

(19)



(11)

EP 3 637 786 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
27.04.2022 Bulletin 2022/17

(21) Application number: **19164502.7**

(22) Date of filing: **22.03.2019**

(51) International Patent Classification (IPC):
H04R 1/02 (2006.01)

(52) Cooperative Patent Classification (CPC):
H04R 1/026; H04R 1/025; H04R 2201/028; H04R 2201/029; H04R 2420/07

(54) DETACHABLE COMBINATION SPEAKER

ABNEHMBARER KOMBINATIONSLAUTSPRECHER

HAUT-PARLEUR COMBINÉ DÉTACHABLE

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **12.10.2018 CN 201821664576 U**

(43) Date of publication of application:
15.04.2020 Bulletin 2020/16

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**WO-A1-2015/103312 CN-A- 106 658 277
CN-U- 204 681 576 CN-U- 207 753 824
US-A1- 2015 139 464 US-A1- 2018 234 768
US-S1- D 534 897**

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Description**FIELD OF THE INVENTION**

5 [0001] The present application relates to the technical field of speaker, in particular to a detachable combination speaker.

BACKGROUND OF THE INVENTION

10 [0002] A speaker is a device that converts an audio signal into sound. In general, it means that the main body or the subwoofer box of the speaker has its own power amplifier to amplify the audio signal, and after the amplification, the speaker played back the sound, making the sound louder. The speaker is the terminal of the entire sound system, and its function is to convert the audio energy into the corresponding sound energy and radiate it into the space. The speaker is an extremely important part of the sound system, and it is responsible for the task of converting an electrical signal into an acoustic signal for a human ear's direct listening.

15 [0003] In the prior art, the combination speakers are mostly two separate boxes, which cannot be combined, or can be combined by magnet adsorption, but are not convenient to be carried to outdoor for use. The prior art cannot solve a problem that a speaker could give consideration to both of the indoor desktop use and the outdoor portable use. In order to solve the above problem, the present application has devised a detachable combination speaker.

20 [0004] US 2018/234768 A1 discloses a speaker system including two speaker units, each including: a waterproof shell, a front vertical side of which defining a sound opening passing therethrough; a magnetic base at the bottom of the shell configured to hold together the speaker units when the magnetic bases of the two speaker units are placed together, the front vertical side of each will point in a common direction; a rechargeable battery within the shell; a speaker adjacent the sound opening; and an electronic circuit that communicates with the wireless device and demodulates the wireless signal to drive the speaker. A flexible protective covering has a shape that is complimentary in shape to the two speakers when the two speakers are held together at the magnetic bases. The flexible protective covering holds the two speakers together therein.

25 [0005] WO 2015/103312 A1 discloses interchangeable speaker enclosures (or "jackets"). The jackets can protect a portable speaker from potential damage resulting from moving the speaker, which can be moved around indoors or used outdoors. Jackets can be easily attached to the portable speaker and easily detached from the portable speaker. Jackets can provide aesthetic appeal and protect the speaker from damage, while improving the quality of audio output and enhancing the listening experience.

30 [0006] US 2015/139464 A1 discloses portable speakers that provide stereophonic, surround sound. A speaker system includes a first speaker portion, a second speaker portion and a cable handle. The first speaker portion includes a first end and a second end, and the second speaker portion includes a third end and a fourth end. The cable handle couples the first end of the first speaker portion and a third end of the second speaker portion. The second end of the first speaker portion is configured to releasably couple to the fourth end of the second speaker portion, thereby forming a looped unit, when coupled, with the first speaker portion, the second speaker portion, and the cable handle.

35 [0007] US D 534 897 S1 discloses an ornamental design for a speaker system.

40 [0008] CN 106 658 277 A discloses a portable soundbox comprising a first soundbox body and a second soundbox body; a sliding groove is arranged on the top of the first soundbox body; a clamping strip, which can be inserted into the sliding groove from a front opening, is arranged at the bottom of the second soundbox body; furthermore, the top of the clamping strip passes through the upper opening of a penetration groove; the first soundbox body is also movably provided with a baffle used for blocking and setting the clamping strip in the front of the sliding groove; an installation cavity suitable for containing the baffle is also arranged on the first soundbox body; a spring is installed between the bottom of the baffle and the inner bottom wall of the installation cavity; and a handle is installed on the top of the second soundbox body.

45 [0009] CN 204 681 576 U discloses a rotatory combination formula bluetooth speaker, including first audio amplifier and second audio amplifier, first audio amplifier is made up and is equipped with a plurality of buckle, a plurality of buckle is centering on same centre of a circle interval distribution on first audio amplifier, offered on the second audio amplifier a plurality of with the corresponding buckle groove of buckle, a plurality of buckle marge round same centre of a circle interval distribution on the second audio amplifier, the buckle can insert the rotatory lock of corresponding buckle inslot and make first audio amplifier is connected with the second audio amplifier is detachable.

