

8. The earphone of claim 7, wherein the firmware, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to transmit data via the ad hoc wireless network to the data source regarding one or more infrastructure wireless networks detected by the transceiver circuit when the earphone and the data source are communicating via the ad hoc wireless network.

9. The earphone of claim 8, wherein the firmware, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to connect to a host server via a second infrastructure wireless network when (1) the data source is not in wireless communication range with the earphone via the ad hoc wireless network and (2) the data source and the earphone are not in wireless communication via the pre-set infrastructure wireless network.

10. The earphone of claim 1, wherein the firmware, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to connect to a host server via the infrastructure wireless network when the data source is not in wireless communication range with the earphone via the ad hoc wireless network.

11. The earphone of claim 10, wherein the earphone is for receiving streaming digital audio from the host server via the infrastructure wireless network.

12. The earphone of claim 10, wherein the earphone is for receiving a first network address for a first streaming digital audio content server from the host server via the infrastructure wireless network.

13. The earphone of claim 12, wherein the earphone comprises a user control that, when activated, causes the earphone to submit an electronic request via the infrastructure wireless network to the host server for a second network address for a second streaming digital audio content server.

14. The earphone of claim 13, wherein the user control comprises a button.

15. A system comprising:
a data source for wirelessly transmitting streaming digital audio; and
a wireless earphone that comprises:

- at least one acoustic transducer for converting an analog electrical signal to sound;
- an antenna; and

- a transceiver circuit in communication with the at least one acoustic transducer and the antenna, wherein the transceiver circuit is for receiving and transmitting wireless signals via the antenna, and wherein the transceiver circuit is for outputting the analog electrical signal to the at least one acoustic transducer, and wherein the wireless transceiver circuit comprises firmware, which when executed by the transceiver circuit, causes the transceiver circuit to:

receive the streaming digital audio wirelessly from the data source via an ad hoc wireless network when the data source is in wireless communication range with the earphone via the ad hoc wireless network; and
when the data source is not in wireless communication range with the earphone via the ad hoc wireless network, transition automatically to receive streaming digital audio via an infrastructure wireless network.

16. The system of claim 15, wherein the data source comprises a digital audio player.

17. The system of claim 15, further comprising a host server that is in communication with the wireless earphone via the infrastructure wireless network.

18. The system of claim 17, wherein the firmware of the transceiver circuit of the wireless earphone, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to connect to the host server via the infrastructure wireless network when the data source is not in wireless communication range with the earphone via the ad hoc wireless network.

19. The system of claim 17, wherein the host server is for streaming digital audio to the earphone via the infrastructure wireless network.

20. The system of claim 17, wherein the host server is for transmitting a first network address for a first streaming digital audio content server to the earphone via the infrastructure wireless network

21. The system of claim 20, wherein the earphone comprises a user control that, when activated, causes the earphone to submit an electronic request via the infrastructure wireless network to the host server for a second network address for a second streaming digital audio content server.

22. The earphone of claim 21, wherein the user control comprises a button.

23. The system of claim 18, wherein the host server hosts a web page for the wireless earphone through which a user is capable of configuring one or more settings for the wireless earphone.

24. The system of claim 15, wherein the infrastructure wireless network comprises a WLAN.

25. The system of claim 15, wherein the firmware, when executed by the infrastructure wireless network is a pre-set infrastructure wireless network that the data source transitions to when the data source is not in wireless communication range with the earphone via the ad hoc wireless network and when the pre-set infrastructure wireless network is in range of both the earphone and the data source.

26. The system of claim 25, wherein the firmware, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to transmit data via the ad hoc wireless network to

the data source regarding one or more infrastructure wireless networks detected by the transceiver circuit when the earphone and the data source are communicating via the ad hoc wireless network.

27. The system of claim 26, wherein the firmware, when executed by the transceiver circuit, causes the transceiver circuit of the earphone to connect to a host server via a second infrastructure wireless network when (1) the data source is not in wireless communication range with the earphone via the ad hoc wireless network and (2) the data source and the earphone are not in wireless communication via the pre-set infrastructure wireless network.

28. The system of claim 27, wherein the host server is for streaming digital audio to the earphone via the infrastructure wireless network.

29. The system of claim 27, wherein the host server is for transmitting a first network address for a first streaming digital audio content server to the earphone via the infrastructure wireless network

30. The system of claim 29, wherein the earphone comprises a user control that, when activated, causes the earphone to submit an electronic request via the infrastructure wireless network to the host server for a second network address for a second streaming digital audio content server.

31. The earphone of claim 30, wherein the user control comprises a button.

32. A system comprising:

a host server;

a first streaming digital audio content server that is connected to the host server via a data network; and

a wireless earphone that is in communication with the host server via a wireless network, wherein the host server is programmed to transmit to the earphone a first network address for the first streaming digital audio content server.

33. The system of claim 32, wherein the wireless earphone comprises:

at least one acoustic transducer for converting an analog electrical signal to sound;

an antenna; and

a transceiver circuit in communication with the at least one acoustic transducer and the antenna, wherein the transceiver circuit is for receiving and transmitting wireless signals via the antenna, and wherein the transceiver circuit is for outputting the analog electrical signal to the at least one acoustic transducer, and wherein the wireless transceiver circuit comprises firmware that is executed by the transceiver circuit.

34. The system of claim 33, wherein the host server hosts a web page for the wireless earphone through which a user is capable of configuring one or more settings for the wireless earphone.
35. The system of claim 34, wherein the one or more settings comprise the first streaming digital audio content server and a second streaming digital audio content server.
36. The system of claim 35, wherein the earphone comprises a user control that, when activated, causes the earphone to submit an electronic request via the wireless network to the host server for a second network address for the second streaming digital audio content server.
37. A headset comprising:
a first earphone that comprises one or more acoustic transducers for converting a first analog electrical signal to sound; and
a second earphone, connected to the first earphone, wherein the second earphone comprises one or more acoustic transducers for converting a second analog electrical signal to sound, and wherein the first earphone comprises:
a first antenna; and
a first transceiver circuit in communication with the one or more acoustic transducers of the first earphone and in communication with the first antenna, wherein the first transceiver circuit is for receiving and transmitting wireless signals via the first antenna, and wherein the first transceiver circuit is for outputting the first analog electrical signal to the one or more acoustic transducers of the first earphone, and wherein the first transceiver circuit comprises firmware, which when executed by the first transceiver circuit, causes the first transceiver circuit to:
receive digital audio wirelessly from a data source via an ad hoc wireless network when the data source is in wireless communication range with the first earphone via the ad hoc wireless network; and
when the data source is not in wireless communication range with the first earphone via the ad hoc wireless network, transition automatically to receive digital audio via an infrastructure wireless network.
38. The headset of claim 37, further comprising a head band, wherein the first and second earphones are connected to the headband.
39. The headset of claim 37, further comprising a microphone having an output connected to the first transceiver circuit.
40. The headset of claim 37, wherein the first transceiver circuit is for outputting the second analog electrical signal to the one or more acoustic transducers of the second earphone.

