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(54) **DEVICE HAVING A POWER ADAPTOR AND SPEAKER DEVICES**

(57) A device (1) has a power adaptor (10) and speaker devices (50). The power adaptor (10) is for receiving input electrical power and outputting electric power for charging a rechargeable battery or powering another device. The speaker devices (50) are for outputting audio. Each speaker device (50) has an electrical power pin (52) for connection to a respective socket of a mains

power socket. Each speaker device (50) has an electrical connection (54) to the power adaptor (10) so that the electrical power pins (52) of the speaker devices (50) can receive input electrical power from a mains socket to which the electrical power pins (52) are connected in use and pass the input electrical power to the power adaptor (10) via the electrical connections (54).

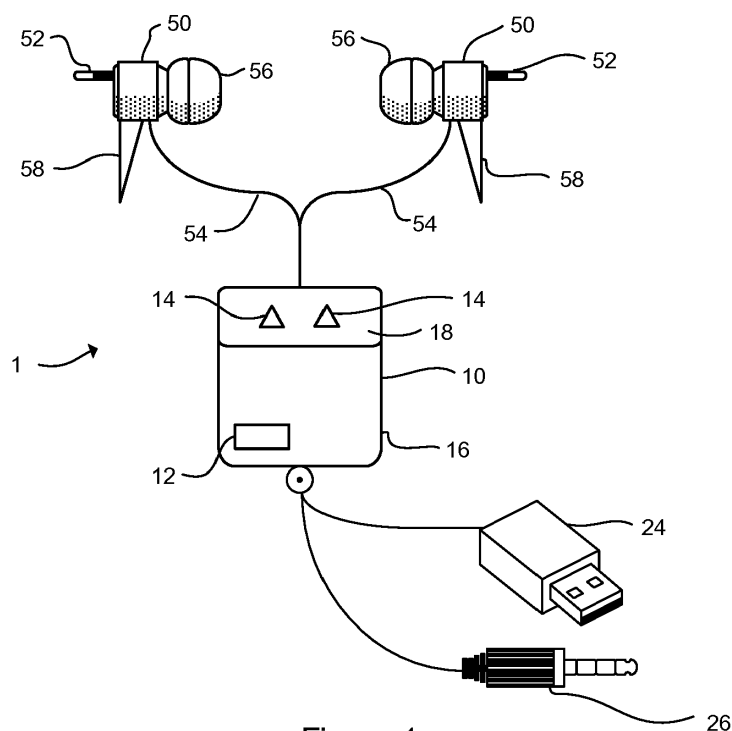


Figure 1

Description

Technical Field

[0001] The present disclosure relates to a device having a power adaptor and speaker devices.

Background

[0002] Many devices require an external power supply to power the device during normal use and/or to recharge one or more rechargeable batteries of the device from time to time. Accordingly, people often have to carry a mains adaptor, specifically an AC (alternating current) / DC (direct current) adaptor or rectifier, so as to be able to power and/or recharge the device from a mains power source when required.

[0003] Separately, people often use headphones or earphones (including "ear buds") or some other personal speaker device to listen to audio being played back by some device, which is often a mobile device. This may be so that the user can listen to the audio without disturbing others or to block out noise in the environment.

Summary

[0004] According to a first aspect disclosed herein, there is provided a device comprising:

a power adaptor for receiving input electrical power and outputting electric power for charging a rechargeable battery or powering another device; and speaker devices for outputting audio; each speaker device having an electrical power pin for connection to a respective socket of a mains power socket; each speaker device having an electrical connection to the power adaptor so that the electrical power pins of the speaker devices can receive input electrical power from a mains socket to which the electrical power pins are connected in use and pass the input electrical power to the power adaptor via the electrical connections.

[0005] There may be exactly two speaker devices, each with a single electrical power pin, so that the electrical power pins can connect to a conventional two-pin mains power socket. The speaker devices may be for example earphones or ear "buds", which fit partly or entirely in the outer ears or auditory canals of the user and which output audio to the left and right ears respectively of a user. The electrical connections may be for example cables or wires.

[0006] In an example, the power adaptor has a switch operable to switch the electrical connections between the speaker devices and the power adaptor so that the speaker devices can selectively (i) receive, via the electrical connections, audio signals transmitted in use via

the power adaptor and output audio and (ii) pass to the power adaptor, via the electrical connections, input electrical power received in use from a mains socket to which the electrical power pins of the speaker devices are connected in use.

