

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC.
Petitioner

v.

MEDIA CHAIN, LLC,
Patent Owner

Case No. IPR2022-00394
U.S. Patent No. 10,885,154

**DECLARATION OF JOHN TINSMAN IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 10,885,154**

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Patent Trial and Appeal Board
U.S. Patent & Trademark Office
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EX1002
Roku V. Media Chain
U.S. Patent No. 10,885,154

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I, John Tinsman, declare as follows:

I. INTRODUCTION

1. I have been engaged by Sterne, Kessler, Goldstein & Fox P.L.L.C. on behalf of Roku, Inc. (“Roku”) to provide this Declaration concerning technical subject matter relevant to the *inter partes* review of U.S. Patent No. 10,860,154 (EX1001, “’154 patent”), which is entitled “Digital media reproduction and licensing.”

2. I am over 18 years of age. I have personal knowledge of the facts stated in this Declaration.

3. I have reviewed, and am familiar with, the specification, claims, and prosecution history of the ’154 patent. I will cite to the specification of a U.S. Patent using the following format: Column:Line Number(s). For example, the citation to EX1001, 1:1-10, points to the ’154 patent specification at column 1, lines 1-10.

4. In forming my opinions expressed in this Declaration, I have reviewed and, in some cases, relied upon the list of materials provided in Section III. To the best of my knowledge, those exhibits listed in Section III are true and accurate copies of what they purport to be. An expert in the field would reasonably rely on them to formulate opinions such as those set forth in this Declaration.

5. I am being compensated at my standard rate of \$300/hour by Roku for my time spent in connection with this proceeding. My compensation is not

dependent on, and in no way affects, the substance of my opinions. Nor is my compensation dependent on the outcome of this proceeding. My findings are based on my education, experience, and background in the fields discussed below.

II. QUALIFICATIONS

6. My academic and professional pursuits are closely related to the subject matter of the '154 patent. Based on my education and work experience, I am well qualified to serve as a technical expert in this matter.

7. A summary of my educational and professional experience is set forth in my *curriculum vitae* ("CV"), which is submitted as Exhibit 1015. Some of the relevant points in my CV are described below.

8. I received a Bachelor's degree and Master's degree in Physics from the University of California, Santa Barbara in 1981 and 1983, respectively. My specialization for my Master's degree was medical and scientific instrumentation. I also received a Master's in Business Administration from San Jose State University in 1995. I am a member of the Institute of Electrical and Electronics Engineers (IEEE) and a registered U.S. Patent and Trademark Office patent agent (Registration No. 73,427).

9. Although originally trained as a physicist, I have more than 35 years of experience designing, developing, and deploying hardware and software for scientific, consumer, industrial, and professional environments. I also have extensive

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experience in engineering management and business development, including the management of multinational teams. I have worked for a range of organizations, from academic institutions such as the Stanford Linear Accelerator Center (SLAC) at Stanford University and the Signal Processing Laboratory at the École Polytechnique Fédérale de Lausanne (EPFL), to pioneers in multimedia and digital television, such as Radius, Inc., OpenTV Inc., Qualcomm, and the Kudelski Group. In that time, I have published a number of papers and made numerous presentations at academic and professional conferences, as well as before the European Commission.

10. I specialize in the areas of analog and digital signal processing and communications, and the command and control functions that generally accompany them. From 1985 to 1989, I developed analog and digital signal processing hardware and software for data acquisition systems in high energy physics experiments at SLAC. I also worked on the command and control systems used to operate, calibrate, and monitor such experiments, as well as the particle accelerator itself.

11. From 1989 to 1995, I applied these skills to computer graphics and multimedia systems at Radius. Radius was a leader in high end graphics, and an early developer of Macintosh-based audio and video multimedia systems. These systems included multimedia ingest, editing, processing, compression, and delivery, including server-based delivery over networks. Key markets for these products

included pre-press, television post-production, and video serving using video compression.

12. I worked at Radius as an engineer and an engineering manager. Several of my projects were related to video editing and compression using various codecs, such as MPEG-2 and Cinepak. This work included video signal processing and video signal enhancement, as well as the more general aspects of post-production using Apple Computer's QuickTime framework. These aspects included the use of time codes, edit lists, and other metadata to properly combine a collection of input tracks into the final multimedia output. My other technical activities included the development of high speed networks, custom integrated circuits, and remote rendering and control of high-resolution graphics displays.

13. I joined Visual Edge in 1995 as its Vice President of Engineering. I led a team of engineers in developing and supporting high performance image processing software for rendering and printing text and images on large format high resolution digital printers. This work involved product definition and engineering, as well as research on algorithms for imaging and color calibration.

14. In 1998, I moved to Switzerland to become a Principal Researcher at the EPFL, supervising a team of researchers and graduate students studying high performance signal processing. Specifically, this work involved using the then-new multimedia instruction sets appearing in microprocessors to accelerate audio, image

and video processing, and compression on high-end desktop computers.

15. My background in signal and media processing also provided me the opportunity to use my skills in related contexts. In 2000 and 2001, I consulted for a search engine company, Albert Inc., to develop a prototype voice navigation and control module for their textual search engine. The target environment for the prototype was high-end automobiles, with the goal of enabling voice-based searches for information and services related to the user's location. As a result, I worked extensively to understand a number of fundamental challenges to gathering, processing, and recognizing speech in an automotive environment.

16. During this period, I also consulted with Pinnacle Systems, a manufacturer of digital video hardware and software for the consumer and broadcast markets. I developed video signal processing algorithms for Pinnacle's custom broadcast television graphics integrated circuits and cards, with an emphasis on noise reduction to improve image quality and compressibility.

17. From 2001 to 2007, I worked at OpenTV Inc. as a director in the Office of the Chief Technology Officer. OpenTV was a premier provider of set-top box middleware for cable and satellite platforms and was deeply involved in technology development and standards making for digital and interactive pay television. In that position, I worked both as a product architect in Europe and as OpenTV's representative at standards groups, such as the Digital Video Broadcasting (DVB)

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Project. My architectural job activities included working with other technology providers, including companies that provided conditional access and Video on Demand (VOD) technologies for integration with OpenTV's set-top box middleware, as well as OpenTV's own products for content recording and playback. My standards work included contributions at the DVB to various technical and market development working groups, as well as at the steering board level. This work included significant involvement in the DVB's standardization efforts around their Multimedia Home Platform (MHP) standard for a TV-based interactive television.

18. From 2007 to 2009, I worked at Qualcomm Inc. as a Product Manager, supporting the company's MediaFLO technology. MediaFLO was a technology for transmitting audio, video, and data to portable devices, such as mobile phones. The broadcast media transmitted via MediaFLO included live, real-time audio and video streams, as well as scheduled video and audio clips and shows. My duties included providing technology strategy, requirements analysis, and customer support for the MediaFLO technology.

19. From 2009 to 2014, I returned to OpenTV as its Vice President of Engineering in the Advanced Advertising Group. In this role, I was responsible for architectures, technologies, and product development for OpenTV's advanced advertising, and engagement solutions across multiple platforms. This work

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included the ingest and processing of television program and schedule information, such as would be used for advertising schedules or electronic program guides. This work also involved searching, categorizing, and reporting such information for the purposes of ad placements and ad verifications. I also led the design and development of a real-time advertising analytics platform. This work involved extensive processing and presentation of advertising and program schedule information, including database and user interface design and implementation.

20. From 2014 to 2017, I served as the Chief Technologist for the Kudelski Group's Intellectual Property and Innovation Group. In this role, I supported inventors and the innovation process across multiple technologies, including multimedia systems related to content ingest, protection, delivery, and consumption. I also supported the company's licensing and acquisition efforts.

21. Currently, I am the Chief Executive Officer of GadgetJazz, an engineering design and innovation practice founded in 2017. Leveraging my past technical experiences, I perform consulting services related to technology and business development, specifically in the areas of multimedia and communications technologies, distributed systems, high performance computing, and consulting on innovation and the development of intellectual property.

22. I am a named inventor on fourteen U.S. patents: (1) Patent No. 10,387,920 titled "System and Method for Offering and Billing Advertisement

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Opportunities”; (2) Patent No. 10,235,788, titled “Overlay Contrast Control in Augmented Reality Displays”; (3) Patent No. 10,152,815, titled “Overlay Emphasis Modification in Augmented Reality Displays”; (4) Patent No. 10,044,873, titled “Mute Alert”; (5) Patent No. 10,038,859, titled “Same Screen, Multiple Content Viewing Method and Apparatus”; (6) Patent No. 10,032,192, titled “Automatic Localization of Advertisements”; (7) Patent No. 9,877,054, titled “Dynamic Scheduling for Advanced Advertising in Linear Television”; (8) Patent No. 9,799,048, titled “Intelligent Tool to Support Manual Scheduling of Ads”; (9) Patent No. 9,711,128, titled “Combined Audio for Multiple Content Presentation”; (10) – (13) Patent Nos. 9,344,470, 8,782,305, 8,335,873, and 7,930,449, all titled “Method and Systems for Data Transmission”; and (14) Patent No. D759,684, titled “Display Screen with a Graphical User Interface.” I am also the named inventor on three European patents: (1) No. 2,700,200, titled “Methods and Systems for Data Transmission”; (2) No. 2,602,996, titled “Dynamic Generation, Delivery, and Execution of Interactive Applications Over a Mobile Broadcast Network”; and (3) No. 1,912,441, titled “Buffering and Transmitting Video Data upon Request.”

23. Based on my educational background and professional experience, I consider myself an expert in various technologies, including multimedia systems, embedded systems and middleware, content protection technologies, streaming media content, digital television systems, and client-server architectures. I also have

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significant experience in standards and standardization related to the DVB Project, the European Telecommunications Standards Institute (ETSI), and Cable Labs.

III. MATERIALS CONSIDERED

24. In formulating my opinions, I have relied upon my training, knowledge, and experience that are relevant to the '154 patent. Furthermore, I have considered specifically the following documents listed below in addition to any other documents cited in this Declaration. I understand that the references are true and accurate copies of what they appear to be:

25. I have been asked to provide technical review, analysis, insights, and opinions regarding the references cited in the Petition and discussed below. My opinions are not only based on these references but also based on my over 30 years of experience as a computer architect, computer system designer, personal computer graphics designer, educator, and executive in the electronics industry.

Exhibit No.	Description
1001	U.S. Patent No. 10,860,154 to Estes (“’154 patent”)
1003	U.S. Patent Publication No. 2004/0010417 to Peled (“Peled”)
1004	U.S. Patent Publication No. 2011/0191246 to Brandstetter <i>et al.</i> (“Brandstetter”)
1005	U.S. Patent Publication No. 2005/0004873 to Pou <i>et al.</i> (“Pou”)
1006	U.S. Patent Publication No. 2008/0140433 to Levy <i>et al.</i> (“Levy”)
1007	U.S. Patent No. 7,818,261 to Weiskopf <i>et al.</i> (“Weiskopf”)
1009	Prosecution History of U.S. Patent No. 9,715,581 (“’581 Prosecution History”)

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Exhibit No.	Description
1010	Prosecution History of U.S. Patent No. 9,898,590 (“’590 Prosecution History”)
1011	Prosecution History of U.S. Patent No. 10,489,560 (“’560 Prosecution History”)
1012	Prosecution History of U.S. Patent No. 10,515,191 (“’191 Prosecution History”)
1013	Prosecution History of U.S. Patent No. 10,860,691 (“’691 Prosecution History”)
1014	Prosecution History of U.S. Patent No. 10,860,154 (“’154 Prosecution History”)
1015	<i>Curriculum Vitae</i> of John Tinsman
1016	U.S. Patent No. 7,043,473 to Rassool et al. (“Rassool”)
1017	Mary Madden, The State of Music Online: Ten Years After Napster, Pew Research Center (June 15, 2009) (https://www.pewresearch.org/internet/2009/06/15/the-state-of-music-online-ten-years-after-napster/)
1018	U.S. Patent No. 8,185,475 to Hug (“Hug”)
1019	U.S. Patent No. 8,051,130 to Logan (“Logan”)
1020	“Digital Rights Management,” FTC.org (March 25, 2009) (https://www.ftc.gov/news-events/events-calendar/2009/03/digital-rights-management)
1021	U.S. Patent No. 8,776,216 to Boccon-Gibod et al. (“Boccon-Gibod”)
1022	Urs Gasser et al., “Case Study: DRM-protected Music Interoperability and e-Innovation,” Harvard.edu (November 2007) (https://dash.harvard.edu/bitstream/handle/1/2794938/DRM-protected+Music+In+eroperability+and+eInnovation.pdf;jsessionid=FEC1E2A0F87ABB7EB30E41EA93AC1CAC?sequence=2)
1027	U.S. Patent Publication No. 2011/0314378 A1 to Nijim et al. (“Nijim”)

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Exhibit No.	Description
1028	“Apple TV Coming to Your Living Room,” Apple.com (January 9, 2007) (https://www.apple.com/newsroom/2007/01/09Apple-TV-Coming-to-Your-Living-Room/)
1029	Jaap Haitsma, et al., “A Highly Robust Audio Fingerprinting System,” 3rd International Conference on Music Information Retrieval, Paris, France, October 13-17, 2002 (“Haitsma”)
1030	U.S. Patent No. 9,554,176 to Gharaat et al. (“Gharaat”)
1031	Alex Pappademas, “Mood music for the cyber set,” CNN.com, archived December 7, 2004 (https://web.archive.org/web/20041207191754/http://archives.cnn.com/2000/TECH/computing/09/08/mood.music.idg/index.html)
1032	U.S. Patent No. 8,306,976 to Handman et al. (“Handman”)
1033	U.S. Patent Publication No. 2006/0206478 to Glaser et al. (“Glaser”)
1034	U.S. Patent No. 7,081,579 to Alcade et al. (“Alcade”)
1035	Avery Li-Chun Wang, “An Industrial-Strength Audio Search Algorithm,” 4th International Conference on Music Information Retrieval, Baltimore, Maryland, USA, October 27-30, 2003.
1036	Bryan Jacobs, “How Shazam Works To Identify (Nearly) Every Song You Throw At It,” Gizmodo.com (September 24, 2010) https://gizmodo.com/how-shazam-works-to-identify-nearly-every-song-you-th-5647458
1037	European Patent Application Publication No. 1,558,032 to Widevine Technologies, Inc.
1038	U.S. Patent Publication No. 2013/0051772 to Ramaswamy et al. (“Ramaswamy”)
1039	U.S. Patent No. 5,223,924 to Strubbe et al. (“Strubbe924”)
1040	U.S. Patent Publication No. 2001/0056405 to Muyres et al. (“Muyres”)
1041	U.S. Patent No. 7,603,382 to Halt, Jr. (“Halt”)
1042	U.S. Patent No. 10,447,564 to Abraham et al. (“Abraham”)
1043	U.S. Patent No. 8,583,089 to Ramer et al. (“Ramer”)

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Exhibit No.	Description
1044	Laurie J. Flynn, “Like This? You’ll Hate That.” (Not All Web Recommendations Are Welcome.),” NYTIMES.com (January 23, 2006)
1045	U.S. Patent No. 8,375,131 To Rogers et al. (“Rogers”)
1046	U.S. Patent Publication No. 2012/0233701 to Kidron (“Kidron”)
1047	U.S. Patent No. 6,317,722 to Jacobi et al. (“Jacobi”)
1048	U.S. Patent No. 8,352,331 to Dunning et al. (“Dunning”)
1049	U.S. Patent Publication No. 2003/0086341 to Wells et al. (“Wells”)
1050	U.S. Patent No. 7,178,720 to Strubbe et al. (“Strubbe”)
1051	“Technological Protection Systems for Digitized Copyrighted Works: A Report to Congress,” United States Patent and Trademark Office, 2002
1052	Richard Leeming, “DRM – ‘digital rights’ or ‘digital restrictions’ management?”, EBU Technical Review, January 2007 (https://tech.ebu.ch/docs/techreview/trev_309-digital_rights.pdf)
1053	Jordi Ribas-Corbera, “Windows Media 9 Series – a platform to deliver compressed audio and video for Internet and broadcast applications,” EBU Technical Review, January 2003 (https://tech.ebu.ch/docs/techreview/trev_293-ribas.pdf)
1055	Adrian Slywotzky, et al., “The Future of Commerce,” Harvard Business Review, January-February 2000 (https://hbr.org/2000/01/the-future-of-commerce)
1056	Benno Stein, et al., “Near Similarity Search and Plagiarism Analysis,” 29th Annual Conference of the German Classification Society (GfKI), Magdeburg, Germany, 2006
1057	Chow Kok Kent, et al., “Features Based Text Similarity Detection,” Journal of Computing, Vol. 2, Issue 1, January 2010
1058	Benjamin Cohen, “How can publishers limit e-book piracy?”, Channel 4 News, October 18, 2009 (https://www.channel4.com/news/articles/arts_entertainment/books/how%2Bcan%2Bpublishers%2Blimit%2Bebook%2Bpiracy/3391502.html)

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Exhibit No.	Description
1059	John Timmer, “Publishers cut book sharing deal with Scribd,” Ars Technica, March 18, 2009
1060	Eric A. Robinson, “Digital Rights Management, Fair Use, and Privacy: Problems for Copyright Enforcement through Technology,” University of St. Augustine, December 2009 (https://orcid.org/0000-0001-9554-8754)
1061	U.S. Patent Publication No. 2012/0020647 to Vogel (“Vogel”)
1063	U.S. Patent Application Publication No. 2003/0028796 to Roberts et al. (“Roberts”)
1068	U.S. Patent No. 7,577,703 to Boucher et al. (“Boucher”)
1072	U.S. Patent No. 9,715,581 to Estes (“’581 Patent”)
1073	U.S. Patent No. 9,898,590 to Estes (“’590 Patent”)
1074	U.S. Patent No. 10,489,560 to Estes (“’560 Patent”)
1075	U.S. Patent No. 10,515,191 to Estes (“’191 Patent”)
1076	U.S. Patent No. 10,860,691 to Estes (“’691 Patent”)

26. This Declaration represents the opinions I have formed to date. I may consider additional documents as they become available or other documents that are necessary to form my opinions. I reserve the right to revise, supplement, or amend my opinions based on new information.

27. In light of my review of the exhibits, I recognize that the specification of the ’154 patent describes systems and methods for distributing and licensing digital media content over the Internet, and for engaging in targeted marketing of such content based on user demographic data and purchase history.

28. I understand that the ’154 patent purports to claim priority to U.S. Provisional Application No. 61/555,810, filed November 4, 2011. I am familiar with

the technology at issue in the '154 patent and the state of the art as of November 4, 2011.

IV. RELEVANT LEGAL STANDARDS

29. When considering the '154 patent and stating my opinions, I am relying on legal principles that have been explained to me by counsel.

30. I understand that for a claim to be found patentable, the claims must be, among other requirements, novel and nonobvious from what was known at the time of the invention.

31. I understand that the information that is used to evaluate whether a claim is novel and nonobvious is referred to as prior art.

32. I understand that in this proceeding, Petitioner has the burden of proving that each element of the challenged claims is disclosed by the prior art or would have been obvious based on the prior art.

A. Obviousness

33. I understand that a patent claim is invalid if the claims would have been obvious to a person of ordinary skill in the art ("POSA") at the time of the invention. I understand that the obviousness inquiry should not be done in hindsight, but from the perspective of a POSA as of the time of invention of the patent claim.

34. I understand that to obtain a patent, the claims must have, as of the time of the invention, been nonobvious in view of the prior art.

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35. I understand that a claim is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a POSA at the time the invention.

36. I understand that to prove that the prior art reference or a combination of prior art references renders a patent obvious, it is necessary to: (1) identify the particular references that, singly or in combination, make the patent obvious; (2) specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how a POSA could have combined the prior art references to create the claimed invention and what the combination would be.

37. I understand that to support a conclusion that a prior art reference or a combination of prior art references renders a patent obvious, there must be some documentary evidence. Mere statements about what is basic knowledge or common sense, i.e., common knowledge as a replacement for documentary evidence, is insufficient to support a conclusion of obviousness.

38. I understand that certain objective indicia can be important evidence regarding whether a patent is obvious. Such indicia include: industry acceptance, commercial success of products covered by the patent claims; long-felt need for the invention; failed attempts by others to make the invention; copying of the invention by others in the field; unexpected results achieved by the invention as compared to the closest prior art; praise of the invention by the infringer or others in the field;

taking of licenses under the patent by others; expressions of surprise by experts and those skilled in the art at the making of the invention; and the patentee proceeded contrary to the accepted wisdom of the prior art.

B. Level of Skill in the Art

39. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made, which I understand is November 4, 2011. In deciding the level of ordinary skill, I considered the following:

- the educational level of the inventor;
- type of problems encountered in the art;
- prior art solutions to those problems;
- the rapidity with which innovations are made;
- the sophistication of the technology; and
- the educational level of active workers in the field.

40. In my opinion, a person of ordinary skill in the art (“POSA”) at the time of the invention would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or equivalent degree with at least two years of relevant industry experience, including in digital media content delivery, digital media content protection, and statistical analysis of digital media consumption.

41. Throughout my declaration, even if I discuss my analysis in the present

tense, I am always making my determinations based on what a POSA would have known at the time of the invention. Additionally, throughout my Declaration, even if I discuss something stating “I,” I am referring to a POSA’s understanding.

C. Motivation to Combine and Hindsight Bias

42. I understand that obviousness can be established by combining multiple prior art references to meet each and every claim element, but I also understand that a proposed combination of references can be susceptible to hindsight bias.

43. I understand that references are more likely to be combinable if the nature of the problem to be solved is the same.

44. I understand that if the combination of references results in the references being unsatisfactory for their intended purposes or the combination changes the references’ principle of operation, a POSA would not have a motivation to combine the references.

45. I understand that obviousness may be defeated if the prior art indicates that the invention would not have worked for its intended purpose or otherwise teaches away from the invention. I further understand that a reference teaches away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken in the claim. I also understand that teaching away, e.g., discouragement, is strong evidence that the references are not combinable

and/or that a POSA would not be motivated to combine them. I also understand that a disclosure of more than one alternative does not necessarily constitute a teaching away. I understand that the combination does not need to result in the most desirable embodiment.

D. Claim Construction

46. I understand that the claims of a patent are read in light of the specification of the patent as understood by a POSA at the time of the invention. I understand that “the time of the invention” refers to the effective filing date of the patent in question, which I am informed by counsel is November 4, 2011, for the purposes of this proceeding. Whether or not explicitly stated below, my analysis of the prior art is made as of the time the invention was made.

47. I understand that claim terms are given their plain and ordinary meaning as would be understood by a POSA as of the effective filing date. I understand that an inventor may provide a special meaning for a term, but that she must do so in the specification with precision and clarity.

48. In construing claims, I understand that evidence that is intrinsic to the patent and prosecution history is given more weight than extrinsic evidence. For example, if there are specific statements in the specification that define the invention, those statements are strong evidence of a definition for a term. In this Declaration, I have understood the claims in view of the general principles outlined above. Unless

I indicate otherwise below, I have interpreted each claim term discussed herein to have its plain and ordinary meaning.

V. TECHNOLOGY BACKGROUND

49. The '154 patent is directed to systems and methods for distributing and licensing digital media content over the Internet, and for engaging in targeted marketing of such content based on user demographic data and purchase history. Before addressing the '154 patent in detail, I first describe the state of the art at the time the patent was filed.

A. Licensing and Distribution of Digital Media

1. E-Commerce and the Digital Revolution

50. Since the early 1980s, the Internet has revolutionized the way consumers and businesses engage in commerce by allowing companies to remotely connect with, and sell products and services to, consumers. This electronic form of commerce, or “e-commerce,” confers significant advantages to both businesses and consumers alike. For businesses, e-commerce offers affordable advertising and marketing, greater exposure and geographical reach, and flexibility for meeting market demands and customer needs. For consumers, e-commerce offers a more efficient and convenient purchasing experience. *See* EX1055. Because of these advantages, the Internet has been used to market and sell a wide variety of products, including multimedia (e.g., books, newspapers, movies, audio recordings, etc.) for the past forty years.

51. In the mid-to-late 1990s, as Internet and computer usage became more prevalent, online product offerings became digitized. As relevant here, for example, companies and consumers began selling and sharing “digital media content”—i.e., media encoded and distributed as digital data, such as audio recordings, films, e-books, and other audiovisual content. EX1016, 1:17-37. Advances in compression technology, moreover, allowed such content to be saved in a compressed format (e.g., in an .mp3 format) and thus easily copied and transferred among users with just a click of a mouse.

52. Thus, as one patent from a digital rights management company noted in 2000, the Internet and the digital revolution collectively conferred “enormous” benefits in the provision of such content. *Id.*, 1:17-2:5.

2. The Rise of Digital Rights Management Technology

53. But the abundance of digital content on the Internet, and the ease with which it could be transmitted, soon led to the proliferation of unauthorized reproduction of copyrighted works. For example, in the late 1990s and early 2000s, peer-to-peer file-sharing platforms such as Napster and Gnutella allowed users to obtain digital content from others free of charge, and without first obtaining licenses from the copyright holders. EX1017; EX1016, 2:6-18 (noting that “media content owners [were] increasingly concerned [about] piracy of their intellectual property over the Internet”); *see also* EX1018, 1:35-43 (2003 RealNetworks patent describing

licensing difficulties when one user attempted to transfer content to another user's device).

54. The Internet's ability to facilitate unauthorized reproduction of digital content in turn led to a focus on developing a "more robust and efficient" market for licensing digital content, EX1019, 1:53-54, and, in particular, developing and deploying Digital Rights Management ("DRM") technology. DRM technology consists of software and access control measures that restrict the use of copyrighted digital content. *See* EX1020, 1 ("Digital rights management (DRM) refers to technologies typically used by hardware manufacturers, publishers, and copyright holders to attempt to control how consumers access and use media and entertainment content."); *see also* EX1052 (providing an overview of DRM and demonstrating how DRM in general confers specific reproduction rights (e.g., parameters that restrict the user's ability to stream or reproduce a particular media content item) such as "when the content is available; how many devices it can be viewed on, ... , how many times it can be viewed; how long it is available for ... and so on"); EX1053, 3 (providing yet a further overview of DRM and reproduction according to the terms of a downloaded license: "[w]hen a viewer selects the stream, the playback device connects to the licence server, which offers a license for the content. The viewer then decides whether to accept the terms and price of the licence and, if so, the licence is downloaded into the viewer's device. Then the viewer is able to decrypt and play

the content according to the terms of the licence.”).

55. Although such technology can take a variety of forms, DRM algorithms typically include an encryption step, whereby a media content item requested by a user is encrypted, and an authentication step, whereby the user’s computer communicates with a DRM server to ensure that the user has a valid license to reproduce the item. If the user is licensed, the user’s computer decrypts the media content item so that the user can download or stream the item. If the user is not licensed, the item remains encrypted unless and until the user purchases a license. EX1051, 4, 7-9 (Patent Office White Paper describing DRM technology and a user’s interaction with a “license server”)¹; EX1021, 9:33-63; *see generally* EX1018.

¹ EX1051, is a copy of a PDF document titled “Technological Protection Systems for Digitized Copyrighted Works: A Report to Congress.” The document was prepared by the U.S. Patent & Trademark Office (“PTO”) and is accessible on the PTO’s website at the following URL: <https://www.uspto.gov/sites/default/files/web/offices/dcom/olia/teachreport.pdf>. I accessed EX1051 through that URL at least as of December 7, 2021, and the document is still accessible through the URL today. The text of EX1051 is complete and appears to flow seamlessly from one page to the next. EX1051 is a true copy in a condition that creates no suspicion about its authenticity. Further, EX1051 is cited by other documents that pre-date

56. Many types of DRM systems were available as of November 2011. For example, online music stores such as iTunes and Rhapsody each launched in 2001 with DRM access control enabled. EX1022, 9; *see also* EX1019, 1:43-60; EX1018, 1:22-28.

3. Cloud-Based Streaming and Licensing Models

57. It was not long, moreover, until cloud-based systems emerged containing DRM technology that allowed users to download or stream digital content from central servers using multimedia devices such as set-top boxes or Internet TVs. EX1027, ¶2 (2010 Cox Communications reference noting that, in the “digital age, many users use an on demand (OD) system” such as “set-top boxes” and “Internet televisions” to select and view or listen to media content”). Apple, for

the ’154 patent’s earliest priority date. For example, the article “Light in Custody: Documentary Films, the TEACH Act and the DMCA” was published in the *Santa Clara Computer and High Technology Law Journal* in May 2004 and cites to EX1051, thereby evidencing that EX1051 was available as of May 2004. *See* Gretchen Stoeltje, *Light in Custody: Documentary Films, the TEACH Act, and the DMCA*, 20 Santa Clara Comput. & High Tech. L.J. 1075, 1076 n.4 (2004). In any event, EX1051’s description of the state of the art at the time of the alleged invention of the ’154 patent is consistent with my understanding as a POSA.

example, has been selling its Apple TV device since 2007. EX1028.

58. These systems typically employ one of two licensing models. In the first, “on-demand” model, a user’s paid-for subscription provides the user with a blanket license to stream all content within the service’s catalog. Rhapsody and Netflix are prime examples of such a model. EX1019, 1:54-60. In the second, “pay-per-view” model, a user may acquire a license for a particular media content item by purchasing the item on a one-off basis. iTunes is an example of such a model. *Id.*

59. As the ’154 patent acknowledges, systems employing both models were well known as of November 2011. EX1001, 14:33-51 (stating it was known that “a media content item may be streamed to an external multimedia hardware device over a communication network from a cloud-based storage system, a digital media streaming service (e.g., Pandora, Last.fm, Spotify, iTunes, iCloud, Netflix, and/or other such services)”). And both models offered a simple and straightforward way to provide access to digital content while respecting content creators’ copyrights.

B. Digital Fingerprinting and Watermarking

1. Digital Fingerprints

60. As described above, DRM systems have long been used to prevent unauthorized distribution of copyrighted digital content. And, because different versions of digital content may be subject to different licensing terms, it was important for such systems to be able to easily and quickly distinguish between

various versions of such content.

61. One well known way to do that was to use identifiers called “fingerprints” derived from inherent characteristics of the digital content. Fingerprint systems themselves “are over one hundred years old,” EX1029, 1, but they became particularly prevalent with the rise of the Internet and digitization. For example, systems have long used “digital fingerprints”—i.e., compact digital representations of content that summarize certain characteristics of the content—to uniquely identify digital content. By comparing an item’s fingerprint to a database of known fingerprints, the media content item can be accurately identified. *See, e.g.*, EX1029, 1 (2002 paper stating that “[t]he prime objective of multimedia fingerprinting is an efficient mechanism to establish the perceptual equality of two multimedia objects”); EX1061, ¶44 (2010 Rovi reference describing digital fingerprint as a “measure of certain physical properties that is deterministically generated from a digital signal that can be used to identify a sample of a media item and/or quickly locate similar media items in a database”).

62. Fingerprints can be derived in any number of ways. For audio recordings, for example, it was well known that “acoustic fingerprints” representing multi-dimensional vectors in a frequency space could be mathematically constructed to uniquely identify the recording. EX1061, ¶¶25, 44 (2010 Rovi reference describing using “acoustic fingerprints” that measure “certain acoustic properties”

of an audio file); EX1030, 11:11-15 (2009 TiVo reference describing fingerprints derived by “applying a mathematical function to a spectrogram of an audio file”); EX1031 (describing 2000 music-search technology as being able to successfully identify songs by “analyz[ing] the digital waveform of a piece of music, coding songs based on characteristics such as melody, rhythm and timbre to produce a digital ‘fingerprint’”). Such algorithms have been used for many years by companies like Pandora as part of the Music Genome Project, whereby “each song is described by a set of characteristics, or ‘genes’” that uniquely identify the song. EX1032, 11:51-57; EX1033, ¶¶25-26 (“Each gene can be thought of as an orthogonal axis of a multi-dimensional space and each song as a point in that space.”); *see also* EX1034, 3:61-4:23 (describing audio “footprints” for identifying music). These genes are akin to the digital fingerprints described above. Fingerprinting algorithms, however, were not limited to music—they have been used with other types of digital content such as movies, pictures, and e-books for many years. *See, e.g.*, EX1016 (2000 patent describing fingerprinting algorithms for different types of media content).

63. For literary works such as books in digital format, or “e-books,” fingerprints can be derived by applying a mathematical algorithm to chunks of the text comprising a preselected number of words. *See, e.g.*, EX1056, 2 (noting that a fingerprint “can be considered as a set of encoded substrings taken from” a

document, “which serve[s] to identify [the document] uniquely”); EX1057, 1-2 (explaining that the “most common technique” for detecting plagiarism of literary works “is the Fingerprint Matching technique” in which documents are divided into chunks of a preselected number of words). Indeed, Scribd has been using “digital fingerprinting” to detect the unauthorized distribution of e-books for more than a decade. EX1058.

64. In the context of DRM and targeted online marketing, fingerprints provide several well-known benefits. First, fingerprints can be used to identify unknown media content. For example, Shazam has used fingerprints since 2002 to accurately identify songs based on short samples thereof. *See, e.g.*, EX1035, 1 (explaining that “fingerprints from the unknown sample are matched against a large set of fingerprints derived from the music database”); EX1036 (explaining that Shazam uses fingerprints describing frequency spectrum of songs).

65. Second, fingerprints can be used “to police copyright violations of media files.” EX1016, 4:33-39. In particular, fingerprints allow copyright owners to “track dissemination” of particular content and identify “instances of unauthorized file duplication (i.e., copyright violations)” occurring on the Internet. *Id.*, 3:36-65, 24:29-40; *see also* EX1037, ¶9 (2004 reference explaining that fingerprinting can prevent piracy of digital content by “enabling a media player to recognize a piece of content (e.g., some or all of the media file) and to prevent its playback until its home

entertainment release date”); EX1007, 2:23-43, 4:25-67 (2006 reference describing using fingerprints to differentiate between digital media content in the licensing context); EX1051, 6 (describing the use of fingerprints and watermarks in DRM systems). And, indeed, in response to growing concerns regarding copyright infringement, Napster itself starting using fingerprinting systems aimed at filtering out copyrighted material. EX1029, 3. Likewise, companies like Scribd use digital fingerprints to combat piracy of e-books. EX1058; EX1059 (explaining that digital fingerprinting may have allowed Scribd to avoid the piracy problems that Napster encountered with digital music).

66. Third, fingerprints can be used for marketing purposes—e.g., to identify additional content that may be of interest to a user based on fingerprints that are similar to the fingerprint of a requested item. *See, e.g.*, EX1038, ¶¶37-40 (describing system that evaluates “media-representative information” corresponding to a particular media content item—e.g., watermarks and other metadata—in order to recognize the item and suggest additional content to the user). Pandora, for example, has been using fingerprints for this purpose since 2006. *See generally* EX1032; EX1033.

67. In short, fingerprinting techniques for identifying digital content go hand-in-hand with DRM technology and were “known in the field of digital rights management” for many years before the ’154 patent was filed. EX1005, ¶54.

2. Digital Watermarks

68. An alternative way to track and protect digital work is to use “watermarks.” Generally speaking, digital watermarking “refers to any technology aimed at concealing data in media content,” and is typically used to refer to “control information,” including “information about the origin, status or destination of the host data.” EX1051, 6.

69. Similar to fingerprints, watermarks allow content owners and creators to track use of their content. In particular, watermarks “will typically survive end-user recording of the content onto new media or into a new format.” EX1006, ¶47; EX1051, 6 (“A digital watermark may be embedded in almost any kind of digitized visual or audio data, including broadcast data, without perceptibly degrading or interfering with its quality.”). Thus, watermarks “help[] to enforce security features” and “can provide fine-grain usage and quality of content monitoring as well as copy protection.” EX1006, ¶47; EX1051, 6 (“[D]igital watermarks can be an important mechanism for content owners to monitor, audit, and index works in the digital environment. ... Finally, digital watermarks can be used to detect the unauthorized manipulation of content, thereby providing a means to control the integrity of digital content.”).

70. It was well known, moreover, that watermark data could comprise metadata within the file containing the digital media content. *See, e.g.*, EX1051, 7

(noting that digital signatures may take the form of “metadata” (i.e., “encoded identifying information about the content”) “or embedded directly into the work as watermarks”), 9 (“Such encoded information about a digital work (such as author, title, date of creation, and other identifying information) is commonly referred to as ‘metadata.’”); EX1007, 2:64-3:7 (stating that a “unique identifier can be configured as metadata” and can include “watermarking”); *see also, e.g.*, EX1038, ¶¶10, 15, 20, 24, 36, 49, 55, 60, 66, 71, 75.

C. Targeted Marketing Based on User Demographics and Preferences

1. Targeted Marketing Over the Internet

71. The Internet also led to the unprecedented ability to engage in targeted marketing based on user demographic data and purchasing behavior that could not be achieved in the pre-Internet era. Of course, targeted marketing concepts such as up-selling (i.e., inviting customers to purchase a comparable higher-end product than the one in question) and cross-selling (inviting customers to purchase related or complementary items) are old ones that were practiced for many years before the Internet. *See, e.g.*, EX1039 (1993 patent describing generating TV content recommendations based on a user’s interaction with a guide).

72. But targeted marketing is particularly effective in the post-Internet era. For example, whereas a customer’s demographic information and purchasing habits might not be known to a retailer in the brick-and-mortar context, such information

is readily available and discoverable in the online context. Indeed, a customer's demographic data may be apparent from an online profile that the customer creates, and data related to the customer's web-browsing history and purchasing habits can be generated whenever the customer interacts with a company's webpage.

73. Thus, companies have long developed methods and systems for collecting and harnessing such data “without [the] need [for] human intervention” in order to better tailor product offerings to a particular customer. EX1040, ¶¶2, 70 (2001 patent describing a system for “tracking behavior and profiling users in interactive computer networks” to market and deliver “digital content and services”); EX1041, Abstract (patent filed in 1998 describing a system for customizing a company's online product offerings based on a user's demographic data and browsing history). Such data “can inform companies about how their and others' products or services are perceived and bought by purchasers or potential purchasers in the marketplace, and how the companies' products or services can be changed to achieve the companies' business goals.” EX1042, 1:60-65; EX1034, 13:40-14:57 (noting that such data “can be used to determine general trends within the system and therefore is valuable from a business/marketing perspective.”).

74. One marketing-based concept that is particularly prevalent in the online context is “collaborative filtering.” Collaborative filtering “generally involves the collection of preference data from a large group of users,” which “may be analyzed

statistically to identify subgroups, or characteristics of subgroup members, with similar preference profiles.” EX1043, 10:25-29. This technique has been used for many years to customize digital content offerings to consumers, but it is especially useful in e-commerce given the very large number of consumers who purchase products online and the availability of data associated with such purchases. For example, iTunes has used collaborative filtering since at least 2006 “to tailor data automatically to individuals or groups of users.” EX1044.

75. Numerous prior art references likewise describe using collaborative filtering techniques to facilitate targeted marketing based on user demographic data and/or preferences. Indeed, a Yahoo! patent from 2007 describes a system in which a media toolbar installed on a user’s computer observes media played by the user and identifies content “that is likely to be of interest to the user” as well as content that could be of interest to “third parties based on a comparison of the user’s media profile and a particular third party’s media profile.” EX1045, 1:31-43. For example, if the toolbar observes that a particular user has a “propensity toward music by ... Nine Inch Nails” and that “others with a similar propensity tend to also like music by Filter,” then the toolbar can offer to the user “one or more songs by Filter.” *Id.*, 6:1-6. The patent explains that customized offerings based on such data “allow[s] for more targeted marking of content and services of interest to the user, which can enhance the efficiency of such advertisements.” *Id.*, 11:1-3.

76. There are many other examples in which such techniques were used for targeted marketing purposes:

- Muyres describes a 1997 system that “track[s] behavior and profil[es] a user during the marketing of digital content” in order to better tailor product offerings. EX1040, ¶¶20, 24, 126.
- Hug describes a 2003 system that can track “listening trends and musical preferences of individual users” to make music recommendations. EX1018, 11:1-5.
- Logan describes a 2006 collaborative filtering algorithm in which music recommendations for a user are generated based on “other users with preferences and past listening habits similar to the user.” EX1019, 14:22-25, 19:30-39.
- Kidron describes a 2010 system in which music playlists are created based on “the listener’s usage history[,]” which includes the user’s “thumbs up/down rating of tracks.” EX1046, ¶¶51, 64.
- Ramaswamy describes a 2011 system in which content is identified “based on the currently and/or previously requested media content ... and/or demographics of the persons involved in the request.” EX1038, ¶43.

77. These are just a few examples. The point is that “[m]ethods for analyzing market needs,” as well as “data mining techniques” for collecting and

analyzing consumer data to inform marketing decisions, were “well known” long before the ’154 patent was filed. EX1003, ¶2.

2. Targeted Marketing Based on Users’ Negative Preferences

78. Importantly, targeted marketing of digital content was not just limited to analyzing users’ “positive” preferences—i.e., preferences inferred from digital content that the user has purchased or expressed an interest in. Rather, it was also known that targeted marketing could be performed by analyzing users’ “negative” preferences—i.e., preferences inferred from content that the user has ***refused*** to purchase. Information about products that a consumer does ***not*** like helps inform which products to offer that consumer and others belonging to the same demographic.

79. For example, a patent filed in 2005 by Jumtap describes monitoring a user’s online activity and collecting information about product offerings that the user does not accept. EX1043, 10:49-54. As the patent explains, “if the user looks at a product and decides not to purchase the product, one can draw an inference that the user is not interested in the product, and this information may be used as part of a collaborative filtering algorithm.” *Id.*, 10:50-58; *see also id.*, 38:1-10 (providing an example where a user “consistently declin[es], or fail[s] to view, music-oriented programming content,” so that the system ensures the user’s query for the term ‘U2’ “return[s] information on Soviet-era spy planes, notwithstanding that for other users

such a query would return content related to the rock group U2.”). There are many other examples in the art of targeted marketing based on users’ negative preferences:

- Muyres (referenced above) describes using information about orders “denied[] or refused by the customer” in order to market digital content. EX1040, ¶206.
- Jacobi, a 1998 Amazon patent, describes a system that generates product recommendations for a user based on “items that were recently (e.g., within the last six months) removed from the shopping cart(s) without being purchased.” EX1047, 7:49-58.
- Dunning, a Yahoo! patent, describes a system that monitors a user’s song “aborts and skips” to inform music recommendations. EX1048, 11:43-53.
- Handman, a 2001 Pandora reference, describes an algorithm in which a user’s “negative feedback” about songs likewise informs music recommendations. EX1032, 20:62-21:15, 21:58-22:4.
- Abraham, a 2002 comScore patent, describes a system that tracks and analyzes “products or services a consumer has considered and decides not to purchase” to inform online marketing decisions. EX1042, 7:40-51.
- Strubbe describes a 2004 system in which up-sell offers are based in part on whether “the customer is unlikely to purchase” a particular item. EX1050, 5:46-49.

Again, these are just a few examples.

80. Notably, data regarding a user's negative preferences can be inferred from a user's explicit activity or implicit activity. Explicit activity involves a user "explicitly declining an option to view content." EX1043, 37:48-61. Implicit activity, by contrast, involves a user "implicitly declining—ignoring—the content, such as upon repeated opportunities to view it." *Id.* Both types of activity convey valuable information about customer preferences, as well as "an otherwise hidden demand for products and/or services in segments that a company is not selling to or serving at a given time." EX1003, ¶196. In short, data regarding a user's preferences, including negative preferences, "can be a valuable product in itself." EX1042, 7:40-51.