41. The headset of claim 37, wherein the second earphone comprises:

a second antenna; and

a second transceiver circuit in communication with the one or more acoustic transducers of the second earphone and in communication with the second antenna, wherein the second transceiver circuit is for receiving and transmitting wireless signals via the second antenna, and wherein the second transceiver circuit is for outputting the second analog electrical signal to the one or more acoustic transducers of the second earphone, and wherein the second transceiver circuit comprises firmware, which when executed by the second transceiver circuit, causes the second transceiver circuit to:

receive digital audio wirelessly from the data source via the ad hoc wireless network when the data source is in wireless communication range with the second earphone via the ad hoc wireless network; and

when the data source is not in wireless communication range with the second earphone via the ad hoc wireless network, transition automatically to receive digital audio via the infrastructure wireless network.

42. The headset of claim 37, wherein the first earphone comprises a first data port and the second earphone comprises a second data port, and wherein the headset further comprises an adapter connected to the first data port of the first earphone and to the second data port of the second earphone, and wherein the adapter comprises an output plug connector for connecting to a remote device.

43. A method comprising:

receiving, by a wireless earphone, via an ad hoc wireless network, digital audio from a data source when the data source is in wireless communication with the earphone via the ad hoc wireless network;

converting, by the wireless earphone, the digital audio to sound; and

when the data source is not in wireless communication with the earphone, transitioning

automatically, by the earphone, to receive digital audio via an infrastructure wireless network.

44. The method of claim 43, wherein transitioning automatically by the earphone to receive digital audio via an infrastructure wireless network comprises transitioning automatically to receive digital audio from the data source via an infrastructure wireless network when the data source is not in wireless communication range with the earphone via the ad hoc wireless network.

45. The method of claim 43, further comprising, receiving by the wireless earphone from the data source via the ad hoc wireless network data regarding one or more infrastructure wireless

networks detected by data source when the earphone and the data source are communicating via the ad hoc wireless network.

46. The method of claim 43, wherein transitioning automatically by the earphone to receive digital audio via an infrastructure wireless network comprises transitioning automatically to receive digital audio from a host sever via the infrastructure wireless network when the data source is not in wireless communication range with the earphone via the ad hoc wireless network

47. The method of claim 43, wherein transitioning automatically by the earphone to receive digital audio via an infrastructure wireless network comprises:

receiving, by the wireless earphone via the infrastructure wireless network, from a host server connected to the infrastructure wireless network, a network address for a streaming digital audio content server; and

connecting, by the wireless earphone, to the streaming digital audio content server using the network address received from the host server.

