

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, SAMSUNG ELECTRONICS AMERICA, INC., AND
SAMSUNG ELECTRONICS CO., LTD.,
Petitioners,

v.

TRUESIGHT COMMUNICATIONS LLC
Patent Owner.

IPR2025-00024
U.S. Patent No. 9,595,300

**DECLARATION OF DR. HENRY HOUH,
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW**

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 2. 15[a] a video screen; and 115
 3. 15[b] a processor, the processor configured to execute: 115

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I, Henry Houh, do hereby declare as follows:

I. Introduction

1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters stated herein.

2. I have been asked by Petitioners Google LLC (“Google”) and Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd. (collectively, “Samsung”) to provide my expert opinion connection with the *Inter Partes* Review of U.S. Patent No. 9,595,300 (“the ’300 patent”) to Duffin et al. concerning whether the ’300 patent is unpatentable over certain prior art. This declaration is a statement of my opinions on issues relating to the patentability of claims 1-20 (“the Challenged Claims”) of the ’300 patent. As I explain more fully below, it is my opinion that all of the Challenged Claims would have been obvious to a person of ordinary skill in the art (“POSITA”) at the time of the alleged invention.

3. I am being compensated for my work in this matter at my standard hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

4. I have reviewed and considered the following documents in connection with my analysis of the ’300 patent:

Exhibit	Description
Ex. 1001	U.S. Patent No. 9,595,300 (“the ’300 Patent”)
Ex. 1002	File History of U.S. Patent No. 9,595,300
Ex. 1005	U.S. Patent Application Publication No. 2006/0080716 to Nishikawa et al. (“Nishikawa”)
Ex. 1006	U.S. Patent Application Publication No. 2008/0155617 to Angiolillo et al. (“Angiolillo”)
Ex. 1007	U.S. Patent Application Publication No. 2008/0141160 to Vahtola (“Vahtola”)
Ex. 1008	U.S. Patent Application Publication No. 2005/0091597 to Ackley (“Ackley”)
Ex. 1012	Hamilton et al., U.S. Patent No. 5,579,055
Ex. 1013	Shih, U.S. Patent App. Pub. No. 2007/0098085
Ex. 1014	Microsoft Press Computer Dictionary (3d. ed.) (1997) (excerpts)
Ex. 1015	Dua, U.S. Patent No. 7,624,417
Ex. 1016	Annual Assessment of the Status of Competition in Markets for the Delivery in Video Programming, Federal Communications Commission, published in the Federal Register, Vol. 656, No. 158, 49804-48907 (Aug. 15, 2000)
Ex. 1017	Barton et al., U.S. Patent No. 8,549,553
Ex. 1018	Okabayashi et al., U.S. Patent App. Pub. No. 2009/0248981
Ex. 1019	SD Association Press Release, “SDXC SIGNALS NEW GENERATION OF REMOVABLE MEMORY WITH UP TO 2 TERABYTES OF STORAGE”
Ex. 1020	SD Association Website, “Benefits of SD Memory Card” (retrieved via The Wayback Machine).

Exhibit	Description
Ex. 1021	U.S. Patent Application Publication No. 2009/0240955 to Chow et al.
Ex. 1022	International Publication No. WO2008/021594 to Shen et al.
Ex. 1023	U.S. Patent Application Publication No. 2006/0010500 to Elazar et al.

5. In forming the opinions expressed below, I have considered:

- a) the documents listed above;
- b) the relevant legal standards, including the standard for obviousness, and any additional authoritative documents as cited in the body of this declaration; and
- c) my own knowledge and experience based upon my work in the field of software systems as described below, as well as the following materials.

6. Unless otherwise noted, all emphasis in any quoted material has been added.

II. Qualifications and Professional Experience

7. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in Exhibit 1004. The following is a brief summary of my relevant qualifications and professional

experience.

8. I received a Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology (“MIT”) in 1998. Beforehand, I received a Master of Science degree in Electrical Engineering and Computer Science in 1991, a Bachelor of Science degree in Electrical Engineering and Computer Science in 1989, and a Bachelor of Science degree in Physics in 1990, all from MIT.