VI. OVERVIEW OF THE '154 PATENT

81. With the background discussed in Section V in mind, I now turn to the '154 patent, described below.

A. Summary of the Disclosure

82. The '154 patent is directed to a platform for distributing, licensing, and marketing digital media content, including audiovisual files and e-books. EX1001, Abstract, 1:17-20, 1:61-63, 3:35-42. An example of the '154 patent's platform is shown in Figure 2 below:

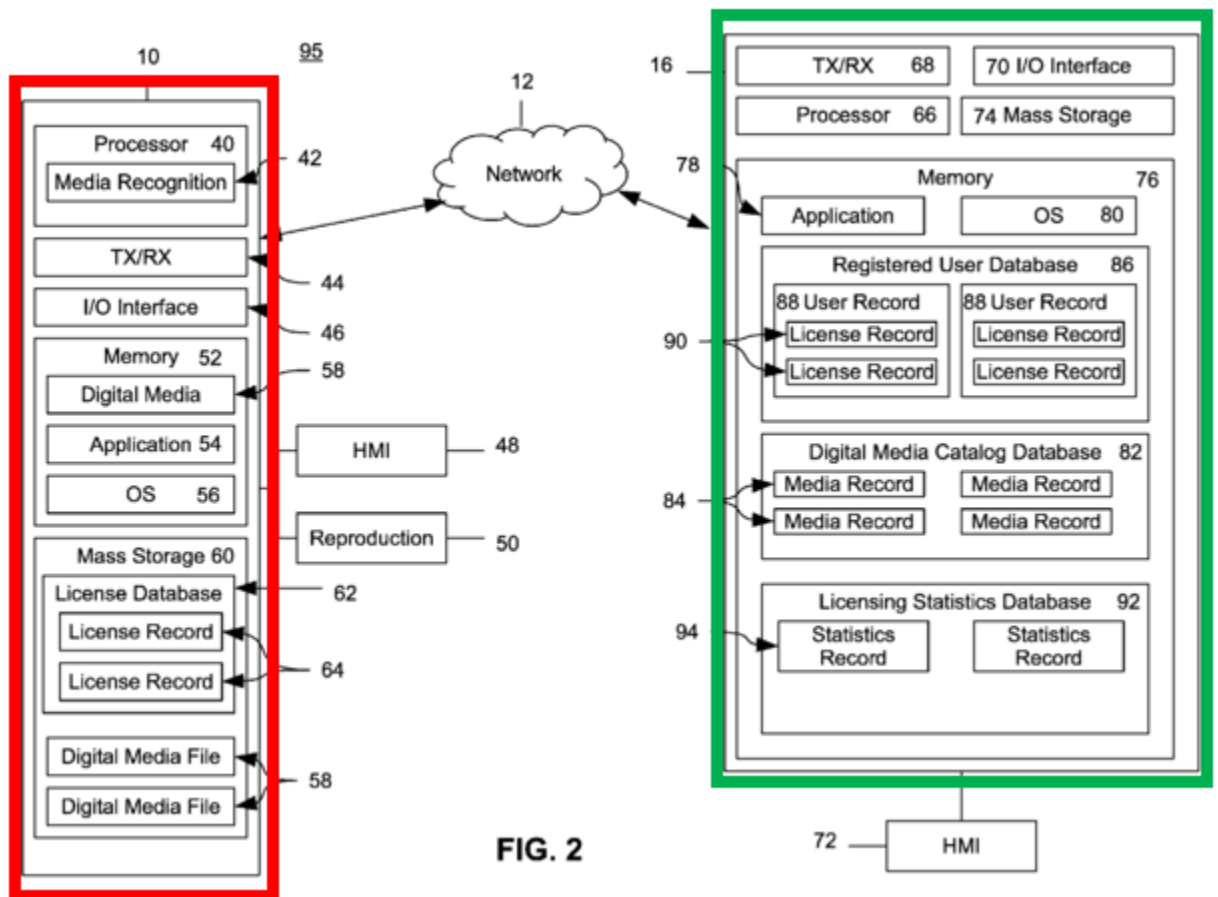


FIG. 2

EX1001, FIG. 2 (annotated).

83. The platform 95 includes a central, server-based “media content licensing and verification system” 16 (green) containing one or more processors 66 and memory 76, as well a plurality of users communicating with the system over the Internet 12 using “multimedia hardware device[s]” 10 (red) such as computers, tablets, or mobile devices. *Id.*, 3:26-34, 3:66-5:3. Also communicating with the system are digital content providers, retailers, and hardware device manufacturers (not shown). *Id.*, FIG. 1, 3:26-34.

84. While the ’154 patent focuses on “device 10” and “licensing system

16,” I note that the ’154 patent broadly describes its functionality as capable of being “implemented on any type of processing (or computing) device having one or more processors.” *Id.*, 7:61-8:19. “Any software, hardware, and operating system implementations suitable for performing the functions described herein can be used.” *See id.*, 10:17-21, 11:37-41. Therefore, while the ’154 patent describes examples of functionality occurring at “device 10” or “licensing system 16,” the ’154 patent does not appear to limit its described functionality to either device.

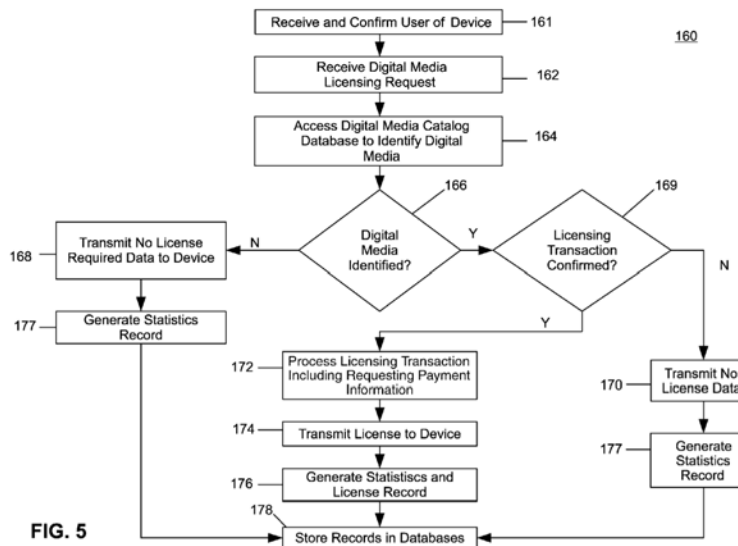
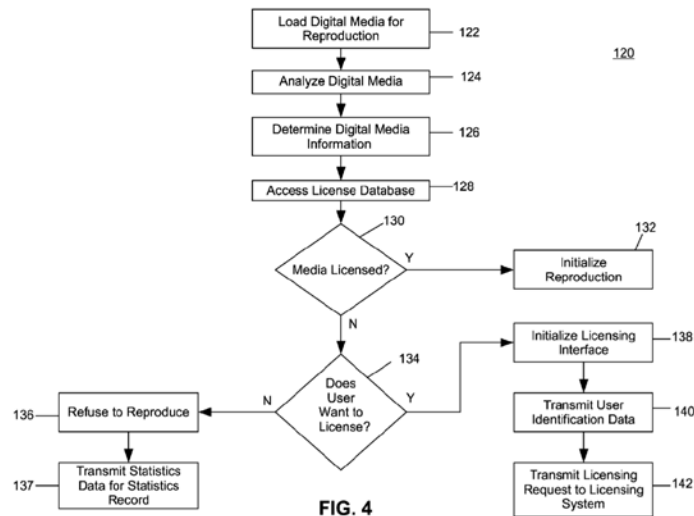
85. The functionality relevant here is the ’154 patent’s disclosure of how (1) digital content is distributed and licensed, and (2) the platform engages in targeted marketing based on user demographic data and purchasing history.

1. Licensing and Distributing Digital Media Content

86. Prior to licensing and distributing digital media content, the ’154 patent describes configuring “licensing system 16” to facilitate the reproduction of content. *See* EX1001, FIG. 3, 8:21-56. Specifically, “a rights-holder or content creator may load a catalog of media content items that may include ... a song, a movie, a television show, a novel, and/or any other media content item into licensing system 16.” *Id.*, 7:39-43. As I will further explain below, “[t]he catalog submissions may be loaded into a natural media fingerprint creation module to generate a natural media fingerprint catalog.” *Id.*, 13:22-32.

87. After configuring “licensing system 16,” the ’154 patent describes

licensing and content distribution with reference to Figures 4 and 5:



EX1001, FIGs. 4-5.

88. The '154 patent does not limit how or where the claimed loading is carried out. For example, as I have laid out above, the unique media content may be loaded into the licensing system 16. *Id.*, 7:35-39. In an alternative example described in the '154 patent, the loading may be performed at or by user device 10 rather than

licensing system 16. *Id.*, 4:13-22. For example, the '154 patent describes a scenario where “the user loads the digital media file for reproduction” on the user’s device 10. *Id.* “Processor 40” of the user device is then “configured to analyze a loaded digital media file to identify the media content item included in the digital media file.” *Id.*, 6:57-67.

89. With regard to loading at the user device, the '154 patent recognizes a scenario where the “digital media file including the media content item may have been procured from various sources that are not licensed to reproduce the media content item and do not collect licensing fees for use of the media content item.” EX1001, 4:8-4:13. In this regard, the '154 patent explains that “such unauthorized distribution of the digital media content prohibits the rights-holders of the digital media from covering the costs of creating the original digital media content.” Thus, a user can make a request for a license to reproduce loaded media content. *Id.*, 1:49-57, 10:2-10:16, 10:30-38. The '154 patent recognizes that such content may benefit from additional analysis thereafter to determine digital media rights. *Id.*, 1:53-57. As I will explain below, this proposed solution to monetize unauthorized distribution of content is similarly recognized and addressed by the combination of the references cited in the Grounds below.

90. According to the '154 patent, the user device or licensing system then “analyzes the digital media file” to identify the underlying media content based on

“identifying characteristics” that are “inherently present in the media content item.” EX1001, 4:13-31, 6:57-67, 8:27-50, 8:63-9:32. The identifying characteristics allow the system to “identif[y] a media content item, even considering the possibility of different versions of the same media content item.” *Id.*, 9:17-21. The ’154 patent explains that such identifying characteristics can represent “a fingerprint, digital watermarking, and/or any other suitable algorithm to identify copyright ownership of the media content item.” *Id.*, 4:31-37. The patent describes several such algorithms, including those that analyze “the predefined number of words” in an e-book, the lyrics to a song, and “the occurrence of various frequencies at particular points in time” in an audio recording. *Id.*, 8:34-37, 9:24-32.

91. Once the selected content item is identified, the ’154 patent describes accessing a “license database” and determining based on the fingerprint whether the user is licensed to reproduce the content. *Id.*, 4:31-34, 9:33-37, 10:30-38. If the user is licensed, the device “initializes reproduction of the digital media file.” *Id.*, 9:37-41. If the user is not licensed, the user receives a “display query asking the user whether the user would like to purchase a license.” *Id.*, 9:41-46, 10:54-58; *see also id.*, 4:44-47. If the user refuses to purchase a license, the device denies access to the item. *Id.*, 9:47-49, 10:65-11:8, 11:20-23. If the user purchases a license, however, the device transmits the licensing request to the licensing system, which processes the request and ultimately permits the user to play or stream the item. *Id.*, 4:48-62,

9:58-10:16, 11:9-11:19.

2. Targeted Marketing

92. The '154 patent's targeted marketing steps are shown in Figures 4-5 above and Figure 7 below:

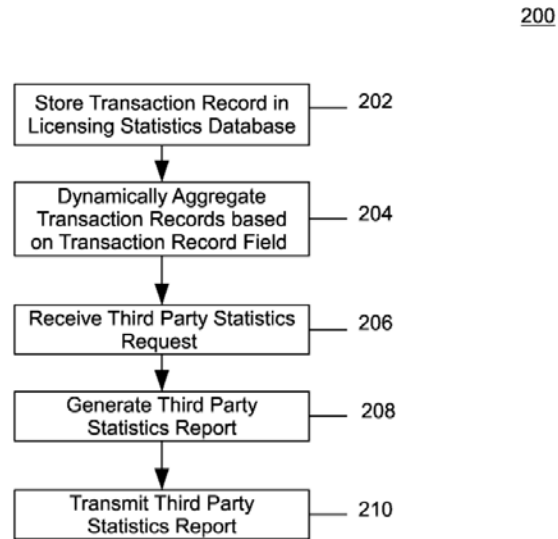


FIG. 7

EX1001, FIG. 7.

93. First, when a user accepts or declines to purchase a license, the user device transmits “statistics data” to the licensing system, which then generates a “statistics record” 94 and stores the record in licensing statistics database 92. *Id.*, 9:47-57, 11:9-36, 11:61-62. The '154 patent explains that statistics records contain information about transactions, as well as “demographic information for the user,” including “age, gender, location, and/or any other data that may be associated with the user and/or license obtained by the user.” *Id.*, 7:61-8:7.

94. The licensing system then “aggregates the [statistics] records”

corresponding to a particular media content item and, in response to a third-party's request for statistics records, generates a "statistics report" and transmits the report to the requesting party. *Id.*, 11:63-12:26. The '154 patent states that the statistics reports convey "valuable licensing and statistics data for media content items for particular demographics of users, genres of media content items, and/or other such categories," and thus allow "online media retailers [to] target the marketing of the media content item to demographics that have shown a trend of interest in the media content item." *Id.*, 5:30-38, 12:19-26. But beyond these generic statements, the '154 patent provides no details about how targeted marketing is performed or how data for a user who declines to purchase a license is used for that purpose.

B. Summary of the Claims

1. Overview of the '154 Patent Claims

95. The '154 patent contains eighteen claims, one of which (claim 1) is independent. Claim 1 recites a multimedia hardware device that allows an online media retailer to engage in targeted marketing based on demographic data associated with a single user accepting to stream one media content item and declining to stream another:

1. A multimedia hardware device comprising:

a processor; and

a memory coupled with the processor, the memory including instructions that, when executed by the processor cause the processor to:

generate a first request from a user to evaluate streaming a first media content item to the device;

identify the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation;

extract first user data specific to the user when the user accepts to stream the first media content item;

generate a second request from the user to evaluate streaming a second media content item to the device;

identify the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation;

extract second user data specific to the user when the user declines to stream the second media content item;

aggregate the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data; and

transmit to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer for

retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints,

analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data, and

providing the third party online retainer the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.

Id., 15:2-54.

96. Most dependent claims impose limitations on how the media content is licensed and distributed, as well as the types of user data collected by the system. In particular, the claims require: the collected data to comprise the “geographic location” of the user (claim 7) or the “number of times” the user has previously requested content (claim 8); providing a license to a user who is authorized to stream content and denying access to a user who is not authorized (claim 9); streaming content based on “streaming parameters included in the license” (claim 10); loading a digital media file for reproduction (claim 13); displaying a query asking the user whether he or she would like to stream an accepted media content item (claim 14); collecting and transmitting “user identification data that confirms the user’s identity” (claim 15); transmitting fingerprints to a digital media catalog database to confirm the requested media content items (claim 16); collecting payment from the user to stream media content (claim 17); and transmitting statistics records in real time (claim 18).

97. Other dependent claims impose limitations on the type of media content items at issue and the characteristics used to identify them. In particular, the claims require that the requested items comprise: different versions of the same audiovisual work (claims 2 and 4); audiovisual works such that the unique characteristics associated therewith are the occurrence of various audio frequencies at particular

points in time (claim 3); audiovisual works that are authorized and unauthorized for streaming (claim 5); and different versions of an e-book (claim 6).

98. Finally, dependent claims 11 and 12 require that the hardware device identify “digital watermark[s]” within the media content items.

2. The ’154 Patent Claims Relative to Other Claims in the Family

99. I understand that Petitioner has filed IPR petitions challenging other patents in the same family as the ’154 patent. These include U.S. Patent Nos. 9,715,581; 9,898,590; 10,489,560; 10,515,191; 10,860,691. Two common themes are present in these patents: (1) licensing and distribution of digital media, and (2) subsequent targeted marketing, with many similarities and slight differences. Regarding similarities, each of the patents in the family recite identifying whether the user has accepted or declined an offer to access media content, recording user demographic data, and providing a summary of the user demographic data to requesting parties. As I will further explain below, Brandstetter and Peled each disclose these common concepts.

100. Regarding differences, I have included a table below describing some claim features that are unique to each of the individual patents.

U.S. Patent No.	Claim Features
9,715,581	Claim 1 includes “loading a digital media file for reproduction”

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(EX1072)	as well as “analyzing the digital media file to identify digital media information.”
9,898,590 (EX1073)	Claim 1 of the '590 patent is similar to claim 1 of the '581 patent except that the '590 patent does not recite the “loading” or “analyzing” steps.
10,489,560 (EX1074)	Claim 1 of the '560 patent is similar to claim 1 of the '590 patent except that it introduces the concepts of streaming offering a “license to stream” a media content item, and marketing based on user streaming history.
10,515,191 (EX1075)	Claim 1 of the '191 patent is similar to claim 1 of the '590 patent except that it introduces the concept of two users and aggregating user data for the two users, where one has accepted a license and the other has declined a license.
10,860,691 (EX1076)	Claim 1 of the '691 patent is similar to claim 1 of the '560 patent (includes streaming) except that it introduces the concept of a “media fingerprint” and two users requesting the same media content item.
10,885,154 (EX1077)	Claim 1 of the '154 patent is similar to claim 1 of the '691 patent (includes streaming and fingerprints) except that it involves a single user requesting two different media content

	items and is written from the perspective of the user's multimedia hardware device.
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101. As I will further explain below, the concepts unique to the '154 patent are obvious in view of the combinations that I have described in the grounds of unpatentability included in this Declaration.

C. Summary of the Prosecution History

102. The '154 patent purports to claim priority to U.S. Patent No. 9,715,581 ("'581 patent"), which in turn purports to claim priority to a provisional application filed on November 4, 2011. The claims of the '581 patent were rejected several times during prosecution, and various amendments were added each time. In the last set of amendments before the patent issued, the applicant revised the claims to emphasize the targeted marketing aspect of the purported invention. In particular, the applicant amended the claims to require that user data be collected both when the user acquires a license and when the user declines the license, and that such data be used for targeted marketing purposes. EX1009, 334-65. In accepting these amendments, the Examiner found that "none of the prior art discloses the specific combination of limitations claimed including storing demographic data about users that decline a media license in order to inform a marketing analysis in combination with the other limitations of the claims." *Id.*, 376. Based on this finding, the '581 patent issued on July 25, 2017.

103. The '154 patent was filed years later, on December 31, 2019, and was not subject to a single rejection. Rather, following an interview with the applicant, the Examiner made an Examiner's Amendment cancelling all originally filed claims and adding replacement claims that largely mirror the claims that the Examiner allowed in earlier patent applications within the same family. EX1014, 88-93. Again, the Examiner seemed to believe that the targeted marketing aspect of the purported invention was novel over the prior art. *Id.* at 91.

VII. OVERVIEW OF THE PRIOR ART

104. Notwithstanding the Examiner's findings during prosecution, the prior art at issue here discloses targeted marketing of digital content, as well as all other limitations recited in the '154 patent claims, well before the patent's purported priority date.

A. Brandstetter

105. Brandstetter, titled "Systems and Methods Enabling Marketing and Distribution of Media Content by Content Creators and Content Providers," was filed on January 29, 2010, and was published on August 4, 2011. Brandstetter is directed to an online platform in which content creators and providers can market and distribute digital content—including movies, sound recordings, e-books, and digital images—through various interfaces. EX1004, Abstract, ¶¶69, 118. An example of that platform is shown in Brandstetter's Figure 1C below:

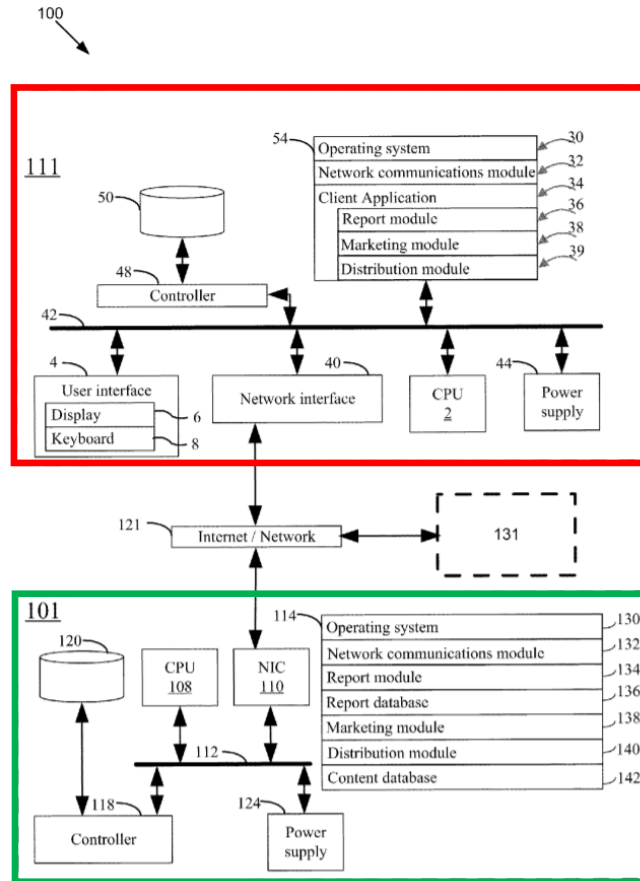


FIG. 1C

EX1004, FIG. 1C (annotated).

106. The platform includes a central server 101 (green) containing one or more processors 108 and memory 114, as well as “hundreds of thousands” of user client devices 111 (red) (e.g., computers or mobile devices), which communicate with the server and each other via the Internet 121. *Id.*, ¶¶91, 109.

107. Brandstetter explains that its platform can license and distribute digital media content to a user in accordance with the content’s licensing requirements. That process begins with a user logging into the platform through a graphical user

interface on his or her device and requesting a particular media content item from the server by, for example, searching for the item in a search bar within the interface:

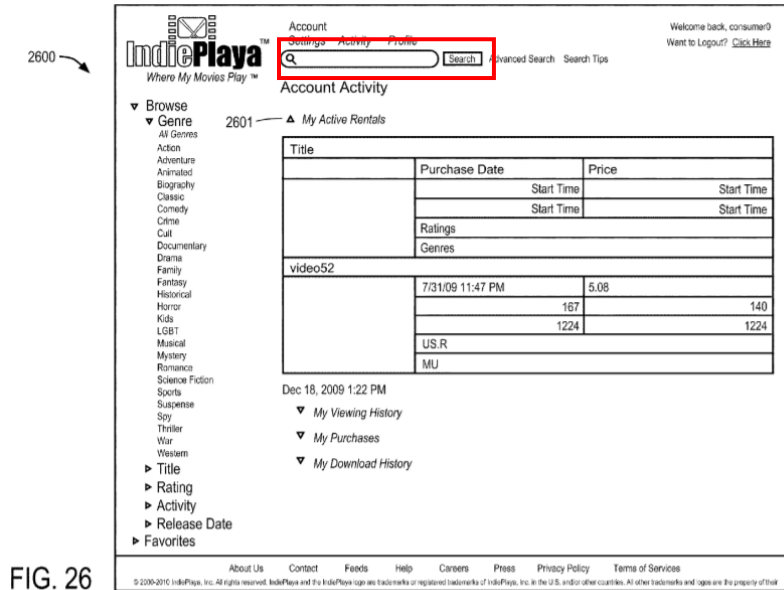


FIG. 26

EX1004, FIG. 26 (annotated).

108. A distribution module 140 on the server receives the request and distributes the item “in accordance with digital rights management constraints defined by the content creator.” *Id.*, ¶198. For example, a user “can purchase an item or a license to an item, and can download the item over the network.” *Id.*, ¶177. Alternatively, the user can rent or stream the content. *Id.*, ¶¶120, 126, 173.

109. Brandstetter also explains that its platform allows content creators and third parties to engage in targeted marketing of digital content based on statistical data about the users who previously purchased or declined to purchase such content. This is shown, for example, in Brandstetter’s Figure 1A:

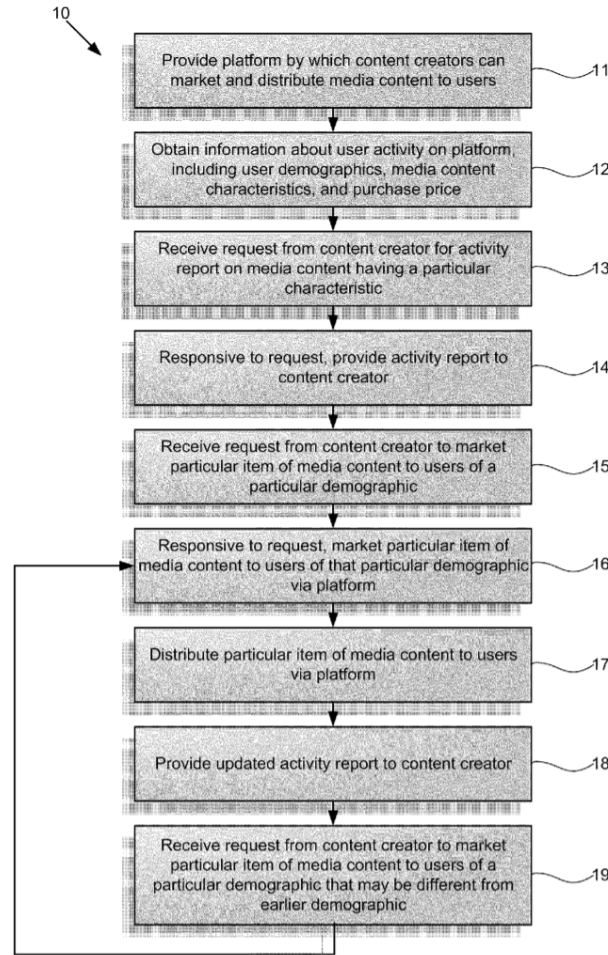


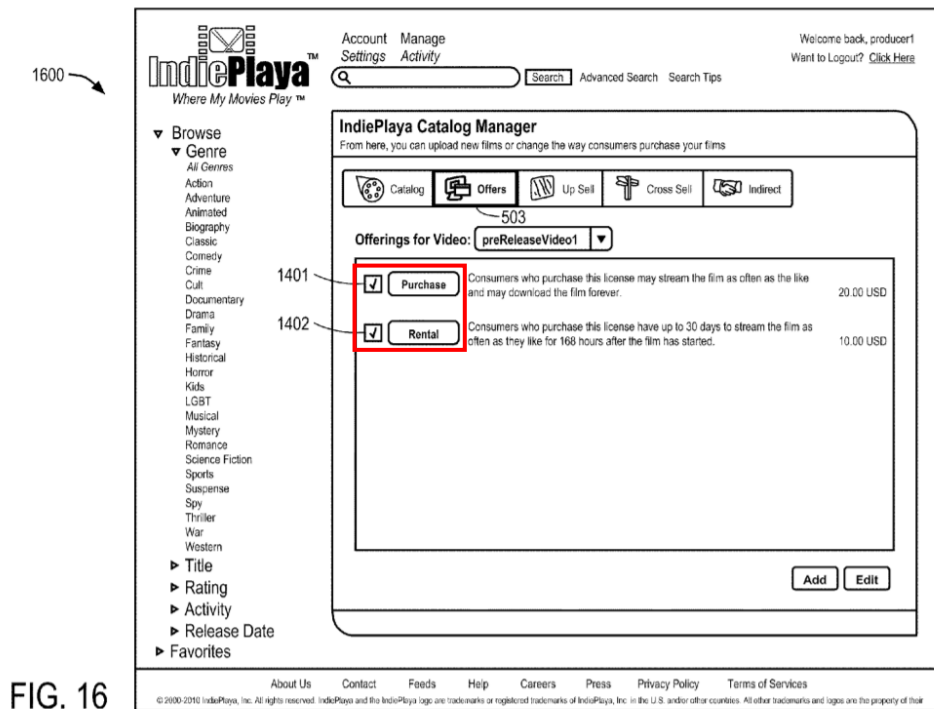
FIG. 1A

EX1004, FIG. 1A.

110. Brandstetter explains that a report module 134 on the server “collects information about user activity with respect to media content on the platform” (step 12). *Id.*, ¶¶71, 83, 96. Such information includes, for example, “user demographics (e.g., ages, geographical locations, ethnicities, genders),” as well as “the characteristics of the media content with which each of the users interact” and “the way in which the user interacted with the media content.” *Id.*, ¶¶65, 71.

111. Such data also includes all user “activity up to and including a

purchase” so that, “even if a purchase is not made, data related to audience interaction with content on the website can be indexed and used for later analysis.” *Id.*, ¶130. For example, a user may implicitly decline to purchase a license by viewing a media content item and then navigating away. Alternatively a user may explicitly decline to purchase a license by declining a particular offer provided by Brandstetter’s system. For example, as shown in Figure 16, a user may be prompted to “purchase” media content or “rent” media content. A user selecting to “rent” a license rather than “purchase” one affirmatively declines to “purchase” a license. *See id.*, ¶¶130, 147.

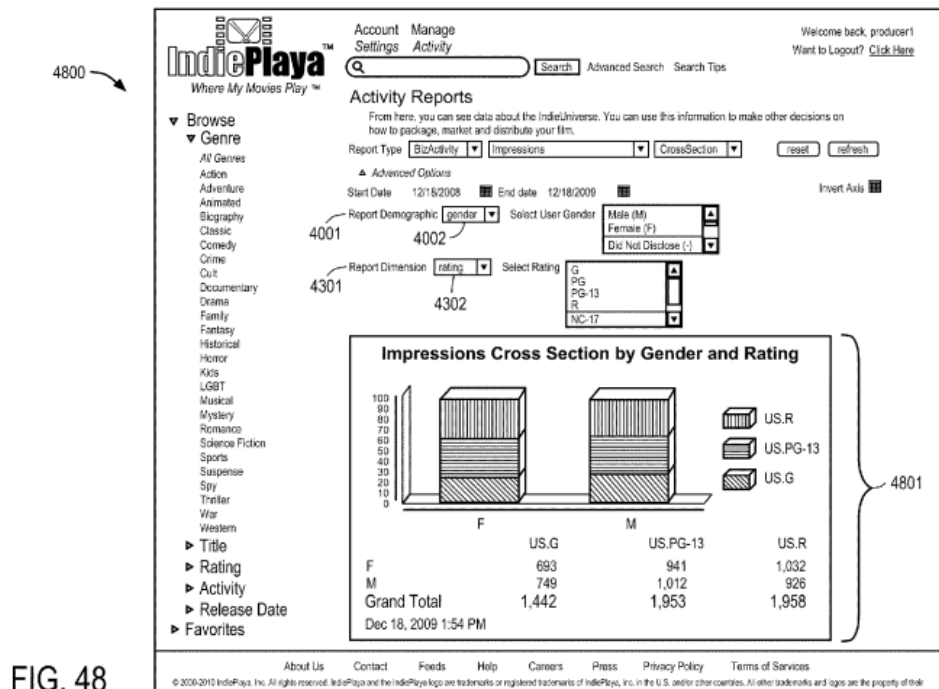


EX1004, FIG. 16 (annotated).

112. Once user demographic and purchase history data is collected, the data

is stored in a database in the report module for later analysis. *Id.*, ¶¶71, 96, 130. For example, Brandstetter explains that all client interaction with the platform (e.g., purchase history, user data, license packages, etc.) is “indexed and used for later analysis.” *Id.*

113. Next, “any third party granted the right to market or distribute” the content can request from the module an “activity report” for one or more content items (step 13 in Figure 7). *Id.*, ¶¶73, 84, 96, 158. Activity reports statistically summarize how different users perceive a particular media content item and are compiled from aggregated demographic and platform activity data. *Id.*, ¶¶8, 65, 78, 133, 172. An example of an activity report is shown in Figure 48 below:



EX1004, FIG. 48.

114. The report illustrated in Figure 48 breaks down user impressions of a media content item by gender, but Brandstetter makes clear that reports can be generated according to other demographic parameters, such as user location. *Id.*, ¶¶173-74, 179. Further, activity reports can be generated either in real-time in response to a request or “ahead of time” and “stored” in a database. *Id.*, ¶74.

115. In response to a request, the report module provides the report to the requestor (step 14 of Figure 7), who can then analyze the report to inform marketing decisions. In particular, after analyzing the report, a content distributor may request that the platform’s “marketing module” 138 market the content item to a particular “targeted demographic” (steps 15-16). *Id.*, ¶¶73, 75-77, 80, 85-86, 97. For example, if a report indicates that “first-person horror films are particularly popular with 18-24 year-old males, then the content creator can develop a strategy for marketing primarily to that demographic.” *Id.*, ¶66. Brandstetter explains, moreover, that the platform can market content to two different demographics simultaneously. *Id.*, ¶81.

116. Additionally, reports can be used to generate “content recommendations or offers (e.g., licensing packages)” for a particular user. *Id.*, ¶172. For example, content creators can create up-sell and cross-sell licensing packages for users. *Id.*, ¶¶149-57. “[W]hen a user exhibits an interest in licensing content, the content creator can dynamically create and offer the user another license option for similar content.” *Id.*, ¶150.

117. In this manner, Brandstetter’s platform “enable[s] content creators to efficiently market and distribute their content to a target audience.” *Id.*, ¶6.

B. Peled

118. Peled, titled “Method and Apparatus for Supporting Electronic Content Distribution,” was filed on October 16, 2001, and was published on January 15, 2004. Like the ’154 patent, Peled discloses a system for marketing and distributing digital content over the Internet. EX1003, Abstract, ¶¶1, 3, 155. This analysis applies to “content distribution over the Internet.” *Id.*, ¶3. The distributed content may include “[m]ovies or books, or may be other data such as short films or manuscripts” *Id.*, ¶7. Peled describes a “need to identify and quantify the demand for specific content” to aid with sales and marketing. *Id.*, ¶7.

119. Peled explains that “[m]ethods for analyzing market needs are well known in the prior art.” *Id.*, ¶2. “Existing patents and applications deal with the gathering of approved purchase requests, storing them in databases and analyzing personal, organizational and market behavior regarding those requests.” *Id.* This applies to “both approved and denied requests.” *Id.*

120. Peled builds upon these well-known techniques and describes a system that “provides the ability to study online requests for content.” *Id.*, ¶155. In particular, Peled identifies “***online requests that do not result in a sale***, for the purpose of providing content providers with information about potential new

markets that are currently being excluded and also to provide consumers with acceptable alternatives.”² *Id.*, ¶155. Specifically, Peled describes identifying scenarios where users do not complete a purchase. *See id.*, ¶¶155, 168-69, 175-78, 186, 196-97.

121. For example, Peled provides two scenarios where a user declines to purchase content:

An Italian [speaking] consumer requests a movie from an American based company, only to discover that the movie is in English without subtitles. ***The consumer therefore declines to complete the transaction.*** The content directing/packaging unit 32 notes the consumer’s location in Italy, and offers a version from an Italian content provider with Italian subtitles. Preferably, it is ensured that both the American and Italian content providers are credited for the sale.

Id., ¶176.

A consumer, ***who has a history of requesting movies at a given price, makes a request for a movie at a higher price, but then does not complete the transaction.*** The content directing/packaging unit 32 notes the price difference and assumes that to be the reason for the refusal.

² Emphasis added throughout unless otherwise specified.

It therefore repackages the movie with commercial advertising and offers it at a lower price. Alternatively or additionally, the ***content provider is provided with statistical information indicating that the content was refused by requesters who had shown a willingness to purchase at a given lower price.***

Id., ¶177.

122. As seen from these examples, Peled describes tracking user requests and whether users have accepted or declined offers for content. *Id.*, ¶¶176-77. In addition to recording this choice, Peled also tracks demographic data related to the user, which includes “geographical factors, temporal market data, pricing factors, personal data of the individual consumers, personal data of a statistically constructed group of consumers to whom the individual consumer is believed to belong, the state of network infrastructure operability in the vicinity of a requesting party, and content provider distribution factors.” *Id.*, ¶169.

123. Peled compiles this demographic data and generates “reports to individual content providers.” *Id.*, ¶168. Peled uses “report generator 28 which may arrange statistical information regarding individual content or different content items from a given content source.” *Id.* Peled’s “method carries out a statistical analysis of data of non-completed requests taken together to determine why requests are not being completed.” *Id.*, ¶183. Peled then compiles this statistical analysis into the

reports and provides the reports to content providers or content distributors. *Id.*, ¶¶183, 199.

124. With this information, companies may evaluate company policies or business rules based on customer characteristics. *Id.*, ¶196. “The gathered information may also be used in order to evaluate the existing market segmentation criteria and to focus marketing efforts on potential market segments (both for the relevant content and for similar content items).” *Id.*, ¶200; *see also id.*, ¶157. In this manner, Peled provides a process for “evaluating the impact that different business rules (rules enforcing restrictions on distribution, age, region, time etc) have on the demand for usage.” *Id.*, ¶9.

125. To track whether a user has acquired or declined an offer for content, Peled describes apparatus 20, which is depicted in Figure 6 and “provides content distribution over a network 22.” *Id.*, ¶166.

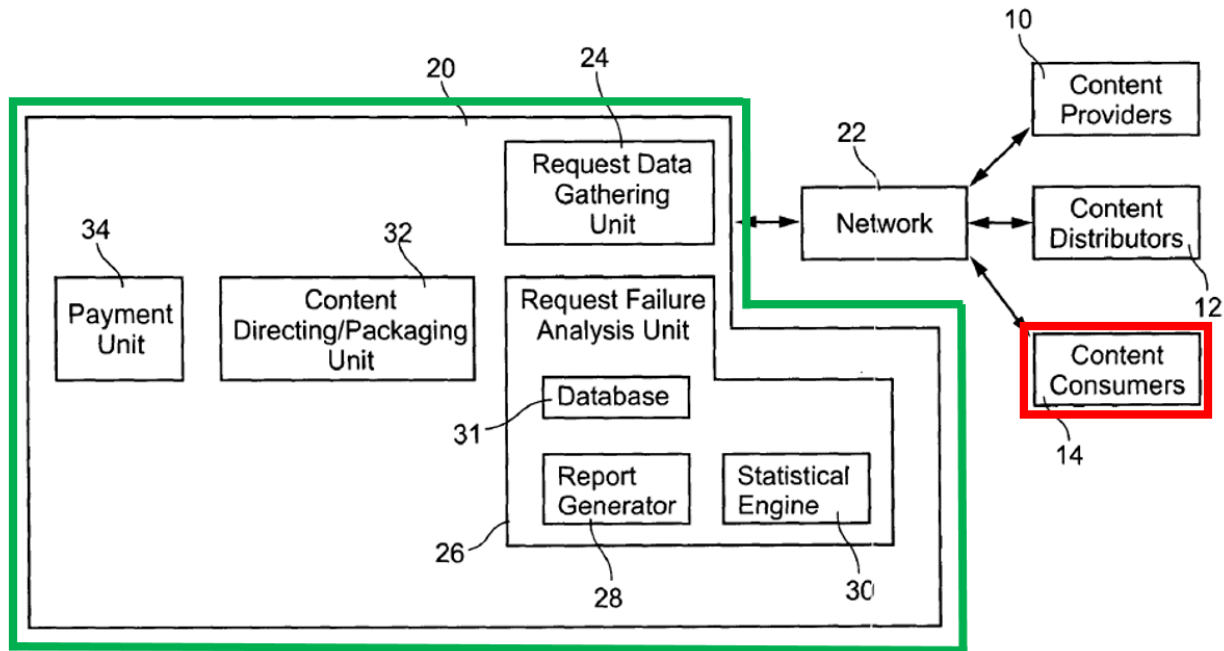


Fig. 6

EX1003, FIG. 6 (annotated).

126. The system includes a server-based apparatus 20 (green), as well as a plurality of consumers 14 (red) communicating with the server and each other via the Internet 22 using their devices (i.e., computers). *Id.*, ¶166. Consumers may request to download or stream digital content located at various holding sites on the Internet, and Peled’s server then determines where the requested content is located and instructs the holding site to distribute the content to the consumer. *Id.*, ¶¶61, 159, 80, 94, 111, 158-60, 173, 178, 182. Also communicating with the server are content providers 10 and distributors 12. *Id.*, ¶158.

127. Peled’s server contains both a “request data gathering unit” 24, which obtains “data of user requests for respective content items,” and a “request failure

analysis unit” 26, which “uses output of the request gathering unit to analyze request fulfillment failures” to determine “the reasons behind” such failures. *Id.*, ¶¶167-68. Request failures comprise transactions “begun and not completed,” including those implicitly declined—e.g., “where a consumer simply looks at a content item but then chooses not to buy it”—and those explicitly declined—e.g., where a user “made a purchase attempt” but then aborted the attempt. *Id.*, ¶¶185-86. Peled explains that failed requests can occur for any reason, including because the price of the requested content is too high or simply because the user loses interest. *Id.*, ¶¶158, 186.

128. Such data is analyzed in conjunction with “a personal profile of an individual consumer if available, or of a profile of a group to which the consumer is deemed to belong,” to determine the reasons for the failure and then stored in a database 31. *Id.*, ¶¶56, 169, 180. Next, a “report generator” 28 “aggregate[s]” the collected information, including “geographical factors” and “personal data of a statistically constructed group of consumers to whom the individual consumer is believed to belong,” and “statistically analyz[es the] data” to generate a report that conveys “why requests are not being completed.” *Id.*, ¶¶92, 169, 198. The report, which can be generated in real-time or in advance, is then provided to content providers and other interested parties and analyzed to inform marketing decisions. *Id.*, ¶¶155, 168, 171, 183.

129. For example, based on the information contained within a report, a

“content directing/packaging unit” 32 can up-sell or cross-sell content to certain users. *Id.*, ¶¶173, 181. Alternatively, the reports can be used “to focus marketing efforts on potential market segments”—i.e., to target a particular demographic. *Id.*, ¶¶88, 200 (“The gathered information may also be used in order to evaluate the existing market segmentation criteria and to focus marketing efforts on potential market segments (both for the relevant content and for similar content items).”). As depicted in Figure 7, Peled analyzes individual refusals for content as well as aggregated refusals, which are organized into the statistical reports that I previously described. *See generally id.*, ¶¶180-200.

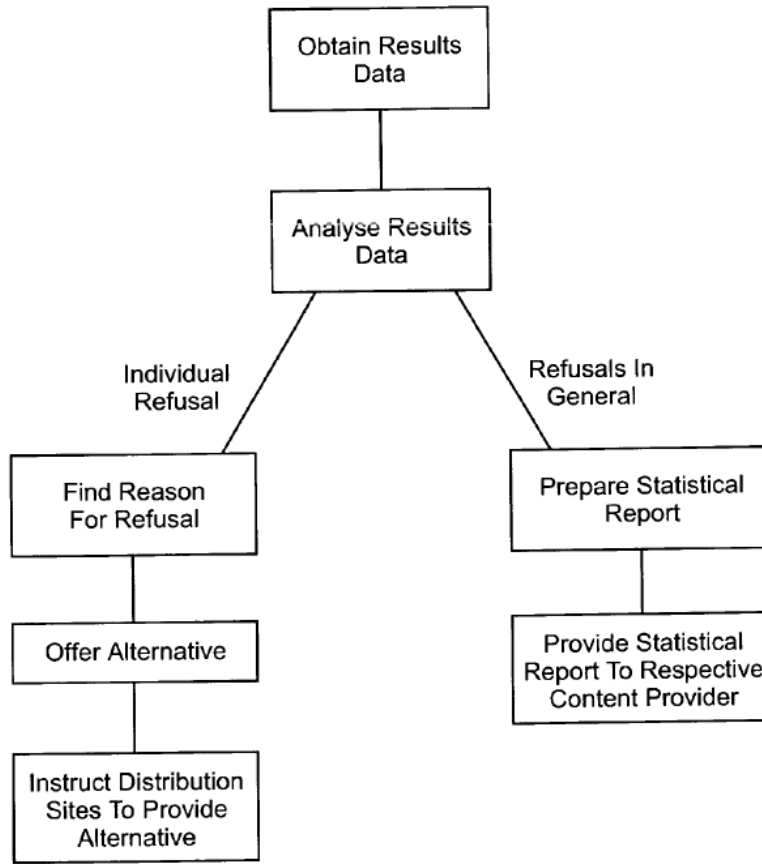


Fig. 7

EX1003, FIG. 7.

130. Based on this process, Peled describes the same monitoring of whether an offer for content has been accepted or declined as described in the '154 patent. Additionally, Peled also describes storing and aggregating user demographic data to provide content providers with statistics related to users who accept and decline content offers. *Id.*, ¶¶168-69. By analyzing denied requests in conjunction with demographic data, Peled explains that its system advantageously “reveal[s] an otherwise hidden demand for products and/or services in segments that a company

is not selling to or serving at a given time.” *Id.*, ¶196.

C. Levy

131. Levy, titled “Rights Management Systems and Methods Using Content Identifiers,” was filed on October 1, 2007, and was published on June 12, 2008. Levy describes “integrating content identifiers with digital rights management systems.” EX1006, ¶3. Levy describes that “some companies maintain extensive content databases to promote their products” and that “[c]ustomers or service providers such as advertising and marketing firms can access this content remotely via [the] internet.” *Id.*, ¶5. Levy describes a “need to enable digital rights management systems to reliably link content with traditional, related data—including related content,” and “a need ... to reliably link content with related usage billing information.” *Id.*, ¶6.

132. To address this need, Levy discloses “a digital watermarking system [that] includes (or communicates with) a secondary component—a database.” *Id.*, ¶10. Levy explains that such “a database preferably includes data related to content,” and that such data may include “content owner or copyright information, metadata, usage rights, enhanced or interactive content, and billing information.” *Id.* Levy recognizes that its “user-friendly digital rights management system provides transparent usage models to consumers while protecting the content.

133. To manage digital rights, Levy describes a “Media Server” user device,

which may be a “cell phone, MP3 player, iPod® and personal computer[.]” that includes “Client Player Application” software for playing content. *Id.*, ¶¶83-84. Levy depicts a method for authenticating content usage rights in FIG. 17d. *See also id.*, FIG. 17a.

