

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LINKPLAY TECHNOLOGY INC.,
Petitioner

v.

SONOS, INC.,
Patent Owner

IPR2025-00509
U.S. Patent No. 10,853,023

**DECLARATION OF DR. BRUCE HARTPENCE, Ph.D., IN SUPPORT OF
PETITION FOR *INTER PARTES REVIEW* OF U.S. PATENT 10,853,023**

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I, Bruce Hartpence, Ph.D. of Rochester, New York, declare that:

I. Introduction

1. My name is Bruce Hartpence, and I have been retained by counsel for Petitioner Linkplay Technology Inc. (“Linkplay” or “Petitioner”) as an expert witness to provide assistance regarding U.S. Patent No. 10,853,023 (also referred to herein as “the ’023 Patent”). Specifically, I have been asked to consider the validity of claims 1–17 of the ’023 Patent (the “Challenged Claims”) in view of prior art, anticipation, and obviousness considerations, and understanding of a person of ordinary skill in the art (“POSITA”) at the time of the invention as it relates to the ’023 Patent. I have personal knowledge of the facts and opinions set forth in this declaration and believe them to be true. If called upon to do so, I would testify competently thereto.

2. I am being compensated for my time at my standard consulting rate. I am also being reimbursed for expenses that I incur during the course of this work. My compensation is not contingent upon the results of my study, the substance of my opinions, or the outcome of any proceeding involving the challenged claims. I have no financial interest in the outcome of this matter.

3. My analysis here is based on my years of education, research, and experience, as well as my investigation and study of relevant materials, including those cited herein.

4. I may rely upon these materials, my knowledge and experience, and/or additional materials to rebut arguments raised by the Patent Owner. Further, I may also consider additional documents and information in forming any necessary opinions, including documents that may not yet have been provided to me.

5. My analysis of the materials produced in this proceeding is ongoing, and I will continue to review any new material as it is provided. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

II. Background and Qualifications

6. I summarize some of my relevant qualifications, work experience, and educational background below. A more detailed recitation of my qualifications and background is provided in my Curriculum Vitae, attached as Appendix A.

7. I earned my B.S. (1996) and M.S. (1998) degrees in Information Technology from the Rochester Institute of Technology. I then continued my formal education, earning a Ph.D. in Computing and Information Science from the Rochester Institute of Technology in 2020.

8. Following my Masters degree in 1998, I took a role as an Assistant Professor at the Rochester Institute of Technology, teaching Network Security Situation Assessment (NSSA) and Information Services & Technology. In 2007, I

was promoted to Associate Professor. I then earned a promotion to Professor in 2016, which is my current role.

9. In the decades I have spent teaching, I have taught many classes relevant to the subject matter of this case. For example, I have taught the following courses:

- Network Services
- Large Scale Networking
- Data Communication & Networks
- Internetworking
- Computer Concepts
- Introduction to Routing and Switching
- Networking for Developers
- Wireless Networking
- Network Fundamentals
- Design and Deployment of Wireless Networks
- Advanced Switching
- Computer Platform Fundamentals Lab
- Data Communications
- OS Scripting
- Wireless Concepts
- Sys Admin I
- Wireless Security
- Network Security Lab
- Advanced Switching
- Network Programming Lab
- Network Design and Performance
- Troubleshooting
- Intro to VoIP
- VoIP QoS and Security
- Wireless Networking
- Virtualization
- Voice over IP

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- Advanced Routing and Switching
 - Software Defined Networks Seminar
 - Enterprise Computing
 - Graduate Advanced Wired Networking
 - Wireless Design
 - Graduate Data Communication and Networks
 - Graduate Introduction to Programming with Data
 - Python for ML and AI

10. Over the course of the last three decades of scholarship, I have authored numerous publications relevant to the subject matter of this case. These include eleven books that I have written all of, or chapters of. They are:

- Hartpence, Bruce. Packet Guide to Routing and Switching. 1st ed. Sebastopol, CA: O'Reilly Media, 2011. Print;
- Hartpence, Bruce. Packet Guide to Core Network Protocols. 1st ed. Sebastopol, CA: O'Reilly Media, 2011. Print;
- Hartpence, Bruce. "Basic Device and Protocol Security." Network Security, Administration and Management. Ed. Dulal Kar and Mahbubur Syed. Hershey, PA: IGI Global, 2010. 1-19. Print;
- Hartpence, Bruce. The Packet Guide to Voice over IP Protocols. first ed. Sebastopol, Ca: O'Reilly, 2012. Print;
- Hartpence, Bruce. Packet Guide to Core Network Protocols. 1st ed. Sebastopol, CA: O'Reilly Media, 2011. Print;
- Hartpence, Bruce. "Internet Protocol Version 6." The Packet Guide to Core Network Protocols. Sebastopol, Ca: O'Reilly, 2012. 30. Print;
- Hartpence, Bruce. The Packet Guide to Voice over IP Protocols. first ed. Sebastopol, Ca: O'Reilly, 2012. Print;
- Hartpence, Bruce. "Transmission Control Protocol." The Packet Guide to Core Network Protocols. Sebastopol, Ca: O'Reilly, 2014. 200-230. Print;
- Hartpence, Bruce. "User Datagram Protocol." The Packet Guide to Core Network Protocols. Sebastopol, Ca: O'Reilly, 2014. 230-255. Print;
- Hartpence, Bruce. "Network Address Translation." The Packet Guide to Routing and Switching. Sebastopol, California: O'Reilly, 2016. 30.

Print; and

- Hartpence, Bruce. "Multicast." The Packet Guide to Routing and Switching. Sebastopol, California: O'Reilly, 2016. 35. Print.

11. These publications further include the following relevant scholarly articles. They are:

- Hartpence, Bruce, and Andres Kwasinski. CNN and MLP Neural Network Ensembles for Packet Classification and Adversary Defense. 2021 Intelligent and Converged Networks, IEEE, 2021.
- Hartpence, Bruce. Neural Network Architectures and Ensembles for Packet Classification: Addressing Visibility, Security and Quality of Service Challenges in Communication Networks. Rochester Institute of Technology, 2020.
- Hartpence, Bruce, and Andres Kwasinski. A Convolutional Neural Network Approach to Improving Network Visibility. 2020 29th Wireless and Optical Communications Conference (WOCC). IEEE, 2020.
- Hartpence, Bruce, Andres Kwasinski, "Combating TCP Port Scan Attacks Using Sequential Neural Networks", IEEE ICNC, 2020;
- Hartpence, Bruce, Kwasinski, A., "Fast Internet Packet and Flow Classification Based on Artificial Neural Networks", IEEE Southeastcon, 2019;
- Hartpence, Bruce, and Rossi Rosario. "Software Defined Networking for Systems and Network Administration Programs." The USENIX Journal of Education in System Administration (2016): 12;
- Hartpence, Bruce, "Performance Evaluation of Networks with Physical and Virtual Links", IEEE Global Information Infrastructure and Networking Symposium (GIIS), 2015;
- Hartpence, Bruce, Curricular and Performance Measurement Challenges in Cloud Environments, SIGITE 2014;
- Sharma et al., Performance of Meshed Tree Protocols for Loop Avoidance in Switched Networks, ICNS 2014;
- Sharma, K, et al, "Meshed Tree Protocol for Faster Convergence in Switched Networks", IARIA, 2014;
- Ghosh A., Hartpence B., Johnson D., Shenoy N., "A practical study of the problems of current Internet Routing Tables", SAM, 2013;

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- Hartpence B, et al, “Global Crossing Whitepaper: Strengthening BGP and User Data Security Using Flow Analysis”, 2010;
 - Hartpence, B., Troell, L., Simmons, S., “Study of the Performance of Safenet Ethernet Encryptors and a Comparison to IPSec Encryption Data”, Safenet and RIT whitepaper 2006;
 - Bischof, H.P., Hartpence, B., Hui, F., Shenoy, N., “LAC Technical Report: A Robust Framework for Secure Connectivity and Roaming Over Serverless, Wireless Networks”, 2003; and
 - A Networking and System Administration Laboratory Infrastructure To Support High Traffic Environments, CITC3, Leone, Weber, Hartpence, 2002.

12. In addition to organizing VoIP conferences at RIT from 2005-2007, my work has been highlighted at the following conferences:

- Wireless and Optical Communications Conference (WOCC), 2020;
- International Conference on Computing, Networking and Communication (ICNC), 2020;
- IEEE Big Data, 2019;
- IEEE Southeastcon, 2019;
- IEEE Global Information Infrastructure and Networking Symposium (GIIS), 2015;
- Global Environment for Network Innovation, 2014, 2015;
- Education and Information Systems, Technologies and Applications (EISTA), 2011, 2013;
- Security and Management Conference, 2010, 2013;
- Consortium for Computing Sciences in Colleges — Northeastern Region, 2007;
- Special Interest Group for Information Technology Education (SIGITE) Conference, 2005, 2007, 2009, 2014; and
- Computer Information Technology Conference (CITC3) Conference, 2002.

13. In addition to my scholarly publications, I have also produced over 400 videos on my YouTube channel teaching material relevant to the subject matter of

this case. These videos have totaled over half a million views. Some specific examples of relevant videos include:

- iperf Testing - How does it work with TCP and UDP?
- RFC 768 User Datagram Protocol
- The Packet Guide to VoIP Chapter 4 – RTP and RTCP
- Transmission Control Protocol (TCP) part 1
- Packet Guide to Voice over IP: Intro to VoIP Chapter 1 part 1
- RFC 791 Internet Protocol
- Packet Guide to VoIP Chapter 3 part 1 - Session Initiation Protocol (SIP)
- Packet Guide to VoIP Chapter 2 part 1 - Traditional Telephony
- SIP and H.323 VoIP Signaling Overview
- Domain Name System (DNS)

14. Prior to my time in this field, I served in the U.S. Navy for 6 years aboard the U.S.S. Enterprise (CVN-65). Following this experience, I then worked as an electrical technician for Mobil Chemical in Macedon, New York for four years.

III. Level of Ordinary Skill in the Art

15. In rendering the opinions set forth in this declaration, I was asked to consider the patent claims and the prior art through the eyes of a person of ordinary skill in the art (POSITA) at the time of the alleged invention, which I understand is asserted to be no earlier than April 18, 2011—the earliest possible priority date of the '023 Patent. I understand that the factors considered in determining the ordinary level of skill in a field of art include the level of education and experience of persons working in the field, the types of problems encountered in the field, the teachings of the prior art, and the sophistication of the technology at the time of the alleged

invention. I understand that a POSITA is not a specific real individual, but rather is a hypothetical individual having the qualities reflected by the factors above. I understand that a POSITA would also have knowledge from the teachings of the prior art, including the art cited below.

16. Taking these factors into consideration, on or before the invention date of the '023 Patent, a POSITA of the '023 Patent would have had a Bachelor's degree in electrical engineering, computer engineering, computer science, information technology, or a related field, along with at least two years of experience in the design or development of connected consumer electronics, networked engineering, or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

17. Before the invention date, my level of skill in the art was at least that of a POSITA. I also had extensive experience working with people having the level of skill of a POSITA at the time of the invention. I am qualified to provide opinions concerning what a POSITA would have known and understood at that time, and my analysis and conclusions herein are from the perspective of a POSITA as of the invention date.

IV. Materials Considered and Relied Upon

18. In reaching the conclusions described in this declaration, I have relied

on the documents and materials cited herein as well as those identified in this Declaration, including but not limited to, the '023 Patent, the prosecution history of the '023 Patent, and prior art references cited herein. These materials include patents, related documents, and printed publications. Each of these materials is a type of document that experts in my field would have reasonably relied upon when forming their opinions.

19. In the cited references, all emphasis is added unless otherwise noted.

20. I have also relied on my education, training, research, knowledge, and personal and professional experience in the relevant technologies and systems that were already in use prior to, and within the timeframe of the assumed priority date of the claimed subject matter in the '023 Patent, which is April 18, 2011.

- EX1001: U.S. Patent No. 10,853,023 (“the '023 Patent”)
- EX1002: Prosecution History of the '023 Patent
- EX1004: U.S. Patent App. Pub. No. US2004/0157555 (“Richenstein”)
- EX1005: U.S. Patent App. Pub. No. 2010/0325323 (“Barbe”)
- EX1006: Claim Construction Decision from *Sonos, Inc. v. D&M Holdings*.
- EX1007: U.S. Patent No. 8,938,312
- EX1008: iPhone Press Release (2007)
- EX1009: iPod Touch Press Release (2007)
- EX1017: Functional Requirements 6.8, IEEE Project 802 (1997)
- EX1018: Universal Serial Bus Specification 2.0 (2000) (Excerpted)

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- EX1019: MOST Specification Revision 2.0 (1999) (Excerpted)
 - EX1020: Bluetooth Core Specification 1.2 (Excerpted)
 - EX1021: Looking back at the ARPANET Effort (2003)
 - EX1022: The “Only” Coke Machine on the Internet
 - EX1023: Aspects of Data Acquisition System Design (1999)

V. Legal Standards

21. I am not a lawyer and do not provide any legal opinions, but I have been advised that certain legal standards are to be applied by technical experts in forming opinions regarding the meaning and validity of patent claims. I have applied the legal standards described below, which were provided to me by counsel for the Petitioner.

22. It is my understanding that assessing the validity of a U.S. patent based on a prior art analysis requires two steps. First, one must construe the terms of the patent claims to understand what meaning a POSITA would have given the terms. Second, after the claim terms have been construed, one may then assess validity by comparing a patent claim to the prior art. I understand that the teaching of the prior art is viewed through the eyes of a POSITA at the time the invention was made. My analysis as to what constitutes a POSITA is set forth above.

A. Legal Standard for Priority Date

23. I understand that the “priority date” or “effective filing date” of a patent is the date on which it is filed, or the date on which an earlier-filed U.S. or

international patent application was filed if the patentee claims the benefit of priority to that earlier-filed U.S. or international patent application.

24. The '023 Patent has a U.S. filing date of October 22, 2018, and claims to be a continuation of Application No. 15/583,553, filed on May 1, 2017, which claims to be a continuation of Application No. 14/628,999, filed on Feb. 23, 2015, now Pat. No. 9,686,606, which claims to be a continuation of Application No. 14/561,421, filed on Dec. 5, 2014, now Pat. No. 9,681,223, which claims to be a continuation of application no. 13/089,167, filed on Apr. 18, 2011, now Pat. No. 8,938,312. I further understand that Patent Owner has asserted that the invention date of the '023 patent was at least by April 18, 2011. I have not been asked to opine on the '023 Patent's entitlement to any date earlier than April 18, 2011, which I can readily do if asked later. For my analysis in this declaration, I have used the claimed invention date of April 18, 2011.

B. Legal Standard for Anticipation

25. I have been informed that a patent claim may be “anticipated” if each element of that claim is present either explicitly or inherently in a single prior art reference, and that the elements should be arranged in the reference as in the claim. I understand that for a claimed limitation to be inherently present, the prior art need not expressly disclose the limitation, so long as the claimed limitation necessarily flows from the disclosure of the prior art. I understand there is no requirement that a

person of ordinary skill in the art would have recognized the inherent disclosure at the relevant time, but only that the subject matter is in fact inherent in the prior art reference. I also understand that in order for a prior art reference to anticipate a claim of a patent, the reference must enable one of ordinary skill in the art at the time of the filing to practice the claim without undue experimentation.

C. Legal Standard for Obviousness

26. I have been informed that a patent claim can be considered to have been obvious to a person of ordinary skill in the art at the time the application was filed. This means that, even if all of the requirements of a claim are not found in a single prior art reference, the claim is not patentable if the differences between the subject matter in the prior art and the subject matter in the claim would have been obvious to a person of ordinary skill in the art at the time the application was filed.

27. I have been informed that a determination of whether a claim would have been obvious should be based upon several factors, including, among others:

- the scope and content of the prior art;
- what differences, if any, existed between the claimed invention and the prior art; and
- the level of ordinary skill in the art at the time.

28. I have been informed that a single reference can render a patent claim obvious if any differences between that reference and the claims would have been

obvious to a person of ordinary skill in the art. Alternatively, the teachings of two or more references may be combined in the same way as disclosed in the claims, if such a combination would have been obvious to one having ordinary skill in the art. In determining whether a combination based on either a single reference or multiple references would have been obvious, it is appropriate to consider, among other factors:

- whether the teachings of the prior art references disclose known concepts combined in familiar ways, and when combined, would yield predictable results;
- whether a person of ordinary skill in the art could implement a predictable variation, and would see the benefit of doing so;
- whether the claimed elements represent one of a limited number of known design choices, and would have a reasonable expectation of success by those skilled in the art;
- whether a person of ordinary skill would have recognized a reason to combine known elements in the manner described in the claim;
- whether there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent; and
- whether the innovation applies a known technique that had been used to improve a similar device or method in a similar way.

29. I understand that one of ordinary skill in the art has ordinary creativity and is not an automaton. I also understand that in considering obviousness, it is important not to determine obviousness using the benefit of hindsight derived from the patent being considered.

30. I understand that various objective or “real world” factors may be indicative of non-obviousness. I understand that such factors are known as “secondary considerations” and they may include:

- the commercial success of the claimed invention;
- the existence of a long-felt, unresolved need for a solution to the problem solved by the claimed invention;
- failed attempts to solve the problem solved by the claimed invention;
- copying of the claimed invention;
- unexpected results of the claimed invention;
- praise for the claimed invention by others in the relevant field; and
- willingness of others to accept a license under the patent because of the merits of the claimed invention.

31. I understand that, for a secondary consideration to be relevant to the inquiry of obviousness, the evidence must demonstrate a nexus between that secondary consideration and the claimed invention. I understand that the nexus must

be to some aspect of the claim not already in the prior art, and if the secondary consideration is actually directed to what was not known in the prior art, including patents and publications, there is no nexus.

VI. Technology Background

A. Introduction to Computer Networking

32. In order for two or more electronic devices to communicate with each other, share resources or data, or interact in any way there must be a connection between them. Any time that two or more electronic devices are connected for these purposes, it creates a computer network, i.e., a set of connections with a shared medium, interface, and communication format. There are countless different ways to build a network depending on its specific purpose, including different device components, different connection types or communication paths, and different network architectures or “topologies.” Each design choice made in building the network will come with different pros and cons, and accounting for these in the design is a critical role for one skilled in the art.

B. Networks

33. Networks are commonly described as either Wide Area Networks (“WANs”) or Local Area Networks (“LANs”) depending on their geographic coverage. While a WAN may extend to different parts of a single country or even

the world, a LAN is isolated to a specific building or campus.¹

34. By at least the early 2000's, both LANs and WANs could be built using wired or wireless connections to transmit electrical, optical, or radio signals. For example, by the early 2000's there were multiple options for wired or "twisted pair" standards including IEEE 802.3 (known as "Ethernet"), Universal Serial Bus ("USB"),² and Media-Oriented Systems Transport ("MOST").³ Similarly, by the early 2000's IEEE had provided 802.11, which standardized both radio frequency (RF) and infra-red (IR) transmissions as Wireless Local Area Networking ("WLAN"). RF transmissions for Personal Area Networks were also present in the form of "Bluetooth".⁴

C. Network Devices

35. Any device that can connect to another device can be a part of a network. Computers, phones, and satellites were among the first computer network devices, going as far back as the 1960's with ARPANET.⁵ Even as early as the 1980's,

¹ EX1017, 2.

² EX1018.

³ EX1019.

⁴ EX1020.

⁵ EX1021.

Carnegie Melon's CS department had added networking capabilities to a refrigerator so the department could remotely check whether there was cold Coca Cola available.⁶ And as of the 2000's, that list had expanded to include a wide array of devices including, for example, MP3 players.⁷

D. Media Networking

36. Throughout the 1990's, networking was leveraged to create more flexible and powerful media playback systems including home theatres and sound systems. How each network was designed varied based on the needs of the media and the networking capabilities. Some of the distinguishing features for a media network include whether it is analog or digital and how the media is shared between devices.

E. Digital/Analog Convertors

37. In media transmissions, analog signals are often digitally encoded into individual bits grouped together in samples. For many of the systems and networks, this means including a way to convert between digital and analog formats, i.e., Digital-to-analog Convertors or "DACs," and Analog-to-digital Converts or

⁶ EX1022.

⁷ EX1009.

“ADCs.”⁸ ADCs are tasked with taking the continuous analog waveform, and breaking it down into discrete blocks or “samples,” where each sample accounts for a specific period of time. The number of samples taken per second of content is its “Sampling Rate” measured in kHz.⁹ The converted digital content can then be stored, e.g., burnt to a cd or DVD, saved as a file, etc., or transferred over a network as a digital signal. For playback, the DAC reverses the conversion, producing the analog signal based on the sampling rate from the stored or received data.

VII. Overview of the '023 Patent

A. Subject Matter Overview

38. The '023 Patent (EX1001) is “directed towards technology for use in the area of consumer electronics” and, in particular, to “smart line-in processing” features for use “in an audio environment.” '023 Patent, 1:26-30.

39. With respect to Figures 11, the '023 Patent discloses a “[s]ystem 1100” which “includes a playback device 1102, a first source 1104, a second source 1107 having a line-in connector 1108, and an audio device 1110.” '023 Patent, 23:28-32.

⁸ EX1023, 1.

⁹ EX1023, 1.