SUMMARY OF THE INVENTION

55 [0010] The present application provide a detachable combination speaker.

[0011] The embodiments of the present application are defined in the appended claims.

[0012] Compared with the prior art, the beneficial effects of the embodiments of the present application are: the two speakers are detachably connected, and the speaker sleeve is used to accommodate the speakers, so that the two speakers could be combined into one, becoming a speaker group which could be placed horizontally and vertically and could be portable. In addition, the interface surface of the speaker's structure is provided with waterproof material, which could prevent the speaker from being damaged by waterlogging when the speaker is used outdoors. The speaker group gives consideration to both of indoor and outdoor use scenarios, greatly improving the use efficiency of the speaker and saving resources.

[0013] The present application will be further described below with reference to the accompanying drawings and embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

FIG. 1 is a explosion structure diagram of a detachable combination speaker of an embodiment of the present application;

FIG. 2 is a structure diagram of the installation of the speaker and the speaker sleeve of the embodiment shown in FIG. 1;

FIG. 3 is a structure diagram of the speaker of the embodiment shown in FIG. 1;

FIG. 4 is a structure diagram of the speaker (without a packaging cloth) shown in FIG. 3;

FIG. 5 is a structure diagram of the speaker (without a housing sleeve) shown in FIG. 4;

Reference numbers

10-	Speaker	11-	Connecting portion
12-	Mounting protrusion	13-	Mounting groove
14-	Annular groove	15-	Silicone foot pad
17-	Power button	18-	Housing cover
19-	Baffle	20-	Speaker sleeve
21-	Hand-held portion	22-	Through hole
23-	Button protrusion	30-	Volume button
31-	Sounding unit	32-	Battery
33-	Circular groove	34-	Packaging cloth
35-	Speaker housing	36-	Housing sleeve
37-	Circuit board		

DESCRIPTION OF THE EMBODIMENTS

[0015] In order to make the objects, technical solutions and advantages of the present application more clear, the present application will be further described in detail below with reference to the accompanying drawings and embodiments.

[0016] A detachable combination speaker as shown in FIG. 1 and FIG. 2 comprises two speakers 10 and a speaker sleeve 20. The two speakers 10 are detachably connected, and as shown in FIG. 1, it is a disassembled state, and FIG. 2 is an assembled state, and the two speakers integrates into one, becoming an outdoor speaker that could be placed horizontally and vertically and could be portable. The speaker sleeve 20 is provided with a cavity for accommodating the two speakers 10. The upper end surface of the speaker 10 is provided with a connecting portion, and the two speakers 10 are connected by the connecting portions. The combination speaker could be applied to the TWS Bluetooth speaker combination, but is not limited to the TWS Bluetooth speaker.

[0017] As shown in FIG. 3, the speaker 10 is in the shape of a cylinder, and the upper end surface of the speaker 10 is an inclined surface, and the inclined surface is at an angle of 5-15 degrees with the other end surface (in a horizontal placement state).

[0018] As shown in FIG. 3, the end surface of the speaker 10 having the inclined surface is provided with a groove,

the groove is provided with the connecting portion 11, and the connecting portion 11 is in the shape of an elliptical block.

[0019] As shown in FIG. 3, the connecting portion 11 is provided with a circular groove 33, the circular groove 33 is located at the center of the connecting portion 11, and the inner wall of the circular groove 33 is provided with a mounting protrusion 12, and below the mounting protrusion 12 is a mounting groove 13, and the mounting groove 13 is mainly used for jamming the mounting protrusion of the other speaker when the two speakers 10 are assembled and combined to achieve the locking effect.

[0020] As shown in FIG. 3, the connecting portion 11 is provided with an annular groove 14, and a silicone foot pad 15 is disposed in the annular groove 14, and the silicone foot pad 15 is used for supporting and buffering effect when the two speakers are combined together, to prevent excessive force to cause the speaker 10 to be damaged.

[0021] As shown in FIG. 4 and FIG. 5, the speaker 10 comprises a speaker housing 35, a battery 32, a circuit board 37 and a sounding unit 31. The speaker housing 35 is in the shape of a cylinder with a cavity, and the battery 32, the circuit board 37 and the sounding unit 31 are disposed in the speaker housing 35, and the circuit board 37 is electrically connected to the battery 32 and the sounding unit 31.

[0022] As shown in FIG. 4 and FIG. 5, the speaker housing 35 comprises a housing sleeve 36 and a housing cover 18, and the housing sleeve 36 is fixedly connected to the housing cover 18. The housing sleeve 36 is provided with a baffle 19, and a power interface and a data transmission interface are under the baffle 19. The speaker housing 35 is provided with a power button 17, a volume button 30, a power interface and a data transmission interface. The housing cover 18 is provided with a sound diaphragm.