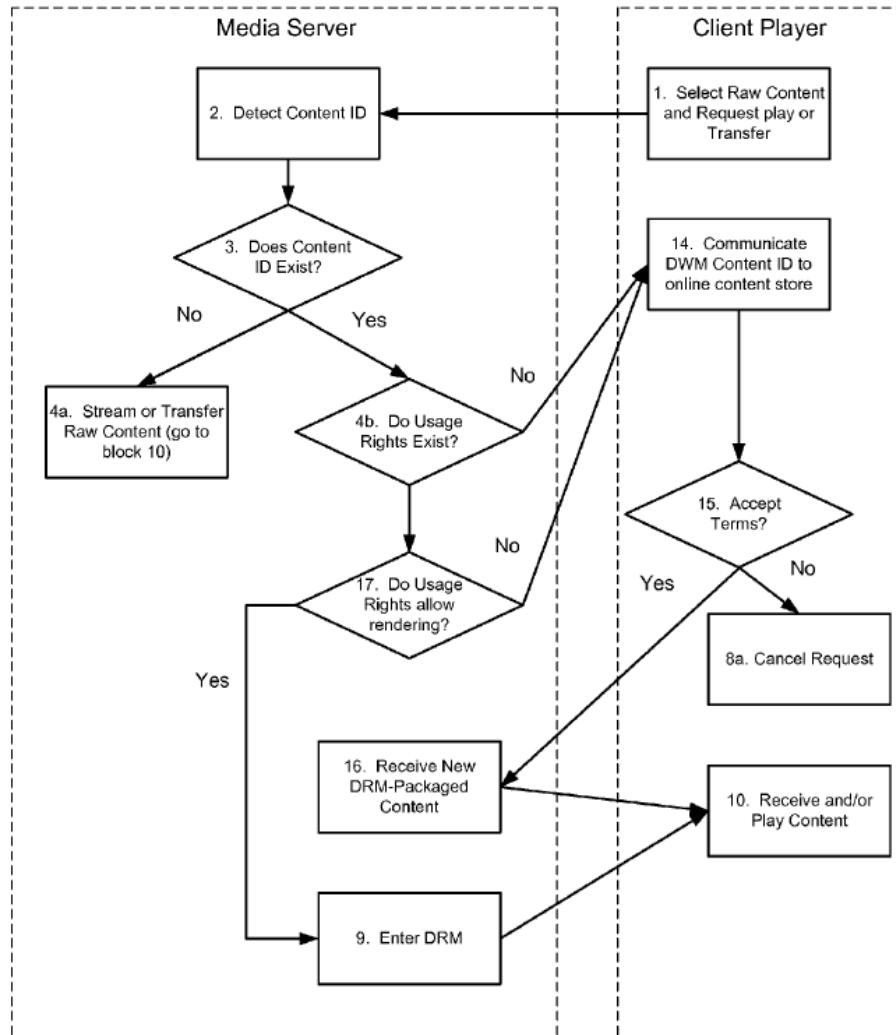


Fig. 17d

EX1006, FIG. 17d.

134. When a “user selects raw content for playing,” the Media Server

identifies a corresponding digital watermark (DWM) Content ID. *Id.*, ¶¶17, 108. “Raw content” includes files downloaded from a Peer-to-Peer (P2P) network or ripped from CDs. *Id.*, ¶107. The DWM Content ID may be a “fingerprint” and may be extracted using a fingerprinting algorithm. *Id.*, Abstract, ¶¶140-42, claims 19, 23, 26, 33, 39. A “fingerprint (e.g., a hash, derived signature or reduce-bit representation of content)” allows Levy’s system to “uniquely identify” media content. *Id.*, ¶140. Levy’s Media Server “calculates or derives a fingerprint of content” and uses the fingerprint to identify corresponding “Usage Rights.” *Id.* “Usage Rights” refers to a “License” and defines the conditions for playing the media content. *Id.*, ¶87.

135. Levy’s Media Server identifies Usage Rights from a “Rights Registry” database that may be local to or remote from the Media Server. *Id.*, ¶¶90, 97-98. As seen in Figure 17d, Levy determines whether Usage Rights exist that allow playing of the media. *Id.*, ¶115. “If not, the Media Server is directed to an online content store.” *Id.* The online store then presents an offer for the user to purchase a license to the content. *Id.*, ¶112. “The user can accept or reject the Usage Rights.” *Id.*, ¶110. If the user declines, the Client Player Application “prohibits access” to the file. *Id.* If the user accepts, “the content is played.” *Id.*

136. To illustrate this process and to track the status of content, usage rights, and user interaction with the content, Levy describes a home rights management system 10, which is depicted in Figure 1 and provides content distribution over a

network.

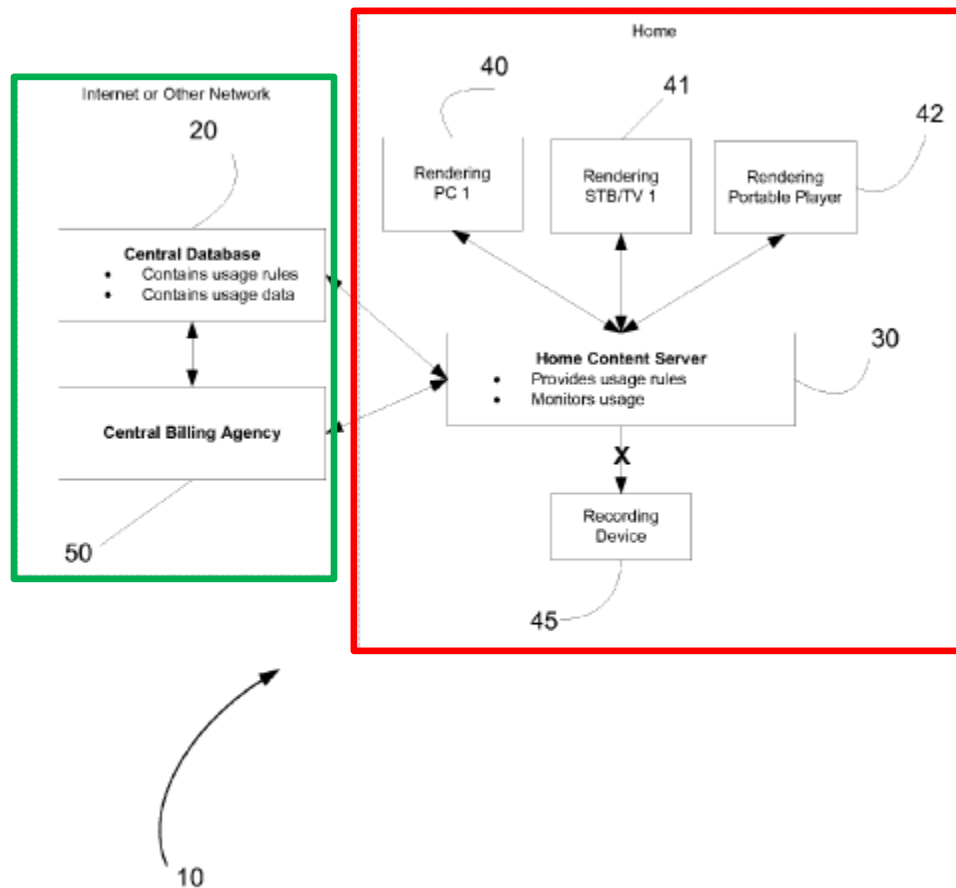


FIG. 2

EX1006, FIG. 2 (annotated).

137. System 10 includes a local home network (red), that includes a home content server 30 in continuous communication with rendering devices 40-42 (e.g., PC, TV, STB, Portable Player, etc.). *Id.*, ¶49. While the home network server is located within the home in this example, Levy recognizes that the home content server 30 can be located in any other remote location. *Id.*

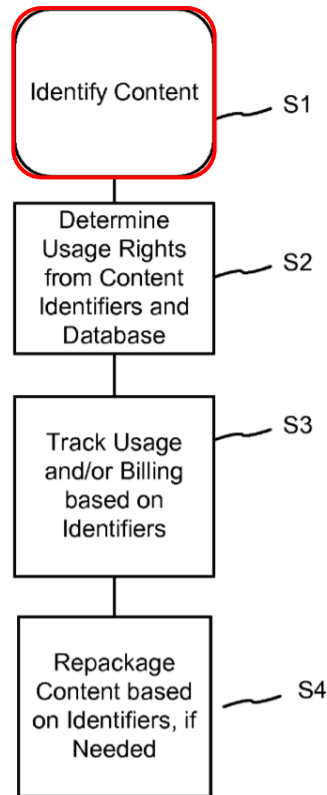
138. Levy discloses that system 100 also includes central database 20 and central billing agency 50. *Id.*, ¶51. Levy explains that:

Central database 20 preferably maintains a set of usage rules. The usage rules define use limits (or permitted use) for related content. The usage rules can be communicated to various network locations, such as to home content server 30. Home content server 30 can query central database 20 to obtain or update usage rules, or updated rules can be pushed to home content server 30. Server 30 can also cache the usage rules locally, or can occasionally query database 20 to obtain updates, etc.

Id., ¶52.

139. In one example, Levy describes that when content playing is requested from a user, either “a rendering device 40-42 or home content server 30 checks the content item and/or [content] headers for an identifier” such as a watermark or fingerprint in order to identify the content. *Id.*, ¶54. In particular, as shown in Figure 1 below, Levy describes an algorithm by which multimedia files such as songs, videos, and images are “identified” before being rendered:

Fig. 1



EX1006, FIG. 1 (annotated), ¶¶4, 42, 69, 93; *see also id.*, FIGs. 17a-18, ¶¶108-09.

140. Levy explains that this identification can be performed using a fingerprinting algorithm. *Id.*, Abstract, ¶¶140-142, claims 19, 23, 26, 33, 39. In particular, a “fingerprint (e.g., a hash, derived signature or reduce-bit representation of content)” allows Levy’s system to “uniquely identify” media content. *Id.*, ¶142. Levy explains that this fingerprint “is generated during content creation.” *Id.*, ¶140.

141. As I will illustrate herein below, Levy’s fingerprinting and the scenario disclosed in Figure 17d of Levy mirrors the licensing and distributing features of

digital media recited in the independent claims.

142. In this manner, Levy discloses fingerprinting techniques for identifying digital content and providing the content to users in accordance with licensing terms.

D. Pou

143. Pou, titled “Distribution and Rights Management of Digital Content,” was filed on December 2, 2003, and was published on January 6, 2005. Pou describes “digital rights management, and more particularly [] facilitating authorized licensing and distribution of digital media.” EX1005, ¶2. It describes a system and method for managing licenses to digital media content, including music, movies, and e-books. *Id.*, Abstract, ¶¶8, 42. Pou depicts an example system in Figure 2:

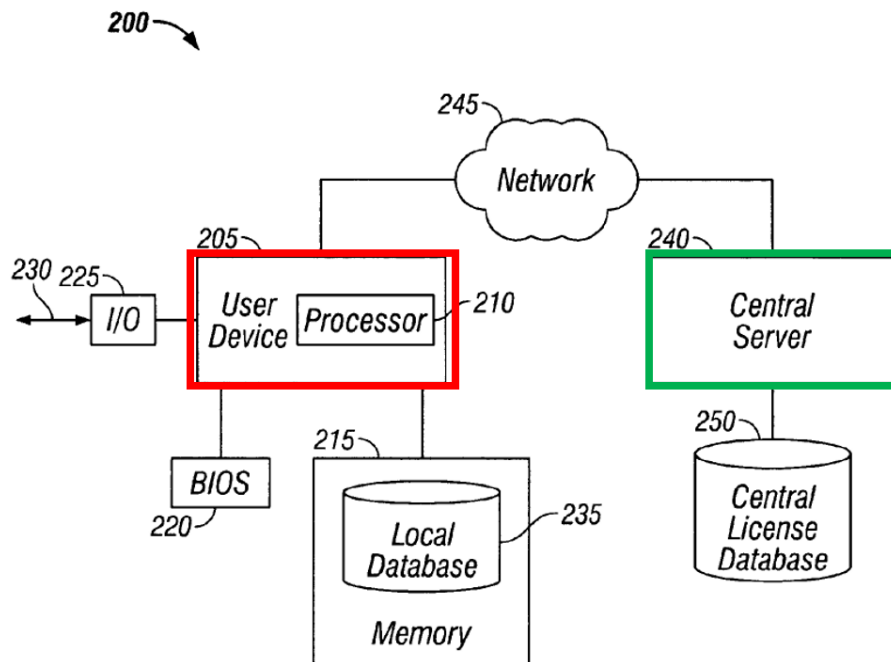


FIG. 2

EX1005, FIG. 2 (annotated).

Declaration of John Tinsman
U.S. Pat. No. 10,885,154

144. Pou's system includes a "central server" 240 (green), as well as a plurality of "user devices" 205 (red) (e.g., computers or mobile devices), which communicate with the server and each other via the Internet 245. *Id.*, ¶¶31, 43, 57. With these systems, Pou describes a process for licensing and managing digital rights to a file with reference to Figure 1. *Id.*, ¶¶31, 50-56.

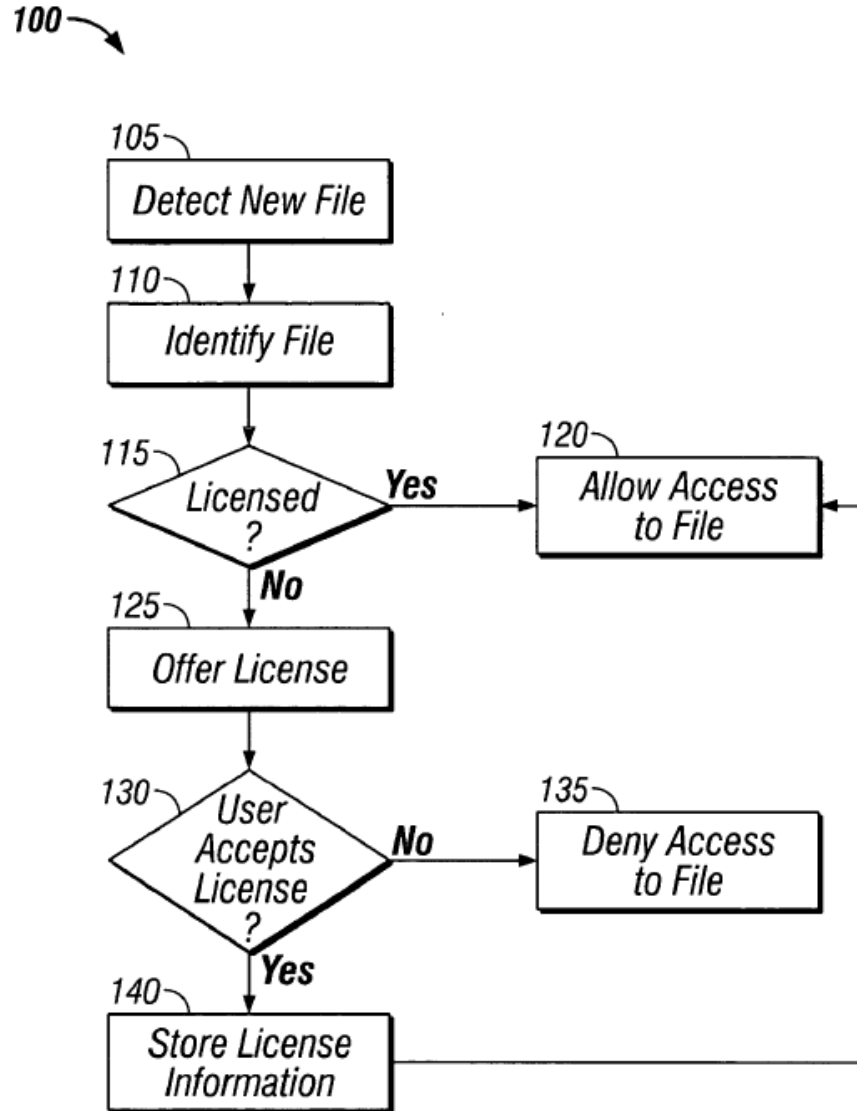


FIG. 1

EX1005, FIG. 1.

145. When a user loads a media file onto his or her device, the file is detected (step 105) and “examined using file identification software in an attempt to identify the file” (step 110). *Id.*, ¶¶13, 51, 64, 82. In one embodiment, this may be a digital

file that a user has received from another consumer or has purchased in physical form, such as via a “standard audio CD or DVD.” EX1005, ¶¶46, 48, 50-51. Pou explains that its media files are identified using “watermarking and fingerprinting techniques,” which Pou notes were “known in the field of digital rights management.” *Id.*, ¶54.

146. In particular, Pou explains that software can extract from the file “a digital fingerprint” that embodies the “internal attributes” of the file and “compare[] the extracted fingerprint to a database of known works.” *Id.*, ¶¶13, 51, 54. In this regard, Pou incorporates by reference Wells et al., U.S. Patent Application Publication No. 2003/0086341 (EX1049), which describes various algorithms known in 2002 for identifying sound recordings using fingerprints. EX1005, ¶51. As Wells explains, fingerprints are based on “intrinsic properties of” digital content and are advantageous because “nothing is added to the music.” EX1049, ¶19. Because such fingerprinting techniques are based on “implicit characteristics,” Pou’s method “allow[s] for accurate identification of the file even if someone has attempted to disguise the file (e.g., by changing the file name, extensions, or other attributes).” EX1005, ¶¶53-54.

147. After a file has been identified, Pou then determines whether the user attempting to access the digital file has already licensed the content. *Id.*, ¶55. “This determination may be performed by referring to one or more license databases,

which may be stored locally (e.g., on the user device) and/or remotely (e.g., at a central server).” *Id.*, ¶55. Pou’s system checks a “central license database” located on the server determines whether the file has been licensed for use by the user (step 115). *Id.*, ¶¶55, 59, 77, 83. If the file is licensed, the user is provided access to the file (step 120), which may involve decrypting the file, streaming the file to the user’s device, and/or downloading the file to the user’s device. *Id.*, ¶¶55, 60, 84. If the file is not licensed, a license may be offered to the user for purchase (step 125). *Id.*, ¶¶56, 85.

For example, the user may be directed to a website where a purchase can be made, or a pop-up window may appear on a display screen for the user device ***asking whether the user wishes to purchase a license to the file*** or otherwise accept certain license terms and/or the user may be directed to a website where a purchase can be completed.

Id., ¶56.

148. The user may then accept or decline the offered license. *Id.*, ¶¶56, 85. For example, Pou’s system may receive “an indication that the user clicked on an accept button or a decline button in the pop-up window.” *Id.*, ¶56. “If the user does not accept the license, access to the file may be denied (step 135). If the user does accept the license, including complying with any payment terms, the user is allowed to access the file” *Id.*, ¶56. Licensing information indicating that the file has

been licensed is then stored in the license database. *Id.*, ¶¶56, 79-80, 85.

149. In this manner, Pou likewise discloses fingerprinting techniques for identifying digital content and providing the content to users in accordance with licensing terms.

E. Rassool

150. Rassool, titled “Media Tracking System and Method,” was filed on November 20, 2001, and issued on May 9, 2006. Rassool describes a system in which fingerprints are used to identify digital media content such as video and music in order to more efficiently manage and track the distribution of such content and “police copyright violations of media files.” EX1016, 2:19-23, 4:33-47. Rassool explains that extracted fingerprints for digital media content can be used to identify the content by matching the fingerprint to a corresponding fingerprint in a database. *Id.*, 5:9-46.

151. Rassool describes several different types of fingerprinting algorithms, including one for audio files in which Rassool calculates the “dominant frequency” at certain times within an audio file and plots the peaks versus time. *Id.*, 23:33-62. Rassool explains that the data “comprises a unique media file identifier that can be stored in a database and searched against to identify the song.” *Id.*, 23:33-62.

152. In this manner, Rassool’s fingerprint identifies various audio

frequencies at particular points in time.

VIII. CLAIM CONSTRUCTION

153. I do not believe that any particular construction of any particular claim term is required for purposes of this proceeding. I have therefore interpreted the claim terms recited in the '154 patent consistent with their plain and customary meaning to a person of ordinary skill in the art, as informed by the specification.

154. I reserve the right to offer claim construction opinions, however, in the event that Patent Owner proposes, or the Board adopts, particular constructions for claim terms.

IX. GROUND 1: CLAIMS 1-2 AND 4-18 OF THE '154 PATENT ARE UNPATENTABLE UNDER 35 U.S.C. § 103 OVER BRANDSTETTER IN VIEW OF LEVY.

155. Brandstetter and Levy disclose each and every limitation of claims 1-2 and 4-18. Brandstetter teaches the identification and aggregation of user demographic data in response to accepting or declining to stream. While Brandstetter describes facilitating license purchases, Brandstetter may not explicitly describe a process for managing user licenses or digital rights. However, Levy expressly discloses using fingerprints to manage digital rights and to identify digital content, as well as offering a media license when one has not been previously obtained. EX1006, Abstract, ¶¶3, 11-12, 17, 80, 110-15, FIG. 17a, FIG. 17d. Likewise, Levy expressly discloses using digital fingerprints to identify and track such content. *Id.*,

Abstract, ¶¶4, 7, 12-13, 42, 47-48, 54-58, 69, 77, 80, 89, 93, 108-09, 140-42. As I explain in further detail below, a POSA would have found claims 1-2 and 4-18 of the '154 patent obvious in light of the disclosures of Brandstetter and Levy.

A. Overview of the Combination of Brandstetter and Levy

156. A POSA would have been motivated to combine Brandstetter and Levy, would have known how to combine Brandstetter and Levy, and would have had a reasonable expectation of success when combining Brandstetter and Levy.

1. A POSA would have been motivated to combine Brandstetter and Levy.

157. A POSA would have been motivated to combine Levy with Brandstetter to provide an efficient mechanism for tracking licenses purchased using Brandstetter's platform and to provide additional control of downloaded purchases to ensure license adherence.

158. A POSA would have recognized that combining Brandstetter and Levy would have amounted to combining well-known prior art elements to yield predictable results. As I explained in Sections V.A-B, offering media licenses and tracking purchased media licenses (i.e., "Usage Rights") with a corresponding "fingerprint" to provide an efficient mechanism for tracking purchased licenses was well known. EX1006, ¶¶85, 87, 97, 112-13, 140-42. Implementing Levy's fingerprint tracking and checking with Brandstetter would have improved Brandstetter's ability to identify requested content, manage previous user purchases,

control downloaded media, and confirm adherence to license terms. This would improve Brandstetter's media distribution platform and provide content creators and content providers with greater license control and ability to track purchases and monetize the unauthorized distribution of digital media content (e.g., media that is illegally obtained, or media having expired usage rights).

159. At the outset, Brandstetter already describes tracking user purchases and purchase history. EX1004, ¶¶5-9, 130, FIGs. 27-44. Brandstetter explains that such information is useful for “empowering content creators to market and distribute their own content without entering into onerous one-sided agreements” that limit their distribution capabilities. *Id.*, ¶5. Brandstetter is not limited to tracking user purchases and purchase histories. *Id.*, ¶130 (“Thus, even if a purchase is not made, data related to audience interaction with content on the website can be indexed and used for later analysis.”). Rather, in order to further “empower[] content creators,” Brandstetter describes tracking and indexing all “audience interaction” with the platform. *Id.* This, Brandstetter explains, can “facilitate creation, execution, and revision of marketing and distribution strategies for media content by the content creator.” *Id.*, ¶7. With such enhanced marketing and distribution capabilities, Brandstetter allows content creators to identify a “specific demographic” of consumers and to “adapt the marketing strategy to more efficiently market the content” to that demographic of consumers. *Id.*, ¶66. In this manner, Brandstetter

already describes tracking the purchase of media content and that such information is useful when performing a market analysis.

160. Brandstetter describes tracking all user interaction on its systems, including purchased media content. For example, as I explain further below, Brandstetter's catalog relies on "static elements corresponding to aspects of multimedia content... [that] can include certain video attributes (e.g., title, plot, genre, ratings, credit, artwork, etc.)." *Id.*, ¶118. A POSA, however, would have understood that a common way to track purchased media content would be using a unique identifier corresponding to that media content. As I explained in Section V.B, such techniques were well-known in the art prior to the '154 patent. Levy explicitly recites such techniques and describes using digital fingerprints to identify media files. EX1006, ¶¶10, 14, 58-66. In view of Brandstetter's suggestion of tracking user purchases, a POSA would have been motivated to combine Levy's fingerprint techniques with Brandstetter to provide a mechanism for tracking user purchases, as well as identifying media content, including content that a user has already obtained. *Id.*, ¶¶58-66. This would provide a mechanism for tracking purchases on Brandstetter's server platform, as well as media files downloaded locally to local client devices. EX1004, ¶¶77, 125, 145, 166, 169, 173. Thus, a POSA would have implemented Levy's tracking of media licenses with Brandstetter to track license purchases and to ensure adherence to license rules.

161. Combining Brandstetter with Levy would provide at least two benefits:

(1) providing an efficient mechanism for identifying and tracking purchased licenses for a user, and (2) confirming adherence to license terms for downloaded media files.

162. Regarding the first benefit, Brandstetter describes tracking user license purchases as well as active rentals and a download history. *See id.*, FIGs. 26-29, ¶166. For example, Figure 28 depicts the tracking of purchased licenses for a particular user:

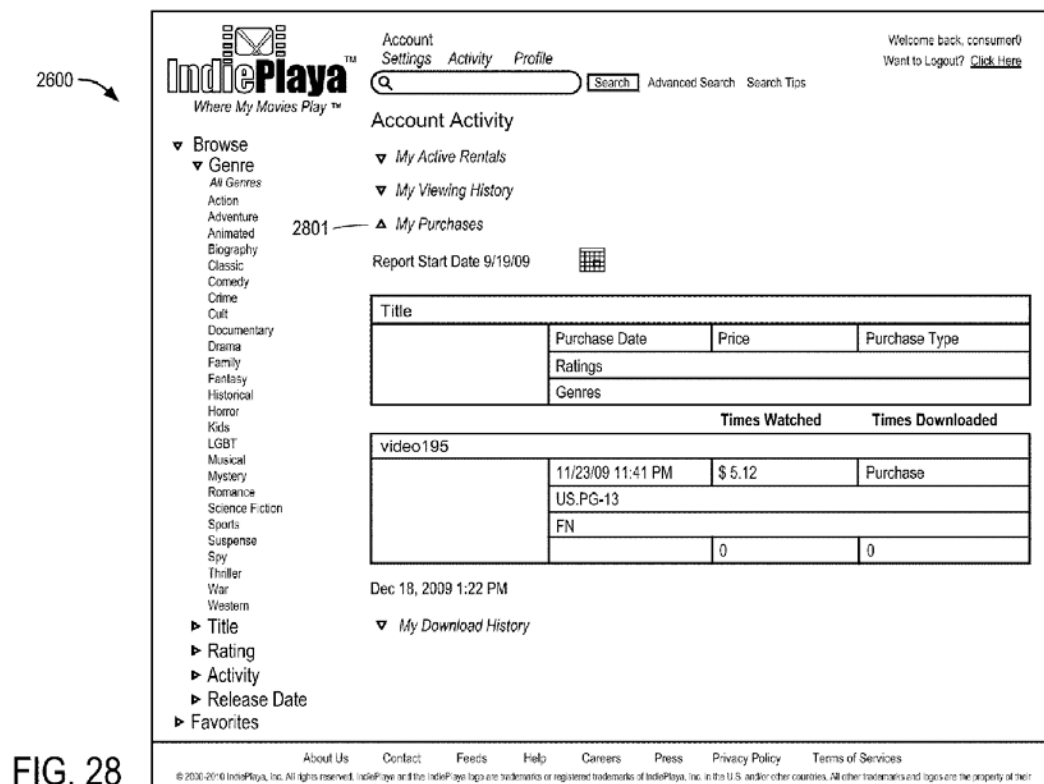


FIG. 28

EX1004, FIG. 28.

163. Brandstetter uniquely identifies the content corresponding to these purchases using “static elements” such as catalog data. *Id.*, ¶118. This catalog data

includes “a globally constant description (e.g., of defined structured data fields), that includes individual references corresponding to the content of each object (e.g., a video) individually.” *Id.* A POSA would have understood that a fingerprint—such as the one described in Levy—would be an example of such a “globally constant description.” Specifically, Levy explains that a fingerprint is a “hash, derived signature or reduce-bit representation of content” that “is generated during content creation” and is capable of “uniquely identify[ing] versions” of media content such as songs. EX1006, ¶140. A fingerprint is a compact, “reduce-bit representation of content” and therefore enables fast and computationally efficient comparisons. *Id.*, ¶142. Thus, a POSA would have understood that implementing such unique identifications with Brandstetter would have provided a mechanism for uniquely identifying content that has been licensed by a user using Brandstetter’s media platform. This would even allow Brandstetter’s platform to distinguish between different versions of content. *See Id.* (describing a “first version (v1)” of a Song A having “fingerprint (f1)” and “second version (v2)” of a Song A having “fingerprint (f2)”); EX1004, ¶6 (describing Brandstetter’s platform also distributing “music”). Thus, implementing the unique content ID or fingerprinting described in Levy would provide an efficient mechanism for organizing license purchases and identifying content as described and tracked in Brandstetter.

164. Regarding the second benefit, combining Levy with Brandstetter would

aid in confirming adherence to license terms for downloaded media files. At the outset, Brandstetter describes licenses allowing a user to download media files. EX1004, ¶¶77, 125, 145, 166. For example, “users can purchase an item or a license to an item, and can download the item over the network (e.g., onto a computer for viewing and/or listening).” *Id.*, ¶77. While a user may download a content item, a POSA would have recognized that content creators may not want those users to distribute downloaded files to other users. *See* Section V.A.2. This would harm potential revenue streams for the content creators. For example, as Levy explains, a POSA would have sought ways to prevent illegal distribution and to restrict or prohibit additional distribution. EX1006, ¶¶13, 66. Preventing unauthorized distribution would further Brandstetter’s goals of “empowering content creators” and to secure revenue streams. EX1004, ¶¶4-5. Combining Levy’s process of checking a Content ID to determine a user’s Usage Rights would provide this control and would help to prevent unauthorized or unlicensed access to media content.

165. Levy describes a process where a content ID is detected, extracted, and used by content stores to determine a user’s Usage Rights corresponding to a license. *See generally* EX1006, ¶¶106-09, 114. For example, a “user selects raw content for playing.” *Id.*, ¶108. According to Levy, raw content may be “digital, base band or compressed content that is not encrypted or DRM-packaged.” *Id.*, ¶106. A fingerprint is then extracted from the raw content. *Id.*, ¶109. Levy then describes

determining whether “Usage Rights” (i.e., a license) exists for the user attempting to access the raw content. *Id.*, ¶110. “If the Usage Rights do not exist, the Media Server preferably prevents access to the content.” *Id.* Alternatively, the user may be offered the option to purchase Usage Rights via an on-line media store. *Id.*, ¶¶110, 112. In this manner, Levy describes a mechanism for controlling digital files that may have been obtained through an unauthorized distribution. *Id.*, ¶¶13, 66, 107, 110. Levy’s fingerprints “help publishers or content owners prevent unauthorized copying, replication, usage or distribution of their software products, either via CD-ROM, via the Internet, transfer, etc.” EX1006, ¶13. A POSA would have therefore been motivated to implement such control with Brandstetter to prevent the unauthorized distribution of downloaded media content items. This would further Brandstetter’s goals of empowering content creators and securing revenue streams. EX1004, ¶¶4-5.

166. To implement Levy with Brandstetter, a POSA would have utilized Levy’s identification of a fingerprint when a user attempts to access a media file. EX1006, ¶¶108-10, 140-42. A check would be performed—such as checking the tracked purchases described in Brandstetter—to determine whether the user has purchased a license to that content. *Id.*; EX1004, FIGs. 26-29, ¶166. If so, the user would be permitted to access the media content. If not, the user would be prompted with an option to purchase a license as described in both Brandstetter and Levy.

EX1004, FIGs. 35-35A; EX1006, FIG. 17d, ¶110. A POSA would have understood that combining Brandstetter with Levy in this manner would therefore allow control over downloaded content and help to prevent the unauthorized distribution of content downloaded from Brandstetter's platform.

167. Thus, a POSA would have been motivated to combine Levy with Brandstetter to provide a mechanism for identifying and tracking licenses or content already purchased by a consumer as well as to control downloaded content. This would improve Brandstetter's content management and distribution process by being able to efficiently identify content and manage licenses that a user has purchased or may need to purchase (despite having the raw content). This would therefore further Brandstetter's goal of empowering content creators using Brandstetter's platform to obtain licensing revenue and to distribute content. EX1004, ¶¶4-5.

2. A POSA would have known how to combine Brandstetter and Levy and would have had a reasonable expectation of success.

168. A POSA would have known how to combine Brandstetter and Levy and would have had a reasonable expectation of success. For example, a POSA would have known how to implement the purchase and license tracking described in Levy with Brandstetter as well as the distribution of licensed content. EX1006, ¶¶68-73, 76-79. Similarly, a POSA would have known how to implement the

fingerprinting techniques as well. *Id.*, ¶¶56-66, 68-73. As I previously explained, this would provide a combined system capable of uniquely identifying content, managing different rentals, and/or purchases as well as corresponding content versions as described in Brandstetter. See Section IX.A.1. Combining Levy and Brandstetter would also aid in controlling downloaded content, which is also offered by Brandstetter's platform. EX1004, ¶¶77, 125, 145, 166, 169, 173.

169. Regarding combinability, both Brandstetter and Levy describe conventional server systems for managing digital media files. *Id.*, ¶¶90-101; EX1006, ¶¶17, 49-57. Further, both Brandstetter and Levy simply describe implementing software algorithms on these server platforms. *Id.* In this manner, a POSA would have easily combined the references using well-known computer programming techniques. This combined algorithm would include Levy's digital media content recognition techniques and tracking of user licenses with Brandstetter's gathering of user demographic data and reporting of this data. EX1006, ¶114. Combining Brandstetter and Levy would have been predictable and would have simply amounted to updating Brandstetter's license management software algorithm to include Levy's fingerprint identification and management to generate a combined server system. This combination would operate to perform its intended purposes.

170. In this manner, a POSA would have easily combined Brandstetter and

Levy because both use conventional server systems for managing digital media files. EX1004, ¶¶90-101; EX1006, ¶¶17, 49-57. Combining Brandstetter and Levy would amount to nothing more than combining known prior art elements according to known methods to yield predictable results and applying a known technique to a known device ready for improvement to yield predictable results. Thus, in view of the conventional server systems described in Brandstetter and Levy, a POSA would have easily combined the references and would have found it predictable to form such a combination.

B. Independent Claim 1

1. [1P]: “A multimedia hardware device comprising:”

171. To the extent that the preamble language is deemed limiting, Brandstetter discloses the preamble. In particular, Brandstetter describes a computer-based method for “marketing and distributing media content, including motion pictures, television programming, online games, music, and other media content,” to users over the Internet. EX1004, Abstract, ¶¶1, 6, 10, 69. Brandstetter explains that media content is distributed by Brandstetter’s central server 101 to “hundreds of thousands” of user “client devices” 111, each of which may comprise a “personal computer (e.g., desktop or laptop computer) or any form of mobile computing device (e.g., an iPhone, BlackBerry, and the like).” *Id.*, ¶¶69, 91, 101, 109. Each of Brandstetter’s client devices constitutes the claimed “multimedia

hardware device”:

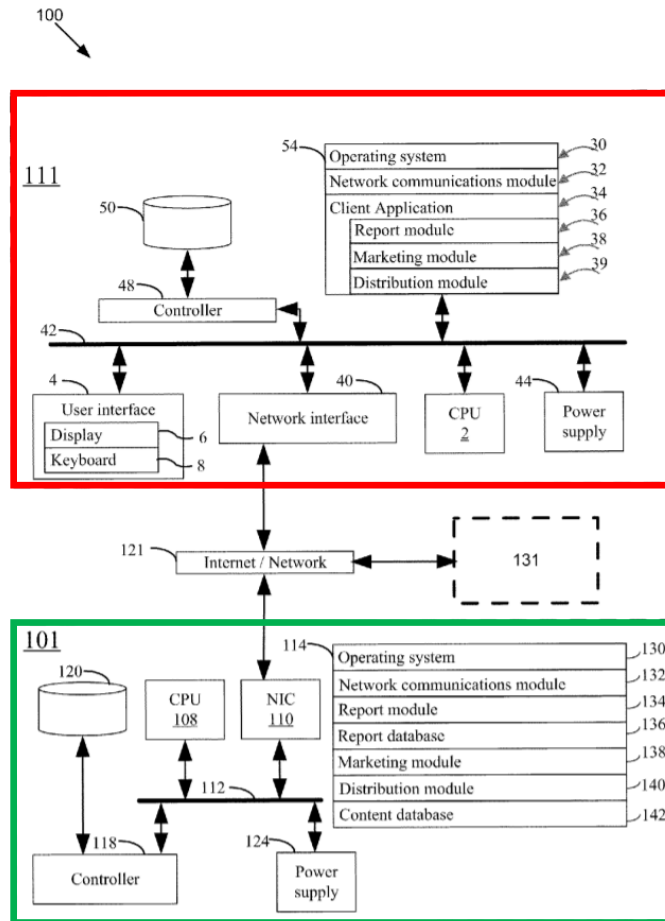


FIG. 1C

EX1004, FIG. 1C (annotated).

172. Thus, Brandstetter discloses a “multimedia hardware device.”

2. [1A]: “a processor; and:”

173. Brandstetter discloses “a processor.” In particular, Brandstetter states that its client device 111 contains “one or more processing units (CPUs).” EX1004, ¶103. Brandstetter explains that the processors may be “general or special purpose microprocessors, and any one or more processors of any kind of digital computer.”

Id., ¶183.

3. [1B]: “a memory coupled with the processor, the memory including instructions that, when executed by the processor cause the processor to:”

174. Brandstetter discloses “a memory coupled with the processor, the memory including instructions that, when executed by the processor cause the processor to” carry out the steps recited in the claim. In particular, Brandstetter states that its client device contains “a memory 54” that stores an operating system and the software required to carry out Brandstetter’s client-side tasks. *Id.*, ¶105. Brandstetter explains that the memory may be “all forms of nonvolatile memory media, and memory devices, including by way of example semiconductor memory devices, e.g., EPROM, EEPROM, and flash memory devices; magnetic disks, e.g., internal hard disks or removable disks; magneto-optical disks; and CD-ROM and DVD-ROM disks. The processor and the memory can be supplemented by, or incorporated in, special purpose logic circuitry.” *Id.*, ¶183

4. [1C]: “generate a first request from a user to evaluate streaming a first media content item to the device;”

175. Brandstetter discloses “generat[ing] a first request from a user to evaluate streaming a first media content item to the device.” At the outset, Brandstetter makes clear that its platform may be used “for any type of media content, including media content in digital form that is distributable over a network.” EX1004, ¶7. Each item corresponding to such content is a “media content item.” *See*

id., ¶69 (explaining that “**the item of media content** is a digital work of authorship, embodied in a computer-readable medium, that can be distributed to a user’s computer over a network”).

176. Brandstetter states that its users can make “requests” for media content using their client devices. *Id.*, ¶¶10, 66, 69, 71, 75, 77, 98, 141-47. Such requests may be made any number of ways, including by “click[ing] on an advertisement” or using a “search” bar in one of Brandstetter’s interfaces. *Id.*, ¶¶71, 87, FIG. 4; *see also id.*, ¶¶120-27, 137, FIGs. 18, 25-36. A POSA would have understood from this disclosure that Brandstetter’s user requests are generated by the processors within the users’ client devices.

177. Further, Brandstetter explains that users may generate requests specifically to “stream” media content. For example, Brandstetter depicts “viewing area 3001” in Figure 30 and Figures 35, 35A, 36-39, which is used for viewing content. *Id.*, ¶167. Additionally, Brandstetter describes a “purchase” license allowing a user to “**stream** [a] film as often as [they] like,” as well as a “rental” license allowing a user to “**stream** the film as often as they like for 168 hours after the film has started.” *Id.*, FIGs. 16, 19; *see also id.*, FIG. 35A (allowing a user to “Download or **Stream** this video whenever you want, as many times as you want”). Further, Brandstetter explains that its platform enables content creators to analyze “**streams**,” in addition to downloads, of media content. *Id.*, ¶173. A POSA would

have understood from this disclosure that Brandstetter teaches streaming media content to users' client devices in response to user requests.

178. Still further, a POSA would have understood that a user's request to stream a media content item is in fact a request to "evaluate streaming" the media content item—i.e., a request from the user to first view a media content item to determine whether he or she wishes to consummate the transaction and actually stream the content. This is supported by Brandstetter's example in which a user can "click[] on an advertisement for ... media content," and thereafter "purchase[] a license to the media content." *Id.*, ¶71. This disclosure makes clear that the act of clicking on an advertisement for particular content (i.e., requesting to stream that content) is not the same as actually purchasing the content (i.e., streaming the content). Accordingly, Brandstetter's client devices "generate a ... request ... to evaluate streaming a first media content item to the device."

5. **[1D]: "identify the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation;"**

179. The combination of Brandstetter and Levy discloses "identify[ing] the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured

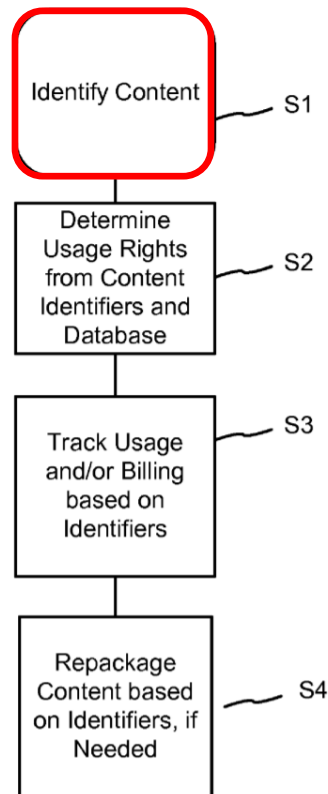
during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation.”

180. At the outset, a POSA would have understood that Brandstetter discloses “identifying” requested media content items, generally, because there would be no way to provide a user with the requested item without first identifying that which the user has requested. Indeed, Brandstetter states that its system obtains “the characteristics of the media content with which each of the users interact, such as the type of media content (e.g., video, audio, graphic, or literary work).” EX1004, ¶¶71, 83; FIGs. 1A-1B; *see also id.*, ¶118 (referring to “static elements corresponding to aspects of the content that remain constant (e.g., or unchanging) in the platform,” including title, plot, genre, ratings, credit). This disclosure makes clear that Brandstetter determines the characteristics of requested media content. And a POSA would have understood from this disclosure that Brandstetter’s platform identifies requested media content based on those characteristics.

181. Brandstetter further explains that this “static information” uniquely identifies content and includes a “globally constant description” that individually identifies content. *Id.*, ¶118. As I explained in Sections V.B and IX.A, a POSA would have understood that a common mechanism for uniquely identifying media content is to use fingerprints as described in Levy. As shown in Figure 1 below,

Levy describes an algorithm by which multimedia files such as songs, videos, and images are “identified” before being rendered, EX1006, ¶¶4, 42, 69, 93; *see also id.*, FIGs. 17a-18, ¶¶108-09:

Fig. 1



EX1006, FIG. 1 (annotated).

182. Levy explains that this identification can be performed using a “digital watermark” that “includes a unique content identifier.” *Id.*, ¶¶7, 12, 13, 42, 47-48, 54-58, 77, 80, 89, 108-09. Alternatively, Levy explains that fingerprinting can be used for this purpose. *Id.*, Abstract, ¶¶140-42, claims 19, 23, 26, 33, 39. As I

explained above, fingerprints were common and ubiquitous in the prior art for identifying media content in DRM systems. See Section V.B.

183. Levy explains that a “**fingerprint (e.g., a hash, derived signature or reduce-bit representation of content)**” allows its system to “**uniquely identify**” media content. EX1006, ¶¶140, 142. This fingerprint “**is generated during content creation.**” *Id.*, ¶140. From this disclosure, a POSA would have understood that Levy’s fingerprinting algorithm discloses the claimed step of “identify[ing] the ... media content item by determining a ... media fingerprint.”

184. A POSA would likewise have understood that Levy’s fingerprints “identif[y] a ... unique characteristic inherently present in the ... media content item captured during recorded creation of the ... media content item, and excluding information introduced to the ... media content item extraneous to the recorded creation,” as required by the claim. While the ’154 patent specification and file history shed little light on what “information introduced to the ... media content item extraneous to the recorded creation” encompasses, the patent indicates that the fingerprint must embody inherent properties of the media content—i.e., not data that is inserted into the media file post-creation—so as to allow the system to distinguish between multiple versions of content and to ensure that the system can accurately identify content even if it has been remastered or modified. In particular, the ’154 patent describes using fingerprints that embody characteristics “**inherently present**

in the media content item such that the media content item is not remastered to include the identifying characteristic after the media content item is initially recorded,” so that the fingerprints can “identif[y] a media content item, **even considering the possibility of different versions** of the same media content item.” EX1001, 4:26-31, 9:17-21. The patent refers specifically to using fingerprints to distinguish between different versions of a song. *Id.*, 9:21-24.