9. I am currently self-employed as an independent technical consultant. From its founding in 2012 until October 2022, I was also president of a company that provides supplemental science, technology, engineering, and mathematics (“STEM”) education to children of all ages.

10. I first entered telecommunications in 1987 when I worked as a summer intern at AT&T Bell Laboratories as part of a five-year dual degree program at MIT. I continued to work at AT&T Bell Laboratories as part of this MIT program. While at MIT, I was a teaching assistant (“TA”) in the Electrical Engineering and Computer Science Department’s core Computer Architectures course. I first was a TA as a senior for a role typically reserved for graduate students. I later became head TA. The course covered various topics in computer architectures. As a TA, I helped write homework assignments, lab assignments, and exams. I also taught in the recitation sections.

11. Later, as part of my doctoral research at MIT from 1991-1998, I was a research assistant in the Telemedia Network Systems (“TNS”) group at the Laboratory for Computer Science. The TNS group built a high-speed gigabit network and created applications that ran over the network. Example applications included ones for remote video capture, processing, and display of video on computer terminals. In addition to working on the design of core network components, designing and building the high-speed links, and designing and writing the device drivers for the interface cards, I also set up the group’s web server. Also, I helped to maintain, install, and upgrade the networking devices used within the group, along with other graduate students. When I started with the TNS group, the networking infrastructure consisted of shared coaxial cable-based Ethernet, with bridges and repeaters interconnecting various network segments. We gradually replaced the coaxial Ethernet infrastructure with twisted pair 10BASE-T wiring that were interconnect via hub repeaters, for which we also had to mind the Ethernet specifications. Eventually, many of the hub repeaters were upgraded to switches. I also studied the various parts of the Ethernet specifications both independently and through graduate course work in networking.

12. I also helped to build the web pages that initiated the above-mentioned video sessions via a web interface. Vice President Al Gore visited our group in 1996 and received a demonstration of—and remotely drove—a radio-

controlled toy car with a wireless video camera mounted on it that was built by our group. This toy car device received commands transmitted over a network from a remote computer, and video data from the toy car was transmitted wirelessly then over a computer network back to the user controller. On occasion, we allowed users visiting our web site to drive the toy car from their remote computer while they watched the video on their computer. The video stream was encoded by TNS-designed hardware, streamed over the TNS-designed network, and displayed using TNS-designed software.

13. I defended and submitted my Ph.D. thesis, titled “Designing Networks for Tomorrow’s Traffic,” in January 1998. As part of my thesis research, I analyzed local area and wide area flows to show a more efficient method for routing packets in a network, based on traffic patterns at the time. The traffic flow data included Ethernet, IP, TCP or UDP, and RTP header information, which I analyzed to come to the conclusions in my thesis.

14. While I was in graduate school, I started a company that provided web site design services and targeted advertising opportunities. We also sold targeted advertising placements. As the web became popular first at colleges and universities, we focused initially on building college recruiting web sites and sold advertisements to companies wishing to target students to recruit at specific colleges. We developed technology that utilized the web user’s college affiliation

to customize advertisements targeted to students at that college.

15. From 1997 to 1999, I was a Senior Scientist and Engineer at NBX Corporation, a start-up that made business telephone systems for streaming packetized audio over data networks instead of using traditional telephone lines. NBX was later acquired by 3Com Corporation and the phone system is still used today by numerous businesses.

16. As part of my work at NBX, I designed the core audio reconstruction algorithms for the telephones, as well as the packet transmission algorithms. I also designed and validated the core packet transport protocol used by the phone system. The protocol was used for all signaling in the phone system, including for the setup of conference calls. The NBX system also featured a computer interface for initiating phone calls, which could also initiate conference calls. The NBX system also supported the Telephony Application Programming Interface (“TAPI”) that allowed other computer programs to integrate with our system telephony features. We obtained U.S. Patent No. 6,967,963, entitled “Telecommunication method for ensuring on-time delivery of packets containing time-sensitive data,” as part of this work. The first release of the phones worked using Ethernet-layer packets (without the use of IP). I also programmed the first prototype of our phone which communicated using IP, and I demonstrated our IP phones working over the Internet when we attended a trade show in California. The phone connected over

the Internet to our headquarters in Andover, MA.