[0023] As shown in FIG. 4 and FIG. 5, a waterproof ring is disposed at a joint between the housing sleeve 36 and the housing cover 18, and a waterproof ring is disposed at a joint between the connecting portion 11 and the end surface of the speaker 10. By providing the waterproof ring inside the speaker 10 which is made of a silicone material, it is possible to prevent the speaker 10 from being damaged by waterlogging to a certain extent.

[0024] As shown in FIG. 3, for the purpose of speaker decoration and dust prevention and protection, the housing surface of the speaker housing of the speaker 10 is also provided with a packaging cloth 34.

[0025] As shown in FIG. 2, the speaker sleeve 20 is provided with a hand-held portion 21, and the hand-held portion 21 is provided with a through hole 22, and the speaker sleeve 20 is further provided with a button protrusion 23 that is fitted with the button of the speaker 10. The speaker sleeve 20 is made of flexible material, generally silica gel.

[0026] In conclusion, the two speakers are detachably connected, and the speaker sleeve is used to accommodate the speakers, so that the two speakers could be combined into one, becoming a speaker group which could be placed horizontally and vertically and could be portable. In addition, the interface surface of the speaker's structure is provided with waterproof material, which could prevent the speaker from being damaged by waterlogging when the speaker is used outdoors. The speaker group gives consideration to both of indoor and outdoor use scenarios, greatly improving the use efficiency of the speaker and saving resources.

Claims

1. A detachable speaker system, comprising two speakers (10) and a speaker sleeve (20); wherein the speaker sleeve is provided with a cavity for accommodating the two speakers; an end surface of each of the speakers is provided with a connecting portion (11), and the two speakers are connected by the connecting portion, wherein the two speakers are detachably connected, adapted to be placed horizontally and vertically.

characterized in that,

wherein the speakers (10) are in the shape of a cylinder, and the end surface of each of the speakers (10) is an inclined surface, and the inclined surface is at an angle of 5-15 degrees with the other end surface, wherein the end surface of each of the speakers (10) having the inclined surface is provided with a groove, and the groove is provided with the connecting portion (11), and the connecting portion (11) is in the shape of an elliptical block,

the connecting portion (11) is provided with a circular groove (33), the circular groove (33) is located at a center of the connecting portion (11), and an inner wall of the circular groove (33) is provided with a mounting protrusion (12), and below the mounting protrusion (12) is a mounting groove (13), and the mounting groove (13) is adapted to be used for jamming the mounting protrusion of the other speaker when the two speakers (10) are assembled and combined to achieve a locking effect.

2. The detachable speaker system according to claim 1, wherein the connecting portion is provided with an annular groove (14), and the annular groove is provided with a silicon foot pad (15).
3. The detachable speaker system according to claim 1, wherein each of the speakers comprises a speaker housing

(35), a battery (32), a circuit board (37) and a sounding unit (31); the speaker housing is in the shape of a cylinder with a cavity, and the battery, the circuit board and the sounding unit are disposed in the speaker housing, and the circuit board is electrically connected to the battery and the sounding unit.

4. The detachable speaker system according to claim 1, wherein the speaker sleeve is provided with a hand-held portion, and the hand-held portion is provided with a through hole, and the speaker sleeve is further provided with button protrusions fitted with buttons of the speakers.
5. The detachable speaker system according to claim 1, wherein the speaker sleeve is made of flexible material.

Patentansprüche

1. Abnehmbares Lautsprechersystem, umfassend zwei Lautsprecher (10) und eine Lautsprecherhülse (20); wobei die Lautsprecherhülse mit einer Aussparung zum Aufnehmen der beiden Lautsprecher versehen ist; eine Endoberfläche von jedem der Lautsprecher mit einem Verbindungsabschnitt (11) versehen ist und die beiden Lautsprecher durch den Verbindungsabschnitt verbunden sind, wobei die zwei Lautsprecher abnehmbar verbunden sind und ausgebildet sind, um waagrecht und senkrecht angeordnet zu werden,

dadurch gekennzeichnet, dass

die Lautsprecher (10) in Form eines Zylinders vorliegen und die Endoberfläche jedes der Lautsprecher (10) eine abgeschrägte Oberfläche ist und die abgeschrägte Oberfläche in einem Winkel von 5-15 Grad zu der anderen Endoberfläche verläuft,

wobei die Endoberfläche jedes der Lautsprecher (10), welcher die geneigte Oberfläche aufweist, mit einer Rille versehen ist und die Rille mit dem Verbindungsabschnitt (11) versehen ist und der Verbindungsabschnitt (11) die Form eines elliptischen Blocks aufweist,

der Verbindungsabschnitt (11) mit einer kreisförmigen Rille (33) versehen ist, die kreisförmige Rille (33) an einer Mitte des Verbindungsabschnitts (11) angeordnet ist und eine Innenwand der kreisförmigen Rille (33) mit einem Montagevorsprung (12) versehen ist und unter dem Montagevorsprung (12) eine Montagerille (13) vorgesehen ist und die Montagerille (13) dazu ausgebildet ist, zum Verkleben des Montagevorsprungs des anderen Lautsprechers verwendet zu werden, wenn die beiden Lautsprecher (10) montiert und kombiniert werden, um einen Verriegelungseffekt zu erzielen.