185. Levy discloses this same feature using almost identical language. Levy makes clear that its watermarks/fingerprints “**derive[] from the content itself**” and thus include content IDs that are “**unique to a specific**” media content item. EX1006, ¶85, claim 23. Likewise, Levy emphasizes that its watermarks/fingerprints “survive end-user recording of the content onto new media or into **a new format**” so as to allow for accurate identification even if the content is subsequently modified. *Id.*, ¶¶47, 85. Still further, Levy makes clear that its fingerprints are “used to **uniquely identify versions of songs.**” *Id.*, ¶142. In fact, Levy provides an example in which its system uses fingerprints in the manner that the ’154 patent’s specification describes:

Consider a song, Song A. A first version (v1) of Song A is sent to Chuck. **A fingerprint (f1) is derived from the first version (v1) prior to distributing to Chuck.** The fingerprint (f1) is stored in a Rights Registry as the content identifier for Chuck’s version. A second version (v2) of

Song A is sent to Shelia. ***The second version (v2) varies slightly from the first version (v1).*** The variations are small, preferably imperceptible to a human listener. The variations, however, lead to a second, different fingerprint (f2). (The same fingerprinting module is used to generate fingerprints f1 and f2.) The fingerprint (f2) is stored in a Rights Registry as the content identifier for Shelia's version. The variations can be introduced through, e.g., a random or pseudo-random filter of Song A. Song A is filtered prior to each distribution. ***This allows fingerprinting to uniquely identify different distribution copies of a song.***

Id. Given that this disclosure mirrors how the '154 patent itself describes its fingerprinting algorithm, a POSA would have understood that Levy's fingerprints "identif[y] a ... unique characteristic inherently present in the ... media content item captured during recorded creation of the ... media content item, and excluding information introduced to the ... media content item extraneous to the recorded creation." And, indeed, Levy's disclosure is consistent with the way Shazam has used fingerprints since 2002 to accurately identify songs based on short samples thereof. These techniques relied on analyzing unique characteristics that are inherently present in the media content. *See* Section V.B.

186. Levy is agnostic as to where the identification step occurs, stating that media content "is identified before rendering," without specifying where that step

takes place. *Id.*, ¶142; *see also id.*, ¶152 (stating that Levy’s embodiments can be “interchang[ed] and substitut[ed]”). In any event, Levy provides examples in which a user’s device (i.e., Levy’s “Media Server” with “Client Player Application” software) can perform the identification step by extracting a watermark/fingerprint from the content and looking up the watermark/fingerprint in a database, which Levy states can be a “local” database residing on the user’s device. *See id.*, ¶¶10, 43, 51, 54-55, 76, 83-84, 98. Levy states that its “Media Server includes a fingerprint reader” that “calculates or derives a fingerprint of content.” *Id.*, ¶140. Thus, Levy clearly discloses the identifying step being performed on a user’s device.

187. A POSA would have been motivated to implement Levy’s fingerprinting identification algorithm on Brandstetter’s client devices to permit the devices to easily and efficiently identify media content, and ultimately to determine whether the consumer is licensed to stream the content. As I explained above, digital fingerprints were well known and often used precisely for this purpose in content distribution systems such as Brandstetter’s. *See* Sections V.B, IX.A. Additionally, a POSA would have implemented Levy with Brandstetter to potentially identify media loaded at a client device and to determine whether a user has previously obtained a license or should be offered a license to stream content. *See* Section IX.A. Levy recognizes a need for identifying such media at a user device. For example, Levy relies on a digital fingerprint to handle and re-associate usage rights with raw/naked

content found outside of its DRM packaging (e.g., content obtained from “downloading files from a peer-to-peer network” onto a user device). EX1006, ¶¶80, 106, 107. A POSA would have been motivated to use Levy’s fingerprints in particular because they are based on intrinsic properties of digital content and thus “allow for accurate identification of the file even if someone has attempted to disguise the file (e.g., by changing the file name, extensions, or other attributes).” EX1005, ¶¶53-54. This feature would advantageously permit Brandstetter’s user devices to differentiate among different versions of media content with ease. Indeed, Levy states that its fingerprints “uniquely identify different distribution copies of a song.” EX1006, ¶142. And, because Levy’s fingerprints are individualized to particular media content, they can advantageously be used to “track content, even when the content is found outside of a DRM” system. *Id.*, ¶¶47-48, 57-58, 66.

188. Thus, the combination of Brandstetter and Levy discloses “identify[ing] the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation.”

6. [1E]: “extract first user data specific to the user when the user accepts to stream the first media content item;”

189. Brandstetter discloses “extract[ing] first user data specific to the user

when the user accepts to stream the first media content item.” In particular, to facilitate the marketing capabilities I described above, Brandstetter extracts from any user activity (including a license transaction) user data that is specific to the user that is attempting to reproduce the media content item. Brandstetter explains that as “the users use such a platform, the platform can **collect information about the users (e.g., their demographics)** and user activity (e.g., with respect to each item of content marketed or distributed on the platform.” EX1004, ¶¶65, 83. For example, Brandstetter describes “obtaining information about user activity on the platform (12),” including “**user demographics (e.g., ages, geographical locations, ethnicities, [and] genders)**.” *Id.*, ¶71.

190. Brandstetter does not limit the types of information collected by the platform. For example, in addition to user demographic information, Brandstetter describes collecting other information, such as:

the characteristics of the media content with which each of the users interact, such as the type of media content (e.g., video, audio, graphic, or literary work), the quality of the media content (e.g., high definition, low definition), the rating of the media content (e.g., “PG” or “R”), the genre of the media content (e.g., horror, drama), **the way in which the user interacted with the media content (e.g., clicked on an advertisement for the media content, purchased a license to the media content, or purchased**

the media content outright), and/or the price, if any, that the user paid for the particular interaction with the media content.

Id. All of this data constitutes “user data specific to” a user.

191. Brandstetter describes gathering such data, moreover, when a user has accepted to stream content. In particular, Brandstetter states that the platform can collect “user activity” data—i.e., user demographic data and data that conveys a user’s interaction with the platform—for “***all activity up to and including a purchase***” of media content. *Id.*, ¶¶71, 130. This would include purchasing or renting content to stream. *See id.*, FIGs. 16, 19, 35A. A POSA would have understood from this disclosure that Brandstetter’s platform extracts user demographic data when the user makes “a purchase”—i.e., when the user accepts to stream content.

192. Notably, because the user demographic data is collected when the user makes a purchase, a POSA would have understood and it would have been obvious that the processor within the user’s client device issues the commands that ultimately cause the data to be collected. In particular, the processor within the client device transmits a request to Brandstetter’s platform to purchase the requested media content item and to extract data associated with the user. That Brandstetter’s platform is the system that actually performs the extraction step does not negate the fact that the execution of that step originates with the client device’s (i.e., the claimed

“multimedia hardware device’s”) processor, as the claim element requires.

193. Further, a POSA would have found it obvious for the extraction to be performed at the user’s client device. At the outset, Brandstetter itself notes that the distinction between its client devices and its central server is not absolute. It explains, for example, that “there may be little or no difference between the architecture of the serving devices and the client devices,” and that “other embodiments that do not make use of a client-server architecture are possible and all such implementations are within the scope of the present disclosure.” *Id.*, ¶72.

194. Further, data associated with the user already resides on the user’s client device, and so it would be trivial for the device to extract such data when the user accepts to stream content. Levy itself describes its client device extracting user-related data. See EX1006, ¶¶77-78 (explaining that a user’s client device can extract a “unique ID” from media content, as well as data linking the particular user to the content).

195. Performing the extraction step on the client’s device, moreover, would advantageously ensure that the user’s personally identifying information is not sent to Brandstetter’s server, thus protecting the user’s sensitive data. Likewise, performing the extraction step on the client’s device would advantageously ensure that Brandstetter’s statistics can be generated even when the user’s device is offline and thus cannot communicate with Brandstetter’s server. Indeed, in many different

applications, it was common for software installed on a user's computer or set-top box to collect user data and package the data so that it would be ready for transmission if and when the user reconnects to the Internet. *See, e.g.*, EX1068, 1:19-44 (describing prior art DirecTV set-top box in which the “[t]he set top box captures information with regard to the purchase (i.e., it stores purchase information for billing purposes)” and, “[a]t an appropriate time, (e.g., during a regularly scheduled upstream communication from the set top box to DirecTV, such as a telephone call) the set top box sends this purchase information to the Pay-Per-View service (i.e., it forwards this stored information to DirecTV to allow the subscriber's account to be billed for their purchase of the program which they selected and viewed).”). In the television-based commerce context, for example, a “client application” collecting “usage statistics” and sending them “to a database on the application network” facilitates the “purchases of products via interaction with the T.V.” *Id.*, 2:17-25.

196. Further, performing the extraction step on the client device would be useful for distinguishing between multiple users who use the same device (e.g., a husband and wife). That way, if and when the server receives the user data for a particular device, the data is already separated on a per-user basis for that device. This, too, was common practice. Indeed, the prior art explains, for example, that user information can be stored in a “local database specific to the user on a user device [] that may be shared by multiple users.” EX1005, ¶88.

197. Finally, extracting data on the client device would be useful for Brandstetter's system to make media content recommendations among content items stored locally on the user's client device.

198. Thus, Brandstetter discloses "extract[ing] first user data specific to the user when the user accepts to stream the first media content item."

7. [1F]: "generate a second request from the user to evaluate streaming a second media content item to the device;"

199. Brandstetter discloses "generat[ing] a second request from the user to evaluate streaming a second media content item to the device." As explained above with reference to claim element [1C], Brandstetter discloses its client devices generating requests to evaluate streaming media content items to the devices. See Section IX.B.4. A POSA would have understood, moreover, that Brandstetter's platform can be used to stream multiple media content items rather than just a single item. Indeed, Brandstetter states that "users can interface with the platform so as to view information about *different available items of media content*." EX1004, ¶87. Brandstetter elsewhere states that its server "receives user requests for distribution of *items of media content*" and distributes "such items" to users. *Id.*, ¶98.

200. A POSA would have understood from this disclosure that a single user could request to stream multiple media content items. And, as explained with reference to claim element [1C], each such request is generated by a processor within the user's client device. See Section IX.B.4.

201. Thus, Brandstetter discloses “generat[ing] a second request from the user to evaluate streaming a second media content item to the device.”

8. **[1G]: “identify the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation;”**

202. The combination of Brandstetter and Levy discloses “identify[ing] the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation.” As I explained above with reference to claim element [1D], Levy discloses identifying a media content item by determining a media fingerprint that identifies a unique characteristic inherently present in the item. *See* Section IX.B.5.

203. A POSA would have understood, moreover, that Levy’s identification algorithm could be used to identify multiple media content items—based on their respective fingerprints—rather than just a single item. Indeed, as I explained above with reference to claim element [1D], Levy describes its algorithm in the context of media content distribution, generally, and states that the algorithm can be used to

distinguish between different “versions of songs” requested by users. EX1006, ¶142; see Section IX.B.5. For the reasons I explained above, a POSA would have been motivated to implement Levy’s fingerprinting techniques in Brandstetter’s client devices. See Sections V.B, IX.A, IX.B.5.

204. Thus, the combination of Brandstetter and Levy discloses “identify[ing] the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation.”

9. [1H]: “extract second user data specific to the user when the user declines to stream the second media content item;”

205. Brandstetter discloses “extract[ing] second user data specific to the user when the user declines to stream the second media content item.” As I explained above with reference to claim element [1E], Brandstetter extracts data specific to a user—such as age, geographical location, ethnicity, and gender—when the user accepts to stream media content. See Section IX.B.6. Brandstetter also extracts such data when a user **declines** to stream media content.

206. In particular, Brandstetter states that its platform collects user-specific data “**up to** and including a purchase” so that, “**even if a purchase is not made**, data related to audience interaction with content on the website can be indexed and **used**

for later analysis” (i.e., in Brandstetter’s activity reports, which I discuss below with reference to claim elements [1L]-[1M]. EX1004, ¶130. For example, a user may ***implicitly*** decline to stream content by viewing the content and then navigating away. Alternatively a user may ***explicitly*** decline to stream by declining a particular offer provided by Brandstetter’s platform. For example, as shown in Figure 16, a user may be prompted to “purchase” media content or “rent” media content. The “purchase” in this context refers to a consumer’s purchase of a license to “stream the film as often as [they] like and may download the film forever.” *Id.*, FIG. 16. Alternatively, the rental refers to a license to “have up to 30 days to stream the film as often as they like for 168 hours after the film has started.” *Id.* A user selecting the “rental” license rather than the “purchase” license affirmatively declines the “purchase” license. Similarly, a user acquiring the “purchase” license would affirmatively decline the “rental” license. *See id.*, ¶¶75, 77, 87, 119, 120, 123-26 (describing different license options provided for and selected by a user, including, for example, accessing or declining to access bonus content).

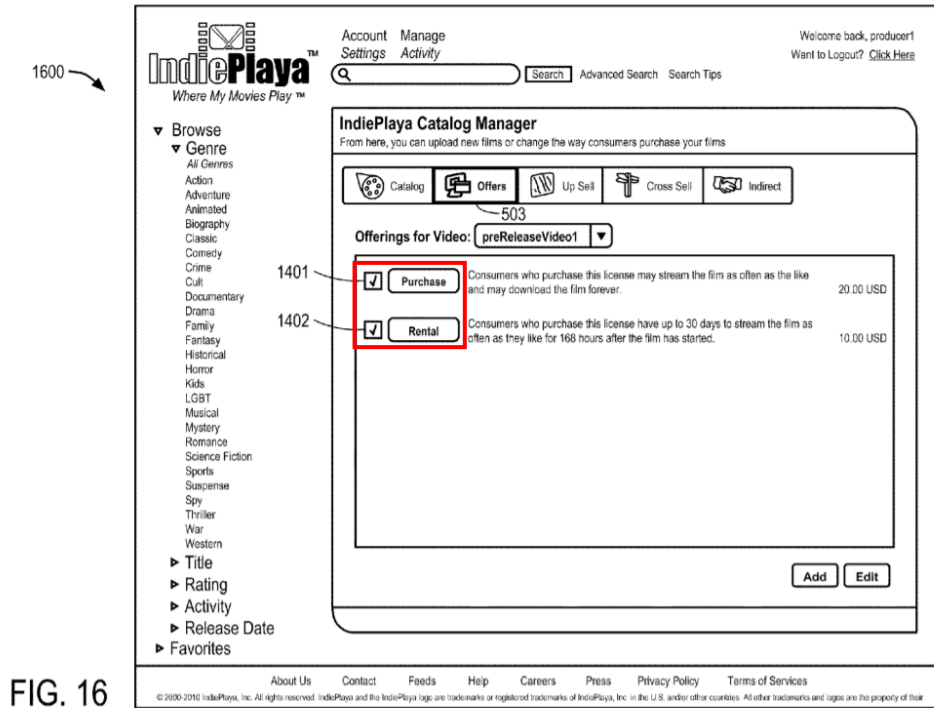


FIG. 16

EX1004, FIG. 16 (annotated), ¶¶130, 147.

207. Further, Brandstetter explains that selecting a license package over another package “can cause the system to end any other licensing package (e.g., a limited rental) corresponding to the same content.” *Id.*, ¶169. In other words, the selection of a first license package over a second license package represents the user declining to purchase the second license package. Such “site activity” is explicitly disclosed in Brandstetter. For example, Brandstetter expressly tracks and indexes all “site activity 304 (e.g., audience interaction with a website).” *Id.*, ¶130, *see also id.*, ¶173 (providing additional examples of site activity such as purchases, impressions, revenues, logins, downloads, bookmarks, searches, etc.).

208. In either scenario (where a user implicitly or explicitly declines to

stream), the extracted user-specific data sheds light on users within a particular demographic who “are ***not interested in***” a media content item. *Id.*, ¶77. This disclosure makes clear that Brandstetter “extract[s] ... user data specific to [a] user when the user declines to stream [a] second media content item.”

209. And, as I also explained above with reference to claim element [1E], the execution of the extraction step necessarily originates with the client device’s (i.e., the claimed “multimedia hardware device’s”) processor, as the claim element requires. *See* Section IX.B.6. As I also explained above, a POSA would have found it obvious to perform the extraction on the user’s client device in light of Brandstetter’s disclosure described above. *See id.*

210. Thus, Brandstetter discloses “extract[ing] second user data specific to the user when the user declines to stream the second media content item.”

10. [1I]: “aggregate the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data; and”

211. Brandstetter discloses “aggregat[ing] the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data.” In particular, Brandstetter describes aggregating data that its platform gathers, including the data I described

above with reference to claim element [1E]—i.e., user age, geographical location, gender, and ethnicity. EX1004, ¶71; Section IX.B.6. Such data is used to generate “intelligence,” which “can include raw (e.g., unprocessed) and/or derived (e.g., processed) data.” EX1004, ¶¶132-33. The intelligence is then used to generate “**statistics**” for particular users based in part on “audience interaction” with the platform, as described above. *Id.*, ¶¶133, 172; Sections IX.B.6, IX.B.9. The intelligence/statistics are aggregated from, and thus summarize, the user data for particular users. Indeed, Brandstetter makes clear that each set of statistics summarizes data for a particular user. *See* EX1004, ¶¶128 (noting that collected data can be used to “offer one or more licensing packages 204 to **an audience member 306 (e.g., a audience)**”), 133 (noting that “reports can be used to examine account histories and make recommendations (e.g., **for a single account** or for a group of related accounts)”). These sets of intelligence and/or statistics thus disclose the claimed “statistics records.” A POSA would have understood, moreover, that different sets of statistics could be compiled for each media content item a user requests. Indeed, as I further explain below, Brandstetter later uses these “statistics” to “generate one or more reports” that describe user interactions and requests with respect to particular media content items. *See* Section IX.B.13.

212. And, as I explained above with reference to claim elements [1E] and [1H], Brandstetter extracts user data when a user both accepts **and** declines to stream

content. See Sections IX.B.6 and IX.B.9. In particular, Brandstetter states that its system collects user-specific data “up to and including a purchase” so that, “even if a purchase is not made, data related to audience interaction with content on the website can be indexed and ***used for later analysis.***” EX1004, ¶130. A POSA would have understood, therefore, that Brandstetter aggregates data in both instances.

213. Notably, the '154 patent nowhere describes the aggregating step occurring on a user's multimedia hardware device. Rather, the patent exclusively describes the step occurring on the licensing system. See, e.g., EX1001, 11:63-65 (referring to the licensing system “dynamically aggregat[ing] the transaction records in relation to one or more fields of information included in each transaction record”), FIG. 7. Nevertheless, to the extent this claim element is read to require that the aggregation be performed at the user's client device, a POSA would have found it obvious to do so in light of Brandstetter's disclosure described above. In particular, as I explained above with reference to claim elements [1E] and [1H], Brandstetter's client devices already contain the extracted user data, and it would have been trivial to aggregate such data at the devices themselves, particularly with respect to a single user. Doing so, moreover, would advantageously ensure that the user's personally identifying information is not sent to Brandstetter's server, thus protecting the user's sensitive data. See Sections IX.B.6, IX.B.9. As also explained, aggregating user data on the client device would ensure that Brandstetter's statistics data can be generated

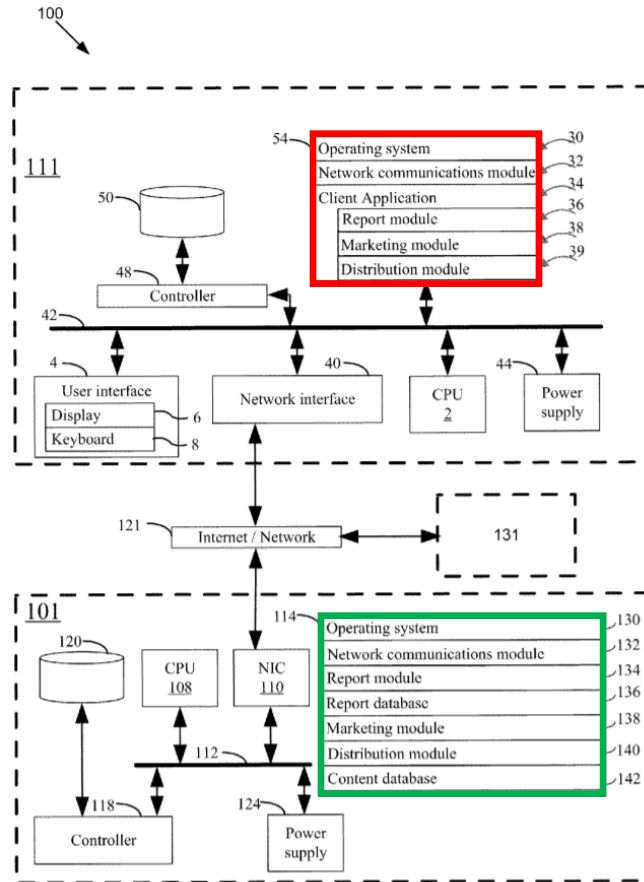
even when the user's device is offline and thus cannot communicate with Brandstetter's server. *See id.* Still further, performing the aggregating step on the user's client device would be useful for compiling statistics for multiple users who use the same device (e.g., a husband and wife), even when data for other users' devices is unavailable, as well as to generate recommendations for users among media content locally stored on the users' device(s). *See id.*

214. Thus, Brandstetter discloses "aggregat[ing] the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data."

11. [1J]: "transmit to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer for"

215. Brandstetter discloses "transmit[ting] to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer." At the outset, I note that this limitation does not require the database to reside on the user's client device. Indeed, the '154 patent itself notes that the statistics records are stored in a "licensing statistics database 92" in the licensing system. EX1001, 7:61-64; FIG. 2.

216. Brandstetter discloses that its user data and statistics can be “store[d] ... in report database 136” on the server 101. EX1004, ¶¶74, 85, 93, 96:



217.

FIG. 1C

EX1004, FIG. 1C (annotated).

218. Specifically, Brandstetter explains that:

The Memory 114 preferably stores: ... a report module 134 that collects information about user activity with respect to media content on the platform for use in generating activity reports, **that stores such information in report database 136**, that receives requests from client device 111 for activity reports via network 121 and

appropriate hardware there between, and generates activity reports responsive to such requests, and that transmits such activity reports to client device 111 via network 121 and appropriate hardware there between; ... ¶ 0093; Fig. 1C (element 136).

Id., ¶¶93, 96, FIG. 1C (element 136).

219. As seen from this description, Brandstetter uses the same memory 114 to store report information and to generate reports. Memory 114 also includes report module 134, which “collects information about user activity with respect to media content on the platform” and that the report module 134 then “stores such information in report database 136.” EX1004, ¶¶93, 96. Brandstetter explains that user activity information collected by the platform can include “user demographics” as well as whether a user “purchased a license to the media content” or “purchased the media content outright.” *Id.*, ¶71. In this manner, Brandstetter discloses storing the statistics record and user information in the same memory 114. *Id.*, ¶¶92-93, 96, 98.

220. Brandstetter does not limit the storage of the statistics in a database associated with server 101. Brandstetter recognizes that other storage may also be possible, including storage on client devices. For example, Brandstetter explains that:

Method 20 further includes receiving and displaying the activity report from the platform, (23). For example, if the content creator is using a client computer, the client computer may receive the activity report using a network, ***store the activity report in a computer-readable medium in the computer (e.g., a hard drive or a cache memory)***, and display the activity report to the content creator via an appropriate interface device, such as a display screen connected to the client computer.

Id., ¶85.

221. A POSA would have understood and it would have been obvious that that, in order to store the statistics records in a database, the records are “transmit[ted]” to the database, as the claim element requires. In other words, a POSA would have understood and it would have been obvious that the claimed statistics records are transmitted to the claimed database in order to be stored there.

222. Further, a POSA would have found it obvious to transmit not only the statistics records themselves, but also “the identities of the first and second media content items determined by the first and second media fingerprints.” Indeed, as explained in more detail below with reference to claim elements [1L] and [1M], the entire purpose for aggregating and storing such data in Brandstetter’s system is to use the data to generate activity reports that summarize demographic information related to users who express a preference in particular media content items. *See*

Sections IX.B.13-14. The data itself would be meaningless if it were not associated with the media content items the data purports to describe. Thus, to fulfil Brandstetter's goal of facilitating targeted marketing, a POSA would have understood and it would have been obvious that the claimed statistics records are transmitted to a database and stored along with the identities of the media content items. And, as described above with reference to claim elements [1D] and [1G], those identities are determined based on the media content items' fingerprints. See Sections IX.B.5, IX.B.8.

223. Still further, Brandstetter's statistics are "accessible to ... third party online retailer[s]," as required by the claim. In particular, as I explain below in greater detail with reference to claim element [1L], Brandstetter states that its statistics are used to generate activity reports that summarize the user data. EX1004, ¶¶65, 93; see Section IX.B.13. Those reports, in turn, can be provided to **any** user who requests them, which can include a third-party online retailer. EX1004, ¶¶93, 96. Even more specifically, Brandstetter states that its reports "may be provided to ... content provider[s]" and makes clear that "[a] content provider is **any third party granted the right to market or distribute** (including, without limitation, subdistribution, syndication, and licensing of) a content creator's content or content-related data." *Id.*, ¶¶8-9, 159. Brandstetter goes on to make clear that a content provider can comprise a "**sales agent.**" *Id.*, ¶159. A POSA would have understood

from this disclosure that Brandstetter's statistics records are accessible to third-party online retailers—i.e., third parties who have authorization to sell media content.

224. And, while Brandstetter may not expressly state that the content providers are “online” retailers, a POSA would have understood the content providers to include at least online retailers. This is because, consistent with the commonly understood meaning of “content provider,” Brandstetter makes clear that its content providers distribute content online. *Id.*, ¶¶10, 91-92, FIG. 1C. In light of this disclosure, and in view of Brandstetter's purpose of allowing content providers to engage in online targeted marketing of their products, a POSA would have understood that Brandstetter's third-party retailers include third-party “online” retailers.

225. Thus, Brandstetter discloses “transmit[ting] to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer.”

12. [1K]: “retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints,”

226. The combination of Brandstetter and Levy discloses “retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints.” Notably, the claim

element does not require the retrieving step to be performed by the user's multimedia hardware device. Rather, the retrieving step describes the intended use of the statistics records transmitted to a database in the previously recited step. And, to the extent the claim element requires the ***actual*** retrieval of data, the element is agnostic as to who or what system does the retrieving. As explained below, Brandstetter and Levy disclose the limitation.

227. As I explained above with reference to claim element [1J], Brandstetter's intelligence and/or statistics (i.e., the claimed "statistics records") are transmitted to and stored in a database. *See* Section IX.B.11. And, as explained above with reference to claim element [1J] (and with reference to claim element [1M] below), Brandstetter makes clear that its statistics are provided to content providers and other interested third parties in the form of reports. *See* Sections IX.B.11, IX.B.14. A POSA would have understood and it would have been obvious that, in order to provide the reports to such parties, the user profiles are "retrieved" from the database in which they are stored. Indeed, Brandstetter states that its reports containing the user statistics can be "***retrieved*** from persistent storage and provided to" the requesting party. EX1004, ¶74.

228. Further, as I explained above with reference to claim elements [1D] and [1G], Levy discloses identifying a requested media content item based on the item's fingerprint. *See* Sections IX.B.5, IX.B.8. Given that Levy's fingerprint corresponds

to a unique identifier for a media content item, a POSA would have been motivated to use such a fingerprint to identify a media content item and to retrieve Brandstetter's reports from the database based on that identity for all the reasons I provided above. *See* Sections IX.A.

229. Accordingly, the combination of Brandstetter and Levy discloses “retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints.”

13. [1L]: “analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data, and”

230. Brandstetter discloses “analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data.” Notably, the claim element does not require the analyzing step to be performed by the user's multimedia hardware device. Rather, the analyzing step describes the intended use of the statistics records transmitted to a database. And, to the extent the claim element requires the **actual** analysis of data, the element is agnostic as to who or what system does the analysis. As explained below, Brandstetter discloses the limitation.

231. Brandstetter makes clear that the retrieved aggregated data is analyzed for the purposes of targeted marketing—i.e., to “determine a target demographic of

the [] media content item.” EX1004, ¶¶6, 77. This is accomplished when Brandstetter’s “report module 134” analyzes the aggregated data to “generat[e] activity reports,” which “enable content creators to efficiently market and distribute their content to a **target audience based upon reports.**” *Id.*, ¶6. Brandstetter tracks and indexes all “site activity 304 (e.g., audience interaction with a website)” including “all activity up to and including a purchase.” *Id.*, ¶130. Brandstetter then analyzes the indexed site activity to generate “intelligence” including raw user interaction data. *Id.*, ¶¶132-33. As described above, the intelligence is then used to generate “statistics” for particular users, which discloses the claimed “statistics records.” *Id.*, ¶¶133, 172.

232. Subsequently, Brandstetter describes using these statistics to generate activity reports. *Id.*, ¶¶6, 8-10, 132-133, 172. The process leading to the generation of an activity report discloses the analyzing claim limitation.

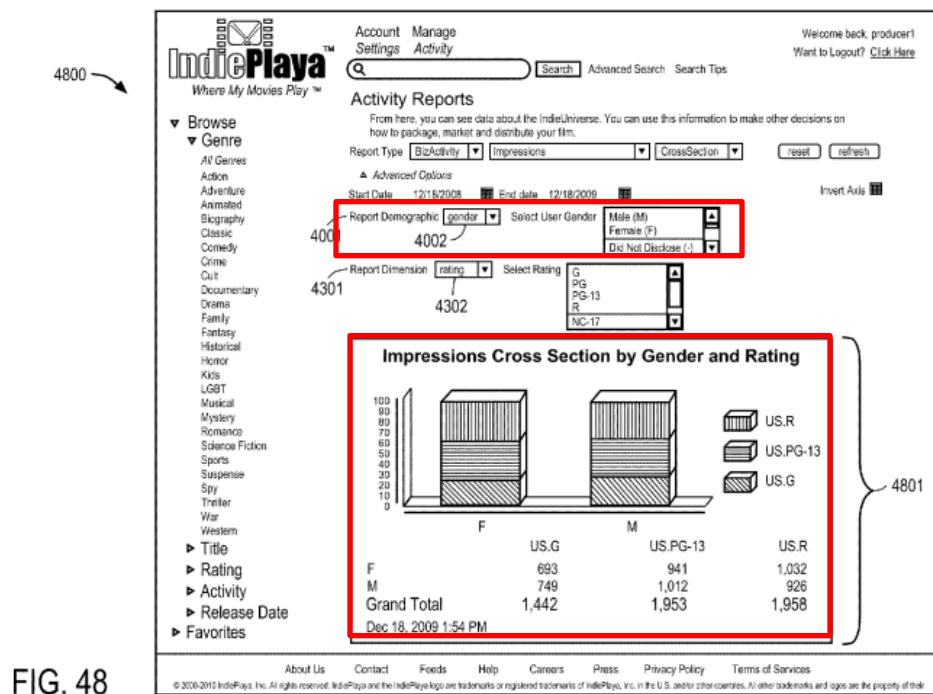
233. In particular, to analyze the statistics and generate reports, Brandstetter explains:

intelligence 305 can be processed and statistics can be automatically generated (e.g., in real-time) based upon website activity (e.g., audience 306 interaction). ***Generated statistics can be used (e.g., by the system) to generate one or more reports (e.g., based upon audience 306 interaction).*** For example, reports can be used by a content creator to examine account histories and to make

one or more content recommendations or offers (e.g., licensing packages). Additionally, content recommendations or offers can be made available for a single account or for a group of related accounts.

Id., ¶172.

234. Brandstetter explains that the reports contain “historical information regarding purchases (e.g., of similar media content produced by other content creators) **by one or more demographic groups.**” *Id.* An example of such a report is shown in Figure 48 below:



EX1004, FIG. 48.

235. The report illustrated in Figure 48 breaks down user impressions of a media content item by gender, but Brandstetter makes clear that reports can be

generated according to other demographic parameters, such as user location. *Id.*, ¶¶173-74, 179. As I previously explained, Brandstetter analyzes “statistics” for users to generate these activity reports. *Id.*, ¶¶6, 8-10, 132-33, 172.

236. Brandstetter provides several examples of its activity reports conveying target demographic information:

For example, *if upon reviewing a report, a content creator determines that first-person horror films are particularly popular with 18-24 year-old males*, then the content creator can develop a strategy for *marketing primarily to that demographic*.

Id., ¶¶66.

Method 10 further includes receiving a request from the content creator to *market his particular item of media content (e.g., to users of a particular demographic (15) or known interest)*. *For example, upon reviewing the activity report, the content creator may conclude that an item of media content could be most effectively marketed to males aged 18-22*. As such, the content creator can construct a request to market the item of media content to users of that particular demographic (e.g., using the platform).

Id., ¶75; see also *id.*, ¶¶73, 76, 79, 83, 86, 97, 115, 132-33. A POSA would have understood from this disclosure that Brandstetter’s statistics data are analyzed to

“determine a target demographic of the ... media content items” provided in Brandstetter’s report.

237. Importantly, as I explained above with reference to claim elements [1E] and [1H], Brandstetter describes not only a demographic of individuals who accept to stream content, but also a demographic of individuals who decline to do so. In particular, Brandstetter states that “***even if a purchase is not made***, data related to audience interaction with content ... can be indexed and ***used for later analysis.***” *Id.*, ¶130. Likewise, Brandstetter explains that a single demographic may be targeted based on demographics that partially overlap. *Id.*, ¶81 (“[A] content creator can choose two or more different demographics (e.g., two different campaigns), where the two or more demographics have some or no overlap with each other and where the user can simultaneously refine, add or drop selected demographics using separate marketing campaigns.”). A POSA would have understood from this disclosure that Brandstetter’s reports are analyzed to “target demographic of the media content item” based on a user who has both accepted to stream and declined to stream media content items.

238. This is similar to, but even more detailed than, the ’154 patent’s own disclosure. The patent does not describe the claimed “analyzing” step at all and instead merely notes that its system aggregates transaction records in order to “generate a statistics report” that provides “valuable licensing and statistics data for

media content items for particular demographics of users, genres of media content items, and/or other such categories.” EX1001, 11:63-12:26.

239. A POSA would have understood that Brandstetter’s aggregated user data can be used to determine a target demographic for two separate media content items rather than for just a single item. In particular, Brandstetter explains that multiple demographics for media content items may be targeted, and that those demographics may overlap:

Method 10 further includes receiving a request from the content creator to market the particular item of media content to ***users of a particular demographic that may be different from the earlier demographic*** (e.g., may be different from those defined in step 15) (19). For example, after viewing the updated activity report and considering the user activity generated by his own initial marketing/distribution strategy (e.g., the number and/or type of distribution instances during step 17), the content creator may conclude that modifying his initial strategy may result in improved distribution of his content.

....

It will be appreciated that loop 16-19 may be repeated any number of times necessary to achieve the distribution goals of the content creator. Moreover, it will be appreciated that several concurrent instances of loop 16-19 can occur at any given time. For example, one iteration

of loop 16-19 may be directed to a first demographic, where this first demographics is then altered or defined (e.g., first demographic prime), at step 19 of the loop. Additionally, another concurrent iteration of loop 16-19 may be directed to a second demographic, where this second demographics is then altered or defined at step 19 of the loop (e.g., first demographic prime). In other words, at step 15 of the method depicted in FIG. 1A, a content creator can ***choose two or more different demographics (e.g., two different campaigns), where the two or more demographics have some or no overlap with each other and where the user can simultaneously refine, add or drop selected demographics using separate marketing campaigns.***

EX1004, ¶¶78-79, 81. Likewise, Brandstetter states that the activity reports can convey data corresponding to “media content having a particular characteristic,” rather than for just a single media content item. *Id.*, ¶¶78, 84. From this disclosure, as well as Brandstetter’s disclosure described above with reference to claim elements [1E] and [1H], a POSA would have understood that Brandstetter’s platform statistics may be analyzed to determine a target demographic based on data of a user who accepts to stream one media content item and declines to stream another media content item. See Sections IX.B.6 and IX.B.9.

240. Thus, Brandstetter discloses “analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media

content items based on a demographic corresponding to the first and second user data.”

14. [1M]: “providing the third party online retail[er] the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.”

241. Brandstetter discloses “providing the third party online retail[er] the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.” Notably, the claim element does not require the providing step to be performed by the user’s multimedia hardware device. Rather, the providing step describes the intended use of the statistics records transmitted to a database. And, to the extent the claim element requires the **actual** provision of a target demographic, the element is agnostic as to who or what system provides such information. As explained below, Brandstetter discloses the limitation.

242. Brandstetter states that its activity reports—which convey a target demographic—can be “retrieved from persistent storage and **provided to the**” requesting party. EX1004, ¶74. Brandstetter explains that the report may be provided, for example by displaying it “via an appropriate interface device, such as a display screen connected to the client computer.” *Id.*, ¶85. As another example, Brandstetter states that its server “transmits ... activity reports to client device 111 via network 121” to a requesting party. *Id.*, ¶¶93, 96. In either scenario, the report is

provided to the requesting party. And, as I explained above with reference to claim element [1J], the requesting party may include a third-party online retailer. See Section IX.B.11.

243. And, as discussed above with reference to claim element [1L], the reports contain target demographic information and may be used by the requesting party to engage in targeted marketing of that demographic. See Section IX.B.13. In particular, Brandstetter explains that its reports “enable content creators to ***efficiently market and distribute their content to a target audience.***” EX1004, ¶6; *see also id.*, ¶¶65-66 (explaining that reports allow content creators to “develop[] and execut[e] one or more strategies for marketing and distributing their own content” to particular demographics), 75 (further explaining that reports allow a creator “to market his particular item of media content (e.g., to users of a particular demographic (15) or known interest)”), 79 (similar).

244. Such targeted marketing is shown in Figure 1A:

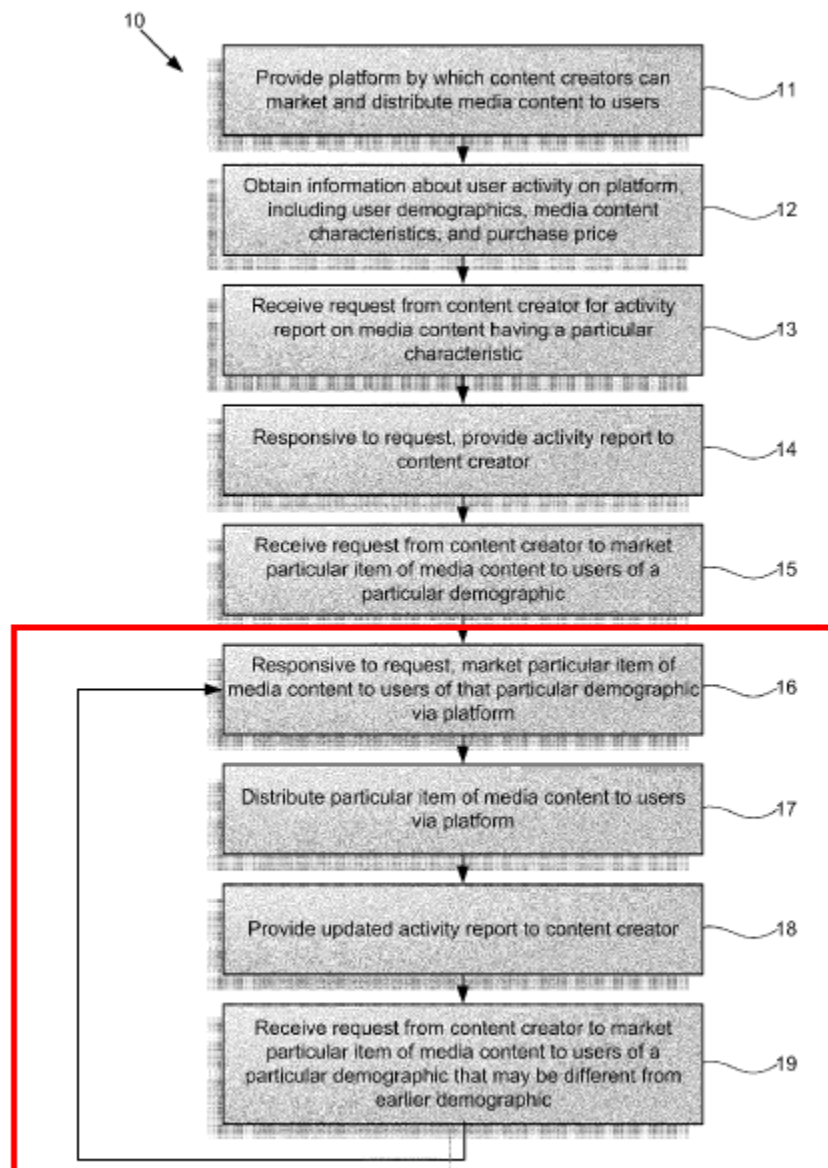


FIG. 1A

EX1004, FIG. 1A (annotated).

245. As shown, Brandstetter explains that when a report is received from the platform (reflecting user data indicative of user engagement with content/platform), a content creator can market the media content to users of the particular demographic

via the platform (step 16). Brandstetter also discloses that the particular item of media content is distributed to users and an updated activity report is provided to the content creator (steps 17 and 18). After receiving an update, Brandstetter explains that the content creator may then send a request to market a particular item of media content to users of a particular demographic that may be different from an earlier demographic (step 18). This allows a content creator to constantly be updated on user activities that can enable the content creator to devise tailored marketing strategies that include targeting different demographics. *See generally id.*, ¶¶4-9, *see also id.*, ¶¶79, 81, 89. I again note that while Brandstetter's example refers to content creators, Brandstetter recognizes that other third parties may request and benefit from Brandstetter's statistics records. For example, as I explained with reference to element [1J], Brandstetter recognizes that content creators may include any third party granted the right to market or distribute content. A POSA would have understood from this disclosure that Brandstetter's content provider includes third party online retailers.

246. I also again note that Brandstetter's disclosure is similar to the '154 patent's, which states that "the system may transmit the statistics report to the third party over the communication network" to facilitate targeted marketing. EX1001, 12:15-26; *see also id.*, 5:35-38 ("The data provided to retailers system 20 may also be used to help third party online media retailers target the marketing of the media

content item to demographics that have shown a trend of interest in the media content item.”).

247. Notably, this claim element refers to marketing “the” media content item to a plurality of other users, without specifying which of the two media content items (the “accepted” item and the “declined” item) is to be marketed. Nevertheless, Brandstetter’s reports convey demographic data of users who do and do not express interest in particular media content items, and that information is used by third parties to market both of those items (and other items).

248. Thus, Brandstetter discloses “providing the third party online retail[er] the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.”

C. Claim 2

249. Claim 2 recites:

The device of claim 1, wherein the first media content item is ***a first version of an audiovisual work*** and the second media content item is ***a second version of the audiovisual work***.

250. The combination of Brandstetter and Levy discloses claim 2. As I explained above with respect to claim element [1C], Brandstetter’s platform allows user to request and stream different types of digital media content, including “***audiovisual work[s]***” such as movies and videos. EX1004, ¶¶7, 69, 71, 118, 120,

123, 141, 152, 164, 173, 176-177; see Section IX.B.4.

251. A POSA would have understood, moreover, that a user could request different versions of an audiovisual work. Indeed, Brandstetter expressly refers to multiple versions of movies, stating that its system can distribute “a standard definition version of a film” as well as “a high definition version of the film.” EX1004, ¶126. From this disclosure, a POSA would have understood that a single user could request different versions of media content, including audiovisual works. A POSA would have understood, therefore, that the first and second media content items recited in claim 1 could be first and second versions of an audiovisual work.

252. Thus, the combination of Brandstetter and Levy discloses claim 2.

D. Claim 4

253. Claim 4 recites:

The device of claim 2, wherein the ***first version is a live version*** of the audiovisual work and the ***second version is a studio version of the audiovisual work***.

254. The combination of Brandstetter and Levy discloses claim 4. While Brandstetter does not expressly refer to “live” and “studio” versions of audiovisual works, it does refer to streaming multiple versions of movies, including “a standard definition version of a film” and “a high definition version of the film.” EX1004, ¶126. Brandstetter expressly notes that these various versions may be subject to different licensing terms. *Id.*

255. A POSA would have understood that Brandstetter’s disclosure applies with equal force to any versions of an audiovisual work that would require different licenses. This would include, for example, live and studio versions of works, which were well known at the time. And, indeed, Roberts explains that fingerprints and unique IDs can be used to distinguish between “live and studio versions of the same song,” EX1063, ¶46, thus evidencing that live and studio versions of media content were known and could be requested by users in digital content distribution systems such as Brandstetter’s. While it is true that Roberts refers to live and studio versions of “songs” instead of audiovisual works more generally, the ’154 patent likewise only refers to live and studio versions of songs. See EX1001, 9:21-24 (“For example, multiple versions of a song are recorded at various times and may be stored as digital music files, such as a live version and a studio version.”).

256. Thus, the combination of Brandstetter and Levy discloses claim 4.

E. Claim 5

257. Claim 5 recites:

The device of claim 2, wherein the ***first version is authorized for streaming*** to the user by a copyright owner of the audiovisual work and the ***second version is unauthorized for streaming*** to the user by the copyright owner of the audiovisual work.