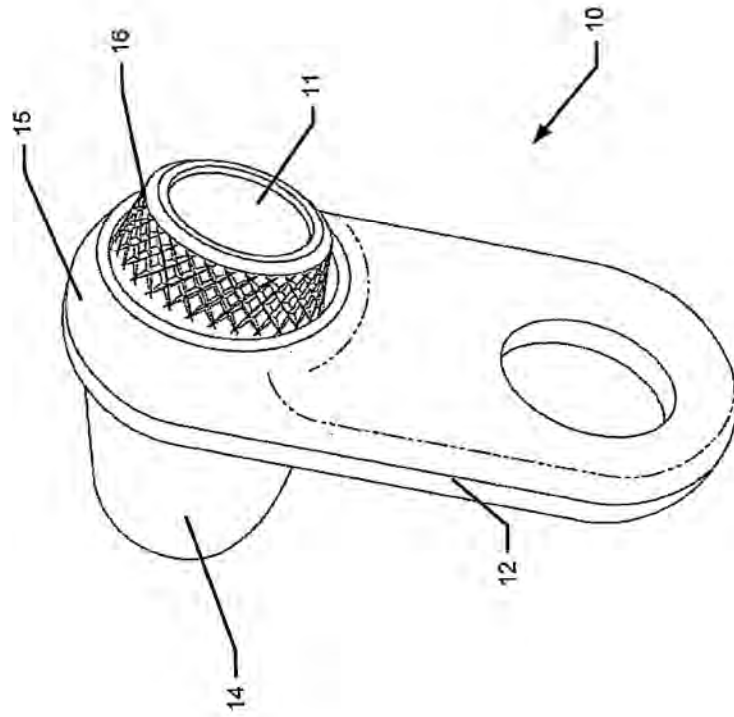


Fig. 1B

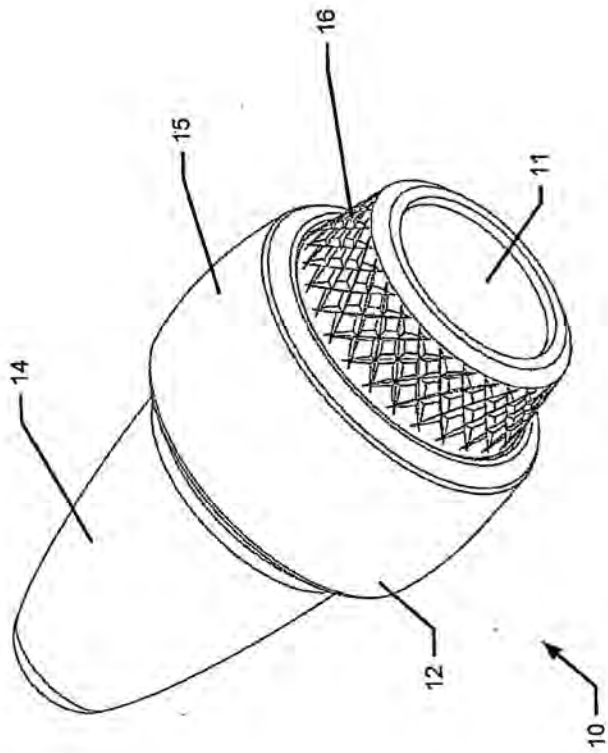


Fig. 1A

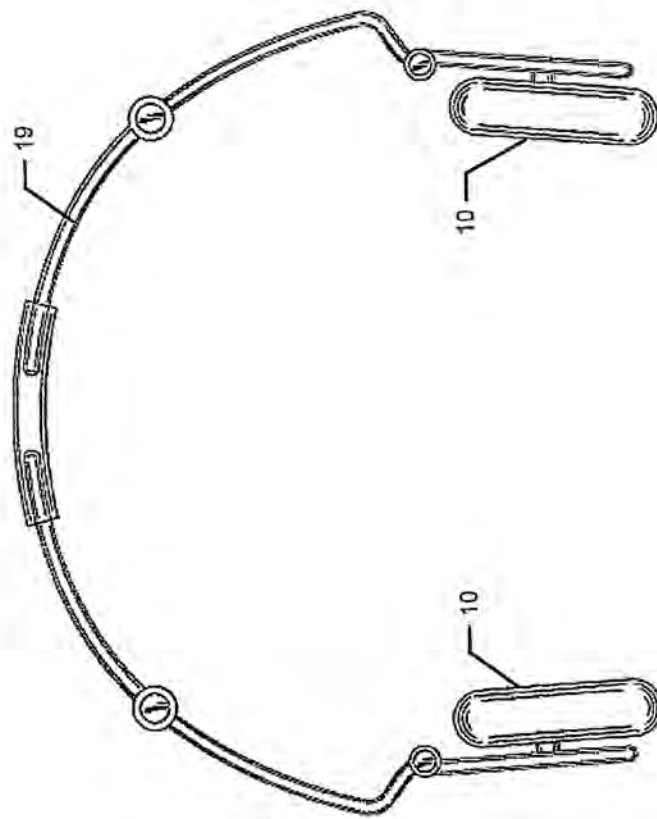


Fig. 1C

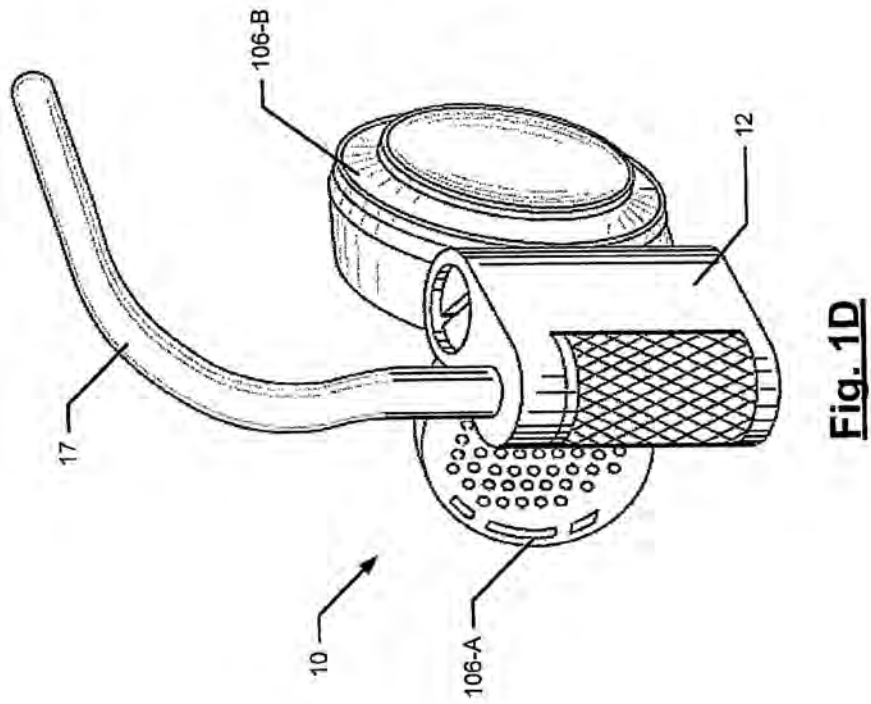
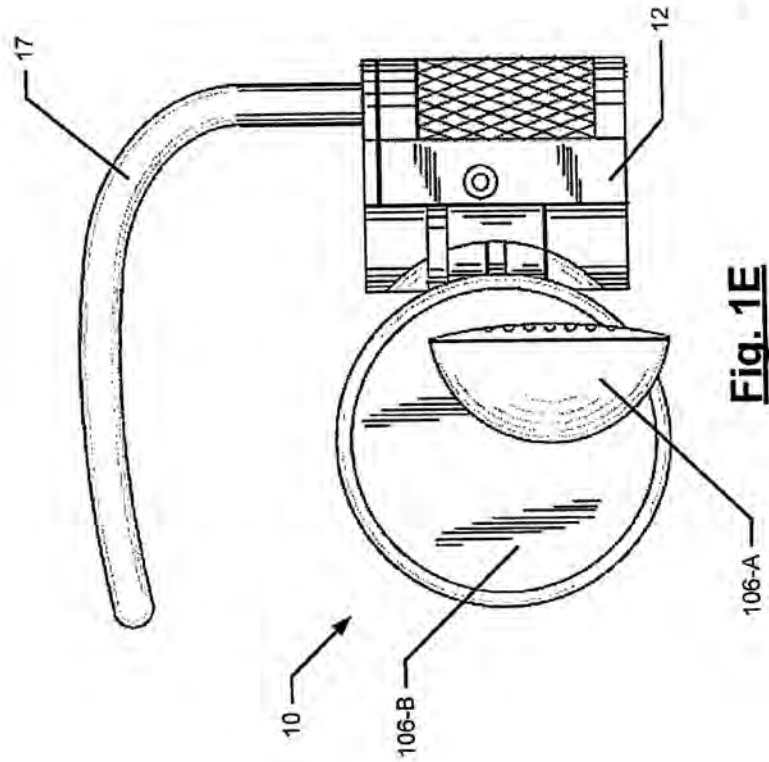
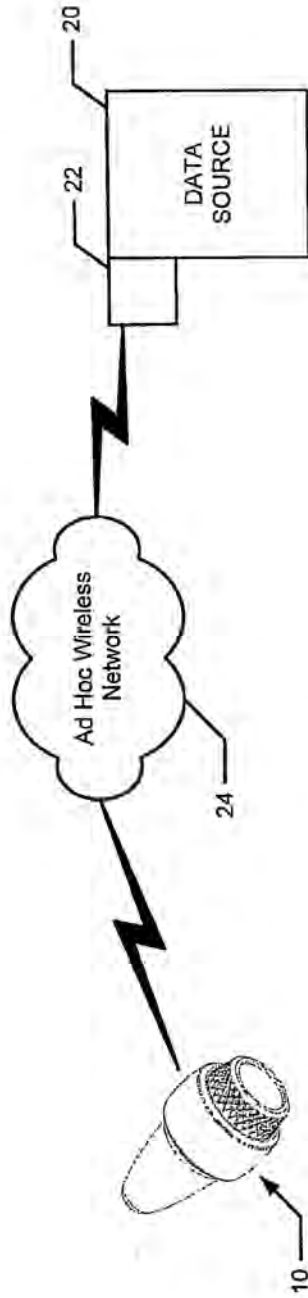