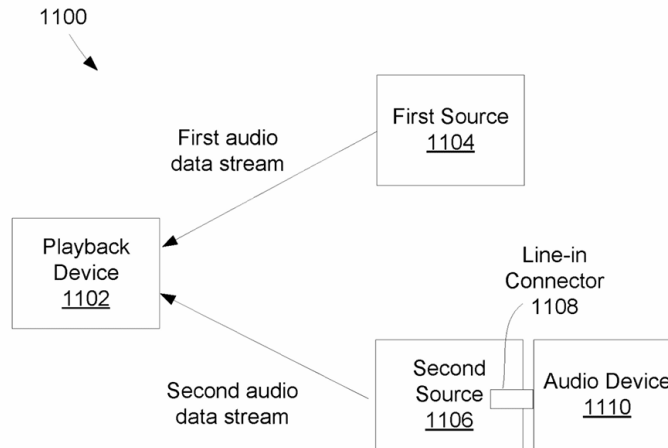


FIG. 11

'023 Patent, Fig. 11.

40. The '023 Patent describes a scenario where “[t]he second source 1106 is configured, such that when a signal is detected on the line-in connector 1108, the second source 1106 automatically switches the playback device 1102 to play audio from the audio device 1110 via the second audio data stream.” ’023 Patent, 23:63-67. This automatic source-switching may be done in response to “the second source 1106 detect[ing] a signal on the line-in connector 1108 for a threshold time (e.g., 300 milliseconds or less).” ’023 Patent, 24:2-4. This automatic source switching “may override the playing of the first audio data stream.”

B. File History of the '023 Patent

41. I understand that when the application that lead to the '023 Patent was filed, the applicant/Patent Owner did not submit any claims. EX1002, 1210-1292.

Instead, the applicant added claims afterwards, pointing specifically to Fig. 11 of the application, as well as paragraphs 133 to 136. EX1002, 1192-1199. This corresponds to Fig. 11 and column 23, line 25 to column 24, line 41 of the '023 Patent. *Compare* EX1002, 1286-1292 *with* '023 Patent, 23:25-24:41.

42. In the first Office Action on the merits, the Examiner rejected the pending claims under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication 2004/0239816, U.S. Patent 7,571,014, and U.S. Patent Publication No. 2006/0029005. *See* EX1002, 308. The Examiner also rejected claims 1, 9, and 16 under 35 U.S.C. § 101 as claiming the same invention (double-patenting) as that of claim 1 of prior U.S. Patent No. 8,938,312. *See* EX1002, 305.

43. In response, Applicant argued that the prior art did not disclose “in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.” *See* EX1002, 160-162. Applicant also requested the double-patenting rejection be held in abeyance until the claims were deemed patentable. *See* EX1002, 160.

44. The Examiner subsequently initiated an interview, resulting in the applicant submitting a terminal disclaimer relative to U.S. Patent No. 8,938,312. *See* EX1002, 123, 131. In another interview with the Examiner, the Applicant and the

Examiner reached an agreement, *see* EX1002, 20, resulting in a Notice of Allowance which included an Examiner's amendment which added the phrase "via a line-in connector" to all independent claims. *See* EX1002, 14-17. The Notice of Allowance concluded that "the prior art does not teach or suggest the instant networked audio player(s) comprising a dedicated line in connector ...". EX1002, 18.

VIII. Claim Construction

45. I understand that in this proceeding, the claims should be construed in accordance with their ordinary and customary meaning in light of the specification, as understood by one of ordinary skill in the art. I have therefore applied those plain and ordinary meanings in my analysis.

46. I understand that in a previous case, the District Court for Delaware construed several terms of U.S. Patent No. 8,938,312 (EX1007), which is related to the '023 Patent. *See generally* EX1006. I have considered these claim constructions in my analysis below and the application of these claim constructions would not change my ultimate conclusions. For reference, I have summarized these constructions below:

<u>Terms</u>	<u>Previous Construction</u>
playback device	data network device configured to process and output audio
network interface	physical component of a device that provides an interconnection with a data network
audio signal ¹⁰	Plain and ordinary meaning/no construction necessary
line-in connector	Plain and ordinary meaning/no construction necessary

IX. Overview of the Cited References

47. General descriptions provided for the following references and combinations thereof are incorporated into each subsection and mapping of the claims that include citations to these references.

A. Barbe (EX1005)

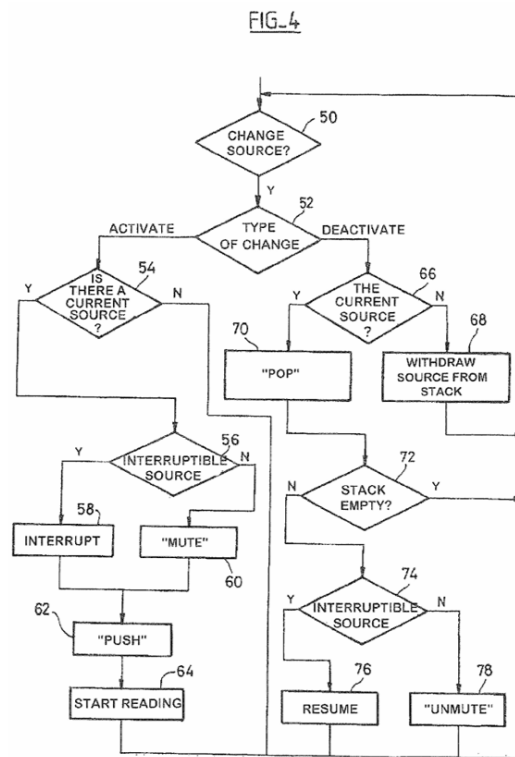
48. Barbe (EX1005) discloses “a method and a device for automatically managing and selecting digital and/or analog sources available at the input of an audio or an audio/video system.” Barbe, [0001]. Specifically, Barbe provides that “[m]odern multimedia systems may be connected to a very large number of external signal sources” and sets out to provide a method of “managing conflict between a plurality of concurrent sources that are active simultaneously.” Barbe, [0002], [0005].

49. Barbe’s solution is to “propose an automatic switching technique that is ‘intelligent’ for selecting from amongst various sources that are simultaneously

¹⁰ The ’023 Patent uses the phrase “media content” instead.

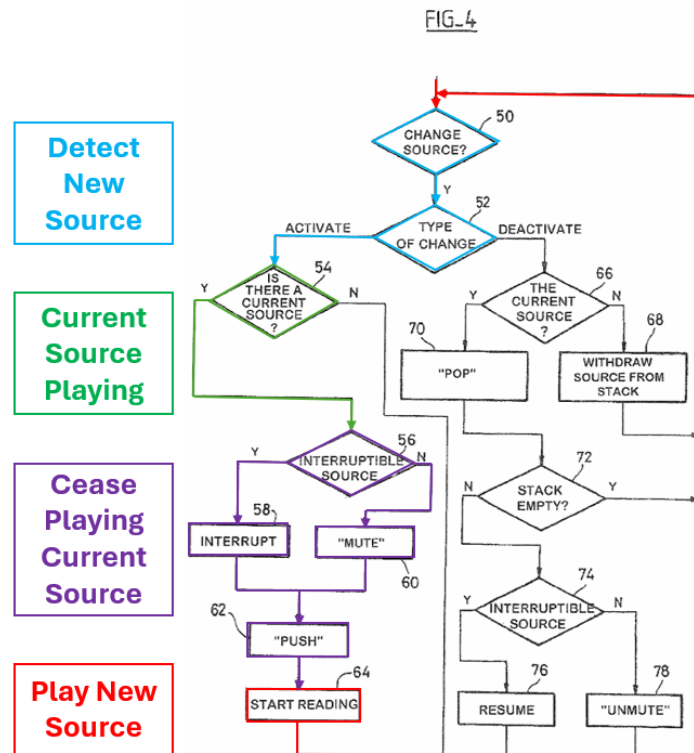
active ... with this taking place without any explicit instruction from the user, and without making use of some frozen priority that is a function of a hierarchy specific to the various sources.” Barbe, [0014]. Barbe accomplishes this by simply giving the highest priority to “any source that is beginning to send data ..., with this implicitly being representative of an intention of the user who has switched on an appliance.” Barbe, [0018]. Barbe’s method will then interrupt or mute the other active sources, and begin playing audio from the newly activated source. Barbe, [0018].

50. The method of this automatic switching is summarized in Figure 4 of Barbe, which is “a general flow chart explaining how the method of the invention is implemented.” Barbe, [0029].



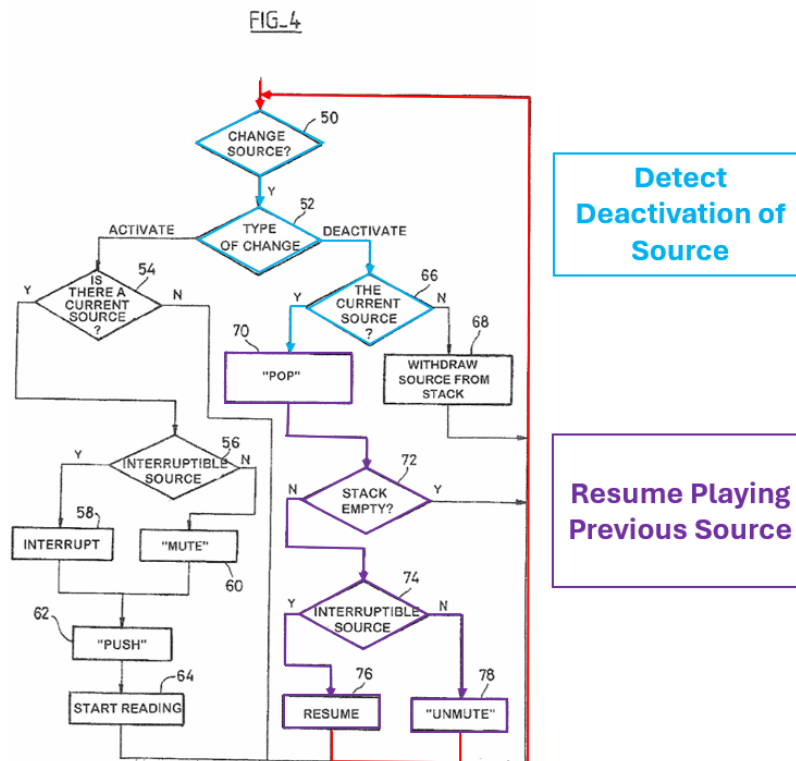
Barbe, Fig. 4.

51. One particularly relevant scenario is the situation where an initial source is currently being played (*e.g.*, a Bluetooth device) (annotated in green below). Then a new source is activated (annotated in blue). This will cause the initial source to be either interrupted (*i.e.*, paused), or, if the source is uninterruptible (*i.e.*, it is a livestream or radio broadcast), muted (annotated in purple). This source will be pushed into a last-in-first-out (LIFO) queue, which remembers active sources so that the system can resume playback or unmute at a later time. The new source will then begin playing (annotated in red).



Barbe, Fig. 4 (annotated).

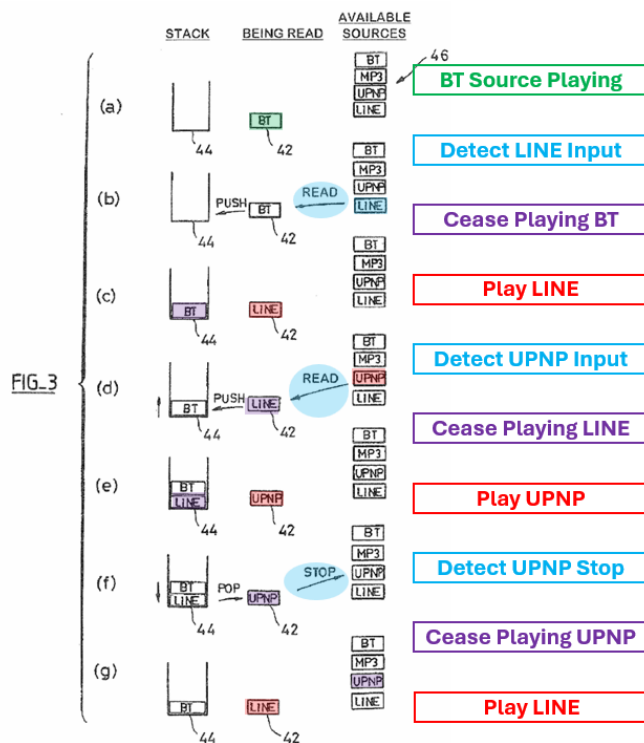
52. Similarly, if the currently playing source is deactivated (annotated in blue below), Barbe will then go into the LIFO queue to look for other audio sources. If the queue is not empty (*i.e.*, the system finds an audio source), the audio source will be identified and will, depending on if the source is interruptible (*i.e.*, if the source was previously interrupted or muted), either resume playback or unmute the source (annotated in purple).



Barbe, Fig. 4 (annotated).

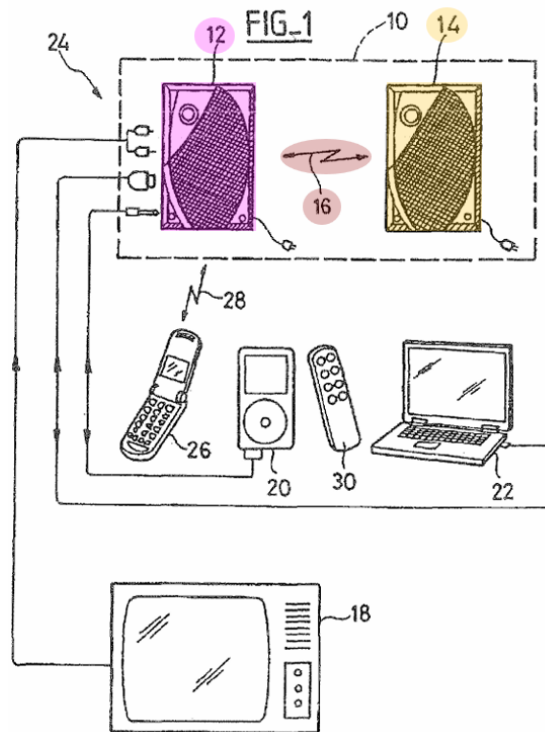
53. Barbe further provides an example of its method in Figure 3. There, the system has four different sources: (1) Bluetooth, (2) MP3, (3) UPNP, and (4) Line. Initially, the Bluetooth source is being read (annotated in green). Barbe, [0051]. In

the next step, the Line source is activated (annotated in blue). As a result, the Bluetooth source is paused (annotated in purple), Barbe, [0052], and the device begins to read the Line source (annotated in red). Barbe, [0052]-[0053]. If yet another source is activated, such as the UPnP source, Barbe, [0054], then the Line source is stopped and the UPnP source will be read. If or when the UPnP source is deactivated, the Line source begins playing again. Barbe, [0056]-[0058]. Barbe emphasizes that “[t]he scenario given above by way of example may be repeated with any other available source 46.” Barbe, [0059]; *see also* Barbe, [0050] (“the invention is applicable independently of the type of source”).



Barbe, Fig. 3 (annotated).

54. Physically, Barbe discloses an example implementation which comprises “an audio reproduction system 10 having two loudspeakers units 12 and 14 connected together by a wireless connection 16.” Barbe, [0031], Fig. 1.



Barbe, Fig. 1 (annotated).

55. Barbe also describes a source concentrator 32, which “is connected to the various wire connection connectors 24 and to a Bluetooth module 34 for transmitting and receiving signals from and to appliances that are wirelessly coupled to the system.” Barbe, [0038]. This source concentrator is used for connecting various audio sources, such as the Bluetooth source and “line” source, to the loudspeaker units 12 and 14. *See* Barbe, [0038]. This “concentrator 32 includes

means for detecting the arrival of an audio stream on any of its inputs.” Barbe, [0040].

56. With respect to the “line” source, Barbe provides that “purely analog sources connected to a “line” input such as a TV, a turntable, a CD or DVD player, etc.” Barbe, [0046].

B. Richenstein (EX1004)

57. Richenstein (EX1004) discloses a “wireless audio distribution system.” Richenstein, abstract. This wireless audio distribution system is “responsive to a plurality of audio input channels” and “transmit[s] a encoded digital bitstream serially combining each of the audio input channel, the encoded digital bitstream further including control data disbursed therein.” Richenstein, [0007]. This information is decoded after transmittal and “a sound producing device” is used “for selectively reproducing the one or more selected audio channels in accordance with the control data.” Richenstein, [0007].

58. Generally, Richenstein discloses a source (such as signals from an audio stage 36, MP3 Player 44, portable MP3 Player 45, new unit add in 54, legacy adaptor 52, or a signal input connector 1150) sending audio-video signals to some sort of transmitting unit (such as audio device 34 or a computer 1142). This transmitting unit will then encode the various audio-video signals, along with control data, and transmit this data to a receiving unit (such as headset unit 14, headphones 14, or speakers 1144 and 1146). *See, e.g.*, Richenstein, Figs. 1, 26, 27. These

receiving units decode the data and then use that data to produce sound. *See, e.g.*, Richenstein, Figs. 1, 26, 27.

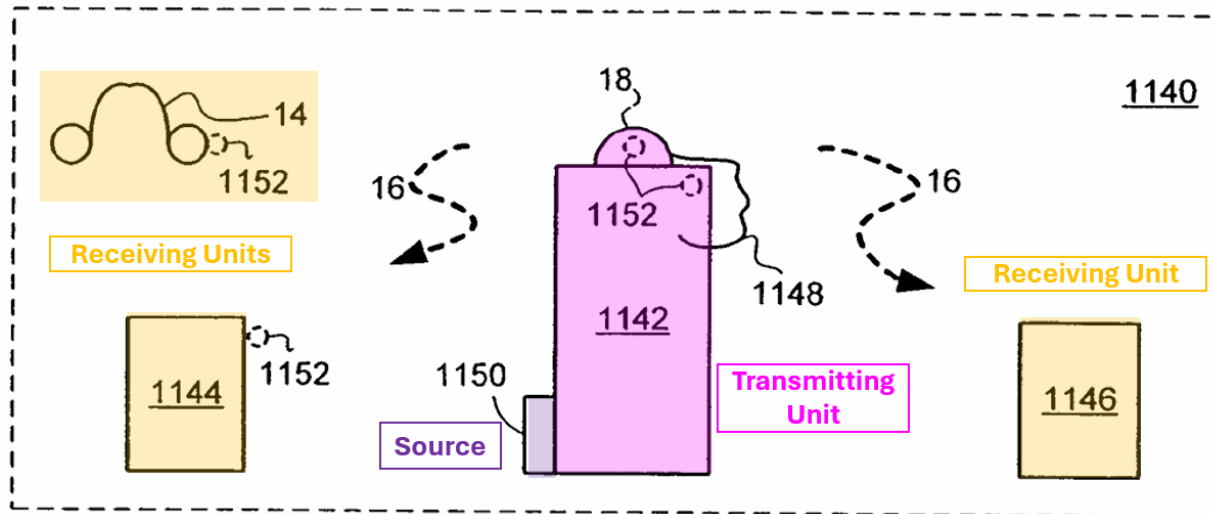


Fig. 26

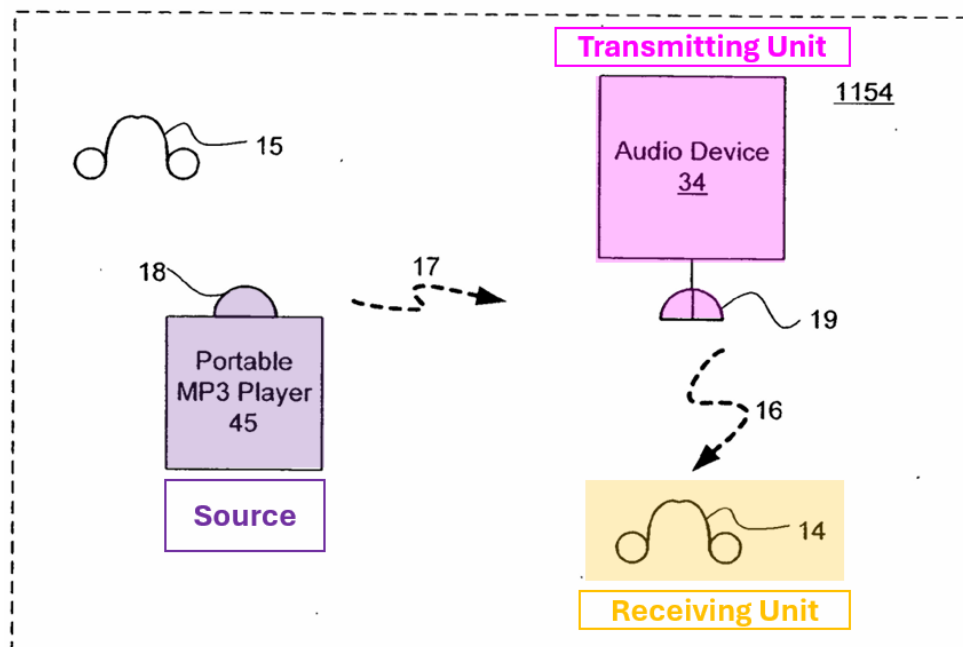


Fig. 27

Richenstein, Figs. 26-27 (annotated).

59. Richenstein's audio system is flexible and supports a number of speaker configurations and audio formats. For example, Richenstein discloses use of its audio system with headsets (*see, e.g.*, Richenstein Fig. 1), a pair of headphone speakers (*see* Richenstein, [0050]) as well as loudspeakers (*see* Richenstein, [0147]). Richenstein even discloses ways to use its flexible audio system to deliver audio information in the 5.1 and 7.1 formats, which are "used for home and professional theaters" and comprise multiple different speakers. Richenstein, [0049]; *see also* Richenstein, [0051] (describing a five-speaker embodiment).