17. From 1999-2004, I was employed by Empirix or its predecessor company, Teradyne. Teradyne had traditionally made products to test chips and hardware, but the founder and board chairman, Alex d'Arbeloff wanted to expand the company's products to include software systems testing. Teradyne made a number of acquisitions to achieve this goal, and I was hired to work for Mr. d'Arbeloff to work with all the acquired software test divisions. These divisions were later spun-out of Teradyne into a separate company, Empirix. Empirix was a leader in test tools for software systems including telecommunications protocols and systems, providing functional testing tools as well as load testing tools. From 2000-2001, I conceived and built a test platform for testing Voice-over-IP (VoIP). The first application on this new test platform was a cloud emulator for simulating the effects of transmitting VoIP over a busy network. The test platform was based on a network processor chip, which could be programmed to cut-through packets while processing packet data such as various protocol layer headers including addresses included therein and even packet data contents. I also designed a protocol analyzer built on the same platform. The application captured and performed protocol decoding at various layers in the protocol stacks of captured packets, including detailed Ethernet header decoding, IP header decoding, TCP header decoding, UDP header decoding, RTP header decoding, and many other

specified protocols. The application was also designed to reconstruct entire conversations that spanned multiple packets.

18. In 2006, as part of my role at BBN Technologies, I helped found PodZinger Inc., now known as RAMP Inc. PodZinger utilized BBN's speech recognition algorithms to search through the spoken words in audio and video segments. While I was Vice President of Operations and Technology, PodZinger followed its initial prototype with a full streaming audio and video search solution. Our video and audio search results were integrated with a specialized player that incorporated metadata into the video player so that metadata could be used to select the exact portion of the video which to play. I also created a social networking web site, which BBN sold to a venture-funded startup company. In the process of creating the web site, I designed and specified the authentication and authorization protocols.

III. Level of Ordinary Skill in the Art

19. I understand there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention; (2) the sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems.

20. I understand that the '300 patent was filed on October 18, 2010, and

claims priority to U.S. Provisional Patent Application No. 61/253,792 filed on October 21, 2009. My analysis reflects the views of a person of ordinary skill in the art (“POSITA”) in the field of the ’300 patent as of October 21, 2009. This would have been someone knowledgeable and familiar with the field of navigating the playback of digital content, as described in the ’300 patent. That person would have had a Bachelor’s degree or equivalent in electrical engineering, computer science, or a related field, in addition to three years in research, design, or development in video playback systems, user interfaces, or other comparable experience. I was a person of ordinary skill in the art as of October 21, 2009.

21. For purposes of this Declaration, in general, and unless otherwise noted, my statements and opinions, such as those regarding my experience and the understanding of a POSITA generally (and specifically related to the references I consulted herein), reflect the knowledge that existed in the field as of the earliest claimed priority date of the ’300 patent (i.e., October 21, 2009). Unless otherwise stated, when I provide my understanding and analysis below, it is consistent with the level of a POSITA prior to the earliest claimed priority date of the ’300 patent.

IV. Relevant Legal Standards

22. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the ’300 patent, I am relying on certain basic legal principles that counsel have explained to me. These principles are discussed

below.

23. I understand that prior art to the '300 patent includes patents and printed publications in the relevant art that predate the proper priority date of the alleged invention recited in the '300 patent.