Fig. 2A



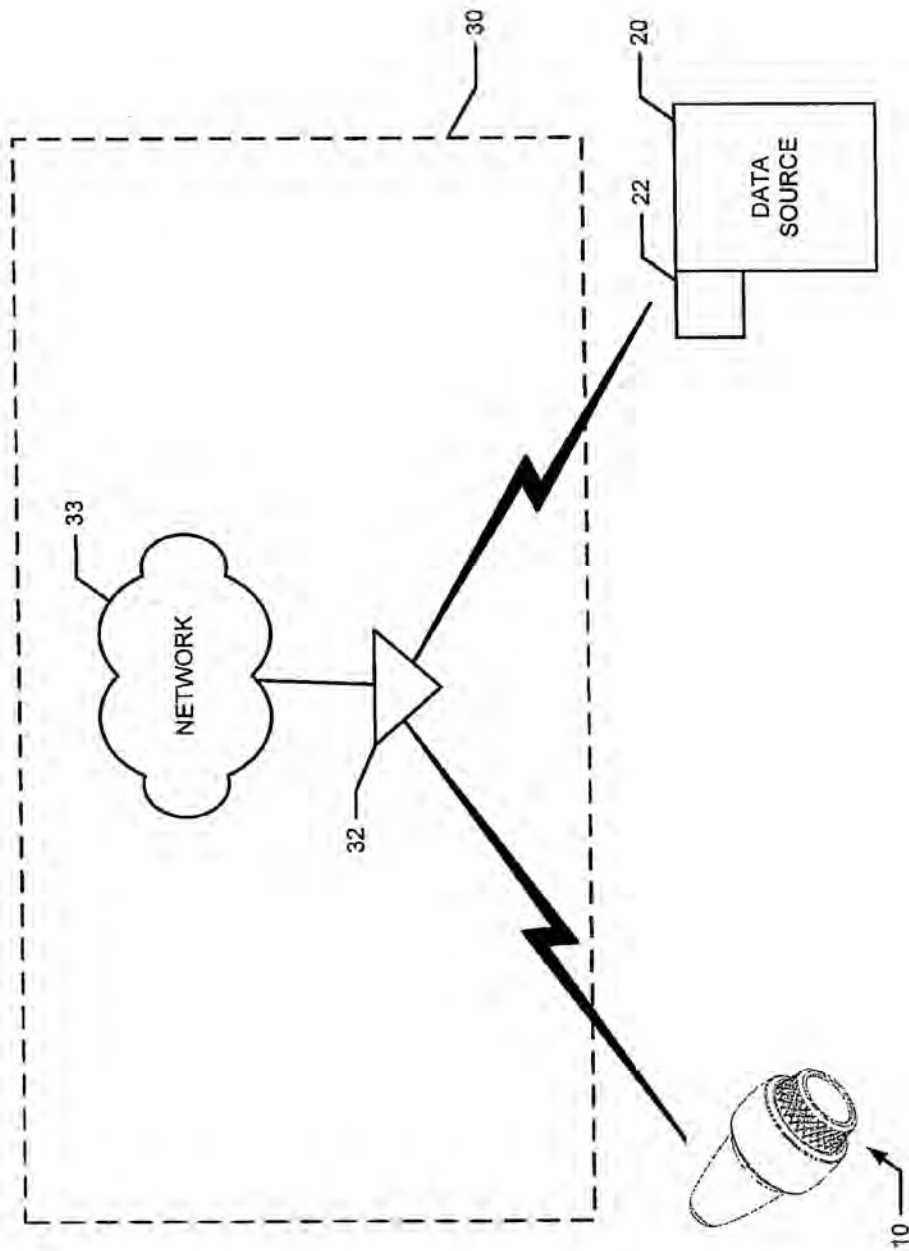


Fig. 2B

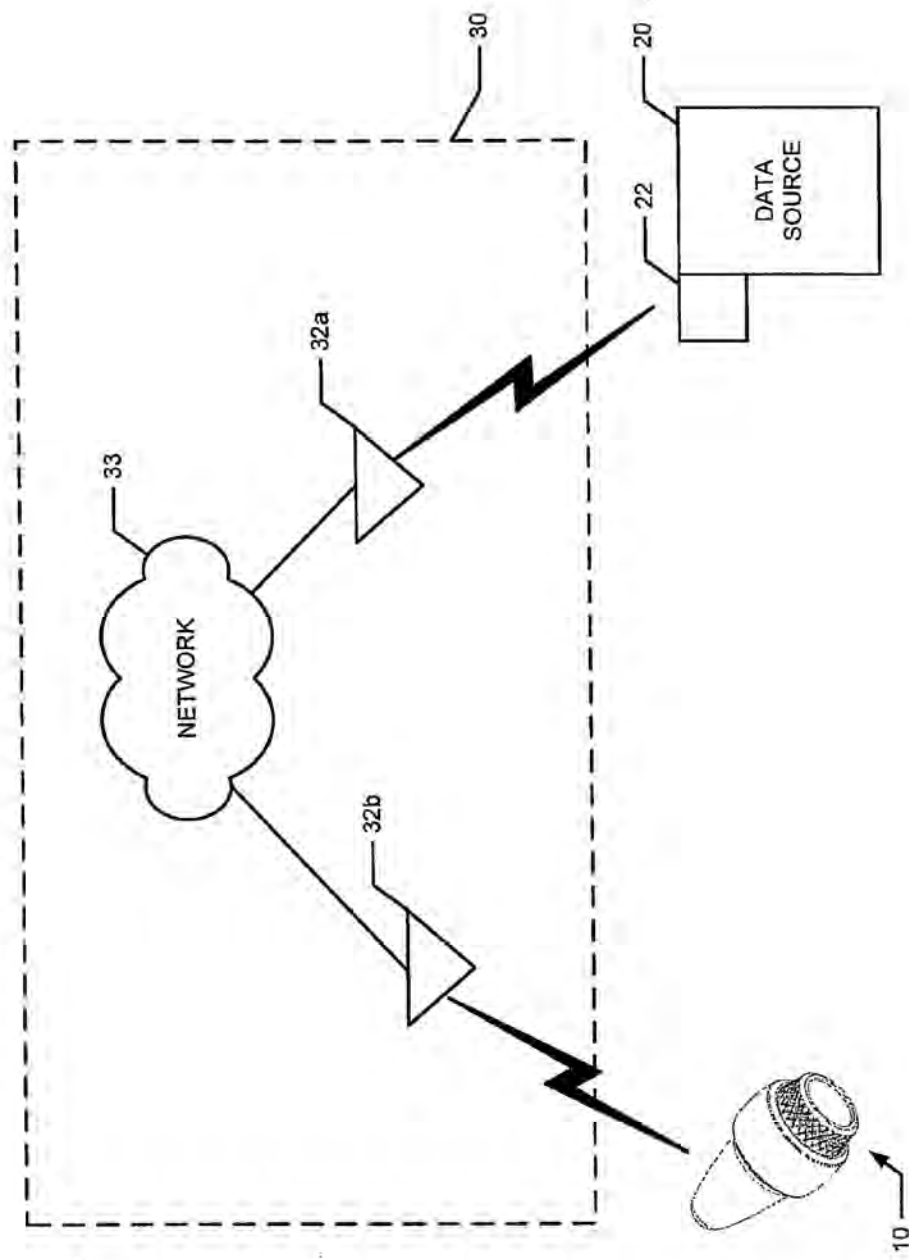


Fig. 2C

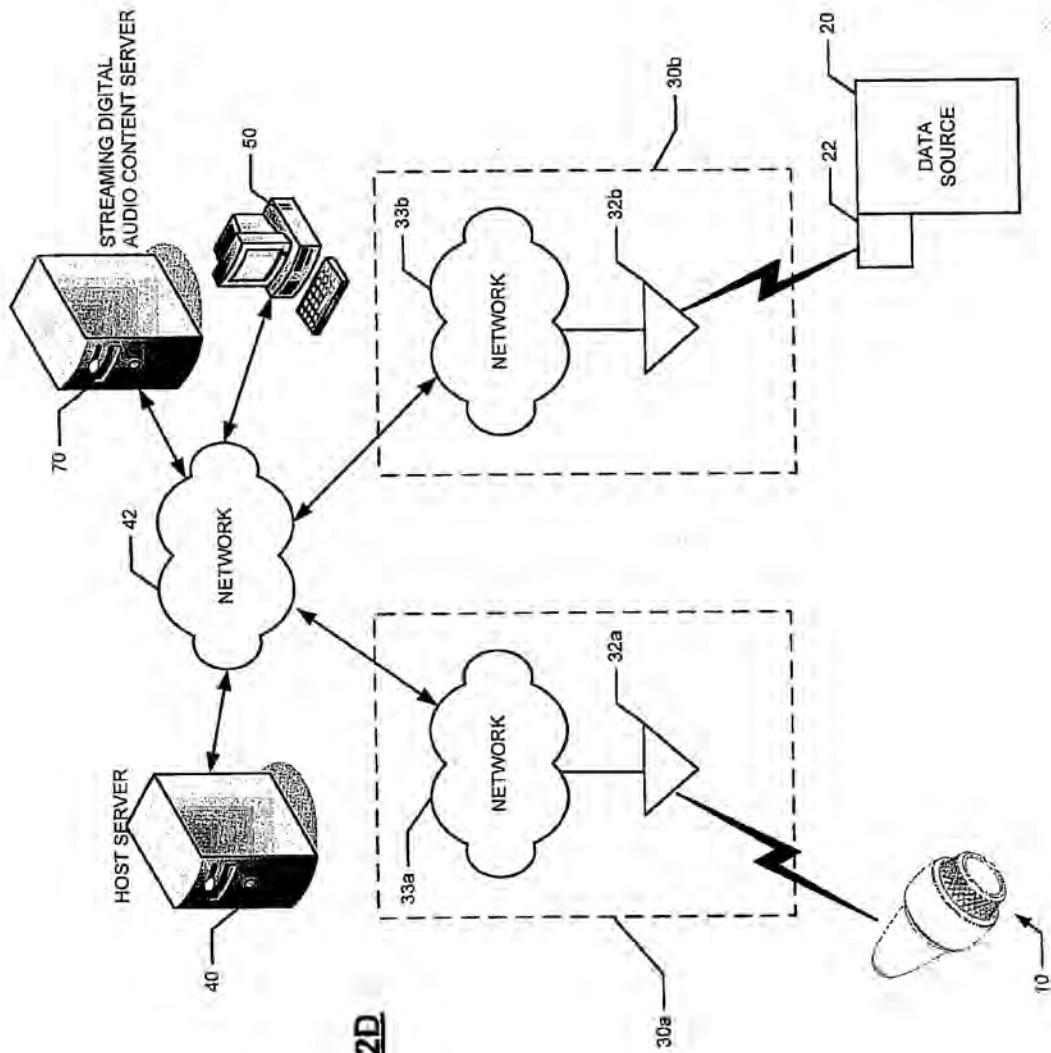