60. Richenstein specifically discloses a method for prioritizing specific audio channels, such as a front door monitor, a baby monitor, or a cell phone. Richenstein, [0048], [0147]. Specifically, Richenstein provides that a specific audio channel can be set aside for "an audio signal such as a front door monitor or a baby monitor." Richenstein, [0048]. For example, in the case of a baby monitor, the "switching selector 78 may be configured to automatically override the listener's selection of one of the stereo channels to select the baby monitor audio whenever the audio level in the baby monitor channel exceeds a preset level." Richenstein, [0048]. Finally, "a fixed or adjustable time period after the audio level in the baby monitor channel no longer exceeds the preset level, switching selector 78 may be configured to automatically return to the stereo channel earlier selected by the

listener.” Richenstein, [0048]; *see also* Richenstein, [0147] (“Alternatively, loudspeaker 842 may be preprogrammed to automatically cut-in and play a priority channel for communication between the driver and the passengers or an emergency channel such as a baby monitor or cell phone channel as previously described.”).

X. Grounds 1-2: Barbe Discloses Claims 1–17 And Renders Obvious Claims 3-6, 10-12, And 16-17

A. Independent Claim 1

61. Claim 1 is reproduced below. For ease of discussion, I have included a label for each claim limitation.

[1.P] A playback device comprising:

[1.1] one or more processors; and

[1.2] tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising:

[1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;

[1.4] after arming the playback device, playing the second type of media content;

[1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;

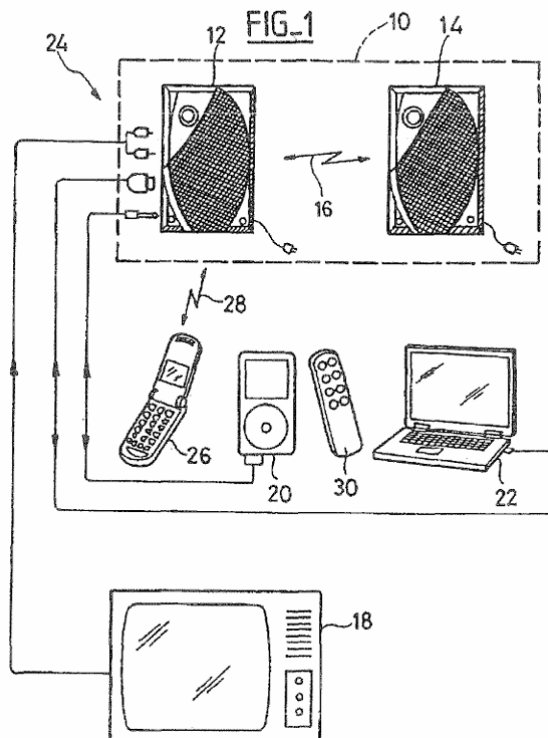
[1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;

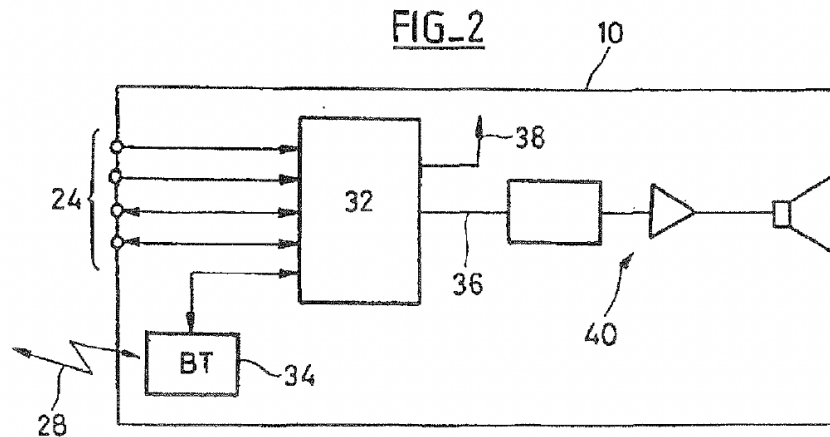
[1.7] determining that the playback device is no longer receiving the first type of media content; and

[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

1. [1.P] A playback device comprising:

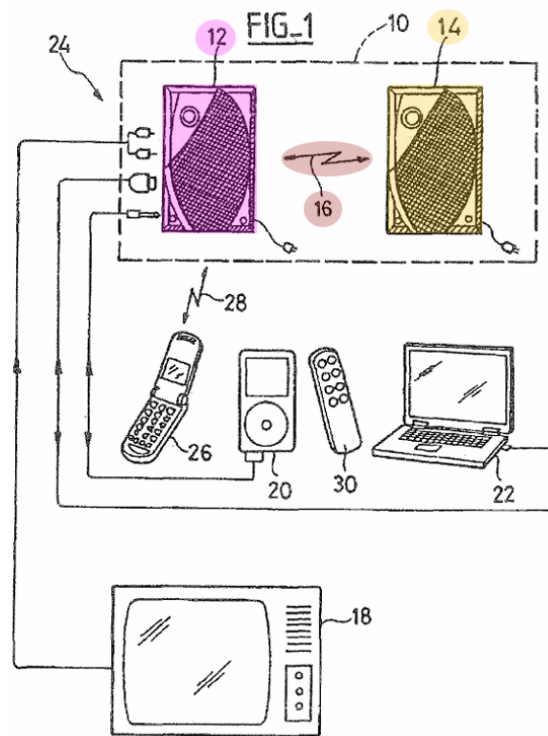
62. Barbe discloses *a playback device* (e.g., device 12 or device 14 in system 10). Barbe describes “an audio reproduction system,” depicted as 10 in Figs. 1 and 2. Barbe, [0030], [0027].





Barbe, Figs. 1-2.

63. Barbe specifies that “[t]he system 10 is an audio stream reproduction system having two loudspeaker units 12 and 14 connected together by a wireless connection 16.” Fig. 1 of Barbe shows the two loudspeakers each has its own power cord. A POSITA would understand that loudspeakers 12 and 14 are separate devices connected together through a data network (annotated in dark red), and each can process and output audio, making each a playback device. Accordingly, a POSITA would understand Barbe’s loudspeaker unit 12 or 14 to be *a playback device*.



Barbe, Fig. 1 (annotated).

2. [1.1] one or more processors; and

64. Barbe's *playback device* (e.g., device 12 or 14) contains a source concentrator. This source concentrator connects to various wired connectors and to a Bluetooth module for communicating with appliances wirelessly. *See* Barbe, [0038] ("The system 10 essentially comprises a source concentrator 32 that is connected to the various wire connection connectors 24 and to a Bluetooth module 34 for transmitting and receiving signals from and to appliances that are wirelessly coupled to the system."). This source concentrator "includes means for detecting the arrival of an audio stream on any of its input." Barbe, [0040].

65. Barbe describes “how the source selection method of the invention is implemented within the concentrator 32” and that “[t]he functions [of the source concentrator] are advantageously implemented in software by a digital processor, e.g. such as the P5+ chip from the supplier Parrot S.A., Paris, France.” Barbe, [0041]-[0042]. Accordingly, Barbe’s playback device contains *one or more processors*.

3. [1.2] *tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising:*

66. Barbe discloses a “*tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising*” the method below.

67. Barbe discloses its device’s processor executing steps in an automated fashion. A POSITA would understand the processor, like the disclosed P5+ chip, to rely on *tangible, non-transitory computer readable memory* to store instructions for its method. *See* Barbe, [0042] (describing processor). The fact that Barbe specifies that “[t]he functions described below are advantageously implemented in software by a digital processor” necessarily requires a memory to store the software instructions.

4. [1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;

68. Barbe discloses *arming the playback device* (playback device is capable of performing automatic switching of audio sources) *so that receipt of a first type of media content* (a newly activated source) *preempts* (overrides or automatically switches) *playback of a second type of media content* (a currently playing source).

69. The '023 Patent describes arming (or rearming) as being “ready to automatically switch” audio sources. *See* '023 Patent, 7:4-12.

70. Barbe describes the same functionality—in Barbe, receipt of a newly activated source (*i.e., a first type of media content*) will override the currently playing source (*i.e., a second type of media content*) and the system will mute (for an uninterruptible source) or pause (for an interruptible source) the currently playing source and begin playing the newly activated source. *See* Barbe, [0018] (“At any given instant, the highest priority is that given to any source that is beginning to send data (thereby triggering the beginning of that data being read by the system), . . . The other active sources are then interrupted.”).¹¹ Accordingly, a POSITA would

¹¹ Barbe draws a distinction between interruptible and uninterruptible sources that is ultimately irrelevant for purposes of this analysis. Specifically, Barbe discloses a

understand that when device 12 is playing the current source, it is necessarily *arm[ed]* . . . so that receipt of a first type of media content (the newly activated source) *preempts* (overrides by either muting or pausing) *playback of a second type of media content* (i.e., the current source) because it is ready to automatically switch” audio sources from the current source to the newly activated source. *See* ’023 Patent, 7:4-12.

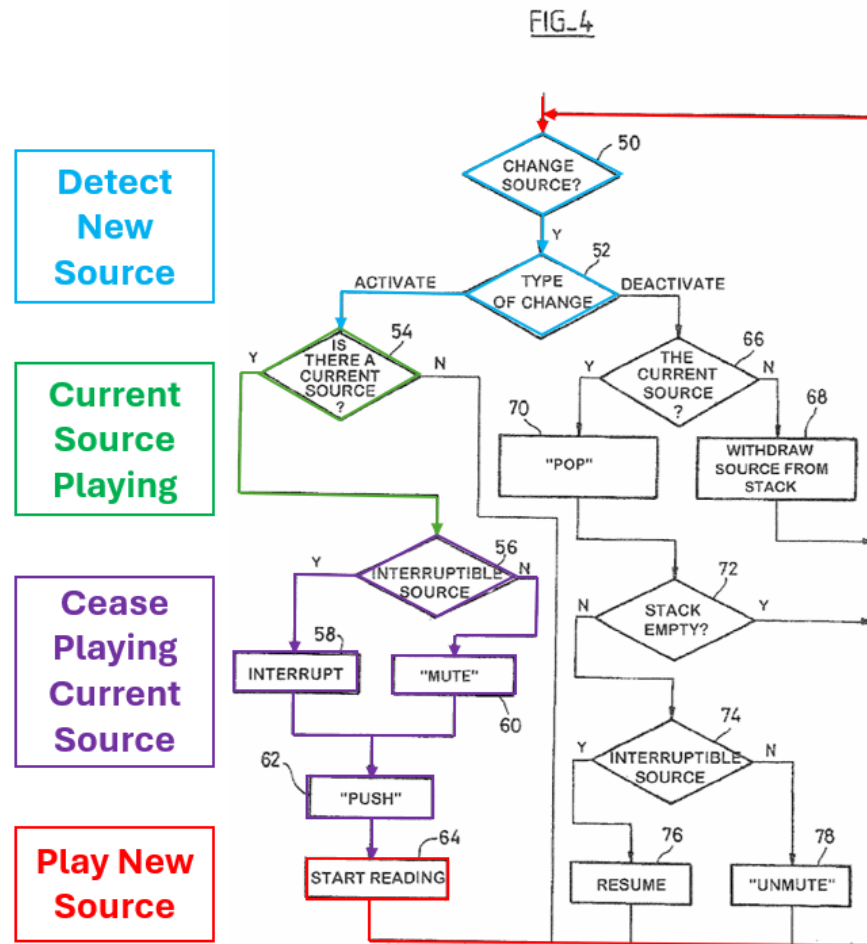
71. This is further illustrated in Figure 4 of Barbe in a “flow chart” which “explains in general terms the method of the invention for managing automatic selection of various sources.” Barbe, [0060]. Specifically, Barbe describes a situation where the system detects a change in the status in one of the sources while there may be a current source playing. Barbe, [0062] (“if the change is an activation,

system where audio content is tagged as interruptible or uninterruptible by a source identifier. *See* Barbe, [0044] (“The ‘source identifier’, which corresponds to each of the inputs of the automatic source concentrator 32, identifies the source and its type, and also includes an associated tag specifying whether this type of source is interruptible or not.”). Depending on if the initial source is interruptible or uninterruptible, the source will be interrupted (paused/suspended) or muted respectively. *See* Barbe, Fig. 4. Regardless, Barbe stops playback of the current source and begins playback of the newly activated source. *See* Barbe, [0018].

the algorithm examines whether a source is already being read (step 54)). The step of checking whether there is currently a source playing is annotated below in green.

72. This current source will be interrupted (paused or suspended) or muted, depending on whether the current source is interruptible, if a new source is detected. *See* Barbe, [0063] (“depending on whether that source is interruptible or not interruptible (step 56), the source is interrupted by sending a corresponding interrupt signal (step 58), or it is merely ignored, i.e. that source is muted (step 60)”). The step of ceasing playback of the current source is annotated in purple below.

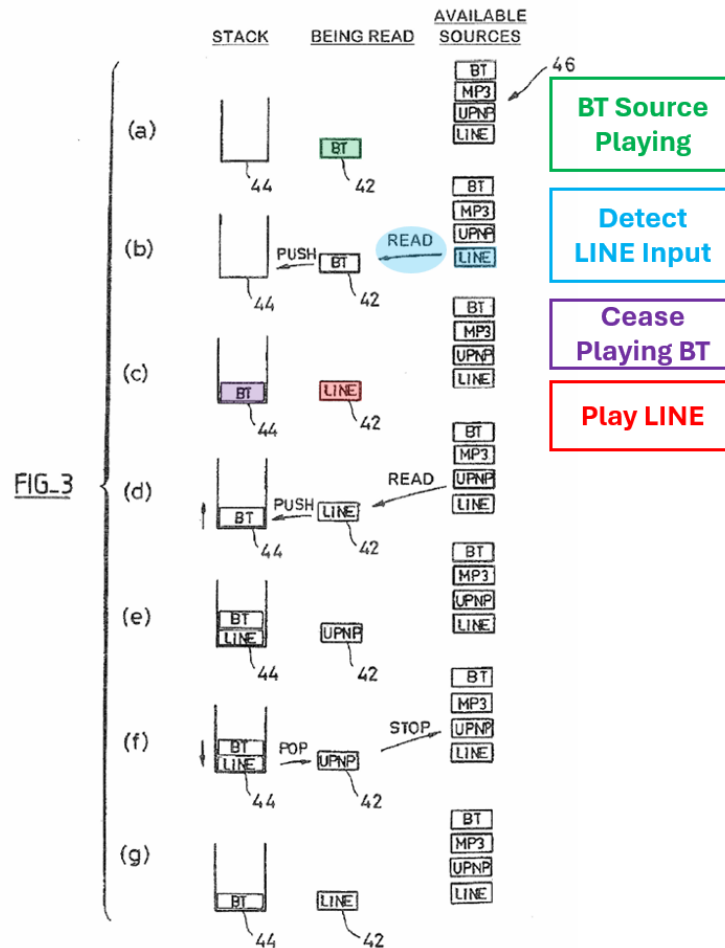
73. Accordingly, Figure 4 of Barbe depicts how the current source will be preempted by the activation of a new source because it shows that the activation of a new source (annotated in blue) while a current source is playing (annotated in green) will cause the interruption of muting of the current source (annotated in purple).



Barbe, Fig. 4 (annotated).

74. Similarly, Figure 3 of Barbe provides an exemplary embodiment which “shows the sequence for managing the dynamic source selection stack when a new source is activated, and then interrupted.” Barbe, [0028]. Barbe describes an initial step where “the Bluetooth source is being read.” Barbe, [0051]. Then, “[i]n step (b), the concentrator detects that the source on the “line” input has been activated, e.g. as a result of connection to a CD player and the play button being pressed on the player.” Barbe, [0052]. Afterwards, the system automatically switches the playback

from the Bluetooth source to the “line” source. *See* Barbe, [0053] (“The situation is then as shown in step (c), the audio stream that is being reproduced being the stream delivered by the “line” input.”). These steps are annotated below.



Barbe, Fig. 3 (annotated).

75. A POSITA would understand that the Bluetooth source corresponds to the *second type of media content* because the Bluetooth source is the source being interrupted. A POSITA would further understand that the “line” input provides the *first type of media content* because it is a line input and because it is interrupting the

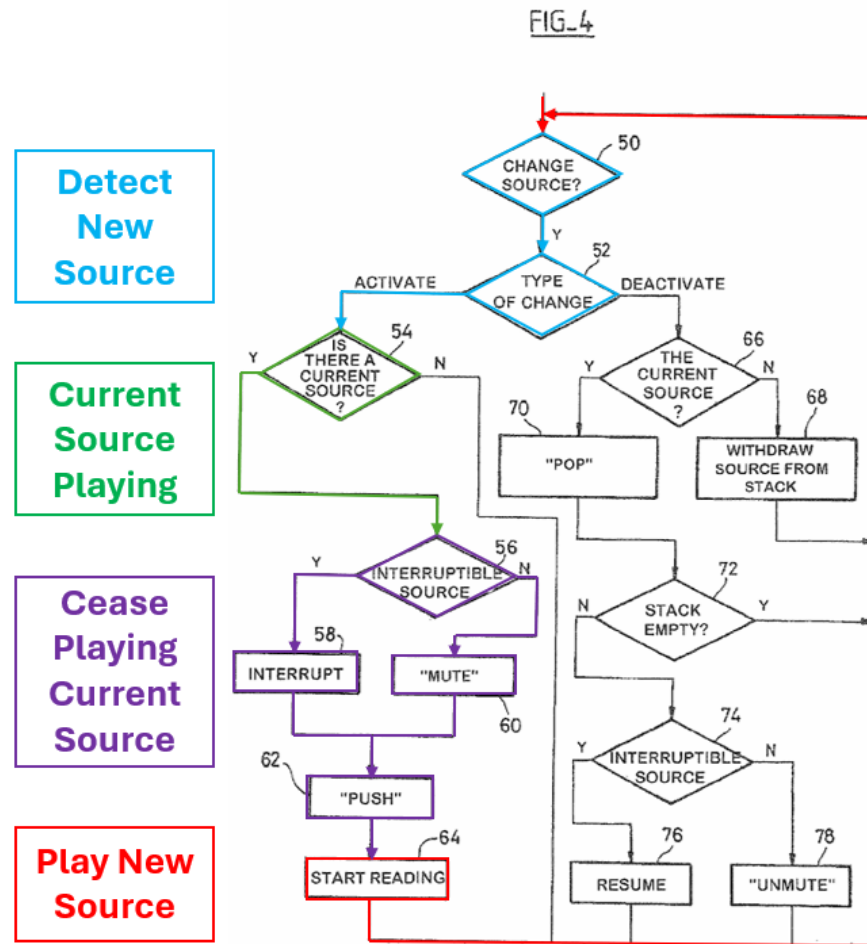
second type of media content (i.e., Bluetooth source). See also Barbe, [0050] (“The fact that the sources are of different types in the embodiments being described does not imply in any way that this feature is necessary for implementing the invention; on the contrary, the invention is applicable independently of the type of source.”).

76. Accordingly, the playback device is armed *so that receipt of a first type of media content preempts playback of a second type of media content.*

5. [1.4] after arming the playback device, playing the second type of media content;

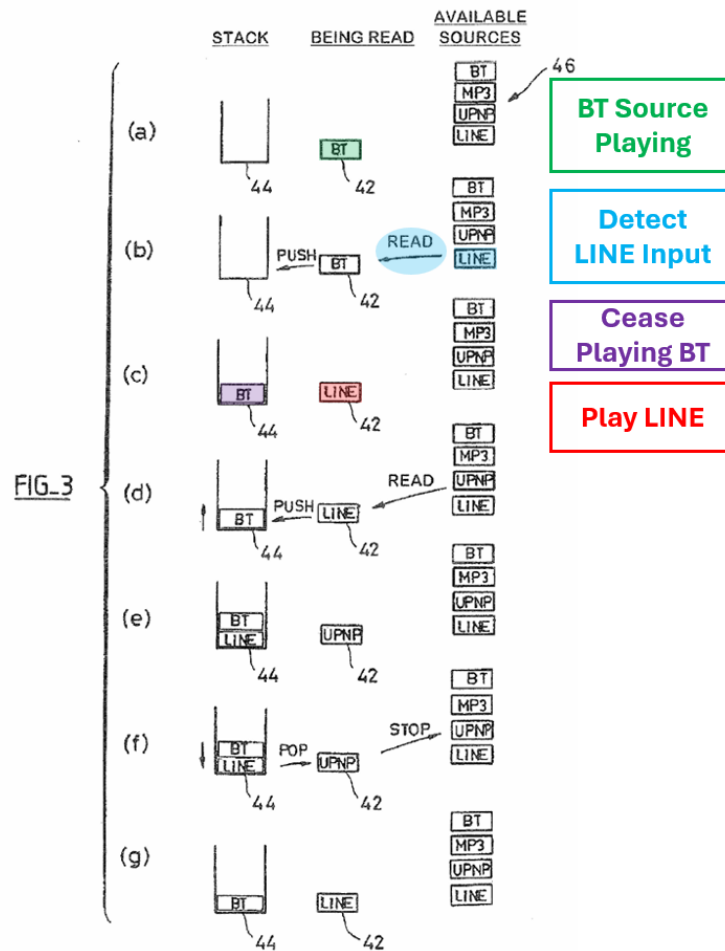
77. Barbe discloses *after arming the playback device, playing the second type of media content (i.e., the current source).*

78. As described above, Barbe discloses a configuration in which the disclosed playback device is configured to perform automatic selection of various sources including examining whether a source is already being read (the current source) and if so, interrupting or muting the current source. *See Barbe, [0060], [0062]-[0063], Fig. 4 (step 54 and the Y branch).* Because the current source (providing the second type of media content) is being played while the disclosed playback device is ready to override the current source with a newly activated source (providing the first type of media content) by pausing or muting the current source, the playing of the current source is indeed *after arming the playback device. See e.g., Barbe, [0063]-[0064].*



Barbe, Fig. 4 (annotated); *see also supra*, ¶¶68-76.

