



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064
191438	7590	08/22/2023		
BYIP LTD. 5465 Legacy Drive, Suite 650 Plano, TX 75024			EXAMINER OJO, OYESOLA C	
			ART UNIT	PAPER NUMBER
			2654	
			NOTIFICATION DATE	DELIVERY MODE
			08/22/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

charles_ho@barron-young.com
charlesho@barron-young.com
cho@barron-young.com



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.
18/109,259	22-Aug-2023	11736855

BYIP LTD.
5465 Legacy Drive, Suite 650
Plano, TX 75024

EGRANT NOTIFICATION

Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at <https://patentcenter.uspto.gov>

The electronic patent grant is the official patent grant under 35 U.S.C. 153. For more information, please visit <https://www.uspto.gov/electronicgrants>



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	08/22/2023	11736855	SUNYOO-23007-USPT	1064

191438 7590 08/02/2023
BYIP LTD.
5465 Legacy Drive, Suite 650
Plano, TX 75024

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at <https://patentcenter.uspto.gov/>. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at <https://certifiedcopycenter.uspto.gov/index.html>. The Certified Copy Center may be reached at (800)972-6382.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional inventors):

Hanwen Xu, Hangzhou, CHINA;

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Hangzhou ZH Tech Co., Ltd., Hangzhou, CHINA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B-FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

BYIP LTD.
5465 Legacy Drive, Suite 650
Plano, Texas 75024

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064

TITLE OF INVENTION: COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT

APPLN: TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480.00			\$480.00	09/22/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
OJO, OYESOLA C	2654	381-072000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363)

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- The names of up to 3 registered patent attorneys or agents OR, alternatively,
- The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE or COUNTRY)

Hangzhou ZH Tech Co., Ltd.

Hangzhou, CN

Please check the appropriate assignee category or categories (will not be printed on the patent):

☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required)

4b. Method of Payment (Please first reapply any previously paid fee shown above):

- ☒ Electronic Payment via Patent Center or EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-5658

5. Change of Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27.
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature

/Charles Ho/

Date July 6, 2023

Typed or printed name

Charles Ho

Registration No.

51,807

Electronic Patent Application Fee Transmittal

Application Number:	18109259			
Filing Date:	13-Feb-2023			
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT			
First Named Inventor/Applicant Name:	Hanwen Xu			
Filer:	Charles S. Ho/Eleanor Lin			
Attorney Docket Number:	SUNYOO-23007-USPT			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt

EFS ID:	48254835
Application Number:	18109259
International Application Number:	
Confirmation Number:	1064
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT
First Named Inventor/Applicant Name:	Hanwen Xu
Customer Number:	191438
Filer:	Charles S. Ho
Filer Authorized By:	
Attorney Docket Number:	SUNYOO-23007-USPT
Receipt Date:	09-JUL-2023
Filing Date:	13-FEB-2023
Time Stamp:	21:53:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$480
RAM confirmation Number	E202379L57266004
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Issue_Fee_Transmittal.PDF	40136	no	1
			5b44483619456ea8f6885d3bec10cd02bb1fa5bc		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38172	no	2
			ae214351931bbb23102914ea0f61c940cc5a508e		
Warnings:					
Information:					
Total Files Size (in bytes):			78308		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

191438 7590 06/22/2023
BYIP LTD.
5465 Legacy Drive, Suite 650
Plano, TX 75024

EXAMINER	
OJO, OYESOLA C	
ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 06/22/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064

TITLE OF INVENTION: COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0.00	\$0.00	\$480	09/22/2023

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

191438 7590 06/22/2023
BYIP LTD.
5465 Legacy Drive, Suite 650
Plano, TX 75024

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064

TITLE OF INVENTION: COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0.00	\$0.00	\$480	09/22/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
OJO, OYESOLA C	2654	381-072000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required)

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via Patent Center or EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064
191438	7590	06/22/2023	EXAMINER	
BYIP LTD.			OJO, OYESOLA C	
5465 Legacy Drive, Suite 650			ART UNIT	
Plano, TX 75024			PAPER NUMBER	
			2654	
DATE MAILED: 06/22/2023				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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

Notice of Allowability	Application No. 18/109,259	Applicant(s) Xu, Hanwen	
	Examiner OYESOLA C OJO	Art Unit 2654	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 06/06/2023.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1 and 3-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☒ All b) ☐ Some* c) ☐ None of the:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☐ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/OYESOLA C OJO/ Primary Examiner, Art Unit 2654	
--	--

<i>Notice of References Cited</i>	Application/Control No. 18/109,259		Applicant(s)/Patent Under Reexamination Xu, Hanwen	
	Examiner OYESOLA C OJO		Art Unit 2654	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9445182-B2	09-2016	Pizzaro; Camila	H04R1/1008	1/1
*	B	US-8213667-B2	07-2012	Nelson; Mike	F16C11/06	381/370
*	C	US-7171698-B2	02-2007	Saffran; Michael D.	A61F11/14	2/209
*	D	US-5862241-A	01-1999	Nelson; Brian	H04R1/1066	381/374
*	E	US-5835609-A	11-1998	LeGette; Brian E.	A61F11/14	2/209
*	F	US-5469505-A	11-1995	Gathey; Phillip A.	H04M1/05	D14/206
*	G	US-20220353596-A1	11-2022	KURAOKA; Shinji	H04R1/105	1/1
*	H	US-20210260414-A1	08-2021	MUNDY; Matthew	A62B18/003	1/1
*	I	US-20180176673-A1	06-2018	Madsen; Claus Ellegaard	H04R1/1008	1/1
*	J	US-20110051976-A1	03-2011	Tsai; Jonson	H04R1/1066	381/378
*	K	US-20110026726-A1	02-2011	Kuo; Kuan I.	H04R1/1041	381/375
*	L	US-11477575-B2	10-2022	Degner; Brett W.	H04R5/0335	1/1
*	M	US-10779071-B2	09-2020	Wu; Cheng-Yun	H04R1/105	1/1

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 18/109,259	Applicant(s)/Patent Under Reexamination Xu, Hanwen
	Examiner OYESOLA C OJO	Art Unit 2654

CPC - Searched*		
Symbol	Date	Examiner
H04R1/1058, A61F11/145, H04R1/021, H04R1/028, H04R1/04, H04R2201/02, H04R2499/11	05/03/2023	OCO

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Performed Inventors and Assignee searches	05/03/2023	OCO
Performed searches in PE2E limited by keywords, text strings and CPC symbols	05/03/2023	OCO
Performed further searches in Global Dossier, WIPO and EPO websites	05/03/2023	OCO
Performed updated and Interference searches.	06/13/2023	OCO

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	SAME AS ABOVE	06/13/2023	OCO

/OYESOLA C OJO/ Primary Examiner, Art Unit 2654	
--	--

Issue Classification 	Application/Control No. 18/109,259	Applicant(s)/Patent Under Reexamination Xu, Hanwen
	Examiner OYESOLA C OJO	Art Unit 2654

CPC						
Symbol					Type	Version
H04R	/	1	/	1058	F	2013-01-01
H04R	/	1	/	021	I	2013-01-01
H04R	/	1	/	028	I	2013-01-01
A61F	/	11	/	145	I	2022-01-01
H04R	/	1	/	04	I	2013-01-01
H04R	/	2499	/	11	A	2013-01-01
H04R	/	2201	/	02	A	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/OYESOLA C OJO/	13 June 2023	O.G. Print Claim(s)	O.G. Print Figure
Primary Examiner, Art Unit 2654	(Date)	1	1

Issue Classification 	Application/Control No. 18/109,259	Applicant(s)/Patent Under Reexamination Xu, Hanwen
	Examiner OYESOLA C OJO	Art Unit 2654

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04R1/10	/	1	/	10
H04R1/02	/	1	/	02
H04R1/04	/	1	/	04
NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/OYESOLA C OJO/ Primary Examiner, Art Unit 2654 (Primary Examiner)	13 June 2023 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Issue Classification 	Application/Control No. 18/109,259	Applicant(s)/Patent Under Reexamination Xu, Hanwen
	Examiner OYESOLA C OJO	Art Unit 2654

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	11	19	20										
2	3	11	12												
3	4	12	13												
4	5	13	14												
5	6	14	15												
6	7	15	16												
7	8	16	17												
8	9	17	18												
9	10	18	19												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 19	
/OYESOLA C OJO/ Primary Examiner, Art Unit 2654 (Primary Examiner) _____ (Date) 13 June 2023		O.G. Print Claim(s) 1	O.G. Print Figure 1

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	5	((("XU") near3 ("Hanwen"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/05/03 01:13 AM
L2	0	((("HANGZHOU") near3 ("ZH") near3 ("TECH") near3 ("CO") near3 ("LTD"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/05/03 01:14 AM
L3	87912	(H04R1/1058 or A61F11/145 or H04R1/021 or H04R1/028 or H04R1/04 or H04R2201/02 or H04R2499/11).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 01:15 AM
L4	47726	((Earcup OR earpad OR supraaural OR supra\$1aural OR supra ADJ aural OR earmuff OR earcuff OR ear\$1cup OR ear\$1muff OR ear\$1pad OR ear\$1cuff OR ear\$1foam OR ear\$1cushion OR ear\$1cushioning OR (ear ADJ (pad OR muff OR cup OR cuff OR foam OR cushion OR cushioning))))	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:14 AM
L5	5382	L4 SAME ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR container OR basin OR chassis OR cabinet OR holder OR box) WITH (rotate rotatable rotatably rotary rotating rotated rotational rotationally revolve	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2023/05/03 11:19 AM

L6	573669	<p> revolving swivel swiveling swiveled pivot hinge fulcrum tilt tilted tilting tiltable tiltably gyro gyrating gyratory OR (adjust adjusted adjusting adjustable) NEAR (angle position positioning placement))) ((Speaker OR sounder OR loudspeaker OR receiver OR loud\$1speaker OR microspeaker OR minispeaker OR micro\$1speaker OR mini\$1speaker OR speakerlet OR speaker\$1let OR sound\$1producer OR sound\$1reproducer OR sound\$1transducer OR audio\$1receiver OR audio\$1reproducer OR audio\$1transducer OR sound\$1generator OR audio\$1generator OR acoustic\$1generator) OR ((Sound OR acoustic OR audio OR electroacoustic OR electro\$1acoustic OR electro ADJ acoustic) ADJ (driver OR emitter OR producer OR generator OR transducer OR receiver OR reproducer OR radiator OR device OR module OR component OR apparatus OR unit OR assembly OR system OR structure OR subunit OR sub\$1unit OR subassembly))) SAME ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR container OR basin OR chassis OR cabinet OR holder OR box) WITH (rotate rotatable rotatably rotary rotating rotated rotational rotationally </p>	<p> VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) </p> <p> (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) </p>	OR	ON	ON	<p> 2023/05/03 11:44 AM </p>
----	--------	---	--	----	----	----	---

L7	1058	revolve revolving swivel swiveling swiveled pivot hinge fulcrum tilt tilted tilting tiltable tiltably gyro gyrating gyratory OR (adjust adjusted adjusting adjustable) NEAR (angle position positioning placement))) L4 SAME L6	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:45 AM
L8	287	L7 AND ((Transmitter receiver transceiver transmit\$1ceiver transmit\$3 receive\$3 antenna antennae) WITH (Wireless wirelessly cordless cordlessly cable\$1free cord\$1less radio ADJ frequency RF radio\$1frequency infrared OR microwave OR radar radio ADJ waves))	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:50 AM
L9	226	L8 AND ((microphone OR mic OR sound\$1pickup OR sound\$1pick\$1up OR sound\$1collector OR sound\$1sensor OR sound\$1detector OR (audio OR sound OR acoustic) NEAR (detector OR transducer OR sensor OR converter OR pick\$1up OR sensing OR capturing OR transducing OR detecting OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:53 AM

L10	62	detection))) L8 AND ((microphone OR mic OR sound\$1pickup OR sound\$1pick\$1up OR sound\$1collector OR sound\$1sensor OR sound\$1detector OR (audio OR sound OR acoustic) NEAR (detector OR transducer OR sensor OR converter OR pick\$1up OR sensing OR capturing OR transducing OR detecting OR detection)))	(US-PGPUB; USPAT)	OR	ON	ON	2023/05/03 11:53 AM
L11	0	(L1 L2) AND L7	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:53 AM
L12	56	L3 AND L9	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:54 AM
L13	16	L3 AND L9	(US-PGPUB; USPAT)	OR	ON	ON	2023/05/03 11:54 AM
L14	2	cochran.inv. AND oyesola NEAR ojo	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2023/05/03 09:30 PM

L15	38	("3505684" "3918098" "4027113" "4065645" "4133053" "4471496" "5109424" "5117465" "5469505" "6542615" "6724906" "7171698" "8213667" "8861770" "8942385" "9749728" "9838776" "20030210801" "20080170738" "20110026726" "20110051976" "20110119804" "20110206216" "20110209273" "20120140973" "20120269374" "20120288131" "20140211959" "20150131809" "20150195640" "20160127819" "20160193085").pn. OR ("10667029").urpn. AND (PGPB USPT USOC).dbnm.	CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR)	OR	ON	ON	2023/05/03 09:32 PM
L16	49	("2782423" "3952158" "4404434" "4459707" "4463223" "4465159" "4471496" "4574912" "4689822" "D292400" "4756028" "4771454" "D299337" "4796307" "4935965" "4944361" "D326855" "5241971" "5293647" "5384857" "D375584" "5826582" "5835609" "5862241" "6163615" "20040216946").pn. OR ("7171698").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2023/05/03 09:41 PM
L17	27	((US-20180176673-A1	(US-PGPUB; USPAT;	OR	ON	ON	2023/05/04

		OR US-20110051976-A1 OR US-20220353596-A1 OR US-20210260414-A1 OR US-20110026726-A1 OR US-20160127819-A1 OR US-20160193085-A1 OR US-20110119804-A1 OR US-20040216946-A1 OR US-20120269374-A1 OR US-20030210801-A1 OR US-20150195640-A1 OR US-20110209273-A1).did. AND PGPB.dbnm.) OR ((US-9445182-B2 OR US-7171698-B2 OR US-5469505-A OR US-11477575-B2 OR US-8213667-B2 OR US-5862241-A OR US-5835609-A OR US-10779071-B2 OR US-11595747-B2 OR US-8861770-B2 OR US-11570549-B2 OR US-11006206-B2 OR US-10667029-B2 OR US-5241971-A).did. AND USPT.dbnm.)	USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				04:21 PM
L18	4	L10 AND L17	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/04 04:30 PM
L19	6347	((Headphone OR headset OR headpiece OR headworn OR head\$1phone OR head\$1set OR earpiece OR earphone OR earset OR ear\$1set OR ear\$1phone OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV,	OR	ON	ON	2023/06/13 01:13 AM

		ear\$1piece OR earspeaker OR ear\$1speaker OR circum\$1aural OR ear\$1mounted OR ear\$1mountable OR head\$1worn OR head\$1wearable OR head\$1piece OR head\$1mounted OR head\$1mountable OR circum ADJ aural) OR (hearing NEAR (protection OR protecting OR protective)) OR ((ear OR head) ADJ (set OR piece OR phone OR worn OR wearable OR mounted OR mountable))) WITH ((Earcup OR earpad OR supraaural OR supra\$1aural OR supra ADJ aural OR earmuff OR earcuff OR ear\$1cup OR ear\$1muff OR ear\$1pad OR ear\$1cuff OR ear\$1foam ear\$1cushion ear\$1cushioning OR (ear ADJ (pad OR muff OR cup OR cuff OR foam OR cushion OR cushioning))))).CLM.	MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
--	--	---	---	--	--	--	--

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	1265	((((Headphone OR headset OR headpiece OR headworn OR head\$1phone OR head\$1set OR earpiece OR earphone OR earset OR ear\$1set OR ear\$1phone OR ear\$1piece OR earspeaker OR ear\$1speaker OR circum\$1aural OR ear\$1mounted OR ear\$1mountable OR head\$1worn OR head\$1wearable OR	(US-PGPUB; USPAT)	AND	ON	ON	2023/06/13 01:13 AM

N2	19	<p>head\$1piece OR head\$1mounted OR head\$1mountable OR circum ADJ aural) OR (hearing NEAR (protection OR protecting OR protective)) OR ((ear OR head) ADJ (set OR piece OR phone OR worn OR wearable OR mounted OR mountable))) WITH ((Earcup OR earpad OR supraaural OR supra\$1aural OR supra ADJ aural OR earmuff OR earcuff OR ear\$1cup OR ear\$1muff OR ear\$1pad OR ear\$1cuff OR ear\$1foam ear\$1cushion ear\$1cushioning OR (ear ADJ (pad OR muff OR cup OR cuff OR foam OR cushion OR cushioning))))).CLM.</p> <p>N1 AND ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR chassis OR holder) WITH (rotation OR rotational OR rotatably OR rotated OR rotationally OR DOF OR D ADJ O ADJ F OR D\$1O\$1F degree ADJ2 freedom) WITH (mount OR mounting OR mounted OR attachment OR fixture OR coupler OR coupling OR adaptor OR adapter)).CLM.</p>	(US-PGPUB; USPAT)	AND	ON	ON	2023/06/13 01:50 AM
N3	0	<p>N1 AND ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR chassis OR holder) WITH (rotation OR rotational OR rotatably</p>	(US-PGPUB; USPAT)	AND	ON	ON	2023/06/13 01:55 AM

		OR rotated OR rotationally OR DOF OR D ADJ O ADJ F OR D\$1O\$1F degree ADJ2 freedom) WITH (mount OR mounting OR mounted OR attachment OR fixture OR coupler OR coupling OR adaptor OR adapter) SAME (detachable OR detachably OR releasable OR releasably OR removable OR removably OR separably OR separably)).CLM.					
N4	0	N1 AND ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR chassis OR holder) WITH (rotation OR rotational OR rotatably OR rotated OR rotationally OR DOF OR D ADJ O ADJ F OR D\$1O\$1F degree ADJ2 freedom) WITH (mount OR mounting OR mounted OR attachment OR fixture OR coupler OR coupling OR adaptor OR adapter) AND (detachable OR detachably OR releasable OR releasably OR removable OR removably OR separably OR separably)).CLM.	(US-PGPUB; USPAT)	AND	ON	ON	2023/06/13 01:56 AM

Bibliographic Data

Application No: 18/109,259

Foreign Priority claimed: ☒ Yes ☐ No

35 USC 119 (a-d) conditions met: ☒ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged:

/OYESOLA C OJO/

Examiner's Signature

Initials

Title:

COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING
COMMUNICATION DEVICE TO HEARING PROTECTION
EQUIPMENT

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
02/13/2023	381	2654	SUNYOO-23007-USPT
RULE			

APPLICANTS

Hangzhou ZH Tech Co., Ltd.,

INVENTORS

Hanwen Xu, Hangzhou, Zhejiang, CHINA

CONTINUING DATA

FOREIGN APPLICATIONS

CHINA CN202320075791.9 01/10/2023

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/08/2023

** SMALL ENTITY **

STATE OR COUNTRY

CHINA

ADDRESS

BYIP LTD.

5465 Legacy Drive, Suite 650

Plano, TX 75024

UNITED STATES

FILING FEE RECEIVED

\$2,400

Electronic Acknowledgement Receipt

EFS ID:	48105456
Application Number:	18109259
International Application Number:	
Confirmation Number:	1064
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT
First Named Inventor/Applicant Name:	Hanwen Xu
Customer Number:	191438
Filer:	Charles S. Ho/Patrick Song
Filer Authorized By:	Charles S. Ho
Attorney Docket Number:	SUNYOO-23007-USPT
Receipt Date:	06-JUN-2023
Filing Date:	13-FEB-2023
Time Stamp:	00:08:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Request for Reconsideration-After Non-Final Rejection	Response_to_20230511nonfinal_SUNYOO-23007-USPT.pdf	46423	no	8
			207977206f202f46caffb32fb0e91cc63a203ff8		

Warnings:

Information:	
Total Files Size (in bytes):	46423
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First inventor : Hanwen Xu

Confirmation No.: 1064

Serial No. : 18/109,259

Examiner: OJO, OYESOLA C

Filed : 02/13/2023

Art Unit: 2654

For : Communication device and system for connecting
communication device to hearing protection
equipment

RESPONSE TO OFFICE ACTION

Dear Sir:

In response to the Office Action mailed on 05/11, 2023, the following election and remarks are provided.

Amendment to Claims begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A communication device for a hearing protection equipment, the hearing protection equipment comprising at least one earmuff, at least one loudspeaker and an audio input member, wherein the communication device comprises:

a housing;

a first mounting assembly, rotatably arranged on a first end of the housing;

a second mounting assembly, arranged on a second end of the housing, the first mounting assembly and the second mounting assembly are connected to two ends of the earmuff respectively to releasably connect the communication device with the hearing protection equipment;

a microphone, configured for capturing an audio;

a radio transceiver, configured for wirelessly transmitting the audio captured by the microphone to user and wirelessly receiving a wireless signal containing an audio from the user; and

an audio output member, communicated with the audio input member and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker, wherein

the first mounting assembly comprises:

a first connecting member, connected with the housing;

an elastic member;

a first mounting member, rotatably connected with the first connecting member by the elastic member, the first mounting member is coupled with the earmuff under an elastic force of the elastic member; and the first mounting member is separated from the earmuff after overcoming the elastic force of the elastic member.

2. (Canceled)

3. (Currently amended) The communication device according to claim [[2]]1, wherein the elastic member comprises:

at least one elastic body, arranged on the first connecting member; and

at least one butting part, connected with the elastic body and butted against the first mounting member, wherein

when a pressure is applied on the first mounting member, the first mounting member rotates in a direction away from the housing, so that the butting part rotates to compress the elastic body; and

the elastic body in a compressed state rotates the first mounting member to an initial state when the pressure applied on the first mounting member is released.