Fig. 2D

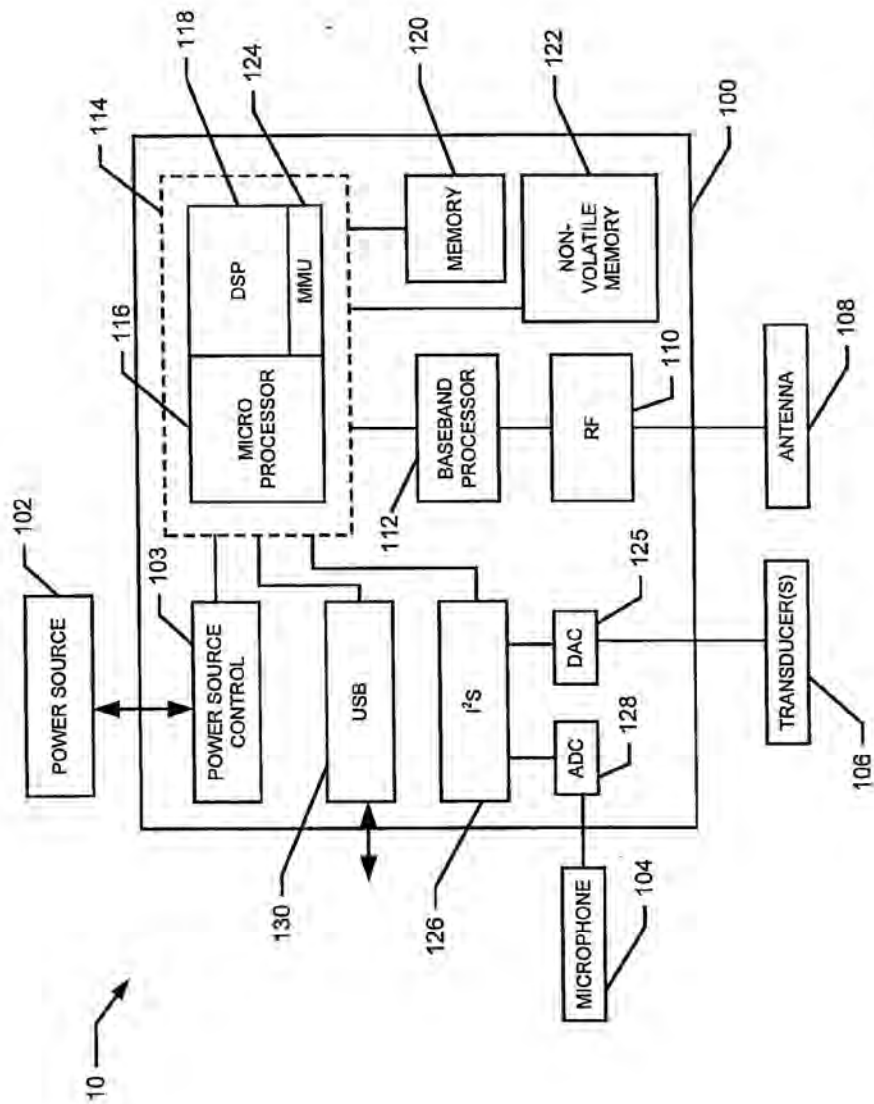


Fig. 3

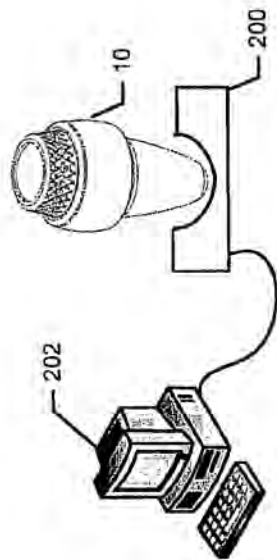


Fig. 4A

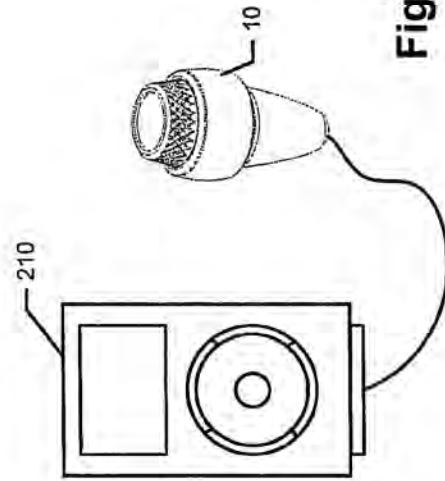