79. Figure 3 of Barbe describes an example where a Bluetooth source (providing the second type of media content) is being played (step (a); annotated in green below) while the disclosed playback device is ready to override the Bluetooth source by pausing it and beginning to play a “line” source (providing the first type of media content) upon detecting its activation (steps (b) and (c); annotated in purple and red respectively). *See* Barbe, [0051]-[0053].



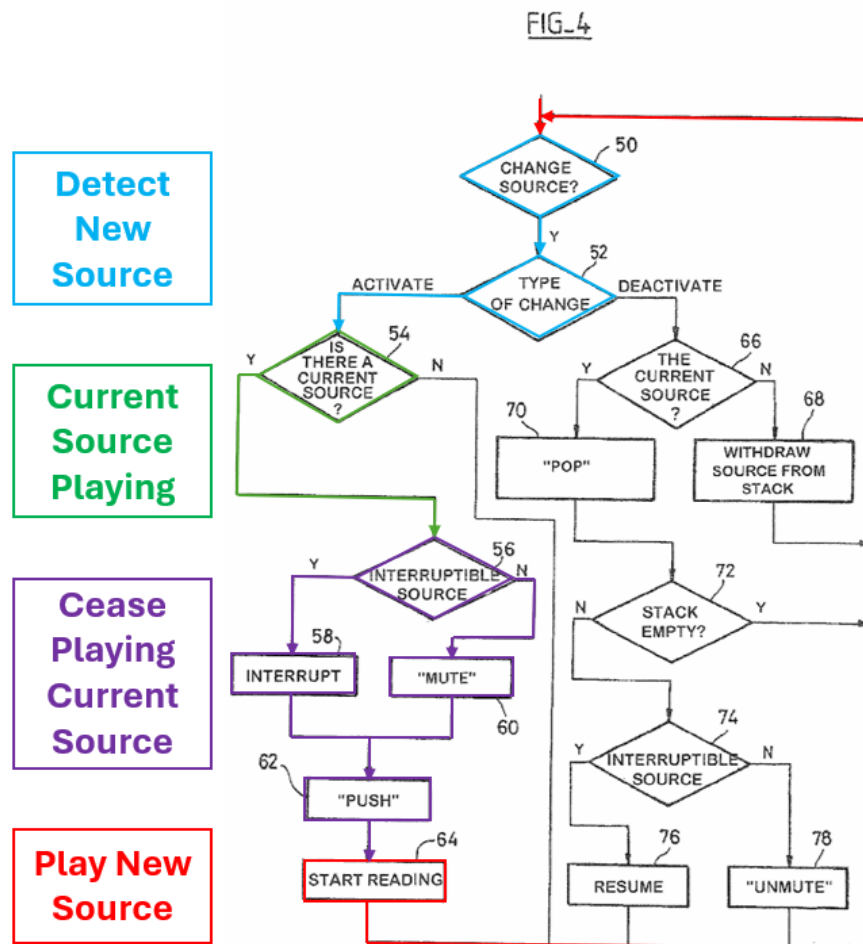
Barbe, Fig. 3 (annotated); *see also supra*, ¶¶68-76.

6. [1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;

80. Barbe discloses while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector.

81. Barbe discloses a situation where, while playing the second type of media content (the current source), determining that the playback device is receiving

the first type of media content (a newly activated source). Specifically, Barbe describes a situation where a change of state occurs due to an activation of a source coupled to the system. Barbe, [0061]-[0062] (describing change of state due to the activation of a source). Accordingly, a POSITA would understand that, in this scenario, the system of Barbe would have *determine[ed] that the playback device is receiving the first type of media content* (the newly activated source). This is annotated in blue below.



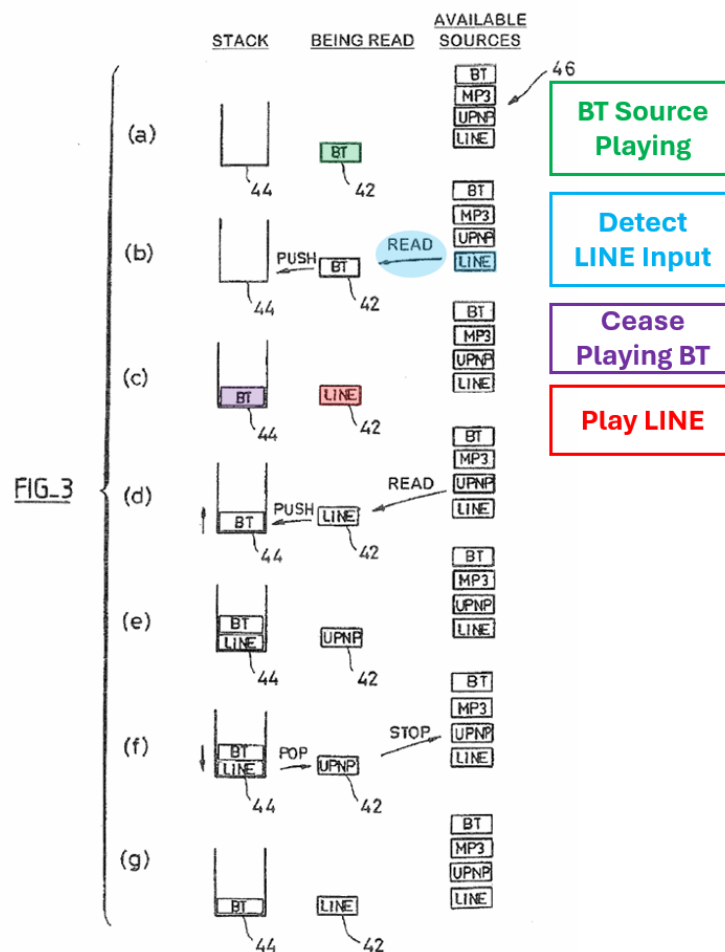
Barbe, Fig. 4 (annotated).

82. This activation of a source can occur *via a line-in connector*. Barbe provides numerous examples of sources being line inputs. *See, e.g.*, Barbe, [0032] (“By way of example, there are shown a television 18 having its audio output connected to a “line” input of the system 10 (pure analog input)”), [0046] (“amongst the sources that are not interruptible, mention may be made of ... purely analog sources connected to a ‘line’ input such as a TV, a turntable, a CD or DVD player”), [0049] (“In the example shown in FIG. 3, the multimedia system is coupled to four potentially available sources, namely a Bluetooth source (BT) ... and a source connected to the ‘line’ input”); *see also* ’023 Patent, 6:25-29, 6:38-40 (providing examples of line-in connectors being used to connect “record player, radio, cassette player, CD player, DVD player”).

83. Indeed, Barbe provides a means for detecting new streams of audio via a line-in connection, describing that “[t]he concentrator 32 includes means for detecting the arrival of an audio stream on any of its inputs. This detection may be performed in Software manner for digital Sources, or in hardware manner, e.g. by detecting a signal threshold, for analog sources.” Barbe, [0040]; *see also* Barbe, [0052]-[0053] (“the concentrator detects that the source on the ‘line’ input has been activated”), Fig. 2.

84. Barbe even provides an exemplary scenario where Barbe *determine[es]* *that the playback device is receiving the first type of media content (i.e., the newly*

activated source) *via a line-in connector*. With respect to Figure 3, Barbe describes an initial step where “the Bluetooth source is being read.” Barbe, [0051]. Then, “[i]n step (b), the concentrator detects that the source on the “line” input has been activated, e.g. as a result of connection to a CD player and the play button being pressed on the player.” Barbe, [0052]. These steps are annotated below.



Barbe, Fig. 3 (annotated).

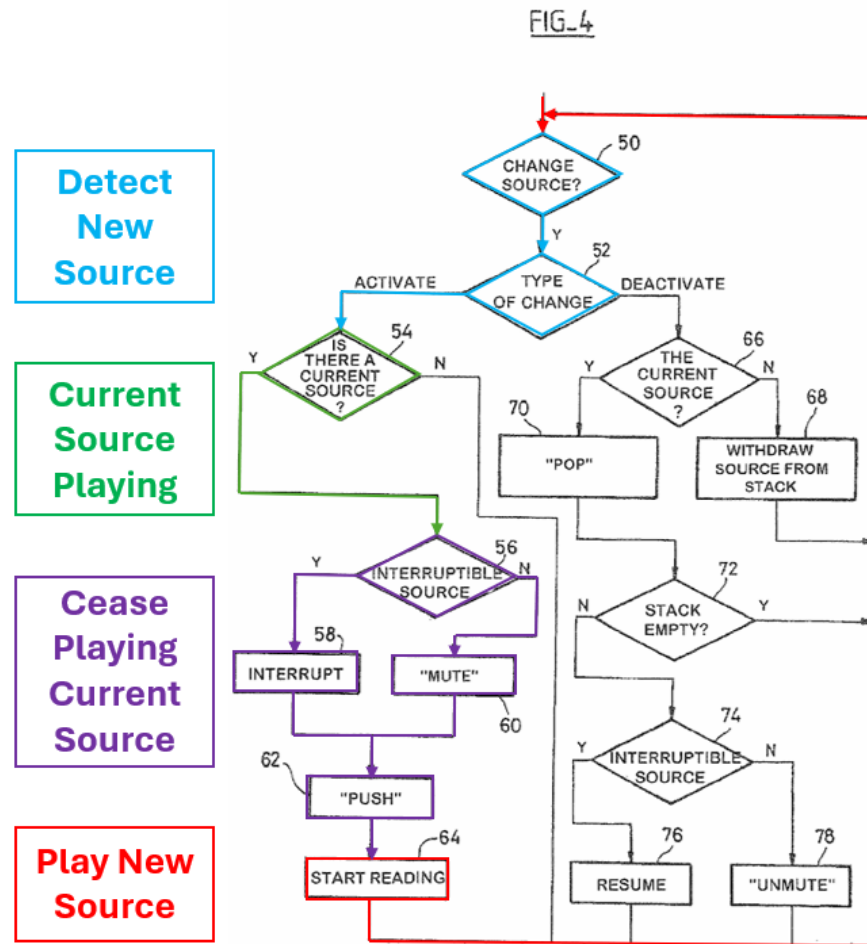
85. Accordingly, Barbe discloses *while playing the second type of media content, determining that the playback device is receiving the first type of media*

content via a line-in connector.

7. [1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;

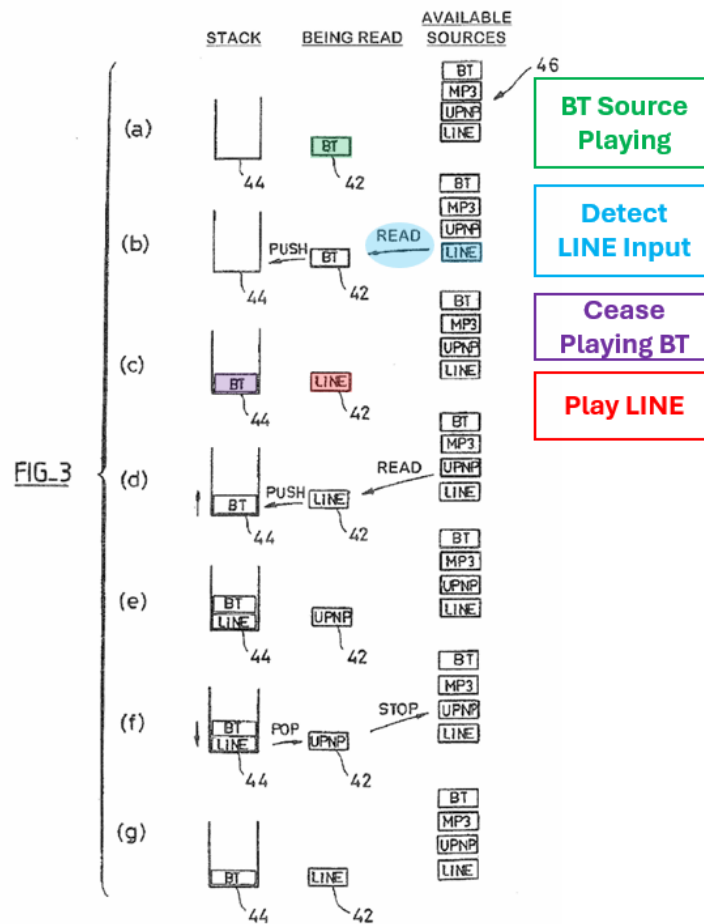
86. Barbe describes *in response to determining that playback device is receiving the first type of media content (i.e., a newly activated source), ceasing playback of the second type of media (i.e., the current source) content and playing the first type of media content (i.e., the newly activated source).*

87. Barbe describes a scenario in which, in response to a new activation, the current source is either “interrupted by sending a corresponding interrupt signal (step 58), or it is merely ignored, i.e., that source is muted (step 60).” Barbe, [0063]. After that, “the system then begins reading the newly-activated source (step 64).” Barbe, [0064]. This is illustrated in the annotated version of Figure 4 below.



Barbe, Fig. 4 (annotated).

88. Barbe even provides an exemplary scenario where Barbe, *in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content*. With respect to Figure 3, Barbe describes pausing the Bluetooth source because it is interruptible, Barbe, [0052], and then playing “the [audio] stream delivered by the ‘line’ input.” Barbe, [0053]. These steps are depicted in steps (b) and (c) of Figure 3, annotated below.



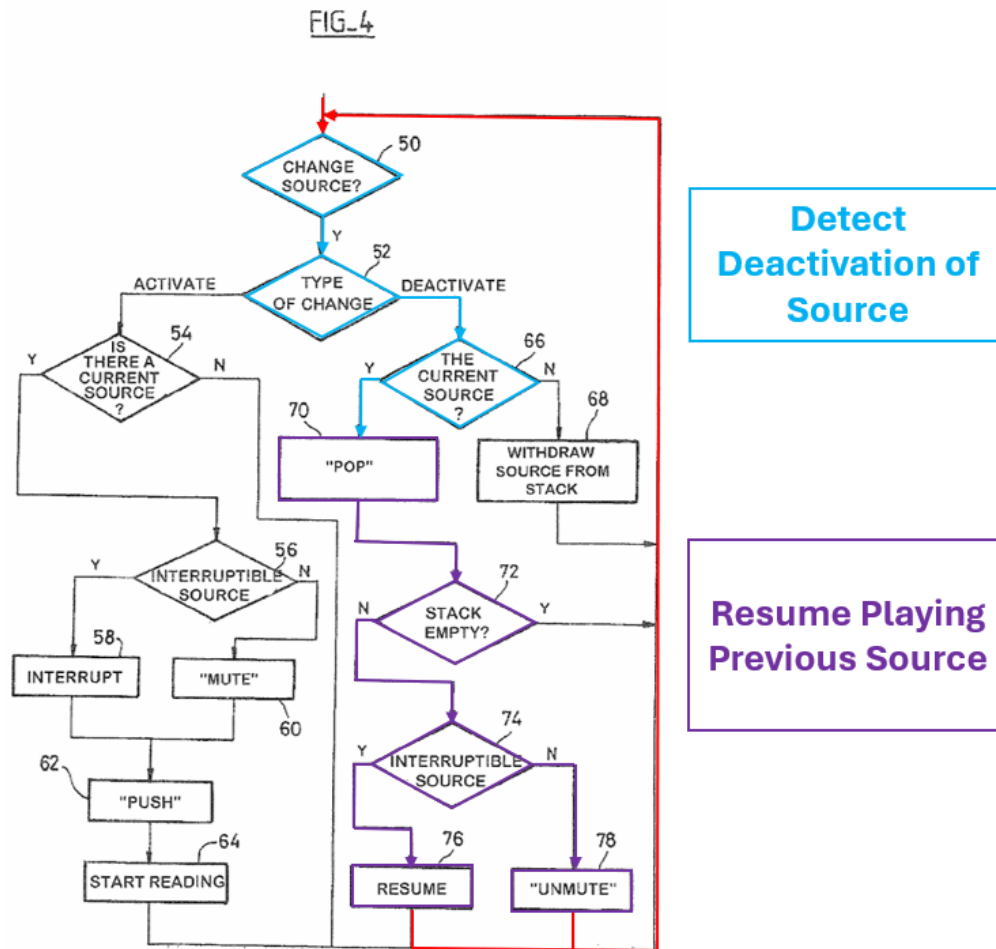
Barbe, Fig. 3 (annotated).

89. Accordingly, Barbe discloses a method where, *in response to determining that playback device is receiving the first type of media content (i.e., the newly activated source), ceasing playback of the second type of media content (i.e., the initial, interruptible source) and playing the first type of media content.*

8. [1.7] determining that the playback device is no longer receiving the first type of media content; and

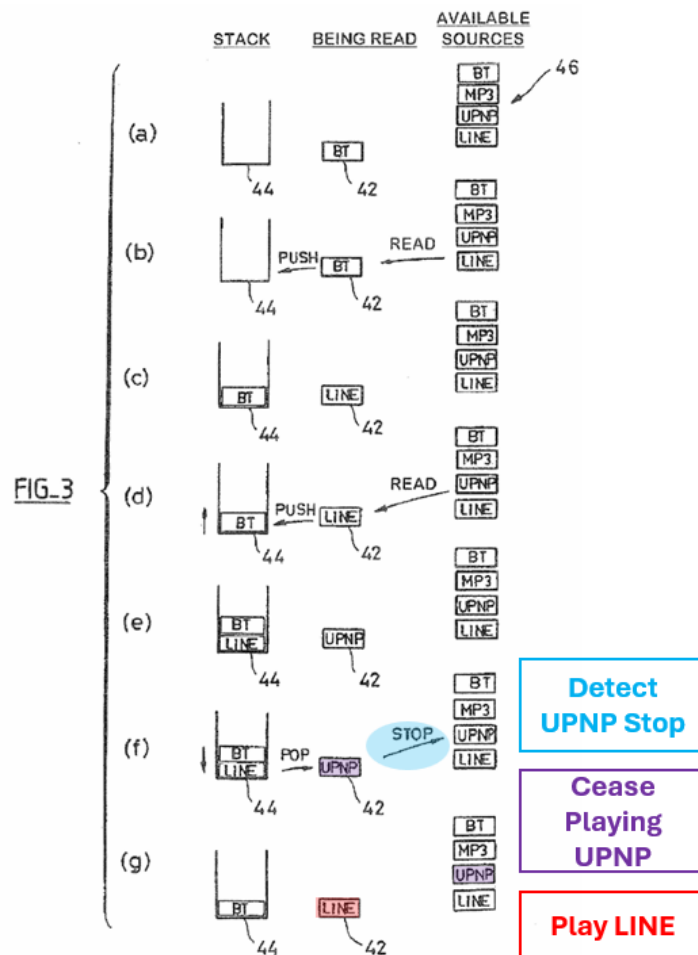
90. Barbe discloses a method which includes *determining that the playback device is no longer receiving the first type of media content.*

91. Barbe describes detecting a deactivation of a source, which could be the source that is currently being read (*i.e.*, being played). Barbe, [0061] (“[w]hen a change of state, i.e. ... a deactivation, is detected” (step 50) on any of the sources coupled to the system, the type of the change is analyzed (step 52).”), [0065] (“If in step 52, the type of change observed is a deactivation of the source, the algorithm determines (step 66), whether or not the deactivation relates to the source currently being read.”), *see also* [0067] (“If the source is currently being read, then ...”). This is shown in steps 52 and 66 (Y branch) below, annotated in blue.



Barbe, Fig. 4 (annotated).

92. Barbe describes an exemplary embodiment which illustrates determining that the playback device is no longer receiving a type of media content. With respect to Figure 3 of Barbe, Barbe describes a situation where the playback device detects that an audio source has stopped, and then subsequently reacts to it. Barbe, [0056] (“Step (f) illustrates the situation in which the source currently being read (i.e. the ‘UPnP’ source has just been stopped”), [0057] (describing actions taken in response). This is illustrated below.



Barbe, Fig. 3 (annotated).

93. While Barbe uses a UPnP source as an example to show the process of deactivating a source and resuming playback of a previous source, a POSITA would understand that the same process also applies to the deactivation the LINE source and resuming playback of the Bluetooth source. Indeed, Barbe explicitly provides that “[t]he scenario given above by way of example may be repeated with any other available source 46.” Barbe, [0059]; *see also* Barbe, [0050] (“the invention is applicable independently of the type of source”). As can be seen in Figure 3, the LINE source is one such available source 46. Accordingly, a POSITA would understand that, in the event the line source is deactivated, the playback device would cease playing the line source and resume playing the Bluetooth source.