[0007] The arrangement may be such that when the speaker devices are receiving or are capable of receiving audio signals transmitted in use via the power adaptor, the speaker devices do not or cannot pass electrical power to the power adaptor; and, conversely, when the speaker devices are passing or are capable of passing input electrical power to the power adaptor, the speaker devices do not or cannot receive audio signals via the power adaptor.

[0008] In an example:

the power adaptor comprises an AC/DC rectifier for receiving an input AC mains power supply and outputting a DC current; and the electrical power pins of the speaker devices are movable between a first configuration and a second configuration, wherein:

in the first configuration, the electrical power pins are disconnected from the AC/DC rectifier and are electrically connected to respective coils of the speaker devices to receive, via the electrical connections, audio signals transmitted in use via the power adaptor and pass the audio signals to the respective coils of the speaker devices, and

in the second configuration, the electrical power pins are disconnected from the coils of the speaker devices and are electrically connected to the AC/DC rectifier.

[0009] In an example, the electrical power pins of the speaker devices are pivotable or rotatable between the first configuration and the second configuration.

[0010] In an example:

each speaker device comprises at least one of a mounting pin and an aperture; and the power adaptor comprises a housing having at least one of a corresponding aperture and a mounting pin for each speaker device; the device being arranged such that the speaker devices can be mounted to the power adaptor by the mounting pins being received in respective apertures.

[0011] In an example, the mounting pins and the apertures are configured so that the electrical power pins of the speaker devices are correctly orientated to be received in corresponding sockets of a mains power socket when the speaker devices are mounted to the power adaptor.

[0012] For example, the mounting pins and the aper-

tures may have alignment ridges and corresponding recesses and/or may generally be shaped, such as with a polygonal shape, so that the electrical power pins of the speaker devices are correctly orientated when the speaker devices are mounted to the power adaptor.

[0013] In an example,:

the power adaptor comprises an audio connector for connection to an audio output socket of an audio output device and a power connector for connection to a power input socket of a device.

[0014] In an example, the power adaptor comprises one or more of a volume control, a tone control and a stereo balance control, for controlling audio playback at the speaker devices, and a microphone.

Brief Description of the Drawings

[0015] To assist understanding of the present disclosure and to show how embodiments may be put into effect, reference is made by way of example to the accompanying drawings in which:

Figure 1 shows schematically an example of a device according to the present disclosure, with the power adaptor being shown from above;

Figure 2 shows schematically the device of Figure 1, with the power adaptor being shown from below;

Figure 3 shows schematically a side view of the device of Figure 1, with the speaker devices received in the power adaptor;

Figure 4 shows schematically the speaker devices of the device with electrical power pins in different configurations;

Figure 5 shows schematically a view from the rear of one of the speaker devices;

Figure 6 shows schematically an example of a circuit arrangement of a device according to the present disclosure that can both enable audio playback and power/charge when in power/charging mode; and

Figure 7 shows schematically the speaker devices of the example device of Figure 6 when in listening mode.

Detailed Description

[0016] Referring to the drawings, there is shown schematically an example of a device 1 according to the present disclosure. The device 1 has two main components or elements: a power adaptor 10 and two speaker devices 50. The speaker devices 50 may be personal speaker devices, such as headphones or earphones (including "ear buds"), etc.

[0017] In use in one example, the power adaptor 10 can be connected to another device (not shown) so as to be able to power the other device or recharge rechargeable batteries of the other device. In general, the other device may be for example a mobile device. The other device may have one or more rechargeable batteries to power it and/or may be mains powered. The other device may be for example a cellular phone (including a so-called "smart phone"), a media player, a tablet or notebook computer, etc.

[0018] Further, in an example to be discussed further below, the power adaptor 10 can be connected to an audio playback device (not shown) so that the power adaptor 10 can pass audio signals from the audio playback device to the speaker devices 50 for playback by the speaker devices 50. In general, the audio playback may be a mobile device. The audio playback device may have one or more rechargeable batteries to power it and/or may be mains powered. The audio playback device may be for example a cellular phone (including a so-called "smart phone"), a media player, a tablet or notebook computer, etc. The audio playback may be the same device that is powered or recharged via the power adaptor 10 as described above or may be a different device.

[0019] The power adaptor 10 is arranged to receive input electrical power and to output electrical power for powering the audio playback or other device and/or to recharge one or more rechargeable batteries of the audio playback or other device if rechargeable batteries are present in the audio playback or other device. As such, in an example, the power adaptor 10 includes a rectifier 12 for converting input mains AC (alternating current) power to DC (direct current) for output to the audio playback or other device.