258. The combination of Brandstetter and Levy discloses claim 5. In particular, Brandstetter expressly contemplates that different versions of its digital

media content can be authorized or unauthorized for a particular user. With regard to authorized content, as described above with reference to claim element [1C], Brandstetter's platform distributes digital media content items to users who request them. In those instances, consumers are able to stream the content on their personal devices. For example, Brandstetter describes providing a digital work of authorship such as "a motion picture or other audiovisual work stored on a remote server" and distributed to the users. EX1004, ¶69. Brandstetter recognizes that "[o]ther types of digital works of authorship [] can be distributed includ[ing] literary works (e.g., 'digital books') and pictorial or graphic works (e.g., digital images)." *Id.* Brandstetter also discloses facilitating a payment transaction to allow a consumer to "purchase[] a license to the media content" and therefore discloses that a requested version of an audiovisual work be one that is "authorized for streaming." *Id.*, ¶¶71, 93-99. A POSA would have understood, moreover, that the authorization derives from the copyright owner of the requested content, which is the person or entity that has the ability to provide such authorization. *See id.*, ¶¶6, 67 (Brandstetter referring to copyright owners of requested digital work).

259. With regard to unauthorized content, Brandstetter contemplates that users may not be authorized to stream certain requested content. In those cases, Brandstetter discloses facilitating a payment transaction to allow a consumer to "purchase[] a license to the media content." *Id.*, ¶¶71, 93-99. Elsewhere, Brandstetter

describes users who may be authorized to play the requested media content item only a limited number of times. For example, the license could be a “play n-number of times licensing package” where “a recipient of the content can only play the content n number of times (e.g., once, twice, three times, etc.).” *Id.*, ¶147. If the user has already played the content “n” number of times, the user’s request to stream the content again is necessarily unauthorized. Brandstetter also provides other examples in which a user may be authorized to stream certain versions of media content items (e.g., standard definition versions) but not others (e.g., high definition versions, etc.). *Id.*, ¶¶71, 125-26, Again, a POSA would understand that the lack of authorization derives from the copyright owner of the requested content.

260. Thus, the combination of Brandstetter and Levy discloses claim 5.

F. Claim 6

261. Claim 6 recites:

The device of claim 1, wherein the first media content item is ***a first version of a book in digital format*** and the second media content item is a ***second version of the book in digital format***.

262. The combination of Brandstetter and Levy discloses claim 6. In particular, Brandstetter’s platform is used generally to distribute any type of multimedia content, including books in digital format, as required by the claim. Indeed, Brandstetter expressly states that its system can be used to distribute “literary

works (e.g., ‘**digital books**’)” and “**e-books**.” EX1004, ¶¶69, 118; claims 3, 46.

263. Further, as I explained with reference to claim element [1F] and claim 2, a POSA would have understood that Brandstetter’s platform can be used to request different versions of media content items. See Sections IX.B.7, IX.C. Thus, a POSA would have likewise understood that Brandstetter’s platform can be used to request different versions of digital books.

264. Thus, the combination of Brandstetter and Levy discloses claim 6.

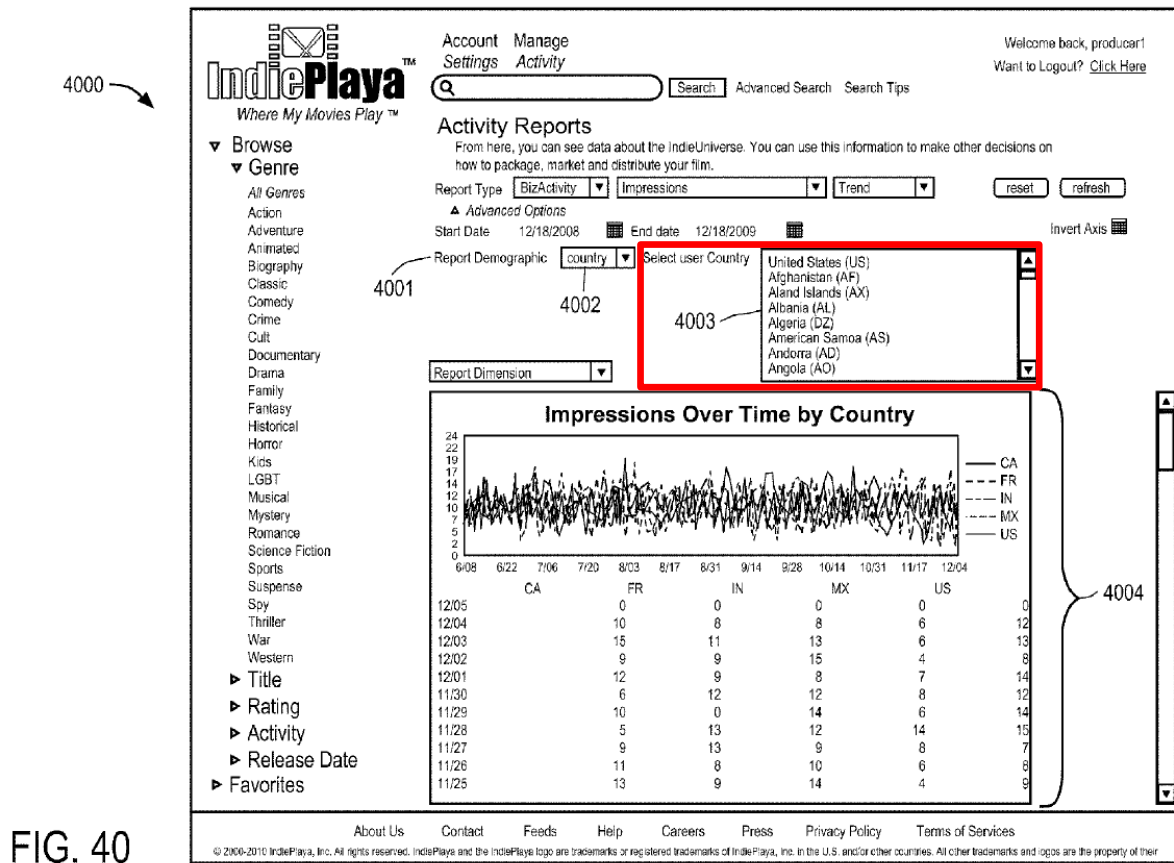
G. Claim 7

265. Claim 7 recites:

The device of claim 1, wherein ***the first and second user data includes a geographic location of the user.***

266. The combination of Brandstetter and Levy discloses claim 7. In particular, as I explained above with reference to claim elements [1E], Brandstetter discloses tracking geographic location information as part of the stored demographic user data. See Section IX.B.6; EX1004, ¶¶71, 142-43, 174, FIG. 40. For example, Brandstetter describes “obtaining information about user activity on the platform (12),” including “user demographics (e.g., ages, ***geographical locations***, ethnicities, [and] genders).” EX1004, ¶71.

267. Figure 40 also depicts an example of sorting the user data based on geographic location.



EX1004, FIG. 40 (annotated).

268. Thus, Brandstetter discloses the user data including the geographic location of a user. And the combination of Brandstetter and Levy discloses claim 7.

H. Claim 8

269. Claim 8 recites:

The device of claim 1, wherein the first user data includes *the number of times the user requested to evaluate streaming the first media content item*, and the second user data includes *the number of times the user requested to evaluate streaming the second media content item*.

270. The combination of Brandstetter and Levy discloses claim 8. For example, Brandstetter's identification of accessed content items and description of "cross-selling" and offering secondary content disclose tracking of additional media content that a user has previously accessed, "(e.g., if you like A, you can buy A and B together for \$10.00)." EX1004, ¶¶71, 123, 150-53. Brandstetter also discloses user data also including a quantity of times that the user has previously accessed the media content item. *Id.*, ¶147. For example, in the scenario where a consumer has rented content under a "play n-number of times licensing package," Brandstetter tracks a "number of times" that the user has already played the media content in order to enforce the license terms. *Id.* Brandstetter also provides this type of information in the form of reports related to user activity. These reports can include "business activity" such as a number of "streams [or] downloads." *Id.*, ¶173. In this manner, Brandstetter discloses user data including a quantity of times that the user has requested to stream a media content item.

271. Further, as I explained above with reference to claim element [1C], the user's request to stream content is actually a request to evaluate streaming such content. *See* Section IX.B.4.

272. Thus, the combination of Brandstetter and Levy discloses claim 8.

I. Claim 9

273. Claim 9 recites:

The device of claim 1, wherein the processor is further configured to: ***receive a license to stream the first media content item from a licensing system when the request is granted*** by the licensing system; and ***prevent streaming of the first media content item when the request is declined by the licensing system***.

274. The combination of Brandstetter and Levy discloses claim 9. In particular, as I previously explained, Brandstetter tracks license purchases obtained by a user. EX1004, ¶¶99, 166, FIGs. 26, 28. When a user purchases a license (i.e., when the user request is granted), the user account receives a license, which is tracked by Brandstetter's platform. *Id.* The user may then view the licenses that were granted. For example, Figures 26 and 28 allow a user to view active rentals and purchases respectively. *Id.*, ¶166. A user may have obtained "a license to experience the media content for a limited amount of time or a limited number of viewings/listenings, or a 'purchase' of the media content enabling them to experience the content for an unlimited amount of time." *Id.*, ¶87. Brandstetter facilitates this type of license management and therefore discloses the receipt of a license and tracking granted licensing requests to facilitate later viewings or listenings of content. *Id.* Thus, Brandstetter discloses the claimed receiving of a license when the license request is granted.

275. Brandstetter also suggests the claimed "prevent[ing] streaming of the first media content item when the request is declined by the licensing system." A

POSA would have understood that Brandstetter's platform would not allow access to content when a license request is declined. For example, one of Brandstetter's main objectives is to secure revenue streams for content creators. *Id.*, ¶¶4-5. A POSA would have found it obvious to prevent reproduction of media content when a license has been declined to avoid providing content free of charge. Therefore, a POSA would have found it obvious for Brandstetter's platform to prevent streaming of media when a license has not been granted.

276. Levy also discloses these claim elements. Levy discloses its "Media Server" receiving a license after a purchase has been made. EX1006, ¶¶98, 110, 112. For example, Levy transmits a "DRM-packaged" version of raw content to the Media Server, which is "rendered or played according to its Usage Rights." *Id.*, ¶112. "Usage Rights are often packaged within a DRM-protected version, e.g., as metadata associated with a content file or DRM container." *Id.*, ¶98. As previously explained, these "Usage Rights" are a license. *Id.*, ¶87. Additionally, Levy also describes a Media Server storing the Usage Rights in a "DWM or re-linking Rights Registry," which is "stored locally on the Media Server." *Id.*, ¶¶90, 97, 110. Therefore, Levy's Media Server also receives a license.

277. Levy also discloses preventing reproduction of media content when a licensing request is ***declined***. In particular, Levy discloses requesting a license from an online content store when a user has expressed a desire to accept a license or

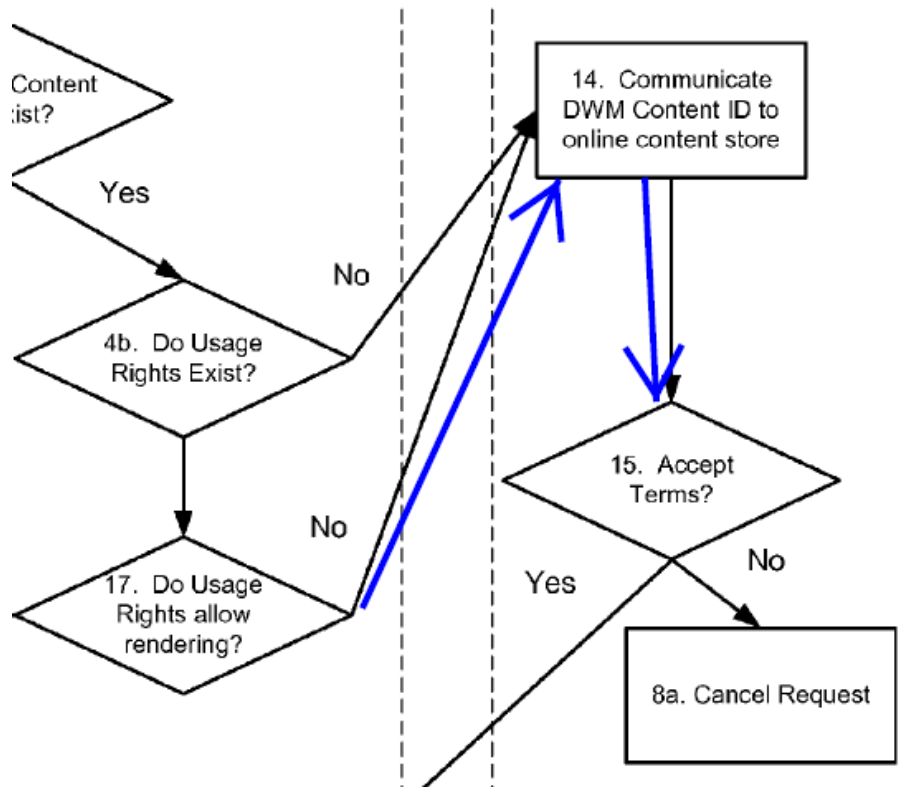
Usage Rights offered by the online content store. *See id.*, FIG. 17d, ¶112. The “online store presents the Media Server with options, e.g., would a user like to purchase music or video associated with the DWM Content ID, perhaps at a discounted rate.” *Id.*, ¶112. A user can select the content corresponding to the DWM Content ID or related content for purchase. *Id.* Specifically, Levy explains that:

The user can accept or reject the Usage Rights.

Acceptance may require a license, payment or negotiation with a Rights Registry or an on-line media store. ***If the user does not accept the Usage Rights, the Client Player Application preferably prohibits access*** and notifies the user. If the user accepts the Usage Rights, the content is played or transferred under the direction of a public DRM system (e.g., a client DRM system) residing on the Media Server.

Id., ¶110. Levy’s online store is the claimed “licensing system.”

278. Levy illustrates this in Figure 17d:



EX1006, FIG. 17d (excerpted, annotated).

279. In this manner, Levy discloses preventing streaming when the user declines the license. *Id.*, ¶110.

280. A POSA would have been motivated to use this feature of Levy in Brandstetter’s client devices. As I explained in Section IX.A, doing so would ensure that Brandstetter’s content is not distributed in contravention of the content’s “licensing packages,” thus ensuring that content creators are compensated for the distribution of their copyrighted content, which is Brandstetter’s ultimate goal. *See* EX1004, ¶¶2-5; Section IX.A. Levy’s licensing feature—which prevent unlicensed users from streaming content—would further that goal.

281. Thus, the combination of Brandstetter and Levy discloses claim 9.

J. Claim 10

282. Claim 10 recites:

The device of claim 1, wherein the processor is further configured to ***stream the first media content item based on a plurality of streaming parameters*** included in the license that is received from the licensing system.

283. The combination of Brandstetter and Levy discloses claim 10. At the outset, I note that the '154 patent specification neither uses the term “parameter” nor provides a definition of “plurality of streaming parameters.” As I have explained in Section V.A.2, a POSA would have understood “streaming parameters” to refer to the terms of a license that provide some type of restriction on the user’s ability to stream a particular media content item. Brandstetter discloses different types of parameters that would have been used in combination and would have disclosed the claimed plurality of streaming parameters.

284. Brandstetter describes several parameters corresponding to a license. For example, Brandstetter describes tracking a “number of times” a content may be played as defined in a license. EX1004, ¶147. A license may indicate that the content may be played “any number of times desired within a period of time defined by the license.” *Id.* Similarly, the license could be a “play n-number of times licensing package” where “a recipient of the content can only play the content n number of times (e.g., once, twice, three times, etc.).” *Id.* These licenses may correspond to

different prices offered by the content providers. *Id.*, ¶¶75, 120.

285. Additionally, Brandstetter also provides licenses and license options based on other factors, such as video quality, bonus content, or whether the user may download the item:

In exemplary instances in which the content is a film, licensing options can include, but are not limited to, a ***“high definition” (“HD”) option (e.g., a “Blu-Ray” quality option)***, an option that defines the terms of a rental agreement, an option that defines the terms of a purchase agreement, an option indicating ***whether the content is downloadable, or an option indicating whether the user has access to bonus content.***

Id., ¶125; see also *id.*, ¶141.

286. These license terms based on duration, use, and distribution limitations disclose a plurality of streaming parameters. A POSA would have understood that the streaming parameters described in Brandstetter could have been used in combination depending on the terms of the license obtained by the consumer. A POSA would have understood from this disclosure that the streaming based on the parameters in the license is performed by a processor in the user’s client device. Thus, Brandstetter discloses reproducing a media content item “based on a plurality of streaming parameters” identified by the license and discloses claim 10.

287. Further, Levy discloses “content including both copy control information (CCI) and embedded DWM Content Identifiers (ID).” EX1006, ¶¶37, 86, 122-23. Levy discloses that, when communicating content, “Media Server looks for CCI bits [and] if the CCI bits and DWM Content ID do not exist, the Media Server can perform the requested action.” *Id.*, ¶123. Levy discloses that “if the CCI bits do not exist, but the Content ID exists (with no Usage Rights), the action is preferably canceled.” *Id.* Levy’s Media Server “respects any copy control state” when communicating content.” *Id.* For example, Levy discloses that based on the copy control state, content “is neither be streamed nor transferred,” “can be streamed, and, if transferred, one or both copies should be marked as copy,” or “can be streamed or transferred.” *Id.* Thus, Levy discloses that copy control information (CCI) and embedded DWM Content Identifiers (ID) control how content is streamed or transferred. A POSA would have understood that copy control information (CCI) and embedded DWM Content Identifiers (ID) that control how content is streamed or transferred discloses the claimed “plurality of streaming parameters.”

288. Accordingly, the combination of Brandstetter and Levy discloses claim 10.

K. Claim 11

289. Claim 11 recites:

The device of claim 1, wherein the processor is further configured to identify a ***first digital watermark included***

in a first media file of the first media content item, and identify a *second digital watermark included in a second media file* of the second media content item.

290. The combination of Brandstetter and Levy discloses claim 11. As explained above with reference to claim element [1D], Levy discloses an algorithm by which multimedia files are identified. See Section IX.B.5. Levy explains that this identification can be performed any number of ways, including by using a “**digital watermark**” that “includes a unique content identifier.” EX1006, ¶¶7, 12, 13, 42, 47-48, 54-58, 77, 80, 89, 108-09. As Levy explains:

Digital watermarking is the science of encoding physical and electronic objects with plural-bit digital data, in such a manner that the data is essentially hidden from human perception, yet can be recovered by computer analysis. Most commonly, digital watermarking is applied to media such as images, audio signals, and video signals.... The assignee’s U.S. Pat. Nos. 5,862,260, 6,122,403 and 6,614,914 are illustrative of certain digital watermarking technologies and are each hereby incorporated by reference. A great many other approaches are familiar to those skilled in the art. The artisan is presumed to be familiar with the full range of literature about steganography, data hiding and digital watermarking.

Id., ¶7.

291. Levy further explains that the user’s device can request media content

and “check[] the content item ... for an identifier” by, for example, performing a “watermark detection process.” *Id.*, ¶54; *see also id.*, ¶55 (explaining that “content can be searched for a watermark identifier”). The watermark allows the system to “uniquely” identify the content. *Id.*, ¶69 (“The content is preferably uniquely identified. Content can be identified, e.g., by a digital watermark.”). The watermark, moreover, is “embedded within a content item” contained in the item’s file. *Id.*, ¶12. A POSA would have understood from this disclosure that Levy teaches the ability for a user’s device to identify media content by identifying digital watermarks included in the files containing the media content.

292. Further, as described above with reference to claim element [1D], Levy explains that each media content item contains its own watermark. *See* Section IX.B.5. Thus, a POSA would have understood that Levy discloses the ability for a single user’s device to identify multiple watermarks corresponding to multiple media content files.

293. Still further, as I also explained above with reference to claim element [1D], Levy’s watermarking algorithm can occur at Levy’s client device, and it would have been obvious to use that algorithm in Brandstetter’s client devices for all the reasons I described above. *See* Section IX.B.5. Using watermarks, in particular, to identify content is particularly advantageous because, as Levy itself explains, “the watermark will typically survive end-user recording of the content onto new media

or into a new format.” EX1006, ¶47; EX1051, 6 (“A digital watermark may be embedded in almost any kind of digitized visual or audio data, including broadcast data, without perceptibly degrading or interfering with its quality.”). Thus, watermarks “help[] to enforce security features” and “can provide fine-grain usage and quality of content monitoring as well as copy protection.” EX1006, ¶¶47-48; EX1051, 6 (“[D]igital watermarks can be an important mechanism for content owners to monitor, audit, and index works in the digital environment. ... Finally, digital watermarks can be used to detect the unauthorized manipulation of content, thereby providing a means to control the integrity of digital content.”). Using watermarks in Brandstetter’s system would allow one to take advantage of these benefits while tracking and monetizing digital content distributed through Brandstetter’s platform. See Sections V.B.2, IX.A.

294. Thus, the combination of Brandstetter and Levy discloses claim 11.

L. Claim 12

295. Claim 12 recites:

The device of claim 11, wherein *the first digital watermark is metadata in the first media file*, and *the second digital watermark is metadata in the second media file*.

296. The combination of Brandstetter and Levy discloses claim 12. As described above with reference to claim 11, Levy discloses identifying watermarks

included in digital media files. *See* Section IX.K. Levy explains that watermarks can be embedded in the content within the files **or** reflected as metadata within the files. For example, Levy states that a content identifier can be embedded within content “as metadata.” EX1006, ¶59; *see also id.*, ¶80 (“One example of DRM-packaged content includes encrypted content and **metadata**. The **metadata typically includes a DRM Content Identifier**, related content information (e.g., title and artist) and Usage Rights.”). And, indeed, using content identifiers in metadata was a well-known way to identify digital media content. *See, e.g.*, EX1051, 7 (noting that digital signatures may take the form of “metadata” (i.e., “encoded identifying information about the content”) or be “embedded directly into the work as watermarks”), 9 (“Such encoded information about a digital work (such as author, title, date of creation, and other identifying information) is commonly referred to as ‘metadata.’”); EX1007, 2:64-3:7 (stating that a “unique identifier can be configured as metadata” and can include “watermarking”); *see also, e.g.*, EX1038, ¶¶10, 15, 20, 24, 36, 49, 55, 60, 66, 71, 75.

297. Notably, the ’154 patent itself provides no more disclosure than Levy in this regard. *See* EX1001, 4:31-40 (“The plurality of identifying characteristics can represent a fingerprint, **digital watermarking**, and/or any other suitable algorithm to identify copyright ownership of the media content item included in the digital media file that will be apparent to those skilled in the relevant art(s) without departing from

the spirit and scope of the disclosure. In an embodiment, device 10 may analyze **metadata** included in the loaded digital media file to identify the media content item included in the digital media file.”), 8:45-50 (“Moreover, in many digital media file formats, one or more information fields related to the media content item stored in the file are included in **metadata** of the file. In an embodiment of the invention, the system may analyze **metadata** included in the digital media file to identify the media content item stored thereon.”), 9:33-37 (“At step 130, whether a user of the device has a license for the digital media file may be determined based on the natural media fingerprint and/or other digital media information, such as **metadata**, included in the digital media file.”).

298. Thus, the combination of Brandstetter and Levy discloses claim 12.

M. Claim 13

299. Claim 13 recites:

The device of claim 1, wherein the processor is further configured to **load a first digital media file for reproduction**, wherein the digital media file include the first media content item.

300. The combination of Brandstetter and Levy discloses claim 13. When a user accesses Brandstetter’s platform, the user interacts with the catalog to view available media content. EX1004, ¶169; FIG. 34 (interface 3400); FIG. 35 (interface 3500). This interaction in and of itself reads on the claimed loading feature. I will

illustrate this with regard to annotated Figure 34 below:

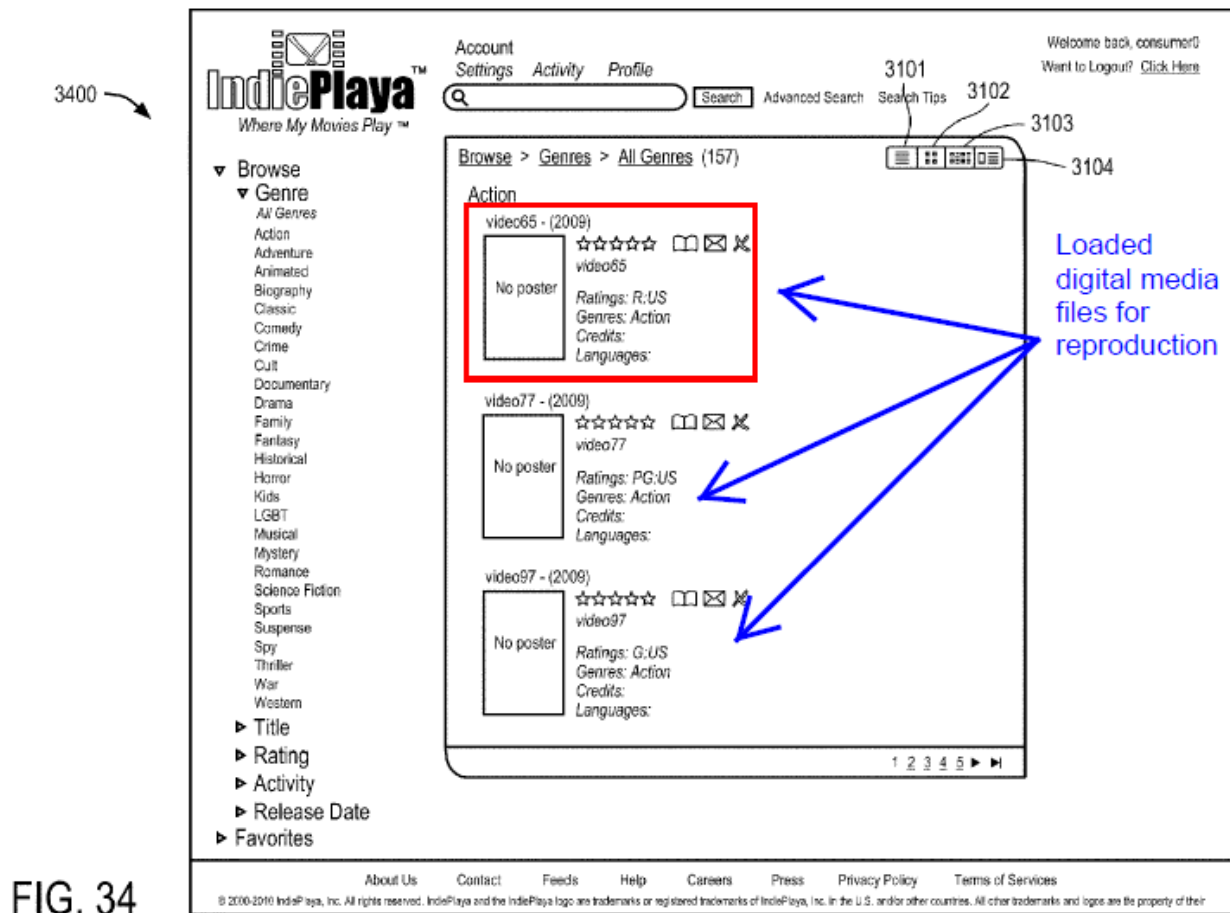


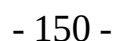
FIG. 34

EX1004, FIG. 34 (annotated).

301. Figure 34 illustrates a user's interaction with catalog 201 and can load media files (red) for reproduction on user computer. *Id.*, ¶¶93, 96, 118, FIGs. 2, 34. Thus, Brandstetter also expressly discloses loading (on a client device) a digital media file for reproduction.

302. To the extent that a loaded digital media file is loaded from a memory associated with the user device (e.g., user computer), Brandstetter also discloses this

FIG. 28



EX1004, FIG. 28 (annotated).

304. As shown in Figure 28, Brandstetter's interface can also include "an expandable my purchases area 2801 for viewing information corresponding to the user purchases." *Id.*, ¶166. For example, Brandstetter shows that the user can **load** at least one video that was previously purchased (i.e., video195).

305. Levy also discloses loading at a client device. For example, Levy discloses a "Media Server" that may be a "consumer or portable device" that includes a "Client Player Application" used to play or render content. EX1006, ¶83. "Example Media Servers include a cell phone, MP3 player, iPod® and personal computers (e.g., desktop, laptop or handheld)." *Id.*

306. Levy's Media Server loads "raw content" (i.e., the claimed "digital media file") for reproduction. *Id.*, ¶107. In particular, Levy depicts this loading in Figure 17d when describing the selection and request to play raw content:

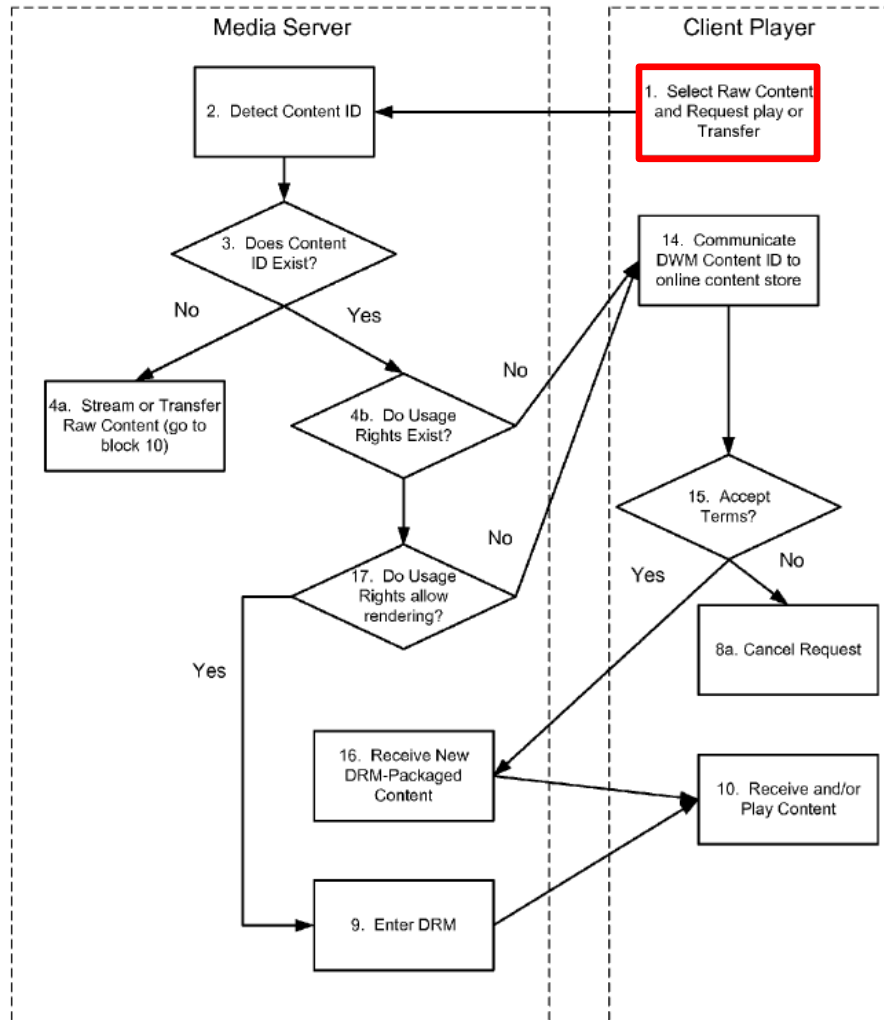


Fig. 17d

EX1006, FIG. 17d (annotated).

307. Levy discloses that a user may load a raw content item and request to play the content item or transfer it. *Id.*, FIG. 17d. Levy explains that:

Raw content is defined as digital, base band or compressed content that is not encrypted or DRM-packaged. ***Raw content can be found on a Media Server*** from capturing a digital buffer, hacking a link encryption, hacking DRM encryption, re-digitizing an analog output, downloading

files from a Peer-to-Peer (P2P) network, ripping CDs, and using DeCSS to rip DVDs, etc.

EX1006, ¶106.

308. Levy recognizes that raw content may be content that has been previously downloaded or stored on the Media Server. *Id.* Levy discloses the claimed “loading” when the raw content is “accessed.” *Id.*, ¶¶106-107. Levy defines this accessing as including “encountering, rendering, playing or transferring control of the raw content” that is stored on the “Media Server.” *Id.*, step 1 of Figure 17d, when a user selects raw content for play or transfer, the user is loading the raw content. Moreover, as Levy defines raw content to be at least “digital, base band or compressed content,” a POSA would have understood Levy’s digital content to constitute a digital media file including the media content item (e.g. a file including base band reproduction media content item). *Id.*, ¶106.

309. As I explained in Section IX.A, a POSA would have implemented this functionality with Brandstetter to also track potential media purchases or licenses already obtained by a user. For example, using Levy’s scanning of a media file loaded onto a user device would provide information indicating why a POSA may not have chosen to purchase media content as described in Brandstetter. For example, the user may have obtained the media content from another distribution channel. Scanning media files loaded into a user device would also provide

Brandstetter with information related to potential illegal content distribution or possibly illegitimate distribution channels. Having this information would improve Brandstetter's generation of statistical reports and help to explain why a consumer has declined to purchase content. In this manner, a POSA would have combined Levy with Brandstetter to further Brandstetter's explicit goal of providing accurate statistical reports to content providers.

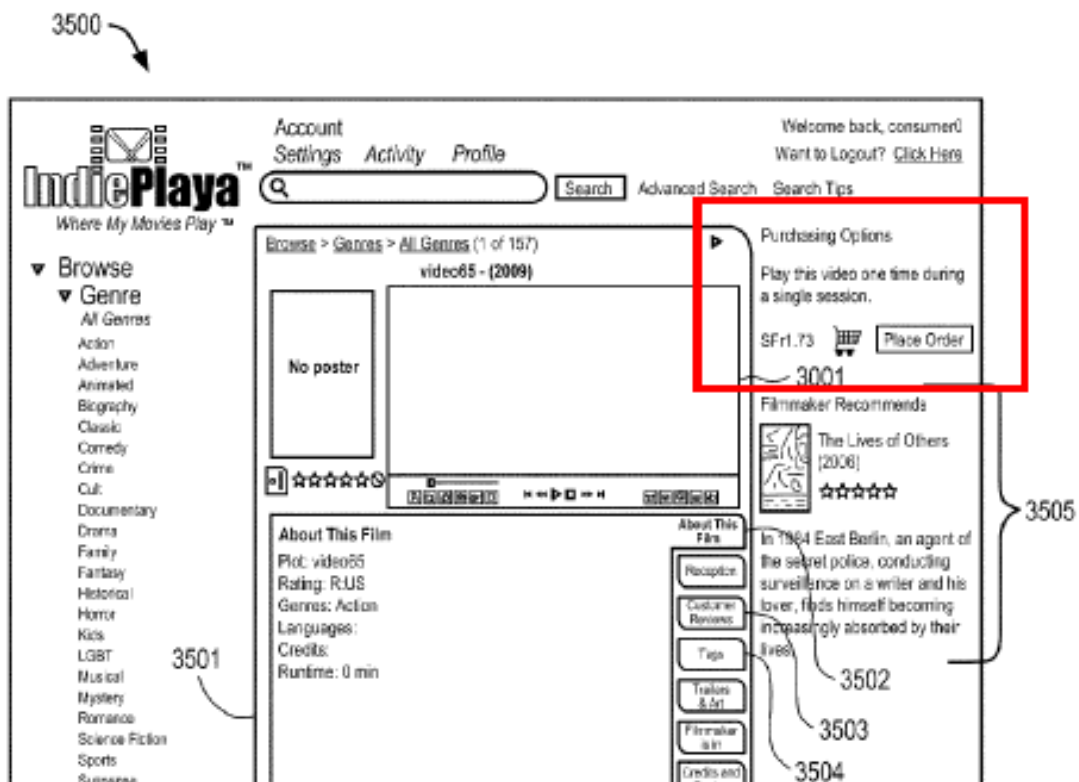
310. Thus, Brandstetter and Levy expressly disclose loading a digital media file for reproduction. Accordingly, the combination of Brandstetter and Levy discloses claim 13.

N. Claim 14

311. Claim 14 recites:

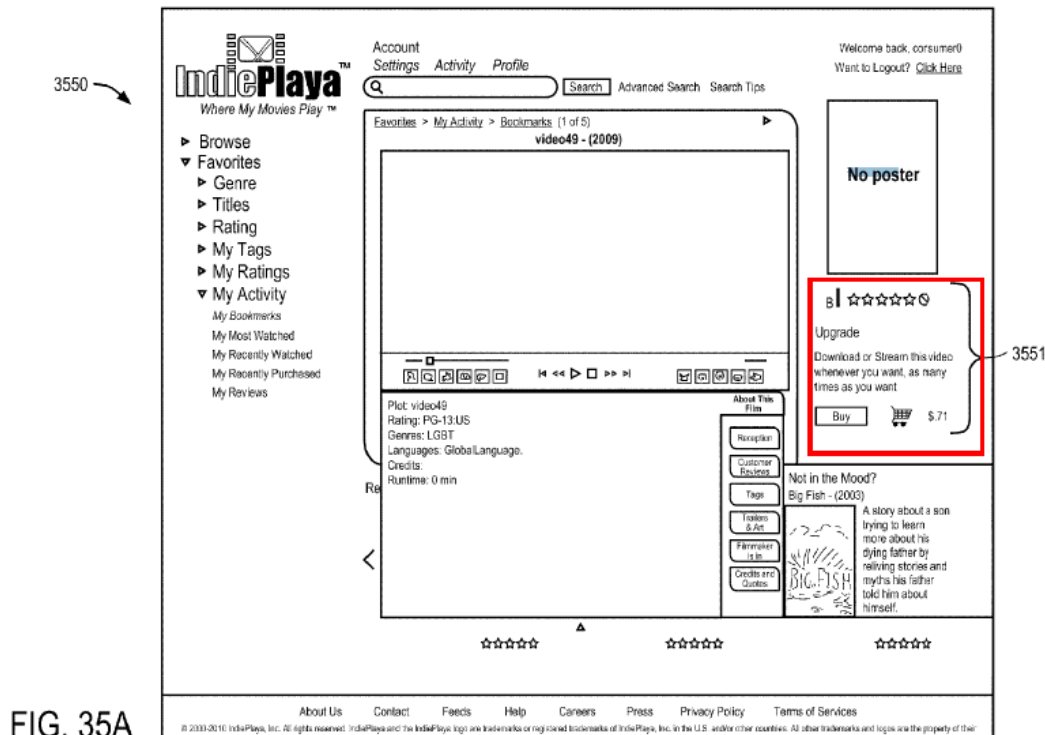
The device of claim 1 further comprising a display, and the processor is further configured to generate a ***display query on the display asking the user whether the user would like to stream*** the first media content item.

312. The combination of Brandstetter and Levy discloses claim 14. Brandstetter provides a user the ability to purchase or license content that the user does not have a license for. EX1004, ¶¶130, 137, FIGs. 18, 35, 36. For example Figure 35 provides an example interface presenting the user with "one or more licensing packages" for the user to acquire. *Id.*, ¶¶130, 137, 169.



EX1004, FIG. 35 (excerpted, annotated).

313. Brandstetter also discloses examples where a user is provided with an up-sell opportunity to upgrade to a license with increased privileged (e.g., extended duration, etc.). See *id.*, ¶¶119-26. Such opportunities, according to Brandstetter, are explicitly displayed on a user interface as illustrated in annotated Figure 35A below:



EX1004, FIG. 35A (annotated).

314. All of these display queries would also be generated for media content that the user has already requested to evaluate streaming. *See* Section IX.B.4. Thus, Brandstetter discloses providing a display query on the display asking the user whether the user would like to stream a requested media content item.

315. Similarly, Levy discloses providing a licensing query when the user is not licensed to reproduce the media content to prompt the user to acquire or decline a license. In particular, when Levy determines that a user has not previously obtained Usage Rights or that Usage Rights do not allow rendering, Levy's Media Server "receives the usage rights from the rights registry; presents the usage rights for user acceptance; and upon acceptance of the usage rights, provides the usage rights and

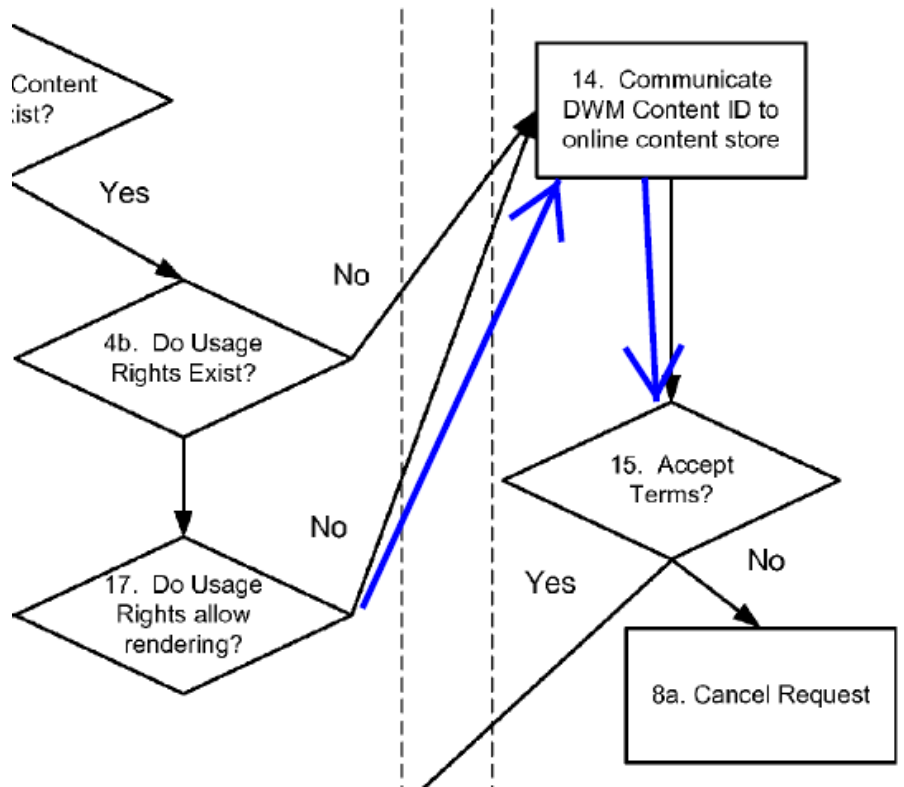
raw content to a resident digital rights management (DRM) system to control access of the content.” EX1006, ¶17, FIG. 17d. As part of presenting the usage rights, the Media Server displays the Usage Rights information on the Client Player Application. *Id.*, ¶110.

The user can accept or reject the Usage Rights.

Acceptance may require a license, payment or negotiation with a Rights Registry or an on-line media store. If the user does not accept the Usage Rights, the Client Player Application preferably prohibits access and notifies the user. If the user accepts the Usage Rights, the content is played or transferred under the direction of a public DRM system (e.g., a client DRM system) residing on the Media Server.

EX1006, ¶110.

316. Levy illustrates providing the claimed licensing query when the user is not licensed to reproduce the media content in Figure 17d:



EX1006, FIG. 17d (excerpted, annotated).

317. As shown in the above figure, Levy discloses that when the user is not licensed to reproduce the media content item, the Media server communicates DWM Content ID to the online content store and the user is prompted to either accept or decline usage rights. *Id.*, FIG. 17d, ¶1110. The user may then accept or decline the license. *Id.* Again, the same query would also be generated for media content that the user has already requested to evaluate streaming but for which the user has not yet acquired a license. *See* Section IX.B.4.

318. A POSA would have been motivated to combine Brandstetter and Levy for the reasons that I previously discussed. *See* Section IX.A. Specifically, implementing Levy's fingerprinting checking would provide an efficient way for

Brandstetter to organize license information and to control downloaded media content. A POSA would have also implemented Levy's fingerprint to determine that a license had not been previously acquired. The combined Brandstetter-Levy system would then provide the claimed licensing query and offer a license to the user as described in both references.

319. It is clear from the disclosure described above, moreover, that Brandstetter's and Levy's display queries described above are presented on a display within the user's client device and generated by a processor therein.

