materials according to an intensity requirement for the light transmittance, so that the shell assembly **1** presents preset light transmittance. The shell assembly **1** may preset the preset light transmittance by coating an outer side wall or an inner side wall of the outer shell **11** or performing surface sanding on the outer shell **11**.

[0064] The shell assembly **1** may alternatively present the preset light transmittance by embedding a semi-transparent photomask into the outer shell **11**. For example, in this embodiment, the shell assembly **1** further includes an inner shell **13** arranged in the first accommodating chamber **11***d*. The inner shell **13** has light transmittance. Light emitted by the light-emitting unit **40** passes through the inner shell **13** and the outer shell **11** in sequence. Specifically, the outer shell **11** is a transparent shell, and the inner shell **13** is a semi-transparent shell. In this embodiment, to improve the lighting effect displayed by the outer shell **11**, the inner shell **13** also has a light filtering property, which can filter out a portion of the light and selectively transmit the emitted light to the outside. Transmitting light waves that a user can accept or like achieves a better result. The semi-transparent shell means that the inner shell **13** allows an amount of light to pass through, but this light is not enough to clearly display objects or details behind.

[0065] By the arrangement of the transparent outer shell **11**, the light emitted by the light-emitting unit **40** in the microphone **100** can well pass through the transparent outer shell **11** without excessive loss, thereby achieving a better lighting effect. Meanwhile, the semi-transparent inner shell **13** is arranged inside the transparent outer shell **11**, so that the light emitted by the light-emitting unit **40** passes through the semi-transparent inner shell **13** and then is transmitted through the transparent outer shell **11**, making the light emitted to the outside of the microphone **100** softer. The design of the semi-transparent inner shell **13** can further cover internal components of the microphone **100**, such as a circuit boards and wires, playing an aesthetic role. In addition, as the light-emitting unit **40** is arranged in the first accommodating chamber, the brightness of the light near the light-emitting unit **40** is stronger, which makes it easy to see components such as the circuit board and the wires around the light-emitting unit **40**. During viewing through the outer shell **11**, shadows of the internal components such as the circuit board and the wires will be displayed on the outer shell **11**. The arrangement of the semi-transparent inner shell **13** can avoid this situation, so that the overall appearance of the product is more beautiful. Furthermore, the lighting effect of the product is cooler when the light-emitting unit **40** emits light. Furthermore, the light-emitting unit **40** is configured to emit light and/or flash when the microphone head **20** is picking up sound, such as by emitting and/or flashing according to volume or timbre of the collected sound signal, thereby enhancing the atmosphere during the use of the microphone. In some embodiments, the first circuit board **30** may receive the sound signal collected by the microphone head **20** and control the light emission of the light-emitting unit **40** based on the sound signal collected by the microphone head **20**.

[0066] Referring to FIG. **4** and FIG. **9**, in this embodiment, the inner shell **13** is provided with a second accommodating chamber **13***a*, and the light-emitting unit **40** is arranged in the second accommodating chamber **13***a*. The outer shell **11** is made of a transparent material, such as glass, an organic polymer light-transmittance material (an acrylic lamp), a light-transmittance composite material, and light-transmittance plastic as long as the outer shell **11** is transparent. The inner shell **13** is made of a semi-transparent material, such as a thermoplastic polymer, polymethyl methacrylate, polyethylene, polypropylene, polyester, polyvinyl chloride, polyamide, cellulose acetate, polyvinyl chloride, polystyrene, and polytetrafluoroethylene as long as the inner shell **13** is

transparent.

[0067] Referring to FIG. **4**, FIG. **5**, and FIG. **8**, the outer shell **11** includes a first opening **11***a* and a second opening **11***b* which are communicated to the first accommodating chamber **11***d* and are opposite to each other. The second opening **11***b* is located at one end of the outer shell **11** away from the mounting seat **12**. The shell assembly **1** further includes a cover plate **14** covering the first opening **11***a* and a bottom plate **15** covering the second opening **11***b*. The cover plate **14** connects the outer shell **11** to the mounting seat **12**, and the outer shell **11** and the mounting seat **12** are arranged on opposite sides of the cover plate **14**. The cover plate **14** does not have light transmittance. The bottom plate **15** does not have light transmittance. In this embodiment, the cover plate **14** and the bottom plate **15** are respectively arranged at two ends of the outer shell **11**. The cover plate **14**, the bottom plate **15**, and the outer shell **11** are enclosed to form the first accommodating chamber **11***d*. The cover plate **14**, the bottom plate **15**, and the inner shell **13** are enclosed to form the second accommodating chamber **13***a*. The second accommodating chamber **13***a* is located in the first accommodating chamber **11***d*. An outer diameter of the inner shell **13** is less than an inner diameter of the outer shell **11**, and the shape and structure of the inner shell **13** are similar to those of the outer shell **11**, and they are barrel-shaped structures with openings in two ends. A spatial distance can be provided between the inner shell **13** and the outer shell **11**, or the inner shell and the outer shell resist against each other or in other connection ways. For example, portions of the shells resist against each other, and a partial space is provided. In the embodiments of the present disclosure, a certain spatial distance is provided between the inner shell **13** and the outer shell **11**. Specifically, the shells of the inner shell **13** and the outer shell **11** are arranged in parallel, and a side wall of the first accommodating chamber **11***d* and a side wall of the second accommodating chamber **13***a* are arranged in parallel, with a distance.

[0068] Referring to FIG. **10**, in this embodiment, there is an interval space **11***f* between the outer shell **11** and the inner shell **13**. The interval space **11***f* and the second accommodating chamber **13***a* are both arranged in the first accommodating chamber **11***d*. By the arrangement of the interval space **11***f*, a buffer space can be provided between the two layers of shells, avoiding direct damage to the inner shell **13** after the outer shell **11** is pressed, thereby further protecting the internal components. Meanwhile, the interval space **11***f* can further provide a buffer space for the light emitted by the light-emitting unit **40** after the light passes through the inner shell **13**, and then the light is transmitted out through the outer shell **11**, so that the light is displayed more uniformly.

[0069] Referring to FIG. **6** and FIG. **7**, the shell assembly **1** further includes a mounting frame **16**. The mounting frame **16** is arranged in the first accommodating chamber **11***d*. Specifically, the mounting frame **16** is arranged in the second accommodating chamber **13***a*. One end resists against the bottom plate **15** and the other end is connected to the mounting seat **12**. The first circuit board **30** is arranged in the mounting frame **16**. Specifically, in this embodiment, the first circuit board **30** is connected to the mounting frame **16** by screw fixation. In other embodiments, other connection ways can be further used to achieve the connection between the first circuit board **30** and the mounting frame **16**. The cover plate **14** covering the first opening **11***a*, the bottom plate **15** covering the second opening **11***b*, and the outer shell **11** are enclosed to form the first accommodating chamber **11***d*, which can protect the component structures located inside the first accommodating chamber **11***d* and prolong the service life of the product. Meanwhile, the opaque design of the cover plate **14** and the bottom plate **15** ensures that when the light-emitting unit **40** in the microphone **100** emits light, the light can only be transmitted through the outer shell **11**. Both the cover plate **14** and the bottom plate **15** are opaque, so that the lighting effect of the product is reflected on the outer shell **11**, thereby avoiding the light from irradiating a user or an audience and avoiding interference with the use of the microphone **100**. The use experience of the product is better.

[0070] Referring to FIG. **4**, FIG. **5**, and FIG. **6**, in this embodiment, the shell assembly **1** further includes a partition plate **17**. The partition plate **17** connects the mounting seat **12** with the mounting frame **16**, and the mounting seat **12** and the mounting frame **16** are arranged on two

opposite sides of the partition plate **17**. The partition plate **17** is provided with a hole for a wire to pass through. The wire is configured to electrically connect the microphone head **20** to the first circuit board **30**. By the arrangement of the partition plate **17**, the positions of the mounting seat **12** and the mounting frame **16** are more obvious and easier to distinguish, so that efficient assembling can be achieved during assembling, and the production efficiency can be improved, thereby reducing the production cost of the product.

[0071] The shell assembly **1** further includes a balancing weight **18**; the balancing weight **18** is arranged at the mounting frame **16**; and the balancing weight **18** and the first circuit board **30** are arranged on the two opposite sides of the mounting frame **16**. Specifically, in this embodiment, the balancing weight **18** is fixedly connected to the mounting frame **16** through a screw. In other embodiments, the balancing weight **18** can be connected to the mounting frame **16** through an adhesive, a snap fastener, and the like. The present disclosure does not limit this. The first circuit board **30** is provided with an element and is connected to other parts, so the first circuit board **30** has a weight. When the first circuit board **30** is arranged on a side surface of one side of the mounting frame **16**, the center of gravity of the shell assembly is biased towards one side where the first circuit board **30** is located. Therefore, the balancing weight **18** is designed to balance the weight of the first circuit board **30** and other components, thereby ensuring that the center of gravity of the shell assembly **1** is at a preset position and ensuring the self balancing of the product. During use, it is easier for adjustment, thereby enhancing the user experience.