[0020] In accordance with an embodiment of the present disclosure, each speaker device 50 has an electrical power pin 52 which is for connection to a respective socket of a mains power socket. In this example, the mains power socket is a 2-pin mains power socket with two sockets, each socket receiving a respective electrical power pin 52 of the speaker devices 50 in use. Each speaker device 50 has an electrical connection 54 to the power adaptor 10, such as by cable or wire 54. When the electrical power pins 52 of the speaker devices 50 are connected to a mains power socket, electrical power flows through the electrical connections 54 to the power adaptor 10 and, in this example, specifically to the rectifier 12. The electrical power pins 52 are arranged on the speaker devices 50 so as to be opposite the earbud 56 or other portion that engages with the user's ear so as not to obstruct normal use of the speaker devices 50 for playback of audio when desired.

[0021] In this way, the user can simply carry one device 1, namely the combination of the speaker devices 50 and the power adaptor 10. This contrasts with the common known situation of the user having to carry and transport speaker devices (such as headphones or earphones or the like) and a separate mains power adaptor for use

when charging or a mains power supply is required. Moreover, because the mains electrical power pins 52 are provided on the speaker devices 50 rather than on a power adaptor, the power adaptor 10 according to the present disclosure can be smaller and more compact than a conventional power adaptor.

[0022] Furthermore, it is noted that conventional speaker devices (such as headphones or earphones or the like) are often provided with a volume control and sometimes other audio controls and sometimes a microphone, which are physically located on the cable that connects the conventional speaker devices to the playback device. Users are therefore accustomed to the cable that connects conventional speaker devices to a playback device already being provided with some other device or components. In an option, the power adaptor 10 according to the present disclosure may be provided with one or more of a volume control, a tone control and a stereo balance control for controlling audio playback at the speaker devices 50. Similarly in an option, the power adaptor 10 according to the present disclosure may be provided with a microphone. This option therefore brings together the power adaptor function and the audio control and/or microphone function which are normally provided by separate components in conventional arrangements.

[0023] Referring now particularly to Figures 1 to 5, in an example, the speaker devices 50 can be removably mounted to the power adaptor 10. This may be for storage purposes, for example when the speaker devices 50 are not being used, during transport, etc. This may also be for when the power adaptor 10 is being used to output electrical power to charge or power a device. For this purpose, in an example the speaker devices 50 and the power adaptor 10 are arranged so that, when the speaker devices 50 are mounted to the power adaptor 10, the electrical power pins 52 are correctly orientated so as to be able to properly engage with the corresponding sockets of a (2-pin) mains power socket. In this correct orientation, the two electrical power pins 52 are parallel to each other and face in the same direction and are separated by a distance which is at least generally the same as the distance between the sockets on the mains power socket (which may be for example 12.7 mm, 17.5 - 19 mm, etc., depending on the territory and the relevant standard for mains sockets and plugs in the country concerned).

[0024] The mounting of the speaker devices 50 to the power adaptor 10, and ensuring the correct orientation for the electrical power pins 52 when mounted to the power adaptor 10, may be achieved in a number of ways. In an example, this is achieved by an appropriate arrangement of mechanical or physical features on the speaker devices 50 and the power adaptor 10. In the example shown, the speaker devices 50 each have a mounting pin 58 which can be received in a corresponding aperture (or recess or blind hole, etc.) 14 provided in an outer housing or casing 16 of the power adaptor 10. The distance between the centres of the apertures 14 in the

housing 16 of the power adaptor 10 may be for example 12.7 mm, 17.5 - 19 mm, etc., again depending on the territory and the relevant standard for mains sockets and plugs in the country concerned. The mounting pins 58 may be made of an electrically insulating material, such as for example a plastics material.

[0025] In this example, for each speaker device 50 the mounting pin 58 projects generally perpendicularly to the longitudinal axis of the electrical power pin 52 when the electrical power pin 52 is orientated to engage with a mains power socket. The apertures 14 in the power adaptor 10 are located in a top face 18 of the housing 16 of the power adaptor 10 and are located towards a side face 20 of the power adaptor 10. In this example, the mounting pins 58 and the apertures 14 are shaped in cross-section so as to provide the correct orientation of the electrical power pins 52. In the example shown, the mounting pins 58 and the apertures 14 are triangular in cross-section. In other examples, the mounting pins 58 and the apertures 14 may have some other cross-sectional shape, such as some other polygonal shape. Alternatively or additionally, the mounting pins 58 or, more generally, the speaker devices 50 may have projecting ridges or the like that engage with corresponding guide channels when the mounting pins 58 are inserted into the apertures 14 in the correct orientation.