2. Abnehmbares Lautsprechersystem nach Anspruch 1, wobei der Verbindungsabschnitt mit einer ringförmigen Rille (14) versehen ist und die ringförmige Rille mit einer Silikon-Fußauflage (15) versehen ist.
3. Abnehmbares Lautsprechersystem nach Anspruch 1, wobei jeder der Lautsprecher ein Lautsprechergehäuse (35), eine Batterie (32), eine Leiterplatte (37) und eine Resonanzeinheit (31) umfasst; das Lautsprechergehäuse in Form eines Zylinders mit einer Aussparung vorliegt und die Batterie, die Leiterplatte und die Resonanzeinheit in dem Lautsprechergehäuse angeordnet sind und die Leiterplatte mit der Batterie und der Resonanzeinheit elektrisch verbunden ist.
4. Abnehmbares Lautsprechersystem nach Anspruch 1, wobei die Lautsprecherhülse mit einem Halteabschnitt versehen ist und der Halteabschnitt mit einem Durchgangsloch versehen ist und die Lautsprecherhülse ferner mit Tastenvorsprüngen versehen ist, die mit Tasten der Lautsprecher bestückt sind.
5. Abnehmbares Lautsprechersystem nach Anspruch 1, wobei die Lautsprecherhülse aus flexiblem Material hergestellt ist.

Revendications

1. Système de haut-parleurs détachables, comprenant deux haut-parleurs (10) et une enveloppe de haut-parleurs (20) ; dans lequel l'enveloppe de haut-parleurs est dotée d'une cavité destinée à accueillir les deux haut-parleurs ; une surface terminale de chacun des haut-parleurs est dotée d'une partie d'assemblage (11), et les deux haut-parleurs sont assemblés par la partie d'assemblage, dans lequel les deux haut-parleurs sont assemblés de façon détachable, adaptés pour être placés horizontalement et verticalement,

caractérisé en ce que

dans lequel les haut-parleurs (10) se présentent sous la forme d'un cylindre, et la surface terminale de chacun des haut-parleurs (10) est une surface inclinée, et la surface inclinée présente un angle de 5 à 15 degrés par rapport à l'autre surface terminale,

dans lequel la surface terminale de chacun des haut-parleurs (10) présentant la surface inclinée est dotée d'une rainure, et la rainure est dotée de la partie d'assemblage (11), et la partie d'assemblage (11) se présente sous la forme d'un bloc elliptique,

la partie d'assemblage (11) est dotée d'une rainure circulaire (33), la rainure circulaire (33) se trouve au niveau d'un centre de la partie d'assemblage (11), et une paroi intérieure de la rainure circulaire (33) est dotée d'une saillie de montage (12), et une rainure de montage (13) se trouve sous la saillie de montage (12), et la rainure de montage (13) est adaptée pour être utilisée pour bloquer la saillie de montage de l'autre haut-parleur lorsque les deux haut-parleurs (10) sont assemblés et combinés de manière à obtenir un effet de verrouillage.

2. Système de haut-parleurs détachables selon la revendication 1, dans lequel la partie d'assemblage est dotée d'une rainure annulaire (14), et la rainure annulaire est dotée d'un coussinet de base en silicone (15).

3. Système de haut-parleurs détachables selon la revendication 1, dans lequel chacun des haut-parleurs comprend un boîtier de haut-parleur (35), une batterie (32), une carte de circuit (37) et une unité sonore (31) ; le boîtier de haut-parleur se présente sous la forme d'un cylindre avec une cavité, et la batterie, la carte de circuit et l'unité sonore sont disposées dans le boîtier de haut-parleur, et la carte de circuit est connectée électriquement à la batterie et à l'unité sonore.

4. Système de haut-parleurs détachables selon la revendication 1, dans lequel l'enveloppe de haut-parleurs est dotée d'une partie portative, et la partie portative est dotée d'un trou traversant, et l'enveloppe de haut-parleurs est en outre dotée de saillies de bouton munies de boutons des haut-parleurs.

5. Système de haut-parleurs détachables selon la revendication 1, dans lequel l'enveloppe de haut-parleurs est constituée d'un matériau souple.