Fig. 4B

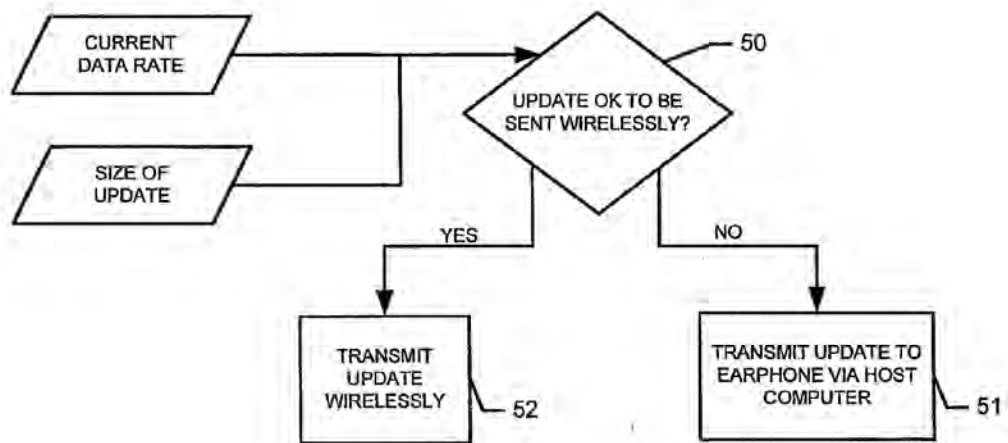


Fig. 5

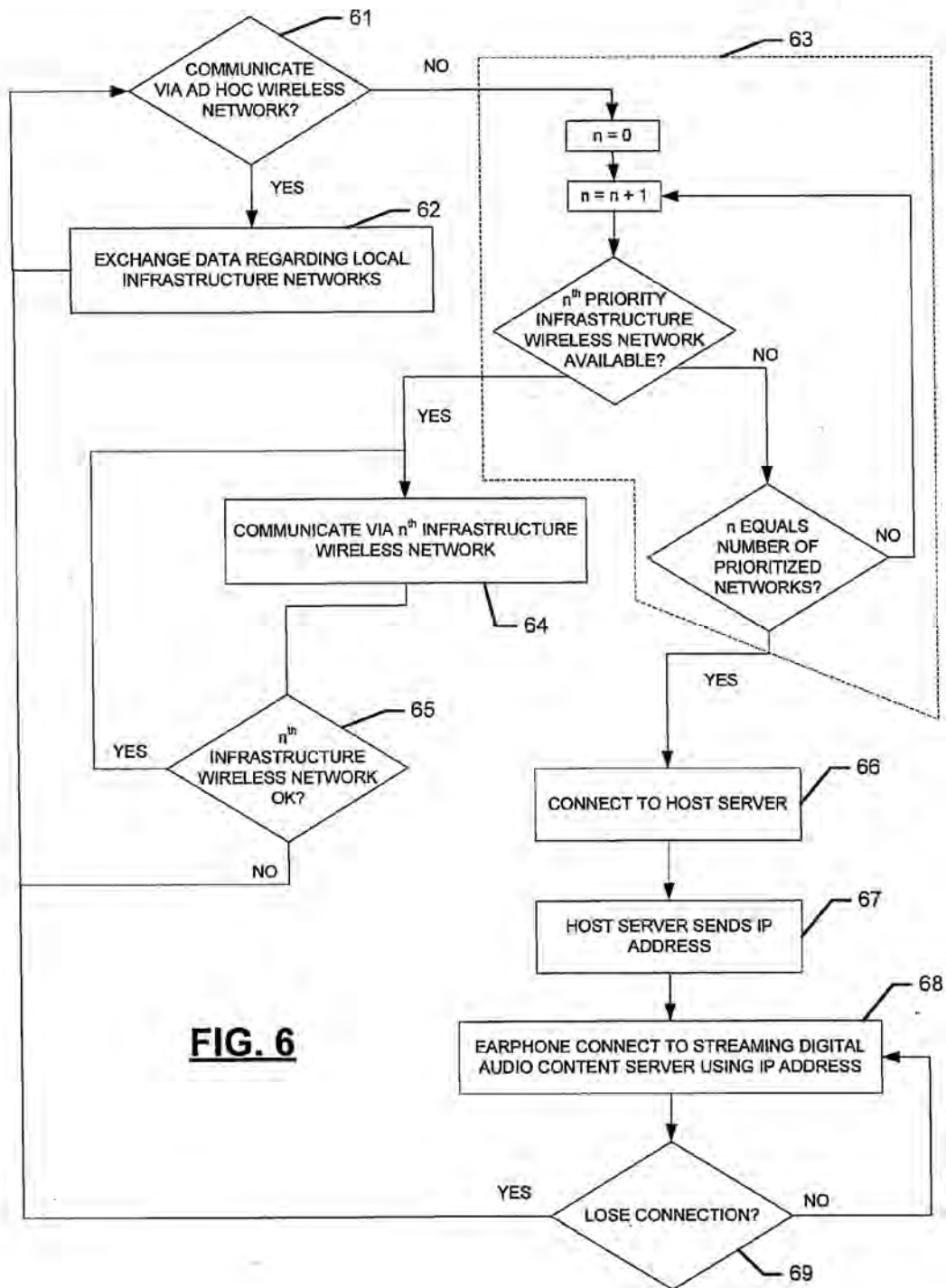


FIG. 6

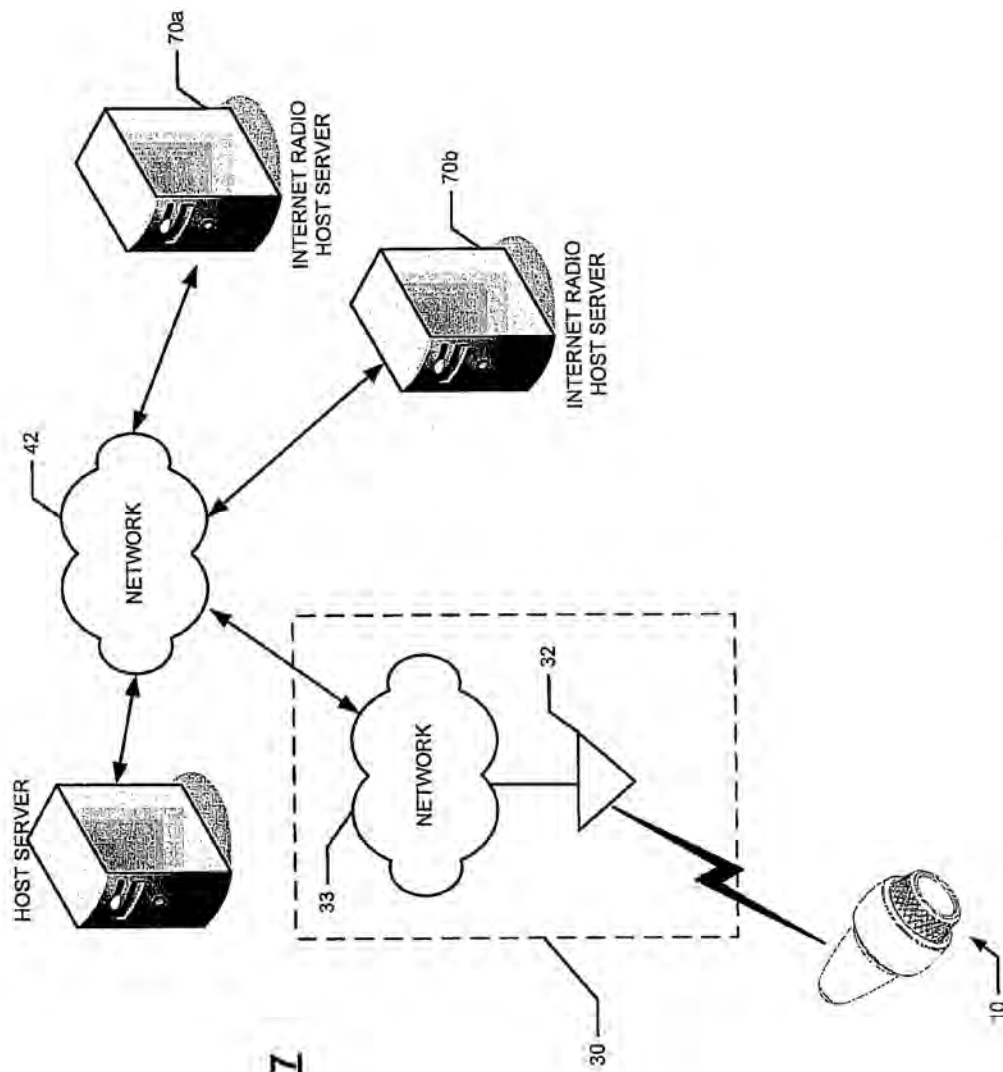