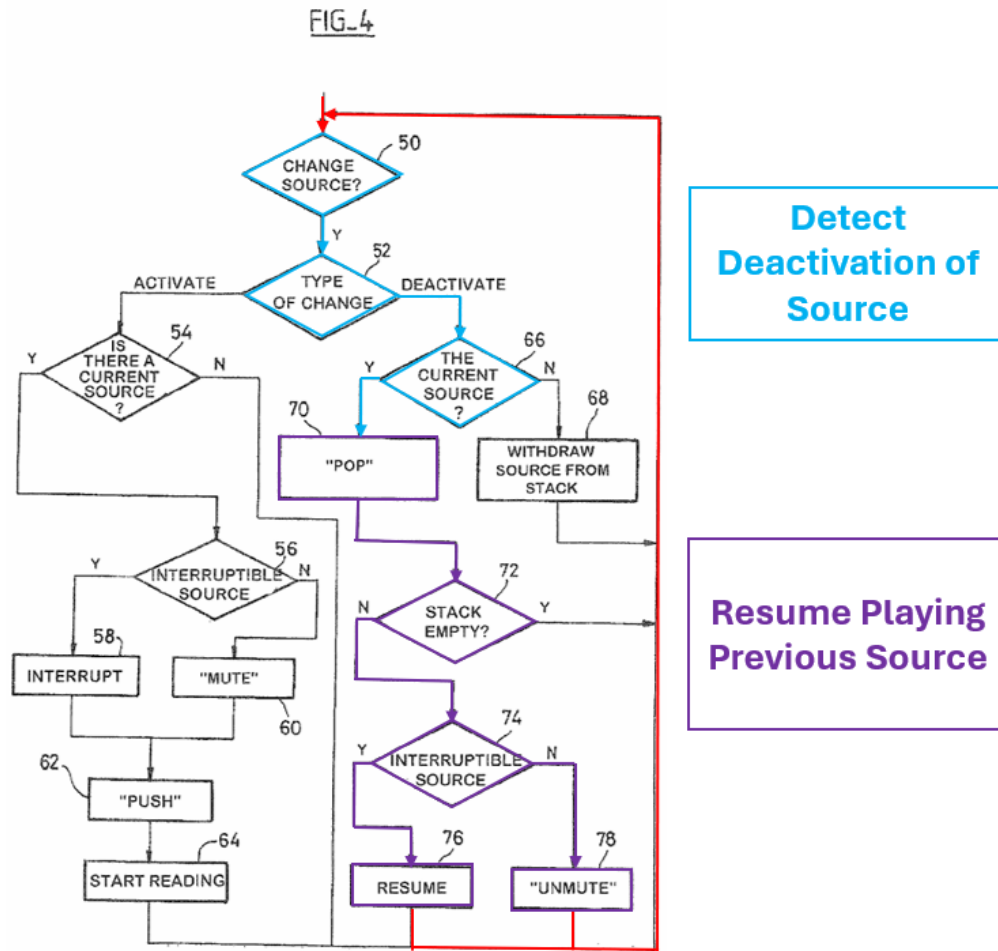
94. Indeed, Barbe describes that the situation in step (g) “is identical to step (c)” and describes that there, “the Bluetooth source remaining on standby and ready to be reactivated when the “line” source is stopped.” Barbe, [0058].

95. As discussed above, the LINE source corresponds to the *first type of media content*. Therefore, Barbe discloses *determining that the playback device is no longer receiving the first type of media content* (i.e., determining that the LINE source is stopped).

9. *[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.*

96. Barbe discloses a method where *in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.*

97. In response to the deactivation of the current audio source, Barbe's system ceases playback of the first type of media content. Barbe describes this method, providing that the previous source being played would either be resumed or unmuted, depending on the type of the previous source. *See Barbe, [0068]-[0069].* Regardless of the type of the previous source, the overall effect is that the playback device ceases playback of the first type of media content and resumes playback of the second type of media content. Below, I have annotated these steps in purple.

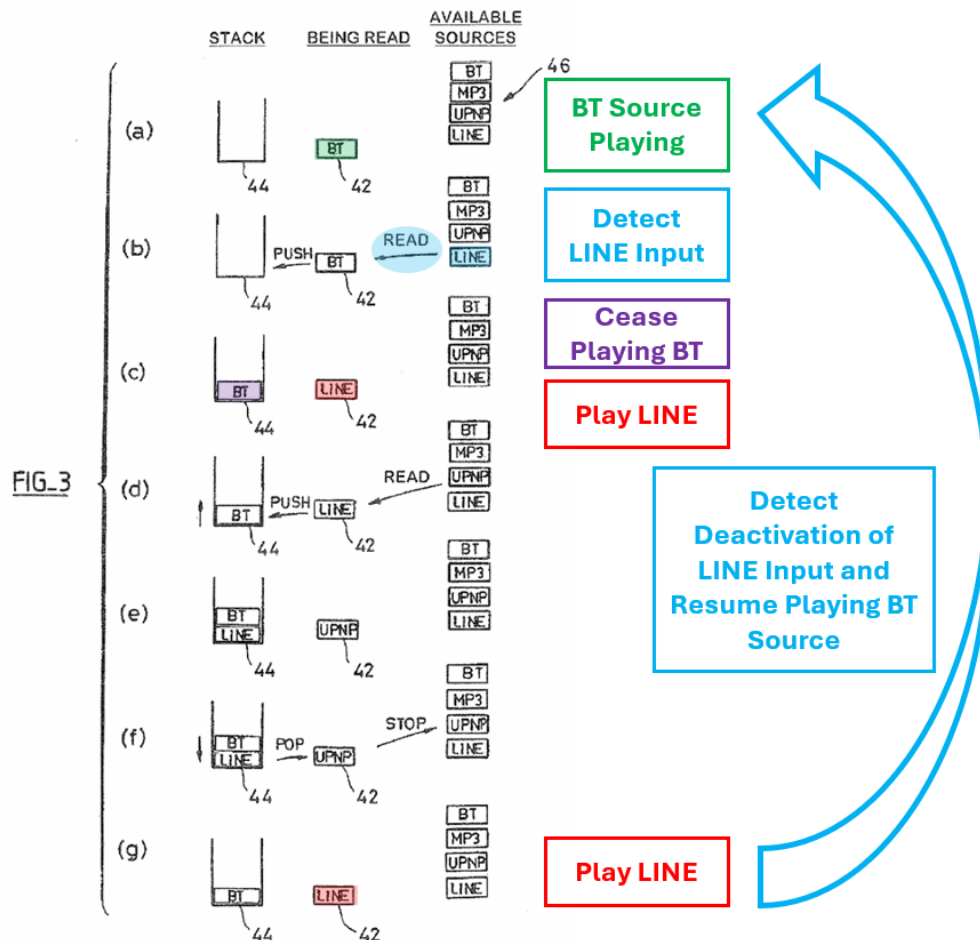


Barbe, Fig. 4 (annotated).

98. Barbe illustrates this in Figure 3, describing that after the deactivation of the UPnP source, “[t]he situation is then as shown in step (g), which is identical to step (c), i.e. playback is restored of the data a stream being applied to the “line” input.” Barbe, [0058].

99. The same process applies when the LINE source stops, and the Bluetooth input will resume, with Barbe providing that “the Bluetooth Source remain[s] on standby and ready to be reactivated when the ‘line’ source is stopped.”

Barbe, [0058]; *see also* Barbe, [0059] (“The scenario given above by way of example may be repeated with any other available source 46”), [0050] (“the invention is applicable independently of the type of source”). Accordingly, a POSITA would understand that, in the event the line source is deactivated, the playback device would cease playing the line source and resume playing the Bluetooth Source, circling back to step (a), as depicted below.

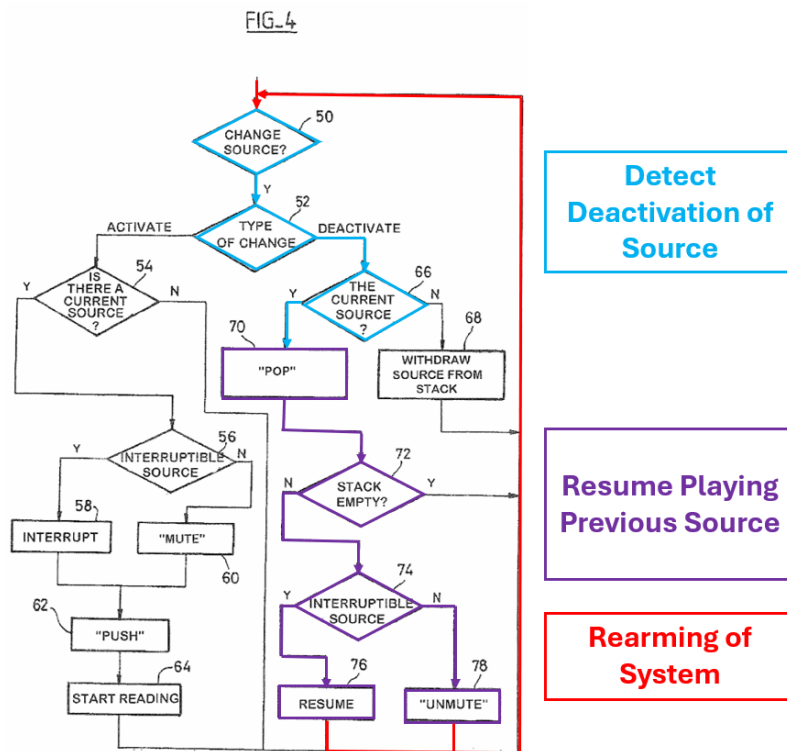


Barbe, Fig. 3 (annotated).

100. A POSITA would recognize that once the second type of media content

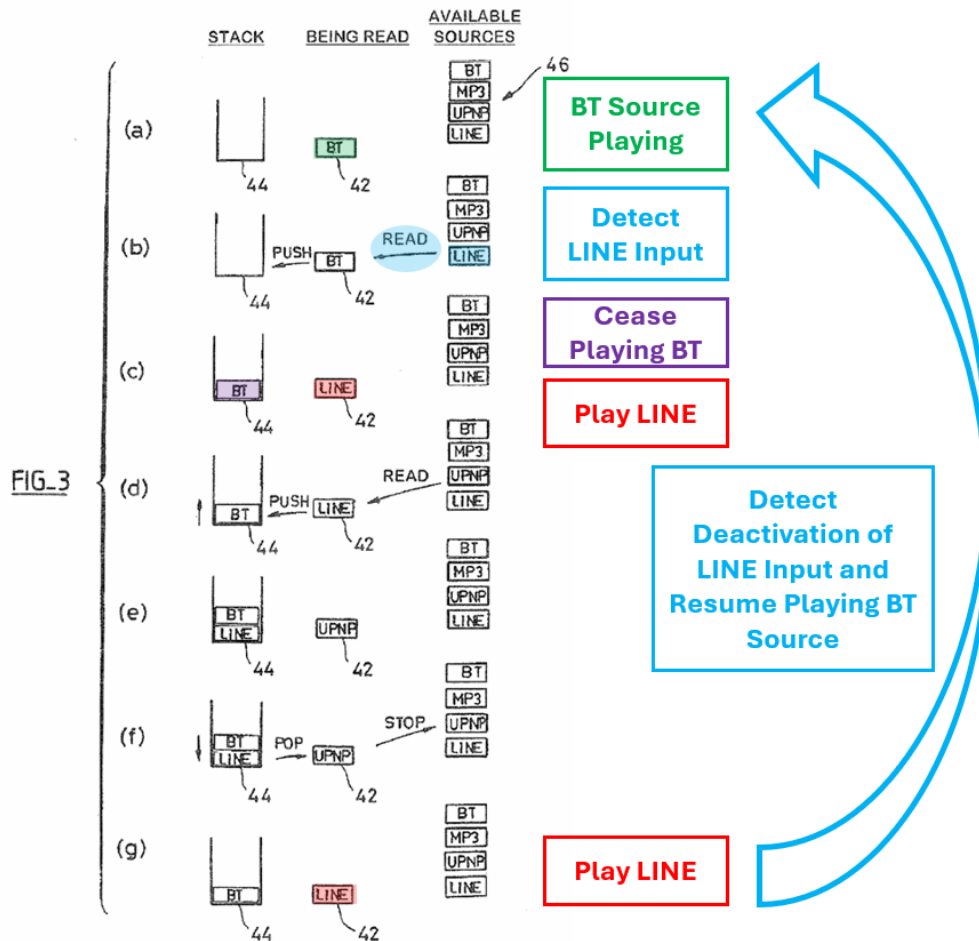
(e.g., Bluetooth input) has begun playing, the playback device would have already been armed *so that subsequent receipt of the first type of media content* (e.g., when the LINE source is activated again) *preempts playback of the second type of media content*.

101. Figure 4 of Barbe indicates that once the playback has resumed, the playback device of Barbe returns to its initial status (step (a)) such that, should the activation of another source be detected (*i.e., subsequent receipt of the first type of media content*), that source would be played instead of the current source (*i.e., preempts playback of the second type of media content*). This is annotated in red below.



Barbe, Fig. 4 (annotated).

102. Similarly, a POSITA would understand that when the device stops receiving a “line” source, the playback of the line source will cease and the Bluetooth source will be reactivated and become the current source. This will circle the process in Fig. 3 from step (g) back to step (a). *See* Barbe, [0059] (“The scenario given above by way of example may be repeated with any other available source 46.”); *see also* Barbe, [0058] (indicating that in steps (g) and (c), the “Bluetooth source remain[s] on standby and ready to be reactivated when the “line” source is stopped.”); *see also* Barbe, [0059] (“The scenario given above by way of example may be repeated with any other available source 46”), [0050] (“the invention is applicable independently of the type of source”). Accordingly, steps (b) and (c) following step (a) show that subsequent activation of the “line” source will again override the Bluetooth source, thereby rearming the playback device. *See* Barbe, [0051]-[0053].



Barbe, Fig. 3 (annotated).

B. Dependent Claim 2: The playback device of claim 1, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.

103. Barbe discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.*

104. Barbe provides an example of sources “compatible with a protocol such

as UPnP, certain MP3 players of the iPod type (registered trademark of Apple Inc.), or others, etc.” Barbe, [0045]. Barbe is clear that UPnP refers to “universal plug-and-play” and that it involves “data being conveyed over a wired network (e.g. Ethernet), and/or a wireless network (e.g. WiFi).” Barbe, [0033]. Accordingly, a POSITA would understand Barbe to disclose *receiving* a type of media content *via at least one of a wireless or a wired network interface*.

105. This media content can be *the second type of media content* because Barbe is clear that all of its sources are interchangeable with respect to its method of playback queuing. *See* Barbe, [0059] (“[t]he scenario given above by way of example may be repeated with any other available source 46.”); *see also* Barbe, [0050] (“the invention is applicable independently of the type of source”), Fig. 4 (not distinguishing between different audio sources).

106. Further, Barbe discloses in Fig. 3 that a Bluetooth source is coupled to the multimedia system. Barbe, [0049]. In the example shown in Fig. 3, the Bluetooth source is paused by the activation of a LINE source. Barbe, [0049]. Therefore, the Bluetooth source is *second type of media content* while the LINE source is the *first type of media content*. A POSITA would understand the multimedia system receives signals from the Bluetooth source *via a wireless interface*. *See* Barbe, [0035] (“The system 10 may also be associated with a remote audio source via wireless coupling, e.g. a telephone and MP3 player given reference 26, that emits an audio

stream 28 to the system 10 by using a Bluetooth advanced audio distribution profile (A2DP), for example”).

107. Accordingly, a POSITA would understand that Barbe discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.*

C. Dependent Claim 3: The playback device of claim 1, wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.

108. Barbe discloses a playback device *wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device* (e.g., loudspeaker 14).

109. Barbe discloses a system with two playback devices (i.e., two loudspeaker units 12 and 14). *See* Barbe, [0031] (“The system 10 is an audio stream reproduction system having two loudspeaker units 12 and 14 connected together by a wireless connection 16.”). A POSITA would expect these two loudspeaker units to play in synchrony in order to avoid echoes.

110. Such media content can be *the second type of media content* because Barbe is clear that all of its sources are interchangeable with respect to its method of playback queuing. *See* Barbe, [0050] (“the invention is applicable independently of

the type of source”), [0059] (“[t]he scenario given above by way of example may be repeated with any other available source 46.”); *see also* Barbe, Fig. 4 (not distinguishing between different audio sources). Accordingly, Barbe discloses a system *wherein second type of media content in synchrony with a second playback device* (loudspeaker units 12 and 14).

111. To the extent this limitation is not disclosed by Barbe, a POSITA would find it obvious to play media content on both loudspeaker units 12 and 14 in synchrony. A POSITA would be motivated to play the second type of media content on both loudspeakers to enhance the listener’s enjoyment—this is often done with speaker systems involving two or more speakers, such as those shown on Fig. 1 of Barbe, or with surround sound systems such as “‘home cinema’ systems.” Barbe, [0030]. A POSITA would be motivated to have the two playback devices play in synchrony in order to avoid echoes. A POSITA would have a reasonable expectation of success in doing so because such techniques were well known in the art. *See, e.g.*, Richenstein, [0068]-[0070].

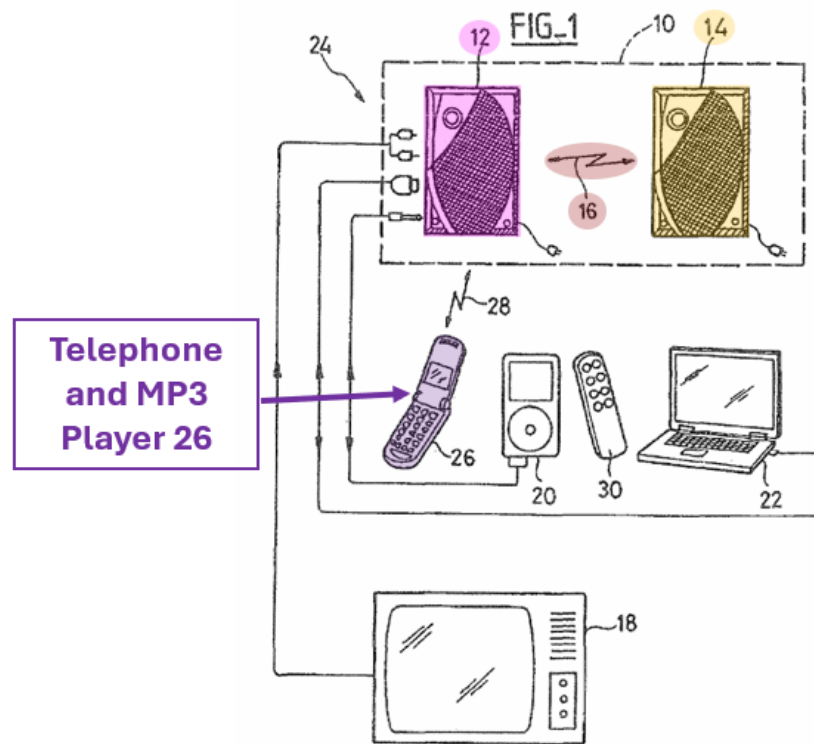
D. Dependent Claim 4: The playback device of claim 1, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.

112. Barbe discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content from an*

Internet-accessible media source (e.g., a telephone and MP3 player).

113. As explained above with respect to dependent claim 2, Barbe provides numerous examples of sources which are connected via a network. Barbe explicitly mentions both Ethernet, as well as WiFi as potential networks. *See* Barbe, [0033]. Therefore, a POSITA would understand that such media content could come from the Internet (*i.e.*, is *from an Internet-accessible media source*). Barbe provides examples of devices which can access *media content from an Internet-accessible media source* such as “a cell phone” or “a computer.” Barbe, [0003].

114. Barbe specifically discloses that “a telephone and MP3 player given reference 26, that emits an audio stream 28 to the system 10 by using a Bluetooth advanced audio distribution profile (A2DP).” Barbe, [0035]; Fig. 1. As shown in Figures 1 and 2, the telephone and MP3 player 26 connect via a Bluetooth connection, providing audio stream 28 “by using a Bluetooth advanced audio distribution profile (A2DP).” Barbe, [0035]. As of 2011, devices like telephone and MP3 player 26 were capable of accessing Internet by Wi-Fi and/or cellular telecommunication networks. For example, both the iPod Touch and iPhone supported WiFi as early as 2007. *See* EX1008, EX1009; *see also* Barbe, [0045] (mentioning iPod as an interruptible source).



Barbe, Fig. 1 (annotated).

115. Also as explained above, such media content can be *the second type of media content* because Barbe is clear that all of its sources are interchangeable with respect to its method of playback queuing. *See* Barbe, [0050] (“the invention is applicable independently of the type of source”), [0059] (“[t]he scenario given above by way of example may be repeated with any other available source 46.”); *see also* Barbe, Fig. 4 (not distinguishing between different audio sources).

116. To the extent this claim is not disclosed, a POSITA would find it obvious to use the iPod and iPhone’s WiFi technologies to stream media content to the playback device. As of 2007, “[t]he iTunes Store [] offer[ed] over 350 television

shows, over 250 feature films and over 5,000 music videos.” EX1008, 2. Furthermore, Apple touted its iPod’s ability to allow “users wirelessly watch over 10 million free videos” from YouTube. EX1009, 1. A POSITA would be motivated to allow users to access this expansive library of internet-accessible media to increase user enjoyment. A POSITA would have a reasonable expectation of success in doing so because downloading content from the Internet was well known in the art, and Barbe discloses examples of devices, such as iPods, relaying media information to the playback device. *See* Barbe, [0045].

E. Dependent Claim 5: The playback device of claim 1, wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device.

117. Barbe discloses a playback device *wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device* (e.g., loudspeaker 14).

118. While claim 5 calls for “a third playback device,” there is no mentioning of a second playback device in claim 5 or its base claim 1. Therefore, I understand that “a third playback device” simply means a playback device that is separate from the playback device recited in claim 1.

119. As discussed above, Barbe discloses two loudspeakers 12 and 14 connected together by a wireless connection 16 and each constitutes a playback

device. Barbe, [0031]. A POSITA would also understand that loudspeakers 12 can transmit audio signals, including the *second type of media content*, to loudspeaker 14 via wireless connection 16.

120. To the extent more than two playback devices are needed, Barbe discloses using its method and apparatus with a home cinema system, which can contain three or more speakers playing audio content at the same time. Barbe, [0030]. Accordingly, a POSITA would understand that in order for the third or more playback device to play the second type of media content, the processor must execute a step which *comprises transmitting at least a portion of the second type of media content to a third playback device*.

121. To the extent this is not disclosed by Barbe, a POSITA would find it obvious to configure loudspeaker 12 to send audio signals to more than one loudspeakers. A POSITA would be motivated to do so and expect success in doing so for the reasons stated above. *See supra*, ¶111. Indeed, Barbe already discloses a method of transmitting audio signals from one loudspeaker to another via a wireless connection 16. Barbe, [0031]. A POSITA would expect success in sending audio signals to a third loudspeaker using the same method. A POSITA would understand that in order for the third or more playback device to play the second type of media content, the processor must execute a step which *comprises transmitting at least a portion of the second type of media content to a third playback device*.