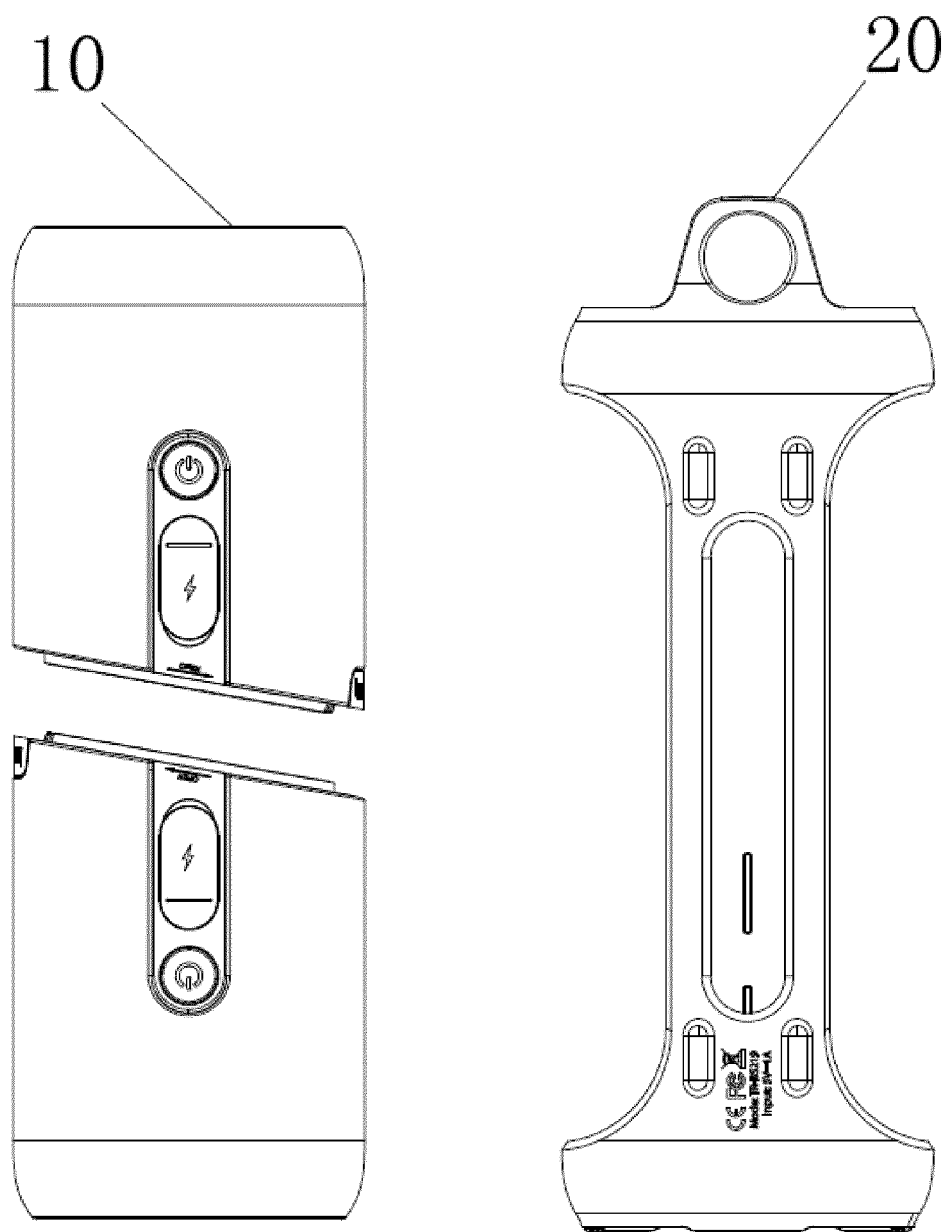


FIG.1

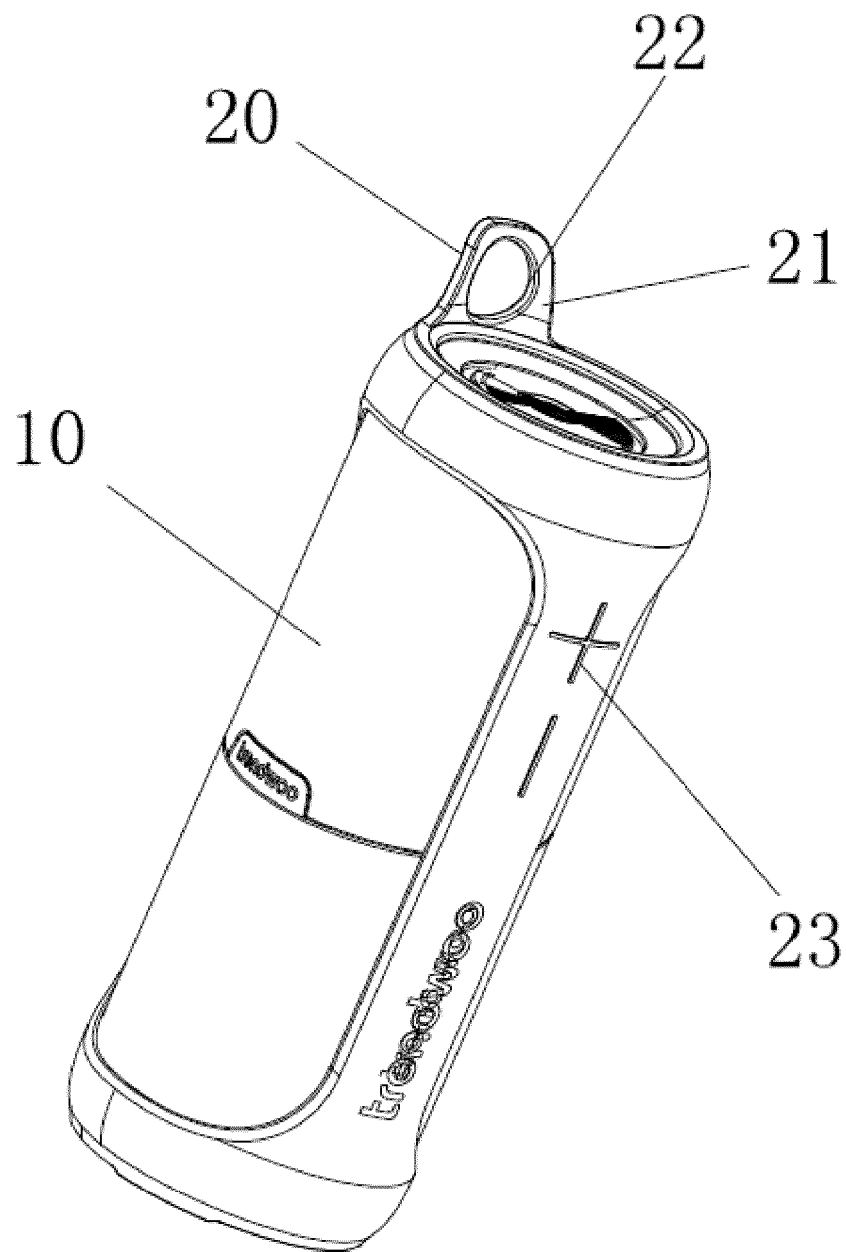