[0026] This can be seen particularly clearly in Figure 3, which shows a side view of the power adaptor 10 and the mounting pins 58 of the speaker devices 50 passing into or through the housing 16 of the power adaptor 10 (with one speaker device 50 being hidden behind the other in the view of Figure 3). Here, both electrical power pins 52 face in the same direction (to the left) and are parallel, and their centres are spaced by approximately 12.7 mm, 17.5 - 19 mm, etc., depending on the spacing between the apertures 14 of the power adaptor 10.

[0027] It may be noted that whilst it has been described that, in this example, the mounting pins 58 are provided on the speaker devices 50 and the apertures 14 are provided on the power adaptor 10, the arrangement may be reversed such that the mounting pins 58 are provided on the power adaptor 10 and the apertures 14 are provided on the speaker devices 50. In yet another example, one speaker device 50 has a mounting pin and the other speaker device 50 has an aperture and the power adaptor 10 is provided with a corresponding aperture and mounting pin respectively.

[0028] Referring particularly to Figures 4 and 5, in this example the electrical power pins 52 are pivotally mounted to the body of the speaker devices 50. In one orientation which is shown to the left of Figure 4, the electrical power pins 52 face outwardly, that is, opposite the earbud 56 or other portion that engages with the user's ear and, in this example, generally perpendicularly to the direction of the mounting pins 58. In a second orientation, which is shown to the right of Figure 4 and the rear view of Figure 5, the electrical power pins 52 have been pivoted or rotated though 90° to face "downwards", that is, gen-

erally perpendicularly to the direction of the earbud 56 or other portion that engages with the user's ear and, in this example, generally parallel to the direction of the mounting pins 58. In this example, the electrical power pins 52 lie along the back of the body of the speaker devices 50 and possibly at least in part along the mounting pins 58 when in the second orientation. The electrical power pins 52 can be moved to the second orientation when the electrical power pins 52 are not required to be plugged into a mains power socket so as to protect the electrical power pins 52 and keep the whole arrangement tidy.

[0029] The example of the device 1 described principally so far enables the user to use the electrical power pins 52 on the speaker devices 50 to make an electrical connection to a mains power socket so as to enable a device to be powered and/or charged via the power adaptor 10. In an example, the power adaptor 10 also selectively enables audio signals to be passed from an audio playback device to the speaker devices 50 for play back to the user. Again, the audio playback device may be the same device that can be powered or recharged using the power adaptor 10 or may be a different device. In practice of course, in a typical use case, the same device is both powered or recharged via the power adaptor 10 and is used as the source of audio signals for playback via the speaker devices 50.

[0030] Referring now particularly to Figures 6 and 7, there is shown schematically an example of a circuit arrangement in the case that the device 1 is used both to power or recharge another device and to enable audio playback via the speaker devices 50. The same reference numerals have been used for the same or corresponding parts as described above.

[0031] There are basically two signal paths through the device 1: one for mains power for use when powering or charging another device and one for audio signals for use when audio signals are provided to the speaker devices 50 for playback.

[0032] Figure 6 shows the device 1 when the device 1 is in power/charging mode. In this example, the electrical connections 54, here cables or wires, pass from the electrical power pins 52 and connect to a switch 22 located in the interior of the power adaptor 10. The switch 22 may be mechanical or electronic. The switch 22 is used to switch the electrical connections 54 to connect to the rectifier 12 or to an audio input, as will be described further below. The switch 22 may have a button, which may be a physical button or a "soft" button, to enable the user to manually switch between the power/charging and listening modes. Alternatively or additionally, the switch 22 may be arranged to switch automatically to the power/charging mode when the speaker devices 50 are mounted to the power adaptor 10 and to switch automatically to the listening mode when the speaker devices 50 are removed from being mounted to the power adaptor 10.