24. I have been informed that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

25. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (e)

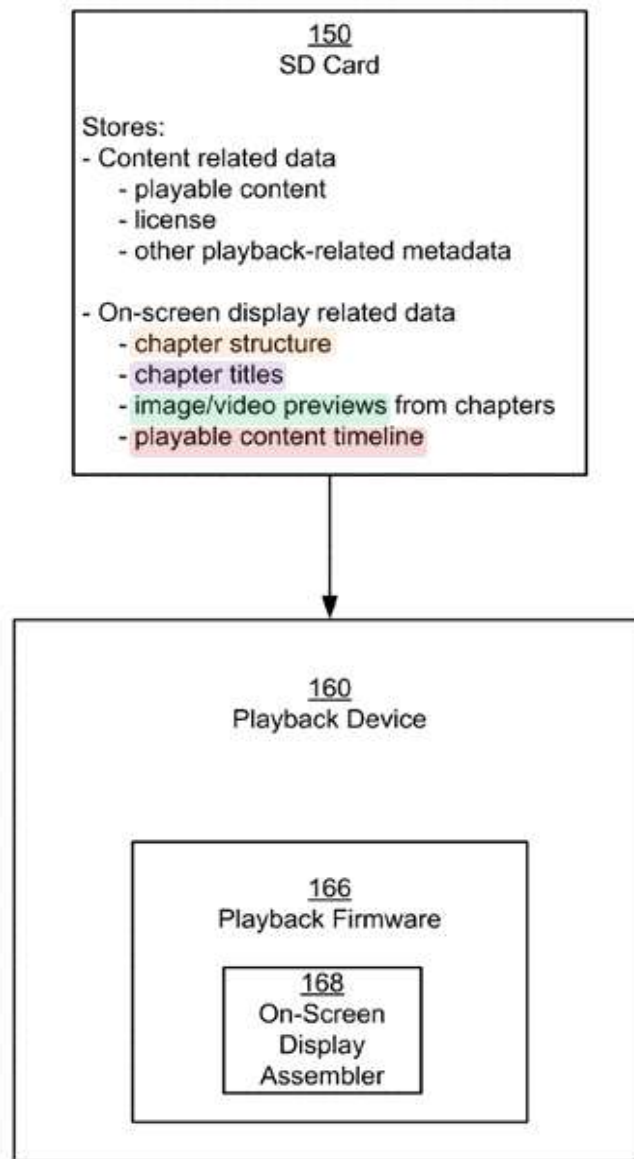
choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

26. I further understand that certain factors may support or rebut the obviousness of a claim. I understand that such secondary considerations include, among other things, commercial success of the patented invention, skepticism of those having ordinary skill in the art at the time of invention, unexpected results of the invention, any long-felt but unsolved need in the art that was satisfied by the alleged invention, the failure of others to make the alleged invention, praise of the alleged invention by those having ordinary skill in the art, and copying of the alleged invention by others in the field. I understand that there must be a nexus—a connection—between any such secondary considerations and the alleged invention. I also understand that contemporaneous and independent invention by others is a secondary consideration tending to show obviousness.

27. I am not aware of any allegations by the named inventor of the '300 patent or any assignee of the '300 patent that any secondary considerations are relevant to the obviousness analysis of any Challenged Claim of the '300 patent.