4. (Currently amended) The communication device according to claim [[3]]1, wherein the at least one elastic body sleeves on the first connecting member.

5. (Currently amended) The communication device according to claim [[3]]1, wherein the first mounting member comprises:

a receiving portion, the at least one butting part is received in the receiving portion.

6. (Currently amended) The communication device according to claim [[3]]1, wherein the butting part comprises:

a straight section, connected with the elastic body; and

a bending section, connected with the straight section.

7. (Currently amended) The communication device according to claim [[3]]1, wherein the elastic member further comprises:

at least one fixing part, connected with the elastic body and fixed on the housing.

8. (Currently amended) The communication device according to claim [[3]]1, wherein the elastic member comprises:

two elastic bodies, spaced apart from each other and arranged on the first connecting member; and

two butting parts, spaced apart from each other and butted against the first mounting member, each butting part is connected with one corresponding elastic body.

9. (Currently amended) The communication device according to claim [[8]]1, wherein the elastic member further comprises:

a fixing part, fixed on the housing, two ends of the fixing part are connected with the two elastic bodies, respectively.

10. (Currently amended) The communication device according to claim [[8]]1, wherein each butting part comprises:

a bending section, the two bending sections extend towards each other or extend in opposite directions.

11. (Currently amended) The communication device according to claim [[3]]1, wherein the elastic member comprises:

an elastic body, arranged on the first connecting member; and

two butting parts, spaced apart from each other and butted against the first mounting member, the two butting parts are both connected with the elastic body.

12. (Currently amended) The communication device according to claim [[3]]1, wherein the elastic member comprises:

an elastic body, arranged on the first connecting member;

a butting part, connected with the elastic body and butted against the first mounting member;
and

a fixing part, connected with the elastic body and fixed on the housing.

13. (Currently amended) The communication device according to claim [[2]]1, wherein the housing comprises:

a connecting element, connected with the first connecting member to connect the first mounting member with the housing.

14. (Original) The communication device according to claim 1, wherein the second mounting assembly comprises:

a second connecting member, connected with the housing; and
a second mounting member, arranged on the second connecting member, and the second connecting member is detachably mounted on an end of the earmuff.

15. (Original) The communication device according to claim 1, wherein the audio output member comprises:

a connecting head, communicated with the audio input member, and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker; and
a connecting line, connected with the connecting head, the connecting line is flexible.

16. (Original) The communication device according to claim 1, further comprising at least one of at least one button, a display screen and a power supply.

17. (Original) The communication device according to claim 1, wherein the housing is substantially arc-shaped, and the housing is adapted to the earmuff in shape.

18. (Currently amended) A system for connecting a communication device to a hearing protection equipment, the system comprising:

a communication device, comprising:
a housing;
a first mounting assembly, rotatably arranged on a first end of the housing; and
a second mounting assembly, arranged on a second end of the housing;
and a hearing protection equipment, comprising:
at least one earmuff, comprising two fixing parts, the first mounting assembly and the second mounting assembly are installed on the two fixing parts respectively, to connect the communication device to the hearing protection equipment, wherein
the first mounting assembly comprises:
a first connecting member, connected with the housing;
an elastic member;

a first mounting member, rotatably connected with the first connecting member by the elastic member, the first mounting member is coupled with the earmuff under an elastic force of the elastic member; and the first mounting member is separated from the earmuff after overcoming the elastic force of the elastic member.

19. (Original) The system according to claim 18, wherein the earmuff further comprises:
a rigid housing, comprising the two fixing parts; and
a flexible part, arranged on the housing.

20. (Original) The system according to claim 18, wherein
the communication device further comprises an audio output member; and
the hearing protection equipment further comprises an audio input member, connected with
the audio output member.

REMARKS

Claims 1-20 are pending, claims 1 and 14-20 are rejected, and claims 2-13 are objected to.

Claims 1, 3-13 and 18 are currently amended.

Claims 14-17 and 19-20 remain as original filed.

Claim 2 is currently canceled.

It is believed that no new matter is introduced and their entry is respectfully requested.

Claim Rejections -35 U.S.C. 102&103

Claims 18 and 19 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Madsen et al. (US PUB 20180176673, hereinafter Madsen).

Claims 1, 14-17 and 20 are rejected under 35 U.S.C. 103 as being unpatentable over Madsen.

For reasons set forth below, these rejections are respectfully traversed.

Allowable Subject Matter

The Office Action states that claims 2-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has amended claims 1 and 18 to add all the features of claim 2 into claims 1 and 18.

Therefore, Applicant respectfully submits that the current amended claims 1 and 18 should now be allowable.

In response for claims 3-17

Claims 3-17 are dependent on claim 1, and should also be allowable since each of them includes the patentable distinguishing features of claim 1 respectively.

In response for independent claim 18

Independent claim 18 should be allowable at least for reasons similar to those discussed with respect to claim 1.

In response for claims 19-20

Claims **19-20** are dependent on claim 18, and should also be allowable since each of them includes the patentable distinguishing features of claim 18 respectively.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-5658.

Respectfully submitted,

Dated: June 5, 2023

By: /charles ho/
Charles S. Ho, Reg. No. 51807
Charles_ho@barron-young.com

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 18/109,259	Filing Date 02/13/2023	☐ To be Mailed
---	--	---------------------------	---------------------------------------

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		x \$40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$ 192 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED - PART II

	(Column 1)		(Column 2)	(Column 3)	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	06/06/2023		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	x \$40 = 0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$ 192 = 0
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						0
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$ 0 =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$ 0 =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/STEPHEN TYLER HOLLAND/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".						
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064
191438	7590	05/11/2023		
BYIP LTD. 5465 Legacy Drive, Suite 650 Plano, TX 75024			EXAMINER OJO, OYESOLA C	
			ART UNIT	PAPER NUMBER
			2654	
			NOTIFICATION DATE	DELIVERY MODE
			05/11/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

charles_ho@barron-young.com
charlesho@barron-young.com
cho@barron-young.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Status of Claims

Claims 1 and 14-20 are rejected.

Claims 2-13 are objected to.

Claim Rejections - 35 USC § 102

1. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis (i.e., changing from AIA to pre-AIA) for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

3. **Claim(s) 18 and 19** is/are rejected under 35 U.S.C. 102 (a)(1) as being *anticipated* by **Madsen et al (US PUB 20180176673, hereinafter Madsen)**.

Regarding **Claim 18, Madsen** discloses **a system** for connecting a communication device to a hearing protection equipment (see at least the abstract and figure 1), the system comprising: **a communication device** (e.g. a speaker module 12), comprising: a **housing** (e.g. a housing

10); a **first mounting assembly** (e.g. a first mounting mechanism 26 with a hinge 30), **rotatably** arranged on a first end of the housing, and a **second mounting assembly** (e.g. a second retaining mechanism 66 with a locking mechanism 36), arranged on a **second end** of the housing (see [0068], figure 1, 6d); and a **hearing protection equipment** comprising: at least one **earmuff** (e.g. earphone 2), comprising **two fixing parts**, the first mounting assembly and the second mounting assembly are installed on the two fixing parts respectively, to **connect** the communication device to the hearing protection equipment (e.g. the first mounting mechanism 26 and second retaining mechanism 66 are installed on two separate fixing parts respectively to cooperatively connect the speaker module 12 to the earphone 2); (see Madsen, [0068] and [0073] also figures 1, 6a-6f).

Regarding **Claim 19**, Madsen discloses the system according to claim 18, wherein the earmuff further comprises: a **rigid housing** (e.g. rigid housing 10), comprising the two fixing parts; and a **flexible part** (e.g. a cushion part 60) arranged on the housing (see Madsen, [0073], figures 6a-6b).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. **Claim(s) 1, 14-17 and 20** is/are rejected under 35 U.S.C. 103 as being unpatentable over **Madsen et al (US PUB 20180176673, hereinafter Madsen)**.

Regarding **Claim 1, Madsen** discloses **a communication device** (e.g. a speaker module 12) for a hearing protection equipment (see at least the abstract and figure 1), the hearing protection equipment comprising at least one **earmuff** (earphone 2) at least one **loudspeaker** (e.g. an output transducer 14 within housing 12 of the loudspeaker) and an **audio input member** (e.g. input member that supplies audio signals to be processed for output by the transducer 41), (see figure 1), wherein the communication device comprises: **a housing** (e.g. a housing 10); **a first mounting assembly** (e.g. a first mounting mechanism 26 with a hinge 30) **rotatably** arranged on a first end of the housing (see [0068], figure 1, 6d), **a second mounting assembly** (e.g. a second retaining mechanism 66 with a locking mechanism 36) arranged on a **second end** of the housing, the first mounting assembly and the second mounting assembly are **connected to two ends** of the earmuff respectively to **releasably connect** the communication device with the hearing protection equipment (e.g. a speaker module 12 is releasably connected to the earphone 2 via the first and second mounting mechanism), (see figures 6a-6f).

More so, **Madsen** further teaches that it is well known in the art, and as such obvious to provide the communication device with **a microphone**, configured for **capturing an audio** (e.g. an own-voice); **a radio transceiver**, configured for **wirelessly transmitting** the audio captured by the microphone to user and **wirelessly receiving a wireless signal** containing an audio from the user; and **an audio output member** (e.g. an audio receiver), **communicated** with the audio input member and configured for **transmitting** the wireless signal containing the audio to the at

least one **loudspeaker** (see Madsen, [0052]-[0055], [0068], and [0073], also figures 1 and 6a-6f).

Regarding **Claim 14**, Madsen discloses the communication device according to claim 1, wherein the **second mounting assembly** (e.g. a second retaining mechanism 66) comprises: **a second connecting member** (e.g. a locking mechanism 36) connected with the housing; and a **second mounting member** (e.g. a second bearing 28) arranged on the second connecting member, and the second connecting member is **detachably mounted** on an end of the earmuff (see Madsen, [0073] and figures 6a-6d).

Regarding **Claim 15**, Madsen discloses the communication device according to claim 1, wherein the **audio output member** comprises: **a connecting head**, communicated with the audio input member, and configured for **transmitting** the wireless signal containing the audio to the at least one **loudspeaker** (transducer 41); and **a connecting line** connected with the connecting head, the connecting line is flexible (inherently an audio plug will be present to communicate with the audio member and an associated connecting line or a flexible audio signal wire), (see Madsen, [0052]-[0055] and figure 1).

Regarding **Claim 16**, Madsen discloses the communication device according to claim 1, further comprising at least one of at least one **button** (e.g. a volume control button), a display screen and **a power supply** (e.g. battery 18), (see Madsen, [0010 and [0068] and figure 1).

Regarding **Claim 17**, Madsen discloses the communication device according to claim 1, wherein the housing is **substantially arc-shaped** (e.g. a circular shape), and the housing is **adapted** to the earmuff in shape (see Madsen, figure 6a).

Regarding **Claim 20**, Madsen discloses the system according to claim 18, and teaches that it is well known in the art, and as such obvious to provide the communication device with **an audio output member** (e.g. an audio receiver); and that the hearing protection equipment further comprises **an audio input member** connected with the audio output member (e.g. an audio input member that supplies audio signals to be processed for output by the transducer 41), (see Madsen, [0052]-[0055], and figure 1).

Allowable Subject Matter

Claims 2-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record provided on PTO 892 and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OYESOLA C OJO whose telephone number is (571)272-0848. The examiner can normally be reached Monday through Friday 8:00am to 4:00pm Central Time.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/OYESOLA C OJO/
Primary Examiner, Art Unit 2654.

<i>Notice of References Cited</i>	Application/Control No. 18/109,259		Applicant(s)/Patent Under Reexamination Xu, Hanwen	
	Examiner OYESOLA C OJO		Art Unit 2654	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9445182-B2	09-2016	Pizzaro; Camila	H04R1/1008	1/1
*	B	US-8213667-B2	07-2012	Nelson; Mike	F16C11/06	381/370
*	C	US-7171698-B2	02-2007	Saffran; Michael D.	A61F11/14	2/209
*	D	US-5862241-A	01-1999	Nelson; Brian	H04R1/1066	381/374
*	E	US-5835609-A	11-1998	LeGette; Brian E.	A61F11/14	2/209
*	F	US-5469505-A	11-1995	Gathey; Phillip A.	H04M1/05	D14/206
*	G	US-20220353596-A1	11-2022	KURAOKA; Shinji	H04R1/105	1/1
*	H	US-20210260414-A1	08-2021	MUNDY; Matthew	A62B18/003	1/1
*	I	US-20180176673-A1	06-2018	Madsen; Claus Ellegaard	H04R1/1008	1/1
*	J	US-20110051976-A1	03-2011	Tsai; Jonson	H04R1/1066	381/378
*	K	US-20110026726-A1	02-2011	Kuo; Kuan I.	H04R1/1041	381/375
*	L	US-11477575-B2	10-2022	Degner; Brett W.	H04R1/1041	1/1
*	M	US-10779071-B2	09-2020	Wu; Cheng-Yun	H04R1/105	1/1

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 18/109,259	Applicant(s)/Patent Under Reexamination Xu, Hanwen
	Examiner OYESOLA C OJO	Art Unit 2654

CPC - Searched*		
Symbol	Date	Examiner
H04R1/1058, A61F11/145, H04R1/021, H04R1/028, H04R1/04, H04R2201/02, H04R2499/11	05/03/2023	OCO

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Performed Inventors and Assignee searches	05/03/2023	OCO
Performed searches in PE2E limited by keywords, text strings and CPC symbols	05/03/2023	OCO
Performed further searches in Global Dossier, WIPO and EPO websites	05/03/2023	OCO

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/OYESOLA C OJO/ Primary Examiner, Art Unit 2654	
--	--

Bibliographic Data

Application No: 18/109,259

Foreign Priority claimed: ☒ Yes ☐ No

35 USC 119 (a-d) conditions met: ☒ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /OYESOLA C OJO/

Examiner's Signature

Initials

Title:

COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING
COMMUNICATION DEVICE TO HEARING PROTECTION
EQUIPMENT

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
02/13/2023	381	2654	SUNYOO-23007-USPT
RULE			

APPLICANTS

Hangzhou ZH Tech Co., Ltd.,

INVENTORS

Hanwen Xu, Hangzhou, Zhejiang, CHINA

CONTINUING DATA

FOREIGN APPLICATIONS

CHINA CN202320075791.9 01/10/2023

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/08/2023

** SMALL ENTITY **

STATE OR COUNTRY

CHINA

ADDRESS

BYIP LTD.

5465 Legacy Drive, Suite 650

Plano, TX 75024

UNITED STATES

FILING FEE RECEIVED

\$2,400

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	5	((("XU") near3 ("Hanwen"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/05/03 01:13 AM
L2	0	((("HANGZHOU") near3 ("ZH") near3 ("TECH") near3 ("CO") near3 ("LTD"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/05/03 01:14 AM
L3	87912	(H04R1/1058 or A61F11/145 or H04R1/021 or H04R1/028 or H04R1/04 or H04R2201/02 or H04R2499/11).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 01:15 AM
L4	47726	((Earcup OR earpad OR supraaural OR supra\$1aural OR supra ADJ aural OR earmuff OR earcuff OR ear\$1cup OR ear\$1muff OR ear\$1pad OR ear\$1cuff OR ear\$1foam OR ear\$1cushion OR ear\$1cushioning OR (ear ADJ (pad OR muff OR cup OR cuff OR foam OR cushion OR cushioning))))	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:14 AM
L5	5382	L4 SAME ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR container OR basin OR chassis OR cabinet OR holder OR box) WITH (rotate rotatable rotatably rotary rotating rotated rotational rotationally revolve	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA,	OR	ON	ON	2023/05/03 11:19 AM

L6	573669	<p> revolving swivel swiveling swiveled pivot hinge fulcrum tilt tilted tilting tiltable tiltably gyro gyrating gyratory OR (adjust adjusted adjusting adjustable) NEAR (angle position positioning placement))) ((Speaker OR sounder OR loudspeaker OR receiver OR loud\$1speaker OR microspeaker OR minispeaker OR micro\$1speaker OR mini\$1speaker OR speakerlet OR speaker\$1let OR sound\$1producer OR sound\$1reproducer OR sound\$1transducer OR audio\$1receiver OR audio\$1reproducer OR audio\$1transducer OR sound\$1generator OR audio\$1generator OR acoustic\$1generator) OR ((Sound OR acoustic OR audio OR electroacoustic OR electro\$1acoustic OR electro ADJ acoustic) ADJ (driver OR emitter OR producer OR generator OR transducer OR receiver OR reproducer OR radiator OR device OR module OR component OR apparatus OR unit OR assembly OR system OR structure OR subunit OR sub\$1unit OR subassembly))) SAME ((House OR body OR module OR case OR casing OR frame OR enclosure OR housing OR cover OR covering OR shell OR container OR basin OR chassis OR cabinet OR holder OR box) WITH (rotate rotatable rotatably rotary rotating rotated rotational rotationally </p>	<p> VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) </p> <p> (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) </p>	OR	ON	ON	<p> 2023/05/03 11:44 AM </p>
----	--------	---	--	----	----	----	---

L7	1058	revolve revolving swivel swiveling swiveled pivot hinge fulcrum tilt tilted tilting tiltable tiltably gyro gyrating gyratory OR (adjust adjusted adjusting adjustable) NEAR (angle position positioning placement))) L4 SAME L6	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:45 AM
L8	287	L7 AND ((Transmitter receiver transceiver transmit\$1ceiver transmit\$3 receive\$3 antenna antennae) WITH (Wireless wirelessly cordless cordlessly cable\$1free cord\$1less radio ADJ frequency RF radio\$1frequency infrared OR microwave OR radar radio ADJ waves))	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:50 AM
L9	226	L8 AND ((microphone OR mic OR sound\$1pickup OR sound\$1pick\$1up OR sound\$1collector OR sound\$1sensor OR sound\$1detector OR (audio OR sound OR acoustic) NEAR (detector OR transducer OR sensor OR converter OR pick\$1up OR sensing OR capturing OR transducing OR detecting OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:53 AM

L10	62	detection))) L8 AND ((microphone OR mic OR sound\$1pickup OR sound\$1pick\$1up OR sound\$1collector OR sound\$1sensor OR sound\$1detector OR (audio OR sound OR acoustic) NEAR (detector OR transducer OR sensor OR converter OR pick\$1up OR sensing OR capturing OR transducing OR detecting OR detection)))	(US-PGPUB; USPAT)	OR	ON	ON	2023/05/03 11:53 AM
L11	0	(L1 L2) AND L7	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:53 AM
L12	56	L3 AND L9	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/03 11:54 AM
L13	16	L3 AND L9	(US-PGPUB; USPAT)	OR	ON	ON	2023/05/03 11:54 AM
L14	2	cochran.inv. AND oyesola NEAR ojo	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2023/05/03 09:30 PM

L15	38	("3505684" "3918098" "4027113" "4065645" "4133053" "4471496" "5109424" "5117465" "5469505" "6542615" "6724906" "7171698" "8213667" "8861770" "8942385" "9749728" "9838776" "20030210801" "20080170738" "20110026726" "20110051976" "20110119804" "20110206216" "20110209273" "20120140973" "20120269374" "20120288131" "20140211959" "20150131809" "20150195640" "20160127819" "20160193085").pn. OR ("10667029").urpn. AND (PGPB USPT USOC).dbnm.	CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR)	OR	ON	ON	2023/05/03 09:32 PM
L16	49	("2782423" "3952158" "4404434" "4459707" "4463223" "4465159" "4471496" "4574912" "4689822" "D292400" "4756028" "4771454" "D299337" "4796307" "4935965" "4944361" "D326855" "5241971" "5293647" "5384857" "D375584" "5826582" "5835609" "5862241" "6163615" "20040216946").pn. OR ("7171698").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2023/05/03 09:41 PM
L17	27	((US-20180176673-A1	(US-PGPUB; USPAT;	OR	ON	ON	2023/05/04

		OR US-20110051976-A1 OR US-20220353596-A1 OR US-20210260414-A1 OR US-20110026726-A1 OR US-20160127819-A1 OR US-20160193085-A1 OR US-20110119804-A1 OR US-20040216946-A1 OR US-20120269374-A1 OR US-20030210801-A1 OR US-20150195640-A1 OR US-20110209273-A1).did. AND PGPB.dbnm.) OR ((US-9445182-B2 OR US-7171698-B2 OR US-5469505-A OR US-11477575-B2 OR US-8213667-B2 OR US-5862241-A OR US-5835609-A OR US-10779071-B2 OR US-11595747-B2 OR US-8861770-B2 OR US-11570549-B2 OR US-11006206-B2 OR US-10667029-B2 OR US-5241971-A).did. AND USPT.dbnm.)	USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				04:21 PM
L18	4	L10 AND L17	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/05/04 04:30 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

CERTIFICATE OF AVAILABILITY OF A CERTIFIED UTILITY MODEL DOCUMENT IN A DIGITAL LIBRARY

The International Bureau certifies that a copy of the utility model application indicated below has been available to the WIPO Digital Access Service since the date of availability indicated, and that the utility model application has been available to the indicated Office(s) as of the date specified following the relevant Office code:

Document details: Country/Office: CN

Filing date: 10 Jan 2023 (10.01.2023)

Application number: 2023200757919

Date of availability of document: 17 Jan 2023 (17.01.2023)

The following Offices can retrieve this document by using the access code:

AR, AT, AU, BE, CL, CN, CO, DK, EE, ES, FI, GE, IB, IE, JP, KR,
MX, NL, PL

Date of issue of this certificate: 10 Apr 2023 (10.04.2023)