320. Thus, the combination of Brandstetter and Levy discloses claim 14.

O. Claim 15

321. Claim 15 recites:

The device of claim 1, wherein the processor is further configured to ***collect and transmit user identification data that confirms the user's identity.***

322. The combination of Brandstetter and Levy discloses claim 15. In particular, Brandstetter states that one of its user interfaces "include[s] one or more areas for entering user account information such as a unique challenge (e.g., ***user name and a password***) and any other personal information requested or required by the system." EX1004, ¶165. This is shown in Brandstetter's Figure 25:

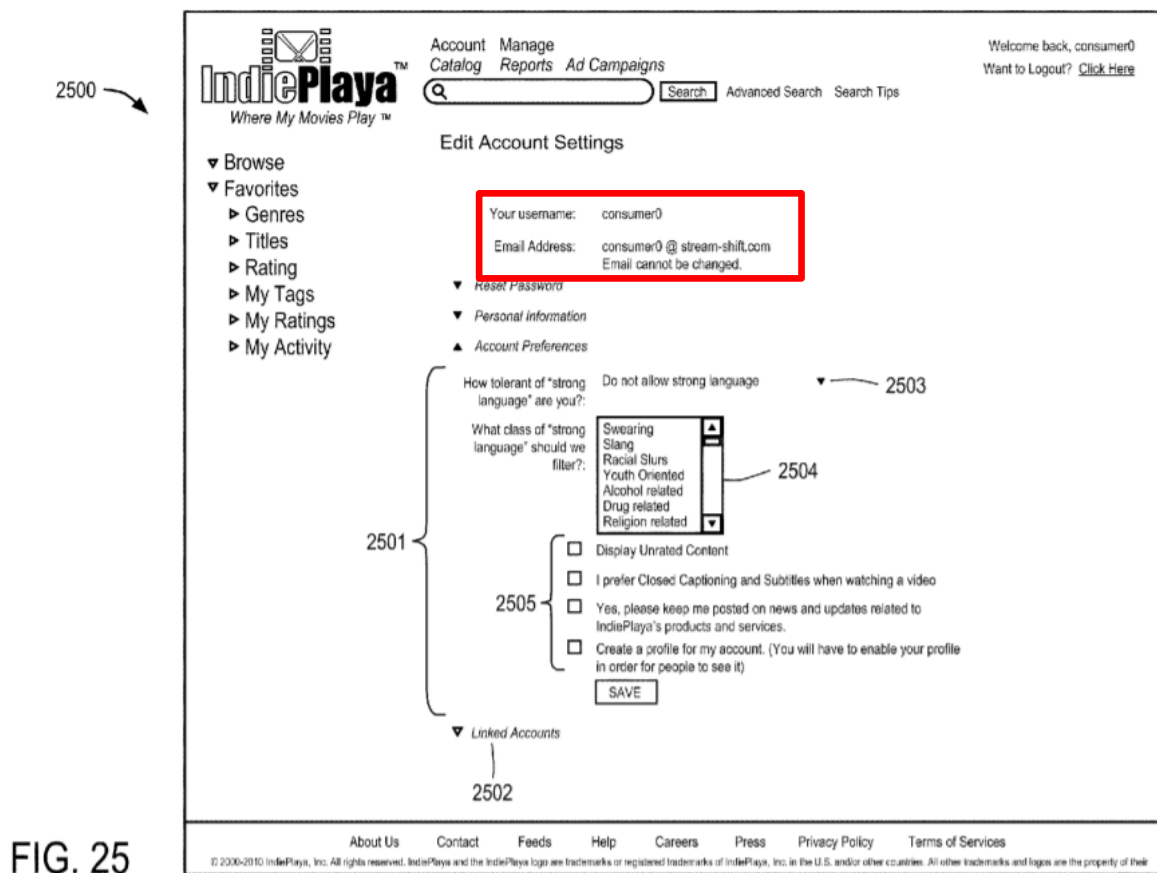


FIG. 25

EX1004, FIG. 25 (annotated).

323. A POSA would have understood from this disclosure that when a user inputs his or her username and password, the processor within the user's client device thereby "collects" such information and transmits it to Brandstetter's server to confirm the user's identity. Once the user's identity is confirmed, the user is able to publish and request digital media content as described with reference to claim 1 above. See Section IX.B.

324. Further, as I explained above with reference to claim 5 (and below with respect to claim 17), Brandstetter's users may pay to acquire a license to particular

content. See Sections IX.E, IX.Q. This implies that Brandstetter's users enter payment information (e.g., billing information) that is verified by Brandstetter's platform to confirm the user's identity. This, too, satisfies the claim element.

325. Indeed, I note that this disclosure is similar to the '154 patent's. The patent states that the user's device can transmit user identification data to the system in order to permit the user "to log into a user account associated with the user, process the licensing transaction, and/or for other such reasons to facilitate purchasing a license for the media content item." EX1001, 9:64-10:7; *see also id.*, 10:23-29 (stating that the "system receives the user identification data and confirms the user's identity" by, for example, logging "the device into a secured transaction interface associated with an account of the user"). The patent states that such data can comprise "a user name and password, a unique identifier associated with the user, the user's billing information, and/or any other user identification data." *Id.*, 10:2-10:7.

326. Thus, the combination of Brandstetter and Levy discloses claim 15.

P. Claim 16

327. Claim 16 recites:

The device of claim 1, wherein the processor is further configured to ***transmit the first and second media fingerprints for confirmation of the first and second media content items with a digital media catalog***

database.

328. The combination of Brandstetter and Levy discloses claim 16. In particular, as described above with reference to claim element [1D], Levy uses digital fingerprints to identify particular media content items. See Section IX.B.5. Further, Levy states that its “Media Server” (i.e., user device) may communicate a derived “Fingerprint Content ID” to a “Fingerprint Rights Registry to obtain corresponding Usage Rights.” EX1006, ¶140. The Usage Rights convey the license terms for the content item corresponding to the particular fingerprint.

329. A POSA would have understood that Levy’s Fingerprint Rights Registry is the claimed “digital media catalog database.” A POSA likewise would have understood that to transmit a Fingerprint Content ID to the Registry, Levy’s client device necessarily confirms the media content items corresponding to the fingerprints. Indeed, Levy’s disclosure is similar to the ’154 patent’s, which states that “the system matches the fingerprint of the media content item included in the license request to a fingerprint in the digital media catalog database to identify the media content item associated with the licensing request, the rights-holder associated with the media content item, the price required for a license for the media content item, and/or any other identification information.” EX1001, 10:41-49. The ’154 patent’s digital media catalog database is likewise located on the server. *Id.*, 7:25-30.

330. And, as described above with reference to claim element [1G], Levy's fingerprints can be used to identify multiple media content items. See Section IX.B.8. Thus, a POSA would have understood that multiple fingerprints would be transmitted from Levy's user device to the server to confirm the media content items.

331. For the reasons described above, a POSA would have been motivated to use Levy's fingerprinting algorithm in Brandstetter to provide a convenient way for Brandstetter's user devices to identify and track media content. See Section IX.A.

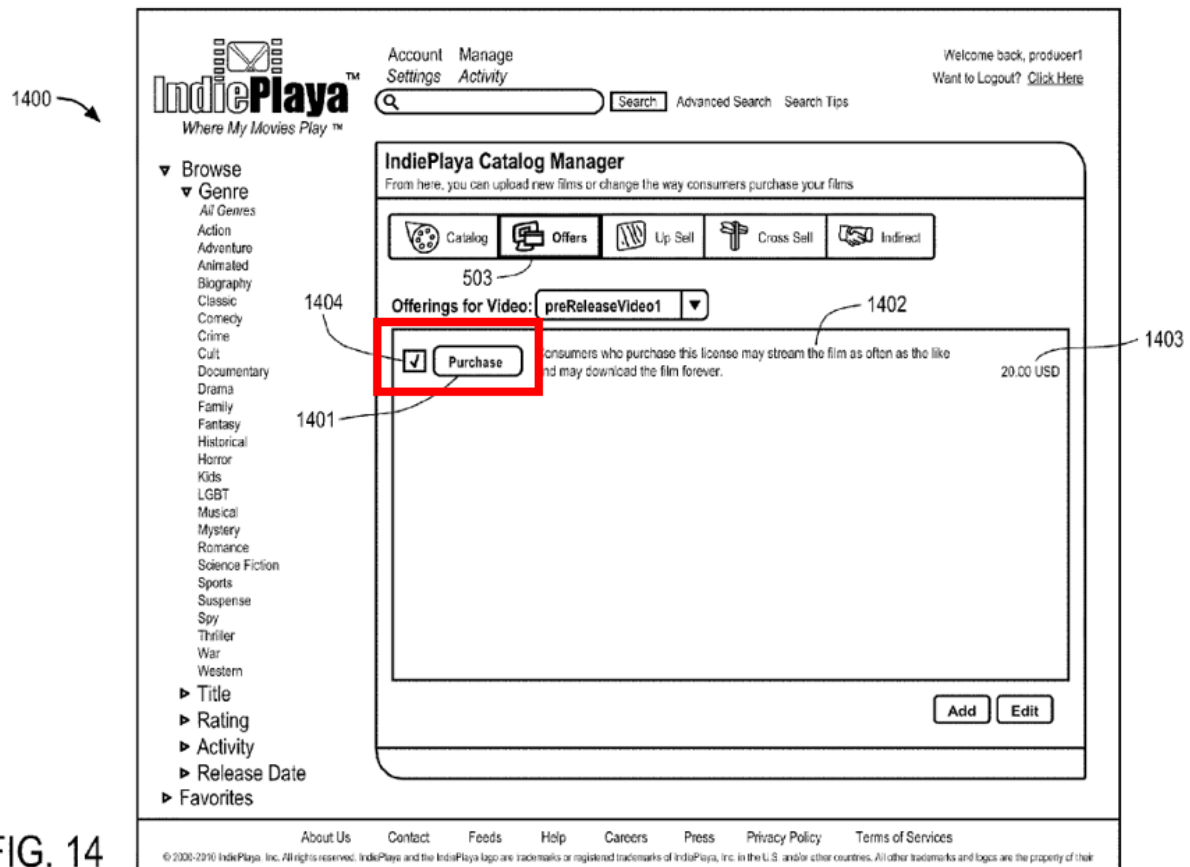
332. Thus, the combination of Brandstetter and Levy discloses claim 16.

Q. Claim 17

333. Claim 17 recites:

The device of claim 1, wherein the processor is further configured to ***collect payment from the user to stream*** the first media content item.

334. The combination of Brandstetter and Levy discloses claim 17. In particular, both Brandstetter and Levy disclose obtaining and verifying payment for licenses to reproduce content. For example, Brandstetter facilitates the payment of a license for purchase or rental of a media content item as seen in Figure 14. EX1004, ¶¶146-47.



EX1004, FIG. 14 (annotated).

335. Figure 14 depicts licensing packages. “[T]he display for a purchase licensing package can include purchase button 1401. Activating purchase button 1401 allows the user (e.g., an audience), to purchase content associated with a purchase licensing package.” *Id.*, ¶146. Users can interface with the platform and “pay money in exchange for a distribution of the media content (e.g., a license to experience the media content for a limited amount of time or a limited number of viewings/listenings, or a ‘purchase’ of the media content enabling them to experience the content for an unlimited amount of time).” *Id.*, ¶87. “[U]sers can

purchase an item or a license to an item, and can download the item over the network (e.g., onto a computer for viewing and/or listening).” *Id.*, ¶77. “[T]he users pay for instances of distribution of the content.” *Id.*, ¶83. Subsequently, a distribution module 140 on the server “receives payment from users in exchange for such distribution via network 121.” *Id.*, ¶98. Thus, Brandstetter discloses payment processing.

336. Levy also similarly facilitates payments to provide “proper billing to the consumer and payment to content owners and providers.” EX1006, ¶44. This may occur when a user is considering whether to “accept or reject the Usage Rights.” *Id.*, ¶110. “Acceptance may require a license, payment or negotiation with a Rights Registry or an on-line media store.” *Id.* In this manner, Levy facilitates payments when users “purchase content.” *Id.*, ¶¶11, 112, 117.

337. A POSA would have understood, moreover, that when a user inputs payment information into Brandstetter’s or Levy’s interfaces, the processor within the user’s device “collects” the payment from the user to stream the requested content.

338. A POSA would have been motivated to implement Levy’s system in Brandstetter’s for all the reasons I explained above. See Section IX.A. With regard to this element in particular, a POSA would have understood that Levy’s disclosure of payment information from a user would advantageously allow Brandstetter’s

users to purchase digital content from Brandstetter's system. Levy's ability to collect payment would permit consumers to effectively and efficiently use Brandstetter's system.

339. Thus, the combination of Brandstetter and Levy discloses claim 17.

R. Claim 18

340. Claim 18 recites:

The device of claim 1, wherein the processor is further configured to ***transmit the first and second statistics record in real time.***

341. The combination of Brandstetter and Levy discloses claim 18. As described above with reference to claim elements [1I] and [1J], Brandstetter discloses aggregating user data into statistics records and transmitting them to a database. See Sections IX.B.10-11. Further, Brandstetter describes generating and transmitting statistics for use in reports in "real-time." In particular, Brandstetter states that its activity reports "can be dynamically constructed" and that "***statistics can be automatically generated (e.g., in real-time)*** based upon website activity (e.g., audience 306 interaction)." EX1004, ¶¶74, 133, 172.

342. As Brandstetter elsewhere explains:

In some implementations, a promotional functionality 203 can include an ability to up-sell content or properties of such content (e.g., the grant of a license to the content, the expansion of the terms of the license to the content, an

expansion of the quality, resolution or other property of the content). In an example of such implementations, when a user exhibits an interest in paying a first amount for a limited use license to use content for a predefined time period, ***the content creator can dynamically create and offer*** the user another license option to use the same content at a second amount and for a greater period of time. For example, when a user selects a content rental option or rents content (e.g., a video) for \$5.00, the content creator (e.g., the filmmaker), is notified or otherwise made aware (e.g., by requesting a report). Once aware, ***the content creator can dynamically create and offer a content purchase option (e.g., reduce a purchase price from \$15.00 to \$11.00) to that user***. This aspect will be discussed in greater detail with respect to FIGS. 18-19, below.

Id., ¶120; see also *id.*, ¶¶122-25, 145, 148, 150-53. Likewise, Brandstetter explains that its platform facilitates “the dynamic (e.g., ‘on-the-fly’) creation and distribution of licensing packages (e.g., ***in real-time***).” *Id.*, ¶134. This disclosure makes clear that Brandstetter’s system tailors marketing efforts to users based on the user’s real-time interaction with the platform. A POSA would have understood from this disclosure and it would have been obvious that Brandstetter’s user devices transmit statistics records in real time.

343. Thus, the combination of Brandstetter and Levy discloses claim 18.

X. GROUND 2: CLAIM 3 OF THE '154 PATENT IS UNPATENTABLE UNDER 35 U.S.C. § 103 OVER BRANDSTETTER IN VIEW OF LEVY AND RASSOOL.

344. Claim 3 recites:

The device of claim 2, wherein the first and second *unique characteristics are the occurrence of various audio frequencies at particular points in time in the audiovisual work.*

345. The combination of Brandstetter, Levy, and Rassool discloses claim 3. In particular, as I explained above with reference to claim element [1D], Levy discloses an algorithm for identifying digital media content, including audiovisual works, using digital fingerprints. *See* Section IX.B.5. Those fingerprints identify unique characteristics inherently present in the media content item. *Id.* Levy does not restrict the type of fingerprinting that can be used to identify digital content and refers specifically to watermarks/fingerprints that can be used to identify “audio” content. EX1006, ¶¶4, 7, 55.

346. One such technique is described by Rassool. Like Levy, Rassool describes techniques “for identifying a media file transmitted over a network” using fingerprints. EX1016, Abstract, 2:27-45. Rassool explains that its fingerprinting algorithm can be used to uniquely identify an unknown media content item by matching its fingerprint to that of a known item. *See id.*, 5:9-46. Rassool specifies that media files can include “data files in various formats that contain audio and/or

image information,” including music and video files. *Id.*, 4:50-52, 6:8, 22:61.

347. With regard to music files, Rassool describes an algorithm in which its algorithm generates a fingerprint based on the occurrence of a particular frequency within the song:

The up-down coding technique of file recognition calculates the energy level within a particular waveform to find the relative amplitude peaks of the waveform. In the time domain, a digital audio signal is represented by a series of amplitudes. The algorithm traces all of the peaks of the audio signal at a fairly low resolution (i.e., sampling rate) but at a resolution that is high enough to track changes that indicate the melody of a song. A four milli-second resolution, for example, is fast enough to be able to track the melody of a song.

At each peak, ***the dominant frequency is calculated. The dominant frequencies at the relative peaks are taken to represent the melody note that is being played at that point in the music.*** It does not matter if multiple notes are being played at each peak because the technique determines the dominant frequency where “dominant” refers to the frequency having the greatest energy. ***The dominant frequency at each relative peak is “plotted”, in effect, so that the up-down coding algorithm is able to determine the relative change in frequency from one relative peak to the next relative peak in time.*** Stated

another way, the up-down coding algorithm determines whether each note goes up or down in frequency from peak to peak. The transition from one note to the next is encoded as a binary 1 if the note goes up in frequency and is encoded as a zero if it goes down in frequency. ***Thus, the algorithm produces a succession of ones and zeros that indicate whether the melody goes up or down from note to note. This sequence of zeros and ones comprises a unique media file identifier that can be stored in a database and searched against to identify the song.***

Id., 23:33-62. In other words, Rassool's fingerprint is based on various audio frequencies at particular points in time, as the claim element requires.

348. Rassool describes its algorithm in the context of audio files and songs, specifically, but Rassool elsewhere refers to audiovisual works more generally, including "films, music videos, webcast news and entertainment programming and so on." *Id.*, 6:13-15. From this disclosure, a POSA would have understood that Rassool's algorithm could be used for any audiovisual work containing audio content, and not just songs.

349. Further, a POSA would have understood that Rassool's algorithm could be used to identify multiple audiovisual works and not just a single work. Indeed, Rassool itself states that its algorithm can be used for audio "files," generally. *Id.*, 23:6-9; *see also id.*, 2:26-45, 4:33-39, 5:9-54.

350. The '154 patent's specification refers to the unique characteristics of a song comprising "the occurrence of various frequencies at particular points in time in relation to the occurrence of the lyrics." EX1001, 9:26-32. But claim 3 does not say anything about the frequencies occurring "in relation to the occurrence of the lyrics," and so that requirement is not part of the claims. Nevertheless, even if it were, Rassool's algorithm discloses that requirement because by tracking the occurrence of frequencies within an audiovisual work in the time domain, it also tracks such occurrences relative to lyrics in the same domain.

351. A POSA would have been motivated to combine Rassool's fingerprints with Levy and Brandstetter. As an initial matter, Levy does not limit its system to using a particular fingerprinting algorithm. Likewise, for the reasons I explained above with reference to claim element [1D], a POSA would have been motivated to use Rassool's fingerprints in Brandstetter's platform to more efficiently identify Brandstetter's audiovisual works and to determine whether a particular consumer is licensed to stream a requested work. *See* Section IX.B.5. Indeed, Rassool itself states that its algorithm allows copyright holders to more efficiently manage and track the distribution of their work so as to "police copyright violations of media files." EX1016, 2:19-23, 4:33-47. Rassool expressly states that its algorithm is useful for "determin[ing] whether or not a copyrighted or otherwise protected music file is being offered without permission for distribution or play on the Internet." *Id.*, 23:2-

5. Thus, a POSA would have understood that Rassool's fingerprinting algorithm would facilitate Brandstetter's goal of monetizing digital media content.

352. Thus, the combination of Brandstetter, Levy, and Rassool discloses claim 3.

XI. GROUND 3: CLAIMS 1-2, 4-7, AND 9-18 OF THE '154 PATENT ARE UNPATENTABLE UNDER 35 U.S.C. § 103 OVER PELED IN VIEW OF POU.

353. Peled and Pou disclose each and every limitation of claims 1-2, 4-7, and 9-18. While Peled teaches the identification and aggregation of user demographic data in response to accepting or declining a media license, Peled may not explicitly describe evaluating whether a user has already acquired the media license or a process for identifying digital content using fingerprints. However, Pou expressly discloses such an evaluation and subsequently offers a media license when one has not been previously obtained. EX1005, ¶¶55, 83, FIGs. 1, 4. Likewise, Pou expressly discloses using digital fingerprints to identify and track media content. *Id.*, ¶¶13, 51, 42, 64, 82. As I explain in further detail below, a POSA would have found claims 1-2, 4-7, and 9-18 of the '154 patent obvious in light of the disclosures of Peled and Pou.

A. Overview of the Combination of Peled and Pou

354. A POSA would have been motivated to combine Peled and Pou, would have known how to combine Peled and Pou, and would have had a reasonable

expectation of success when combining Peled and Pou.

1. A POSA would have been motivated to combine Peled and Pou.

355. A POSA would have been motivated to combine Peled with Pou to provide an efficient mechanism for managing content and identifying content for distribution using Peled's platform.

356. A POSA would have recognized that combining Peled and Pou would have amounted to combining well-known prior art elements to yield predictable results. As I explained in Section V.B, using fingerprints to organize media content and to subsequently identify requested content was a well-known technique in the art prior to the '154 patent. With respect to the Peled and Pou combination, a POSA would have applied Pou's identification and usage of fingerprints to identify media content and to track previously obtained media licenses. Using fingerprints would improve Peled's identification of content at different distribution locations as well as Peled's content distribution process.

357. As I will further explain below, Peled describes storing media content items at different "content holding sites." EX1003, ¶¶159-60. Peled then describes a content distribution site that receives requests for content and identifies the appropriate content holding site for delivery of the requested content: "[T]he distribution site 2 preferably comprises functionality to select [] holding sites being most effectively located to provide the content to a given requesting consumer." *Id.*

Peled depicts this configuration in Figure 3.

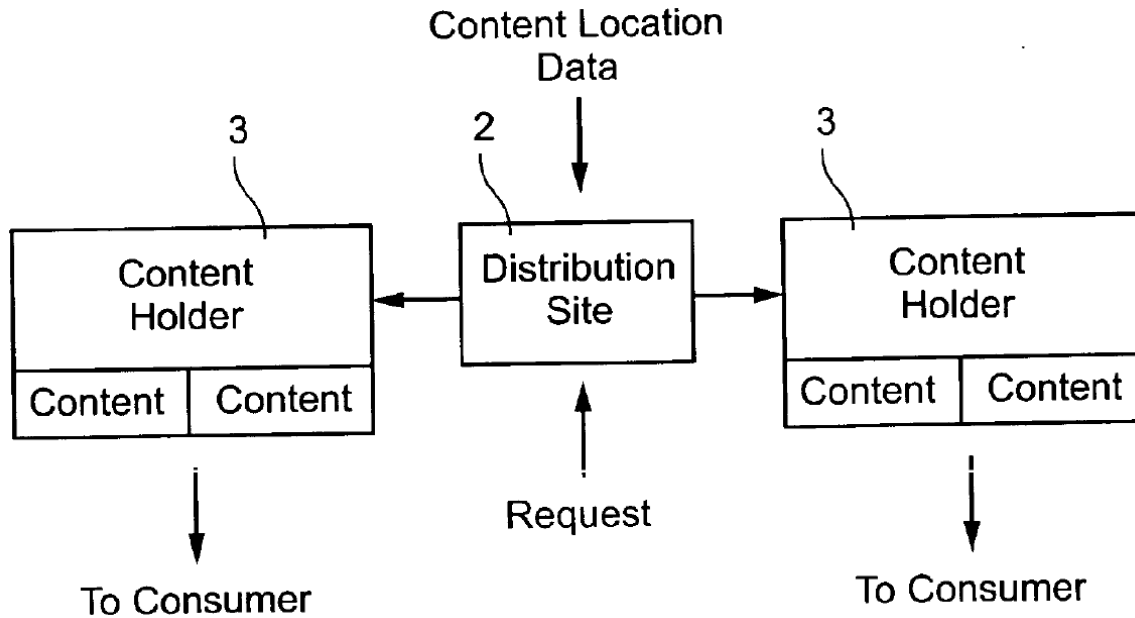


Fig. 3

EX1003, FIG. 3.

358. In view of this explanation, a POSA would have understood that Peled's content distribution site would have used a mechanism for uniquely identifying content so that the content distribution site would be able to respond to requests. *Id.*, ¶159. That is, the content distribution site would have needed to identify content indicated in a content request in order to identify the "most effectively located" content holding site to provide the requested content. *Id.*, ¶160.

359. A POSA would have understood that a well-known and common way to organize such content and to subsequently identify the content would be to use fingerprints. *See* Section V.B. Pou describes an example of organizing and

identifying content using fingerprints. EX1005, ¶¶13, 51, 54, 82. For example, Pou describes the use of a “digital fingerprinting detection technique” included in a “file recognition algorithm.” *Id.*, ¶13. Such algorithms “examine internal attributes” of media files to “identify the specific media file (e.g., the specific song, movie, photo, written work, etc.).” *Id.*, ¶¶51-52. “Thus, files can be identified using implicit characteristics of the file (e.g., a fingerprint or watermark).” *Id.*, ¶54. This “allow[s] for accurate identification of the file even if someone has attempted to disguise the file (e.g., by changing the file name, extensions, or other attributes).” *Id.*, ¶¶53-54. A fingerprint is a compact representation of content and therefore enables fast and computationally efficient comparisons. EX1006, ¶142.

360. A POSA would have implemented these fingerprinting techniques with Peled to provide a mechanism for organizing and identifying media content. Using fingerprinting techniques would advantageously permit Peled to differentiate among different versions of media content with ease. As I previously explained, fingerprinting was a well-known and common way to uniquely identify content. *See* Section V.B. Peled’s content distribution site would use fingerprints to uniquely identify requested content based on the unique “internal attributes” of requested content. EX1005, ¶¶51-52. Further, as Pou explains, “[f]ingerprinting data that allows the specific media file to be identified may be stored at a central server and accessed using an Internet connection.” *Id.*, ¶52. Peled’s content distribution site is

an example of such a central server that would use fingerprinting data to identify content and distribute requested content from content distribution sites. EX1003, ¶¶159-60. Pou additionally teaches building a database of fingerprints of known media files. EX1005, ¶82. Peled's content distribution site would use a similar database to identify content and to respond to content requests. Implementing Pou's fingerprinting would allow for unique content identification even when different versions of content exist. *See* Section V.B.

361. Thus, a POSA would have understood that implementing Pou's fingerprinting technique would have provided an efficient way of organizing, tracking, and identifying media content. This would improve Peled's content management and distribution process by being able to efficiently identify content.

362. A POSA would have also combined Pou's fingerprint and license tracking with Peled to improve Peled's ability to identify and manage previously purchased licenses. For example, Peled already describes tracking user purchases and purchase history. EX1003, ¶¶1-2, 177. Peled explains that such information is useful in the "scientific field of econometrics" to measure market behavior. *Id.*, ¶2. Peled additionally describes tracking purchases and purchase refusals "to identify and quantify the demand for specific content." *Id.*, ¶7. For example, Peled describes an example of tracking a consumer's purchase history and determining that the consumer "has a history of requesting movies at a given price." *Id.*, ¶177. Tracking

this information allows Peled to identify consumers who have “shown a willingness to purchase at a given lower price.” *Id.* In this manner, Peled already describes tracking the purchase of media content and that such information is useful when performing a market analysis.

363. While Peled describes the tracking of purchased media content, Peled may not explicitly describe how such tracking is performed. A POSA, however, would have understood that a common way to track purchased media content would be using a unique identifier or fingerprint corresponding to that media content. As I explained in Section V.B, such techniques were well-known in the art prior to the ’154 patent. Pou explicitly recites such techniques and describes the use of a “fingerprint” to identify media files. EX1005, ¶¶51-55, 65, 83, 111. In view of Peled’s suggestion of tracking user purchases, a POSA would have been motivated to combine Pou’s fingerprint techniques with Peled to provide a mechanism for tracking user purchases, as well as identifying media content, including content that a user has already obtained. *Id.*, ¶¶55-56, 59. A POSA would have also implemented Pou’s tracking of media licenses with Peled to track user purchases in the form of licenses to reproduce media content.

364. Combining Pou with Peled would provide a process for reproducing content where a license has already been purchased. For example, Pou describes the process of checking whether a user has already obtained a license to reproduce

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U.S. Pat. No. 10,885,154

content. *Id.*, ¶¶55-56, 59. Implementing this process with Peled would improve the efficiency of Peled's content distribution system. Peled's content distribution system would more quickly direct licensed content to a consumer when the content distribution system has determined that the consumer has already purchased a license for the content. EX1003, ¶¶159-60. Additionally, a POSA would have implemented Pou's fingerprint techniques to manage licenses and determine whether to offer a license when a user has not already licensed content. EX1003, ¶¶158, 168, 173, 181, 184, 186. This would improve Peled's report generation and provide content providers with a fuller picture explaining why a user may have declined to obtain a license for media content. *Id.* As Peled explains, one problem that arises in the field of media distribution is "illegal content distribution." *Id.*, ¶184. Both Pou and the '154 patent also identify this problem as a major issue. EX1005, ¶3; EX1001, 1:26-47. In fact, piracy was a well-known and common problem in the art. *See generally* EX1060; EX1051. Peled explains that "[i]llegal distribution represents lost sales in the same way as request refusals and a thorough understanding of the illegal distribution situation for particular content items may lead to increased sales opportunities." EX1003, ¶184. A POSA would have understood that implementing Pou's license management and fingerprint or UFID techniques with Peled would help to alleviate this problem. Indeed, Pou explains that its solution helps to monetize media content. EX1005, ¶¶2-4, 110. Combining

Pou's licensing and content tracking techniques with Peled would improve Peled by providing a mechanism for detecting illegal distribution or by identifying that a consumer has obtained the media content through another distribution channel. When a consumer has already obtained access to the media content (illegally or otherwise), the consumer may refuse to purchase the content. Using Pou's fingerprint or UFID techniques, Peled would identify that a consumer has already obtained the media content. *Id.*, ¶¶51-55, 65, 83, 111. Peled would then package this information as an additional reason for refusal in Peled's reports that are generated and provided to content providers. EX1003, ¶168; *see also Id.*, ¶¶54, 69-70, 155, 172, 180.

365. Thus, a POSA would have been motivated to combine Pou with Peled to uniquely identify content and to track licenses or content already obtained by a consumer. This would improve Peled's content management and distribution process by being able to efficiently identify content and corresponding licenses that a user has already purchased.

2. A POSA would have known how to combine Peled and Pou and would have had a reasonable expectation of success.

366. A POSA would have known how to combine Peled and Pou and would have had a reasonable expectation of success. For example, a POSA would have known how to implement Pou's fingerprinting techniques with Peled. EX1003, ¶¶51-55, 65, 83, 111. Similarly, a POSA would have also known how to implement

the license tracking described in Pou with Peled as well as the distribution of licensed content. EX1005, ¶¶55-56, 59. As I previously explained, this would provide a combined system capable of efficiently distributing content using unique fingerprint identifiers as well as determining whether a user has already obtained a licensed. See Section XI.A.1.

367. Both Peled and Pou describe conventional server systems for managing digital media files. EX1003, ¶¶164-66; EX1005, ¶¶55, 59. Further, both Peled and Pou simply describe implementing software algorithms on these server platforms. EX1003, ¶¶164-66; EX1005, ¶¶55, 59. In this manner, a POSA would have easily combined the references using well-known computer programming techniques. This combined algorithm would include Pou's digital media content recognition and fingerprinting techniques as well as tracking of user licenses with Peled's gathering of user demographic data and reporting of this data. EX1003, ¶¶168-69. Combining Peled and Pou would have been predictable and would simply amount to updating Peled's software algorithm to include Pou's fingerprinting and license management to generate a combined server system. This combination would operate to perform its intended purposes.

368. In this manner, a POSA would have easily combined Peled and Pou because both are conventional server systems for managing digital media files. EX1003, ¶¶164-66; EX1005, ¶¶55, 59. Combining Peled and Pou would amount to

nothing more than combining known prior art elements according to known methods to yield predictable results and applying a known technique to a known device ready for improvement to yield predictable results. Thus, in view of the conventional server systems described in Peled and Pou, a POSA would have easily combined the references and would have found it predictable to form such a combination.

B. Independent Claim 1

1. [1P]: “A multimedia hardware device comprising:”

369. To the extent that the preamble language is deemed limiting, Peled discloses the preamble. In particular, Peled describes a computer-based method “for supporting the distribution of products, services and especially electronic content over a network,” and refers specifically to digital media content such as movies. EX1003 ¶¶1, 7, 10, 158, 166, 175-177. Peled explains that media content is located at various holding sites on the Internet. *Id.*, ¶¶20, 160, 164. Peled’s server-based apparatus 20 knows where particular media content items are located and is able to instruct the sites holding such items to supply the content to various “content consumers” 14 over a network 22 in response to the consumers’ requests. *Id.*, FIG. 6, ¶173.

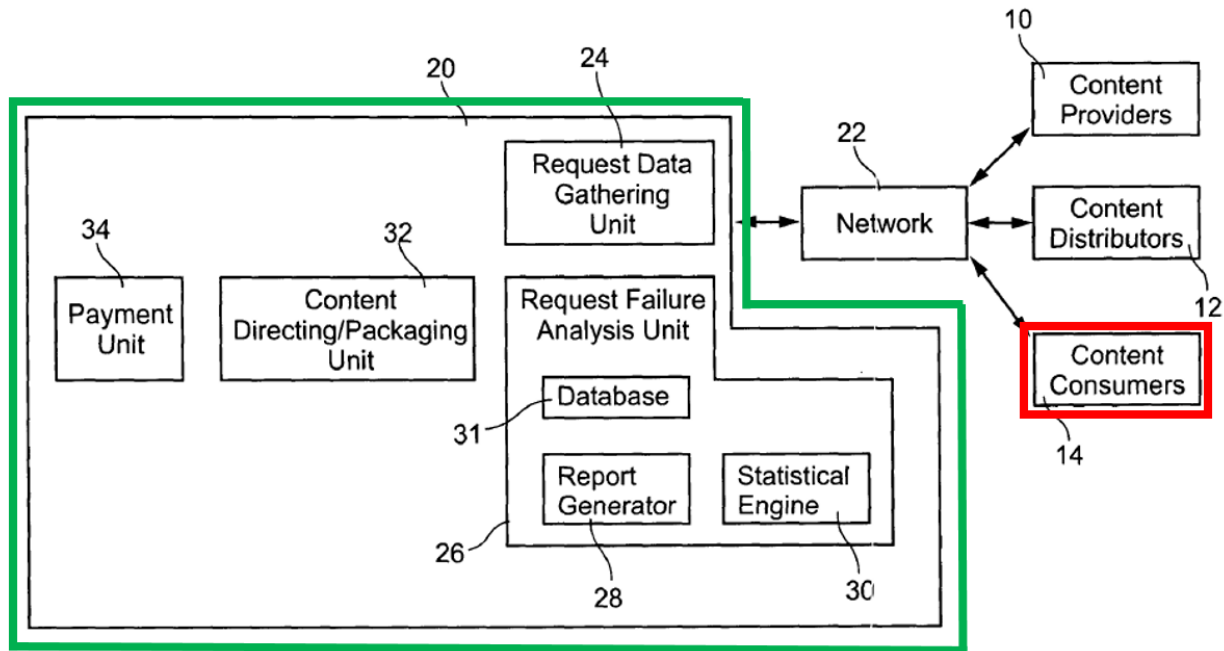


Fig. 6

EX1003, FIG. 6 (annotated).

For example, Peled describes providing a version of a movie with “Italian subtitles” to an Italian consumer while ensuring that “both the American and Italian content providers are credited for the sale.” *Id.*, ¶176. Peled also describes repackaging a “movie with commercial advertising” and offering the repackaged movie “at a lower price.” *Id.*, ¶177. These examples disclose methods by which consumers are provided access to media content items.

370. A POSA would have understood that consumers access requested media content using computing devices, such as a personal computers or mobile devices. Such devices would be required for consumers to connect to Peled’s network and request and receive media content in the first place. Indeed, Peled

explains that its system is “operable with a general purpose computer” and explains that consumers access media content via the Internet by interacting with websites. *Id.*, ¶¶121, 159. A POSA would have understood from this disclosure and it would have been obvious that, in order to interact with websites, consumers use a web browser installed on a computing device. A POSA would have likewise understood that each consumer’s computing device constitutes the claimed “multimedia hardware device.”

371. To the extent that this is unclear, Pou describes distributing media files to a “user device, such as a computer,” which also discloses the claimed “multimedia hardware device.” EX1005, ¶¶50, 64, 108. For example, Pou describes the distribution of data files for songs. *Id.*, ¶64. Pou also describes the purchase of licenses for received “media files” to allow “all parties [to] participate in the revenue stream including users, resellers, distributors, and content managers, such as record companies, publishers, and artists.” *Id.*, ¶¶108-10. In this manner, Pou also describes authorizing the distribution and reproduction of a media file in response to authorizing a license payment. *Id.* Pou’s “user device” is then allowed to “play[] a song or movie contained in the file” or otherwise use the file on the user device. *Id.*, ¶55. Therefore, Pou’s user device also discloses the claimed “multimedia hardware device.” A POSA would have combined Pou with Peled for the reasons that I explained in Section XI.A. In view of both Peled and Pou describing conventional

user computer devices communicating with conventional server systems, a POSA would have found these devices interchangeable for disclosing the claimed “multimedia hardware device.” EX1003, ¶¶164-66; EX1005, ¶¶55, 59.

2. [1A]: “a processor; and:”

372. A POSA would have understood that each of Peled’s consumer’s computing devices (i.e., the claimed “multimedia hardware devices”) includes a processor. Indeed, conventional computing devices contain processors, and Peled’s consumer devices would likewise include such processors to perform the methods described in Peled’s disclosure.

373. To the extent this is unclear, Pou expressly states that its “user device 205 includes ***a processor 210***” for performing the methods described in Pou’s disclosure. EX1005, ¶¶57, 113. A POSA would have combined Peled and Pou for all the reasons described above. See Section XI.A.

3. [1B]: “a memory coupled with the processor, the memory including instructions that, when executed by the processor cause the processor to:”

374. A POSA would have also understood that each of Peled’s consumer’s computing devices includes a memory coupled with a processor. Indeed, conventional computing devices contain memory, and Peled’s consumer devices would likewise include such memory to perform the methods described in Peled’s disclosure.

375. Again, to the extent this is unclear, Pou expressly states that its “user device 205 includes a processor 210, ***which may execute instructions stored in a memory 215*** and/or other storage mediums (not shown) that may be connected to the user device 205.” EX1005, ¶57. The memory includes instructions that, when executed by the processor, cause it to carry out the steps described in Pou’s disclosure. *Id.* (“The processor 210, in accordance with instructions stored in the memory 215, may monitor files and other data that pass through the I/O port 225 for purposes of identifying protected (e.g., copyrighted) music, video, software, or other files.”); *see also id.*, ¶113 (“Generally, a processor will receive instructions and data from a read-only memory, a random access memory and/or a machine-readable signal (e.g., a digital signal received through a network connection).”). A POSA would have combined Peled and Pou for all the reasons described above. *See* Section XI.A.

4. [1C]: “generate a first request from a user to evaluate streaming a first media content item to the device;”

376. Peled discloses “generat[ing] a first request from a user to evaluate streaming a first media content item to the device.” At the outset, Peled makes clear that its system may be used “for supporting the distribution of products, services and especially electronic content over a network,” and refers specifically to digital media content such as movies. EX1003 ¶¶1, 7, 10, 158, 166, 175-77. Each item corresponding to such content is a “media content item.” *See, e.g., id.*, ¶¶14-15

(referring to “**content items**” corresponding to requested media content).

377. Peled states that consumers can make “online **requests for content**” using their computing devices by interacting with a website to browse and “order content.” *Id.*, ¶¶61, 155, 159. Peled describes scenarios, for example, in which consumers “request a particular movie.” *Id.*, ¶¶158, 175-78, 180. A POSA would have understood from this disclosure that Peled’s consumer requests are generated by the processors within the consumers’ client devices.

378. Further, Peled explains that consumers may request to “stream” media content. For example, Peled explains that a consumer’s request for content may be in the form of a request “**for purchases of video files/streams** over the Internet.” *Id.*, ¶197. Likewise, in one of its examples, Peled describes a scenario in which a consumer using Peled’s system “requests content via **streaming video**.” *Id.*, ¶178. A POSA would have understood from this disclosure that Peled teaches streaming media content to consumers’ client devices in response to consumer requests.

379. Peled notes, moreover, that consumers may ultimately “decline[] to complete the transaction” even after having requested a particular media content item. *Id.*, ¶¶176-77. From this disclosure, a POSA would have understood that a consumer’s request to stream a media content item is in fact a request to “evaluate streaming” the media content item—i.e., a request from the consumer to first view a media content item to determine whether he or she wishes to consummate the

transaction and actually stream the content. Accordingly, Peled's client devices "generate a [] request ... to evaluate streaming a first media content item to the device."

5. **[1D]: "identify the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation;"**

380. The combination of Peled and Pou discloses "identify[ing] the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation."

381. At the outset, a POSA would have understood that Peled discloses "identifying" requested media content items, generally, because there would be no way to provide a consumer with the requested item without first identifying that which the consumer has requested. Indeed, Peled expressly states that its system "independently analyz[es] content requests" for that purpose. EX1003, ¶158. In particular, Peled's server accesses requested media content from different holding sites that are known to hold the content. Peled explains that, to fulfill a consumer's

request for media content, Peled's server "knows where content is located around the Internet and is able to instruct such locations to supply content to consumers in accordance with its directions." *Id.*, ¶173; *see also id.*, ¶¶80, 94, 111, 158-60, 182. In order to know which holding sites from which to request the content, Peled's server identifies the requested media content item.

382. A POSA would have understood that a well-known way to uniquely identify content would be using ***fingerprints*** as described in Pou. *See* Section V.B. As shown in Figure 1 below, Pou describes an algorithm by which multimedia files such as music, movies, books, and other works are "examined using file identification software in an attempt to ***identify*** the file" (step 110). EX1005, FIG. 1, ¶¶13, 51, 42, 64, 82.

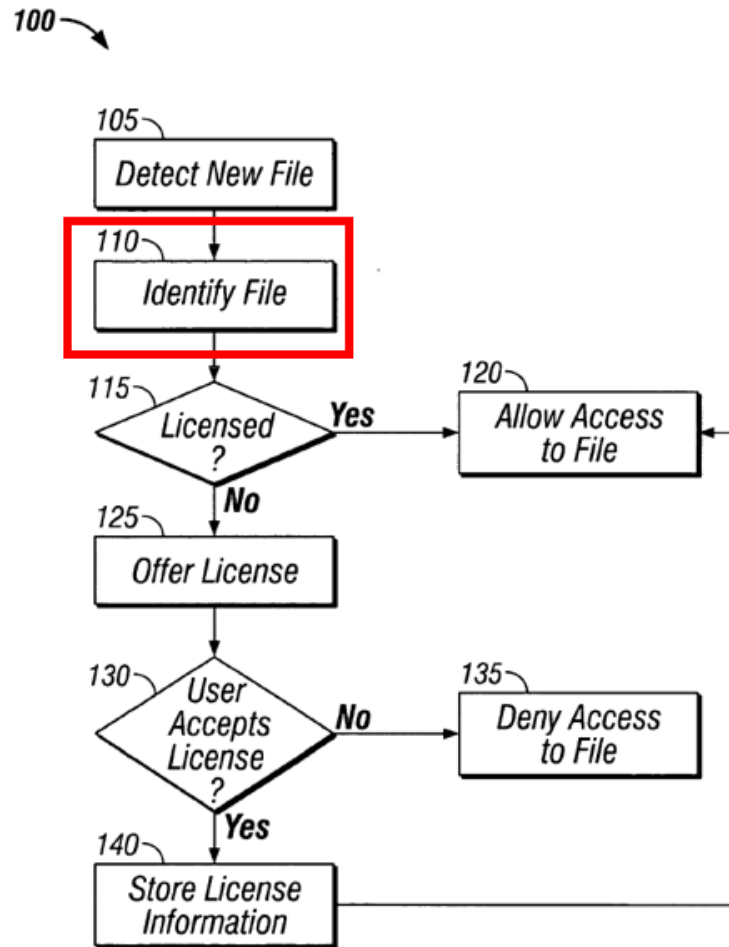


FIG. 1

EX1005, FIG. 1 (annotated).

383. Pou explains that its software can use “watermarking and ***fingerprinting*** techniques,” which Pou emphasizes were “known in the field of digital rights management.” *Id.*, ¶54.

384. In particular, Pou explains that its software can extract from a file “a digital fingerprint” that embodies the “internal attributes” of the file and “compare[] the extracted fingerprint to a database of known works.” *Id.*, ¶¶13, 51, 54, 82. A

POSA would have understood that Pou’s fingerprinting algorithm discloses the claimed step of “identifying the media content item by determining a media fingerprint.”

385. A POSA would likewise have understood that Pou’s fingerprints “identif[y] a ... unique characteristic inherently present in the ... media content item captured during recorded creation of the ... media content item, and excluding information introduced to the ... media content item extraneous to the recorded creation,” as required by the claim. While the ’154 patent specification and file history shed little light on what “information introduced to the first media content item extraneous to the recorded creation” encompasses, the patent indicates that the fingerprint must embody inherent properties of the media content—i.e., not data that is inserted into the media file post-creation—so as to allow the system to distinguish between multiple versions of content and to ensure that the system can accurately identify content even if it has been remastered or modified. EX1001, 4:26-31, 9:17-21. In particular, the ’154 patent describes using fingerprints that embody characteristics “***inherently present*** in the media content item such that the media content item is not remastered to include the identifying characteristic after the media content item is initially recorded,” so that the fingerprints can “identif[y] a media content item, ***even considering the possibility of different versions*** of the same media content item.” *Id.*, 4:26-31, 9:17-21. The patent refers specifically to

using fingerprints to distinguish between “a live version and a studio version” of a song. *Id.*, 9:21-24.