V. Summary of the '300 Patent

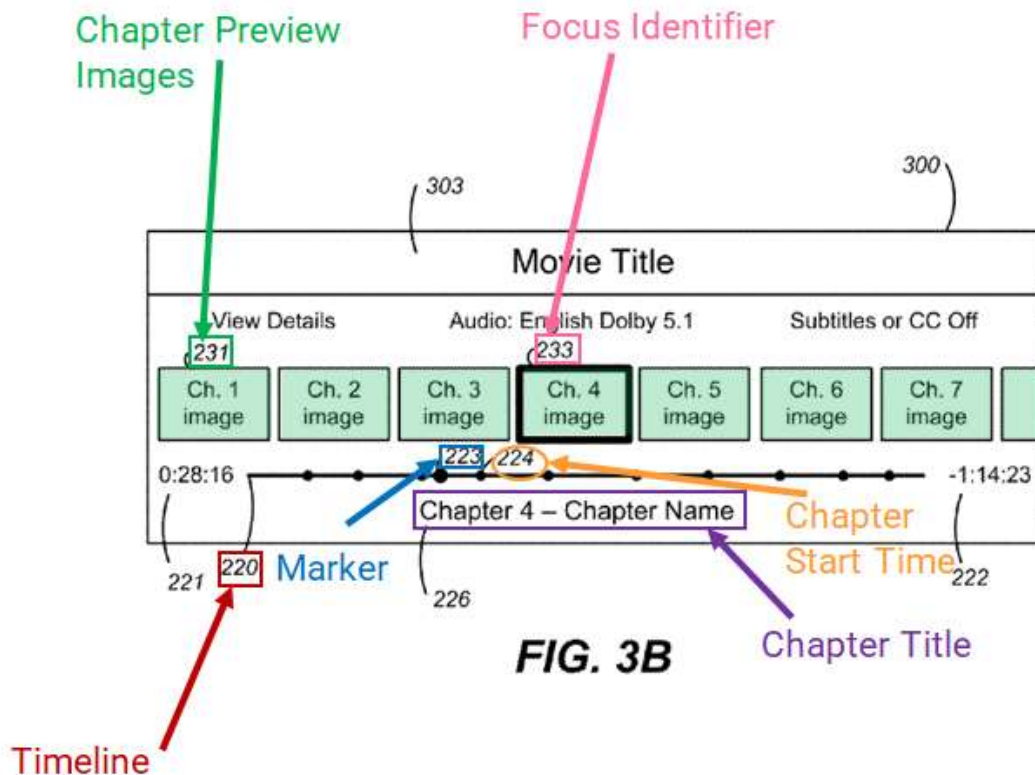
28. The '300 patent describes “[a] system and a method” for “navigating the playback of digital content” using an “on-screen display.” ’300 Patent, Abstract, 1:14-15. The content is “delineat[ed]” into “chapters.” Id., 2:28-32. Using the on-screen display, a user can, “during playback ... of content ... access a chapter selection feature that presents a preview image from each chapter of a video along with a timeline representing the video, and an indication on the timeline of where the chapters fall along the timeline.” ’300 Patent, 2:32-37.

1000**FIG. 1A**

'300 Patent, Figure 1A (annotated).

29. As shown in Figure 1A, the content is stored on a secure digital (“SD”) card along with “metadata.” ’300 Patent, 2:60-3:15, 4:63-64, 5:62-67. The metadata includes “on-screen display related data,” such as “chapter titles, chapter

start times, and the location on the SD card of chapter preview images that correspond to the playable content,” as well as a “timeline of the playable content,” as shown. ’300 Patent, 3:7-15, 7:24-27. This metadata is used to “assemble[] the chapter structure, the chapter titles, the image/video previews, and the playable content timeline into an on-screen display,” such as that illustrated in Figure 3B below. ’300 Patent, 3:7-15.



’300 Patent, Figure 3B (annotated).

30. As shown, the on-screen display includes “demarcations of the beginnings of chapters 224,” a “title of the current chapter 226,” and “chapter images 231,” as indicated by the chapter structure, chapter titles, and image

previews in the metadata. '300 Patent, 5:36-53. Further, the on-screen display includes a “timeline 220”; a “marker 223 to indicate the current position within the video playback”; and “focus identifier,” shown as “[a]n outline frame 233” that “highlights the chapter image for the chapter corresponding to the current position within the video playback.” '300 Patent, 5:41-6:6. The '300 patent explains that “[t]he on-screen display can be presented as an overlay on the playable content,” while “the content continues to play in the background.” '300 Patent, 3:8-11, 5:3-6, 6:20-22.

31. Once the on-screen display is displayed, a user may “navigate between chapters of the video playback.” '300 Patent, 7:49-52. As the '300 patent explains, if “the user presses a control key such as skip, fast forward, or rewind, the on-screen display updates to show the correct chapter highlighted, the position on the timeline, and the chapter title.” '300 Patent, 7:46-49. “[F]or example, when a user selects to skip forward by a chapter from the current position shown in FIG. 3B, the chapter images 231 each slide one position to the left,” such that the image corresponding to Chapter 4 is no longer in the focus identifier and the image corresponding to Chapter 5 now is. '300 Patent, 6:62-7:3; see also *id.*, 9:13-29.