[0072] Continuing to refer to FIG. **4**, FIG. **5**, and FIG. **6**, in this embodiment, the shell assembly **1** further includes two decorative sheets **19**. The two decorative sheets **19** are respectively arranged on one sides of both the cover plate **14** and the bottom plate **15** away from the outer shell **11**. By the arrangement of the decorative sheets **19**, exposed portions of the cover plate **14** and the bottom plate **15** can be covered, such as an exposed screw hole or a water mark caused by injection molding, so that the appearance of the product is neater and more beautiful.

[0073] In this embodiment, the bottom plate **15** includes a main body portion **151** and a connecting portion **152**. The connecting portion **152** is arranged along a circumferential edge of the main body portion **151** and is arranged on one side of the main body portion **151** facing the cover plate **14**. The connecting portion **152** is connected to the outer shell **11**. An outer surface of the connecting portion **152** and an outer surface of the outer shell **11** resist to form a continuous curved surface or plane, so that surfaces of the shells of the microphone **100** are overall integrated.

[0074] Referring to FIG. **5** and FIG. **6**, the control assembly **3** further includes an indicator lamp **31**. The indicator lamp **31** is arranged in the shell assembly **1** in a penetrating manner. Specifically, the indicator lamp **31** is threaded through the outer shell **11** and is electrically connected to the first circuit board **30**. The control assembly **3** further includes a second circuit board **32**. The second circuit board **32** is arranged in the first accommodating chamber and is electrically connected to and controls the indicator lamp **31**. The second circuit board **32** is electrically connected to the first circuit board **30**. By the arrangement of the indicator lamp **31** can provide an indication function when the control assembly **3** controls the microphone **100**, making it easier for a user to observe the adjustment effect more intuitively when adjusting and controlling the microphone **100**, and enhancing the user experience. By the arrangement of the second circuit board **32** to control the indicator lamp **31**, the indicator lamp **31** can better achieve various indication effects.

[0075] Specifically, the connecting portion **152** is provided with a via hole that penetrates through the connecting portion **152**, and the indicator lamp **31** is arranged in the via hole. It can be understood that the indicator lamp **31** is arranged in the via hole in a penetrating manner, and a light-emitting side of the indicator lamp **31** faces the outside of the microphone **100** for being observed. There are two or more indicator lamps **31**. The number of the via holes is consistent with the indicator lamps **31**.

[0076] The indicator lamp **31** provided in the embodiments of the present disclosure has flexible and diverse indication modes, which can provide feedback through combinations of different colors

or different lighting intensities. The present disclosure does not impose a specific limitation on the indication mode of the indicator lamp **31**. In this embodiment, two or more indicator lamps **31** are arranged in a linear direction, and the control assembly **3** controls the microphone. For example, during microphone gain adjustment, the corresponding number of indicator lamps **31** work to emit light, the remaining indicator lamps **31** go out. A user can obtain a control procedure prompt of the control assembly **3** for a microphone gain through the number of the indicator lamps **31** that emit light.

[0077] Due to the fact that both the indicator lamp **31** and the light-emitting unit **40** are arranged at the first accommodating chamber **11***d*, to avoid interference caused by overlapping between the light emitted by the indicator lamp **31** and the light emitted by the light-emitting unit **40**, in this embodiment, the shell assembly **1** further includes a light shielding structure. The light shielding structure is annularly arranged on the indicator lamp **31** to output the light emitted by the indicator lamp **31** to an outer side of the shell assembly **1**. The light shielding structure can limit the light of the indicator lamp **31** within a range, so that the light can only be transmitted towards the outer side of the shell assembly **1**, thereby avoiding the mutual interference and impact between the inside of the shell assembly **1** and the light emitted by the light-emitting assembly **4**.

[0078] Specifically, the light shielding structure includes a baffle plate **153** and a partition plate **154**. The partition plate **154** is arranged on the main body portion **151**. There are at least two partition plates **154** which are arranged oppositely. The baffle plate **153** is connected to the partition plates **154** and resists against the connecting portion **152**. The baffle plate **153**, the partition plates **154**, and the main body portion **151** are enclosed to form a mounting chamber. The indicator lamp **31** is arranged in the mounting chamber. In detail, in this embodiment, the second circuit board **32** is arranged opposite to the connecting portion **152**. The two partition plates **154** are arranged opposite to each other, and the baffle plate **153** is arranged opposite to the main body portion **151**, thereby forming a sealed mounting chamber. The indicator lamp **31** is arranged in the mounting chamber, so that the light emitted by the indicator lamp **31** can be limited in a predetermined direction, thereby controlling an exit direction of the light emitted by the indicator lamp **31** and avoiding the interference between the inside of the shell assembly **1** and the light emitted by the light-emitting assembly **4**.

[0079] Due to the fact that there are five indicator lamps **31** in the embodiments of the present disclosure, to avoid mutual interference of the light emitted by the various indicator lamps **31**, there are six partition plates **154**, thereby forming five mounting chambers with the baffle plate **153**, the connecting portion **152**, and the main body portion **151** respectively to respectively mount the indicator lamps **31**, to avoid mutual the interference of the light emitted by the five indicator lamps **31**. Thus, the indicator lamps **31** emit light according to a preset program to achieve an indicator lamp effect.

[0080] In other embodiments, the via hole may not be provided on the connecting portion **152**, and only a light transmittance region needs to be arranged at positions of the connecting portion **152** corresponding to the indicator lamps **31**. Or, the connecting portion **152** is made of a light transmittance material, and then a non light transmittance region is arranged on the connecting portion **152**, leaving only the regions corresponding to the indicator lamps **31** for light transmittance, as long as the light emitted by the indicator lamps **31** can be transmitted out of the connecting portion **152**.

[0081] The control assembly **3** further includes a function knob **33** and a button **34** configured to control the microphone **100** to be muted. The function knob **33** is arranged in the outer shell **11** in a penetrating manner and is electrically connected to the first circuit board **30**. The function knob **33** is configured to adjust the gain effect and/or the volume of the microphone **100**. The button **34** is electrically connected to the first circuit board **30**. The button **34** is arranged in the outer shell **11** in a penetrating manner and is arranged in parallel with the function knob **33**. Specifically, holes for allowing the function knob **33** and the button **34** to be threaded are provided on both the outer shell

11 and the inner shell **13**, to facilitate operations of a user. In this embodiment, the button **34** can be pressed to mute the microphone **100** during use, and can be pressed again to relieve the mute effect. The operation is convenient. The function knob **33** has at least two functions. In this embodiment, two functions are taken as an example for introduction. During use, the first function is to adjust the gain effect of the microphone **100** by rotation, and the second function is to adjust the volume of earphones by rotation. The two functions can be switched by pressing the function knob **33**. In other embodiments, the function knob **33** may alternatively have a third function or more functions. The functions can be switched by pressing. The function knob integrates multiple function adjustments, so that the overall operation buttons of the product are reduced, and the appearance is neater and more beautiful.

[0082] Referring to FIG. **13**, the control assembly **3** further includes a first audio jack **35** arranged in the shell assembly **1** in a penetrating manner and connected to an external audio device, an earphone jack **36** for being connected to external earphones, and a second audio jack **37** for being connected to an external device to transmit data. The first audio jack **35**, the earphone jack **36**, and the second audio jack **37** are all electrically connected to the first circuit board **30**. Specifically, the first audio jack **35**, the earphone jack **36**, and the second audio jack **37** are all arranged in the bottom plate **15** in a penetrating manner. The bottom plate **15** is provided with corresponding holes. The first audio jack **35** is configured to be connected to another external device such as a sound card or an audio device, to achieve seamless compatibility. The second audio jack **37** is configured to be connected to another device, such as a computer and a tablet, to achieve data transmission such as audio data transmission. The two audio jacks enhance the functionality of the microphone **100**, which is convenient for a user to use multiple interfaces. The main function of the earphone jack **36** is to be connected to the earphones for transmission of audio signals, thus allowing a user to listen to sound through the earphones. Specifically, the second audio jack **37** can be a USB interface or a type-c interface.

[0083] Referring to FIG. **4** to FIG. **6** and FIG. **14**, in this embodiment, the light-emitting assembly **4** further includes a third circuit board **41** arranged in the first accommodating chamber **11***d*. Specifically, the third circuit board **41** is arranged in the second accommodating chamber **13***a*. The third circuit board **41** is electrically connected to and controls the light-emitting unit **40** to emit light. The third circuit board **41** is electrically connected to the first circuit board **30**. There are two or more third circuit boards **41**, and there are two or more light-emitting units **40**. The light-emitting units **40** are arranged on the third circuit boards **41**, and the third circuit boards **41** are annularly arranged on an outer side of the first circuit board **30**. The third circuit boards **41** can be flexible circuit boards or rigid circuit boards. The present disclosure does not limit this. The light-emitting units **40** are LEDs. The LEDs can emit light with various colors and can be selected according to a need. The third circuit boards **41** are electrically connected to the light-emitting units **40**, which can better control the light emission of the light-emitting units **40** to achieve various lighting effects, so that the user experience is better. By the arrangement of the plurality of third circuit boards **41** and light-emitting units **40**, the light can be displayed more uniformly on the outer shell **11**, thereby enhancing the lighting effect of the microphone **100**, enhancing the user experience, and improving the competitiveness of the product.