386. Pou discloses this same feature using almost identical language. Pou makes clear that its fingerprints are based on “**implicit characteristics**” of a media content item, and thus “allow[s] for accurate identification of the file **even if someone has attempted to disguise the file** (e.g., by changing the file name, extensions, or other attributes).” EX1005, ¶¶53-54. Pou also incorporates by reference Wells, which likewise describes various algorithms known in 2002 for identifying sound recordings using fingerprints. *Id.*, ¶51. Similar to Pou, Wells explains that fingerprints are derived from “**intrinsic properties of**” digital content and are advantageous because “**nothing is added**” to the media content item—e.g., after the content has been recorded. EX1049, ¶19. Further, in describing its fingerprinting algorithm, Pou also incorporates by reference U.S. Patent Application Publication No. 2003/0028796 to Roberts et al., which states that fingerprints can be used with other information to “differentiat[e] **between live and studio versions of the same song.**” EX1063, ¶46. Given that this collective disclosure matches how the ’154 patent itself describes its fingerprinting algorithm, a POSA would have understood that Pou’s fingerprints “identif[y] a ... unique characteristic inherently present in the ... media content item captured during recorded creation of the ... media content item, and excluding information introduced to the ... media content

item extraneous to the recorded creation.” And, indeed, Pou’s disclosure is consistent with the way Shazam has used fingerprints since 2002 to accurately identify songs based on short samples thereof. These techniques relied on analyzing unique characteristics that are inherently present in the media content. See Section V.B.

387. Pou explains that the identification step can occur at a user device. EX1005, ¶57 (user device 205 “may monitor files and other data that pass through the I/O port 225 for purposes of identifying protected (e.g., copyrighted) music, video, software, or other files”). For example, at steps 105 and 110 of Figure 1, Pou describes detecting a loaded file and then identifying the file. *Id.*, ¶51. Pou’s user device “extracts a digital fingerprint from a digital file and compares the extracted fingerprint to a database of known works.” *Id.*

388. A POSA would have been motivated to implement Pou’s fingerprinting identification algorithm in Peled’s consumer devices to permit the devices to easily and efficiently identify media content, and ultimately to determine whether the consumer is licensed to stream the content. As I explained above, digital fingerprints were well known and often used precisely for this purpose in content distribution systems such as Peled’s. See Sections V.B, XI.A. A POSA would have been motivated to use Pou’s fingerprints in particular because they are based on intrinsic properties of digital content and thus “allow for accurate identification of the file

even if someone has attempted to disguise the file (e.g., by changing the file name, extensions, or other attributes).” EX1005, ¶¶53-54. This feature would advantageously permit Peled’s consumer devices to differentiate among different versions of media content with ease.

389. Thus, the combination of Peled and Pou discloses “identify[ing] the first media content item by determining a first media fingerprint that identifies a first unique characteristic inherently present in the first media content item captured during the recorded creation of the first media content item, and excluding information introduced to the first media content item extraneous to the recorded creation.”

6. [1E]: “extract first user data specific to the user when the user accepts to stream the first media content item;”

390. Peled discloses “extract[ing] first user data specific to the user when the user accepts to stream the first media content item.” In particular, Peled describes obtaining user data for use in targeted marketing. EX1003, ¶¶1-2, 169, 172, 175-77, 186. Among the different types of data that Peled’s server collects is demographic data specific to the user making the request. Indeed, Peled refers to collecting “**geographical factors**” related to the consumer, as well as “**personal data**” of the consumer, including the consumer’s age. *Id.*, ¶¶56-57, 74, 169-70, claims 31-32, 45-46, 128-29, 142-43. Peled provides several examples of such data being collected. In one example, Peled’s system discerns that a consumer requesting a movie is

“locat[ed] in Italy,” and in another, the system discerns that a consumer “has a history of requesting movies at a given price.” *Id.*, ¶¶176-77. In both of these examples, Peled’s system obtains “data specific to” the consumer making the request. A POSA would have understood, moreover, that by obtaining such data, Peled’s system “extracts” the data.

391. While Peled describes gathering such data primarily for consumers who have declined to stream content (as I discuss below with reference to claim element [1H]), a POSA would have understood that this technique would have been equally applicable to situations where a user has accepted to stream content. In fact, Peled explicitly describes analyzing “personal” data corresponding to “***approved purchase requests.***” *Id.*, ¶¶2, 177. Likewise, Peled describes gathering “information about content that was ***actually sold.***” *Id.*, ¶199. A POSA would have understood this disclosure to describe Peled’s system extracting user data even when a user accepts to stream a media content item. *See* Section XI.B.4 (discussing streaming).

392. Notably, because the user data is collected when the consumer makes a purchase, a POSA would have understood and it would have been obvious that the processor within the consumer’s client device issues the commands that ultimately cause the data to be collected. In particular, the processor within the client device transmits a request to Peled’s system to purchase the requested media content item and to extract data associated with the consumer. That Peled’s server is the system

that actually performs the extraction step does not negate the fact that the execution of that step originates with the client device's (i.e., the claimed "multimedia hardware device's") processor, as the claim element requires.

393. Further, a POSA would have found it obvious for the extraction to be performed at the user's client device. At the outset, Peled explains that its system "is not limited in its application to the details of construction and the arrangement of the components set forth" in its disclosure and figures, and that "other embodiments" are possible and the system can be "carried out in various ways." EX1003, ¶¶156, 201.

394. Further, data associated with the consumer already resides on the consumer's client device, and so it would be trivial for the device to extract such data when the user accepts to stream content. Performing the extraction step on the client's device, moreover, would advantageously ensure that the consumer's personally identifying information is not sent to Peled's server, thus protecting the consumer's sensitive data. Indeed, Peled itself states that protecting consumer data is important. *See, e.g., id.*, ¶¶161 (stating that Peled's activity reports are preferably generated "in such a way as not to interfere with the privacy of individual consumers"), 187 (stating that "the identity and the details of the[] consumer" are subject to "privacy concerns"), 191 (explaining that in some embodiments, the interface "is able to protect consumer confidentiality and its use does not give rise

to privacy concerns”).

395. Likewise, performing the extraction step on the client’s device would advantageously ensure that Peled’s statistics can be generated even when the user’s device is offline and thus cannot communicate with Peled’s server. Indeed, in many types of software applications, it was common for software installed on a user’s computer or set-top box to collect user data and to package the data so that it would be ready for transmission if and when the user reconnects to the Internet. Section IX.B.6.

396. Further, performing the extraction step on the client device would be useful for distinguishing between multiple users who use the same device (e.g., a husband and wife). That way, if and when the server receives the user data for a particular device, the data is already separated on a per-user basis for that device. *Id.* This, too, was common practice. Indeed, Pou explains, for example, that user information can be stored in a “local database specific to the user on a user device [] that may be shared by multiple users.” EX1005, ¶88.

397. Finally, extracting data on the client device would be useful for Peled’s system to make media content recommendations among content items stored locally on the user’s client device.

398. Thus, Peled discloses “extract[ing] first user data specific to the user when the user accepts to stream the first media content item.”

7. [1F]: “generate a second request from the user to evaluate streaming a second media content item to the device;”

399. Peled discloses “generat[ing] a second request from the user to evaluate streaming a second media content item to the device.” As explained above with reference to claim element [1C], Peled discloses its client devices generating requests to evaluate streaming media content items to the devices. See Section XI.B.4. A POSA would have understood, moreover, that Peled’s system can be used to stream multiple media content items rather than just a single item. Indeed, Peled states that its system can “provide *different content items* from different data holding sites to fulfill a single request.” EX1003, ¶¶14, 23, 80, 94, 111. Peled also states that its system offers “*a range of content items* to consumers.” *Id.*, ¶¶28, 159, 167-68.

400. A POSA would have understood from this disclosure that a single consumer could request multiple media content items. And, as explained with reference to claim element [1C], each such request is generated by a processor within the consumer’s client device. See Section XI.B.4.

401. Thus, Peled discloses “generat[ing] a second request from the user to evaluate streaming a second media content item to the device.”

8. [1G]: “identify the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding

**information introduced to the second media content item
extraneous to the recorded creation;”**

402. The combination of Peled and Pou discloses “identify[ing] the second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation.” As I explained above with reference to claim element [1D], Pou discloses identifying a media content item by determining a media fingerprint that identifies a unique characteristic inherently present in the item. *See* Section XI.B.5.

403. A POSA would have understood, moreover, that Pou’s identification algorithm could be used to identify multiple media content items—based on their respective fingerprints—rather than just a single item. Indeed, as I explained above with reference to claim element [1D], Pou describes its fingerprinting algorithm in the context of media content distribution, generally, and states that the algorithm “can be used to recognize” multiple media “files.” EX1005, Abstract; Section XI.B.5. For the reasons I explained above, a POSA would have been motivated to implement Pou’s fingerprinting techniques in Peled’s consumer devices. *See* Sections V.B, XI.B.5.

404. Thus, the combination of Peled and Pou discloses “identify[ing] the

second media content item by determining a second media fingerprint that identifies a second unique characteristic inherently present in the second media content item captured during the recorded creation of the second media content item, and excluding information introduced to the second media content item extraneous to the recorded creation.”

9. [1H]: “extract second user data specific to the user when the user declines to stream the second media content item;”

405. Peled discloses “extract[ing] second user data specific to the user when the user declines to stream the second media content item.” As I explained above with reference to claim element [1E], Peled’s system extracts data specific to a consumer—such geographical location and age—when the consumer accepts to stream media content. See Section XI.B.6. Peled also builds upon the conventional process by extracting such data when a consumer **declines** to stream media content. EX1003, ¶¶155, 169, 175-77, 186.

406. For example, Peled explains that its “system further provides the ability to study online requests for content or for products and services in general, **in particular for online requests that do not result in a sale**, for the purpose of providing content providers with information about potential new markets that are currently being excluded and also to provide consumers with acceptable alternatives.” *Id.*, ¶155. In particular, Peled describes extracting user data when the user **implicitly** declines to stream content—e.g., “where a consumer simply looks at

a content item but then chooses not to buy it.” *Id.*, ¶¶185-86. Peled likewise describes extracting such data when the user ***explicitly*** declines to stream content—e.g., where a user “made a purchase attempt” but then aborted the attempt. *Id.*

407. Indeed, Peled describes several examples of extracting user data based on a user declining to stream content. In one example, an Italian-speaking consumer requests a movie from an American-based company only to discover that the movie is in English and does not have subtitles. The consumer thus “declines to complete the transaction.” *Id.*, ¶176. Peled’s system notes the refusal and extracts from the consumer’s profile his or her “location in Italy.” *Id.* In another example, a consumer “makes a request for a movie ... but then does not complete the transaction.” *Id.*, ¶177. Peled’s system again notes the refusal and extracts the user’s “history of requesting movies at a given price.” *Id.*

408. By tracking this information, Peled’s system can determine the reason why the requested media content item was declined:

For example, the consumer may be interested in a content item, but then stops browsing. He may, had he continued, have made a purchase attempt but for some reason he stopped. Possible reasons include his observation that the request would have been refused because of ***his age or because of his geographical location. Likewise he may have stopped because of unacceptable consequences such as high price, revealing of personal information,***

security restrictions, functional restrictions etc. or simply because he did not have a credit card.

Id., ¶186. This disclosure makes clear that Peled “extract[s] ... user data specific to [a] user when the second user declines to stream [a] media content item.”

409. And, as I also explained above with reference to claim element [1E], the execution of the extraction step necessarily originates with the client device’s (i.e., the claimed “multimedia hardware device’s”) processor, as the claim element requires. *See* Section XI.B.6. As I also explained above, a POSA would have found it obvious to perform the extraction on the user’s client device in light of Peled’s disclosure described above. *See* Section XI.B.6.

410. Thus, Peled discloses “extract[ing] second user data specific to the user when the user declines to stream the second media content item.”

10. [1I]: “aggregate the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data; and”

411. Peled discloses “aggregat[ing] the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data.” In particular, Peled describes “*aggregat[ing]*” information that its system gathers, including “personal data of the

individual consumers,” such as the data I described above with reference to claim element [1E]—i.e., user geographical location and age. EX1003, ¶¶169, 199; Section XI.B.6. The aggregated information is combined into “profiles,” which correspond to the claimed “statistics records.” EX1003, ¶¶169, 172, 175-77, 180. Each such profile is specific to the consumer for which it belongs and summarizes the user data belonging to that consumer.

412. For example, Peled describes tracking “profiles of individual consumers or groups of consumers” along with “refusal information.” *Id.*, ¶169. Peled additionally describes “analyzing user profiles of users who are refused content [to] reveal user groups who are interested in accessing the content.” *Id.*, ¶172. Additionally, “[i]ndividual requests may be analyzed in the light of other requests and in the light of ***a personal profile of an individual consumer*** if available.” *Id.*, ¶180. A POSA would have understood, moreover, that different profiles could be compiled for each media content item a user requests. *See id.*, ¶183 (noting that collected data can be provided into reports “on a per content item basis”). In this manner, Peled describes building personal profiles corresponding to consumers, and discloses aggregating first and second user data into a first and second statistics records respectively.

413. And, as I explained above with respect to elements [1E] and [1H], Peled extracts user profile information when a consumer both accepts ***and*** declines to

stream content in order to inform marketing decisions. *See* Sections XI.B.6, XI.B.9; EX1003, ¶¶1-2, 176-77. A POSA would have understood, therefore, that Peled aggregates data in both instances.

414. Notably, the '154 patent nowhere describes the aggregating step occurring on a user's multimedia hardware device. Rather, the patent exclusively describes the step occurring on the licensing system. *See, e.g.*, EX1001, 11:63-65 (referring to the licensing system "dynamically aggregat[ing] the transaction records in relation to one or more fields of information included in each transaction record"), FIG. 7. Nevertheless, to the extent this claim element is read to require that the aggregation be performed at the user's client device, a POSA would have found it obvious to do so in light of Peled's disclosure described above. In particular, as I explained above with reference to claim elements [1E] and [1H], Peled's client devices already contain the extracted user data, and it would have been trivial to aggregate such data at the devices themselves, particularly with respect to a single user. Doing so, moreover, would advantageously ensure that the consumer's personally identifying information is not sent to Peled's server, thus protecting the user's sensitive data. *See* Sections XI.B.6, XI.B.9. As also explained, aggregating user data on the client device would ensure that Peled's statistics data can be generated even when the user's device is offline and thus cannot communicate with Peled's server. *See id.* Still further, performing the aggregating step on the user's

client device would be useful for compiling statistics for multiple users who use the same device (e.g., a husband and wife), even when data for other users' devices is unavailable, as well as to generate recommendations for users among media content locally stored on the users' device(s). *See id.*

415. Thus, Peled discloses “aggregat[ing] the extracted first user data into a first statistics record and the extracted second user data into a second statistics record, wherein the first statistics record summarizes the first user data and the second statistics record summarizes the second user data.”

11. [1J]: “transmit to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer for”

416. Peled discloses “transmit[ting] to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer.” At the outset, I note that this limitation does not require the database to reside on the user's client device. Indeed, the '154 patent itself notes that the statistics records are stored in a “licensing statistics database 92” in the licensing system. EX1001, 7:61-64; FIG. 2.

417. Peled states that the aggregated user data is stored in “database” 31 located on Peled's server, as shown in Figure 6. EX1003, ¶¶169-170.

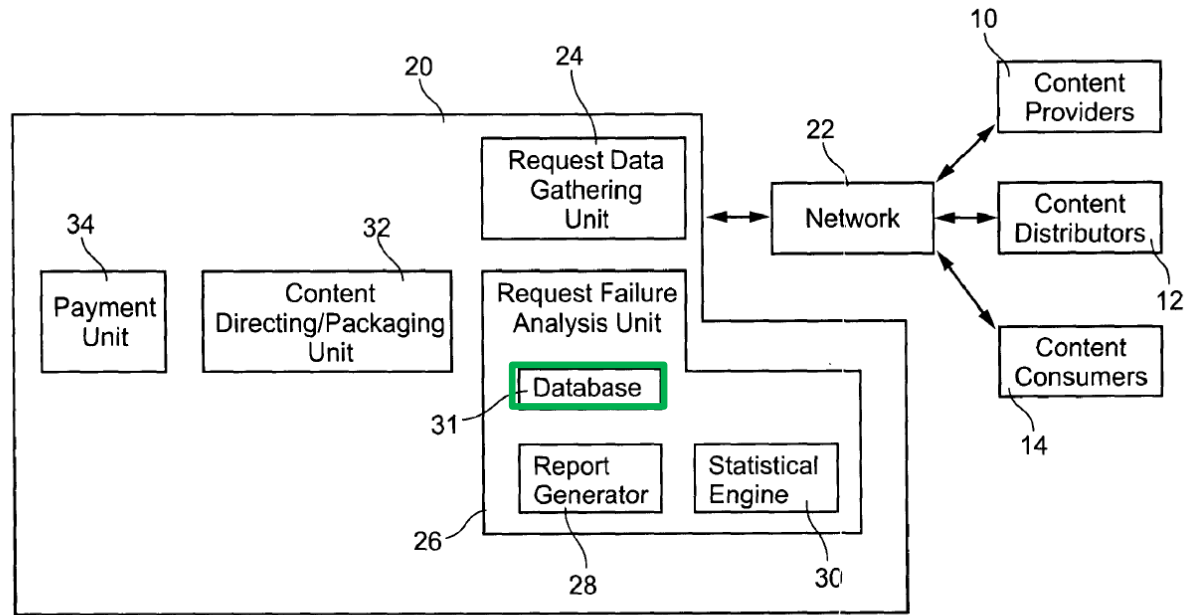


Fig. 6

418.

EX1003, FIG. 6 (annotated).

419. Specifically, Peled explains that:

The refusal analysis unit preferably includes a **database 31**. The database preferably includes at least data of refusals being considered. In addition **it may include profiles of individual consumers or groups of consumers and additional data which can be used together with the profiles or with the refusal information**. The kind of data that may be taken into account in the analysis typically includes geographical factors, temporal market data, pricing factors, **personal data of the individual consumers**, personal data of a statistically constructed group of consumers to whom the individual consumer is believed to belong, the state of network infrastructure

operability in the vicinity of a requesting party, and content provider distribution factors.

Id., ¶169.

420. A POSA would have understood and found it obvious that such data could also be stored in a database on the user client devices. Indeed, Peled's consumer devices contain memory, which is required to perform Peled's methods. A POSA would have understood that Peled's statistics records could be stored within a database in such memory.

421. A POSA would have also understood and it would have been obvious that, in order to store the statistics records in a database, the records are "transmit[ted]" to the database, as the claim element requires. In other words, the claimed statistics records are transmitted to the claimed database and stored there.

422. Further, a POSA would have found it obvious to transmit not only the statistics records themselves, but also "the identities of the first and second media content items determined by the first and second media fingerprints." Indeed, as explained in more detail below with reference to claim elements [1L] and [1M], the entire purpose for aggregating and storing such data in Peled's system is to use the data to generate activity reports that summarize demographic information related to consumers who express a preference in particular media content items. *See* Sections XI.B.13-14. The data itself would be meaningless if it were not associated with the

media content items the data purports to describe. Thus, to fulfil Peled's goal of facilitating targeted marketing, a POSA would have understood and it would have been obvious that the claimed statistics records are transmitted to a database and stored along with the identities of the media content items. And, as described above with reference to claim elements [1D] and [1G], those identities are determined based on the media content items' fingerprints. *See* Sections XI.B.5, XI.B.8.

423. Peled's profiles, moreover, are "accessible to ... third party online retailers," as required by the claim. In particular, as I explain below in greater detail with reference to claim element [1L], Peled states that its profiles are used to generate reports that summarize the user profile data. EX1003, ¶¶56, 169; *see* Section XI.B.13. Those reports, in turn, are "provided ... to individual content providers" or any "party requesting the report." *Id.*, ¶¶168, 183; *see also id.*, ¶¶155, 168-69, 172, 177, 187, 196, 199-200 (stating that content providers can be provided with statistical information regarding consumers). Specifically, Peled explains that reports may be provided "on a content provider basis, or ***on a per distributor basis.***" *Id.*, ¶183. Peled uses the term "distributor" or "content distributors 12" as depicted in Figure 6 to refer to third party online retailers. *Id.*, ¶166.

424. Specifically, as depicted in Figure 1, Peled discloses "content retailers RT1 ... RTn" (i.e., the claimed "third party online retailer"). *Id.*, ¶157.

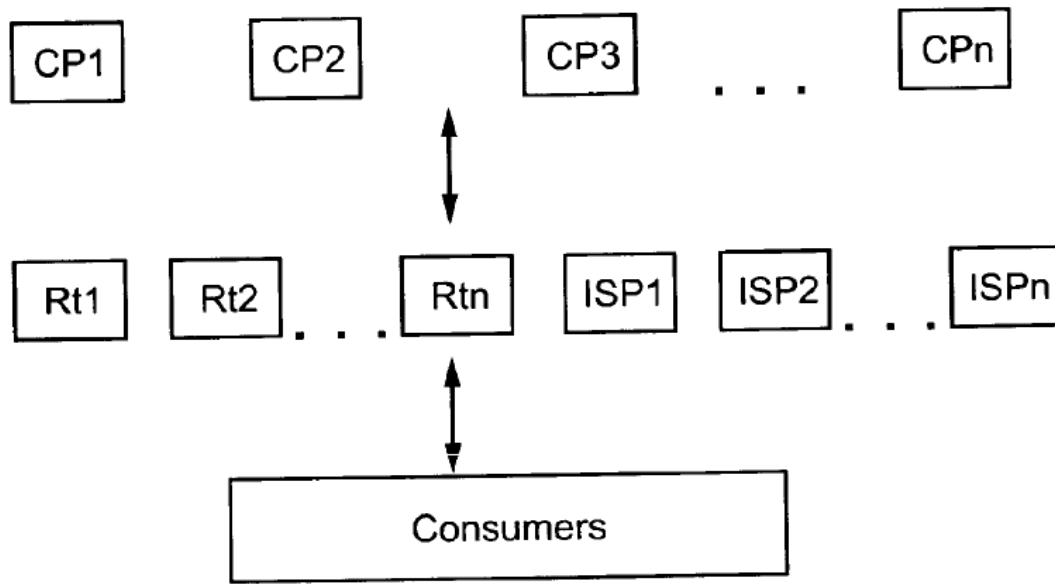


Fig. 1

EX1003, FIG. 1.

425. Peled additionally depicts these content retailers in Figure 2, which treats retailers as a unified layer with the identifier “12.” *Id.*, ¶158.

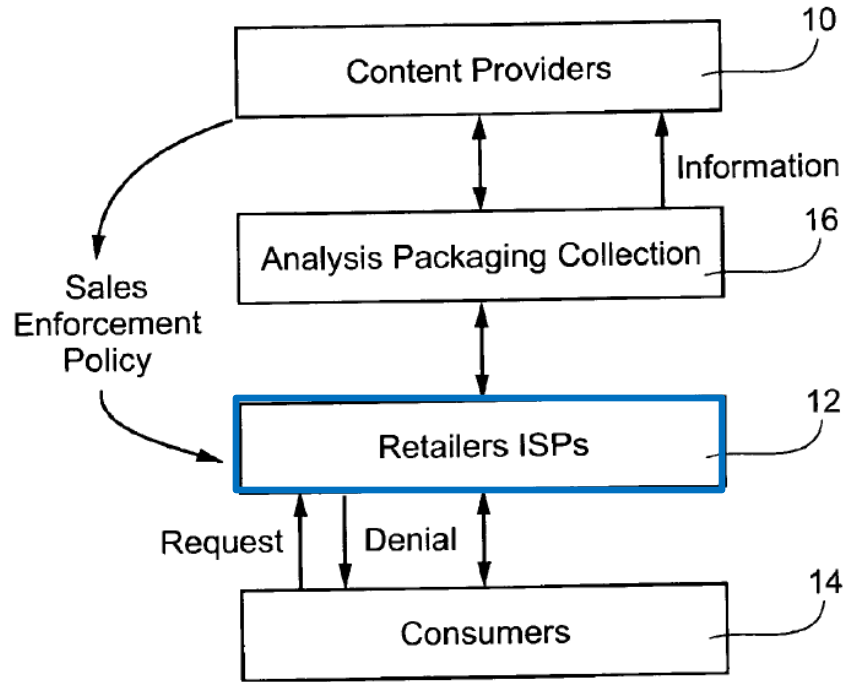


Fig. 2

EX1003, FIG. 2 (annotated).

426. Additionally, Peled uses the term “distributor” or “content distributors 12” as depicted in Figure 6 to refer to retailers as well. *Id.*, ¶166. Peled refers to both retailers and content distributors with the same identifier “12.” *Id.*, ¶¶158, 166. And, in fact, Peled refers specifically to “**content retailers**” who make content available to consumers “via the Internet.” *Id.*, ¶157.

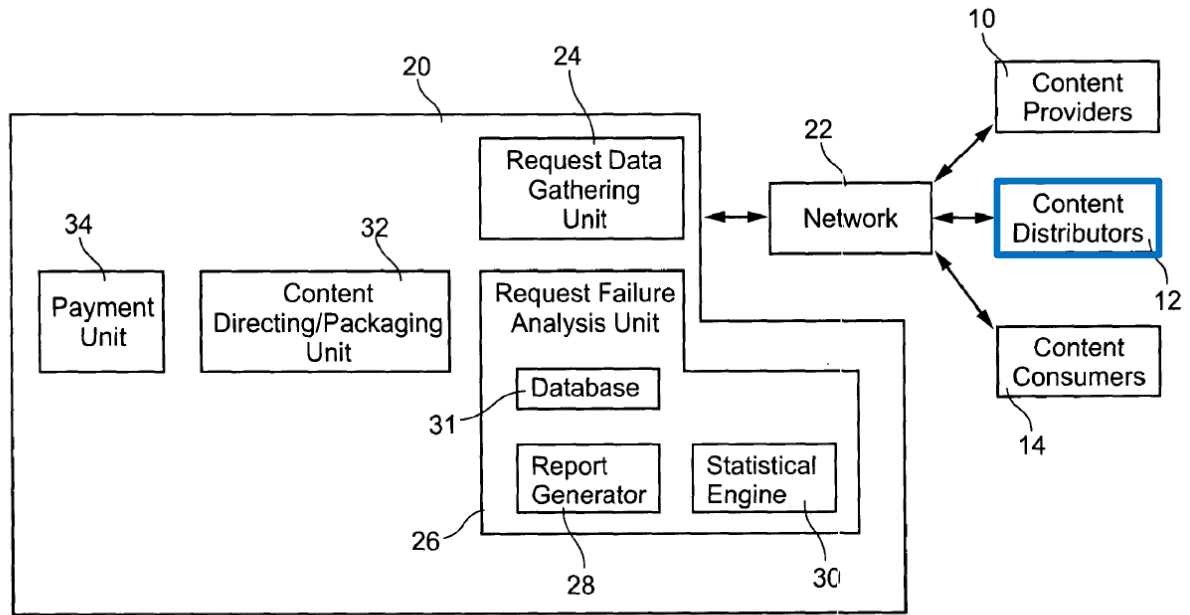


Fig. 6

EX1003, FIG. 6 (annotated).

427. In view of this description, Peled interchangeably refers to content distributors as content retailers. Peled explains that its reports are also available for these distributors or retailers as well because they may be distributed “on a per distributor basis” and are “provided over the network to the party requesting the report.” *Id.*, ¶183.

428. Thus, Peled discloses “transmit[ting] to a database the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints so that the summarized first and second user data is accessible to a third party online retailer.”

12. [1K]: “retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints,”

429. The combination of Peled and Pou discloses “retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints.” Notably, the claim element does not require the retrieving step to be performed by the user’s multimedia hardware device. Rather, the retrieving step describes the intended use of the statistics records transmitted to a database in the previously recited step. And, to the extent the claim element requires the *actual* retrieval of data, the element is agnostic as to who or what system does the retrieving. As explained below, Peled and Pou disclose the limitation.

430. As I explained above with reference to claim element [1J], Peled’s user “profiles” (i.e., the claimed “statistics records”) are stored in a database on its server. See Section XI.B.11. And, as explained above with reference to claim element [1J] (and with reference to claim element [1M] below), Peled makes clear that its profiles are provided to content providers and other interested third parties in the form of reports. See Sections XI.B.11, XI.B.14. A POSA would have understood and it would have been obvious that, in order to provide the reports to such parties, the user profiles are “retrieved” from the database in which they are stored.

431. Further, as I explained above with reference to claim elements [1D] and

[1G], Pou discloses identifying a requested media content item based on the item's fingerprint. See Sections XI.B.5, XI.B.8. Given that Pou's fingerprint corresponds to a unique identifier for a media content item, a POSA would have been motivated to use such a fingerprint to identify a media content item and to retrieve Peled's reports from the database based on that identity for all the reasons I provided above. See Section XI.A.

432. Accordingly, the combination of Peled and Pou discloses "retrieving the first and second statistics record with the identities of the first and second media content items determined by the first and second media fingerprints."

13. [1L]: "analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data, and"

433. Peled discloses "analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data." Notably, the claim element does not require the analyzing step to be performed by the user's multimedia hardware device. Rather, the analyzing step describes the intended use of the statistics records transmitted to a database. And, to the extent the claim element requires the ***actual*** analysis of data, the element is agnostic as to who or what system does the analysis. As explained below, Peled discloses this limitation.

434. As I previously explained, Peled describes building profiles for one or

more users:

Individual requests may be *analyzed in the light of other requests and in the light of a personal profile of an individual consumer* if available, *or of a profile of a group* to which the consumer is deemed to belong or to other information that may be available.

EX1003, ¶180; Section XI.B.10.

435. Peled's database 31 stores the user profile information for one or more consumers: database 31 "*may include profiles of individual consumers or groups of consumers* and additional data which can be used together with the profiles or with the refusal information." EX1003, ¶169. As I previously explained, database 31 stores demographic data including "geographical factors," "personal data of the individual consumers, [or] personal data of a statistically constructed group of consumers." *Id.* Peled analyzes the stored user data when generating reports for content providers. *Id.*, ¶¶169, 183. "[A]*nalysis* results may be made available on a global basis and may be provided in the form of reports to individual content providers." *Id.*, ¶168. These reports provide content providers with "statistical information regarding individual content or different content items from a given content source." *Id.* Peled performs a "statistical *analysis*" of the user data to generate a report and provides the report to a requesting party. *Id.*, ¶183. Peled also allows content providers to query the data for a particular analysis such as "[A]t what

price and restrictions if at all a user of profile X can acquire content Y?” *Id.*, ¶187.

436. In other words, the reports “***reveal an otherwise hidden demand for products and/or services in segments that a company is not selling to or serving at a given time, or may reveal a hidden demand or preferences for products and/or services that a company can supply, provided that a change is made to the product as currently on offer.***” *Id.*, ¶196. This, in turn, enables content providers and retailers “to ***focus marketing efforts on potential market segments (both for the relevant content and for similar content items).***” *Id.*, ¶200. Peled makes clear that such segments include the “***type of buyers and their characteristics, and more.***” *Id.*

437. Importantly, as I explained above with reference to claim elements [1E] and [1H], Peled describes not only a demographic of individuals who accept to stream content, but also a demographic of individuals who decline to do so. See Section XI.B.6, XI.B.9. Peled also explains that aggregated data can be used to generate reports “on a per content item basis.” EX1003, ¶183. A POSA would have understood that Peled’s reports are analyzed to “target demographic of the media content item” based on a user who has both accepted to stream and declined to stream media content items.

438. This is similar to, but even more detailed than, the ’154 patent’s own disclosure. The patent does not describe the claimed “analyzing” step at all and instead merely notes that its system aggregates transaction records in order to

“generate a statistics report” that provides “valuable licensing and statistics data for media content items for particular demographics of users, genres of media content items, and/or other such categories.” EX1001, 11:63-12:26.

439. A POSA would have understood that Peled’s aggregated user data can be used to determine a target demographic for two separate media content items rather than for just a single item. In particular, a single report for each media content item may be generated, or a single report for both content items may be generated. See EX1003, ¶183 (explaining that aggregated data is provided into reports “either on a per content item basis, or on a content provider basis, or on a per distributor basis”). From this disclosure, as well as Peled’s disclosure described above with reference to claim elements [1E] and [1H], a POSA would have understood that Peled’s platform statistics may be analyzed to determine a target demographic based on data of a consumer who accepts to stream one media content item and declines to stream another media content item. See Sections XI.B.6, XI.B.9.

440. Thus, Peled discloses “analyzing the retrieved first and second statistics record to determine a target demographic of the first and second media content items based on a demographic corresponding to the first and second user data.”

14. [1M]: “providing the third party online retail[er] the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.”

441. Peled discloses “providing the third party online retail[er] the target

demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.” Notably, the claim element does not require the providing step to be performed by the user’s multimedia hardware device. Rather, the providing step describes the intended use of the statistics records transmitted to a database. And, to the extent the claim element requires the **actual** provision of a target demographic, the element is agnostic as to who or what system provides such information. As explained below, Peled discloses the limitation.

442. Peled describes “providing” reports to content providers and third parties, such as content distributors over the Internet. EX1003, ¶¶93, 96, 110, 127, 177, 183. And the target demographic data is provided in those reports, either on a per content item basis, or on a content provider basis, **or on a per distributor basis.**” *Id.*, ¶183. As I explained above with reference to claim element [1J], Peled’s third-party content distributors disclose third-party online retailers. *See* Section XI.B.11.

443. And, as discussed above with reference to claim element [1L], the reports contain target demographic information and may be used by the requesting party to engage in targeted marketing of that demographic. *See* Section XI.B.13. In particular, Peled explains that its reports are analyzed to enable requesting parties “to **focus marketing efforts on potential market segments (both for the relevant content and for similar content items).**” EX1003, ¶200. And, again, Peled makes

clear that such segments include the “***type of buyers and their characteristics, and more.***” *Id.*, ¶196. This information comprises a “target demographic” for the media content item.

444. In this regard, I again note that Peled’s disclosure is similar to the ’154 patent’s, which states that “the system may transmit the statistics report to the third party over the communication network” to facilitate targeted marketing. EX1001, 12:15-26; *see also id.*, 5:35-38 (“The data provided to retailers system 20 may also be used to help third party online media retailers target the marketing of the media content item to demographics that have shown a trend of interest in the media content item.”).

445. Notably, this claim element refers to marketing “the” media content item to a plurality of other users, without specifying which of the two media content items (the “accepted” item and the “declined” item) is to be marketed. Nevertheless, Peled’s reports convey demographic data of users who do and do not express interest in particular media content items, and that information is used by third parties to market both of those items (and other items).

446. Thus, Peled discloses “providing the third party online retail[er] the target demographic to market the media content item to a plurality of other users corresponding to the target demographic of the media content item.”

C. Claim 2

447. Claim 2 recites:

The device of claim 1, wherein the first media content item is ***a first version of an audiovisual work*** and the second media content item is ***a second version of the audiovisual work***.

448. The combination of Peled and Pou discloses claim 2. As I explained above with respect to claim element [1C], Peled's system allows consumers to request and stream different types of digital media content, including movies, which are types of audiovisual works. *See* Section XI.B.4; EX1003, ¶¶7, 158, 175-77.

449. A POSA would have understood, moreover, that a consumer could request different versions of an audiovisual work. Indeed, Peled expressly refers to multiple versions of movies, stating that its system can distribute original versions as well as "lower resolution or edited versions of the movie." *Id.*, ¶158; *see also id.*, ¶175 (describing an example in which a consumer is offered "an edited version of [a] movie which is suitable for all ages"). Peled likewise refers to versions of movies from foreign content providers containing subtitles for non-English speaking consumers. *Id.*, ¶176. From this disclosure, a POSA would have understood that Peled's consumers could request different versions of media content, including audiovisual works. A POSA would have understood, therefore, that the first and second media content items recited in claim 1 could be first and second versions of

an audiovisual work.

450. Thus, the combination of Peled and Pou discloses claim 2.

D. Claim 4

451. Claim 4 recites:

The device of claim 2, wherein the ***first version is a live version*** of the audiovisual work and the ***second version is a studio version of the audiovisual work***.

452. The combination of Peled and Pou discloses claim 4. While Peled does not expressly refer to “live” and “studio” versions of audiovisual works, it does refer to streaming multiple versions of movies, including “lower resolution or edited versions of the movie,” as well as English and foreign-language versions. EX1003, ¶¶158, 175-76. Each of these versions may be subject to different licensing terms.

453. A POSA would have understood that Peled’s disclosure applies with equal force to any versions of an audiovisual work that would require different licenses. This would include, for example, live and studio versions of works, which were well known at the time. And, indeed, Roberts—which is incorporated by reference in Pou, see EX1005, ¶51—explains that fingerprints and unique IDs can be used to distinguish between “live and studio versions of the same song,” EX1063, ¶46, thus evidencing that live and studio versions of media content were known and could be requested by users in digital content distribution systems such as Peled’s. While it is true that Roberts refers to live and studio versions of “songs” instead of

audiovisual works more generally, the '154 patent likewise only refers to live and studio versions of songs. See EX1001, 9:21-24 (“For example, multiple versions of a song are recorded at various times and may be stored as digital music files, such as a live version and a studio version.”).

454. Thus, the combination of Peled and Pou discloses claim 4.

E. Claim 5

455. Claim 5 recites:

The device of claim 2, wherein the ***first version is authorized for streaming*** to the user by a copyright owner of the audiovisual work and the ***second version is unauthorized for streaming*** to the user by the copyright owner of the audiovisual work.

456. The combination of Peled and Pou discloses claim 5. In particular, Peled expressly contemplates that different versions of its digital media content can be authorized or unauthorized for a particular user. With regard to authorized content, as described above with reference to claim element [1C], Peled’s platform distributes digital media content items to users who request them. In those instances, consumers are able to stream the content on their personal devices. For example, Peled describes the ability for consumers to “order content.” EX1003, ¶159. A POSA would have understood, moreover, that the authorization derives from the copyright owner of the requested content, which is the person or entity that has the ability to provide such authorization.

457. With regard to unauthorized content, Peled contemplates that users may not be authorized to stream certain requested content. Indeed, Peled states that its system can be used to analyze “unauthorized content distribution.” *Id.*, ¶¶89, 103, 120, claims 58, 70, 82, 155, 167, 179. Peled also describes different “business rules” and “distribution restrictions” that “are associated with individual content items,” as well as the ability to offer content to users in a manner that “coincides with” those restrictions. *Id.*, ¶¶9, 15-17, 24-25, 32, 81-83, 95-97, 112-14, 140-41, 162; claims 15, 32, 46, 49, 51, 61-63, 73-75, 98-99, 129, 143, 146-48, 158-60, 170-72; *see also id.*, ¶¶57, 75 (discussing “contractual restrictions” that may control a user’s ability to stream or reproduce certain content). These rules and restrictions control the manner in which a user may stream or reproduce content. *See* ¶¶9, 196 (explaining that business rules “enforce[e] restrictions on distribution” of content). Again, a POSA would understand that the lack of authorization derives from the copyright owner of the requested content.

458. Thus, the combination of Peled and Pou discloses claim 5.

F. Claim 6

459. Claim 6 recites:

The device of claim 1, wherein the first media content item is ***a first version of a book in digital format*** and the second media content item is a ***second version of the book in digital format***.

460. The combination of Peled and Pou discloses claim 6. In particular, Peled's system is used generally to distribute any type of multimedia content, including books in digital format, as required by the claims. Indeed, Peled refers generally to electronic media "content," and does not limit the type of content that can be used with its system. Further, Peled specifically refers to "books" in describing the problems inherent in online targeted marketing that its system tries to solve. EX1003, ¶7. From this disclosure, a POSA would have understood that Peled's system likewise distributes books in digital format, or "e-books."

461. Similarly, Pou discloses e-books. Pou states that its fingerprinting and licensing algorithms can be used for "any type of proprietary ***digital files*** including music and other recordings, movies and other video, ***books*** and other written works, and other files." EX1005, ¶42. A POSA would have understood that Pou's digital books—like any other type of digital media content—could be requested by Peled's system. And a POSA would have been motivated to implement Pou's fingerprinting techniques for such content in Peled's system for all the reasons I discussed above. See Section XI.A.

462. Further, as I explained with reference to claim element [1F] and claim 2, a POSA would have understood that Peled's system can be used to request different versions of media content items. See Sections XI.B.7, XI.C. Thus, a POSA would have likewise understood that Peled's system can be used to request different

versions of digital books.

463. Thus, the combination of Peled and Pou discloses claim 6.

G. Claim 7

464. Claim 7 recites:

The device of claim 1, wherein ***the first and second user data includes a geographic location of the user.***

465. The combination of Peled and Pou discloses claim 7. In particular, as I explained above with reference to claim elements [1E], Peled discloses tracking geographic location information as part of the stored demographic user data. See Section XI.B.6; EX1003, ¶¶56, 74, 169, 176, 186, 196. For example, Peled refers to collecting “***geographical factors***” related to the consumer and states that its system can discern that a consumer requesting a movie is “locat[ed] in Italy.” EX1003, ¶¶56, 74, 169, 176, 186, 196, claims 31, 45, 128, 142. Thus, Peled discloses the user data including the geographic location of a user.

466. Accordingly, the combination of Peled and Pou discloses claim 7.

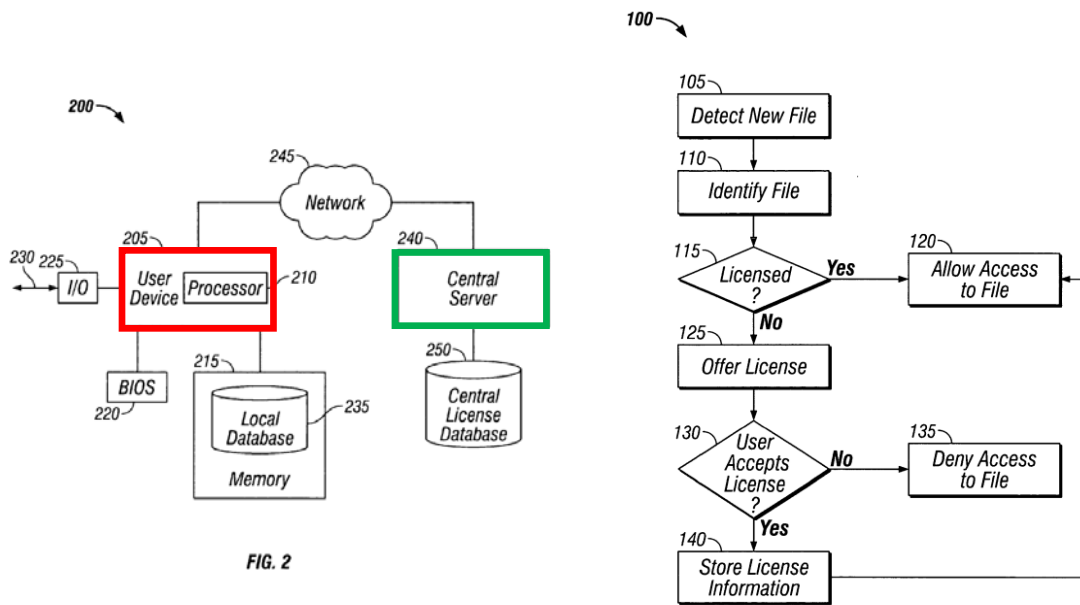
H. Claim 9

467. Claim 9 recites:

The device of claim 1, wherein the processor is further configured to: ***receive a license to stream the first media content item from a licensing system when the request is granted*** by the licensing system; and ***prevent streaming of the first media content item when the request is declined***

by the licensing system.

468. The combination of Peled and Pou discloses claim 9. In particular, Pou discloses a user receiving a license to reproduce a media content item from a licensing system when the user's request to stream the item is granted. As shown in Figure 1, after Pou's system identifies a media content item, it checks a "central license database" located on Pou's "central server" 240 to determine whether the file has been licensed for use by the user (step 115):

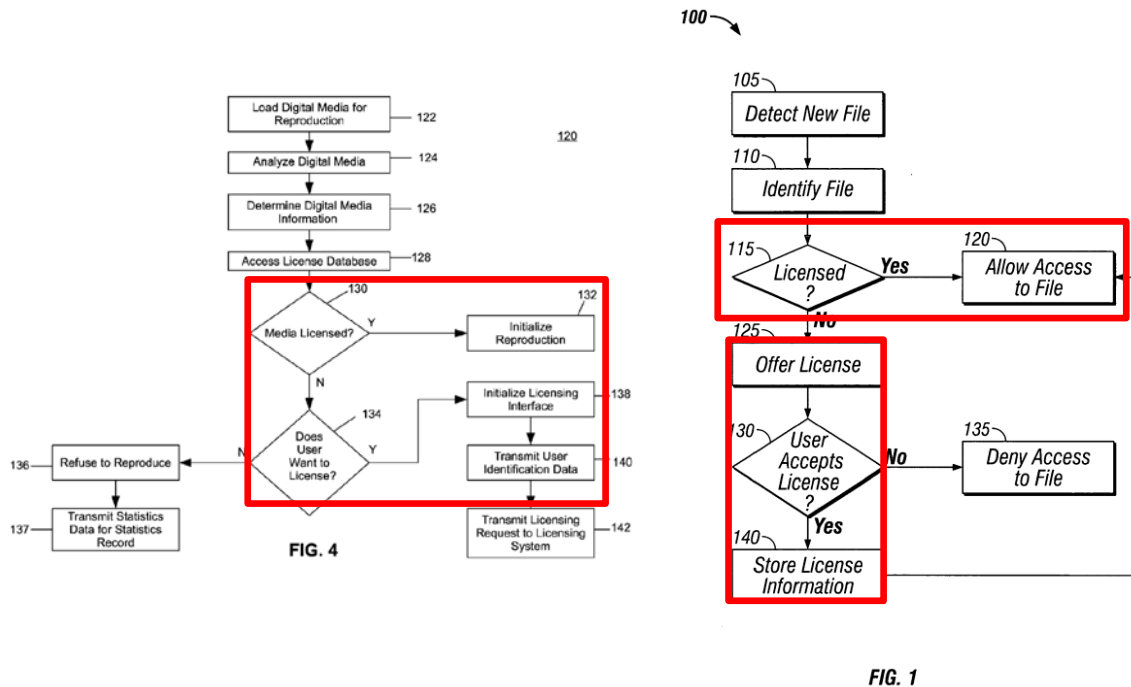


EX1005, FIGs. 1-2 (annotated), ¶¶55, 59, 77, 83.