证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号：202320075791.9

申 请 类 型：实用新型专利

发 明 创 造 名 称：通信装置

申 请 日：2023 年 01 月 10 日

申 请 人：杭州佐翰科技有限公司

发明人或设计人：徐汉文

局长

申长雨

2023 年 01 月 17 日



权利要求书

1、一种通信装置，适配于听力保护装置，所述听力保护装置包括耳罩、扬声器、音频输入部，其特征在于，所述通信装置包括：

壳体；

第一安装组件，可转动地设于所述壳体的第一端；

第二安装组件，设于所述壳体的第二端，所述第一安装组件和第二安装组件安装于所述耳罩的两端，将所述通信装置与所述听力保护装置连接；

麦克风，用于捕捉音频；

无线电收发器，用于将所述麦克风捕捉的音频无线传递至用户，并无线接收来自用户的包含音频的无线信号；及

音频输出部，与所述音频输入部通信连接，用于将所述包含音频的无线信号传递至扬声器。

2、根据权利要求1所述的通信装置，其特征在于，所述第一安装组件包括：

第一连接部，与所述壳体连接；

弹性件；

第一安装部，通过所述弹性件可转动地与所述第一连接部连接，在所述弹性件的弹力作用下，所述第一安装部与所述耳罩卡合；克服所述弹性件的弹力作用，可将所述第一安装部脱离所述耳罩。

3、根据权利要求2所述的通信装置，其特征在于，所述弹性件包括：

至少一弹性主体，设于所述第一连接部上；及

至少一抵接部分，与所述弹性主体连接并抵接于所述第一安装部上，施加压力于所述第一安装部上，所述第一安装部沿远离壳体的方向转动时，所述第一安装部带动抵接部分转动以压缩所述弹性主体；释放施加于所述第一安装部上的压力时，处于压缩状态的所述弹性主体带动所述第一安装部转动至初始状态。

4、根据权利要求3所述的通信装置，其特征在于，满足以下条件的至少一种：

所述弹性主体套设于所述第一连接部上；



所述第一安装部具有容纳部分，所述抵接部分容纳于所述容纳部分中；
所述抵接部分包括与所述弹性主体连接的直线段和与所述直线段连接的弯折段；
所述弹性件还包括至少一固定部分，所述固定部分与所述弹性主体连接并固定于壳体上。

5、根据权利要求3所述的通信装置，其特征在于，所述弹性件包括：
两个间隔设置的弹性主体，均设于所述第一连接部上；及
两个间隔设置的抵接部分，均抵接于所述第一安装部上，每一抵接部分与一弹性主体连接。

6、根据权利要求5所述的通信装置，其特征在于，满足以下条件的至少一种：
所述弹性件还包括固定于壳体上的固定部分，所述固定部分的两端分别与二相对设置的弹性主体连接；
所述两个抵接部分均包括弯折段，所述两个弯折段相向设置。

7、根据权利要求3所述的通信装置，其特征在于，所述弹性件包括：
弹性主体，设于所述第一连接部上；及
两个间隔设置的抵接部分，均抵接于所述第一安装部上，所述两个间隔设置的抵接部分与所述弹性主体连接。

8、根据权利要求3所述的通信装置，其特征在于，所述弹性件包括：
弹性主体，设于所述第一连接部上；
抵接部分，与所述弹性主体连接，所述抵接部分抵接于所述第一安装部上；及
固定部分，与所述弹性主体连接，所述固定部分固定于所述壳体上。

9、根据权利要求2所述的通信装置，其特征在于，所述壳体包括：
连接件，与所述第一连接部连接，以将所述第一安装部与所述壳体连接。

10、根据权利要求1所述的通信装置，其特征在于，满足以下条件的至少一种：



所述第二安装组件包括第二连接部和第二安装部，所述第二连接部与所述壳体固定地、可拆卸地、或可转动地连接，所述第二安装部设于所述第二连接部上，所述第二连接部可拆卸地安装于所述耳罩的第二端；

所述音频输出部包括连接头和连接线，所述连接头与所述音频输入部通信连接，用于将所述包含音频的无线信号传递至扬声器，所述连接线具有柔性，所述连接头与所述连接线伸出所述壳体的第一端连接；

所述通信装置还包括按键、显示屏、及电源中的至少一种；

所述壳体大致为弧形，所述壳体的结构与所述耳罩适配。



说明书

通信装置

技术领域

本实用新型涉及通信技术领域，尤其涉及一种用于听力保护装置的通信装置。

背景技术

在有害或潜在有害分贝的环境中，常佩戴听力保护装置，如耳罩或耳塞等，来降低噪音。为了在佩戴听力保护装置时，不影响用户正常地使用手机等电子装置，常将一通信装置与听力保护装置配合使用，以使用户在佩戴听力保护装置时，仍可以正常地使用手机等电子装置。然而，现有的通信装置的适配性较低，仅能安装于特定尺寸的听力保护装置上，且安装过程也较卡涩。

实用新型内容

针对现有技术的上述缺陷，本实用新型提供了一种通信装置，旨在解决现有的通信装置的适配性较低和难以安装的问题。

为了解决上述技术问题，本实用新型提供一种通信装置，适配于听力保护装置，所述听力保护装置包括耳罩、扬声器、音频输入部，所述通信装置包括：

壳体；

第一安装组件，可转动地设于所述壳体的第一端；

第二安装组件，设于所述壳体的第二端，所述第一安装组件和第二安装组件安装于所述耳罩的两端，将所述通信装置与所述听力保护装置连接；

麦克风，用于捕捉音频；

无线电收发器，用于将所述麦克风捕捉的音频无线传递至用户，并无线接收来自用户的包含音频的无线信号；及

音频输出部，与所述音频输入部通信连接，用于将所述包含音频的无线信号传递至扬声器。

进一步地，所述第一安装组件包括：

第一连接部，与所述壳体连接；

弹性件；



第一安装部，通过所述弹性件可转动地与所述第一连接部连接，在所述弹性件的弹力作用下，所述第一安装部与所述耳罩卡合；克服所述弹性件的弹力作用，可将所述第一安装部脱离所述耳罩。

进一步地，所述弹性件包括：

至少一弹性主体，设于所述第一连接部上；及

至少一抵接部分，与所述弹性主体连接并抵接于所述第一安装部上，施加压力于所述第一安装部上，所述第一安装部沿远离壳体的方向转动时，所述第一安装部带动抵接部分转动以压缩所述弹性主体；释放施加于所述第一安装部上的压力时，处于压缩状态的所述弹性主体带动所述第一安装部转动至初始状态。

进一步地，满足以下条件的至少一种：

所述弹性主体套设于所述第一连接部上；

所述第一安装部具有容纳部分，所述抵接部分容纳于所述容纳部分中；

所述抵接部分包括与所述弹性主体连接的直线段和与所述直线段连接的弯折段；

所述弹性件还包括至少一固定部分，所述固定部分与所述弹性主体连接并固定于壳体上。

进一步地，所述弹性件包括：

两个间隔设置的弹性主体，均设于所述第一连接部上；及

两个间隔设置的抵接部分，均抵接于所述第一安装部上，每一抵接部分与一弹性主体连接。

进一步地，满足以下条件的至少一种：

所述弹性件还包括固定于壳体上的固定部分，所述固定部分的两端分别与二相对设置的弹性主体连接；

所述两个抵接部分均包括弯折段，所述两个弯折段相向设置。

进一步地，所述弹性件包括：

弹性主体，设于所述第一连接部上；及

两个间隔设置的抵接部分，均抵接于所述第一安装部上，所述两个间隔设置的抵接部分与所述弹性主体连接。

进一步地，所述弹性件包括：

弹性主体，设于所述第一连接部上；

抵接部分，与所述弹性主体连接，所述抵接部分抵接于所述第一安装部上；及



固定部分，与所述弹性主体连接，所述固定部分固定于所述壳体上。

进一步地，所述壳体包括：

连接件，与所述第一连接部连接，以将所述第一安装部与所述壳体连接。

进一步地，满足以下条件的至少一种：

所述第二安装组件包括第二连接部和第二安装部，所述第二连接部与所述壳体固定地、可拆卸地、或可转动地连接，所述第二安装部设于所述第二连接部上，所述第二连接部可拆卸地安装于所述耳罩的第二端；

所述音频输出部包括连接头和连接线，所述连接头与所述音频输入部通信连接，用于将所述包含音频的无线信号传递至扬声器，所述连接线具有柔性，所述连接头与所述连接线伸出所述壳体的第一端连接；

所述通信装置还包括按键、显示屏、及电源中的至少一种；

所述壳体大致为弧形，所述壳体的结构与所述耳罩适配。

本实用新型技术方案中，所述通信装置包括第一安装组件和第二安装组件。将所述通信装置安装于听力保护装置上时，由于所述第一安装组件可转动地设于所述壳体的第一端，可沿远离壳体的方向转动所述第一安装组件，以便将听力保护装置放置于壳体上，可先将所述第二安装组件安装于听力保护装置的一端，再沿靠近壳体的方向转动第一安装组件以将第一安装组件安装于听力保护装置的另一端，安装过程简易方便。由于第一安装组件与壳体可转动地连接，当所述第一安装组件沿远离壳体的方向转动时，可扩大容纳空间的提及，使得不同尺寸的听力保护装置可装入至容纳空间中，进而使得通信装置具有较佳的适配性。

附图说明

为了更清楚地说明本实用新型的方案，下面将对实施例描述中所需要使用的附图作一个简单介绍，显而易见地，下面描述中的附图是本实用新型的一些实施例，对于本领域普通技术人员来讲，在不付出创造性劳动的前提下，还可以根据这些附图获得其他的附图。

图1为本实用新型实施例的通信装置的结构示意图；

图2为图1所示通信装置的另一角度的结构示意图；

图3为图1所示通信装置的部分结构的分解图；



图4为图1所示通信装置的上壳的结构示意图；

图5为图1所示通信装置的下壳的结构示意图；

图6为图1所示通信装置的第一安装组件的结构示意图；

图7为图6所示第一安装组件的另一角度的结构示意图；

图8为图6所示第一安装组件的分解图；

图9为本实用新型实施例的通信装置和听力保护装置的结构示意图，其中，通信装置安装于听力保护装置上；

图10为本实用新型实施例的通信装置和听力保护装置的另一结构示意图，其中，通信装置安装于听力保护装置上；

图11为本实用新型另一实施例的弹性件的结构示意图；

图12为本实用新型又一实施例的弹性件的结构示意图。

本实用新型目的的实现、功能特点及优点将结合实施例，参照附图做进一步说明。

具体实施方式

下面将结合本实用新型实施例中的附图，对本实用新型实施例中的技术方案进行清楚、完整地描述，显然，所描述的实施例仅仅是本实用新型的一部分实施例，而不是全部的实施例。基于本实用新型中的实施例，本领域普通技术人员在没有作出创造性劳动前提下所获得的所有其他实施例，都属于本实用新型保护的范围。

需要说明，本实用新型实施例中所有方向性指示（诸如上、下、左、右、前、后……）仅用于解释在某一特定姿态（如附图所示）下各部件之间的相对位置关系、运动情况等，如果该特定姿态发生改变时，则该方向性指示也相应地随之改变。

另外，在本实用新型中涉及“第一”、“第二”等的描述仅用于描述目的，而不能理解为指示或暗示其相对重要性或者隐含指明所指示的技术特征的数量。由此，限定有“第一”、“第二”的特征可以明示或者隐含地包括至少一个该特征。另外，各个实施例之间的技术方案可以相互结合，但是必须是以本领域普通技术人员能够实现为基础，当技术方案的结合出现相互矛盾或无法实现时应当认为这种技术方案的结合不存在，也不在本实用新型要求的保护范围之内。



参照图1-8，本实用新型提出一种通信装置100，适配于听力保护装置200。所述听力保护装置200包括耳罩201、位于耳罩201内的扬声器202、设于耳罩201一侧的音频输入部203（参图9和10）。

所述通信装置100包括：

壳体 10；

第一安装组件 20，可转动地设于所述壳体 10 的第一端；

第二安装组件 30，设于所述壳体 10 的第二端，所述第一安装组件 20 和第二安装组件 30 安装于所述耳罩 201 的两端，将所述通信装置 100 与所述听力保护装置 200 连接；

麦克风 40，用于捕捉音频；

无线电收发器 50，用于将所述麦克风 40 捕捉的音频无线传递至用户，并无线接收来自用户的包含音频的无线信号；及

音频输出部 60，与所述音频输入部 203 通信连接，用于将所述包含音频的无线信号传递至扬声器 202。

所述听力保护装置 200 可装入由壳体 10、第一安装组件 20、及第二安装组件 30 共同限定的容纳空间 102。

所述无线电收发器 50 可竖直设置，即所述无线电收发器 50 与所述壳体 10 的轴向平行设置。

所述通信装置还包括按键 70、显示屏 80、及电源 90 中的至少一种。所述按键 70 可包括开关键、音量调大键、音量调小键等。所述电源 90 可为可充电电池、锂电池、或太阳能电池等。

所述壳体 10 大致为弧形，所述壳体 10 的结构与所述耳罩 201 适配。所述壳体 10 包括上壳 11、下壳 12、及盖体 13。所述上壳 11 包括第一容纳部 112，所述下壳 12 包括第二容纳部 122，所述麦克风 40 容纳于所述第一容纳部 112 和第二容纳部 122 中。所述第一容纳部 112 和第二容纳部 122 可倾斜设置，倾斜延伸至临近用户嘴部的位置，以便于麦克风 40 接收来自用户的包含音频的无线信号。所述上壳 11 开设有至少一第一开孔 113 和第二开孔 114，所述按键 70 可通过第一开孔 113 显露出，所述显示屏 80 可通过第二开孔 114 显露出。

所述电源 90 容纳于所述下壳 12 的容纳槽 123 中后，所述盖体 13 盖住电源 90，以保护电源 90。



所述听力保护装置 200 的耳罩 201 包括硬质的保护壳 2011 和与所述保护壳 2011 连接的柔性部 2012，所述柔性部 2012 用于保护用户的耳朵。所述柔性部 2012 设于所述保护壳 2011 的一侧，所述保护壳 2011 的两端均具有固定部 2013，所述第一安装组件 20 和第二安装组件 30 可分别安装于所述固定部 2013，将所述通信装置 100 与听力保护装置 200 连接。

本实用新型技术方案中，所述通信装置 100 包括第一安装组件 20 和第二安装组件 30。将所述通信装置 100 安装于听力保护装置 200 上时，由于所述第一安装组件 20 可转动地设于所述壳体 10 的第一端，可沿远离壳体 10 的方向转动所述第一安装组件 20，以便将听力保护装置 200 放置于壳体 10 上，可先将所述第二安装组件 30 安装于听力保护装置 200 的一端，再沿靠近壳体 10 的方向转动第一安装组件 20 以将第一安装组件 20 安装于听力保护装置 200 的另一端，安装过程简易方便。由于第一安装组件 20 与壳体 10 可转动地连接，当所述第一安装组件 20 沿远离壳体 10 的方向转动时，可扩大容纳空间 102 的体积，使得不同尺寸的听力保护装置 200 可装入至容纳空间 102 中，进而使得通信装置 100 具有较佳的适配性。

所述第一安装组件 20 包括与所述壳体 10 连接的第一连接部 21、第一安装部 22、及弹性件 23。所述第一安装部 22 通过所述弹性件 23 可转动地与所述第一连接部 21 连接，在所述弹性件 23 的弹力作用下，所述第一安装部 22 与所述耳罩 201 卡合；克服所述弹性件 23 的弹力作用，可将所述第一安装部 22 脱离所述耳罩 201。

所述弹性件 23 包括设于所述第一连接部 21 上的至少一弹性主体 231、及与所述弹性主体 231 连接并抵接于所述第一安装部 22 上的至少一抵接部分 232。施加压力于所述第一安装部 22 上，所述第一安装部 22 沿远离壳体 10 的方向转动时，所述第一安装部 22 带动抵接部分 232 转动以压缩所述弹性主体 231；释放施加于所述第一安装部 22 上的压力时，处于压缩状态的所述弹性主体 231 带动所述第一安装部 22 转动至初始状态。

所述弹性主体 231 可套设于所述第一连接部 21 上。

所述弹性件 23 还包括至少一固定部分 233，所述固定部分 233 与所述弹性主体 231 连接并固定于壳体 10 上。所述弹性件 23 可包括二相对设置的弹性主体 231、二相对设置的抵接部分 232、二相对设置的固定部分 233。所述二相对设置的



固定部分 233 相连接形成 U 型结构。

所述第一安装部 22 具有容纳部分 2221，所述抵接部分 232 可容纳于所述容纳部分 2221 中。所述抵接部分 232 包括与所述弹性主体 231 连接的直线段 2321 和与所述直线段 2321 连接的弯折段 2322，所述两个弯折段 2322 相向延伸。所述容纳部分 2221 与抵接部分 232 具有相匹配的形状，即，所述容纳部分 2221 也具有直线段和弯折段。

所述上壳 11 的一端开设有缺口 115，所述上壳 11 还包括与所述第一连接部 21 连接的连接件 111，所述连接件 111 伸出所述缺口 115，将所述第一安装部 22 与所述壳体 10 连接。所述连接件 111 可开设有通孔 1111，所述第一连接部 21 可容纳于所述通孔 111 中，且所述连接件 111 位于二弹性主体 231 之间。所述下壳 12 的一端凸设有凸条 121，所述上壳 11 与下壳 12 连接时，所述凸条 121 伸入缺口 115 中，以封闭部分缺口 115。

所述第一安装部 22 包括安装区 220，所述耳罩 201 安装于所述安装区 220。所述至少一抵接部分 232 抵接于所述安装区 220 的外表面 2201。所述第一安装部 22 大致呈 U 型结构，包括第一侧壁 222、底壁 223、及第二侧壁 224，所述第一侧壁 222、底壁 223、及第二侧壁 224 共同形成所述安装区 220，所述固定部分 233 可从所述第一连接部 21 和第一侧壁 222 之间的间隙伸至所述安装区 220 的上方。所述第二侧壁 224 的外表面可形成有操作部 225，操作部 225 可为凸起、凹槽、或通孔。所述第一侧壁 222 可形成所述容纳部分 2221。所述第一侧壁 222 上可设有至少一连接部分 221，所述连接部分 221 开设有开孔 2211，所述第一连接部 21 容纳于开孔 2211 中，所述连接部分 221 的数量可为 2 个，所述弹性主体 231 和连接件 111 可位于两个连接部分 221 之间。所述第一连接部 21 的至少一端形成有螺纹 212，以增大第一连接部 21 与开孔 2211 的内壁的摩擦力。所述连接部分 221 可位于第一侧壁 222 远离第二侧壁 224 的一侧面。

本实用新型技术方案中，所述第一安装组件 20 包括与所述壳体 10 连接的第一连接部 21、第一安装部 22、及弹性件 23。所述第一安装部 22 通过所述弹性件 23 可转动地与所述第一连接部 21 连接，在所述弹性件 23 的弹力作用下，所述第一安装部 22 与所述耳罩 201 卡合，可增大所述第一安装部 22 与耳罩 201 的卡合强度。克服所述弹性件 23 的弹力作用，可将所述第一安装部 22 脱离所述耳罩 201。



所述第二安装组件 30 包括第二连接部 31 和第二安装部 32。所述第二连接部 31 与所述壳体 10 固定地、可拆卸地、或可转动地连接。所述第二安装部 32 设于所述第二连接部 31 上，所述第二连接部 31 可拆卸地安装于所述耳罩 201 的第二端。

所述第二安装部 32 由所述第二连接部 31 的一端弯折延伸，从而形成安装耳罩 201 的安装区（未标示）。

可以理解的，所述第二安装组件 30 可具有与第一安装组件 20 相同的结构或不同的结构。

本实用新型技术方案中，所述第二安装组件 30 包括与所述壳体 10 连接的第二连接部 31 和第二安装部 32。所述第二安装部 32 可拆卸地安装于所述耳罩 201 的第二端，使得所述第一安装部 22 和第二安装部 32 可分别安装于耳罩 201 的两端。

所述音频输出部 60 包括连接头 61 和连接线 62。所述连接头 61 与所述音频输入部 203 通信连接，用于将所述包含音频的无线信号传递至扬声器 202。所述连接线 62 具有柔性，所述连接头 61 与所述连接线 62 伸出所述壳体 10 的第一端连接。

本实用新型技术方案中，所述音频输出部 60 包括连接头 61 和连接线 62，所述连接线 62 具有柔性，使得用户可容易地将所述连接头 61 与音频输入部 203 连接。

请参阅图 11，所述第一安装组件的弹性件 23 还可包括一弹性主体 231、两个间隔设置的抵接部分 232、及固定部分 233。所述弹性主体 231 设于所述第一连接部 21 上。所述两个间隔设置的抵接部分 232 均抵接于所述第一安装部 22 上，所述两个间隔设置的抵接部分 232 分别与所述弹性主体 231 的两端连接。所述抵接部分 232 包括与所述弹性主体 231 连接的直线段 2321 和与所述直线段 2321 连接的弯折段 2322，所述两个弯折段 2322 相背延伸或相向延伸。此时，所述容纳部分 2221 仍具有与抵接部分 232 相匹配的形状。所述固定部分 233 可位于二抵接部分 232 之间。所述固定部分 233 大致为 U 型结构。

请参阅图 12，所述第一安装组件的弹性件 23 还可包括一弹性主体 231、一抵



接部分 232、及一固定部分 233。所述弹性主体 231 设于所述第一连接部 21 上。所述抵接部分 232 与所述弹性主体 231 的一端连接，所述固定部分 233 与所述弹性主体 231 的另一端连接。所述抵接部分 232 抵接于所述第一安装部 22 上。所述固定部分 233 固定于所述壳体 10 上。

以上所述仅为本实用新型的优选实施例，并非因此限制本实用新型的专利范围，凡是在本实用新型的发明构思下，利用本实用新型说明书及附图内容所作的等效结构变换，或直接/间接运用在其他相关的技术领域均包括在本实用新型的专利保护范围内。