[0084] Further, the light-emitting assembly **4** further includes a connector **42**; the connector **42** is arranged on one side of the first circuit board **30**; and the light-emitting unit **40** is arranged on the connector **42**. Specifically, in this embodiment, the third circuit board **41** is arranged on the connector **42**. The connector **42** is connected to the mounting frame **16** and resists against the first circuit board **30**. A connection relationship between the connector **42** and the mounting frame **16** is buckle connection. One of the connector **42** and the mounting frame **16** is provided with a buckle, and the other one is provided with a buckle slot, to achieve snap fit. In other embodiments, the connection relationship between the connector **42** and the mounting frame **16** may alternatively be fixed connection. Namely, the connection is achieved through a screw or an adhesive. The present

disclosure does not impose a specific limitation on this.

[0085] Specifically, in the embodiments of the present disclosure, the connector **42** includes a connecting plate **421**, a first extension plate **422** arranged on one side of the connecting plate **421**, and a second extension plate **423** arranged on the other side of the connecting plate **421**. The first extension plate **422** and the second extension plate **423** are respectively connected to two opposite sides of the connecting plate **421** and have an angle with the connecting plate **421**. The first extension plate, the second extension plate, and the connecting plate are enclosed to form a semi-enclosed groove-like structure. The connecting plate **421** is in buckle connection with the mounting frame **16**. One of the connecting plate and the mounting frame is provided with a buckle, and the other one is provided with a buckle slot, to achieve snap fit. The third circuit board **41** is arranged on the first extension plate **422** or the second extension plate **423**. When there are a plurality of third circuit boards **41**, the third circuit boards **41** are arranged on both the first extension plate **422** and the second extension plate **423**. Specifically, in the embodiments of the present disclosure, the third circuit boards **41** are arranged on both the first extension plate **422** and the second extension plate **423**.

[0086] In this embodiment, there are two connectors **42** which are arranged on two opposite sides of the first circuit board **30**, and the connectors **42** wrap around at least a portion of the first circuit board **30**. The two connectors **42** are respectively connected to two opposite sides of the mounting frame **16**. The first circuit board **30** and the balancing weight **18** are respectively arranged on two other opposite sides of the mounting frame **16**. The two connectors **42**, the first circuit board **30**, and the balancing weight **18** are annularly arranged at a periphery of the mounting frame **16**. The two connectors **42** wrap around at least a portion of the first circuit board **30** and at least a portion of the balancing weight **18**, and respectively resist against the first circuit board **30** and the balancing weight **18**. Namely, the mounting frame **16**, the first circuit board **30**, and the balancing weight **18** are partially or entirely arranged between the two connectors **42**, and the semi-enclosed groove-like structures of the two connectors **42** accommodate the mounting frame, the first circuit board, and the balancing weight. Specifically, the connecting plate **421** is connected to the mounting frame **16** and resists against the first circuit board **30** and the balancing weight **18**. The first circuit board **30** and the balancing weight **18** are sandwiched between the first extension plate **422** and the second extension plate **423**.

[0087] Specifically, the entire mounting frame **16** is generally a rectangular structure with a thickness, which has four side surfaces distributed in four vertical directions, namely a first side surface **161**, a second side surface **162**, a third side surface **163**, and a fourth side surface **164**. The first side surface **161** and the third side surface **163** are two side surfaces with large widths, and the second side surface **162** and the fourth side surface **164** are two side surfaces with small widths. The first side surface **161** and the third side surface **163** are arranged opposite to each other, and the second side surface **162** and the fourth side surface **164** are arranged opposite to each other. The first circuit board **30** and the balancing weight **18** are respectively arranged on the first side surface **161** and the third side surface **163**. The two connectors **42** are respectively arranged on the second side surface **162** and the fourth side surface **164**. By the arrangement of the connectors **42**, the light-emitting units **40** can be better fixed, and detachment of the light-emitting units **40** can be avoided. Meanwhile, the two opposite connectors **42** wrap around the first circuit board **30**, which can better protect the first circuit board **30** and make a better use of an internal space of the product, thereby reducing the cost of the product. The light-emitting units **40** are arranged on the two opposite sides of the first circuit board **30**. This design can make the distribution of light sources more uniform.

[0088] Specifically, the light-emitting assembly **4** further includes an on/off button **43** arranged in the shell assembly **1** in a penetrating manner. The on/off button **43** is electrically connected to the third circuit board **41** to control the light-emitting unit **40**. The on/off button **43** is configured to control the light-emitting unit **40** to be turned on and turned off, and to adjust the color and flashing

mode of the light source, so that the product has high functionality.

[0089] Referring to FIG. **15**, FIG. **15** is another schematic structural diagram of a light-emitting assembly of a microphone according to an embodiment of this application. In this embodiment, only a portion of the structure and positional relationship when the light-emitting assembly **4′** is compared with the light-emitting assembly **4** in the previous embodiment. In this embodiment, the light-emitting assembly **4′** includes a light-emitting unit **40′** and a third circuit board **41′**. The light-emitting unit **40′** is arranged on the third circuit board **41′**, and the third circuit board **41′** is arranged at the inner shell **13**. Specifically, the third circuit board **41′** is arranged on an inner wall of the inner shell **13**. The inner shell **13** is provided with a penetrating hole. The light-emitting unit **40′** is arranged in the hole in a penetrating manner. A light-emitting surface of the light-emitting unit **40′** faces the outer shell **11**. When the light-emitting unit **40′** is turned on, emitted light can be transmitted through the outer shell **11**. In this embodiment, the third circuit board **41′** is arranged in an axial direction of the inner shell **13**. In other embodiments, the third circuit board **41′** may alternatively be arranged in a circumferential direction of the inner shell **13**.

[0090] Referring to FIG. **16**, FIG. **16** provides still another schematic structural diagram of a light-emitting assembly of a microphone. In this embodiment, when the light-emitting assembly **4″** is compared with the light-emitting assembly **4** in the previous embodiment, only the positional relationship changes. Specifically, the light-emitting assembly **4″** includes a light-emitting unit **40″** and a third circuit board **41″**. The light-emitting unit **40″** is arranged on the third circuit board **41″**, and the third circuit board **41″** and the light-emitting unit **40″** are arranged in the interval space **11***f*. Specifically, the third circuit board **41′** is arranged on an outer side wall of the inner shell **13**. A light-emitting surface of the light-emitting unit **40″** faces the outer shell **11**. When the light-emitting unit **40″** is turned on, emitted light can be transmitted through the outer shell **11**. In this embodiment, the third circuit board **41″** is arranged in an axial direction of the inner shell **13**. In other embodiments, the third circuit board **41″** may alternatively be arranged in a circumferential direction of the inner shell **13**.

[0091] Continuing to refer to FIG. **1** to FIG. **7**, the microphone **100** further includes a base **5** and a supporting assembly **6**. The supporting assembly **6** is connected to the base **5**, and the supporting assembly **6** is configured to be rotatably connected to the shell assembly **1**. The supporting assembly **6** includes a support **61** and a rotating shaft **62**. One end of the support **61** is connected to the base **5**, and the rotating shaft **62** is arranged at one end of the support **61** away from the base **5**. The rotating shaft **62** is arranged in the outer shell **11** in a penetrating manner, and the outer shell **11** is configured to rotate around the rotating shaft **62**. Furthermore, one end of the support **61** away from the base **5** is rotatably connected to a side surface of the shell assembly **1**. Specifically, one end of the support **61** away from the base **5** is rotatably connected to one end of the sidewall structure of the outer shell **11** away from the bottom plate **15**.

[0092] In this embodiment, the support **61** is a unilateral support, and shell assembly **1** is supported and rotated only through the unilateral support. Specifically, the support **61** is only connected to one side surface of the outer shell **11**. In this way, most of the area of the outer shell **11** can be redesigned for layout, so that the appearance of the product is neater and more beautiful. When the light-emitting unit **40** emits light, the outer shell **11** can show a larger area of light and a cooler lighting effect.

[0093] Referring to FIG. **7**, in this embodiment, the support **61** is connected to the base **5** by screwing. Specifically, an internal threaded hole is provided at one end of the support **61** connected to the base **5**, and a bolt is in threaded connection with the internal threaded hole of the support **61** through the base **5**. In this embodiment, the base **5** can be removed from the support **61** through the bolt, so that the microphone **100** can be connected to an external cantilever support through the internal threaded hole on the support **61**, thereby expanding the usage scenario of the microphone **100**. The microphone **100** can not only be used on a surface of an object, such as a desktop, but also suspended and used through the external cantilever support. By the arrangement of the base **5**,

the microphone **100** can be placed steadily on the surface of the object. The shell assembly **1** can rotate relative to the rotating shaft **62**. As the shell assembly **1** can rotate, it is convenient for a user to adjust an inclination angle of the microphone **100**, and it is more convenient for use and for the microphone head **20** to pick up sounds. The user experience is enhanced.