F. Dependent Claim 6: The playback device of claim 1, wherein playing the first type of media content comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device.

122. Barbe discloses a playback device *wherein playing the first type of media content comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device* (e.g., loudspeaker 14).

123. As discussed above, Barbe discloses two loudspeakers 12 and 14 connected together by a wireless connection 16. Barbe, [0031]. Fig. 1 of Barbe shows the two loudspeakers each has its own power cord. A POSITA would understand that loudspeakers 12 and 14 can independently turned on/off and playback audio content, making each a playback device. A POSITA would also understand that loudspeakers 12 can transmit audio signals, including the *first type of media content*, the loudspeaker 14 via wireless connection 16.

124. To the extent more than two playback devices are needed, Barbe discloses using its method and apparatus with a home cinema system, which can contain three or more speakers playing audio content at the same time. Barbe, [0030]. Accordingly, a POSITA would understand that in order for the third or more playback device to play the first type of media content, the processor must execute a step which *comprises transmitting at least a portion of the first type of media*

content to at least one of a second playback device or a third playback device.

125. To the extent this is not disclosed by Barbe, a POSITA would find it obvious to configure loudspeaker 12 to send audio signals to more than one loudspeakers and expect success in doing so for the reasons stated above. *See supra*, ¶111. Furthermore, a POSITA would understand that in order for the third or more playback device to play the second type of media content, the processor must execute a step which *comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device.*

G. Dependent Claim 7: The playback device of claim 1, wherein the first type of media content comprises media content received from a video device.

126. Barbe discloses a playback device *wherein the first type of media content comprises media content received from a video device* (e.g., a TV, a DVD player). Barbe discloses the use of multiple video devices, including both a TV and a DVD player as audio sources. *See Barbe*, [0046] (“Amongst the sources that are not interruptible, mention may be made of sources interfaced to the multimedia system using specifications such as S/PDIF, audio streaming or broadcast systems or indeed purely analog sources connected to a “line” input such as a TV, a turntable, a CD or DVD player, etc.”); *see also Barbe*, [0001] (“The invention relates to a method and a device for automatically managing and selecting digital and/or analog sources available at the input of an audio or an audio/video system”).

H. Independent Claim 8:

127. Claim 8 is reproduced below. For ease of discussion, I have included a label for each claim limitation.

[8.P] Tangible, non-transitory computer-readable media comprising instructions encoded therein, wherein the instructions, when executed by a playback device, cause the playback device to perform functions comprising:

[8.1] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;

[8.2] after arming the playback device, playing the second type of media content;

[8.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;

[8.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;

[8.5] determining that the playback device is no longer receiving the first type of media content; and

[8.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

128. The claim limitations in column 1 share substantial similarities with the

corresponding claim limitations in column 2. Accordingly, Barbe discloses, teaches, or suggests the claim limitations in column 2 for the same reasons as explained for the corresponding limitation in column 1.

Column 1: Claim 1	Column 2: Claim 8
[1.2] tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising:	[8.P] Tangible, non-transitory computer-readable media comprising instructions encoded therein, wherein the instructions, when executed by a playback device, cause the playback device to perform functions comprising:
[1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;	[8.1] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;
[1.4] after arming the playback device, playing the second type of media content;	[8.2] after arming the playback device, playing the second type of media content;
[1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;	[8.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;
[1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;	[8.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;
[1.7] determining that the playback device is no longer receiving the first type of media content; and	[8.5] determining that the playback device is no longer receiving the first type of media content; and
[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the	[8.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the

first type of media content preempts playback of the second type of media content.	first type of media content preempts playback of the second type of media content.
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129. To the extent the precise language of the two claims differ, such differences are insubstantial and do not alter the analysis above. For example, a POSITA would not see any substantive differences between a “tangible, non-transitory computer_readable memory” and a “tangible, non-transitory computer_readable media”, nor would a POSITA understand there to be substantial differences between instructions which are stored and instructions which are encoded therein.

- I. Dependent Claim 9: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.**

130. This claim is substantively identical to claim 2. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

- J. Dependent Claim 10: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.**

131. This claim is substantively identical to claim 4. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

K. Dependent Claim 11: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device.

132. This claim is substantively identical to claim 5. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

L. Dependent Claim 12: The tangible, non-transitory computer-readable media of claim 8, wherein playing the first type of media content comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device.

133. This claim is substantively identical to claim 6. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

M. Dependent Claim 13: The tangible, non-transitory computer-readable media of claim 8, playback device of claim 1, wherein the first type of media content comprises media content received from a video device.

134. This claim is substantively identical to claim 7. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

N. Independent Claim 14

135. Claim 14 is reproduced below. For ease of discussion, I have included a label for each claim limitation.

[14.P] A method performed by a playback device, the method comprising:

[14.1] arming the playback device so that receipt of a first type of media

content preempts playback of a second type of media content;

[14.2] after arming the playback device, playing the second type of media content;

[14.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;

[14.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;

[14.5] determining that the playback device is no longer receiving the first type of media content; and

[14.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

136. The claim limitations in column 1 share substantial similarities with the corresponding claim limitations in column 2. Accordingly, Barbe discloses, teaches, or suggests the claim limitations in column 2 for the same reasons as explained for the corresponding limitation in column 1.

Column 1: Claim 1	Column 2: Claim 14
[1.P] A playback device comprising:	[14.P] A method performed by a playback device, the method comprising:
[1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of	[14.1] arming the playback device so that receipt of a first type of media content preempts playback of a second

media content;	type of media content;
[1.4] after arming the playback device, playing the second type of media content;	[14.2] after arming the playback device, playing the second type of media content;
[1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;	[14.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;
[1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;	[14.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;
[1.7] determining that the playback device is no longer receiving the first type of media content; and	[14.5] determining that the playback device is no longer receiving the first type of media content; and
[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.	[14.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

- O. Dependent Claim 15: The method of claim 14, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.**

137. This claim is substantively identical to claim 2. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

P. Dependent Claim 16: The method of claim 14, wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.

138. This claim is substantively identical to claim 3. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

Q. Dependent Claim 17: The method of claim 14, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.

139. This claim is substantively identical to claim 4. Accordingly, Barbe discloses, teaches, or suggests this claim for the same reasons discussed above.

XI. GROUND 3-4: Richenstein Discloses And Renders Obvious Claims 1-17

A. Independent Claim 1

1. [1.P] A playback device comprising:

140. In general, Richenstein discloses two categories of *playback devices*. On the transmitting side, any variation of audio device 34, which “represents any audio, video or data source including mono and stereo radios, CD and cassette players, mini-disc players, as well as the audio portions of electronic devices that provide other types of signals such as computers, television sets, DVD players and the like,” constitutes a playback device. Richenstein, [0039]. Accordingly, a POSITA would understand that audio device 34 can also produce sound, either through a built-in speaker or an attached external speaker. Specific examples of playback devices include a computer 1142 (or at least its audio portions) with

transmitter 18 shown in Fig. 26, and an audio device 34 with combined transmitter/receiver 19 shown in Fig. 27.

141. On the receiving side, any variation of headset receiver unit 14 equipped with a receiver capable of receiving the encoded bitstream wirelessly and a decoder capable of decoding the received bitstream into audio data constitutes a playback device. Examples of such playback devices on the receiving side include headset receiver unit 14 shown in Fig. 1, headphones 14 and speakers 1144 and 1146 shown in Fig. 26, and headphones 14 shown in Fig. 27.

142. With respect to Figure 26, Richenstein discloses a computer 1142 equipped with a transmitter 18 that transmits audio data provided by computer 1142 wirelessly in the form of an encoded digital bitstream 16 to headphones 14 or computer speakers such as speakers 1144 and 1146, similar to the way audio data are transmitted from audio device 34 to headset receiver unit 14 described in connection with Fig. 1 of Richenstein. *See* Richenstein, [0187]-[0188]; *see also* Richenstein, Fig. 26. Computer 1142 (or at least its audio portions) with transmitter 18, headphones 14, and speakers 1144 and 1146 all constitute playback devices.

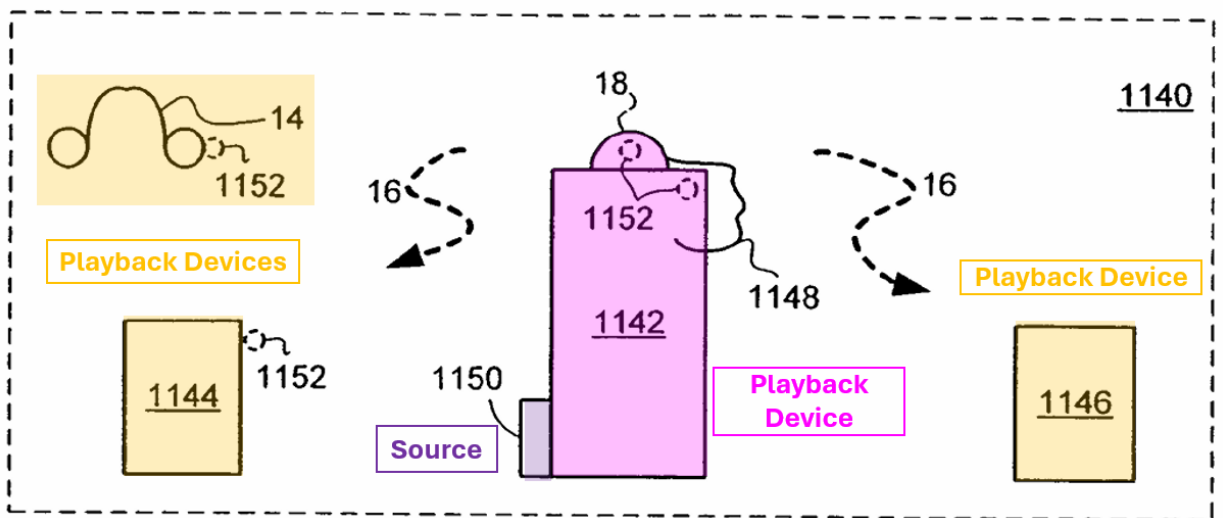


Fig. 26

Richenstein, Fig. 26 (annotated).

143. With respect to Figure 27, Richenstein discloses that audio device 34 can be equipped with a combined transmitter/receiver 19 to perform bidirectional data transmission, including receiving audio data wirelessly from a portable MP3 player 45 (equipped with a transmitter 18) via a bitstream 17 and transmitting audio data wirelessly to headphones 14 via a bitstream 16. *See* Richenstein, [0195]-[0196]; *see also* Richenstein, Fig. 27.

144. Richenstein provides further descriptions of audio device 34 with respect to Figure 1. For example, Richenstein discloses an audio device 34 that “represents any audio, video or data source including mono and stereo radios, CD and cassette players, mini-disc players, as well as the audio portions of electronic devices that provide other types of signals such as computers, television sets, DVD

players and the like.” Richenstein, [0039]; *see also* Richenstein, Fig. 1. A POSITA would understand such descriptions to apply to audio device 34 depicted in Figure 27. Accordingly, both audio device 34 (with combined transmitter/receiver 19) and headphones 14 constitute playback devices.

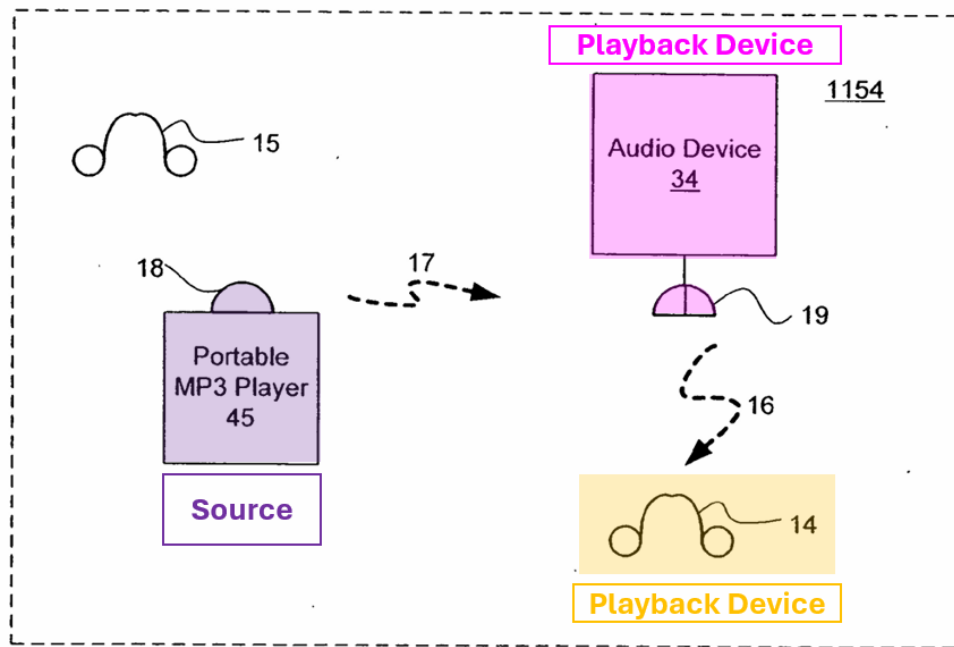


Fig. 27

Richenstein, Fig. 27 (annotated).

145. Finally, to the extent a built-in or an external speaker is not disclosed, a POSITA would find it obvious to include such a speaker in audio device 34 and/or computer 1142. A POSITA would be motivated to do so because it would be convenient for a user to be able to produce sound locally. A POSITA would have a reasonable expectation of success in doing so because such methods were well

known in the art. For example, in and around 2011, computers often came with built-in speakers or were able to connect to an external speaker.

2. [1.1] *one or more processors; and*

146. Each of the *playback devices* disclosed by Richenstein contains *one or more processors* because each contains at least an encoder (*e.g.*, on the transmitting side) or a decoder (*e.g.*, on the receiving side). Both an encoder and a decoder are processors.

147. On the transmitting side, for example, Richenstein's audio device 34 contains a master controller 26, which in turn includes a DSP encoder and controller 24. *See* Richenstein, [0038]-[0039]. Both master controller 26 and DSP encoder and controller 24 constitute *one or more processors*. Other variations of audio device 34, such as the one shown in Fig. 27, similarly contain one or more processors.

148. Furthermore, because "audio device 34 [] represents ... the audio portions of electronic devices ... such as computers" Richenstein, [0039], a POSITA would also expect the DSP encoder and controller 24, as well as the master controller 26 to be in computer 1142 or, computer 1142 would implement some or all functions of these devices using its own processor(s). Additionally, transmitter 18 connected to computer 1142 contains at least an encoder in order to "generate[] serially encoded digital bitstream 16 for simultaneous reception by speakers 1144, 1146 and headset 14." Richenstein, [0188]. Therefore, computer 1142 equipped with transmitter 18

includes one or more processors.

149. On the receiving side, headset receiver unit/headphones 14 (as shown in Figures 1, 26, and 27) include a decoder 74 that “contain[s] a clock, de-multiplexer, and controller, for processing to provide separate digital signals for stereo channels 1-4.” Richenstein, [0045]. In another example, Richenstein discloses a receiver apparatus/headset unit 700 (a variation of headset receiver unit/headphones 14) that includes a primary receiver 702, which further includes a receiver DSP 710 that serves as the central control for the receiver 700 circuitry and controls all of the inputs and outputs of the receiver. *See* Richenstein, [0110]-[0111], Figs, 13 and 14. Similarly, speakers 1144 and 1146 also contain “appropriate decoders.” Richenstein, [0187]. The various decoders as well as the receiver DSP are all processors.

150. Accordingly, Richenstein discloses various playback devices that contain *one or more processors*.

3. [1.2] tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising:

151. Richenstein discloses four sets of memory: (1) a boot/program memory 630 and (2) a DSP ROM on the transmitting side, and (3) a boot/program memory 730 and (4) a DSP ROM on the receiving side that all meet this claim limitation.

152. For example, on the transmitting side, Richenstein discloses that audio

device 34 contains an encoder 626, which further includes a boot/program memory 630 storing software program for controlling a DSP 600 that serves as the central control for the encoder 626 circuitry. *See* Richenstein, [0084]-[0085]; *see also* Richenstein, Fig. 7. Boot/program memory 630 can be implemented by an 8-bit serial EEPROM. *See* Richenstein, [0085]. “In alternative embodiments, the DSP software may be provided in DSP read-only-memory (ROM).” Richenstein, [0085].

153. A POSITA would understand this description to apply equally to computer 1142 as depicted in Fig. 26 for the reasons stated above. To the extent computer 1142 uses resources other than its audio portions 34 to process audio data, a POSITA would understand that computer 1142 contains memory to store the control software necessary to perform those operations.

154. Similarly, on the receiving side, Richenstein discloses that each receiver contains a boot/program memory 730 storing software program for controlling a DSP 710 that serves as the central control for the receiver circuitry. *See* Richenstein, [0111], [0127]; *see also* Richenstein, Fig. 14. Boot/program memory 730 can similarly be implemented by an 8-bit serial EEPROM. *See* Richenstein, [0127]. “Alternatively, the program may be provided in DSP read-only-memory (ROM).” Richenstein, [0127].

4. [1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;

155. Richenstein discloses *arming the playback device* (playback device capable of performing automatic switching of audio playback) *so that receipt of a first type of media content* (audio signals received in a priority channel) *preempts playback of a second type of media content* (overrides the playback of audio signals in a non-priority channel).

156. As discussed in Grounds 1-2, limitation [1.3], I understand that the term “arming” merely means the effect of being capable of performing automatic audio source switching. Accordingly, the capability of Richenstein’s invention of performing the automatic switching of sources meets this limitation.

157. Richenstein discloses an automatic channel selection feature in which certain audio data can be transmitted in a priority channel (*e.g.*, channel 4R) from a transmitting side device to a receiving side device, which automatically selects the priority channel for playing while other regular or non-priority channels were playing. *See* Richenstein, [0048], Fig. 1. In other words, the priority channel can cut in and override the regular or non-priority channels, such that playback is automatically switched to the priority channel. *See* Richenstein, [0048], [0050], [0147].

158. A transmitting side device, such as audio device 34, performs automatic

channel selection by incorporating control signals into the digital bitstream. *See* Richenstein, [0052] (“control signals may be incorporated into the digital bit stream transmitted by audio device 34 for . . . automatic channel selection. . . .”). Specifically, information used for automatic channel selection can be included in one or more control code sections 102 in a header section 87 of a transmitted package 86. *See* Richenstein, [0059], [0063], Fig. 3.

159. Richenstein discloses that the priority channel can be “automatically selected upon the occurrence of a particular event.” Richenstein, [0047]. For example, when the priority channel is used to provide an audio signal of a baby monitor, the baby monitor audio can automatically override a listener’s selection of a non-priority channel “whenever the audio level in the baby monitor channel exceeds a preset level.” Richenstein, [0048].

160. In addition to the baby monitor example, Richenstein also discloses other priority channels including a channel for communication between a driver and passengers [0147], a cell phone channel [0147], a front door monitor channel [0048], a medical monitor channel [0151], a landline indication channel ([0193]), a doorbell ringing channel ([0193]), and a driveway or yard sensor channel ([0193]). The audio signals of these priority channels are received by the transmitting side device, such as audio device 34, at one or more input connectors (e.g., lines 1-8 shown in Fig. 1).

161. Richenstein further discloses a signal input connector 1150 configured

to receive and “apply priority signals to computer 1142, such as indications of a landline, cell phone or doorbell ringing or a driveway or yard sensor output, that may be applied to serially coded digital bitstream 16 for reproduction on headphones 14 and/or computer speakers 1144, 1146.” Richenstein, [0193], Fig. 26. “The reproduced data . . . may be on a separate priority [channel] automatically selected when such data is received.” Richenstein, [0193].

162. Thus, Richenstein discloses arming the playback device (*e.g.*, audio device 34 and/or computer 1142 are capable of performing automatic channel selection to switch audio playback) so that receipt of a first type of media content (*e.g.*, audio signals received at a priority channel of audio device 34 and/or computer 1142) preempts playback of a second type of media content (*e.g.*, override the playback of audio signals in a non-priority channel).

5. [1.4] *after arming the playback device, playing the second type of media content;*

163. Richenstein discloses *after arming the playback device, playing the second type of media content* (the non-priority channel) because Richenstein’s playback devices are already capable of performing automatic switching of audio playback before playing audio in a non-priority channel.

164. With respect to Figure 27, Richenstein discloses that while audio device 34 is transmitting the listener’s selection of audio data to headphones 14 in a non-

priority channel, audio device 34 is already capable of transmitting audio data in a priority channel to “automatically override the listener’s selection.” Richenstein, [0048]; *see also* Richenstein, [0147] (describing automatically cutting in and playing a priority channel for communication between the driver and the passengers, a baby monitor, or a cell phone channel).

165. With respect to Figure 26, Richenstein similarly discloses that while transmitting computer generated audio data to headphone 14 or speakers 1144, 1146, computer 1142 is also already capable of transmitting priority signals to these receiving devices in “a separate priority [channel that will be] automatically selected when such data is received.” Richenstein, [0193].

166. Accordingly, a POSITA would understand Richenstein to disclose *after arming the playback device, playing the second type of media content.*

6. [1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;

167. Richenstein discloses *while playing the second type of media content* (non-priority channel), *determining that the playback device is receiving the first type of media content* (priority channel) *via a line-in connector* (e.g., source input connectors of audio device 34 or signal connector 1150).