FIG.2

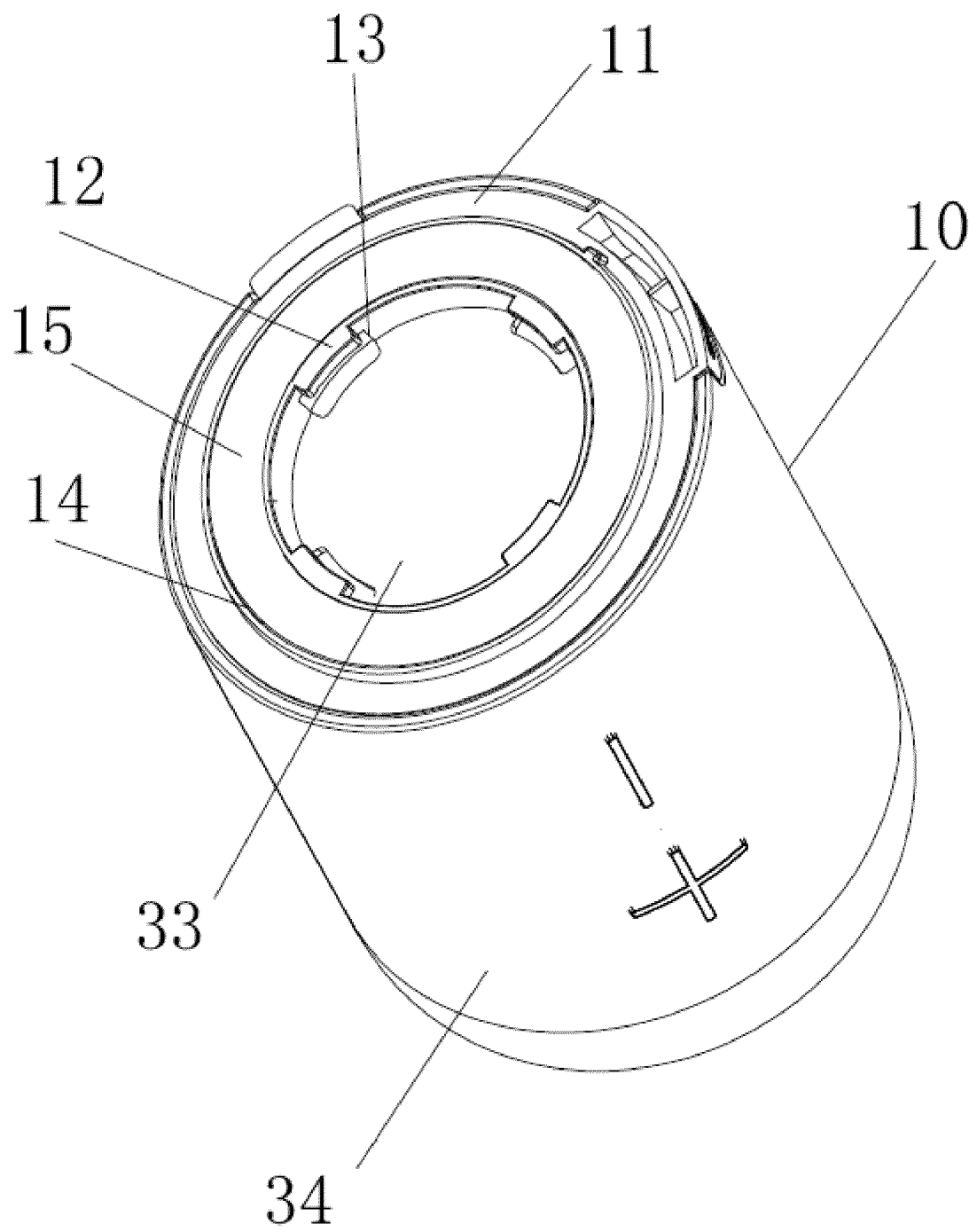


FIG.3

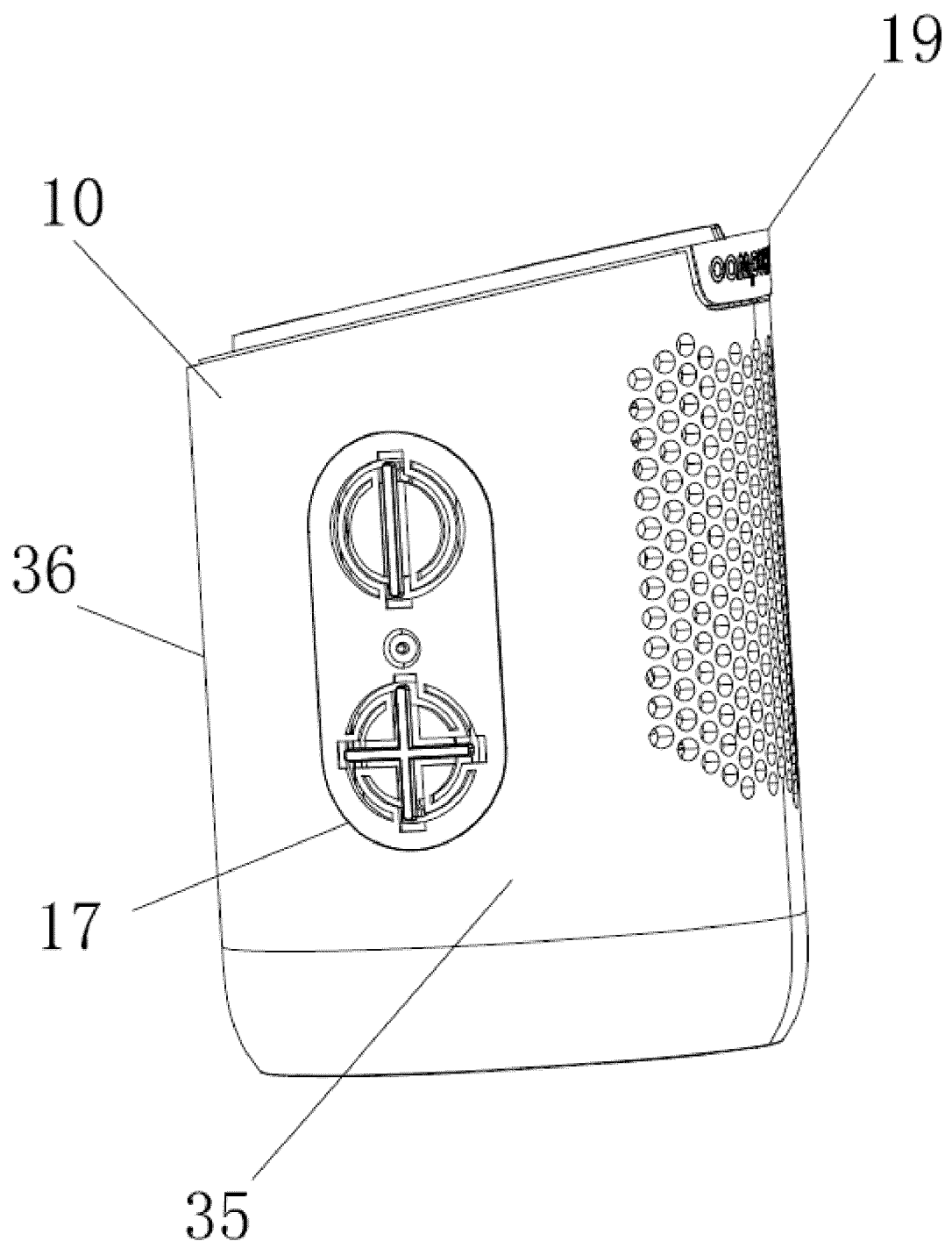