[0033] The output of the rectifier 12 passes to a power output connector 24, shown in the drawings by way of

example as a USB (universal serial bus) connector 24. In use, when another device is to be powered or charged via the device 1, the power output connector 24 is connected to a power input of the other device. The switch 22 switches or is switched so as to make a connection between the electrical connections 54 and the rectifier 12. Accordingly, when the device 1 is in the power/charging mode, the electrical power pins 52 can be connected to a mains power socket and AC power can flow via the switch 22 to the rectifier 12, which can then output DC power via the power output connector 24 to the other device to be powered or charged.

[0034] As well as connecting to the rectifier 12 when desired for the power/charging mode, the switch 22 also connects to an audio input connector 26, shown by way of example in the drawings as a jack plug (specifically a "mini jack" plug in this example). In use, the audio input connector 26 is connected to an audio playback devices when the speaker devices 50 are to be used for audio playback. The switch 22 switches or is switched so as to make a connection between the electrical connections 54 and the audio input connector 26. Accordingly, when the device 1 is in the listening mode, audio signals can enter via the audio input connector 26 and pass via the switch 22 to the speaker devices 50.

[0035] Referring particularly to Figure 7, in this example the device 1 is arranged so that, when the device 1 is in listening mode, the audio signals (which may be left and right stereo signals or two mono signals, depending on for example the source of the audio) are passed from the switch 22 of the power adaptor 10 to speaker coils 60 of the speaker devices 50 via the electrical connections 54 and the electrical power pins 52. That is, when the device 1 is in listening mode, the electrical power pins 52 make electrical contact with the speaker coils 60 to carry the audio signals. Figures 6 and 7 show two cables or wires 62 from the audio input connector 26 to the switch 22 for the be left and right stereo signals or two mono signals and also return or earth cable or wires 64 (which may at least in part be a common return 64) from the speaker coils 60 to the audio input connector 26.

[0036] On the other hand and referring particularly to Figure 6, in this example the device 1 is arranged so that, when the device 1 is in in power/charging mode, the electrical power pins 52 do not connect to the speaker coils 60.

[0037] As discussed above, in an example the electrical power pins 52 are pivoted or rotated between first and second orientations depending on whether the device 1 is to be in power/charging mode or listening mode. In this example, the pivoting movement of the electrical power pins 52 makes or breaks the electrical connection between the switch 22 and the speaker coils 60 as necessary for audio playback or powering/charging another device respectively as necessary.

[0038] The housing or casing 16 of the power adaptor 10 of this example has recesses 66, 68 shaped to receive the power output connector 24 and the audio input con-

nector 26 respectively when the power output connector 24 and the audio input connector 26 are not being used. This again helps to keep the whole arrangement tidy.

[0039] Accordingly, in examples described herein, a user can carry a single device 1 which has a power adaptor 10 and two speaker devices 50. The device 1 can selectively be used to pass audio from a media playback device to the speaker devices 50 and to power or charge another device (which may be the same media playback device or some other device). Each speaker device 50 has an electrical power pin 52 which can be plugged into a respective socket of a mains power socket when powering/charging of another device is required. In an example, the electrical power pins 52 carry audio signals to the speaker devices 50 when audio playback is required.

[0040] The examples described herein are to be understood as illustrative examples of embodiments of the invention. Further embodiments and examples are envisaged. As just one example, the example described above has a power output connector 24 and a separate audio input connector 26. However, in another example, there may be a single common connector which can act as the connector for input of audio for playback and output of power for powering/charging. Such a single common connector may be for example an appropriately arranged USB connector.

[0041] Any feature described in relation to any one example or embodiment may be used alone or in combination with other features. In addition, any feature described in relation to any one example or embodiment may also be used in combination with one or more features of any other of the examples or embodiments, or any combination of any other of the examples or embodiments. Furthermore, equivalents and modifications not described herein may also be employed within the scope of the invention, which is defined in the claims.

Claims

1. A device comprising:

a power adaptor for receiving input electrical power and outputting electric power for charging a rechargeable battery or powering another device; and
speaker devices for outputting audio;
each speaker device having an electrical power pin for connection to a respective socket of a mains power socket;
each speaker device having an electrical connection to the power adaptor so that the electrical power pins of the speaker devices can receive input electrical power from a mains socket to which the electrical power pins are connected in use and pass the input electrical power to the power adaptor via the electrical connections.

2. A device according to claim 1, the power adaptor having a switch operable to switch the electrical connections between the speaker devices and the power adaptor so that the speaker devices can selectively (i) receive, via the electrical connections, audio signals transmitted in use via the power adaptor and output audio and (ii) pass to the power adaptor, via the electrical connections, input electrical power received in use from a mains socket to which the electrical power pins of the speaker devices are connected in use.