[0094] Referring to FIG. **4** and FIG. **5**, the supporting assembly **6** further includes a first gasket **63** with a through hole **63***a*. The first gasket **63** is arranged between the outer shell **11** and the support **61**. The rotating shaft **62** is arranged in the through hole **63***a* in a penetrating manner. Referring to FIG. **17** for details, the first gasket **63** includes a first portion **631** and a second portion **632**. The first portion **631** and the second portion **632** are located on two opposite sides of an axis of the through hole **63***a*, and a thickness of the second portion **632** is greater than a thickness of the first portion **631**. The second portion **632** is located at one end of the first gasket **63** close to the base **5**. In this embodiment, the first gasket **63** is made of a soft material such as silica gel and rubber. The first gasket **63** can enlarge a contact area between the outer shell **11** and the support **61**, so that the shell assembly **1** can be maintained in a desired angle after rotating relative to the support **61** to adjust the inclination angle. The first gasket **63** is set to have a thin top and a thick bottom, so that the shell assembly **1** can play a role of supporting and compensation under the action of its gravity and a supporting force of the rotating shaft **62**. The second portion is thick, which can better support the shell assembly **1**.

[0095] Referring to FIG. **8**, the outer shell **11** is provided with a first mounting hole **11***c* and a first protrusion **111** configured to enhance the strength of the outer shell **11**. The first protrusion **111** is annularly arranged at the first mounting hole **11***c*. The rotating shaft **62** is arranged in the first mounting hole **11***c* in a penetrating manner, and at least a portion of the first gasket **63** is arranged in the first mounting hole **11***c* in a penetrating manner.

[0096] Referring to FIG. **9**, in this embodiment, a second mounting hole **13***b* for threading the rotating shaft **62** is also correspondingly provided at a position, corresponding to the first mounting hole **11***c* of the outer shell **11**, on the inner shell **13**. An inner diameter of the second mounting hole **13***b* is approximately equal to an inner diameter of the first mounting hole **11***c*. A second protrusion **131** is arranged at a periphery of the second mounting hole **13***b* to enhance the strength of the inner shell **13**. The outer shell **11** has light transmittance, achieving light transmittance. Meanwhile, if the first mounting hole **11***c* is provided on the outer shell **11**, the strength of the outer shell **11** will be inevitably affected. As the first protrusion **111** is arranged at the periphery of the first mounting hole **11***c*, it plays a reinforcing bar role, so that the strength of the outer shell **11** can be enhanced, avoiding damage to the outer shell **11** and ensuring that the product has good quality. Furthermore, the first protrusion **111** protrudes out of the outer shell **11**, so that a gap is reserved between the support **61** and the outer shell **11**. This allows the microphone **100** to have an avoidance space when it is rotated or deflects due to an external force, thereby avoiding friction and collision between the outer shell **11** and the support **61**, avoiding the damage to the outer shell **11**, and ensuring the beautiful appearance of the microphone **100**.

[0097] Specifically, a third protrusion **132** is further arranged on the inner shell **13**. The third protrusion **132** is annularly arranged at a periphery of the second protrusion **131** and is connected to the inner shell **13**. A height of the third protrusion **132** is greater than that of the second protrusion **131**. In this embodiment, the third protrusion **132** is integrally connected to the second protrusion **131**. By the additional arrangement of the third protrusion **132**, the shell strength close to the second mounting hole **13***b* of the inner shell **13** is further enhanced, ensuring that the shell strength of the inner shell **13** can be enough to bear and support the microphone **100**. During rotation relative to the rotating shaft **62**, it can still ensure that the shell strength will not be lowered, thereby prolonging the service life of the product.

[0098] Referring to FIG. **11** and FIG. **12**, the inner shell **13** is further provided with a fourth protrusion **133**. The fourth protrusion **133** is annularly arranged at the second mounting hole **13***b*. The fourth protrusion **133** is arranged on one side of the inner shell **13** away from the outer shell

11. In this embodiment, the fourth protrusion **133** and the second protrusion **131**, as well as the third protrusion **132**, are respectively arranged on two sides of the inner shell **13**, and are annularly arranged at the second mounting hole **13***b*. By the arrangement of the fourth protrusion **133**, the shell strength of the inner shell **13** close to the second mounting hole **13***b* is further enhanced, thereby reducing the impact of the second mounting hole **13***b* on the shell strength of the inner shell **13**.

[0099] Specifically, continuing to refer to FIG. **17**, the first gasket **63** is provided with a positioning column **633**. The positioning column **633** is located on the first portion **631** and faces one side of the outer shell **11**. A positioning hole **11***e* is provided at a corresponding position on the outer shell **11**. The positioning column **633** is arranged in the positioning hole **11***e* in a penetrating manner. In this embodiment, the positioning column **633** is made of a soft material and resists against the inner shell **13**, specifically, the second protrusion **131**. In other embodiments, the positioning column **633** is arranged in the positioning hole **11***e* in the penetrating manner and may not resist against the inner shell **13** or the second protrusion **131**. By the arrangement of the positioning column **633** on the first gasket **63** and cooperation with the positioning hole **11***e* on the outer shell **11**, it can ensure that the relative positions of the first gasket **63** and the outer shell **11** are fixed, so that when the outer shell **11** rotates relative to the rotating shaft **62**, the first gasket **63** rotates with the outer shell **11**, thereby increasing the friction force during the rotation, ensuring that the shell assembly **1** can be maintained in an angle desired by a user without rotation, and improving the stability of the microphone **100**. Referring to FIG. **4** and FIG. **5**, the supporting assembly **6** further includes a fastener **64**. The fastener **64** is connected to one end of the rotating shaft **62** away from the outer shell **11** and is located on one side of the support **61** away from the outer shell **11**. In this embodiment, the rotating shaft **62** is connected to the fastener **64** in a non-rotatable manner. The end of the rotating shaft **62** connected to the fastener **64** is designed as a polygon along an axial view. A matching slot is provided in the fastener **64**, so that the non-rotatable connection between the rotating shaft **62** and the fastener **64** is achieved. In other embodiments, the rotating shaft **62** can be fixedly connected to or integrally formed with the corresponding fastener **64**. The supporting assembly **6** further includes a second gasket **65**. The second gasket **65** is arranged between the support **61** and the fastener **64**. By the arrangement of the fastener **64**, the rotating shaft **62** passes through the support **61** to ensure the length of the rotating shaft **62** and to further play a balancing role. The support **61** acts as a fulcrum, so that the shell assembly **1** and the fastener **64** are located at two ends of the rotating shaft **62**, thereby balancing the weight of the shell assembly **1**. In addition, the fastener **64** can further ensure that the rotating shaft **62** will not fall off from the support **61**. The second gasket **65** can enlarge a contact area between the support **61** and the fastener **64**, thereby achieving antislip and stabilizing effects.

[0100] The sound pickup assembly **2** further includes a mesh enclosure **21**, and the mesh enclosure **21** covers the microphone head **20**. In this embodiment, the mesh enclosure **21** further covers the mounting seat **12** and resists against the cover plate **14**. The shell assembly **1** further includes a sponge cover **1**A. The sponge cover **1**A is covered at the mesh enclosure **21** and resists against the outer shell **11**. On the one hand, the sponge cover **1**A can effectively prevent popping noise, protect the microphone head **20** of the microphone **100**, and prevent saliva splashing On the other hand, an air flow of plosive directly blown to the microphone head **20** can be reduced, thereby prolonging the service life of the microphone **100** and enhancing the user experience.

[0101] Please refer to FIG. **18**, FIG. **19** and FIG. **20**. FIG. **18** and FIG. **19** are three-dimensional diagrams of the microphone **100**′ according to the second embodiment of the present disclosure in two different angles. When not in use, the microphone **100**′ can be rotated to a state shown in FIG. **18** or FIG. **19** for convenient storage and carrying. FIG. **20** is a three-dimensional diagram of the microphone **100**′ in a usage state according to an embodiment of the present disclosure. When using the microphone **100**′, a user will rotate and adjust the microphone **100**′ to a proper angle for better sound pickup. such as a usage state shown in FIG. **20**, which is only a schematic diagram of

a rotation angle. The microphone **100**′ disclosed in the present disclosure can be rotated according to a need of the user and maintained in different angles. The present disclosure will not show and elaborate them one by one again.