FIG.4

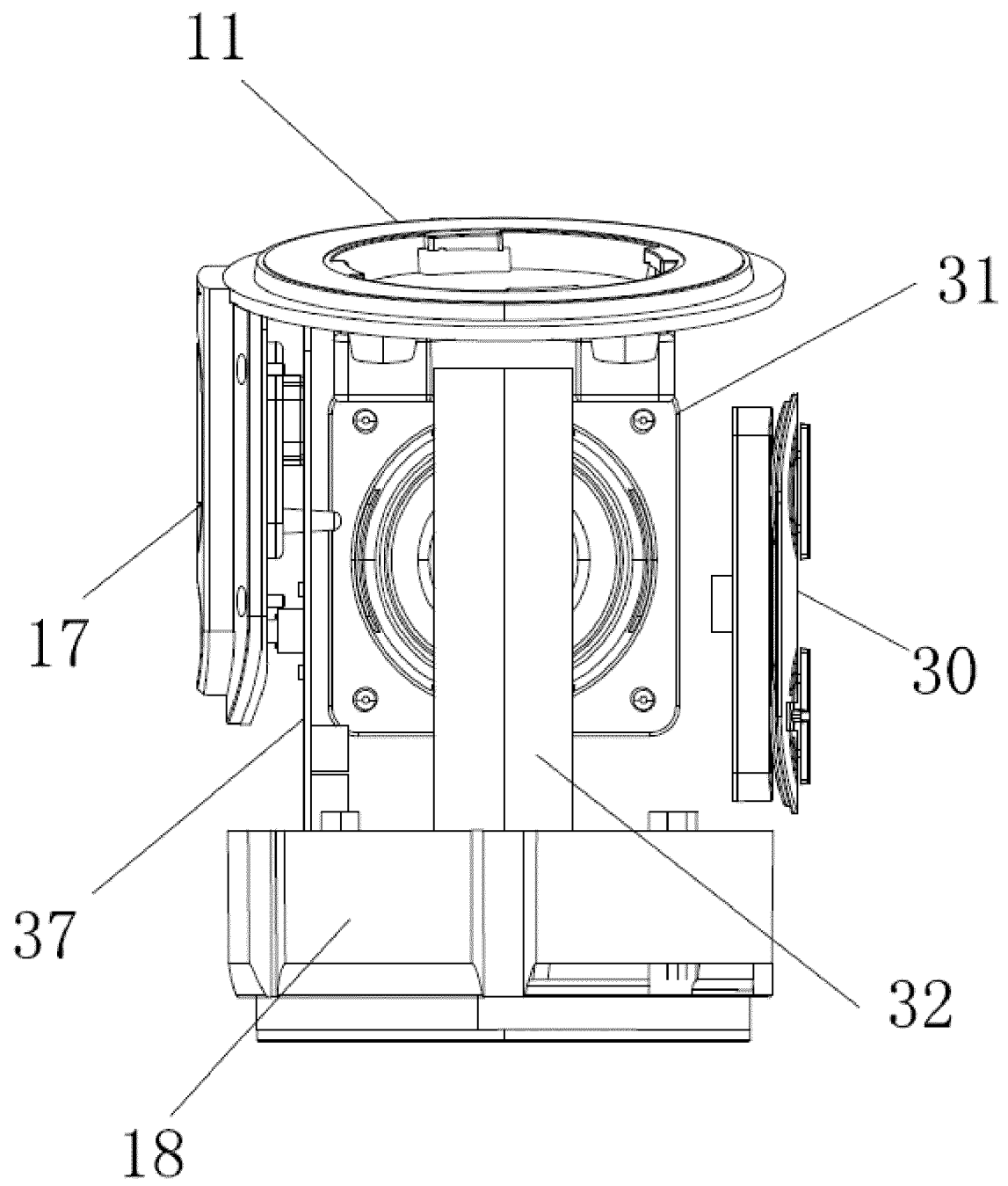


FIG.5

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

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