VI. Technology Background

A. DVD AND VIDEO NAVIGATION

32. DVDs (Digital Versatile Discs) were first released in 1996, and were

widely used to store video, such as a movie. Movies released on DVD were typically much higher quality than on VHS tape, which was the prior format for movies for home viewing. However, because VHS tapes were a linear medium, that is, the movie was encoded on a single long piece of magnetic tape stored on reels, jumping around a movie required scanning through the tape at a higher speed than playback speed, and was a time-consuming and cumbersome operation. However, DVD players had the capability of jumping locations within a disc in a much shorter amount of time. Thus, DVD movies allowed users to skip forward, backward or even randomly jump within the disc contents in a short amount of time. Because of this capability, a format was created to create menus for video DVDs.

33. The DVD standard allowed for the creation of menus, in order to start a movie, access chapters within a movie, or view extra video features such as interviews, outtakes, configure captions, select audio tracks such as audio in different languages or director's commentary, for example.

34. During playback of movies on DVDs, various overlays may appear. For example, when a viewer decides to scan forwards or backwards, a "scrubber bar" may appear in the lower portion of the screen. The scrubber bar often shows the current viewing position in the overall video, the current playback time, the total or remaining time in the movie, chapter marks, play/pause indication, and

scan speed, if scanning forwards or backwards. Sometimes, chapter key frames and chapter name may also be shown in proximity to the scrubber bar and the corresponding chapter mark.

A. DVR AND VIDEO NAVIGATION

35. Digital Video Recorders (DVRs) first became popular around 1999 when commercial DVRs were released by TiVo and ReplayTV. These DVRs had integrated TV tuners to watch live TV and could record TV programs onto hard drives. Because hard drives typically had high storage capacity and rapid access speeds, DVRs could store dozens or even hundreds of hours of video recordings.

36. These commercial DVRs typically integrated TV Guides to aid users in deciding which programs to record. While these initial commercial DVRs were sold as stand-alone set-top boxes, various open-source and commercial software packages allowed for standard PCs with TV tuner cards to act as a DVR. For example, Microsoft Windows XP Media Center Edition was released in 2002, and extended the standard Microsoft operating system to include a full DVR. In 2005, the capability to stream video to media center extenders was added, so that the home network could be used to stream content on the central DVR server to televisions with an attached extender. The Xbox 360 could also be used as an extender. I personally owned a Windows XP MCE DVR that I used to stream video to several televisions in my household using the Xbox 360 as a media center

extender.

37. DVRs offered user interfaces that allow for playback of movies that were similar to those found on DVD players, featuring the ability to scan forwards or backwards, jump forwards or backwards, with a scrubber bar showing similar information. DVRs could be even more responsive to scanning and jumping than DVD players, since hard-drive seeking was often faster than seeking on DVD.

B. CONTENT METADATA

38. As discussed above, movie content stored on DVD or hard drive also had other associated data, such as movie chapter markings, key frame images, along with time information. Menus on a DVD also linked the menu presentation including images from the movie to specific locations within the movie, so when a user selects a specific chapter to play, the playback starts at the correct time offset into the movie.

C. SD CARDS

39. The Secure Digital (“SD”) standard was introduced in 1999, and memory cards conforming to the SD standard were used in devices to store recorded media. SD cards were used in cameras, video cameras, camcorders, and many PCs also had integrated SD card readers. For example, many of the PCs that I have personally owned since 2005 or even earlier had integrated SD card readers. The benefits of using SD cards included that the cards were very compact and

could be moved between devices, so that recordings made on one device could be displayed on another.