[0102] Referring to FIG. **21** and FIG. **22**, the microphone **100**′ according to an embodiment of the present disclosure includes a shell assembly **1**′, a sound pickup assembly **2**′, a control assembly **3**′, a light-emitting assembly **4**A and a connecting frame **6**′. The shell assembly **1**′ includes an outer shell **11**′, a cover plate **14**′ and a bottom plate **15**′. The cover plate **14**′ and the bottom plate **15**′ are arranged to cover the opposite ends of the outer shell **11**′. The outer shell **11**′, the cover plate **14**′ and the bottom plate **15**′ enclose to form a first accommodating chamber **1***a*′. The sound pickup assembly **2**′ includes a microphone head **21**′ for sound pickup, and the microphone head **21**′ is arranged at one end of the shell assembly **1**′ adjacent to the cover plate **14**′. The control assembly **3**′ includes a first circuit board **31**′, the first circuit board **31**′ is arranged in the first accommodating chamber **1***a*′, and is electrically connected to the microphone head **21**′. The light-emitting assembly **4**A includes a light-emitting unit **41**A, the light-emitting unit **41**A is arranged in the first accommodating chamber **1***a*′ and is electrically connected to the first circuit board **31**′, and the light-emitting unit **41**A is configured to allow emitted light to pass through the bottom plate **15**′. The connecting frame **6**′ is configured to be rotatably connected to the shell assembly **1**′, and is further configured to support the microphone **100**′ on an external object. Further, the outer shell **11**′ and the bottom plate **15**′ correspond to the shell body **10** in the above embodiment.

[0103] Compared with the prior art, the microphone **100**′ provided in the present disclosure employs the light-emitting unit **41**A to transmit the emitted light through the bottom plate **15**′ to the outside of the shell assembly **1**′, thereby enabling the microphone **100**′ to produce colorful lighting effects during use. This configuration not only enhances the functionality of the microphone **100**′ but also allows users to enjoy both auditory and visual effects simultaneously, which significantly improves the product's entertainment value. Additionally, the provision of the connecting bracket **6**′ facilitates the rotation of the shell assembly **1**′, enabling users to adjust the angle and enabling multi-scenario use.

[0104] In this embodiment, when the microphone **100**′ is placed vertically on an object surface (e.g., a desktop) as shown in FIG. **18**, the cover plate **14**′, the outer shell **11**′, and the bottom plate **15**′ are sequentially arranged from top to bottom, with the bottom plate **15**′ positioned at the bottom of the microphone **100**′. By this configuration, when the light emitted from the light-emitting unit **41**A passes through the bottom plate **15**′ to generate lighting effects, such lighting effects do not interfere with the user's operation during use of the microphone **100**′, while still allowing both the user and audience to clearly observe the lighting effect, thereby providing dazzling visual displays for all observers.

[0105] Specifically, in this embodiment, the light-emitting unit **41**A includes a plurality of LED lamp beads. The LED lamp beads can emit light in multiple colors, thereby producing the lighting effects more dazzling and aesthetically pleasing.

[0106] To prevent light emitted by the light-emitting unit **41**A from transmitting through other portions of the shell assembly **1**′ (which could interfere with user operation or cause light pollution), both the outer shell **11**′ and the cover plate **14**′ are configured with light-shielding properties. This configuration restricts light transmission exclusively through the bottom plate **15**′, creating circumferential lighting effect around the bottom of the microphone **100**′. To enhance the lighting effect presented by the bottom plate **15**′, the bottom plate **15**′ has light transmittance, allowing the light emitted by the light-emitting unit **41**A to pass through. The present application provides flexible light-transmittance characteristics for the bottom plate **15**′, including but not limited to: full light transmission, high-transmissivity, or low-transmissivity configurations. The bottom plate **15**′ may incorporate different material compositions according to predetermined light-transmission requirements to achieve selective light transmission. This enables the selective transmission of user-preferred light spectra, thereby enhancing visual performance.

[0107] Specifically, with reference to FIGS. **21** to **23**, the bottom plate **15**′ includes a main body portion **151**′ and a connecting portion **152**′. The connecting portion **152**′ is arranged along the periphery of the main body portion **151**′ and abuts against the outer shell **11**′. The outer surface of the outer shell **11**′ and the outer surface of the connecting portion **152**′ collectively form a smooth curved surface. The light-emitting unit **41**A is configured to allow emitted light to pass through the connecting portion **152**′. In this embodiment, the outer surface of the connecting portion **152**′ and the outer surface of the outer shell **11**′ abut against each other to form either a continuous curved surface or a planar surface, thereby presenting the microphone **100**′ shell body as an integrated structure. The light emitted by the light-emitting unit **41**A can transmit through the connecting portion **152**′, enabling the microphone **100**′ to provide bottom lighting effect that enhance visual perception for both users and audiences, consequently improving the product's entertainment value. The bottom plate **15**′ is fabricated from transparent materials including, but not limited to: glass, organic polymer light-transmissive materials (e.g., acrylic panels), light-transmissive composite materials, and transparent plastics, provided such materials achieve the required light transmission. In some other embodiments, the bottom plate **15**′ may include translucent materials such as: thermoplastic polymers, polymethyl methacrylate (PMMA), polyethylene (PE), polypropylene (PP), polyester (PET), polyvinyl chloride (PVC), polyamide (PA), cellulose acetate, polystyrene (PS), or polytetrafluoroethylene (PTFE), provided these materials achieve the desired translucency.
[0108] In this embodiment, the shell assembly **1**′ further includes a light shielding member **19**′; the light shielding member **19**′ is arranged on the main body portion **151**′, and the light shielding member **19**′ is configured to shield the light emitted by the light-emitting unit **41**A from being transmitted to the outside through the main body portion **151**′. Specifically, the light shielding member **19**′ is arranged on the surface of the bottom plate **15**′ away from the cover plate **14**′, thereby shielding the light passing through the main body portion **151**′. Using the light shielding member **19**′ to shield the main body portion **151**′ prevents the light from the light-emitting unit **41**A from being transmitted through the main body portion **151**′. This configuration facilitates assembly and production and improves production efficiency. In this embodiment, the light shielding member **19**′ additionally serve as a a decorative element that conceals fastening components including screws and bolts, thereby enhancing product aesthetics. In other embodiments, the light shielding member **19**′ may also be arranged on the side of the cover plate **14**′ facing the first accommodating cavity **1***a*′. The light shielding member **19**′ may include either a light-blocking panel or a light-blocking coating.
[0109] In another embodiment, the main body portion **151**′ has light-shielding properties, while the connecting portion **152**′ has light transmittance. The main body portion **151**′ and the connecting portion **152**′ are made of materials with different light-transmissive characteristics. The light-shielding design of the main body portion **151**′ prevents the lighting effect from being displayed through the main body portion **151**′, allowing the lighting effect to be presented circumferentially around the connecting portion **152**′. This results in a better visual effect in a nighttime environment.
[0110] Furthermore, the light-emitting assembly **4**A includes a second circuit board **42**A, the light-emitting unit **41**A is electrically connected to the second circuit board **42**A, and the second circuit board **42**A is electrically connected to the first circuit board **31**′; the second circuit board **42**A is arranged in the first accommodating chamber **1***a*′ adjacent to the bottom plate **15**′. Specifically, the second circuit board **42**A is arranged in parallel with the bottom plate **15**′; the light-emitting unit **41**A is arranged on a surface of the second circuit board **42**A facing the bottom plate **15**′. The second circuit board **42**A has two oppositely arranged surfaces, which face the bottom plate **15**′ and the cover plate **14**′ respectively. The light-emitting unit **41**A is arranged on the surface of the side of the second circuit board **42**A facing the bottom plate **15**′. The second circuit board **42**A is electrically connected to the light-emitting unit **41**A to enable individual control of the light-emitting unit **41**A. This allows for a better display of lighting effects and also enables better control over the light-emitting unit **41**A to present different lighting effects. The light-emitting unit **41**A is

arranged on the second circuit board **42**A, allowing the emitted light to directly pass through the bottom plate **15**′ for a better lighting effect. In this embodiment, the first circuit board **31**′ is arranged vertically, while the bottom plate **15**′ and the second circuit board **42**A are arranged horizontally. The second circuit board **42**A is perpendicular to the first circuit board **31**′. Specifically, the second circuit board **42**A is annular and is arranged at the outer periphery of the first circuit board **31**′. The light-emitting unit **41**A consists of LED lamp beads. Multiple LED lamp beads are evenly distributed on the second circuit board **42**A. Thus, when the light emitted by the LED lamp beads passes through the bottom plate **15**′, the displayed lighting effect is more uniform and the light effect is better.

[0111] In other embodiments, the light-emitting unit **41**A may also be arranged between the second circuit board **42**A and the bottom plate **15**′, provided that such configuration enables the light emitted by the light-emitting unit **41**A to pass through the bottom plate **15**′.

[0112] To facilitate the control of the activation and deactivation of the light-emitting unit **41**A, the light-emitting assembly **4**A further includes a switch button **45**A penetrating through the bottom plate **15**′. The switch button **45**A is electrically connected to the first circuit board **31**′ to control the light-emitting unit **41**A. The switch button **45**A is configured to control the activation and deactivation of the light-emitting unit **41**A, as well as adjust the color and blinking mode of the light source, thereby making the functions of the product more diverse and powerful.