3. A device according to claim 1 or claim 2, wherein:

the power adaptor comprises an AC/DC rectifier for receiving an input AC mains power supply and outputting a DC current; and
the electrical power pins of the speaker devices are movable between a first configuration and a second configuration, wherein:

in the first configuration, the electrical power pins are disconnected from the AC/DC rectifier and are electrically connected to respective coils of the speaker devices to receive, via the electrical connections, audio signals transmitted in use via the power adaptor and pass the audio signals to the respective coils of the speaker devices, and
in the second configuration, the electrical power pins are disconnected from the coils of the speaker devices and are electrically connected to the AC/DC rectifier.

4. A device according to claim 3, wherein the electrical power pins of the speaker devices are pivotable or rotatable between the first configuration and the second configuration.

5. A device according to any of claims 1 to 4, wherein:

each speaker device comprises at least one of a mounting pin and an aperture; and
the power adaptor comprises a housing having at least one of a corresponding aperture and a mounting pin for each speaker device;
the device being arranged such that the speaker devices can be mounted to the power adaptor by the mounting pins being received in respective apertures.

6. A device according to claim 5, wherein the mounting pins and the apertures are configured so that the electrical power pins of the speaker devices are correctly orientated to be received in corresponding sockets of a mains power socket when the speaker devices are mounted to the power adaptor.

7. A device according to any of claims 1 to 6, wherein:
the power adaptor comprises an audio connector for
connection to an audio output socket of an audio
output device and a power connector for connection
to a power input socket of a device. 5
8. A device according to any of claims 1 to 7, wherein
the power adaptor comprises one or more of a vol-
ume control, a tone control and a stereo balance
control, for controlling audio playback at the speaker 10
devices, and a microphone.