说明书附图

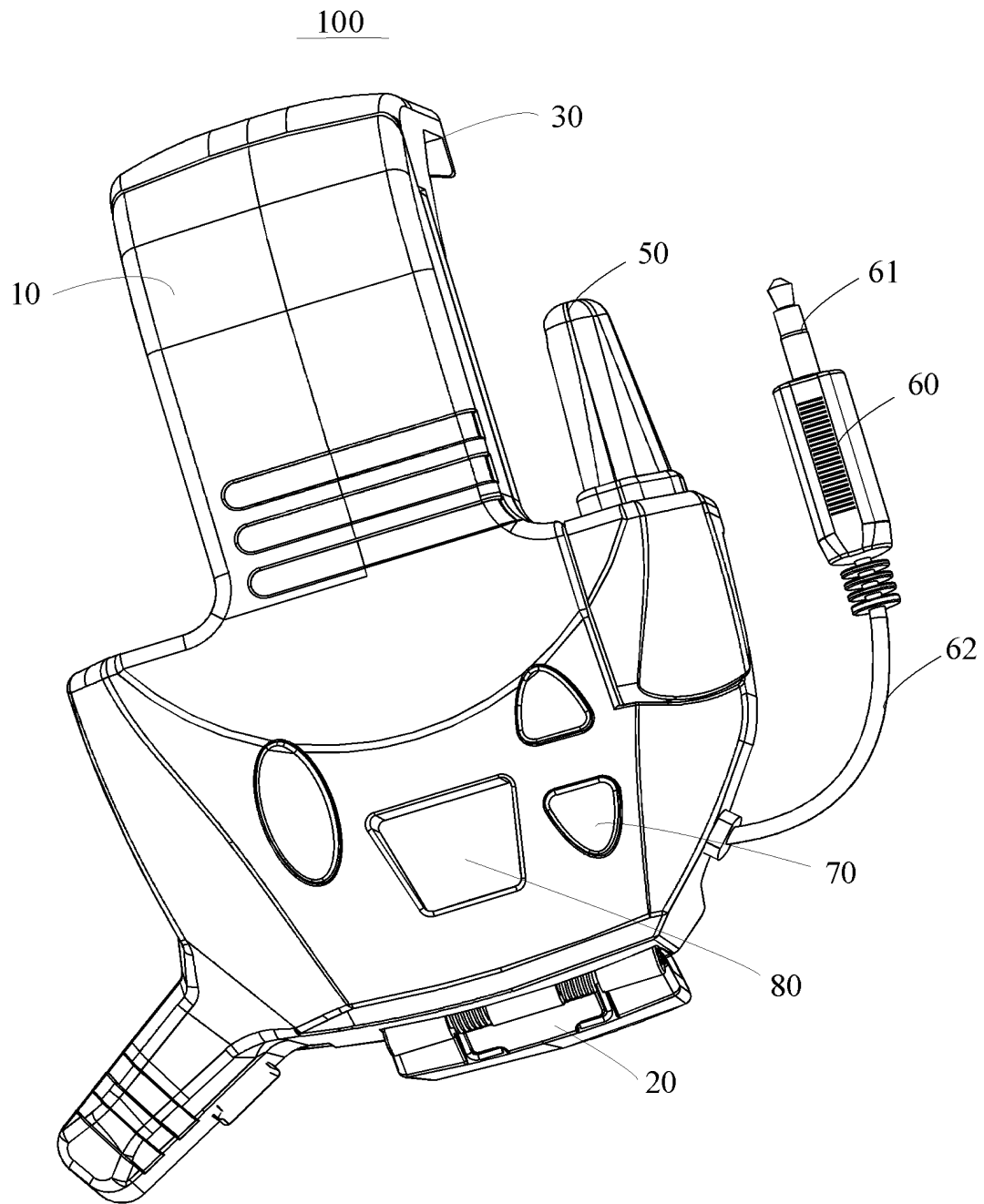


图 1

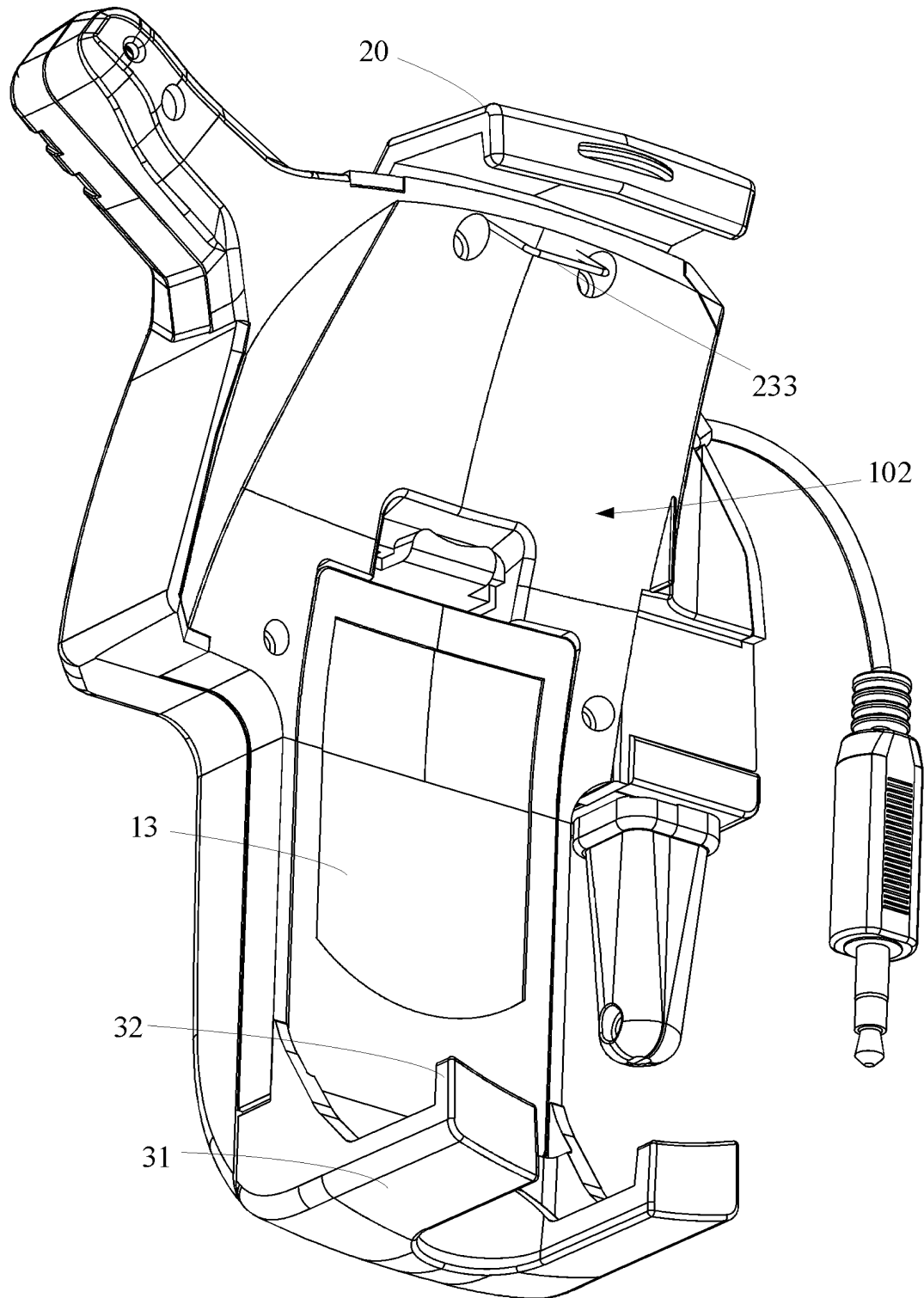


图 2

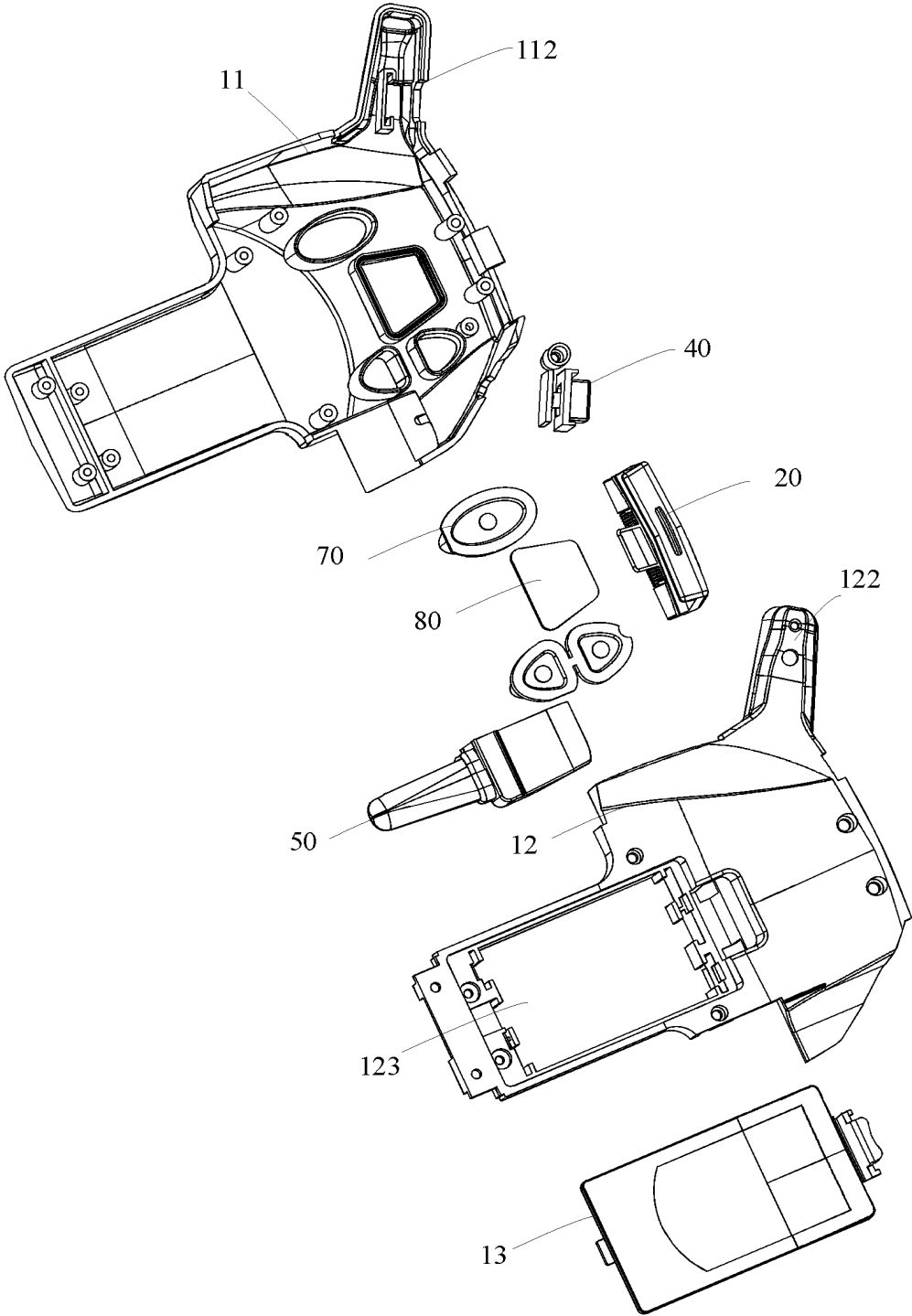


图 3

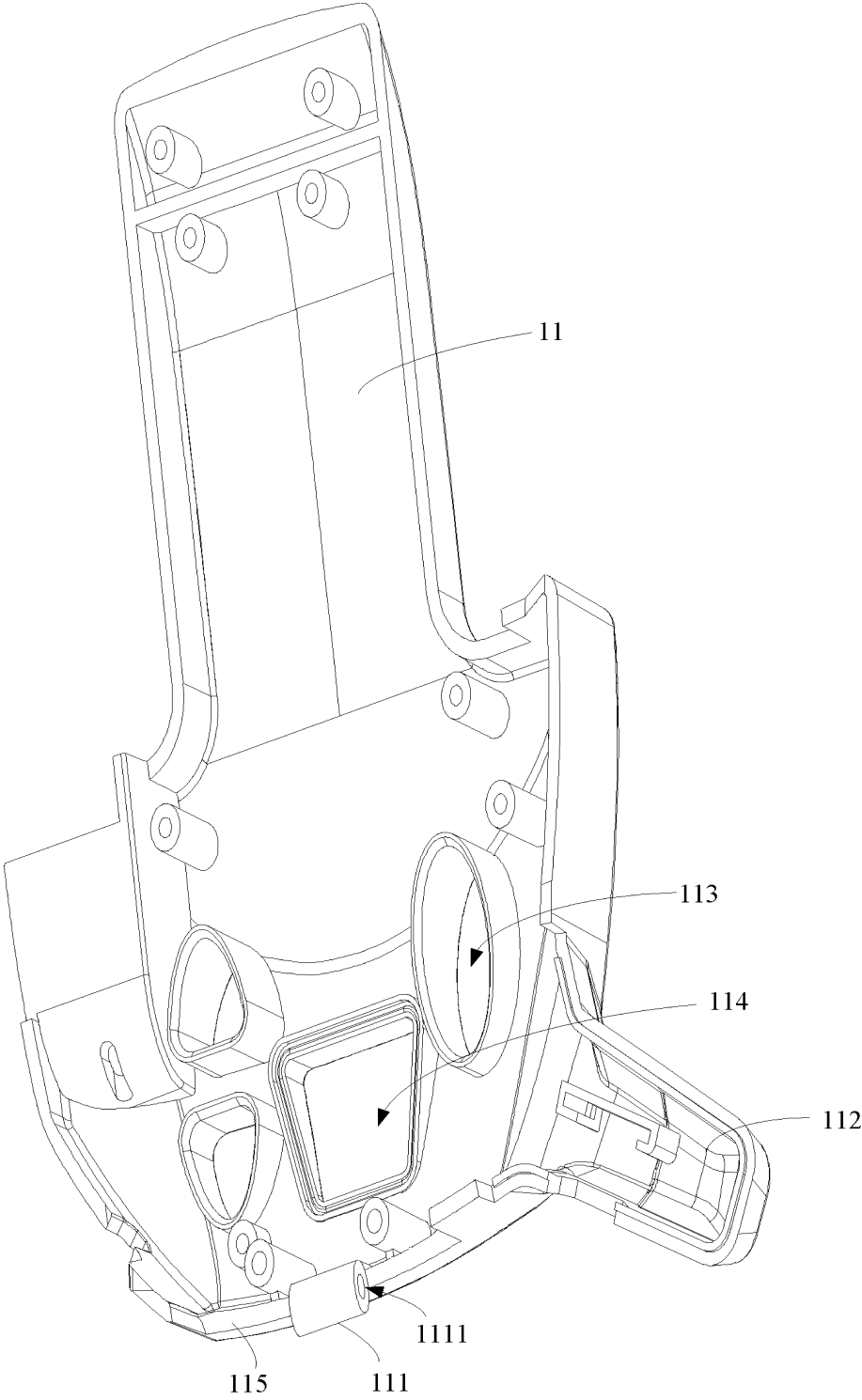


图 4

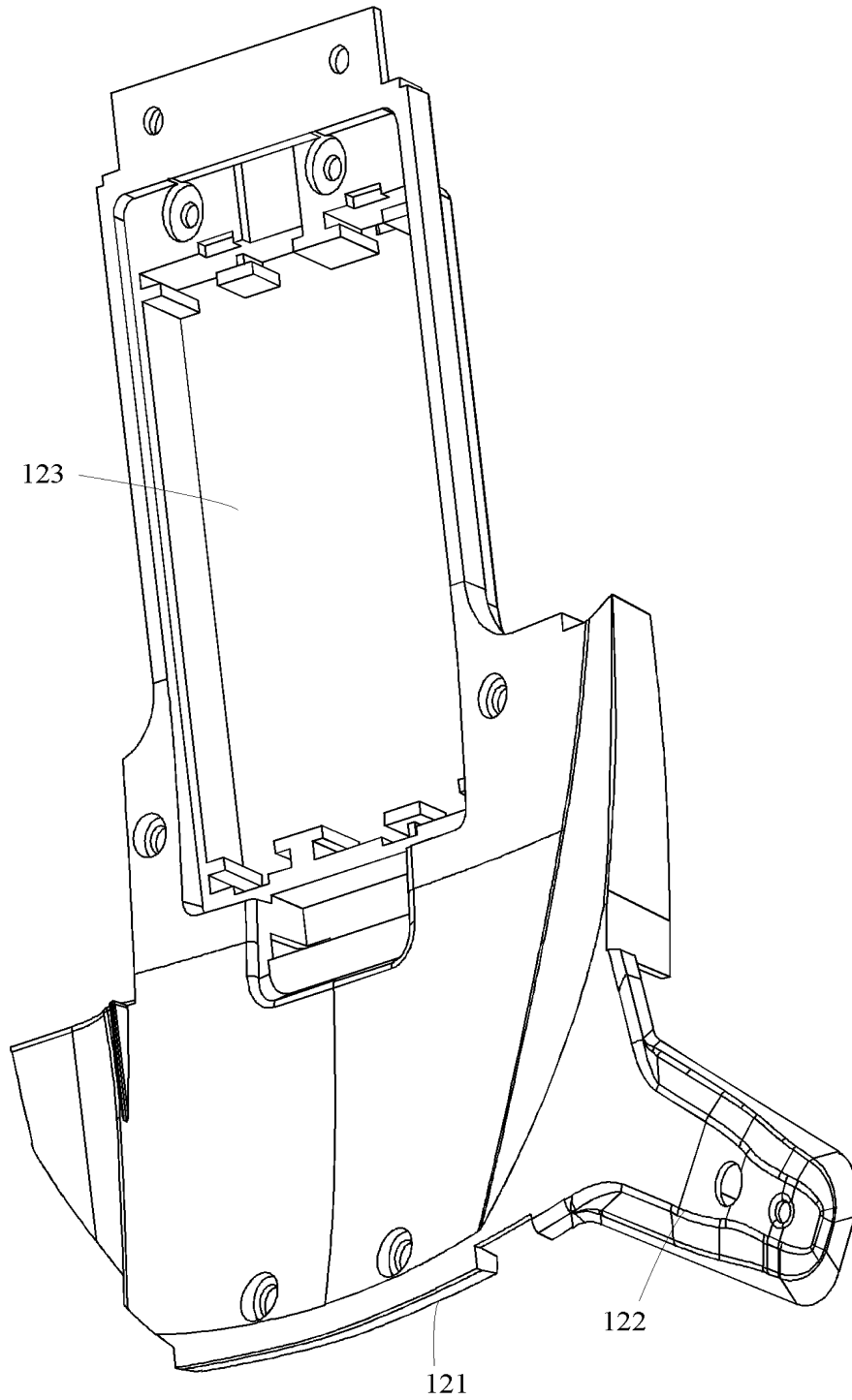


图 5

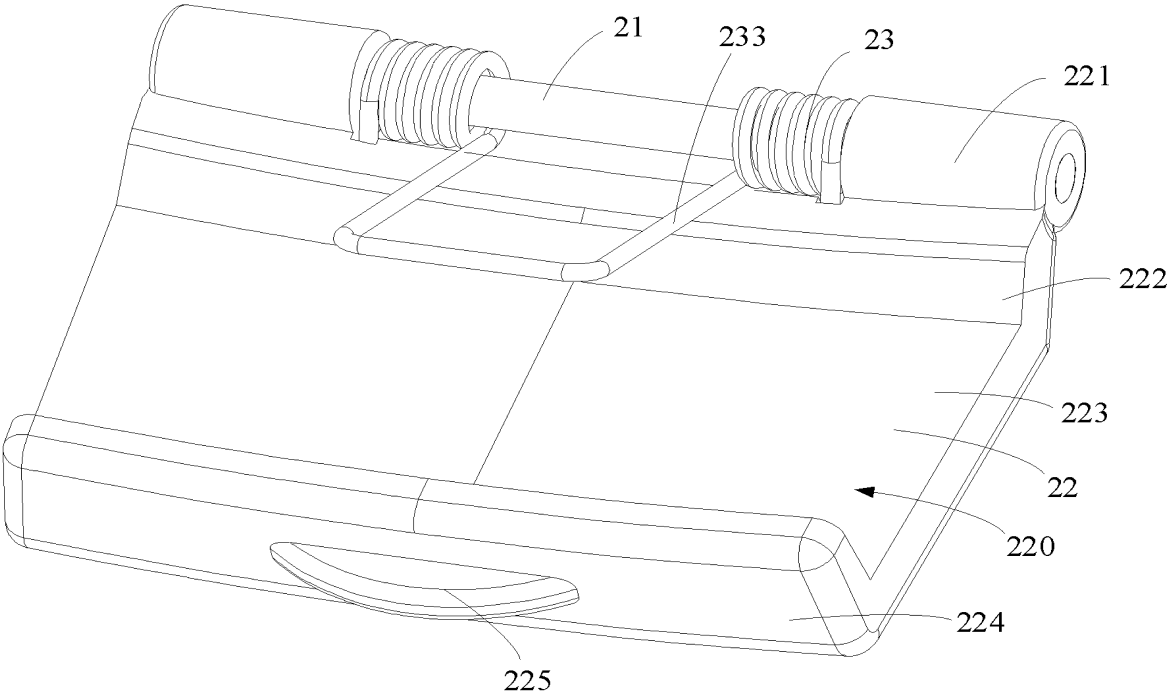


图 6

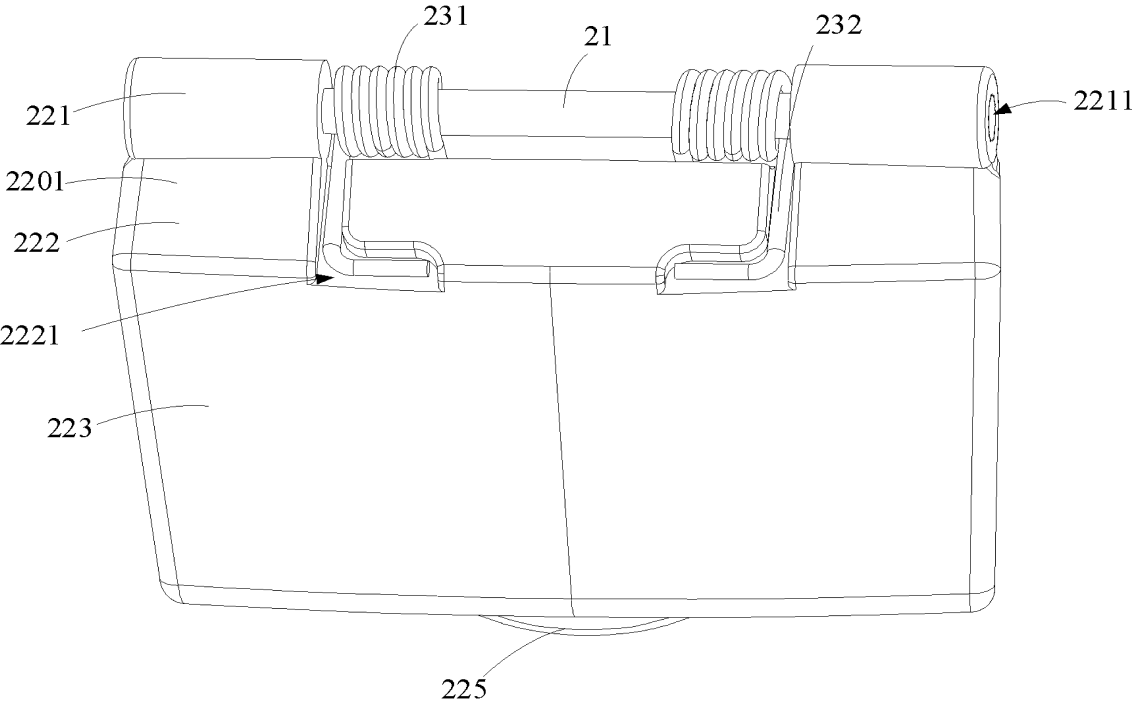


图 7

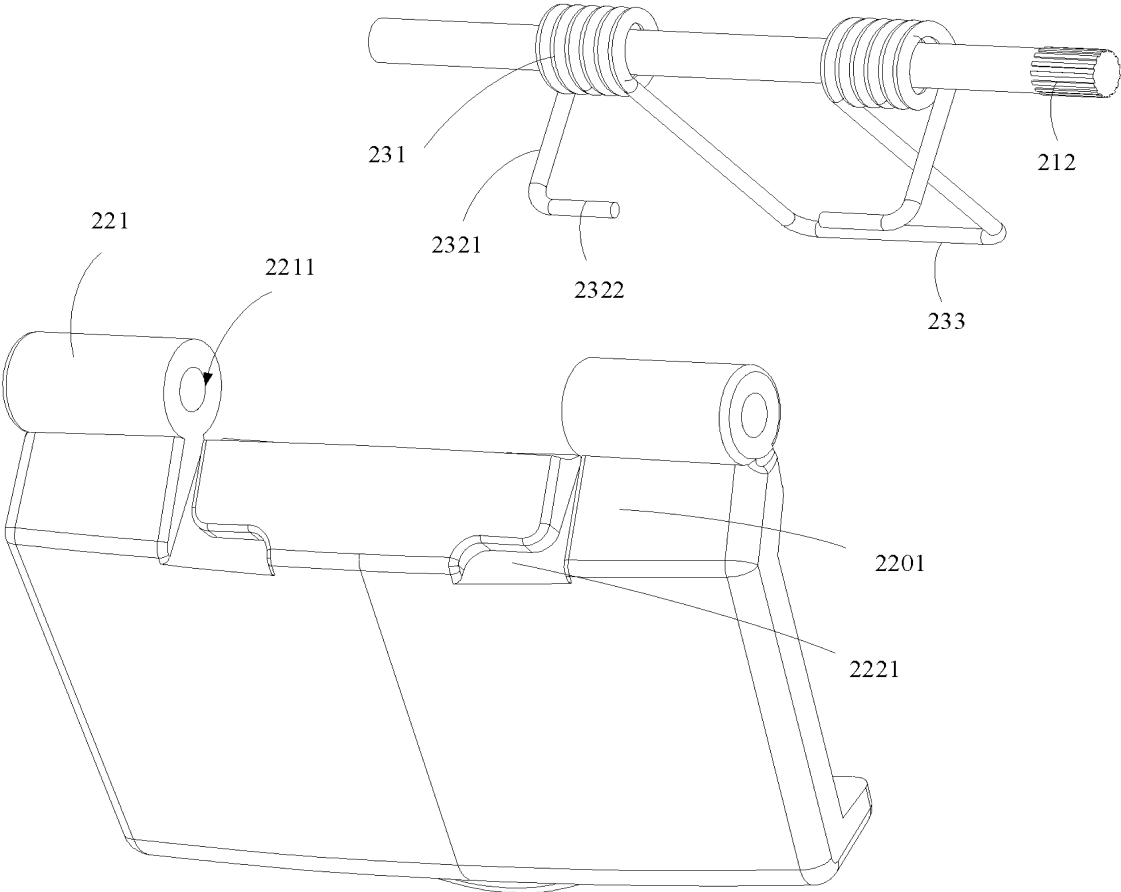


图 8

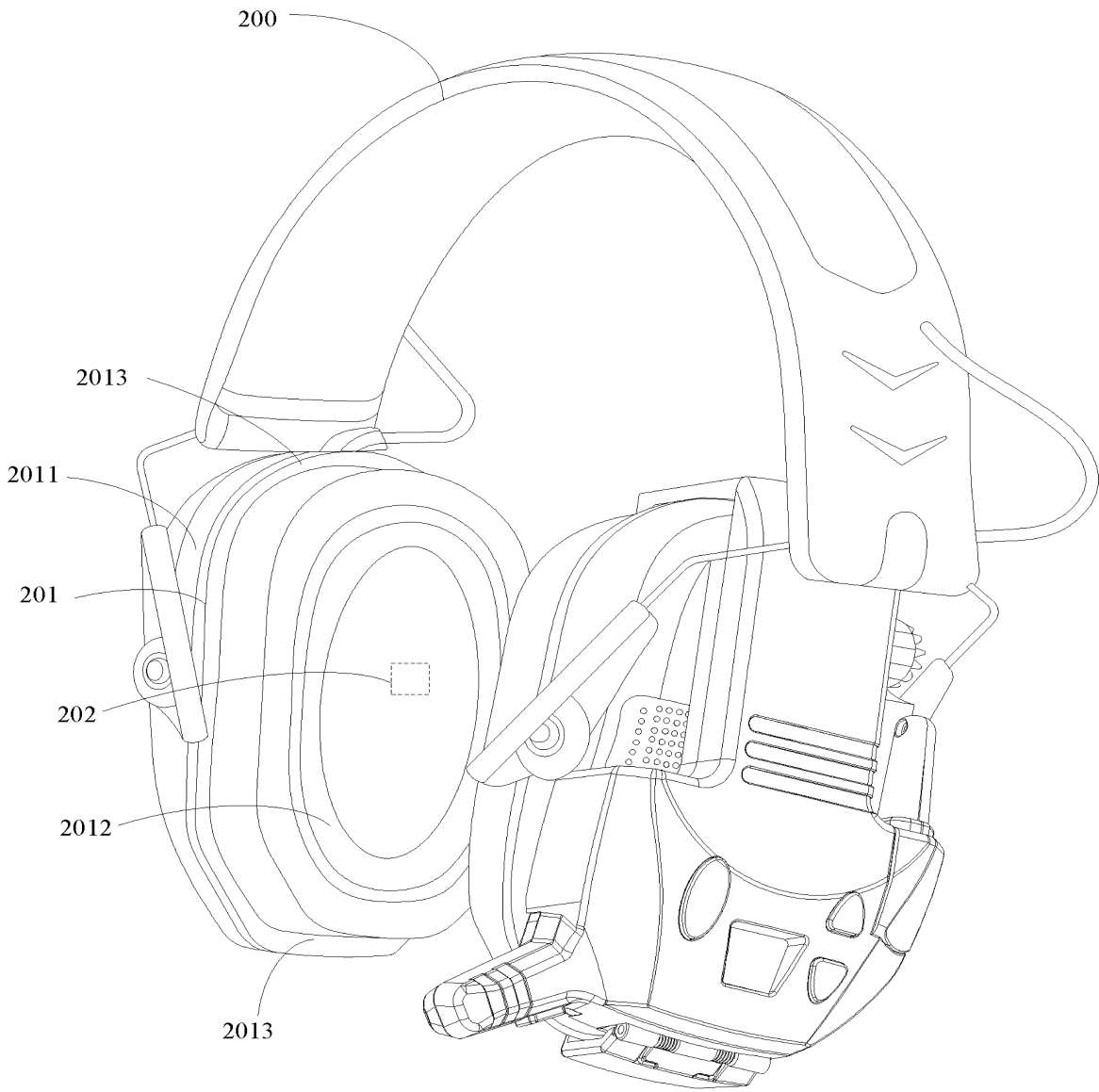


图 9

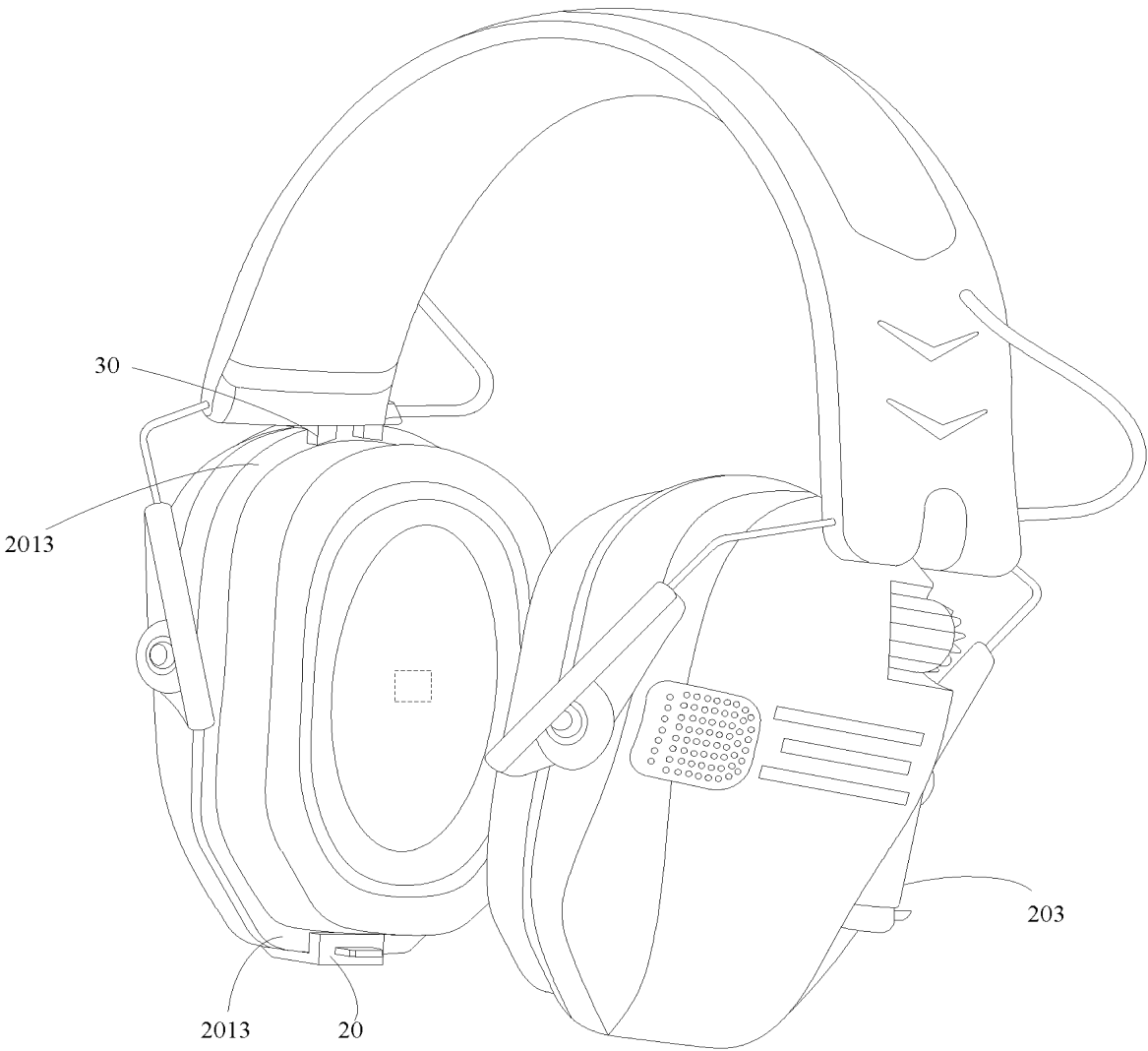


图 10

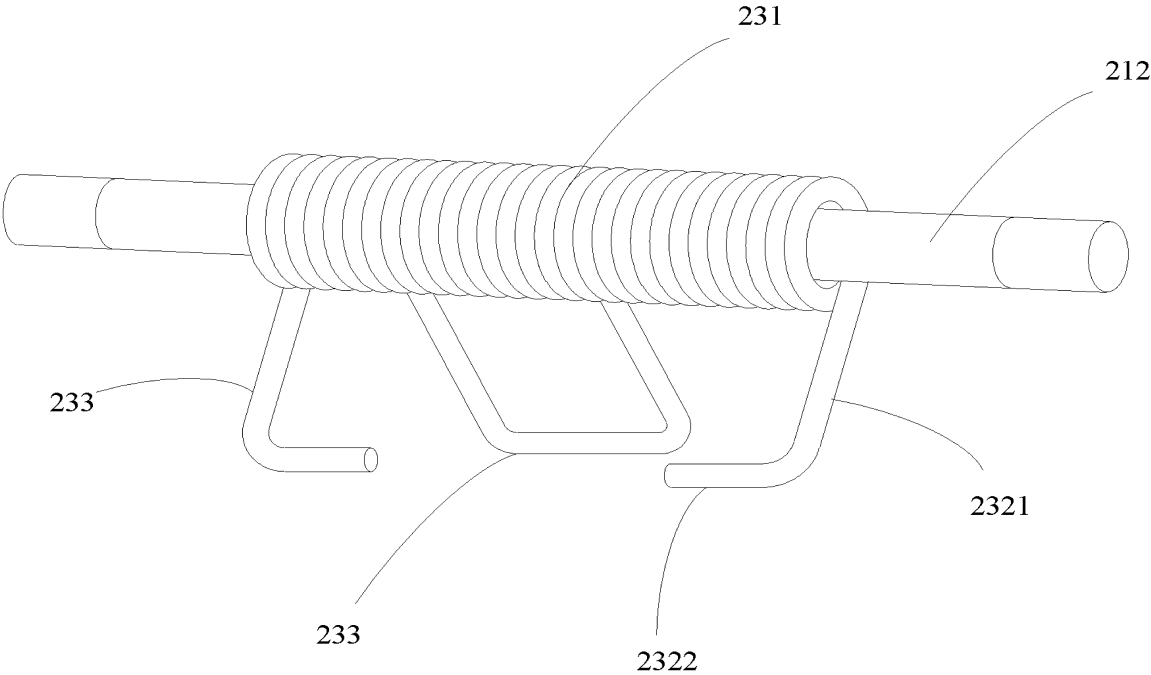


图 11

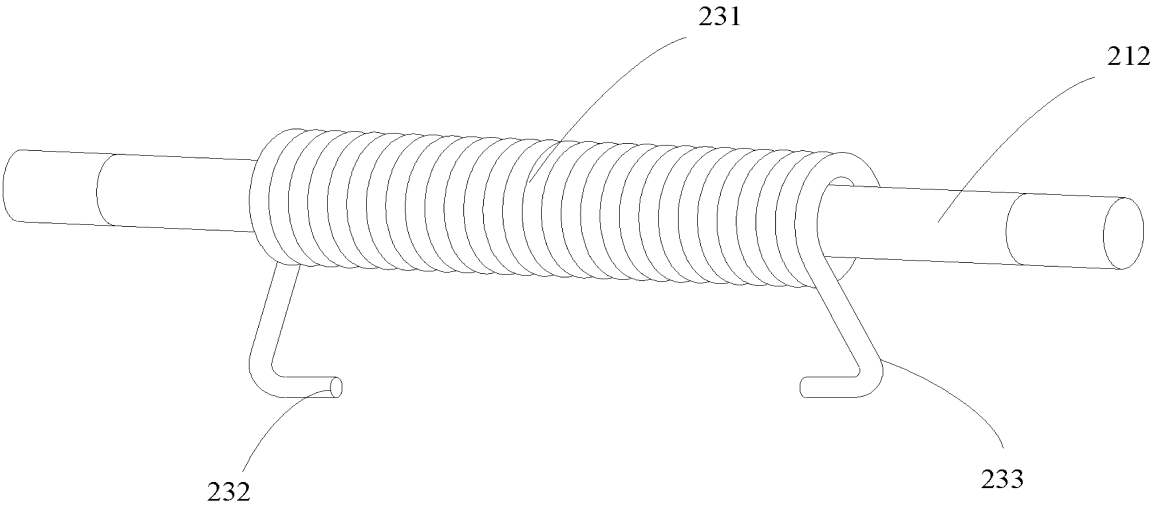


图 12



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/109,259	02/13/2023	Hanwen Xu	SUNYOO-23007-USPT	1064
191438	7590	03/30/2023	EXAMINER	
BYIP LTD. 5465 Legacy Drive, Suite 650 Plano, TX 75024				
			ART UNIT	PAPER NUMBER
			NOTIFICATION DATE	DELIVERY MODE
			03/30/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

charles_ho@barron-young.com
charlesho@barron-young.com
cho@barron-young.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 18/109,259	Applicant(s) Xu, Hanwen	
	Examiner CHERYL P GIBSON BAYLOR	Art Unit OPET	AIA (FITF) Status Yes
<p>1. THE REQUEST FILED <u>13 February 2023</u> IS GRANTED .</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. ☒ for an original nonprovisional application (Track I).</p> <p>B. ☐ for an application undergoing continued examination (RCE).</p> <p>2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply;</p> <p>B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim;</p> <p>C. filing a <u>request for continued examination</u> ;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to CHERYL GIBSON BAYLOR at (571)272-3213. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.</p>			
/CHERYL GIBSON BAYLOR/ Paralegal Specialist, OPET			



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
18/109,259	02/13/2023		664	SUNYOO-23007-USPT	20	2

CONFIRMATION NO. 1064

191438

BYIP LTD.

5465 Legacy Drive, Suite 650

Plano, TX 75024

FILING RECEIPT



0000000054587323

Date Mailed: 03/10/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Hanwen Xu, Hangzhou, CHINA;

Applicant(s)

Hangzhou ZH Tech Co., Ltd., Hangzhou, CHINA;

Power of Attorney: The patent practitioners associated with Customer Number 191438

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
CHINA 202320075791.9 01/10/2023 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 03/08/2023

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/109,259**

Projected Publication Date: 07/11/2024

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO
HEARING PROTECTION EQUIPMENT

Preliminary Class

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
18/109,259

APPLICATION AS FILED - PART I

(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	RATE(\$)	FEE(\$)	
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	64	N/A		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	280	N/A		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	320	N/A		
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *	0	x = 0			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *		x = 0			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	664	TOTAL		

APPLICATION AS AMENDED - PART II

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		x =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		x =	
Application Size Fee (37 CFR 1.16(s))								
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	