[0113] In this embodiment, the light-emitting assembly **4**A further includes an indicator lamp **43**A and a light guide member **44**A. The indicator lamp **43**A is electrically connected to the second circuit board **42**A, the indicator lamp **43**A is configured to emit light, the light guide member **44**A is configured to transmit the light emitted by the indicator lamp **43**A to the outside of the outer shell **11**′. Specifically, the outer shell **11**′ is provided with a through hole **11***a*′, a portion of the light guide member **44**A is arranged in the through hole **11***a*′, the surface of the exposed portion of the light guide member **44**A passing through the through hole **11***a*′ is flush with the outer surface of the outer shell **11**′. As shown in FIG. **24** and FIG. **25**, in this embodiment, the indicator lamp **43**A is arranged on the surface of the second circuit board **42**A that faces the microphone head **21**′, so that the indicator lamp **43**A and the light-emitting unit **41**A are arranged on two opposite surfaces of the second circuit board **42**A, thus avoiding the mutual interference of the light emitted by the two. The indicator lamp **43**A is controlled by the second circuit board **42**A, which results in a better control effect. Moreover, the light of the indicator lamp **43**A is transmitted through the outer shell **11**′, and its lighting effect does not interfere with that of the bottom plate **15**′. They can cooperate with each other and are convenient to distinguish. Arranging the light guide member **44**A to guide the light emitted by the indicator lamp **43**A to the outside of the outer shell **11**′ can enhance the indicating light effect.

[0114] To reinforce the support strength of the outer shell **11**′, the shell assembly **1**′ further includes an inner shell **13**′ arranged in the first accommodating chamber **1***a*′ and connected to the outer shell **11**′. The inner shell **13**′, which is a hollow cylindrical structure, is configured to abut against the outer shell **11**′ so as to enhance the support strength of the outer shell **11**′. The inner shell **13**′ has light-shielding properties. The inner shell **13**′ is provided with a second accommodating chamber **13***a*′, and the first circuit board **31**′ is arranged in the second accommodating chamber **13***a*′. The second circuit board **42**A is arranged on one end of the inner shell **13**′ adjacent to the bottom plate **15**′, the cover plate **14**′ is arranged on the other end of the inner shell **13**′. The arrangement of the inner shell **13**′ to enhance the strength of the outer shell **11**′ improves the overall strength of the product. Moreover, it facilitates production and assembly, thereby increasing production efficiency. Meanwhile, the arrangement of the inner shell **13**′ also provides an additional layer of protection for the internal components, preventing the internal components from being affected when the outer shell **11**′ is externally impacted.

[0115] Referring to FIG. **21**, FIG. **22** and FIG. **26**, the outer shell **11**′ is provided with a first fixing portion **111**′ and a second fixing portion **112**′. The first fixing portion **111**′ and the second fixing

portion **112**′ both extend into the first accommodating chamber **1***a*′. Specifically, the number of the first fixing portions **111**′ and the second fixing portions **112**′ is four respectively, and they are evenly distributed at both ends of the outer shell **11**′. The first fixing portion **111**′ and the second fixing portion **112**′ are provided with internal threads. The cover plate **14**′ is provided with a third fixing portion **141**′, and the bottom plate **15**′ is provided with a fourth fixing portion **153**′. Specifically, the third fixing portion **141**′ and the fourth fixing portion **153**′ are provided with through holes **11***a*′, and the through holes **11***a*′ are arranged corresponding to the first fixing portion **111**′ and the second fixing portion **112**′ respectively. The shell assembly **1**′ further includes a plurality of fixing members **1**B′. Specifically, the fixing members **1**B′ are screws. The first fixing portion **111**′ is connected to the third fixing portion **141**′ by screws, and the second fixing portion **112**′ is connected to the fourth fixing portion **153**′ by screws, so as to respectively cover the cover plate **14**′ and the bottom plate **15**′ on both ends of the outer shell **11**′. In this embodiment, the light shielding member **19**′ can also cover components such as screws, making the product more aesthetically pleasing in appearance.

[0116] In the embodiment of the present disclosure, in order to facilitate the production and assembly of the microphone **100**′, the shell assembly **1**′ further includes a mounting frame **16**′ and a balancing weight **18**′. The longitudinal direction of the mounting frame **16**′ is consistent with the longitudinal direction of the microphone **100**′. The mounting frame **16**′ is arranged in the first accommodating chamber **1***a*′, specifically, the mounting frame **16**′ is arranged in the second accommodating chamber **13***a*′. The balancing weight **18**′ and the first circuit board **31**′ are arranged on opposite sides of the mounting frame **16**′ and connected to the mounting frame **16**′. The balancing weight **18**′ is configured to balance the weight of the shell assembly **1**′ so as to make the center of gravity of the microphone **100**′ positioned on the axis of the outer shell **11**′. Specifically, the first circuit board **31**′ is connected to the mounting frame **16**′ by means of screw fixation. The balancing weight **18**′ is fixedly connected to the mounting frame **16**′ by screws. In other embodiments, other connection methods can also be adopted to realize the connection between the first circuit board **31**′ and the mounting frame **16**′. The balancing weight **18**′ can also be connected to the mounting frame **16**′ by means of adhesive, buckle, or other fastening methods. The arrangement of the mounting frame **16**′ facilitates the production and assembly of various components. And the weight of the shell assembly **1**′is adjusted and balanced by the balancing weight **18**′ to ensure that the center of gravity of the microphone **100**′ is positioned on the axis of the outer shell **11**′. Thus, the stability of the microphone **100**′ is ensured when the microphone **100**′ is adjusted or rotated.

[0117] Specifically, one end of the mounting frame **16**′ extending along its longitudinal direction is connected to the bottom plate **15**′ screws, and the other end is connected to a mounting seat **12**′. The mounting seat **12**′ is configured to mount the microphone head **21**′. The shell assembly **1**′ further includes a partition plate **17**′. The partition plate **17**′ is connected to the mounting seat **12**′ and the mounting frame **16**′, and the mounting seat **12**′ and the mounting frame **16**′ are arranged on two opposite sides of the partition plate **17**′. The partition plate **17**′ is provided with a hole for a wire to pass through, and the wire is configured to be electrically connected to the microphone head **21**′ and the first circuit board **31**′. By the arrangement of the partition plate **17**′, the positions of the mounting seat **12**′ and the mounting frame **16**′ are more obvious and easier to distinguish, so that efficient assembling can be achieved during assembling, and the production efficiency can be improved, thereby reducing the production cost of the product.

[0118] In this embodiment, the sound pickup assembly **2**′ further includes a mesh enclosure **22**′, and the mesh enclosure **22**′ covers the microphone head **21**′. In this embodiment, the mesh enclosure **22**′ further covers the mounting seat **12**′ and abuts against the cover plate **14**′. The shell assembly **1**′ further includes a sponge cover **1**A′. The sponge cover **1**A′ is covered at the mesh enclosure **22**′ and abuts against the outer shell **11**′. On the one hand, the sponge cover **1**A′ can effectively prevent popping noise, protect the microphone head **21**′ of the microphone **100**′, and

prevent saliva splashing. On the other hand, an air flow of plosive directly blown to the microphone head **21**′ can be reduced, thereby prolonging the service life of the microphone **100**′ and enhancing the user experience.

[0119] In this embodiment, the sound pickup assembly **2**′ further includes a mesh enclosure **22**′, and the mesh enclosure **22**′ covers the microphone head **21**′. In this embodiment, the mesh enclosure **22**′ further covers the mounting seat **12**′ and abuts against the cover plate **14**′. The shell assembly **1**′ further includes a sponge cover **1**A′. The sponge cover **1**A′ covers the mesh enclosure **22**′ and abuts against the outer shell **11**′. On the one hand, the sponge cover **1**A′ can also effectively prevent popping caused by plosive sounds and prevent saliva from splashing into the microphone head **21**′ of the microphone **100**′. On the other hand, the direct impact of the airflow of plosive sounds on the microphone head **21**′ can be reduced, thereby prolonging the service life of the microphone **100**′ and enhancing the user experience.

[0120] To facilitate user operation, the control assembly **3**′ further includes a function key.

[0121] The function key is arranged in the outer shell **11**′ in a penetrating manner and is electrically connected to the first circuit board **31**′. The function key penetrates the outer shell **11**′ and is disposed on the same side of the outer shell **11**′ as the through hole **11***a*′. The function key is configured to adjust the signal amplification level input to the microphone **100**′ or the signal strength output by it, and to enable or disable its mute function. The arrangement of the function key facilitates users to adjust and control the microphone **100**′. Specifically, the function key further includes a function knob **33**′ and a mute button **34**′ configured to control the microphone **100**′ to be muted. Both the outer shell **11**′ and the inner shell **13**′ are provided with holes through which the function knob **33**′ and the mute button **34**′ can pass, so that the function knob **33**′ and the mute button **34**′ can be connected to the first circuit board **31**′ for users to operate. The mute button **34**′ can be pressed to mute the microphone **100**′ during use, and can be pressed again to relieve the mute effect. The operation is convenient. The function knob **33**′ has at least two functions. In this embodiment, two functions are taken as an example for introduction. During use, the first function is to adjust the gain effect of the microphone **100**′ by rotation, and the second function is to adjust the volume of earphones by rotation. The two functions can be switched by pressing the function knob **33**′. In other embodiments, the function knob **33**′ may alternatively have a third function or more functions. The functions can be switched by pressing. The function knob integrates multiple function adjustments, so that the overall operation buttons of the product are reduced, and the appearance is neater and more beautiful.