Pou's central server containing the central license database comprises the claimed "licensing system."

469. If the user is not licensed, he or she may purchase a license (step 130), in which case the user is permitted to reproduce the media content item. *Id.*, ¶¶11,

13, 56, 77-80, 85. In either scenario, the user is allowed to access the media content from Pou's licensing system when the user's request to stream content is granted. See *id.*, ¶¶56, 79. This is similar to what the '154 patent itself describes in Figure 4 and in column 9. The '1541 patent is shown to the left below, while Pou is shown to the right.



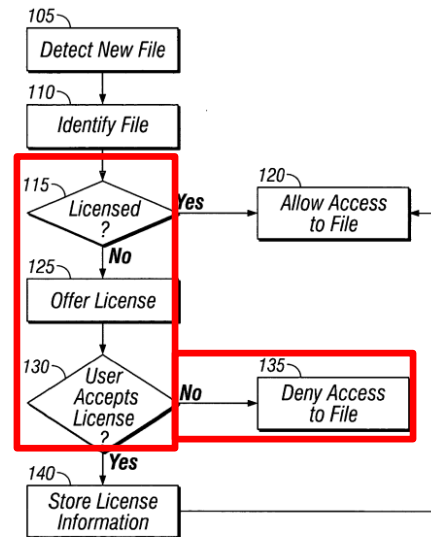
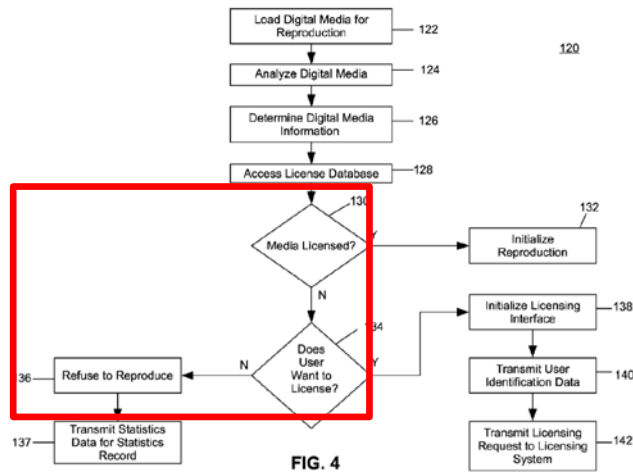
EX1001, FIG. 4 (annotated); EX1005, FIG. 1 (annotated); see also EX1001, 9:33-10:7.

470. Pou explains, moreover, that if the user chooses to purchase a license that is “offered to the user,” the license “is **obtained** from the remote server” and “stored on the user device” such that “access to the media file on the user’s device

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is allowed using the license.” EX1005, ¶¶25-27, 56, 85 (“Assuming payment is successful, license information for the media file may be stored, as appropriate, in a local database and/or a central database.”), 101. This is similar to the ’154 patent’s own description of the licensing and verification system transmitting a license to the user’s “device in response to processing the licensing transaction.” EX1001, 11:5-11:12. Thus, Pou’s disclosure makes clear that the user “receive[s] a license” to stream the media content when the licensing request is granted.

471. Pou also discloses preventing streaming of a media content item when a user’s request to stream content is declined. In particular, Pou explains that, if a user declines to purchase a license—e.g., by clicking on “a decline button in [a] pop-up window”—the user is “denied” access to the file (step 135). *Id.*, ¶¶56, 79-80, 85; *see also id.*, ¶80 (“If the payment fails, the user can enter a different payment method and try again. If the user chooses not to try again or if no payment method offered is validated, the transaction is cancelled and access to the media file is denied.”). Again, this is similar to what the ’154 patent describes (’154 patent on the left; Pou on the right):



EX1001, FIG. 4 (annotated); EX1005, FIG. 1 (annotated); EX1001, 9:33-10:7.

472. Peled also describes declining a request to obtain a license based on business rules as well as to prevent fraud. EX1003, ¶¶175, 187. For example, Peled describes an example where “a movie [is] suitable only for persons aged 18 and over.” *Id.*, ¶175. If a user does not meet this criteria, the received “request is simply refused in the normal way.” *Id.* Additionally, Peled also describes a purchase experience with “denial or pseudo-denial situations, for example due to background monitoring for suspicious situations.” *Id.*, ¶187. Peled explains that a purchase may be denied when “the purchase falls into a pattern of suspected fraud that is currently being investigated by the content provider, or a pattern of money laundering being

investigated by the authorities.” *Id.* In this manner, Peled describes scenarios where a content distribution system refuses to grant a license and prevents streaming of content. These refusals are performed by Peled’s content distribution system which is analogous to and combinable with Pou’s central server. Both systems describe preventing streaming in the same way.

473. A POSA would have been motivated to use Pou’s licensing algorithm in Peled’s system. Indeed, Pou’s algorithm for checking whether a user has already obtained a license to reproduce content would improve the efficiency of Peled’s content distribution system. Peled’s system would more quickly direct licensed content to a consumer when it has determined that the consumer has already purchased a license for the content. Further, using Pou’s licensing features in Peled’s system would allow the system to enforce Peled’s “business rules” and “distribution restrictions” that “are associated with individual content items,” as well as the ability to offer content to users in a manner that “coincides with” those restrictions. *Id.*, ¶¶9, 15-17, 24-25, 32, 81-83, 95-97, 112-14, 140-41, 162, claims 15, 32, 46, 49, 51, 61-63, 73-75, 98-99, 129, 143, 146-48, 158-60, 170-72; *see also id.*, ¶¶57, 75 (discussing “contractual restrictions” that may control a user’s ability to stream or reproduce certain content). These rules and restrictions control the manner in which a user may stream or reproduce content. *See id.*, ¶¶9, 196 (explaining that business rules “enforce[e] restrictions on distribution” of content). Pou’s licensing features—

which prevent unlicensed users from streaming content—would advantageously enable Peled’s system to ensure that it does not distribute content in contravention of such restrictions.

474. Thus, the combination of Peled and Pou discloses claim 9.

I. Claim 10

475. Claim 10 recites:

The device of claim 1, wherein the processor is further configured to ***stream the first media content item based on a plurality of streaming parameters*** included in the license that is received from the licensing system.

476. The combination of Peled and Pou discloses claim 10. At the outset, I note that the ’154 patent specification neither uses the term “parameter” nor provides a definition of “plurality of streaming parameters.” As I have explained in Section V.A.2, a POSA would have understood “streaming parameters” to refer to the terms of a license that provide some type of restriction on the user’s ability to stream a particular media content item. Peled and Pou both disclose different types of reproduction parameters that would have been used in combination and would have disclosed the claimed “plurality of streaming parameters.”

477. Peled describes different “***business rules***” and “***distribution restrictions***” that “are associated with individual content items,” as well as the ability to offer content to users in a manner that “coincides with” those restrictions.

EX1003, ¶¶9, 15-17, 24-25, 32, 81-83, 95-97, 112-14, 140-41, 162; claims 15, 32, 46, 49, 51, 61-63, 73-75, 98-99, 129, 143, 146-48, 158-60, 170-72. As I described above, such rules and restrictions control the manner in which a user may reproduce content, consistent with DRM's goal of enforcing contractual restrictions on the distribution and consumption of content. *See id.*, ¶¶9, 196 (explaining that business rules “enforce[e] restrictions on distribution” of content); *see also id.*, ¶¶57, 75 (discussing “contractual restrictions” that may control a user's ability to stream or reproduce certain content). Peled explains that one example in which a movie may be streamed only by “persons aged 18 and over.” *Id.*, ¶175. Peled explains that, in that scenario, if a requesting user is underage or his age cannot be verified, Peled's system will “offer[] an edited version of the movie which is suitable for all ages.” *Id.* In this manner, Peled describes streaming content based on user age.

478. As another example, one parameter that may affect the price of the license to stream or reproduce a media content item is whether the item is packaged with “additional advertising content.” *Id.*, ¶¶158, 177. Packaging advertising content with a movie may “reduce the price to the consumer” and ultimately alter the terms of the license. *Id.* Additionally, Peled describes offering a “lower resolution or edited versions of the movie” to reduce costs. *Id.*, ¶158; *see also id.*, ¶175. One such version of a movie may include “Italian subtitles.” *Id.*, ¶176. As another example, Peled describes restricting access to certain content based on a user's age or “geographical

location.” *Id.*, ¶186. These examples show instances in which Peled’s system restricts the user’s ability to stream and reproduce content based on licensing terms. Thus, these rules and restrictions are the claimed “streaming” parameters, and Peled discloses streaming content based on those parameters.

479. Likewise, Pou describes several “distribution limitations” set forth in a license that govern a user’s ability to stream and reproduce media content items: “The ***license terms, such as duration, use and distribution limitations***, and payment options, may also be displayed as part of the offer of a license for purchase.” EX1005, ¶56. Pou also discloses “temporary licenses” with an “expiration date/time.” *Id.*, ¶96. And, like Peled, Pou refers to “business rules” for distributing content. *Id.*, ¶44, 65, 83, 103-111. Also like Peled, Pou expressly refers to “streaming” content. *Id.*, ¶¶28, 56, 59-60, 96, 114, claim 69. Pou’s license terms based on duration, use, and distribution limitations likewise disclose a plurality of streaming parameters.

480. Further, a POSA would have understood from this disclosure that the streaming based on the parameters in the license is performed by a processor in the user’s client device. Still further, a POSA would have understood that the streaming parameters described in Peled and Pou could have been used in combination depending on the terms of the license obtained by the consumer.

481. Thus, Peled and Pou each disclose this limitation and, collectively, they

disclose claim 10.

J. Claim 11

482. Claim 11 recites:

The device of claim 1, wherein the processor is further configured to identify a ***first digital watermark included in a first media file*** of the first media content item, and identify a ***second digital watermark included in a second media file*** of the second media content item.

483. The combination of Peled and Pou discloses claim 11. As explained above with reference to claim element [1D], Pou discloses an algorithm by which multimedia files are identified. See Section XI.B.5. Pou explains that this identification can be performed any number of ways, including by using “identification techniques ... such as ***watermarking*** and fingerprinting techniques.” EX1005, ¶54. In particular, Pou states that media content files “can be ***identified using*** implicit characteristics ***of the file*** (e.g., a fingerprint or ***watermark***).” *Id.* A POSA would have understood from this disclosure that Pou discloses identifying a digital watermark in a media file. Also from this disclosure, a POSA likewise would have understood that Pou discloses the ability for a single user’s device to identify multiple watermarks corresponding to multiple media content files.

484. Still further, as I also explained above with reference to claim element [1D], Pou’s watermarking algorithm can occur at Pou’s client device, and it would have been obvious to use that algorithm in Peled’s client devices for all the reasons

I described above. See Section XI.B.5. Using watermarks, in particular, to identify content is particularly advantageous because, as the prior art explains, “the watermark will typically survive end-user recording of the content onto new media or into a new format.” EX1006, ¶47; EX1051, 6 (“A digital watermark may be embedded in almost any kind of digitized visual or audio data, including broadcast data, without perceptibly degrading or interfering with its quality.”). Thus, watermarks “help[] to enforce security features” and “can provide fine-grain usage and quality of content monitoring as well as copy protection.” EX1006, ¶48; EX1051, 6 (“[D]igital watermarks can be an important mechanism for content owners to monitor, audit, and index works in the digital environment. ... Finally, digital watermarks can be used to detect the unauthorized manipulation of content, thereby providing a means to control the integrity of digital content.”). Using watermarks in Peled’s system would allow one to take advantage of these benefits while tracking and monetizing digital content distributed through Peled’s platform. See Sections V.B.2, XI.A.

485. Thus, the combination of Peled and Pou discloses claim 11.

K. Claim 12

486. Claim 12 recites:

The device of claim 11, wherein ***the first digital watermark is metadata in the first media file, and the second digital watermark is metadata in the second***

media file.

487. The combination of Peled and Pou discloses claim 12. As described above with reference to claim 11, Pou describes the ability to identify digital media files by using digital watermarks. *See* Sections XI.J. A POSA would have understood, moreover, that Pou’s watermarks could comprise metadata within the media files. Indeed, using content identifiers in metadata was a well-known way to identify digital media content. *See, e.g.*, EX1006, ¶59; EX1051, 7 (noting that digital signatures may take the form of “metadata” (i.e., “encoded identifying information about the content”) or be “embedded directly into the work as watermarks”), 9 (“Such encoded information about a digital work (such as author, title, date of creation, and other identifying information) is commonly referred to as ‘metadata.’”); EX1007, 2:64-3:7 (stating that a “unique identifier can be configured as metadata” and can include “watermarking”); *see also, e.g.*, EX1038, ¶¶10, 15, 20, 24, 36, 49, 55, 60, 66, 71, 75. Indeed, Pou itself states that media files can be identified using characteristics such as a “file identifier stored in a file header.” EX1005, ¶54. Using metadata to identify files is a simple alternative to embedding watermarks in the digital content itself and using metadata in Pou would amount to a conventional use of watermarking techniques having predictable results. *See* Section V.B.2.

488. Notably, the ’154 patent itself provides little more disclosure than Pou

in this regard. See EX1001, 4:23-40 (“The plurality of identifying characteristics can represent a fingerprint, ***digital watermarking***, and/or any other suitable algorithm to identify copyright ownership of the media content item included in the digital media file that will be apparent to those skilled in the relevant art(s) without departing from the spirit and scope of the disclosure. In an embodiment, device 10 may analyze ***metadata*** included in the loaded digital media file to identify the media content item included in the digital media file.”), 8:45-50 (“Moreover, in many digital media file formats, one or more information fields related to the media content item stored in the file are included in ***metadata*** of the file. In an embodiment of the invention, the system may analyze ***metadata*** included in the digital media file to identify the media content item stored thereon.”), 9:33-37 (“At step 130, whether a user of the device has a license for the digital media file may be determined based on the natural media fingerprint and/or other digital media information, such as ***metadata***, included in the digital media file.”).

489. Thus, the combination of Peled and Pou discloses claim 12.

L. Claim 13

490. Claim 13 recites:

The device of claim 1, wherein the processor is further configured to ***load a first digital media file for reproduction***, wherein the digital media file include the first media content item.

491. The combination of Peled and Pou discloses claim 13. Peled teaches that media content items would be stored as digital media files for reproduction. For example, Peled explains that a request for content may include requests “for online purchase, ***for purchases of video files***/streams over the Internet, or any other product and/or service.” EX1003, ¶197. Peled describes distributing the stored media content as “video files” and therefore also discloses storing such video files for distribution when purchased. To the extent that this is unclear, Pou also discloses the organization of media content into digital media files. As explained in Pou, storing media content as digital media files was a well-known and commonly implemented concept. EX1005, ¶¶64, 108-10. A POSA would have found it obvious to store media content as digital media files in Peled’s user devices.

492. Pou depicts “loading” at a user device at step 105 of Figure 1.

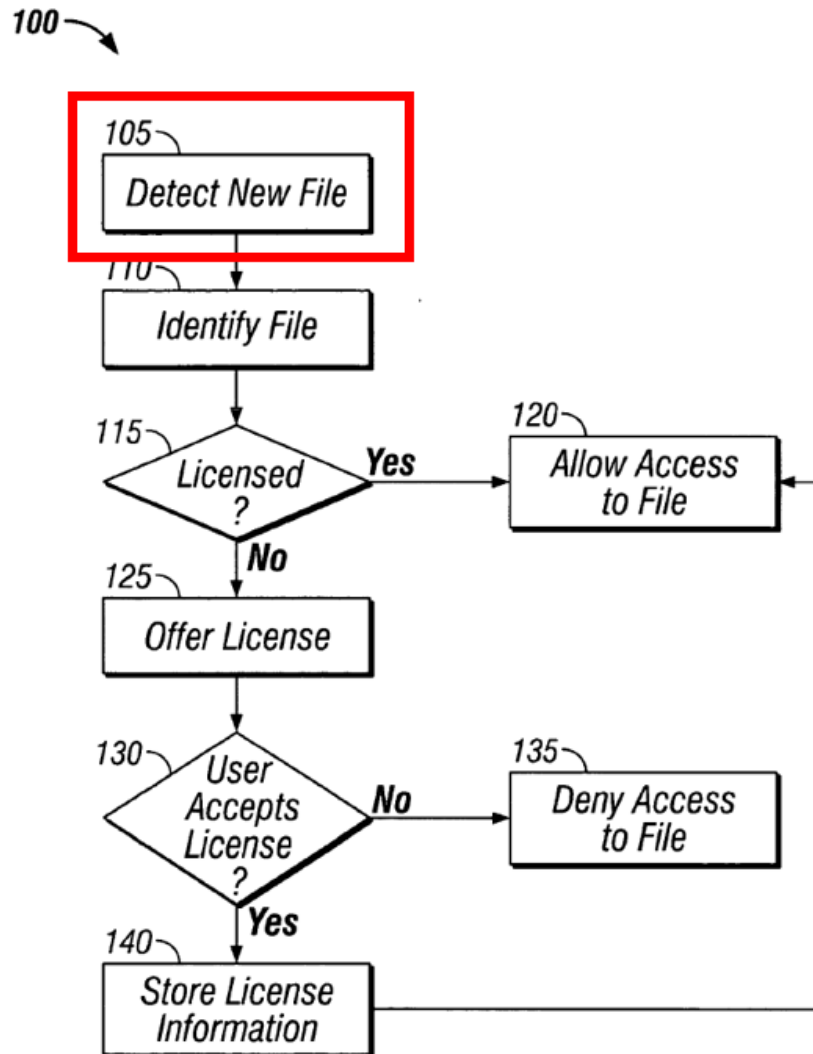


FIG. 1

EX1005, FIG. 1 (annotated).

493. Pou explains:

FIG. 1 is a flow diagram of a process 100 for managing digital rights to *a file that is loaded onto a user device*, such as a computer.... *Files may be loaded onto the device using any type of I/O port*, including a floppy drive, an

Ethernet or LAN connection, a dial-up connection, a CD-ROM or DVD drive, a USB port, an infrared data port, a Bluetooth or other wireless connection, or any other mechanism and/or protocol for transferring data to and from the user device.

EX1005, ¶50.

494. Pou further explains that “[w]hen the file is loaded onto the user device, the file is detected (step 105).” EX1005, ¶51. One example of this type of loading is when a song burned onto an audio CD is “ripped.” *Id.*, ¶¶107, 111. This ripping process “involves taking a song from a digital source such as a CD or DVD or an analog source and encoding the song into an MP3 file, Windows Media file, Real Player file, or other media format for playback on a computer or music/media player device.” *Id.*, ¶64. One example of this ripping occurs when a “user burns a standard audio CD and the content of the CD is subsequently ripped into another computer.” *Id.*, ¶111. Pou explains that the file may still be identified when loaded in this manner due to a “‘Unique File ID’ (UFID)” associated with the media file itself. EX1005, ¶¶65, 111. Therefore, Pou describes the claimed “loading.”

495. As I explained in Section XI.A, a POSA would have implemented this functionality with Peled to also track potential media purchases or licenses already obtained by a user. For example, using Pou’s scanning of a media file loaded onto user device would provide information indicating why a POSA may not have chosen

to purchase media content as described in Peled. For example, the user may have obtained the media content from another distribution channel, which is a scenario that Peled explicitly describes. EX1003, ¶199. Scanning media files loaded into a user device would also provide Peled with information related to potential “illegal content distribution” or possibly illegitimate distribution channels—information explicitly described in Peled as being useful for increasing sales opportunities. EX1003, ¶¶184, 199. Having this information would improve Peled’s generation of statistical reports and help to explain why a consumer has declined to purchase content. *Id.* In this manner, a POSA would have combined Pou with Peled to further Peled’s explicit goal of providing accurate statistical reports to content providers. *Id.*, ¶¶168, 183-84, 199.

496. Thus, the combination of Peled and Pou discloses claim 13.

M. Claim 14

497. Claim 14 recites:

The device of claim 1 further comprising a display, and the processor is further configured to generate a ***display query on the display asking the user whether the user would like to stream*** the first media content item.

498. The combination of Peled and Pou discloses claim 14. Peled describes its “content distribution site 2 [] offering a range of content items to consumers and receiving requests from consumers for the content, essentially a typical website for

browsing and through which consumers are able to order content.” EX1003, ¶159; *see also id.*, ¶28. The offering of content items to consumers discloses a display query asking the user whether the user would like to stream the content. Peled explains that “consumers are able to order content,” which discloses accepting to stream content in response to such a query. *Id.*, ¶159. Additionally, Peled also describes several scenarios where consumers may refuse to purchase content. *See Id.*, ¶¶155, 168-69, 172, 176-77, 186. For example, Peled describes offering a movie to an Italian speaking consumer without subtitles. *Id.*, ¶176. “The consumer therefore declines to complete the transaction.” *Id.* Additionally, Peled describes offering a movie but at too high of a price for the consumer: “A consumer, who has a history of requesting movies at a given price, makes a request for a movie at a higher price, but then does not complete the transaction. The content directing/packaging unit 32 notes the price difference and ***assumes that to be the reason for the refusal.***” *Id.*, ¶177. Based on these examples, Peled also discloses declining to stream content in response to a display query. *Id.*, ¶185 (“[A] consumer simply looks at a content item but then chooses not to buy it.”).

499. Additionally, Peled describes the offering of “alternative content item[s],” which also discloses the claimed query. EX1003, ¶¶32, 162. For example, Peled’s content distribution site may “comprise functionality to query a distribution restriction and to ***offer an alternative content item that overcomes the distribution***

restriction.” *Id.*, ¶162. Referring to the Italian speaking consumer example that I outlined above, Peled “offers a version from an Italian content provider with Italian subtitles.” *Id.*, ¶176. Similarly, for the price sensitive consumer, Peled “repackages the movie with commercial advertising and offers it at a lower price.” *Id.*, ¶177. These offers for alternative content items also disclose the claimed “query.” These alternatives also indicate that the user has not already obtained a license to stream the media content. *Id.*, ¶¶181, 185-86, 197. Thus, Peled discloses providing a display query on the display asking the user whether the user would like to stream a requested media content item.

500. Similarly, Pou discloses offering a license to the user as well as an evaluation of the user’s response, depicted in steps 125 and 130 of Figure 1.

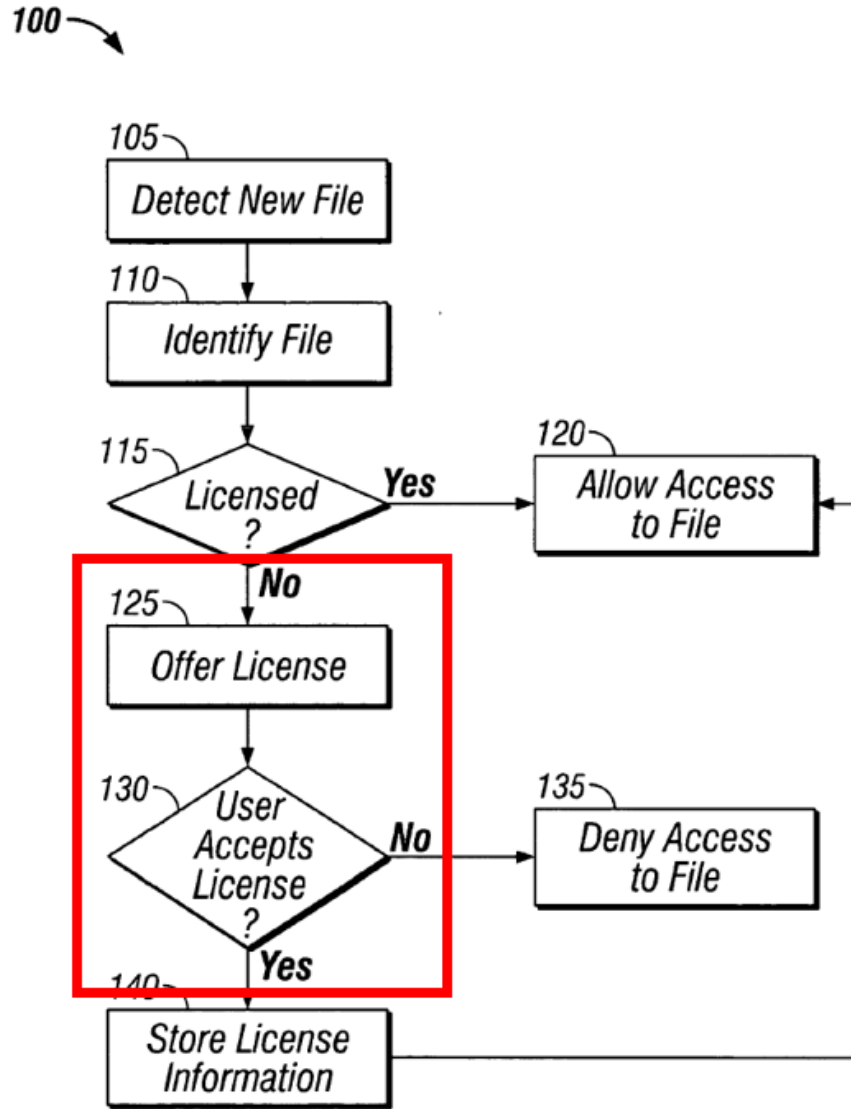


FIG. 1

EX1005, FIG. 1 (annotated).

501. Pou provides the following description for steps 125 and 130:

If the file is not licensed, ***a license may be offered to the user for purchase (step 125)***. For example, the user may be directed to a website where a purchase can be made, or

a pop-up window may appear on a display screen for the user device asking whether the user wishes to purchase a license to the file or otherwise accept certain license terms and/or the user may be directed to a website where a purchase can be completed.

EX1005, ¶56.

It is then ***determined whether the user accepts the license (step 130) (e.g., by receiving an indication that the user clicked on an accept button or a decline button in the pop-up window)***. If the user does not accept the license, access to the file may be denied (step 135). If the user does accept the license, including complying with any payment terms, the user is allowed to access the file, and license information, indicating that the file has been licensed and any other necessary information, is stored in the license database(s) (step 140).

Id.

502. As seen from this description, Pou describes providing a display query (e.g., a pop-up window) on the display asking the user whether the user would like to stream the media content. EX1005, ¶56; *see also id.*, ¶¶77-79.

503. A POSA would have been motivated to combine Pou with Peled to provide a licensing query after determining that the user has not already obtained a license for the reasons that I explained in Section XI.A. As I previously explained,

commercial distribution systems such as Peled's commonly implemented licensing or digital rights management protections to prevent illegal distribution or piracy. *Id.*; Section V.A.2. Therefore, a POSA would have combined the licensing elements described in Pou with Peled to provide similar control. A POSA would have also known how to combine Pou with Peled and would have also had a reasonable expectation of success in forming the combination for the reasons that I explained in Section XI.A.

504. It is clear from the disclosure described above, moreover, that Peled's and Pou's display queries described above are presented on a display within the user's client device and generated by a processor therein.

505. Thus, the combination of Peled and Pou discloses claim 14.

N. Claim 15

506. Claim 15 recites:

The device of claim 1, wherein the processor is further configured to ***collect and transmit user identification data that confirms the user's identity.***

507. The combination of Peled and Pou discloses claim 15. In particular, Peled states that one of its user interfaces "may use an identification detection mechanism for detecting details that ***identify a consumer.***" EX1003, ¶¶135-39, 191-93. Peled explains that a "temporary ID"—e.g., a "transaction ID or a session ID"—may be used for such purposes. *Id.*, ¶193. A POSA would have understood from this

disclosure that when the consumer's client device detects such details, it "collects" such information and transmits it to Peled's server to confirm the consumer's identity.

508. Likewise, Pou describes a user entering into an interface on his or her user device a "unique user name or 'handle,' a password, an email address, and other user input information." EX1005, ¶88. When the user does so, he or she is able to "access the user's license and other information stored in the central database and/or to access a local database specific to the user on a user device 505 that may be shared by multiple users." *Id.* Similarly, Pou explains that "[b]ased on ... a user name and password, and/or other identifying information, the central server 515 may determine that the user is already known during the search 536." *Id.*, ¶94; *see also id.*, ¶¶11, 17, 44, 95. A POSA would have understood from this disclosure that when the user inputs such information into his or her user device, the device "collects" such information and transmits it to Pou's server to confirm the user's identity. *See id.*, ¶¶17, 88.

509. Indeed, I note that this disclosure is similar to the '154 patent's. The patent states that the user's device can transmit user identification data to the system in order to permit the user "to log into a user account associated with the user, process the licensing transaction, and/or for other such reasons to facilitate purchasing a license for the media content item." EX1001, 9:63-10:2; *see also id.*,

10:23-29 (stating that the “system receives the user identification data and confirms the user’s identity” by, for example, logging “the device into a secured transaction interface associated with an account of the user”). The patent states that such data can comprise “a ***user name and password, a unique identifier associated with the user***, the user’s billing information, and/or ***any other user identification data***.” *Id.*, 10:2-7.

510. A POSA would have been motivated to use Pou’s identification information in Peled’s system. As an initial matter, a POSA would have combined the two references for all the reasons discussed above. *See* Section XI.A. And, with regard to this particular claim element, a POSA would have recognized that in order for Peled’s system to confirm its consumers’ identities and process transactions, the system requires information that can be used for that purpose. A POSA would have understood that Pou’s identification data would provide for a convenient way for Peled’s system to distinguish between multiple consumers using the same client device, as Pou itself states. *See* EX1005, ¶¶94-95. Indeed, Peled itself notes that, to enjoy a personalized purchasing process, a consumer must “identif[y] himself in some way,” for example, by “logging in” to their accounts. EX1003, ¶¶187, 194. Pou’s identification data would also advantageously allow Peled’s system to associate a particular consumer’s profile data—described above with reference to claim element [1I], *see* Section XI.B.10—with the consumer’s account. This, in turn,

would allow Peled to more easily track consumers' browsing history so as to more efficiently and target particular consumers.

511. Thus, the combination of Peled and Pou discloses claim 15.

O. Claim 16

512. Claim 16 recites:

The device of claim 1, wherein the processor is further configured to ***transmit the first and second media fingerprints for confirmation of the first and second media content items with a digital media catalog database.***

513. The combination of Peled and Pou discloses claim 16. In particular, as described above with reference to claim element [1D], Pou uses digital fingerprints to identify particular media content items. See Section XI.B.5. Further, Pou explains that in its “digital fingerprinting detection” algorithm, “information relating to an authorization to access the data file can be conducted in a license database associated with a remote server.” EX1005, ¶13. In particular, software installed on the user's device “extracts a digital fingerprint from a digital file and compares the extracted fingerprint to a database of known works” that resides on the server. *Id.*, ¶51; see also *id.*, ¶52 (explaining that “[f]ingerprinting data that allows the specific media file to be identified may be stored at a central server and accessed using an Internet connection.”). A POSA would have understood that Pou's database of fingerprints

and known works is the claimed “digital media catalog database.”

514. From this disclosure, a POSA would have understood that Pou’s user device transmits extracted fingerprints to the server so that the system can compare the fingerprints to those corresponding to known works—i.e., to confirm the media content items with which the fingerprints are associated. Indeed, Pou’s disclosure is similar to the ’154 patent’s, which states that “the system matches the fingerprint of the media content item included in the license request to a fingerprint in the digital media catalog database to identify the media content item associated with the licensing request, the rights-holder associated with the media content item, the price required for a license for the media content item, and/or any other identification information.” EX1001, 10:41-49. The ’154 patent’s digital media catalog database is likewise located on the server. *Id.*, 7:25-34.

515. And, as described above with reference to claim element [1G], Pou’s fingerprints can be used to identify multiple media content items. *See* Section XI.B.8. Thus, a POSA would have understood that multiple fingerprints would be transmitted from Pou’s user device to the server to confirm the media content items.

516. For the reasons described above, a POSA would have been motivated to use Pou’s fingerprinting algorithm in Peled to provide a convenient way for Peled’s consumer devices to identify and track media content. *See* Section XI.A.

517. Thus, the combination of Peled and Pou disclose claim 16.

P. Claim 17

518. Claim 17 recites:

The device of claim 1, wherein the processor is further configured to ***collect payment from the user to stream*** the first media content item.

519. The combination of Peled and Pou discloses claim 17. In particular, both Peled and Pou disclose obtaining and verifying payment for licenses to reproduce content. For example, Peled's content distribution system includes a "payment unit 34" that "ensure[s] that the correct content providers are credited when a sale is made. The payment unit keeps track of where content has been taken from and what advertising if any has been added and ensures that payments flow from the consumers and advertisers to the content providers." EX1003, ¶179.

520. Similarly, Pou also explains that "[a]ll transactions may be centrally tracked for payment and analysis. A central tracking database can be used to track payments..." EX1005, ¶48. "If the user decides to purchase a license, ***payment information is obtained from the user and sent to the central server*** (step 445)." *Id.*, ¶85. Pou's central server transmits a payment request to a user device:

The central server 720 responds with a ***payment request*** 740, which is displayed on the user device 705 or the user is directed to a website where payment information can be obtained. The user device 705 receives payment information from the user (step 745) and ***sends the***

payment information to the central server 720. The payment information is processed (step 755), which may involve determining how much of the license fee is allocated to the content owner and/or to one or more users who have distributed the media file.

Id., ¶101.

521. “Assuming payment is successful, license information for the media file may be stored, as appropriate, in a local database and/or a central database (step 450).” *Id.*, ¶85. “The central database 725 is updated 760 with information indicating that the user has a license to the media file. ... Based on the updated license information, the user may be allowed to use the media file on the user device 705 (step 770).” *Id.*, ¶101. “The central server may include a micro-payment system that tracks the sale of the media file license and also all the parties to be paid for each specific sale” *Id.*, ¶¶79-80.

522. A POSA would have understood, moreover, that when a user inputs payment information into Peled’s or Pou’s interfaces, the processor within the user’s device “collects” the payment from the user to stream the requested content.

523. A POSA would have been motivated to implement Pou’s system in Peled’s for all the reasons I explained above. *See* Section XI.A. With regard to this element in particular, a POSA would have understood that Pou’s disclosure of payment information from a user would advantageously allow Peled’s consumers to

purchase digital content from Peled's system. See EX1003, ¶¶186-87, 195, 197 (referring to consumers' ability to "purchase" content). Pou's ability to collect payment would permit consumers to effectively and efficiently use Peled's system.

524. Thus, the combination of Peled and Pou discloses claim 17.

Q. Claim 18

525. Claim 18 recites:

The device of claim 1, wherein the processor is further configured to ***transmit the first and second statistics record in real time.***

526. The combination of Peled and Pou discloses claim 18. As described above with reference to claim elements [1I] and [1J], Peled discloses aggregating user data into statistics records and transmitting them to a database. See Sections XI.B.10-11. Further, Peled describes generating statistics for use in reports in "real-time." In particular, Peled states that its statistics are analyzed in real time in order to dynamically up-sell content to the user:

The present embodiments provide an apparatus and method for ***real time distribution of online content***, including the management of preliminary distribution of the content around the network at sites that are convenient for passing on to consumers whereas the content distribution sites which advertise and sell the material are otherwise distributed. ... In a preferred embodiment, refused or otherwise not completed requests are ***analyzed***

in real time so that the specific consumer may be offered an acceptable alternative.

EX1003, ¶155.

Analysis results may be made available for individual requests, and if *such results can be made in real time then the apparatus may be used to offer the consumer an alternative content package which overcomes the apparent reason for refusal*, as will be explained in more detail below.

Id., ¶168; see also *id.*, ¶198 (“As explained above, the query and *analysis of the denied requests may be in real time*[]”). This disclosure makes clear that Peled’s system collects data in real time and tailors marketing efforts to consumers based on their real-time interaction with the system. A POSA would have understood from this disclosure and it would have been obvious that Peled’s user devices transmits statistics records in real time.

527. Thus, the combination of Peled and Pou discloses claim 18.

XII. GROUND 4: CLAIM 3 OF THE ’154 PATENT IS UNPATENTABLE UNDER 35 U.S.C. § 103 OVER PELED IN VIEW OF POU AND RASSOOL.

528. Claim 3 recites:

The device of claim 2, wherein the first and second *unique characteristics are the occurrence of various audio frequencies at particular points in time in the audiovisual work*.

529. The combination of Peled, Pou, and Rassool discloses claim 3. In particular, as I explained above with reference to claim element [1D], Pou discloses an algorithm for identifying digital media content, including audiovisual works, using digital fingerprints. *See* Section XI.B.5. Those fingerprints identify unique characteristics inherently present in the media content item. *Id.* Pou does not restrict the type of fingerprinting that can be used to identify digital content and refers specifically to watermarks/fingerprints that can be used to identify “audio” content. EX1006, ¶¶4, 7, 55.

530. One such technique is described by Rassool. Like Pou, Rassool describes techniques “for identifying a media file transmitted over a network” using fingerprints. EX1016, Abstract, 2:27-45. Rassool explains that its fingerprinting algorithm can be used to uniquely identify an unknown media content item by matching its fingerprint to that of a known item. *See id.*, 5:9-46. Rassool specifies that media files can include “data files in various formats that contain audio and/or image information,” including music and video files. *Id.*, 4:50-52, 6:8, 22:61.

531. With regard to music files, Rassool describes an algorithm in which its algorithm generates a fingerprint based on the occurrence of a particular frequency within the song:

The up-down coding technique of file recognition calculates the energy level within a particular waveform to find the relative amplitude peaks of the waveform. In the

time domain, a digital audio signal is represented by a series of amplitudes. The algorithm traces all of the peaks of the audio signal at a fairly low resolution (i.e., sampling rate) but at a resolution that is high enough to track changes that indicate the melody of a song. A four milli-second resolution, for example, is fast enough to be able to track the melody of a song.

At each peak, ***the dominant frequency is calculated. The dominant frequencies at the relative peaks are taken to represent the melody note that is being played at that point in the music.*** It does not matter if multiple notes are being played at each peak because the technique determines the dominant frequency where “dominant” refers to the frequency having the greatest energy. ***The dominant frequency at each relative peak is “plotted”, in effect, so that the up-down coding algorithm is able to determine the relative change in frequency from one relative peak to the next relative peak in time.*** Stated another way, the up-down coding algorithm determines whether each note goes up or down in frequency from peak to peak. The transition from one note to the next is encoded as a binary 1 if the note goes up in frequency and is encoded as a zero if it goes down in frequency. ***Thus, the algorithm produces a succession of ones and zeros that indicate whether the melody goes up or down from note to note. This sequence of zeros and ones comprises a unique media file identifier that can be stored in a***

database and searched against to identify the song.

Id., 23:33-62. In other words, Rassool’s fingerprint is based on various audio frequencies at particular points in time, as the claim element requires.

532. Rassool describes its algorithm in the context of audio files and songs, specifically, but Rassool elsewhere refers to audiovisual works more generally, including “films, music videos, webcast news and entertainment programming and so on.” EX1016, 6:13-15. From this disclosure, a POSA would have understood that Rassool’s algorithm could be used for any audiovisual work containing audio content, and not just songs.

533. Further, a POSA would have understood that Rassool’s algorithm could be used to identify multiple audiovisual works and not just a single work. Indeed, Rassool itself states that its algorithm can be used for audio “files,” generally. *Id.*, 23:6-9; *see also id.*, 2:26-45, 4:33-39, 5:9-54.

534. The ’154 patent’s specification refers to the unique characteristics of a song comprising “the occurrence of various frequencies at particular points in time in relation to the occurrence of the lyrics.” EX1001, 9:26-29. But claim 3 does not say anything about the frequencies occurring “in relation to the occurrence of the lyrics,” and so that requirement is not part of the claims. Nevertheless, even if it were, Rassool’s algorithm discloses that requirement because by tracking the occurrence of frequencies within an audiovisual work in the time domain, it also

tracks such occurrences relative to lyrics in the same domain.

535. A POSA would have been motivated to combine Rassool's fingerprints with Pou and Peled. As an initial matter, Pou does not limit its system to using a particular fingerprinting algorithm. Likewise, for the reasons I explained above with reference to claim element [1D], a POSA would have been motivated to use Rassool's fingerprints in Peled's platform to more efficiently identify Peled's audiovisual works and to determine whether a particular consumer is licensed to stream a requested work. See Section XI.B.5. Indeed, Rassool itself states that its algorithm allows copyright holders to more efficiently manage and track the distribution of their work so as to "police copyright violations of media files." EX1016, 2:19-23, 4:33-47. Rassool expressly states that its algorithm is useful for "determin[ing] whether or not a copyrighted or otherwise protected music file is being offered without permission for distribution or play on the Internet." *Id.*, 23:2-5. Thus, a POSA would have understood that Rassool's fingerprinting algorithm would facilitate Peled's goal of monetizing digital media content.

536. Thus, the combination of Peled, Pou, and Rassool discloses claim 3.

XIII. GROUND 5: CLAIM 8 OF THE '154 PATENT IS UNPATENTABLE UNDER 35 U.S.C. § 103 OVER PELED IN VIEW OF POU AND BRANDSTETTER.

537. Claim 8 recites:

The device of claim 1, wherein the first user data includes *the number of times the user requested to evaluate streaming the*

first media content item, and the second user data includes ***the number of times the user requested to evaluate streaming the second media content item***.

538. The combination of Peled, Pou, and Brandstetter discloses claim 8. First, Peled discloses tracking additional media content items that a user has previously accessed. In particular, Peled describes tracking a consumer's previous purchase history. EX1003, ¶177; *see also id.*, ¶¶162, 169, 181, 200. For example, Peled may identify a consumer with "a history of requesting movies at a given price." *Id.*, ¶177. Using this information, a particular movie package may be offered to the consumer because the consumer has "shown a willingness to purchase at a given lower price." *Id.* In this manner, Peled describes recording additional media content items based on a consumer's previous purchases. And, while Peled may not expressly disclose tracking the quantity of times that a user has accessed a media content item, Brandstetter does.

539. Brandstetter discloses user data also including a quantity of times that the user has previously accessed the media content item. EX1004, ¶147. For example, in the scenario where a consumer has rented content under a "play n-number of times licensing package," Brandstetter tracks a "number of times" that the user has already played the media content in order to enforce the license terms. *Id.* Similar to Peled, Brandstetter also provides this type of information in the form of reports related to user activity. These reports can include "business activity" such

as a number of “streams [or] downloads.” *Id.*, ¶173. In this manner, Brandstetter discloses user data including a quantity of times that the user has requested to stream a media content item.

540. Further, as I explained above with reference to claim element [1C], the user’s request to stream content is actually a request to evaluate streaming such content. *See* Section XI.B.4.

541. A POSA would have been motivated to combine this aspect of Brandstetter with Peled and Pou to provide additional accuracy for Peled’s user demographic data as well as to provide a rental option for the combined Peled and Pou. EX1003, ¶169. For example, tracking the number of times a user has previously accessed a content item may aid Peled’s system identifying a reason for refusal and when offering alternative content that the consumer may be inclined to accept. *Id.*, ¶177. For example, this information may supplement the purchase history tracked by Peled when determining that a consumer has “shown a willingness to purchase at a given lower price.” *Id.* This given lower price may be rental price rather than a purchase price. As Brandstetter explains, a rental price may be lower than a purchase. EX1004, ¶¶75, 120. A POSA would have been motivated to combine Brandstetter with Peled and Pou to provide this rental functionality as well as provide additional accuracy for Peled’s user demographic data.

542. Thus, the combination of Peled, Pou, and Brandstetter discloses claim

8.

XIV. OTHER EVIDENCE RELEVANT TO OBVIOUSNESS

543. As I noted above in Section IV, the obviousness inquiry requires me to consider whether there are any “objective indicia of non-obviousness.” Roku’s counsel has informed me that this type of evidence helps guard against what the courts have called “hindsight bias” when looking backwards in time at a purported invention. Counsel has informed me that the types of evidence that fall into this category are commercial success, long-felt but unmet need, failure by others to solve similar problems facing a POSA, and the like. Counsel also has informed me that for any such evidence to be applicable, the evidence must also bear some “nexus” to a claim, and in particular, to what is purportedly novel about the claim.

544. I am not currently aware of any objective indicia of nonobviousness that could apply to the purported invention set forth in the ’154 patent and that would also meet the nexus requirement. I reserve the right to reconsider my opinions, as set forth above, if any such evidence is brought to my attention.

Declaration of John Tinsman
U.S. Pat. No. 10,885,154

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 allotted time.

I 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; and further 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 Title 18 of the United States Code.

Executed this 10th day of January, 2022, in Crans-Montana, Switzerland.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John Tinsman", with a stylized flourish at the end.

John Tinsman