		(Column 1)	(Column 2)	(Column 3)	SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		x =	
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		x =	
Application Size Fee (37 CFR 1.16(s))								
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)			
First Named Inventor:	Hanwen Xu	Nonprovisional Application Number (if known):	Not Yet Assigned
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		
<p>APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.</p> <p>1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.</p> <p>2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.</p> <p>3. The applicable box is checked below:</p> <p>I. ☒ <u>Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)</u></p> <p>i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web. ---OR---</p> <p>(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.</p> <p>ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, <u>or</u> the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.</p> <p>II. ☐ <u>Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)</u></p> <p>i. A request for continued examination has been filed with, or prior to, this form.</p> <p>ii. If the application is a utility application, this certification and request is being filed via EFS-Web.</p> <p>iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.</p> <p>iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.</p> <p>v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).</p>			
Signature /Charles Ho/		Date February 13, 2023	
Name (Print/Typed) Charles Ho		Practitioner Registration Number 51,807	
<small>Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*</small>			
<div style="display: flex; align-items: center;">☐ *Total of <u>1</u> forms are submitted.</div>			

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/PA/520B) to identify the application in which the Power of Attorney is directed. In accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form, if neither form (PTO/PA/520A nor form PTO/PA/520B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	
First Named Inventor	Hansen Xu
Title	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Serial Number	8UNYGO-23007-USPT

SIGNATURE of Applicant or Patent Practitioner

Signature	/Charles Ho/	Date (Month)	February 3, 2010
Name	Charles Ho	Registration Number	51,807
Is the Applicant a United States Citizen?			

Applicant Name of Applicant is a (United States Citizen)

NOTE: This form must be signed in accordance with 37 CFR 1.50. See 37 CFR 1.410 for signature requirements and procedures. If more than one applicant, use multiple lines.

Total of 1 forms are submitted

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below:

Application Number	Filing Date
Not Yet Assigned	

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/228-170-A1.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/228-170-A1) or identified above: **191438**

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/228-170-A1) as my/our attorney(s) or agent(s) and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/228-170-A1) or identified above. (Note: Complete form PTO/AIA/228-170-A1.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above mentioned Customer Number

OR

☐ The address associated with Customer Number

OR

☐ I am an Individual Name

Address

City

State

Zip

Country

Telephone

Fax

I am the Applicant of the Application is a juridical entity. (Use the Applicant Name in the box)

Hongzhou ZH Tech Co., Ltd.