[0122] The control assembly **3**′ further includes a first audio jack **35**′ arranged in the shell assembly **1**′ in a penetrating manner and connected to an external audio device, an earphone jack **36**′ for being connected to external earphones, and a second audio jack **37**′ for being connected to an external device to transmit data. The first audio jack **35**′, the earphone jack **36**′, and the second audio jack **37**′ are all electrically connected to the first circuit board **31**′. Specifically, the first audio jack **35**′, the earphone jack **36**′, and the second audio jack **37**′ are all arranged in the bottom plate **15**′ in a penetrating manner. The bottom plate **15**′ is provided with corresponding holes. The first audio jack **35**′ is configured to be connected to another external device such as a sound card or an audio device, to achieve seamless compatibility. The second audio jack **37**′ is configured to be connected to another device, such as a computer or a tablet, to achieve data transmission such as audio data transmission. The two audio jacks enhance the functionality of the microphone **100**′, which is convenient for a user to use multiple interfaces. The main function of the earphone jack **36**′ is to be connected to the earphones for transmission of audio signals, thus allowing a user to listen to sound through the earphones. Specifically, the second audio jack **37**′ can be a USB interface or a type-c interface.

[0123] With continued reference to FIGS. **18** to **22**, the microphone **100**′ further includes a base **5**′. The connecting frame **6**′ is a unilateral support **6**A′. The unilateral support **6**A′ includes a support **61**′ and a rotating shaft **62**′. The rotating shaft **62**′ is arranged at one end of the support **61**′ away

from the base **5**′. One end of the support **61**′ is configured to be rotatably connected to the shell assembly **1**′ via the rotating shaft **62**′, and the other end is connected to the base **5**′. The base **5**′ is configured to be placed on an external object to support the microphone **100**′. Specifically, the outer shell **11**′ is provided with a mounting hole communicating with the first accommodating chamber **1***a*′. The rotating shaft **62**′ passes through the mounting hole, and the outer shell **11**′ is configured to be rotatably connected to the rotating shaft **62**′. The support **61**′ is only connected to one side surface of the outer shell **11**′. By adopting the unilateral support **6**A′, the area of the shell assembly **1**′ blocked by the support **61**′ can be reduced, and most of the area of the outer shell **11**′ can be redesigned and laid out, so that the appearance of the product is neater and more beautiful.

[0124] Specifically, referring to FIGS. **27** to **29**, the unilateral support **6**A′ further includes a first gasket **63**′ with a through hole **63***a*′. The first gasket **63**′ is arranged between the outer shell **11**′ and the support **61**′, and the rotating shaft **62**′ passes through the through hole **63***a*′. The first gasket **63**′ includes a first portion **631**′ and a second portion **632**′. The first portion **631**′ and the second portion **632**′ are arranged on opposite sides of the axis of the through hole **63***a*′, and the thickness of the second portion **632**′ is greater than that of the first portion **631**′. The second portion **632**′ is arranged at one end of the first gasket **63**′ adjacent to the base **5**′. In this embodiment, the first gasket **63**′ is made of a soft material, such as silicone or rubber. The first gasket **63**′ can increase the contact area between the outer shell **11**′ and the support **61**′, so that the shell assembly **1**′ can maintain the desired angle after being rotationally adjusted for its tilt angle relative to the support **61**′. The first gasket **63**′ is designed to be thinner at the top and thicker at the bottom, which plays a role in support compensation under the action of the gravity of the shell assembly **1**′ and the supporting force of the rotating shaft **62**′. The thicker second portion **632**′ can better support the shell assembly **1**′.

[0125] Since the shell assembly **1**′ is connected by the unilateral support **6**A′ and the microphone **100**′ has its own weight, it is likely to cause the shell to crack. In the embodiment of the present application, the microphone **100**′ further includes a shell compensation structure. The shell compensation structure is arranged on the shell assembly **1**′ and is configured to enhance the strength of the shell assembly **1**′. The arrangement of the shell compensation structure ensures the strength of the connection between the shell assembly **1**′ and the support **61**′ and prevents the shell assembly **1**′ from cracking.

[0126] Specifically, the outer shell **11**′ is provided with a protrusion **113**′ configured to enhance the strength of the outer shell **11**′. The protrusion **113**′ is annularly arranged around the mounting hole. The rotating shaft **62**′ passes through the mounting hole, and at least a portion of the first gasket **63**′ passes through the mounting hole. The inner shell **13**′ is also correspondingly provided with a hole for the rotating shaft **62**′ to pass through at a position corresponding to the mounting hole of the outer shell **11**′. By arranging the protrusion **113**′ around the periphery of the mounting hole, it functions as a reinforcing rib to enhance the strength of the outer shell **11**′, thereby preventing cracking of the outer shell **11**′ and ensuring superior product quality. Meanwhile, the protrusion **113**′ protrudes out of the outer shell **11**′, so that a gap is reserved between the support **61**′ and the outer shell **11**′. This enables the microphone **100**′ to have an avoidance space when it rotates or deflects due to an external force, thereby avoiding friction and collision between the outer shell **11**′ and the support **61**′, avoiding the damage to the outer shell **11**′, and ensuring the beautiful appearance of the microphone **100**′.

[0127] The first gasket **63**′ is provided with a positioning column **633**′. The positioning column **633**′ is located on the first portion **631**′ and faces the outer shell **11**′. A positioning hole is provided at a corresponding position on the outer shell **11**′. The positioning column **633**′ passes through the positioning hole. In this embodiment, the positioning column **633**′ is made of a soft material and abuts against the inner shell **13**′. The positioning column **633**′ is arranged on the first gasket **63**′ and cooperates with the positioning hole on the outer shell **11**′. This configuration can ensure that the relative positions of the first gasket **63**′ and the outer shell **11**′ are fixed, so that when the outer shell

11′ rotates relative to the rotating shaft **62**′, the first gasket **63**′ rotates with the outer shell **11**′, thereby increasing the friction force during the rotation. This ensures that the shell assembly **1**′ can be maintained at an angle desired by the user without rotating, and improves the stability of the microphone **100**′.

[0128] The unilateral support **6**A′ further includes a fastener **64**′. The fastener **64**′ is connected to one end of the rotating shaft **62**′ away from the outer shell **11**′ and is located on one side of the support **61**′ away from the outer shell **11**′. In this embodiment, the rotating shaft **62**′ is connected to the fastener **64**′ in a non-rotatable manner. The end of the rotating shaft **62**′ connected to the fastener **64**′ has a polygonal profile in axial view. A matching slot is provided in the fastener **64**′, so that the non-rotatable connection between the rotating shaft **62**′ and the fastener **64**′ is achieved. In other embodiments, the rotating shaft **62**′ can be fixedly connected to or integrally formed with the corresponding fastener **64**′. The supporting assembly further includes a second gasket **65**′. The second gasket **65**′ is arranged between the support **61**′ and the fastener **64**′. By the arrangement of the fastener **64**, the rotating shaft **62**′ passes through the support **61**′ to ensure the length of the rotating shaft **62**′ and also play a balancing role. The support **61**′ acts as a fulcrum, so that the shell assembly **1**′ and the fastener **64**′ are located at two ends of the rotating shaft **62**′, thereby balancing the weight of the shell assembly **1**′. In addition, the fastener **64**′ can further ensure that the rotating shaft **62**′ will not fall off from the support **61**′. The second gasket **65**′ can enlarge the contact area between the support **61**′ and the fastener **64**′, thereby achieving anti-slip and stabilizing effects.

[0129] Specifically, the support **61**′ includes a first connecting section **611**′, a second connecting section **612**′, and a third connecting section **613**′. The first connecting section **611**′ and the third connecting section **613**′ may be substantially parallel but are not limited to being parallel. The second connecting section **612**′ connects the first connecting section **611**′ and the third connecting section **613**′, forming a certain angle with the first connecting section **611**′ and the third connecting section **613**′ respectively. The end of the first connecting section **611**′ away from the second connecting section **612**′ is connected to the base **5**′, while the end of the third connecting section **613**′ away from the second connecting section **612**′ is configured to be rotatably connected to the shell assembly **1**′. The first connecting section **611**′ may be substantially perpendicular to the base **5**′, but it is not strictly limited to a perpendicular arrangement. With this configuration, the support **61**′ can more effectively support the microphone **100**′.