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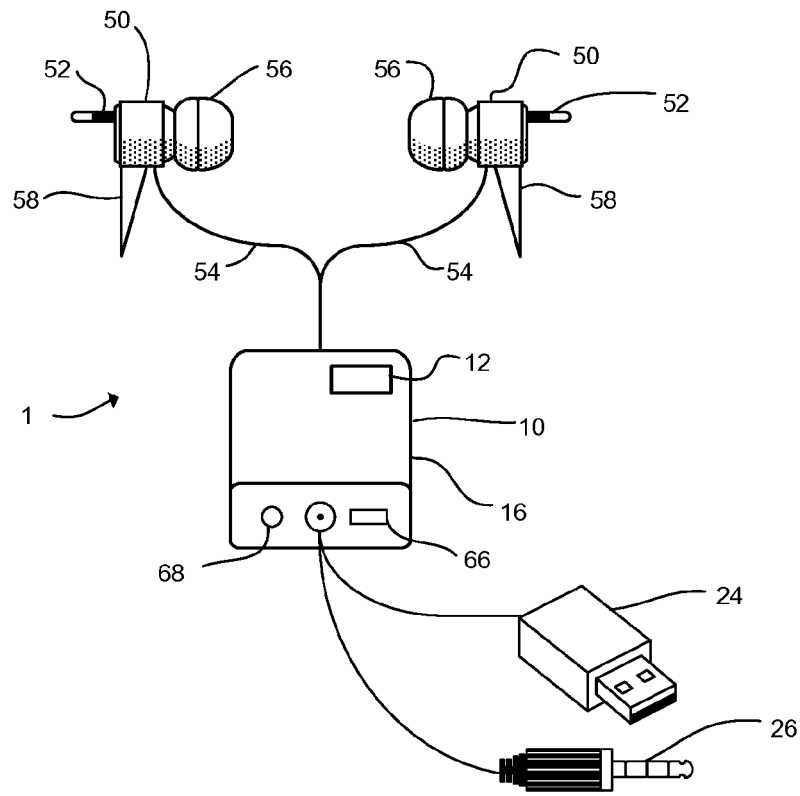
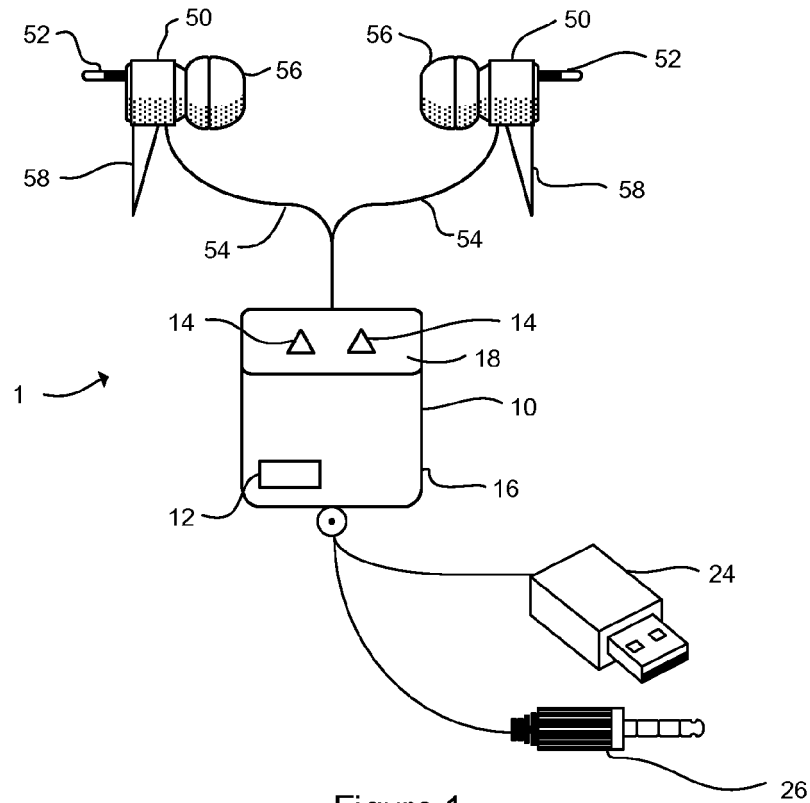
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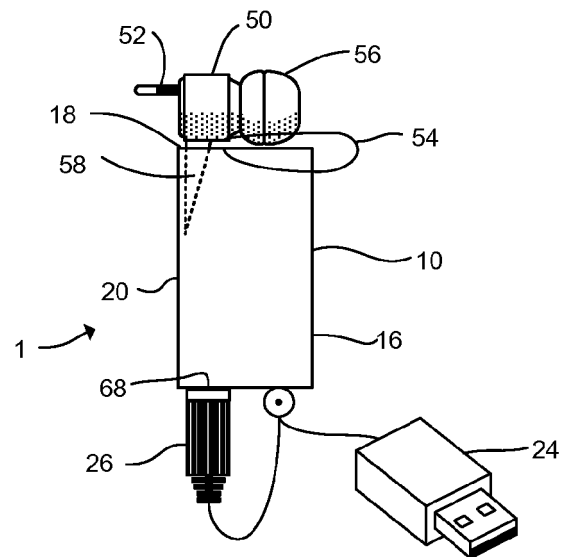