☐ Inventor or Joint Inventor (file not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (file not required below)

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's file if applicant is a juridical entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.418(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's file if applicant is a juridical entity)

SIGNATURE of Applicant for Patent

The undersigned (whose file is supplied below) is authorized to act on behalf of the applicant (i.e., where the applicant is a juridical entity)

Signature

Lifang Xiong

Date (Optional)

2021.2

Name

Lifang Xiong

Title

Legal Representative

NOTE: Signatures. This form must be signed by the applicant in accordance with 37 CFR 1.10. See 37 CFR 1.4 for signature requirements and definitions. If more than one applicant, use multiple forms.

Total of 1 forms are submitted

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.78)

Title of Invention: **COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT**

As the below named inventor, I hereby declare that:

This declaration is directed to ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Patent applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (rather than a check or credit card authorization form PTO-2028 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Patent applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.212(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2028 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Hanwen Xu Date (Optional): 2023.2.7

Signature: Hanwen Xu

Note: An application data sheet (PTO/USP 14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/USP 14 form for each additional inventor.

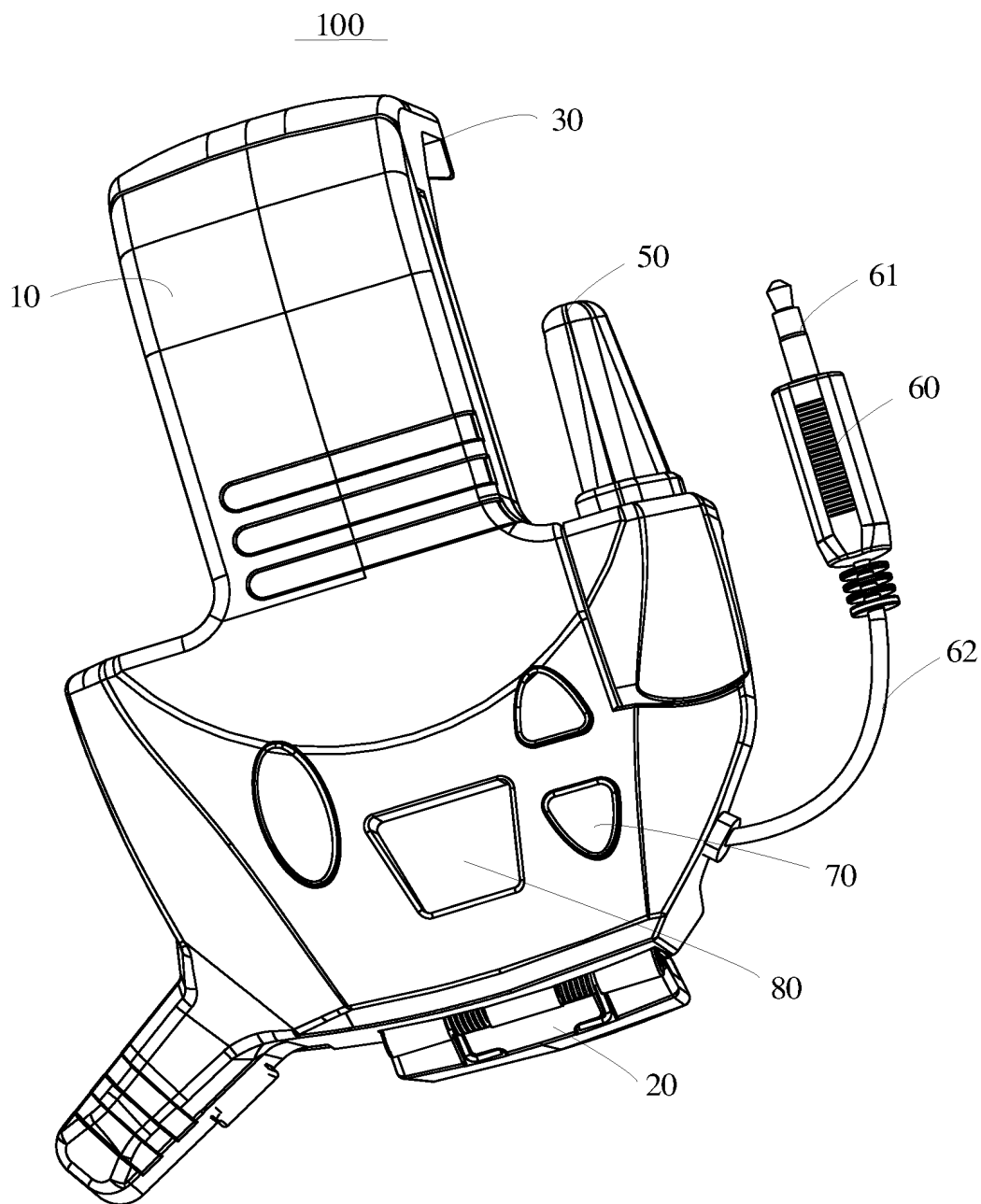


FIG. 1

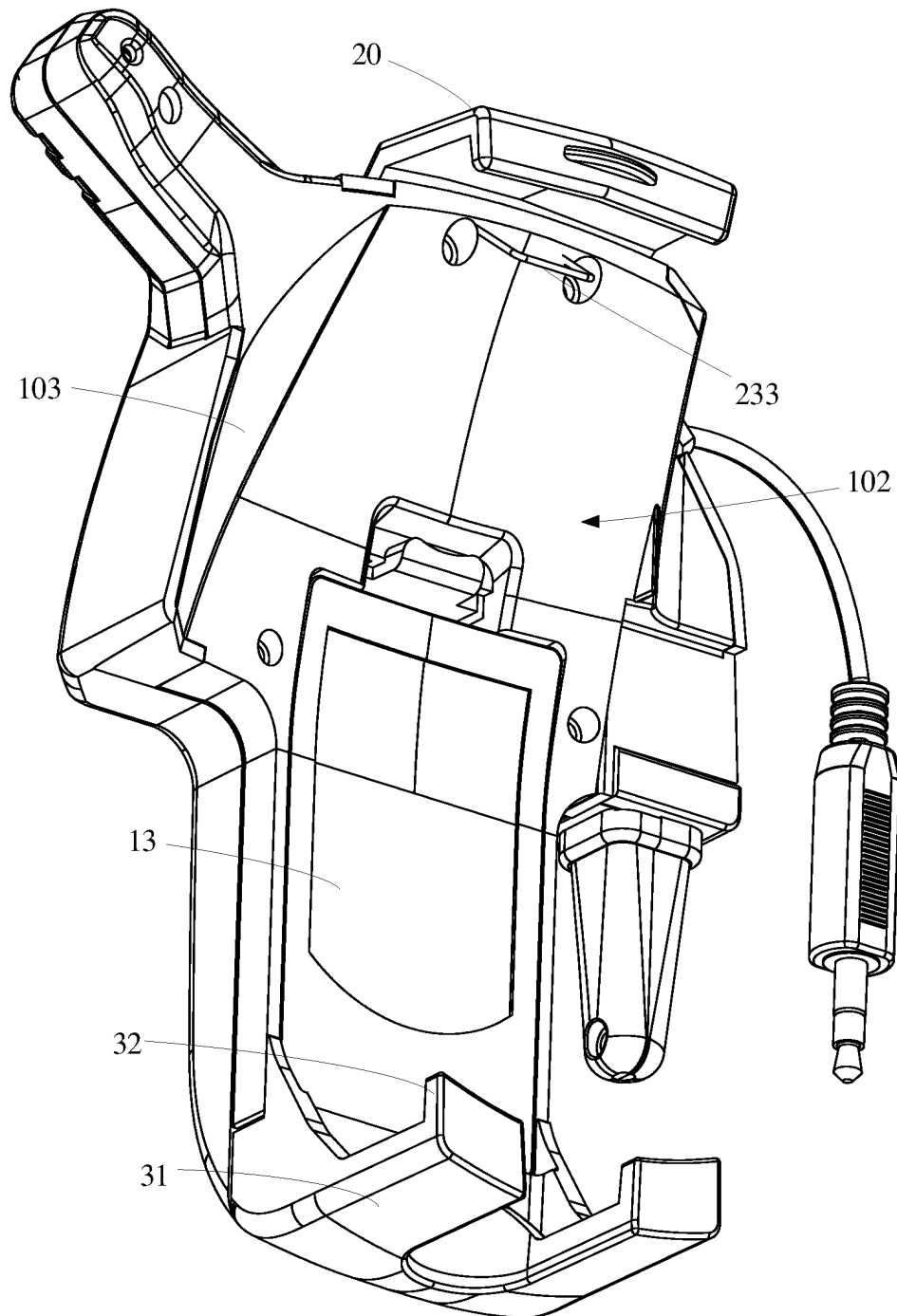


FIG. 2

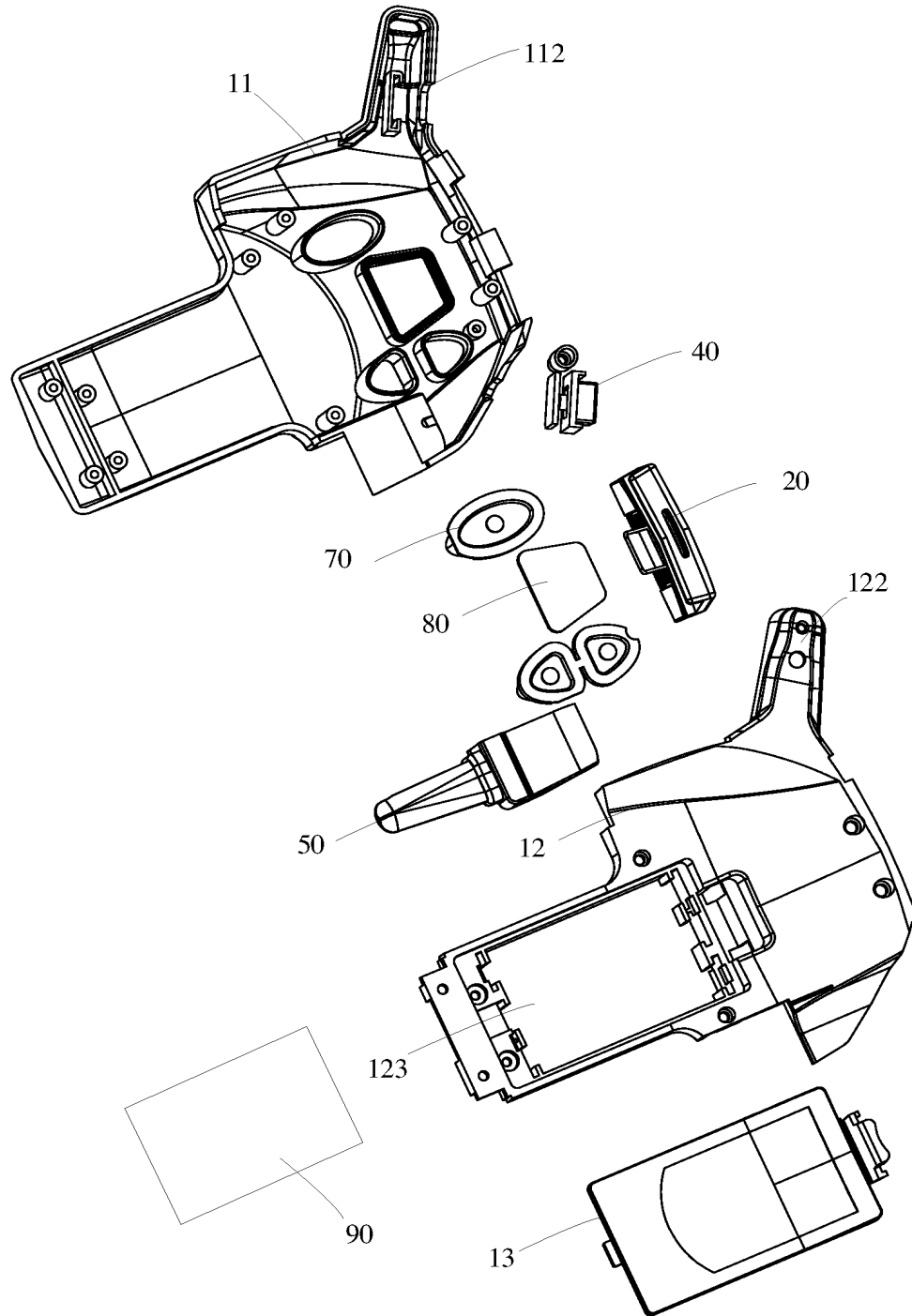


FIG. 3

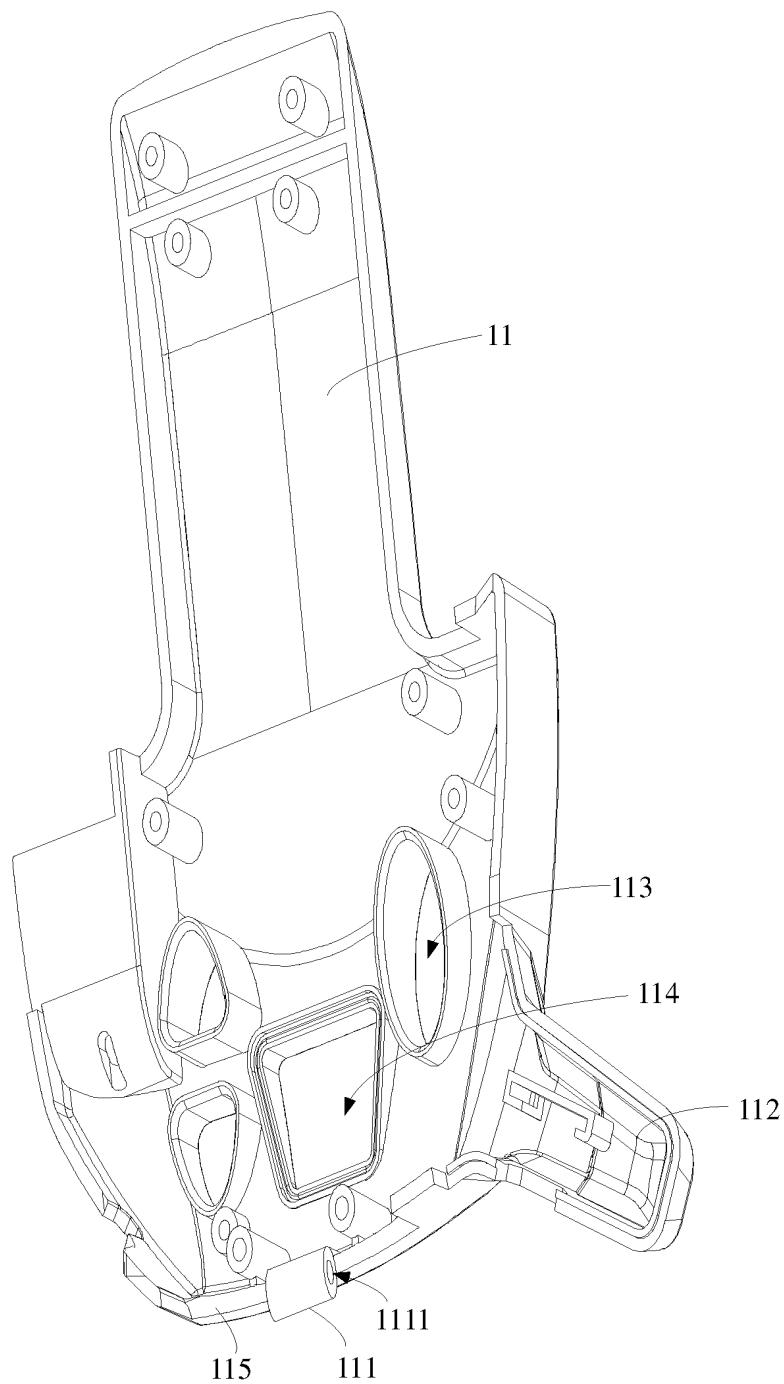


FIG. 4

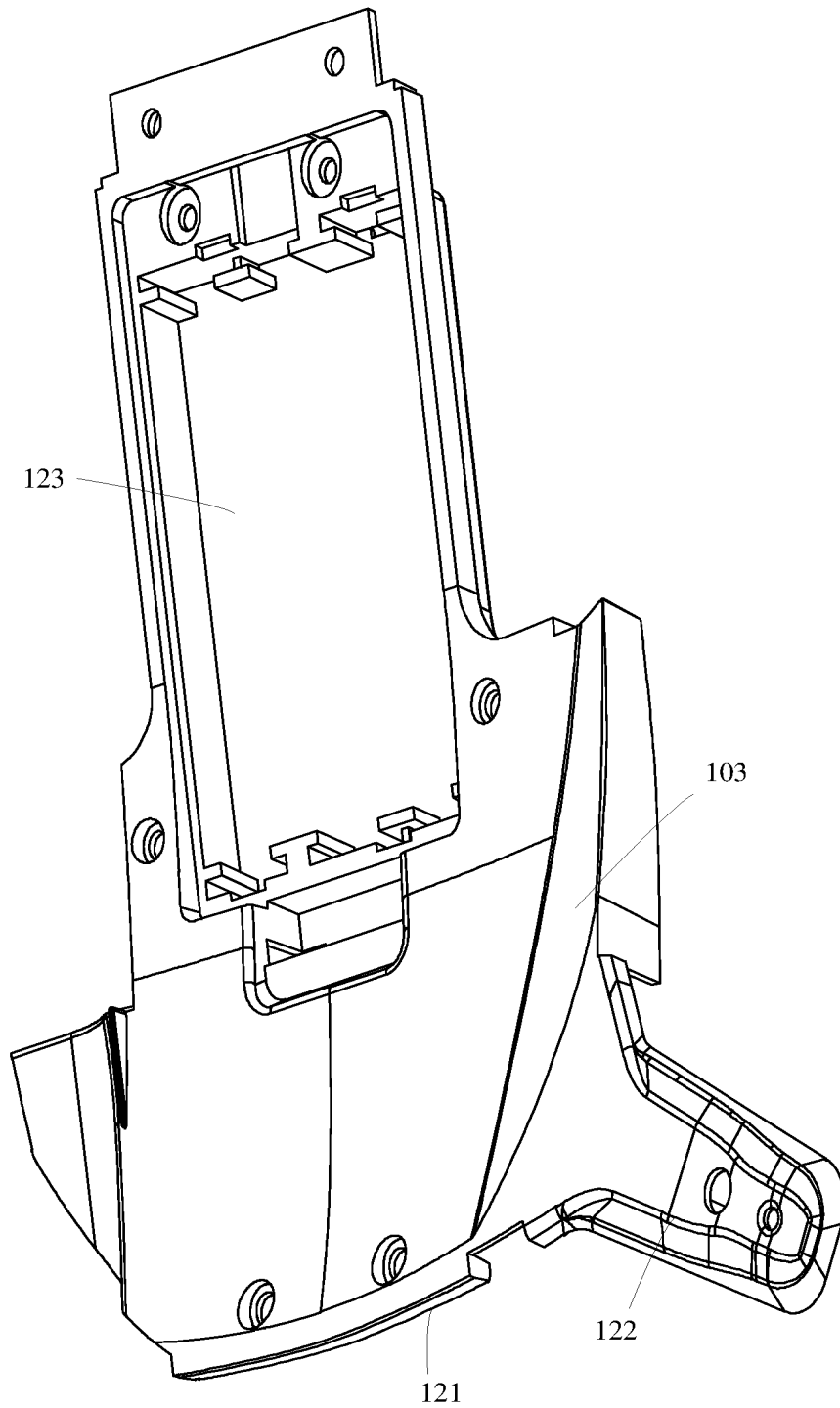


FIG. 5

6/11

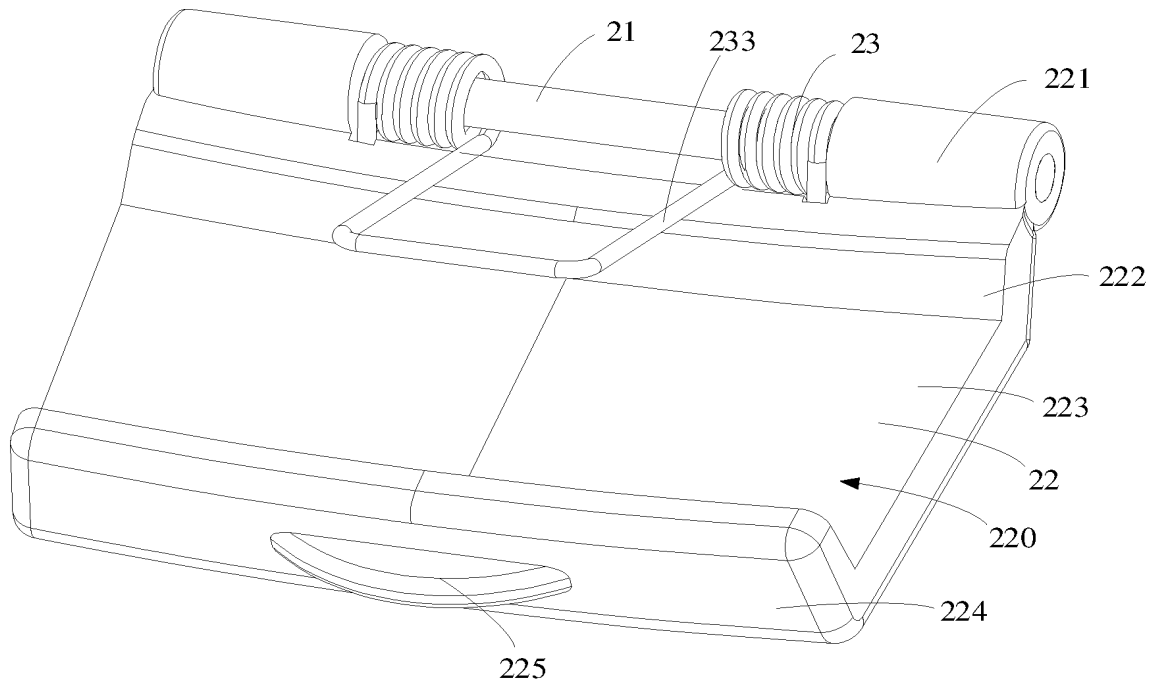


FIG. 6

7/11

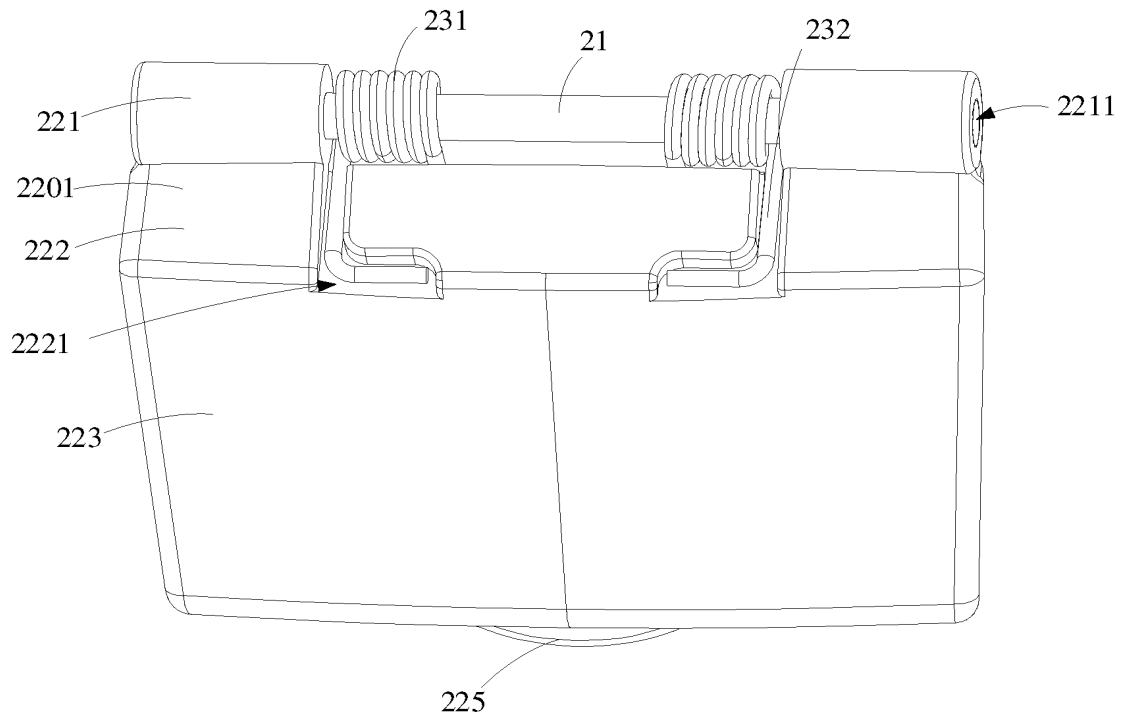


FIG. 7

8/11

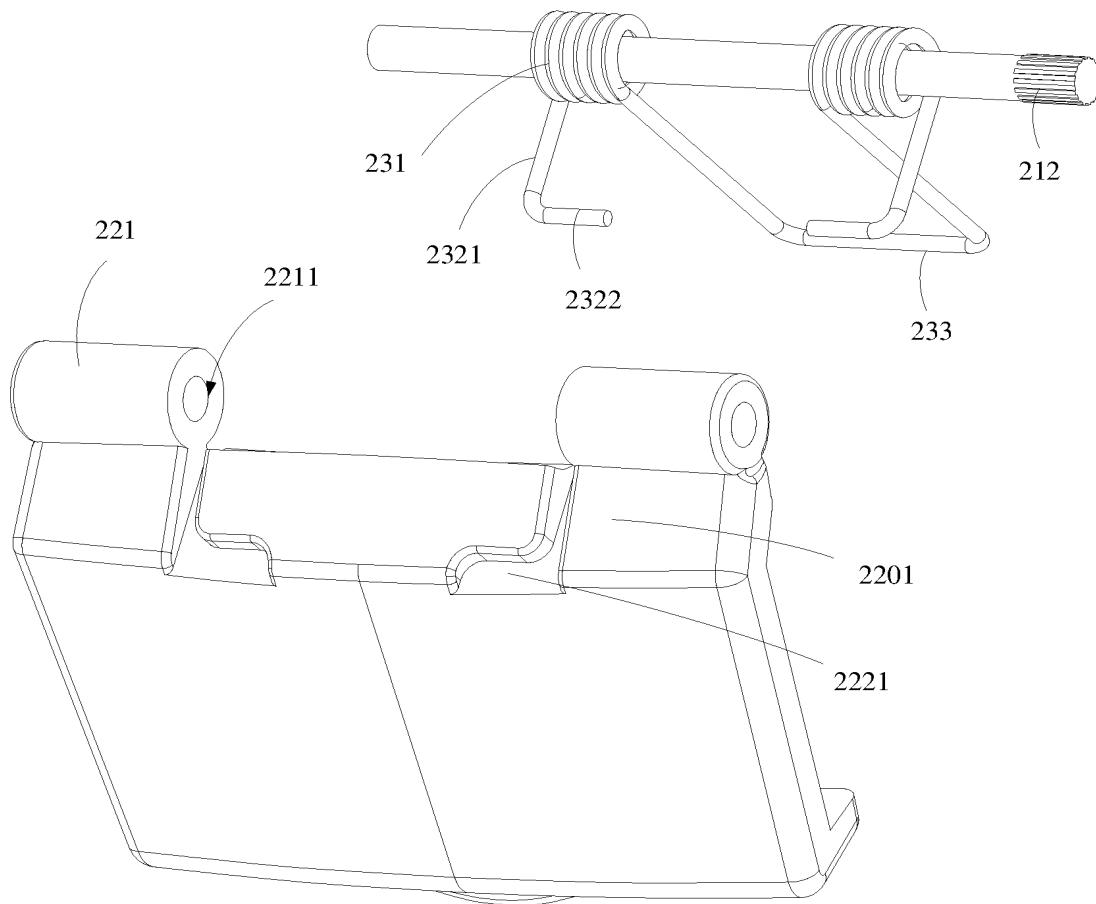


FIG. 8

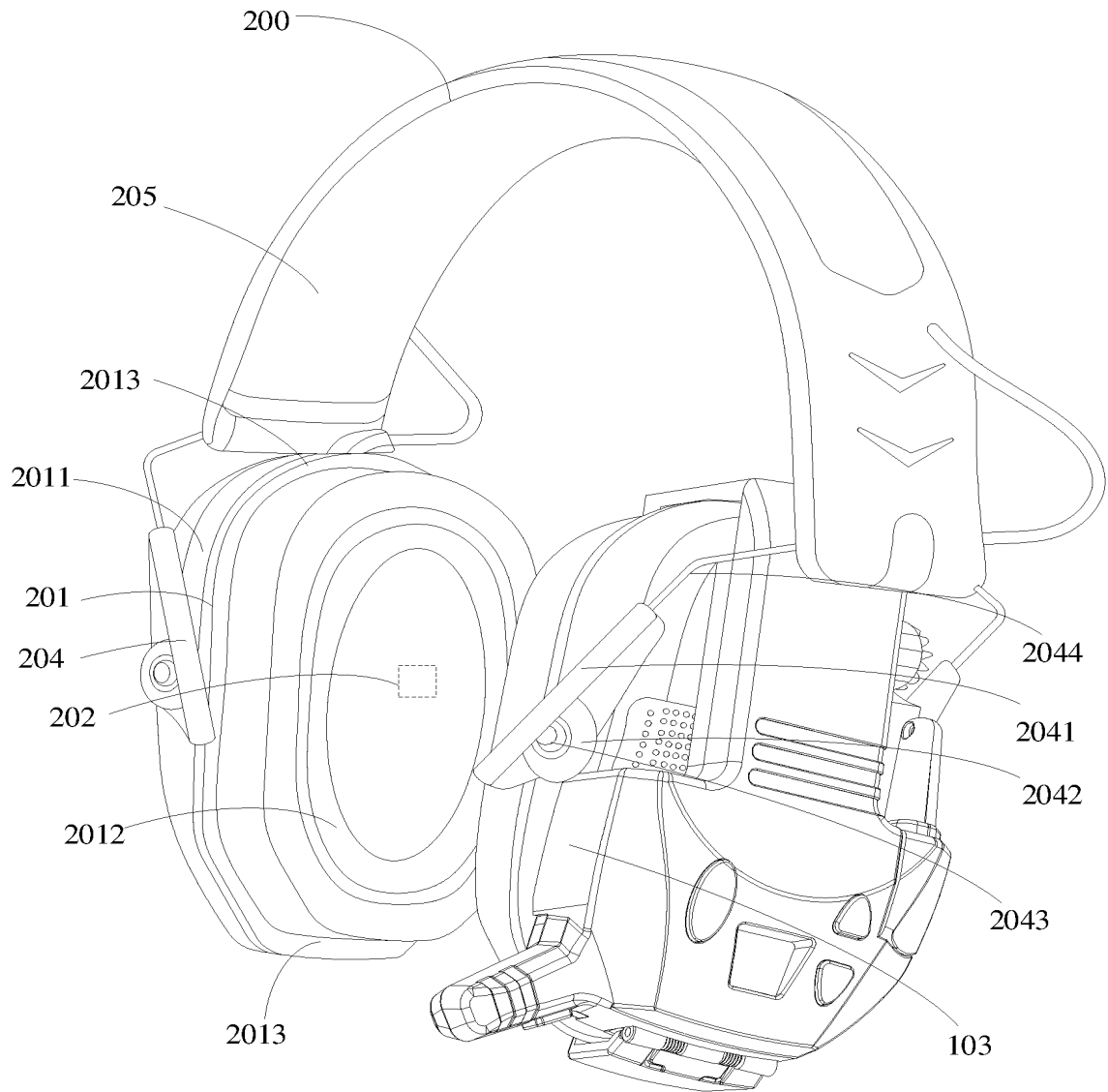


FIG. 9

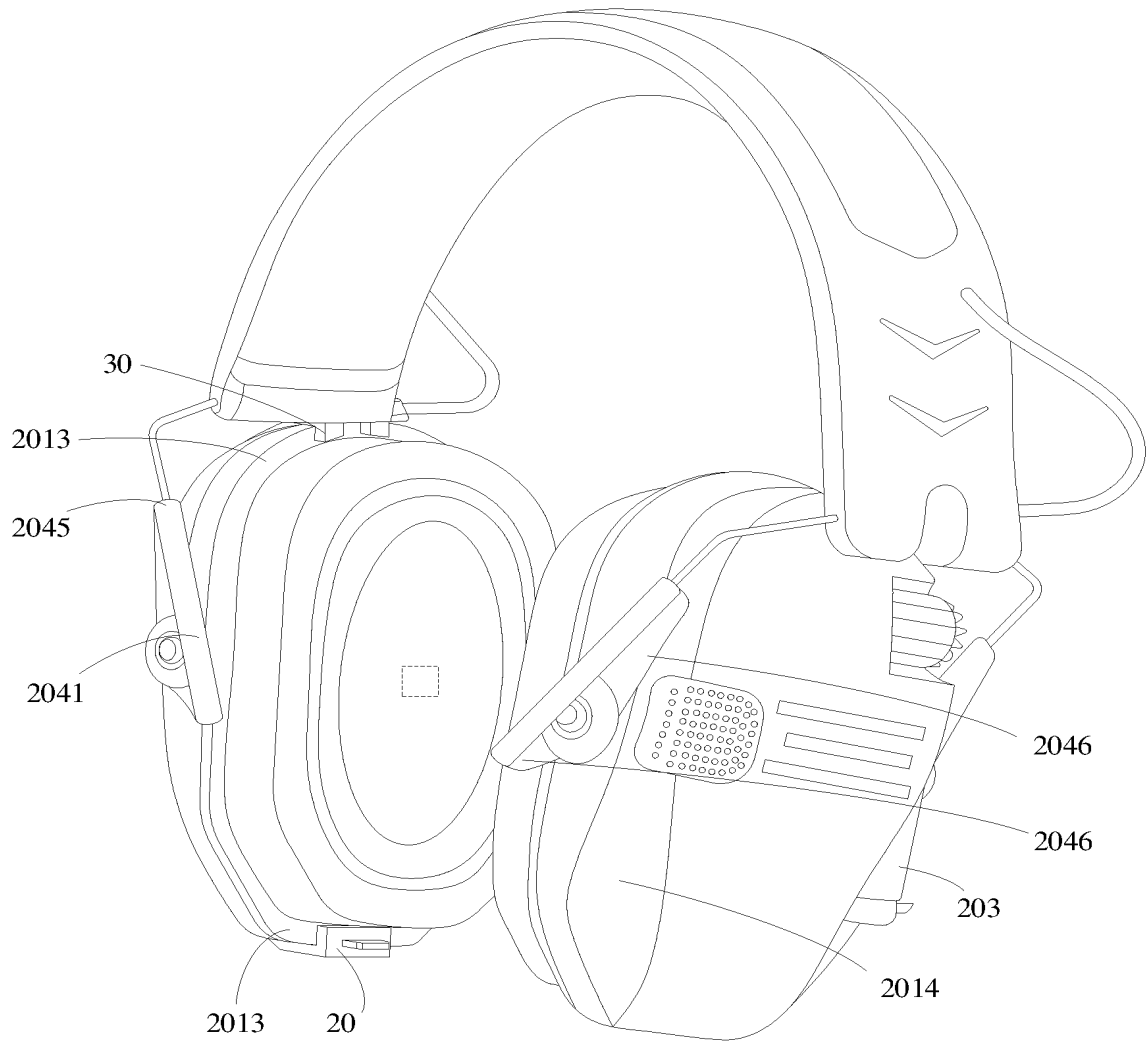


FIG. 10

11/11

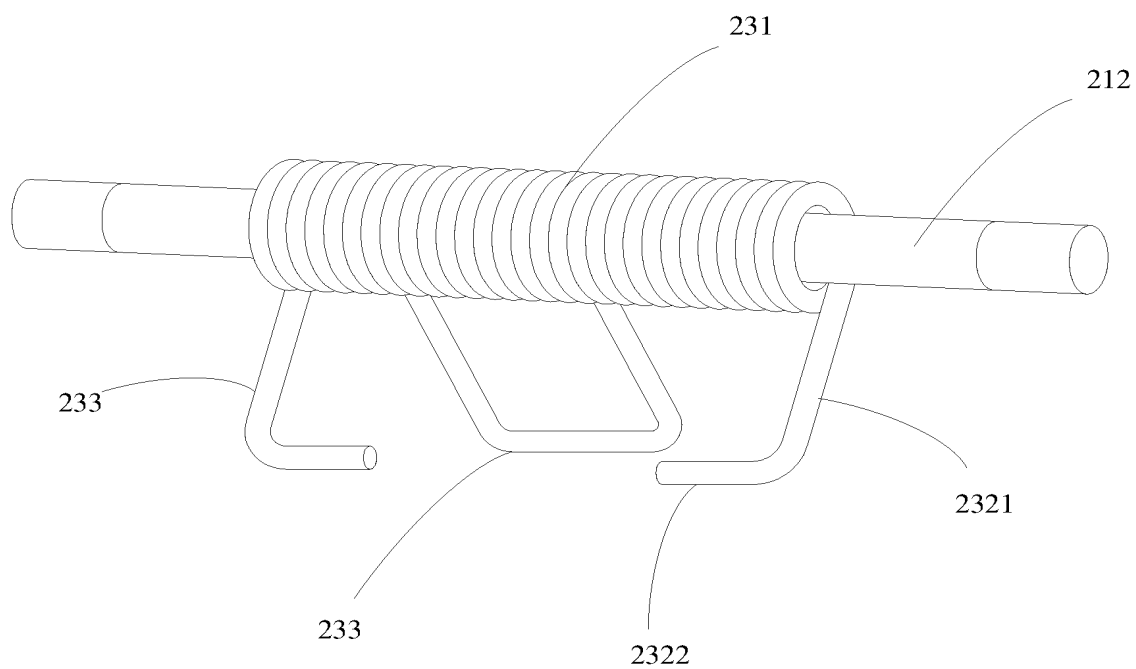


FIG. 11

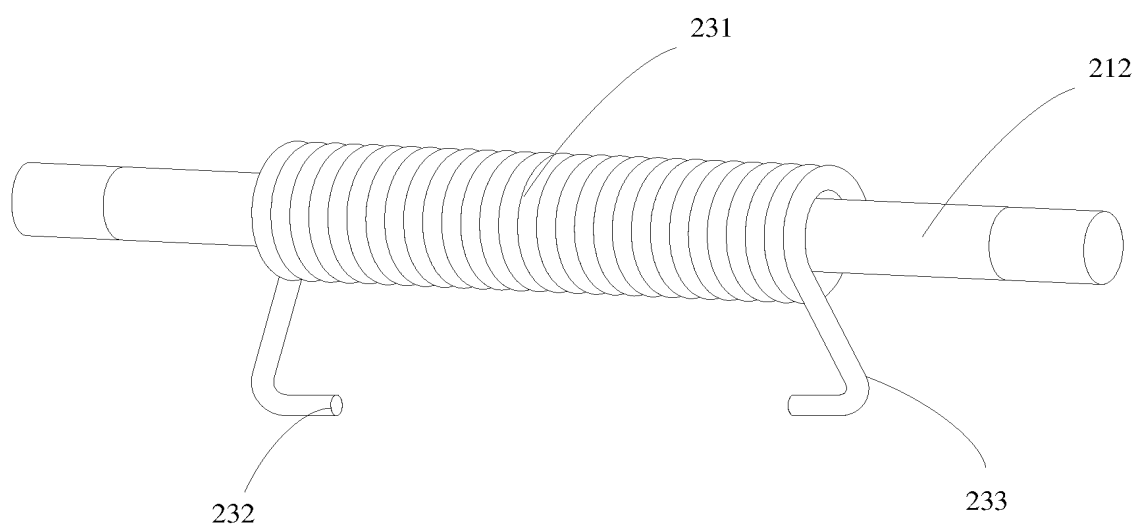


FIG. 12

COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of Chinese Utility Model Application No. 202320075791.9 filed on Jan. 10, 2023, the contents of which are incorporated herein by reference in their entirety.

FIELD

[0002] The present disclosure relates to communication transceivers and in particular to a communication device for hearing protection equipment, and a system for connecting a communication device to a hearing protection equipment.

BACKGROUND

[0003] Personal protective equipment, such as earmuffs or earplugs, are recommended for use in environments where people are exposed to harmful or potentially harmful decibel levels. In general, this equipment protects users by providing a barrier which reduces the level of noise or other sounds that is able to reach the users' ears. Users often equip the equipment with a communication device, so they can use their mobile phones normally when wearing the equipment. However, the existing communication device has a low adaptability and can only be installed on the equipment of a specific size, and the installation process is also inconvenient.

SUMMARY