168. Richenstein discloses *determining that the playback device is receiving the first type of media content* in a priority channel by determining whether the

priority channel is active. For example, Richenstein discloses that Channel Status information is used to “indicate which stereo channels (left and right channels) contain active audio data. The amplitude of the digital audio data may determine whether a stereo channel is active or inactive. If active audio is not detected on a stereo channel, the Channel Status can be flagged in the outgoing packets as OFF (zero). If active audio is sensed on a stereo channel the Channel Status can be flagged in the outgoing packets as ON (one).” Richenstein, [0100]. Richenstein further discloses determining whether a stereo channel is active by comparing the sum of the absolute values of a certain number of data samples (for example, 25 samples) with an audio threshold. *See* Richenstein, [0101]. Therefore, when a playback device disclosed by Richenstein receives audio signals in a priority channel, that priority channel is active. By determining whether a priority channel is active (*i.e.*, when the Channel Status is flagged as ON), Richenstein discloses *determining that the playback device is receiving the first type of media content* in a priority channel.

169. Richenstein also discloses that “Channel Status information is preferably updated each time a packet is created.” Richenstein, [0101]. “Channel Status information may be used to control the channel selection switch on receiver 700 to only allow selection of an active channel, and to minimize power consumption by powering down the receiver DSP to avoid processing data words in each packet 86 that are associated with an inactive channel.” Richenstein, [0108]. A

POSITA would understand that in order for the audio of a priority channel to be played (e.g., overriding a non-priority played channel which is currently being played), the priority channel must be determined to be active “each time a packet is created.” Richenstein, [0101]. This includes when a non-priority channel is being played. Therefore, Richenstein discloses *while playing the second type of media content, determining that the playback device is receiving the first type of media content.*

170. Richenstein further discloses the priority channel audio signals are received via a line-in connector. For example, audio device 34 has multiple line-in connectors, including eight source input connectors labeled as line 1 to line 8 in Fig. 1. *See e.g.*, Richenstein, [0039] (“For illustrative purposes, audio device 34 is depicted in FIG. 1 as including audio stage 36, having first and second audio sources such as line 1 source 38 and line 2 source 40 each connected to stereo processing circuitry such as stereo channel 1 circuitry 42.”). Each of the eight source input connectors is a line-in connector. Specifically, Richenstein discloses that audio device 34 contains a legacy adaptor including line 7 and line 8 as analog inputs, which a POSITA would understand to be line-in connectors. *See* Richenstein, [0042] (“Similarly, an analog audio device may be included in wireless headphone system 10 by use of a legacy adapter, such as legacy adapter 62. Legacy adapter 62 is illustrated as including line 7 analog audio input 64 and line 8 analog audio input 66

both connected to stereo channel circuitry 68 for application to DSP encoder and controller 30. It should be noted that any one of the audio inputs designated as lines 1 through 8, may be paired as stereo input lines, used singly as separate monaural inputs, or in any other convenient combinations of stereo and mono inputs or as part of a more complex audio format, such as a home theater 5.1 or 7.1 system. Any one or more of lines 1 through 8 may also be used to transmit non-audio data, as described in more detail elsewhere herein.”). In an example in which audio signals of a front door monitor or a baby monitor are provided in a priority channel, such a priority channel may use channel 4R, which may correspond to the legacy adaptor and one of lines 7 and 8 line-in connectors, as annotated below. *See* Richenstein, [0048]. However, because Richenstein is not specific as to which channel corresponds to which of Richenstein’s various line-in connectors, a POSITA would understand that any of lines 1-8 can be line-in connectors played over the priority channel. Furthermore, signal input connector 1150 is also a line-in connector because Richenstein discloses that signal input connector 1150 can receive priority signals from “a landline, cell phone, or doorbell ringing or a driveway or yard sensor output.” Richenstein, [0193]. A POSITA would understand these signals to be received via a line-in connector. *See also supra*, ¶¶141, 147-148 (disclosures relating to audio device 34 apply to computer 1142).

171. Accordingly, Richenstein discloses *while playing the second type of*

media content, determining that the playback device is receiving the first type of media content via a line-in connector.

7. [1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;

172. Richenstein discloses *in response to determining that playback device is receiving the first type of media content (a priority channel), ceasing playback of the second type of media content (stopping a non-priority channel) and playing the first type of media content (playing the priority channel).*

173. As discussed above, Richenstein discloses that a priority channel can be automatically selected and “automatically override the listener’s selection of one of the stereo channels.” Richenstein, [0048]. A POSITA would understand the phrasing “automatically override” means that the playback device has stopped playing the listener’s current selected non-priority channel and has begun to play the priority channel. *See also* Richenstein, [0048] (describing “automatically return[ing] to the stereo channel earlier selected by the listener”), [0147] (describing “cut[ting]-in and play[ing] a priority channel” such as a baby monitor). This automatic selection and overriding discloses *ceasing playback of the second type of media content (e.g., the listener’s current selection of non-priority channel) and playing the first type of media content (e.g., the priority channel).*

174. Richenstein further discloses that the Channel Status must be determined “each time a packet is created.” Richenstein, [0101]. Therefore, flagging of the Channel Status indicating the priority channel is active, as well as the subsequent automatic overriding of the non-priority channel by the active priority channel, must be in response to the determination that the priority channel is active, *i.e.*, determining that the playback device is receiving the audio signals in the priority channel (*i.e.*, the first type of media content).

175. Accordingly, Richenstein’s disclosure of determining whether a priority channel is active before creating each channel packet where Channel Status indicates the priority channel is ON and subsequent automatic overriding of a non-priority channel by the active priority channel meets this claim limitation.

8. [1.7] determining that the playback device is no longer receiving the first type of media content; and

176. Richenstein discloses *determining that the playback device is no longer receiving the first type of media content* (priority channel is inactive).

177. As discussed above, Richenstein discloses that the priority channel must be determined to be active “each time a packet is created.” Richenstein, [0101]. For example, Richenstein discloses that Channel Status information is used to “indicate which stereo channels (left and right channels) contain active audio data. The amplitude of the digital audio data may determine whether a stereo channel is

active or inactive. If active audio is not detected on a stereo channel, the Channel Status can be flagged in the outgoing packets as OFF (zero). If active audio is sensed on a stereo channel the Channel Status can be flagged in the outgoing packets as ON (one).” Richenstein, [0100]. Richenstein further discloses determining whether a stereo channel is active based on comparison of the sum of the absolute values of data samples with an audio threshold. *See* Richenstein, [0101]. Therefore, by determining a priority channel is inactive (e.g., the playback device is no longer receiving signals in the priority channel), the playback device disclosed by Richenstein *determin[es] that the playback device is no longer receiving the first type of media content.*

9. [1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

178. Richenstein discloses *in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content (stop playing the priority channel) and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content (subsequent activation of the priority channel will override then playing non-priority channel).*

179. In the example discussed above, Richenstein discloses that “[i]f active

audio is not detected on a stereo channel, the Channel Status can be flagged in the outgoing packets as OFF (zero).” Richenstein, [0100]. Richenstein further discloses that the priority channel must be determined to be active “each time a packet is created.” Richenstein, [0101]. Therefore, when the playback device disclosed by Richenstein is no longer receiving audio signals in the priority channel, the priority channel is determined to be inactive, and the Channel Status is flagged as OFF, the outgoing packets will no longer override the non-priority channel. In this case, Richenstein discloses that the previously overridden non-priority channel can be switched back. *See* Richenstein, [0048] (“a fixed or adjustable time period after the audio level in the baby monitor channel no longer exceeds the preset level, switching selector 78 may be configured to automatically return to the stereo channel earlier selected by the listener.”). By automatically returning to the stereo channel earlier selected by the listener, the playback of the priority channel is ceased.

180. A POSITA would understand that in such a configuration, if the priority channel once again becomes active, the automatic channel switching mechanism would again override a non-priority channel and switch the playback to the priority channel. Accordingly, the playback device disclosed by Richenstein is *rearm[ed]* so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

B. Dependent Claim 2: The playback device of claim 1, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.

181. Richenstein discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content (non-priority channel) via at least one of a wireless or a wired network interface.*

182. For example, Richenstein discloses that portable MP3 player 45 can transmit media content wirelessly to audio device 34 via a digital bitstream 17. Richenstein, [0195]-[0196], Fig. 27. Audio device 34, equipped with a combined transmitter/receiver 19, can then transmit the received media content to headphones 14 for playback via a bitstream 16. Richenstein, [0196], Fig. 27. Therefore, Richenstein discloses receiving media content from the MP3 player via a wireless network interface (e.g., combined transmitter/receiver).

183. As discussed above in claim 1, audio device 34 has the priority channel feature capable of overriding a non-priority channel, such as the media content received from portable MP3 player 45, with a priority channel, such as audio signals received from a baby monitor connected to one of the line inputs of audio device 34. Therefore, media content received from portable MP3 player 45 is the second type of media content, which is received via combined transmitter/receiver 19, a wireless network interface.

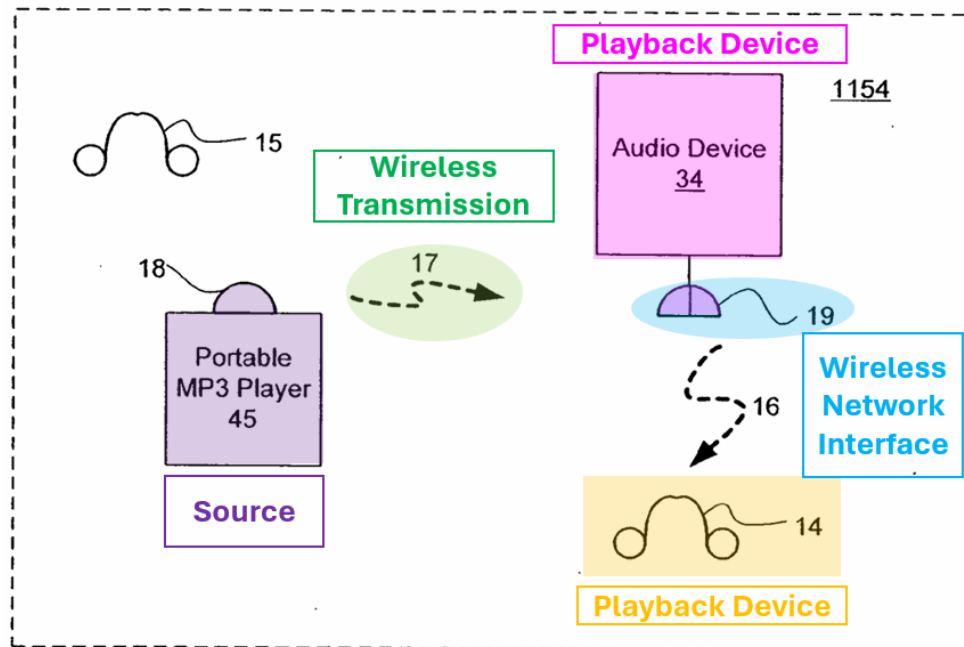


Fig. 27

Richenstein, Fig. 27 (Annotated).

- C. **Dependent Claim 3:** The playback device of claim 1, wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.

184. Richenstein discloses a playback device *wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.*

185. Richenstein discloses that computer 1142 “provides computer generated audio output from computer 1142 to a listener who may selectably use speakers 1144 and 1146 or headphones 14” to listen to the audio transmitted wirelessly via an encoded bitstream 16. *See* Richenstein, [0187]-[0188]. Computer

1142 further includes a signal input connector 1150 that “serve[s] to apply priority signals to computer 1142, such as indications of a landline, cell phone or doorbell ringing or a driveway or yard sensor output, that may be applied to serially coded digital bitstream 16 for reproduction on headphones 14 and/or computer speakers 1144, 1146. This feature is similar to the priority channel discussed above. . . .” Richenstein, [0193]. Accordingly, computer 1142 is capable of performing the automatic switching features discussed above in claim 1.

186. Because signals received by signal input connector 1150 are priority signals, they are the first type of media content. Accordingly, the computer generated audio is the second type of media content. Richenstein discloses that the computer generated audio can be simultaneously transmitted to speakers 1144 and 1146, as well as headphones 14 for playback. Richenstein, [0187]-[0188].

187. Furthermore, a POSITA would understand the playback of the audio to be synchronized across playback devices. Richenstein further discloses various methods for synchronizing audio playback between multiple devices. For example, Richenstein provides that “one important task in maintaining proper operation of system 10 is to maintain synchronization between the operations, particularly the sampling and/or A/D operations of transmitter subsystem 12 and the decoding and related operations of headset receiver unit 14.” Richenstein, [0068]. Richenstein explains that “synchronization may be maintained in several different ways” and that

“it has been found to be advantageous particularly for use in a system (such as system 10) including a possible plurality of battery powered remote or receiver units (such as headset units 14) to synchronize the timing of the operations of headset receiver units 14 to timing information provided by transmitter subsystem 12 and included within IR signals 16 to assure that the synchronization was accurately achieved for multiple receiver units that may be replaced or moved between automobiles from time to time.” Richenstein, [0068]; *see also* Richenstein, [0068]-[0070].

188. Specifically, Richenstein discloses that “[t]ransmitter 18 generates serially encoded digital bitstream 16 for simultaneous reception by speakers 1144, 1146 and headset 14.” Richenstein, [0188].

189. Therefore, speakers 1144, 1146 and headset 14 can play the second type of media content in synchrony. As each of the speakers 1144, 1146 and headset 14 is a playback device, as discussed above in claim limitation [1.P], Richenstein discloses *playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.*

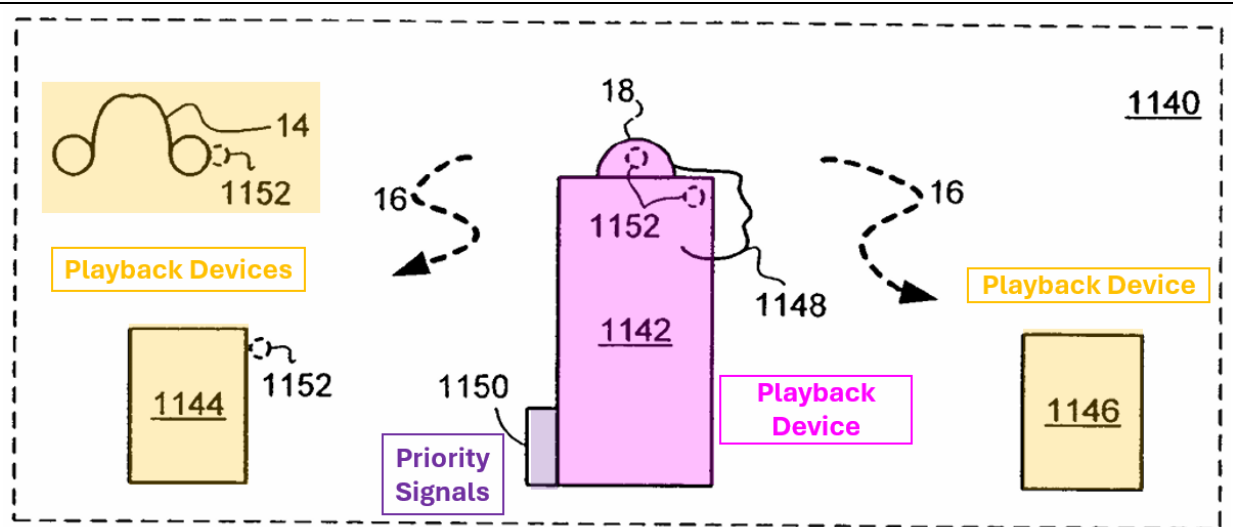


Fig. 26

Richenstein, Fig. 26 (annotated).

190. In another example, Richenstein discloses that the stereo channels may be utilized to provide an audio format, such as the 5.1 format used for home and professional theaters.” Richenstein, [0049]. A POSITA would recognize that the use of 5.1 audio means that there are at least three distinct audio channels which are used collectively to create a surround sound experience for the user. Such a surround sound system often requires synchronized playback of certain music.

191. Indeed, Richenstein explains that such a format involves six different speakers: two in front of the user (“a first stereo channel is used to provide a front stereo sound source located left and right of the video being displayed”), two behind the user (“a second stereo channel may be used to provide a rear stereo sound source located left and right behind the listener”), one directly in front of the user (“[a] so-

called fifth channel may be a monaural channel providing a non-stereo sound source located at a center position between the left and right front stereo sources”), and a low frequently subwoofer (“[a] further monaural channel, representing the so-called “0.1” channel, may conveniently be a low frequency woofer or subwoofer channel whose actual location may not be very critical as a result of the lower audio frequencies being presented”). Richenstein, [0049]; *see also* Richenstein, [0178] (discussing home theatre system); *see also* Richenstein, [0051] (describing a five speaker embodiment).

192. Accordingly, a POSITA would understand Richenstein to disclose a playback device *wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.*

D. Dependent Claim 4: The playback device of claim 1, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.

193. Richenstein discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.*

194. In Fig. 27, Richenstein discloses that portable MP3 player 45 can transmit media content wirelessly to audio device 34 via a digital bitstream 17. Richenstein, [0195]-[0196], Fig. 27; *see also* Richenstein, [0043] (“As depicted in

FIG. 1, wireless headphone system 10 may include one or more digital audio sources and may also include one or more analog audio sources”), Fig. 1. A POSITA would understand that an MP3 player in or around 2011 is an Internet-accessible media source. For example, a typical MP3 player in and around 2011 is an iPod Touch, which can connect to the Internet through Wi-Fi.¹² The first generation of iPod Touch was released on September 5, 2007. By year 2011, four generations of iPod Touch had been released. In other words, Wi-Fi equipped MP3 players in and around 2011 are ubiquitous.

195. In addition, Richenstein explains that local networks can also connect to external media sources including TV and music content or any other available internet resource. Specifically, Richenstein discloses that “[a]s known in the art, network 1020 may thus interface with cable network 1022 to receive media content such as television and music channels, and further to provide a connection to the Internet via cable modem 1024.” Richenstein, [0176]. A POSITA would understand these to be digital audio sources that audio device 34 could access.

196. Accordingly, a POSITA would understand that Richenstein discloses a playback device *wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.*

¹² See e.g., EX1009.

197. To the extent this claim is not disclosed, a POSITA would find it obvious to replace portable MP3 player 45 with an Internet-accessible device as the media source to transmit audio data to audio device 34 using the same wireless transmission link shown in Fig. 27. A POSITA would be motivated to use the iPod and iPhone's WiFi technologies to stream media content to the playback device. As of 2007, "[t]he iTunes Store [] offer[ed] over 350 television shows, over 250 feature films and over 5,000 music videos." EX1008, Furthermore, Apple touted its iPod's ability to allow "users wirelessly watch over 10 million free videos" from YouTube. EX1009, 1. A POSITA would be motivated to allow users to access these expansive media libraries to increase user enjoyment. A POSITA would have a reasonable expectation of success in doing so because downloading content from the internet was well known in the art, and Richenstein discloses examples of devices, such as iPods, relaying media information to the playback device. *See, e.g.,* Richenstein, Fig. 27.

E. Dependent Claim 5: The playback device of claim 1, wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device.

198. Richenstein discloses *transmitting at least a portion of the second type of media content to a third playback device*. While this claim mentions a third playback device, neither claim 5 nor claim 1 mentions a second playback device.

199. To the extent the *third playback device* merely requires a playback device other than the *playback device* from claim 1, Richenstein discloses this claim. With respect to Figure 27, Richenstein discloses that portable MP3 player 45 can transmit media content wirelessly to audio device 34 via a digital bitstream 17. Richenstein, [0195]-[0196], Fig. 27. Audio device 34, equipped with a combined transmitter/receiver 19, can then transmit the received media content to headphones 14 (the third playback device) for playback via a bitstream 16. Richenstein, [0196], Fig. 27; *see also* annotated Fig. 27 below.

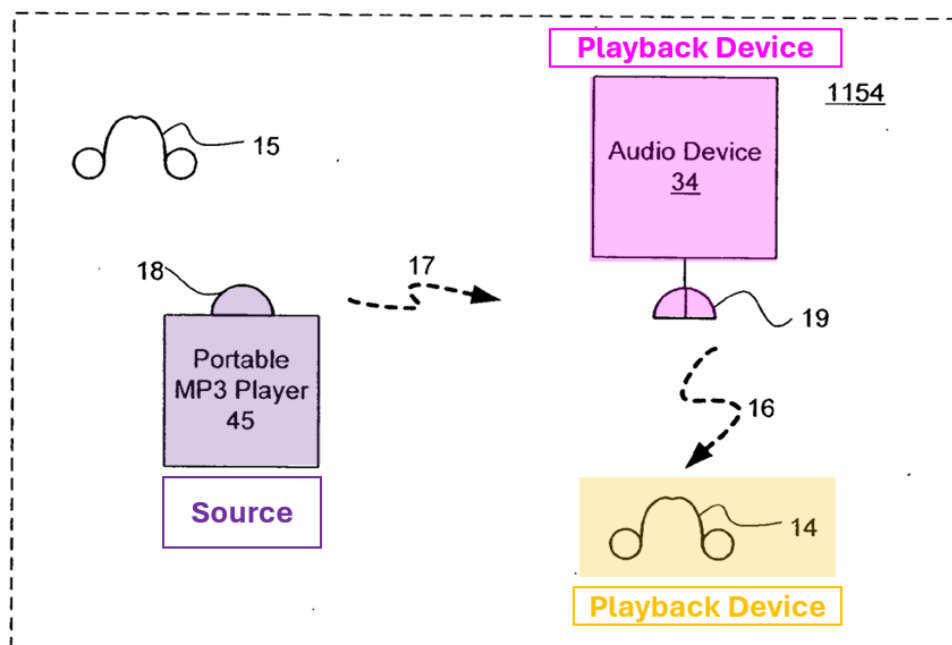


Fig. 27

Richenstein, Fig. 27 (Annotated).