Fig. 7

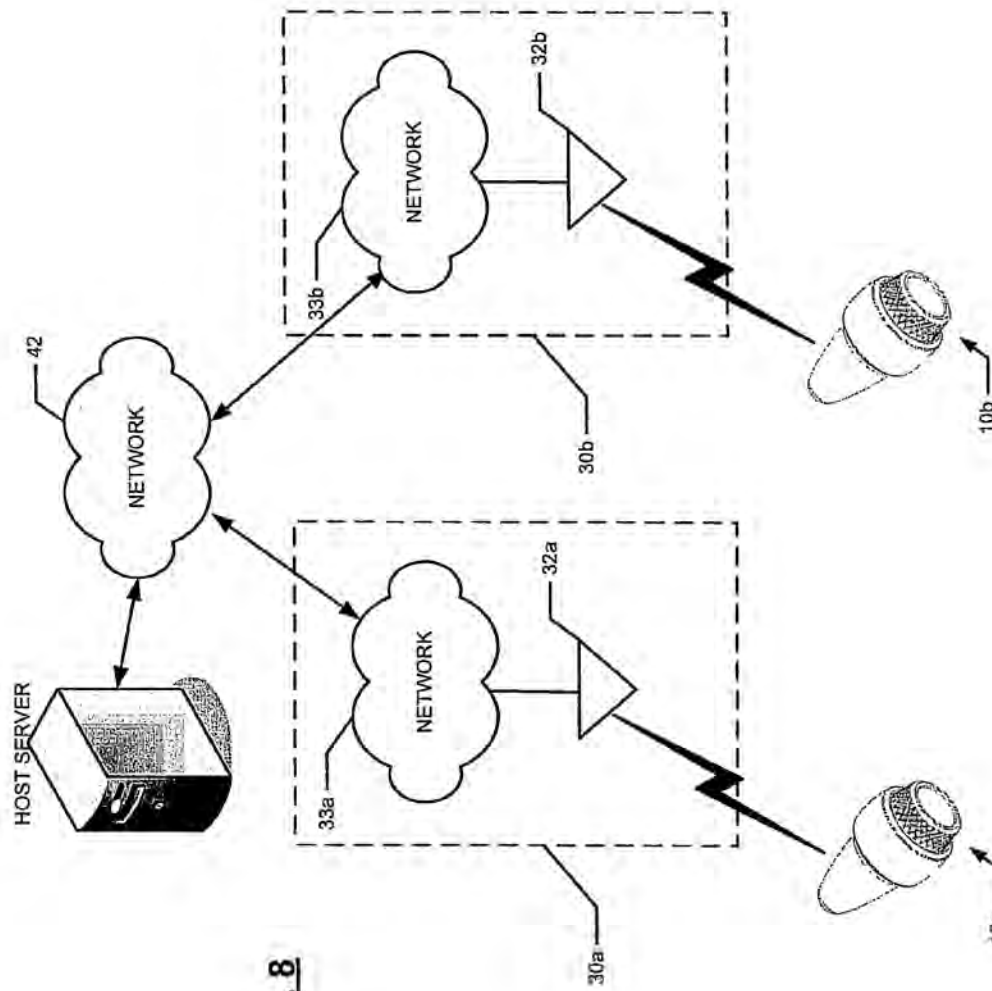


Fig. 8

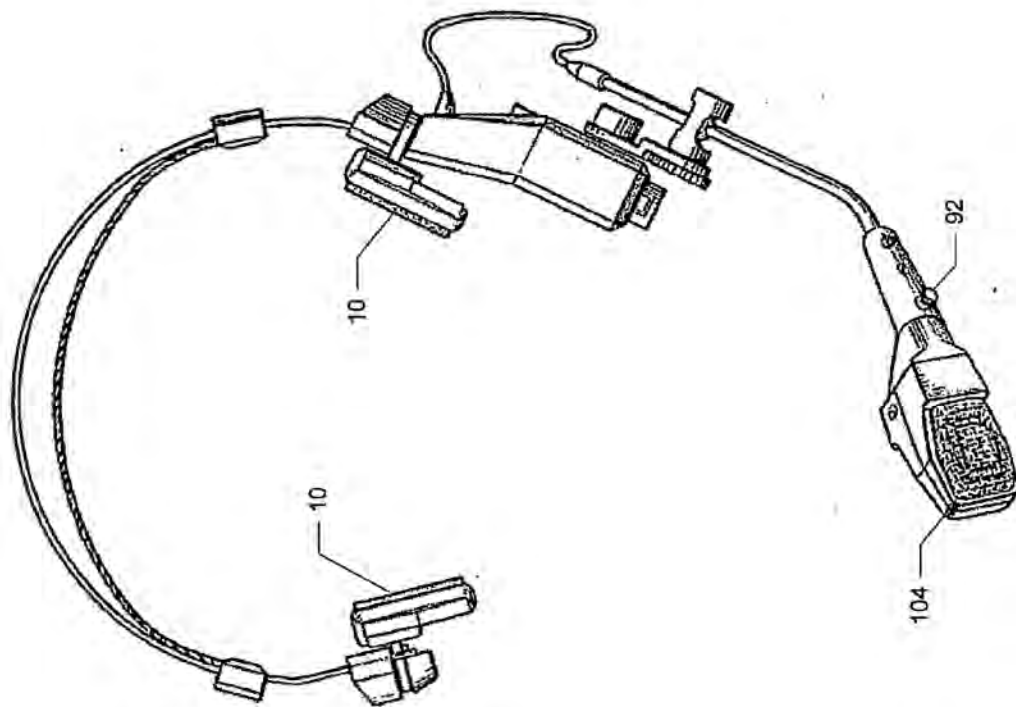
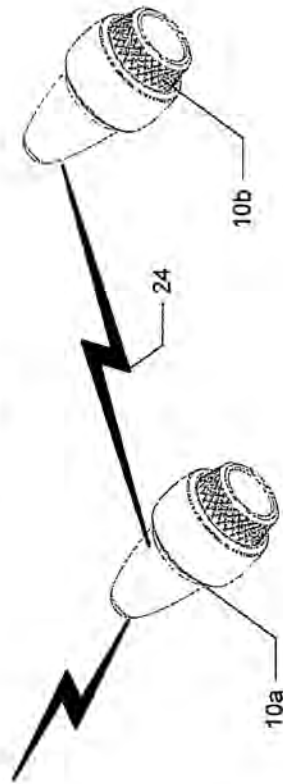