[0004] The present disclosure provides a communication device for a hearing protection equipment which includes at least one earmuff, at least one loudspeaker and an audio input member, the device includes: a housing; a first mounting assembly rotatably arranged on the housing; a second mounting assembly arranged on the housing, the first mounting assembly and the second mounting assembly are releasably connected to two ends of the earmuff respectively; a microphone configured for capturing an audio; a radio transceiver configured for wirelessly transmitting the audio captured by the microphone to user and wirelessly receiving a wireless signal containing an audio from the user; and an audio output member communicated with the audio input member and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker. The present disclosure further provides a system connecting the communication device to the

hearing protection equipment.

[0005] The present disclosure further provides a system for connecting a communication device to a hearing protection equipment, the system includes a communication device and a hearing protection equipment. The communication device includes a housing, a first mounting assembly rotatably arranged on a first end of the housing, and a second mounting assembly arranged on a second end of the housing. The hearing protection equipment includes at least one earmuff having two fixing parts, the first mounting assembly and the second mounting assembly are installed on the two fixing parts respectively, to connect the communication device to the hearing protection equipment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Implementations of the present disclosure will now be described, by way of embodiment, with reference to the attached FIGS. It should be understood, the drawings are shown for illustrative purpose only, for ordinary person skilled in the art, other drawings obtained from these drawings without paying creative labor by an ordinary person skilled in the art should be within scope of the present disclosure.

[0007] FIG. 1 is a structure diagram of a communication device according to an embodiment of the present disclosure;

[0008] FIG. 2 is another structure diagram of the communication device of FIG. 1;

[0009] FIG. 3 is an exploded diagram of a part of the communication device in FIG. 1;

[0010] FIG. 4 is a structural diagram of an upper housing of the communication device of FIG. 1;

[0011] FIG. 5 is a structural diagram of a lower housing of the communication device of FIG. 1;

[0012] FIG. 6 is a structural diagram of a first mounting assembly of the communication device of FIG. 1;

[0013] FIG. 7 is another structural diagram of the first mounting assembly of FIG. 6;

[0014] FIG. 8 is an exploded view of the first mounting assembly of FIG. 6;

[0015] FIG. 9 is a structure diagram of a hearing protection equipment and the communication device according to an embodiment of the present disclosure, and the communication device is installed on the hearing protection equipment;

[0016] FIG. 10 is another structure diagram of the hearing protection equipment and the

communication device of FIG. 9;

[0017] FIG. 11 is a structural diagram of an elastic member of the communication device according to another embodiment; and

[0018] FIG. 12 is a structural diagram of an elastic member of the communication device according to a further embodiment.

[0019] The realization of the aim, functional characteristics, advantages of the present disclosure are further described specifically with reference to the accompanying drawings and embodiments.