Figure 3

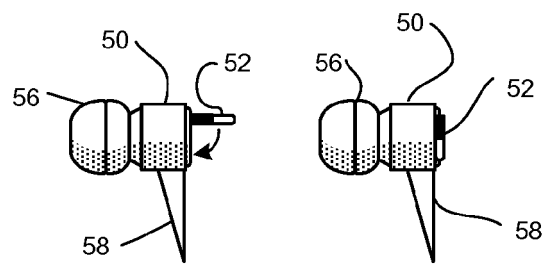


Figure 4

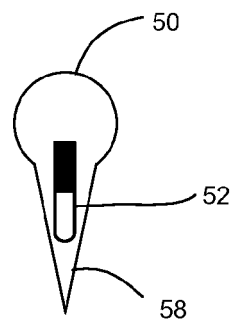


Figure 5

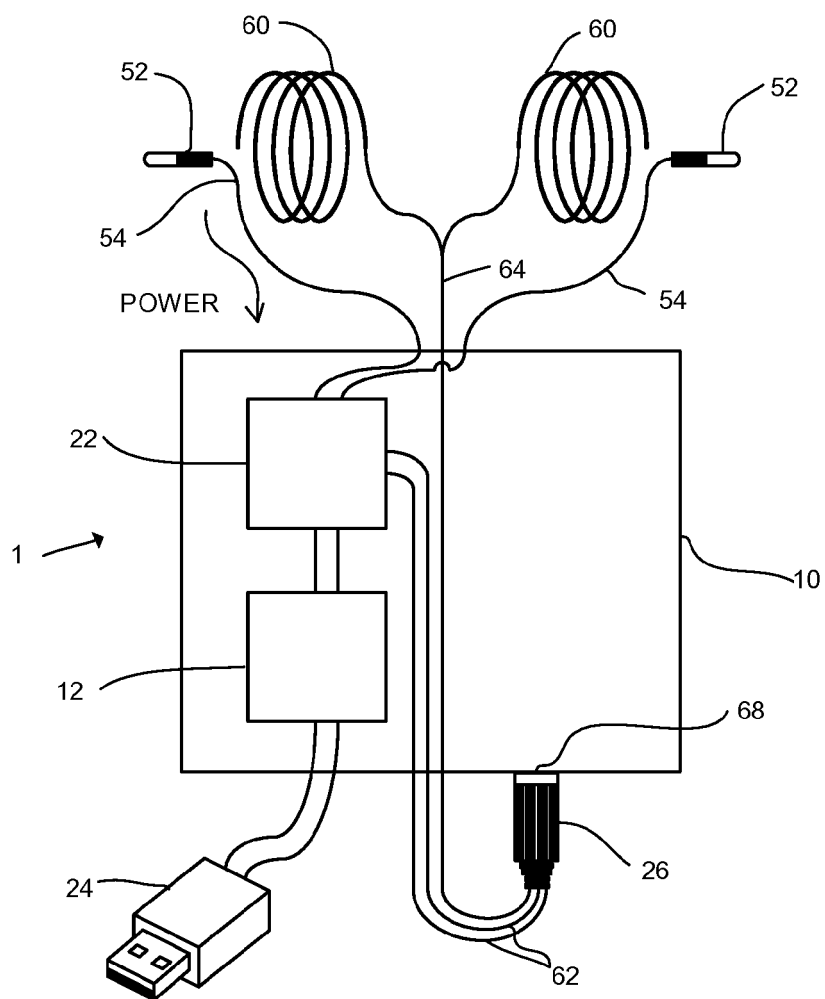


Figure 6

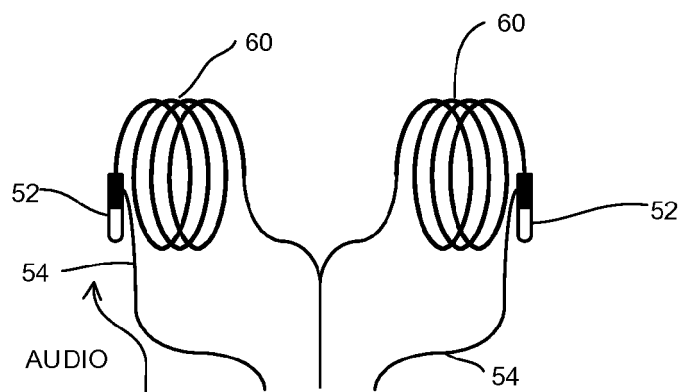


Figure 7



EUROPEAN SEARCH REPORT

 Application Number
 EP 19 16 4592

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 205 666 925 U (SHENZHEN SHUYUAN TECH CO LTD) 26 October 2016 (2016-10-26) * paragraph [0008] * * paragraph [0028] - paragraph [0032] * * paragraph [0050] * * figures 1,6 *	1,4,7,8	INV. H04R1/10
X	US 2016/209885 A1 (ELLIS JULIAN RICHARD [GB]) 21 July 2016 (2016-07-21) * paragraph [0005] - paragraph [0013] * * paragraph [0057] - paragraph [0062] * * figures 2A, 2B,2C , 3B, 3C *	1-4 5	
Y	US 2014/219466 A1 (SAIDEH ISAAC [US]) 7 August 2014 (2014-08-07) * paragraph [0002] - paragraph [0012] * * figure 1 *	1-4,7,8	
A	WO 2014/060729 A1 (ONBEAT LTD [GB]) 24 April 2014 (2014-04-24) * the whole document *	1-4,7,8	TECHNICAL FIELDS SEARCHED (IPC)
Y	US 2018/152778 A1 (DU JEN-HWA [TW] ET AL) 31 May 2018 (2018-05-31) * paragraph [0027] - paragraph [0029] * * figures 1-3 *	5 6	H04R
A			
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 July 2019	Examiner Valenzuela, Miriam
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 19 16 4592

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 19 16 4592

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 7, 8

The subject-matter of claims 1-4 and 7-8 relates to electrical connections within a speaker device for charging or powering another device.

2. claims: 5, 6

The subject-matter of claims 5-6 relates to storing speaker devices.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 16 4592

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-07-2019

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