Fig. 9

Fig. 10



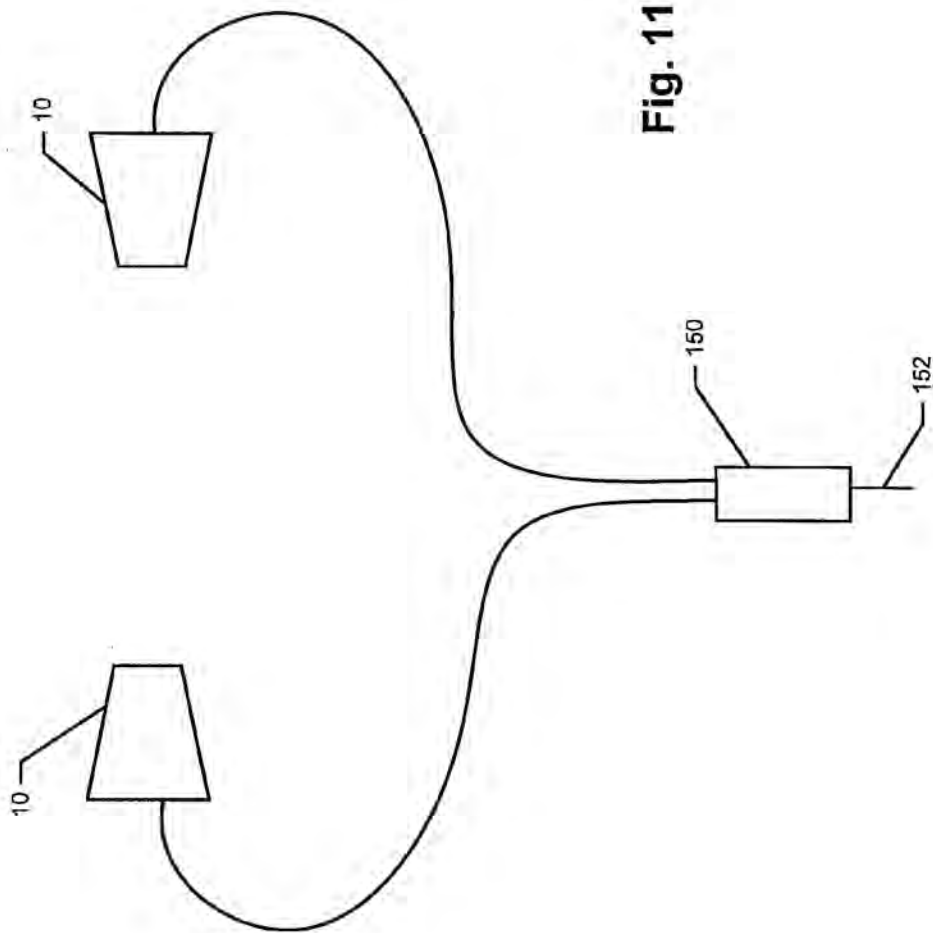


Fig. 11

INTERNATIONAL SEARCH REPORT

International application No
PCT/US 09/39754

<p>A CLASSIFICATION OF SUBJECT MATTER IPC(8) - H04R 1/02 (2009.01) USPC - 381/330 According to International Patent Classification (IPC) or to both national classification and IPC</p>													
<p>B FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) USPC 381/330 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC 381/309, 330, 340/505, 709/250 (see terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST(PGPB,USPT,USOC,EPAB,JPAB), GOOGLE SCHOLAR Search terms ad hoc wireless network, infrastructure wireless network, earphone, headset, digital audio, antenna, transceiver, server, streaming, web page</p>													
<p>C DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2007/01 16316 A 1 (Goldberg) 24 May 2007 (24 05 2007), entire document, especially, para [0095]-[01 94], [0222], [0262]-[0277], [0303]-[0328], [0350]-[0352], Fig 1, 13, 12, 29</td> <td>1 - 47</td> </tr> <tr> <td>A</td> <td>US 2008/0062939 A 1 (Horn et al) 13 March 2008 (13 03 2008), entire document</td> <td>1 - 47</td> </tr> <tr> <td>A</td> <td>US 2005/0198233 A 1 (Manchester et al) 08 September 2005 (08 09 2005), entire document</td> <td>1 - 47</td> </tr> </tbody> </table>		Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No	X	US 2007/01 16316 A 1 (Goldberg) 24 May 2007 (24 05 2007), entire document, especially, para [0095]-[01 94], [0222], [0262]-[0277], [0303]-[0328], [0350]-[0352], Fig 1, 13, 12, 29	1 - 47	A	US 2008/0062939 A 1 (Horn et al) 13 March 2008 (13 03 2008), entire document	1 - 47	A	US 2005/0198233 A 1 (Manchester et al) 08 September 2005 (08 09 2005), entire document	1 - 47
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X	US 2007/01 16316 A 1 (Goldberg) 24 May 2007 (24 05 2007), entire document, especially, para [0095]-[01 94], [0222], [0262]-[0277], [0303]-[0328], [0350]-[0352], Fig 1, 13, 12, 29	1 - 47											
A	US 2008/0062939 A 1 (Horn et al) 13 March 2008 (13 03 2008), entire document	1 - 47											
A	US 2005/0198233 A 1 (Manchester et al) 08 September 2005 (08 09 2005), entire document	1 - 47											
<p>D Further documents are listed in the continuation of Box C <input type="checkbox"/></p>													
<p>* Special categories of cited documents</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>		"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed			
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"P" document published prior to the international filing date but later than the priority date claimed													
<p>Date of the actual completion of the international search 02 June 2009 (02 06 2009)</p>	<p>Date of mailing of the international search report IUN 2009</p>												
<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201</p>	<p>Authorized officer Lee W Young PCT Helpdesk 571-272 4300 PCT OSP 571 272-7774</p>												