[0130] In this embodiment, the support **61**′ is connected to the base **5**′ by a threaded connection. Specifically, an internal threaded hole is provided at one end of the support **61**′ connected to the base **5**′, and a bolt is in threaded connection with the internal threaded hole of the support **61**′ through the base **5**′. In this embodiment, the base **5**′ can be detached from the support **61**′ by removing the bolt, enabling the microphone **100**′ to be connected to an external cantilever support through the internal threaded hole on the support **61**′. Thus, the usage scenarios of the microphone **100**′ are expanded, allowing the microphone **100**′ to be used not only on the surface of an object, such as a desktop, but also suspended for use via the external cantilever support. The base **5**′ is provided so that the microphone **100**′ can be stably placed on the surface of an object. The shell assembly **1**′ can rotate relative to the support **61**′. The rotatability of the shell assembly **1**′ makes it easier for users to adjust the inclination angle of the microphone **100**′, making it more convenient to use and enabling the microphone head **21**′ to pick up sounds more easily, thereby enhancing the user experience.

[0131] Referring to FIG. **30**, in another embodiment, the support **6**′ is a U-shaped support or a V-shaped support **6**B′; both ends of the U-shaped support or the V-shaped support **6**B′ are configured to be rotatably connected to the shell assembly **1**′, and a bottom of the U-shaped support or the V-shaped support **6**B′ is configured to be connected to the base **5**′ to support the microphone **100**′ on an external object. The external object may be the base **5**′, or a cantilever. The bottom of the U-shaped support or the V-shaped support **6**B′ can be detachably connected to the base **5**′ or the cantilever, etc. by means of threaded connection.

[0132] The various technical features in the foregoing embodiments may be randomly combined. For concise description, not all possible combinations of the various technical features in the above embodiments are described. However, provided that combinations of these technical features do not conflict with each other, the combinations of the various technical features are considered as falling within the scope of this specification. The foregoing embodiments merely express several implementations of the present disclosure. The descriptions thereof are relatively specific and detailed, but are not understood as limitations on the scope of the present disclosure. A person of ordinary skill in the art can also make several transformations and improvements without departing from the idea of this application. These transformations and improvements fall within the protection scope of this application. Therefore, the protection scope of the patent of this application shall be subject to the appended claims.

Claims

1. A microphone, comprising: a shell assembly, comprising a shell body with a first accommodating chamber; a sound pickup assembly, comprising a microphone head for sound pickup, wherein the microphone head is arranged on the shell assembly; a control assembly, comprising a first circuit board, wherein the first circuit board is arranged in the first accommodating chamber, and is electrically connected to the microphone head; and a light-emitting assembly, comprising a light-emitting unit, wherein the light-emitting unit is arranged in the first accommodating chamber and is electrically connected to the first circuit board; and the light-emitting unit is configured to allow emitted light to pass through a portion of the shell body.
2. The microphone according to claim 1, wherein the shell body comprises an outer shell having a circumferentially arranged sidewall structure and a bottom plate connected to one end of the sidewall structure; the first accommodating chamber is enclosed by the sidewall structure; at least one of the sidewall structure and the bottom plate has light transmittance, and is configured to allow light emitted by the light-emitting unit to pass through either the sidewall structure or the bottom plate.
3. The microphone according to claim 2, wherein the bottom plate comprises a main body portion and a connecting portion; the connecting portion is connected to an outer side of the main body portion and is connected to the outer shell; the connecting portion has light transmittance, and is configured to allow the light emitted by the light-emitting unit to pass through the connecting portion.
4. The microphone according to claim 3, wherein the main body portion has light-shielding properties or the shell assembly further comprises a light shielding member; the light shielding member is arranged on the main body portion, and the light shielding member is configured to shield the light emitted by the light-emitting unit from being transmitted to outside through the main body portion.
5. The microphone according to claim 3, wherein the connecting portion comprises an annular light-transmitting structure, and is configured to allow the light emitted by the light-emitting unit to pass through the connecting portion and form an annular light-emitting strip.
6. The microphone according to claim 3, wherein the shell assembly further comprises an inner shell arranged in the first accommodating chamber and connected to the outer shell; the inner shell is a hollow cylindrical structure configured to abut against the outer shell to reinforce support strength of the outer shell; the inner shell has light-shielding properties.
7. The microphone according to claim 2, wherein the shell assembly further comprises a cover plate connected to one side of the outer shell away from the bottom plate, and the cover plate has light-shielding properties.
8. The microphone according to claim 2, wherein the bottom plate has light-shielding properties; the outer shell has light transmittance, and is configured to allow the light emitted by the light-

emitting unit to pass through the outer shell and allow the sidewall structure to emit light overall.

9. The microphone according to claim 8, wherein the shell assembly further comprises an inner shell arranged in the first accommodating chamber; the inner shell is provided with a second accommodating chamber; and the first circuit board is arranged in the second accommodating chamber; the inner shell has light transmittance; the light-emitting unit is arranged in the second accommodating chamber; and the light-emitting unit is configured to allow emitted light to sequentially pass through the inner shell and the outer shell.

10. The microphone according to claim 9, wherein an interval space is provided between the inner shell and the outer shell; the light-emitting unit is arranged in the inner shell or the interval space; the inner shell is a semi-transparent shell.

11. The microphone according to claim 3, wherein the light-emitting assembly comprises a second circuit board, the light-emitting unit is electrically connected to the second circuit board, and the second circuit board is electrically connected to the first circuit board; the second circuit board is arranged in the first accommodating chamber adjacent to the bottom plate, and the second circuit board is arranged in parallel with the bottom plate; the light-emitting unit is arranged on a surface of the second circuit board facing the bottom plate, and is configured to emit light toward the connecting portion.

12. The microphone according to claim 11, wherein the light-emitting assembly further comprises an indicator lamp, the indicator lamp is electrically connected to the second circuit board, and the indicator lamp is configured to allow emitted light to pass through the outer shell; the light-emitting assembly further comprises a light guide member, the outer shell is provided with a through hole, a portion of the light guide member is arranged in the through hole, the indicator lamp is arranged on a surface of the second circuit board facing the microphone head, the light guide member is arranged adjacent to the indicator lamp, and the light guide member is configured to transmit the light emitted by the indicator lamp to outside of the outer shell.

13. The microphone according to claim 12, wherein the control assembly further comprises a function key; the function key is configured to pass through the outer shell, is electrically connected to the first circuit board, and is disposed on a same side of the outer shell as the through hole; the function key is configured to adjust a signal amplification level input to the microphone and/or a signal strength output by the microphone, and/or to enable or disable a mute function of the microphone.

14. The microphone according to claim 1, wherein the shell assembly further comprises a mounting frame and a balancing weight; a longitudinal direction of the mounting frame is consistent with a longitudinal direction of the microphone; the mounting frame is arranged in the first accommodating chamber; the balancing weight and the first circuit board are arranged on opposite sides of the mounting frame; the balancing weight is configured to balance a weight of the shell assembly for adjusting a center of gravity of the microphone.

15. The microphone according to claim 2, wherein the microphone further comprises a base and a supporting assembly; the supporting assembly comprises a support; one end of the support is connected to the base; the shell body is configured to be rotatably connected to one end of the support away from the base, thereby enabling the shell assembly to rotate the sound pickup assembly relative to the base for adjusting a sound pickup angle.

16. The microphone according to claim 15, wherein one end of the support away from the base is rotatably connected to a side surface of the shell assembly.

17. The microphone according to claim 15, wherein one end of the support away from the base is rotatably connected to one end of the sidewall structure away from the bottom plate.

18. The microphone according to claim 15, wherein the microphone further comprises a shell compensation structure, the shell compensation structure is arranged on the shell assembly, and the shell compensation structure is configured to reinforce strength of the shell assembly; the supporting assembly further comprises a rotating shaft, the rotating shaft is arranged at one end of

the support away from the base; the outer shell is provided with a mounting hole communicating with the first accommodating chamber, the rotating shaft is arranged in the mounting hole in a penetrating manner, the outer shell is configured to be rotatably connected to the rotating shaft; the shell compensation structure comprises a protrusion; and the protrusion is annularly arranged at the mounting hole and is connected to the outer shell; the supporting assembly further comprises a first gasket with a through hole, the first gasket is arranged between the outer shell and the support, the rotating shaft is arranged in the through hole in a penetrating manner; the first gasket comprises a first portion and a second portion, a portion adjacent to the base is defined as a second portion, and a thickness of the second portion is greater than a thickness of the first portion.

19. The microphone according to claim 15, wherein the support comprises a first connecting section, a second connecting section, and a third connecting section; the first connecting section is parallel to the third connecting section, the second connecting section is connected to the first connecting section and the third connecting section and forms a certain angle with the first connecting section and the third connecting section; one end of the first connecting section away from the second connecting section is connected to the base, and one end of the third connecting section away from the second connecting section is configured to be rotatably connected to the shell assembly; the first connecting section is connected to the base.

20. The microphone according to claim 15, wherein the support comprises a U-shaped support or a V-shaped support; both ends of the U-shaped support or the V-shaped support are configured to be rotatably connected to the shell assembly, and a bottom of the U-shaped support or the V-shaped support is configured to be connected to the base to support the microphone on an external object.