200. To the extent the claim requires a total of three playback devices, Richenstein discloses this as well. In a further example, depicted in Figure 26 and as

discussed in claims 1 and 3, speakers 1144, 1146 and headset 14 are all playback devices and receive audio signals wirelessly from transmitter 18 connected to computer 1142. *See* Richenstein, [0187]-[0188]. While playing the computer generated audio (the second type of media content) simultaneously (*see* Richenstein, [0188]), each of speakers 1144, 1146 and headset 14 can be the claimed third playback device, as shown below.

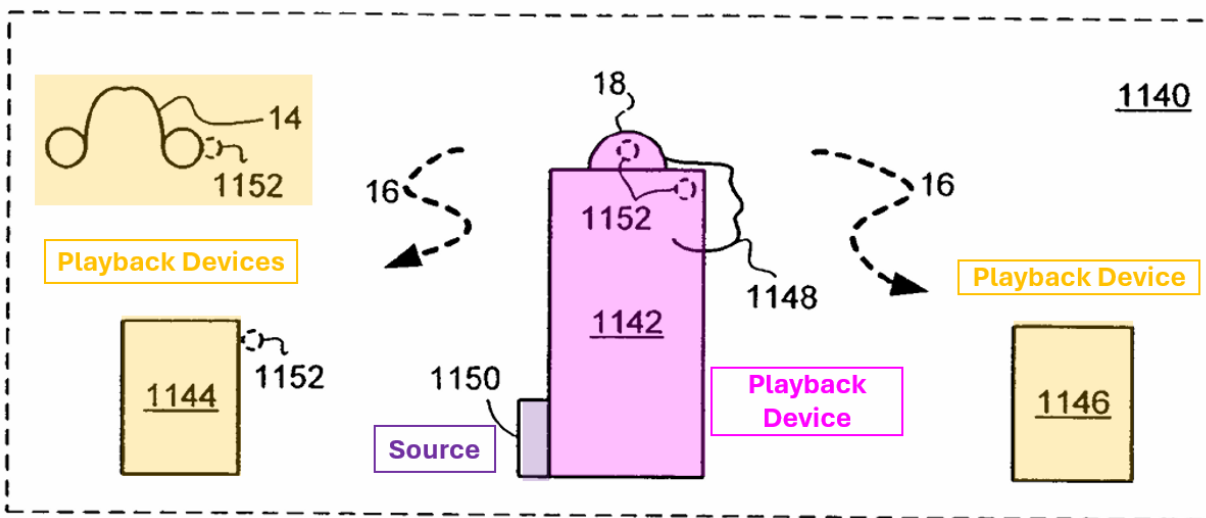


Fig. 26

Richenstein, Fig. 26 (Annotated).

201. As discussed above, Richenstein discloses the use of a home theatre system which a POSITA would understand comprises at least three different playback devices. *See* Richenstein, [0049] (“a first stereo channel is used to provide a front stereo sound source located left and right of the video being displayed. Similarly, a second stereo channel may be used to provide a rear stereo sound source

located left and right behind the listener. A so-called fifth channel may be a monaural channel providing a non-stereo sound source located at a center position between the left and right front stereo sources.”); *see also* Richenstein, [0178] (discussing the use of multiple “channels of monaural audio for each speaker 1130 forming a so-called 5.1 audio system.”). Richenstein discloses the sending of audio information to each of those playback devices through the use of “the 5.1 format.” Richenstein, [0049]. Richenstein also indicates that its invention is compatible with “the so-called 7.1 audio format,” which typically involves eight speakers. Richenstein, [0049]; *see also* Richenstein, [0051] (describing a five speaker embodiment).

202. A POSITA would understand that Richenstein’s home theatre setup audio can be the *second type of media content* as Richenstein, in discussing its baby monitor functionality, is non-specific as to which sources can or cannot be overridden. Accordingly, a POSITA would expect that Richenstein’s home theatre audio could be in a non-priority channel and subject to being overridden by a priority channel, and therefore the home theatre audio constitutes the *second type of media content*.

203. Accordingly, a POSITA would understand Richenstein to disclose a playback device *wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device*.

F. Dependent Claim 6: The playback device of claim 1, wherein playing the first type of media content comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device.

204. Richenstein discloses *transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device*.

205. Referring to Fig. 26, Richenstein discloses that signals received at signal input connector 1150 are priority signals and, similar to the priority channel feature discussed above in claim 1, can override a non-priority channel while the non-priority channel is playing. *See* Richenstein, [0193], Fig. 26. Richenstein further discloses that speakers 1144, 1146 and headset 14 are all playback devices and receive audio signals wirelessly from transmitter 18 connected to computer 1142, as discussed above in claims 1 and 3. *See* Richenstein, [0187]-[0188]. Therefore, this claim limitation is met when the priority signals received at signal input connector 1150 are transmitted by transmitter 18 to speakers 1144, 1146 and headset 14 to override a non-priority channel, *i.e., transmitting at least a portion of the first type of media content* (priority signals received at signal input connector 1150) *to at least one of a second playback device or a third playback device* (any of speakers 1144, 1146 and headset 14), as shown in the annotated Fig. 26 below.

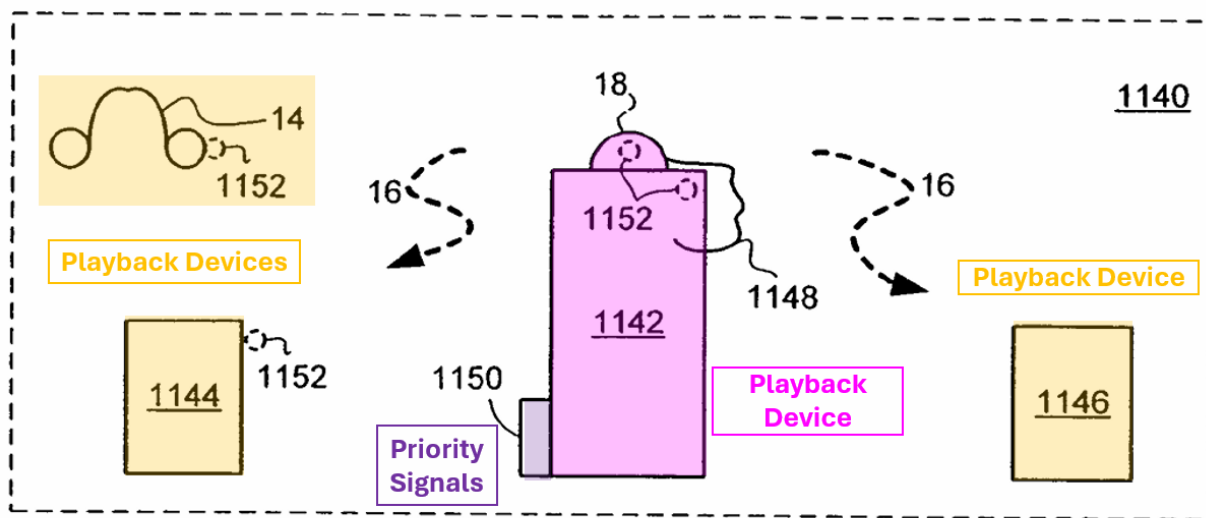


Fig. 26

Richenstein, Fig. 26 (Annotated)

206. In another example, Richenstein discloses that audio device 34 equipped with a combined transmitter/receiver 19 can transmit the media content to headphones 14 (a playback device) for playback via a bitstream 16. *See* Richenstein, [0196], Fig. 27; *see also* annotated Fig. 27 below. As discussed above in claim 1, Richenstein further discloses that audio device 34 has a line-in connector (e.g., any one of line 1 to line 8) which can receive priority channel signals that automatically override a non-priority channel while the non-priority channel is playing. *See* Richenstein, [0048], Fig. 1. Therefore, Richenstein discloses *transmitting at least a portion of the first type of media content (e.g., priority channel) to at least one of a second playback device or a third playback device (e.g., headphones 14)*, as shown in the annotated Fig. 27 below.

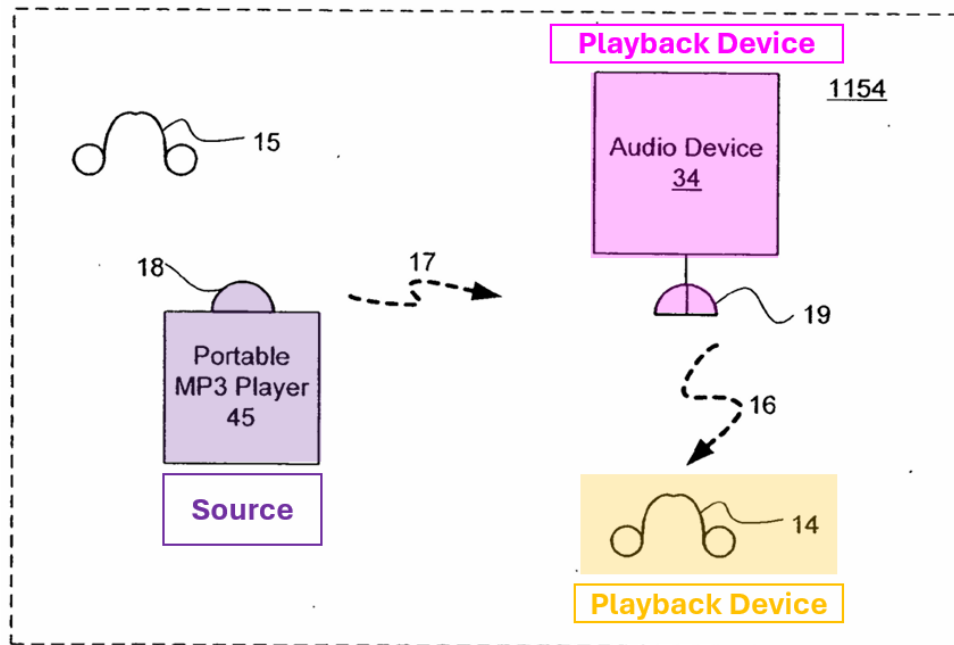


Fig. 27

Richenstein, Fig. 27 (Annotated)

G. Dependent Claim 7: The playback device of claim 1, wherein the first type of media content comprises media content received from a video device.

207. Richenstein discloses or renders obvious *wherein the first type of media content comprises media content received from a video device.*

208. Richenstein discloses examples wherein signals of a priority channel (carrying the first type of media content) are received from a baby monitor (*see* Richenstein, [0048]), a front door monitor ([0048]), and a cell phone ([0193]), among others. A POSITA would understand that such baby monitors, front door monitors, and cell phones would usually have video functionality as of the time

frame in or around 2011. *See, e.g.,* EX1008, 2. Accordingly, Richenstein discloses that the first type of media content is *received from a video device*.

H. Independent Claim 8

209. As discussed in Grounds 1-2, the claim limitations in column 1 share substantial similarities with the corresponding claim limitations in column 2. Accordingly, Richenstein discloses, teaches, or suggests the claim limitations in column 2 for the same reasons as explained for the corresponding limitation in column 1.

Column 1: Claim 1	Column 2: Claim 8
[1.2] tangible, non-transitory computer readable memory comprising instructions stored therein, wherein the instructions, when executed, cause the playback device to perform a method comprising:	[8.P] Tangible, non-transitory computer-readable media comprising instructions encoded therein, wherein the instructions, when executed by a playback device, cause the playback device to perform functions comprising:
[1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;	[8.1] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;
[1.4] after arming the playback device, playing the second type of media content;	[8.2] after arming the playback device, playing the second type of media content;
[1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;	[8.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in connector;
[1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and	[8.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and

playing the first type of media content; [1.7] determining that the playback device is no longer receiving the first type of media content; and	playing the first type of media content; [8.5] determining that the playback device is no longer receiving the first type of media content; and
[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.	[8.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

210. To the extent the precise language of the two claims differ, such differences are insubstantial and do not alter the analysis above. For example, a POSITA would not see any substantive differences between a “tangible, non-transitory computer readable memory” and a “tangible, non-transitory computer-readable media”, nor would a POSITA understand there to be substantial differences between instructions which are stored and instructions which are encoded therein.

I. Dependent Claim 9: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.

211. This claim is substantively identical to claim 2. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

-
- J. Dependent Claim 10: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.**

212. This claim is substantively identical to claim 4. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

- K. Dependent Claim 11: The tangible, non-transitory computer-readable media of claim 8, wherein playing the second type of media content comprises transmitting at least a portion of the second type of media content to a third playback device.**

213. This claim is substantively identical to claim 5. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

- L. Dependent Claim 12: The tangible, non-transitory computer-readable media of claim 8, wherein playing the first type of media content comprises transmitting at least a portion of the first type of media content to at least one of a second playback device or a third playback device.**

214. This claim is substantively identical to claim 6. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

M. Dependent Claim 13: The tangible, non-transitory computer-readable media of claim 8, playback device of claim 1, wherein the first type of media content comprises media content received from a video device.

215. This claim is substantively identical to claim 7. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

N. Independent Claim 14

216. As discussed in Grounds 1-2, the claim limitations in column 1 share substantial similarities with the corresponding claim limitations in column 2. Accordingly, Richenstein discloses, teaches, or suggests the claim limitations in column 2 for the same reasons as explained for the corresponding limitation in column 1.

<u>Column 1: Claim 1</u>	<u>Column 2: Claim 14</u>
[1.P] A playback device comprising:	[14.P] A method performed by a playback device, the method comprising:
[1.3] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;	[14.1] arming the playback device so that receipt of a first type of media content preempts playback of a second type of media content;
[1.4] after arming the playback device, playing the second type of media content;	[14.2] after arming the playback device, playing the second type of media content;
[1.5] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in	[14.3] while playing the second type of media content, determining that the playback device is receiving the first type of media content via a line-in

connector;	connector;
[1.6] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;	[14.4] in response to determining that playback device is receiving the first type of media content, ceasing playback of the second type of media content and playing the first type of media content;
[1.7] determining that the playback device is no longer receiving the first type of media content; and	[14.5] determining that the playback device is no longer receiving the first type of media content; and
[1.8] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.	[14.6] in response to determining that the playback device is no longer receiving the first type of media content, ceasing playback of the first type of media content and rearming the playback device so that subsequent receipt of the first type of media content preempts playback of the second type of media content.

- O. Dependent Claim 15: The method of claim 14, wherein playing the second type of media content comprises receiving the second type of media content via at least one of a wireless or a wired network interface.**

217. This claim is substantively identical to claim 2. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

- P. Dependent Claim 16: The method of claim 14, wherein playing the second type of media content comprises playing the second type of media content in synchrony with a second playback device.**

218. This claim is substantively identical to claim 3. Accordingly,

Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

Q. Dependent Claim 17: The method of claim 14, wherein playing the second type of media content comprises receiving the second type of media content from an Internet-accessible media source.

219. This claim is substantively identical to claim 4. Accordingly, Richenstein discloses, teaches, or suggests this claim for the same reasons discussed above.

XII. Additional Remarks

220. I currently hold the opinions expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

221. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

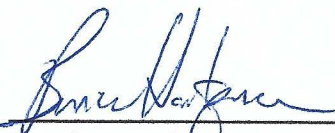
222. I have reviewed the accompanying Petition for *Inter Partes* Review of the '023 Patent and, given the information set forth in this declaration, I agree with the reasoning and conclusions of the grounds of challenge in the petition. Based on

my own analysis, I agree that: (1) Richenstein teaches or suggests all of the limitations of claims 1-17; (2) Barbe teaches or suggests teaches or suggests all of the limitations of claims 1-17.

* * *

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this proceeding.

Dated: 1-31-25

By: 
Dr. Bruce Hartpence, Ph.D.
Rochester, New York

APPENDIX A

BRUCE HARTPENCE

ISCHOOL, GCCIS, RIT, Rochester, NY 14623
bhhics@rit.edu

A. Professional Preparation

- Finger Lakes Community College, Canandaigua, NY, Computer Science, A.S, 1993
- Rochester Inst of Technology, Rochester, NY, Information Technology, B.S., 1996
- Rochester Inst of Technology, Rochester, NY, Information Technology, M.S., 1998
- Rochester Inst of Technology, Rochester, NY, Computing and Info Sci, Ph.D., 2020

B. Appointments

2016-present Professor, ISCHOOL, GCCIS, RIT
Rochester Institute of Technology, Rochester, NY

2007-2015 Associate Professor, NSSA/IST Departments, RIT
Rochester Institute of Technology, Rochester, NY

1998-2007 Assistant Professor, NSSA/IST Departments, RIT
Rochester Institute of Technology, Rochester, NY

1990-1994 Electrical Technician
Mobil Chemical, Macedon, NY

1984-1990 Nuclear Electrician
U.S. Navy, U.S.S. Enterprise (CVN-65)

C. Products

Recent Publications:

1. B. Hartpence, D. Johnson, B. Stackpole and A. Kwasinski, "RIT Network and Security Dataset Collections," 2024 International Symposium on Networks, Computers and Communications (ISNCC), Washington DC, DC, USA, 2024, pp. 1-6, doi: 10.1109/ISNCC62547.2024.10759040.
2. B. Hartpence, D. Johnson, B. Stackpole and A. Kwasinski, "RIT Network and Security Dataset Collections," 2024 International Symposium on Networks, Computers and Communications (ISNCC), Washington DC, DC, USA, 2024, pp. 1-6, doi: 10.1109/ISNCC62547.2024.10759040.
3. Hartpence, Bruce, and Andres Kwasinski. "CNN and MLP Neural Network Ensembles for Packet Classification and Adversary Defense." 2021 Intelligent and Converged Networks, IEEE, 2021.
4. Hartpence, Bruce. Neural Network Architectures and Ensembles for Packet Classification: Addressing Visibility, Security and Quality of Service Challenges in Communication Networks. Rochester Institute of Technology, 2020.

5. Hartpence, Bruce, and Andres Kwasinski. "A Convolutional Neural Network Approach to Improving Network Visibility." 2020 29th Wireless and Optical Communications Conference (WOCC). IEEE, 2020.
6. Hartpence, Bruce, Andres Kwasinski, "Combating TCP Port Scan Attacks Using Sequential Neural Networks", IEEE ICNC, 2020.
7. Hartpence, Bruce, Andres Kwasinski, "Considering the Blackbox: An Investigation of Optimization Techniques with Completely Balanced Datasets of Packet Traffic", IEEE Big Data, 2019.

Other significant publications:

1. Hartpence, Bruce, and Rossi Rosario. "Software Defined Networking for Systems and Network Administration Programs." The USENIX Journal of Education in System Administration (2016): 12.
2. Sharma, et al., "Performance of Meshed Tree Protocols for Loop Avoidance in Switched Networks", Sharma et al., ICNS 2014
3. Hartpence, Bruce, Kwasinski, A., "Fast Internet Packet and Flow Classification Based on Artificial Neural Networks", IEEE Southeastcon, 2019.
4. Hartpence, Bruce, "Performance Evaluation of Networks with Physical and Virtual Links", IEEE Global Information Infrastructure and Networking Symposium (GIIS), 2015.
5. Hartpence, Bruce. "Curricular and performance measurement challenges in cloud environments." Proceedings of the 15th Annual Conference on Information technology education. 2014.
6. Hartpence, Bruce, "The Packet Guide to Voice over IP", O'Reilly Publishing, 2013.
7. Hartpence, Bruce, "The Packet Guide to Routing and Switching", O'Reilly Publishing, 2011.
8. Hartpence, Bruce, "The Packet Guide to Core Network Protocols", O'Reilly Publishing, 2010.

D. Synergistic Activities

1. RIT Network and Security Research Project: Data Science and Machine Learning for Network Challenges and DNS Security, 2023-present.
2. Standards work: IEEE project 1910.1 - Standard for Meshed Tree Bridging with Loop Free Forwarding (2015-2021)
3. Rochester Institute of Technology Software Defined Network testbed construction and dataset creation. This was a virtualization cluster and physical network testbed deploying Open Daylight controllers and the OpenFlow protocol. (2017-2019)
4. Meshed Tree Protocol Design: This project seeks to improve upon convergence times for layer networks experiencing outages or looped topologies. This foundational work resulted in the formation of an IEEE working group under 802.1. (2012-2013)
5. Virtualization cluster and SAN construction: A major goal of the grant work is to disseminate network and security curricula and ideas to schools named in the grant. This project has resulted in the creation of several smaller projects and papers including the creation of several small clusters based on VMWare ESXi, course development work and security competition architectures. (2010-2013)
6. UNCF Special Programs Corporation (UNCFSP) entitled, "Implementation of a Student Technical Assistance Need-based Developmental Undergraduate Program (STANDUP)", for the NASA Administrator's Fellowship Project (NAFP) Research Award. Oakwood College, Roper, E. (2010)

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CV Addendum

1. History of employment/consulting in expert field

a. Network and VoIP Training and Material Creation (2008-2014)

These were a lengthy series of both on-site and on campus training programs. They incorporated a wide variety of topics ranging from basic networking and protocols to Voice over IP.

Microwave Data Systems

Harris RF (includes license agreement for materials)

Wegmans Food Markets

b. Trocaire College Program Review (2010-2011)

This was a complete review of the existing program, students and the local job market. The final report included recommendations for the future of the program and modifications to be made.

c. Liban (now Vnomics) Wireless Site Survey and System Research (2010-2011)

I was engaged to assist in the development of an intelligent system for monitoring onboard trucking systems. This also included wireless site survey at proposed deployment locations.

d. IEEE 1910.1 Standards Creation (2015-2020)

2. **Expert Witness History:** A listing of cases in which you've been retained as an expert within the last five years.

NA

3. **Patent History**

NA