DETAILED DESCRIPTION

[0020] The technical solutions of the embodiments of the present disclosure will be clearly and completely described in the following with reference to the accompanying drawings. It is obvious that the embodiments to be described are only a part rather than all of the embodiments of the present disclosure. All other embodiments obtained by persons skilled in the art based on the embodiments of the present disclosure without creative efforts shall fall within the protection scope of the present disclosure.

[0021] Referring to FIGS. 1-10, the present disclosure provides a communication device 100 according to an embodiment, which may be installed on a hearing protection equipment 200. The hearing protection equipment 200 includes earmuffs 201, loudspeakers 202 arranged in the earmuffs 201, and an audio input member 203 arranged on a side of the earmuff 201 (referring to FIGS. 9 and 10).

[0022] The communication device 100 includes a housing 10, a first mounting assembly 20 rotatably arranged on a first end of the housing 10, a second mounting assembly 30 arranged on a second end of the housing 10, a microphone 40 for capturing an audio, a radio transceiver 50 configured to wirelessly transmit the audio captured by the microphone 40 to user and wirelessly receive one or more wireless signals carrying audio from the user, and an audio output member 60 connected to the audio input member 203 and configured to transmit the wireless signals carrying audio to the loudspeakers 202. The first mounting assembly 20 and the second mounting assembly 30 are releasably mounted on two ends of the earmuff 201 respectively to connect the communication device 100 with the hearing protection equipment 200.

[0023] The radio transceiver 50 can be set vertically. Specifically, the radio transceiver 50 is arranged in parallel with an axial direction of the housing 10 to make the communication device

100 compact.

[0024] The communication device 100 further includes at least one button 70, a display screen 80, and a power supply 90. The at least one button 70 may include an on-off button, a volume up button, a volume down button, etc. The power supply 90 may be a rechargeable battery, a lithium battery, a solar cell, or the like.

[0025] The housing 10 is substantially arc-shaped, and the housing 10 is matched with the earmuff 201 in structure. The housing 10 includes an upper housing 11, a lower housing 12 and a cover 13. The upper housing 11 includes a first receiving portion 112, the lower housing 12 includes a second receiving portion 122, and the microphone 40 is received in a space enclosed by the first receiving portion 112 and the second receiving portion 122. The first receiving portion 112 and the second receiving portion 122 can extend obliquely to a position adjacent to user's mouth, so that the microphone 40 can easily receive the wireless signal containing audio from the user. The upper housing 11 defines at least one first opening 113 and a second opening 114, the at least one button 70 is exposed through the at least one first opening 113, and the display screen 80 is exposed through the second opening 114.

[0026] After the power supply 90 is received in a receiving groove 123 defined in the lower housing 12, the cover 13 covers the power supply 90 to protect the power supply 90.

[0027] The earmuff 201 of the hearing protection equipment 200 includes a rigid housing 2011 and a flexible part 2012 detachably arranged on an inner side of the housing 2011. The flexible part 2012 is used to protect user's ear. Each of two ends of the housing 2011 is provided with a fixing part 2013. The first mounting assembly 20 and the second mounting assembly 30 are installed on the fixing parts 2013, respectively, so that the communication device 100 is installed on the hearing protection equipment 200.

[0028] The hearing protection equipment 200 further includes a bracket 205 connected between the two earmuffs 201 by at least one connecting assembly 204. A quantity of the at least one connecting assembly 204 may be four, the four connecting assemblies 204 201 are connected with two sides of the earmuffs 201, respectively. The connecting assembly 204 includes a first connecting portion 2041 connected with the earmuff 201, a second connecting portion 2042 connected with the first connecting portion 2041, a rotating portion 2043, and a third connecting portion 2044 configured to connect the first connecting portion 2041 with the bracket 205. A connecting end 2045 of the first connecting portion 2041 is connected with the third connecting

portion 2044. The first connecting portion 2041 is protruded with at least one protrusion 2046 connected with the second connecting portion 2042. In detail, the first connecting portion 2041 is protruded with two protrusions 2046, and the second connecting portion 2042 is connected between the two protrusions 2046. The rotating portion 2043 is arranged on the housing 2011, and the second connecting portion 2042 is rotatably connected with the rotating portion 2043, so that the first connecting portion 2041 is rotatably connected with the housing 2011. The third connecting portion 2044 includes a straight section connected with the connecting end 2045 and a bending section connected with the bracket 205. The third connecting portion 2044 may be made of a bendable material, so that the first connecting portion 2041 can rotate easily.

[0029] The housing 10 further includes an engaging portion 103 protruded from a side of the housing 10. When the communication device 100 is mounted on the hearing protection equipment 200, the engaging portion 103 is clamped with an inclined surface 2014 of the housing 2011.

[0030] In the technical solution of the present disclosure, the communication device 100 includes the first mounting assembly 20 and the second mounting assembly 30, and the first mounting assembly 20 is rotatably arranged at the first end of the housing 10. When it needs to install the communication device 100 on the hearing protection equipment 200, the second mounting assembly 30 is installed on one fixing part 2013 of the hearing protection equipment 200; and the first mounting assembly 20 is rotated in a direction away from the housing 10, so that the hearing protection equipment 200 can be placed in the housing 10 easily, then the first mounting assembly 20 is rotated in a direction close to the housing 10 to install on the other fixing part 2013 of the hearing protection equipment 200 conveniently. Therefore, the installation process is simple and convenient. Further, as the first mounting assembly 20 is rotatably connected with the housing 10, when the first mounting assembly 20 is rotated in the direction away from the housing 10, the accommodating space 102 for accommodating the equipment 200 is expanded, so that the hearing protection equipment 200 of different sizes can be placed into the accommodating space 102, thus the communication device 100 has a better adaptability.

[0031] The first mounting assembly 20 includes a first connecting member 21 connected with the housing 10, a first mounting member 22, and an elastic member 23. The first mounting member 22 is rotatably connected with the first connecting member 21 by the elastic member 23. The first mounting member 22 is clamped with the earmuff 201 under the elastic force of the elastic member 23; the first mounting member 22 can be separated from the earmuff 201 after overcoming the elastic force of the elastic member 23.

[0032] The elastic member 23 includes at least one elastic body 231 arranged on the first connecting member 21, and at least one butting part 232 connected with the elastic body 231 and butted against the first mounting member 22. The first mounting member 22 rotates in a direction away from the housing 10 under a pressure, the first mounting member 22 rotates the butting part 232 to compress the elastic body 231; when the pressure applied to the first mounting member 22 is released, the elastic body 231 in a compressed state rotates the first mounting member 22 to an initial state.

[0033] The elastic body 231 can sleeve on the first connecting member 21.

[0034] The elastic member 23 further includes at least one fixing part 233 connected with the elastic body 231 and fixed on the housing 10. The elastic member 23 may include two opposite elastic bodies 231, two opposite butting parts 232, and two opposite fixing parts 233. The two opposite fixing parts 233 are connected to form a U-shaped structure.

[0035] The first mounting member 22 includes a receiving portion 2221, and the butting part 232 can be received in the receiving portion 2221. The butting part 232 includes a straight section 2321 connected with the elastic body 231 and a bending section 2322 connected with the straight section 2321. The two bending sections 2322 extend towards each other or extend in opposite directions. The receiving portion 2221 is matched with the butting part 232 in shape, that is, the receiving portion 2221 also has a straight section and a bending section.

[0036] One end of the upper housing 11 defines a notch 115. The upper housing 11 further includes a connecting element 111 connected with the first connecting member 21. The connecting element 111 extends out of the notch 115 to connect the first mounting member 22 with the housing 10. The connecting element 111 defines a through hole 1111, the first connecting member 21 is accommodated in the through hole 111, and the connecting element 111 is located between two elastic bodies 231. One end of the lower housing 12 is provided with a convex strip 121. When the upper housing 11 is connected with the lower housing 12, the convex strip 121 extends into the notch 115 to seal a part of the notch 115.

[0037] The first mounting member 22 includes a mounting portion 220 which may be a space, a groove, or a through hole, and the earmuff 201 is installed in the mounting portion 220. The at least one butting part 232 is butted against an outer surface 2201 of the mounting area 220. The first mounting member 22 is substantially U-shaped, and includes a first side wall 222, a bottom wall 223, and a second side wall 224. The first side wall 222, the bottom wall 223, and the second side

wall 224 enclose the mounting portion 220. The fixing part 233 can extend above the mounting portion 220 from the gap between the first connecting member 21 and the first side wall 222. The outer surface of the second side wall 224 is provided with an operating portion 225 which can be a protrusion, a groove, or a through hole. The first side wall 222 may define the receiving portion 2221. The first side wall 222 is provided with at least one connecting part 221, the connecting part 221 defines an opening 2211, the first connecting member 21 is accommodated in the opening 2211. A quantity of the connecting part 221 may be two, and the elastic body 231 and the connecting element 111 can be located between the two connecting parts 221. At least one end of the first connecting member 21 is formed with a thread 212 to increase a friction between the first connecting member 21 and an inner wall of the opening 2211. The connecting portion 221 may be located on one side of the first side wall 222 away from the second side wall 224.

[0038] In the technical solution of the present disclosure, the first mounting assembly 20 includes the first connecting member 21 connected with the housing 10, the first mounting member 22, and the elastic member 23. The first mounting member 22 is rotatably connected with the first connecting member 21 by the elastic member 23. The first mounting member 22 is clamped with the earmuff 201 under the elastic force of the elastic member 23, the clamping strength between the first mounting member 22 and the earmuff 201 is increased. The first mounting member 22 can be separated from the earmuff 201 after overcoming the elastic force of the elastic member 23.

[0039] The second mounting assembly 30 includes a second connecting member 31 and a second mounting member 32. The second connecting member 31 is fixedly, detachably or rotatably connected with the housing 10. The second mounting member 32 is arranged on the second connecting member 31, and the second connecting member 31 is detachably installed on the second end of the earmuff 201.

[0040] The second mounting member 32 extends obliquely from one end of the second connecting member 31 to form another mounting portion (not marked) for mounting the earmuff 201.

[0041] It should be understood that the second mounting assembly 30 and the first mounting assembly 20 may have the same structure or different structures.

[0042] In the technical solution of the present disclosure, the second mounting assembly 30 includes the second connecting member 31 connected with the housing 10 and the second mounting member 32. The second mounting member 32 is detachably mounted on the second end of the

earmuff 201, so that the first mounting member 22 and the second mounting member 32 can be respectively mounted on two ends of the earmuff 201.

[0043] The audio output member 60 includes a connecting head 61 and a connecting line 62. The connecting head 61 is communicated with the audio input member 203 for transmitting the wireless signal containing audio to the loudspeakers 202. The connecting line 62 is flexible, and the connecting head 61 is connected with an end of the connecting line 62 extending out of the housing 10. The connecting head 61 may be a connector.

[0044] In the technical solution of the present disclosure, the audio output member 60 includes the connecting head 61 and the connecting line 62, the connecting line 62 is flexible, so that user can easily connect the connecting head 61 with the audio input member 203.

[0045] Referring to FIG. 11, the elastic member 23 of the first mounting assembly 20 may include an elastic body 231, two butting parts 232 spaced apart from each other, and a fixing part 233. The elastic body 231 is arranged on the first connecting member 21. The two butting parts 232 are butted against the first mounting member 22, and are respectively connected with the two ends of the elastic body 231. The butting part 232 includes a straight section 2321 connected with the elastic body 231 and two bending sections 2322 connected with the straight section 2321, and the two bending sections 2322 extend towards each other or extend in opposite directions. The receiving portion 2221 is matched with the butting part 232 in shape. The fixing part 233 can be located between the two butting parts 232. The fixing part 233 is substantially U-shaped.

[0046] Referring to FIG. 12, the elastic member 23 of the first mounting assembly 20 may include an elastic body 231, a butting part 232, and a fixing part 233. The elastic body 231 is arranged on the first connecting member 21. The butting part 232 is connected with one end of the elastic body 231, and the fixing part 233 is connected with the other end of the elastic body 231. The butting part 232 is butted against on the first mounting member 22. The fixing part 233 is fixed on the housing 10.

[0047] The present disclosure further provides a system for connecting the communication device 100 to the hearing protection equipment 200. In the system, the first mounting assembly 20 and the second mounting assembly 30 are releasably installed on the two fixing parts 2013 respectively, to connect the communication device 100 to the hearing protection equipment 200.

[0048] The above description is merely some embodiments. It should be noted that for one with ordinary skills in the art, improvements can be made without departing from the concept of the

present disclosure, but these improvements shall fall into the protection scope of the present disclosure.

CLAIMS

What is claimed is:

1. A communication device for a hearing protection equipment, the hearing protection equipment comprising at least one earmuff, at least one loudspeaker and an audio input member, wherein the communication device comprises:

a housing;

a first mounting assembly, rotatably arranged on a first end of the housing;

a second mounting assembly, arranged on a second end of the housing, the first mounting assembly and the second mounting assembly are connected to two ends of the earmuff respectively to releasably connect the communication device with the hearing protection equipment;

a microphone, configured for capturing an audio;

a radio transceiver, configured for wirelessly transmitting the audio captured by the microphone to user and wirelessly receiving a wireless signal containing an audio from the user; and

an audio output member, communicated with the audio input member and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker.

2. The communication device according to claim 1, wherein the first mounting assembly comprises:

a first connecting member, connected with the housing;

an elastic member;

a first mounting member, rotatably connected with the first connecting member by the elastic member, wherein

the first mounting member is coupled with the earmuff under an elastic force of the elastic member; and

the first mounting member is separated from the earmuff after overcoming the elastic force of the elastic member.

3. The communication device according to claim 2, wherein the elastic member comprises:
at least one elastic body, arranged on the first connecting member; and
at least one butting part, connected with the elastic body and butted against the first mounting member, wherein

when a pressure is applied on the first mounting member, the first mounting member rotates in a direction away from the housing, so that the butting part rotates to compress the elastic body; and

the elastic body in a compressed state rotates the first mounting member to an initial state when the pressure applied on the first mounting member is released.

4. The communication device according to claim 3, wherein the at least one elastic body sleeves on the first connecting member.

5. The communication device according to claim 3, wherein the first mounting member comprises:

a receiving portion, the at least one butting part is received in the receiving portion.

6. The communication device according to claim 3, wherein the butting part comprises:

a straight section, connected with the elastic body; and

a bending section, connected with the straight section.

7. The communication device according to claim 3, wherein the elastic member further comprises:

at least one fixing part, connected with the elastic body and fixed on the housing.

8. The communication device according to claim 3, wherein the elastic member comprises:

two elastic bodies, spaced apart from each other and arranged on the first connecting member;
and

two butting parts, spaced apart from each other and butted against the first mounting member, each butting part is connected with one corresponding elastic body.

9. The communication device according to claim 8, wherein the elastic member further comprises:

a fixing part, fixed on the housing, two ends of the fixing part are connected with the two elastic bodies, respectively.

10. The communication device according to claim 8, wherein each butting part comprises:

a bending section, the two bending sections extend towards each other or extend in opposite directions.

11. The communication device according to claim 3, wherein the elastic member comprises:

an elastic body, arranged on the first connecting member; and

two butting parts, spaced apart from each other and butted against the first mounting member, the two butting parts are both connected with the elastic body.

12. The communication device according to claim 3, wherein the elastic member comprises:

an elastic body, arranged on the first connecting member;

a butting part, connected with the elastic body and butted against the first mounting member; and

a fixing part, connected with the elastic body and fixed on the housing.

13. The communication device according to claim 2, wherein the housing comprises:

a connecting element, connected with the first connecting member to connect the first mounting member with the housing.

14. The communication device according to claim 1, wherein the second mounting assembly comprises:

a second connecting member, connected with the housing; and

a second mounting member, arranged on the second connecting member, and the second connecting member is detachably mounted on an end of the earmuff.

15. The communication device according to claim 1, wherein the audio output member comprises:

a connecting head, communicated with the audio input member, and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker; and

a connecting line, connected with the connecting head, the connecting line is flexible.

16. The communication device according to claim 1, further comprising at least one of at least one button, a display screen and a power supply.

17. The communication device according to claim 1, wherein the housing is substantially arc-shaped, and the housing is adapted to the earmuff in shape.

18. A system for connecting a communication device to a hearing protection equipment, the system comprising:

a communication device, comprising:

a housing;

a first mounting assembly, rotatably arranged on a first end of the housing; and

a second mounting assembly, arranged on a second end of the housing;

and a hearing protection equipment, comprising:

at least one earmuff, comprising two fixing parts, the first mounting assembly and the second mounting assembly are installed on the two fixing parts respectively, to connect the

communication device to the hearing protection equipment.

19. The system according to claim 18, wherein the earmuff further comprises:

a rigid housing, comprising the two fixing parts; and

a flexible part, arranged on the housing.

20. The system according to claim 18, wherein

the communication device further comprises an audio output member; and

the hearing protection equipment further comprises an audio input member, connected with the audio output member.

ABSTRACT

The present disclosure provides a communication device for a hearing protection equipment which includes at least one earmuff, at least one loudspeaker and an audio input member, the device includes: a housing; a first mounting assembly rotatably arranged on the housing; a second mounting assembly arranged on the housing, the first mounting assembly and the second mounting assembly are releasably connected to two ends of the earmuff respectively; a microphone configured for capturing an audio; a radio transceiver configured for wirelessly transmitting the audio captured by the microphone to user and wirelessly receiving a wireless signal containing an audio from the user; and an audio output member communicated with the audio input member and configured for transmitting the wireless signal containing the audio to the at least one loudspeaker. The present disclosure further provides a system for connecting the communication device to the hearing protection equipment.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT			
First Named Inventor/Applicant Name:	Hanwen Xu			
Filer:	Charles S. Ho/Sophie Tai			
Attorney Docket Number:	SUNYOO-23007-USPT			
Filed as Small Entity				
Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	64	64
UTILITY SEARCH FEE	2111	1	280	280
UTILITY EXAMINATION FEE	2311	1	320	320
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	1680	1680
Pages:				
Claims:				
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	56	56
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2400

Electronic Acknowledgement Receipt

EFS ID:	47520088
Application Number:	18109259
International Application Number:	
Confirmation Number:	1064
Title of Invention:	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT
First Named Inventor/Applicant Name:	Hanwen Xu
Customer Number:	191438
Filer:	Charles S. Ho/Stella Cao
Filer Authorized By:	Charles S. Ho
Attorney Docket Number:	SUNYOO-23007-USPT
Receipt Date:	13-FEB-2023
Filing Date:	
Time Stamp:	23:31:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$2400
RAM confirmation Number	E20232CN32339105
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	Application_Data_Sheet_Fillable_PDF.pdf	2225382	no	8
			f0332302db2eb802280a20816a0fb0834cb0c4c3		
Warnings:					
Information:					
2	Track One Request	Certification_and_Request_for_Prioritized_Examination.pdf	35503	no	1
			736c4777643453840a716c4d7f188221c81e5407		
Warnings:					
Information:					
3	Power of Attorney	Executed_POA.pdf	2110586	no	2
			8bb9b2ff8105029d880e947dfa7a94682759f3cf		
Warnings:					
Information:					
4	Oath or Declaration filed	Executed_declaration.pdf	1011311	no	1
			3e7a2e82fa98234c2e451a8d9b47ff84ca38dfcc		
Warnings:					
Information:					
5	Drawings-only black and white line drawings	Drawings.pdf	1225176	no	11
			f3d52340da8060ab5a6775f0b5b26993b60ed513		
Warnings:					
Information:					
6		Spec.PDF	103722	yes	15
			e5d042069b85c10e41ad239869d6bbb61a756835		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
Page 123 of 132					

	Specification	1	9
	Claims	10	14
	Abstract	15	15

Warnings:

Information:

7	Fee Worksheet (SB06)	fee-info.pdf	50948	no	2
			964090118d54ea171aa44ba0a712678cff4f9c9		

Warnings:

Information:

Total Files Size (in bytes):	6762628
-------------------------------------	---------

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

Inventor	1	<button>Remove</button>		
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Hanwen		Xu	
Residence Information (Select One) US Residency • Non US Residency Active US Military Service				
City	Hangzhou, Zhejiang		Country of Residence ⁱ	CN
Mailing Address of Inventor:				
Address 1		4/F, No. 6 Shunle Rd., Changle Ind. Zone		
Address 2		Jingshan Town, Yuhang Dist.		
City	Hangzhou, Zhejiang		State/Province	
Postal Code		Country ⁱ	CN	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <button>Add</button>				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence Information of this application.	
Customer Number	191438
Email Address	<input type="text"/> <button>Add Email</button> <button>Remove Email</button>

Application Information:

Title of the Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		
Attorney Docket Number	SUNYOO-23007-USPT	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

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

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	191438		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status			<input type="button" value="Remove"/>
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
202320075791.9	CN	2023-01-10	8491

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

Applicant Information:

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

Applicant	1	Remove
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p> <p style="text-align: right;">Clear</p>		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
If the Applicant is an Organization check here. ☒		
Organization Name	Hangzhou ZH Tech Co., Ltd.	
Mailing Address Information For Applicant:		
Address 1	4/F, No. 6 Shunle Rd., Changle Ind. Zone	
Address 2	Jingshan Town, Yuhang Dist.	
City	Hangzhou, Zhejiang	State/Province
Country	CN	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				<input type="button" value="Remove"/>
If the Assignee or Non-Applicant Assignee is an Organization check here.				☐
Prefix	Given Name	Middle Name	Family Name	Suffix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1	<input type="text"/>			
Address 2	<input type="text"/>			
City	<input type="text"/>	State/Province	<input type="text"/>	
Country ⁱ	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Charles Ho/		Date (YYYY-MM-DD)	2023-02-13	
First Name	Charles	Last Name	Ho	Registration Number	51,807
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SUNYOO-23007-USPT
		Application Number	
Title of Invention	COMMUNICATION DEVICE AND SYSTEM FOR CONNECTING COMMUNICATION DEVICE TO HEARING PROTECTION EQUIPMENT		

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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