VII. Claim Construction

40. It is my understanding that in order to properly evaluate the '300 patent, the terms of the claims must first be interpreted. It is my understanding that for the purposes of this inter partes review, the claims are to be construed under the so-called *Phillips* standard, under which claim terms are given their ordinary and customary meaning as would have been understood by one of ordinary skill in the art in light of the specification and prosecution history, unless the inventor has set forth a special meaning for a term. For the purposes of this declaration, it is my opinion that none of the claim terms requires a specific construction and all will be given their plain and ordinary meaning.

VIII. Claims 1-20 are Unpatentable

41. I have been asked to provide my opinion as to whether the Challenged Claims of the '300 patent would have been obvious in view of the prior art. The discussion below provides a detailed analysis of how the prior art references identified below teach the limitations of the Challenged Claims of the '300 patent.

42. As part of my analysis, I have considered the scope and content of the prior art and any differences between the alleged invention and the prior art. I describe in detail below the scope and content of the prior art, as well as any

differences between the alleged invention and the prior art, on an element-by-element basis for each Challenged Claims of the '300 patent.

43. As described in detail below, the alleged invention of the Challenged Claims would have been obvious in view of the teachings of the identified prior art references as well as the knowledge of a POSITA.

Grounds	Claims	Basis	Prior Art
1	1-20	§ 103	Nishikawa, Angiolillo, and Vahtola
2	1-20	§ 103	Nishikawa, Angiolillo, Vahtola, and Ackley

A. Summary of the Prior Art

44. In my opinion, Nishikawa, Angiolillo, Vahtola, and Ackley are all analogous art to the '300 patent because each is from the same field of endeavor, video playback, and is reasonably pertinent to one of the problems dealt with in the '300 patent, such as improving navigation during video playback.

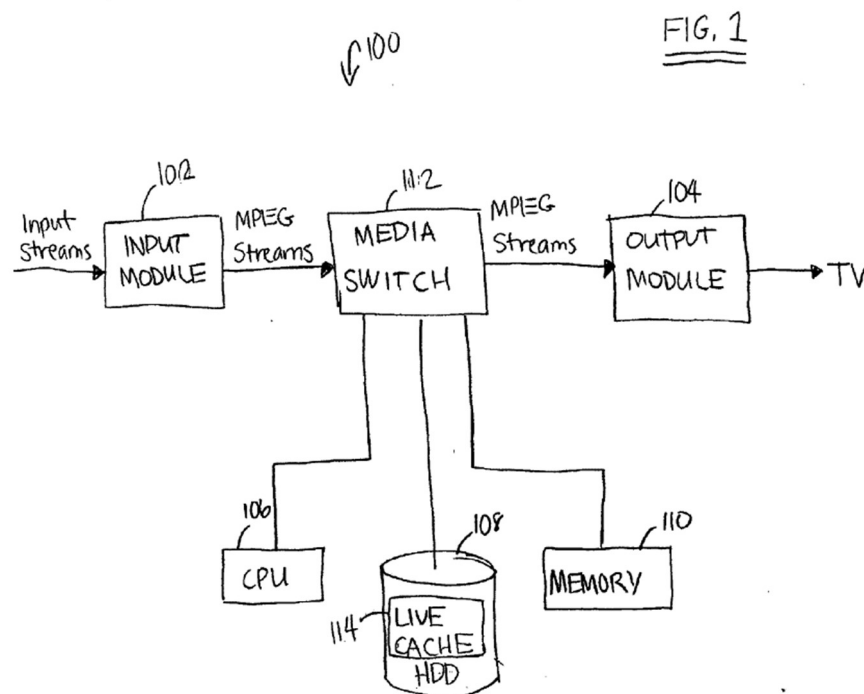
Compare '300 Patent, Abstract with, e.g., Nishikawa, Abstract; Angiolillo, [0038]; Vahtola, [0034]; Ackley, Abstract.

1. Nishikawa

45. I have been informed that Nishikawa, which was filed March 15, 2005, and published April 13, 2006, qualifies as prior art to the '300 patent.

46. Like the '300 patent, Nishikawa describes “[m]ethods and apparatus

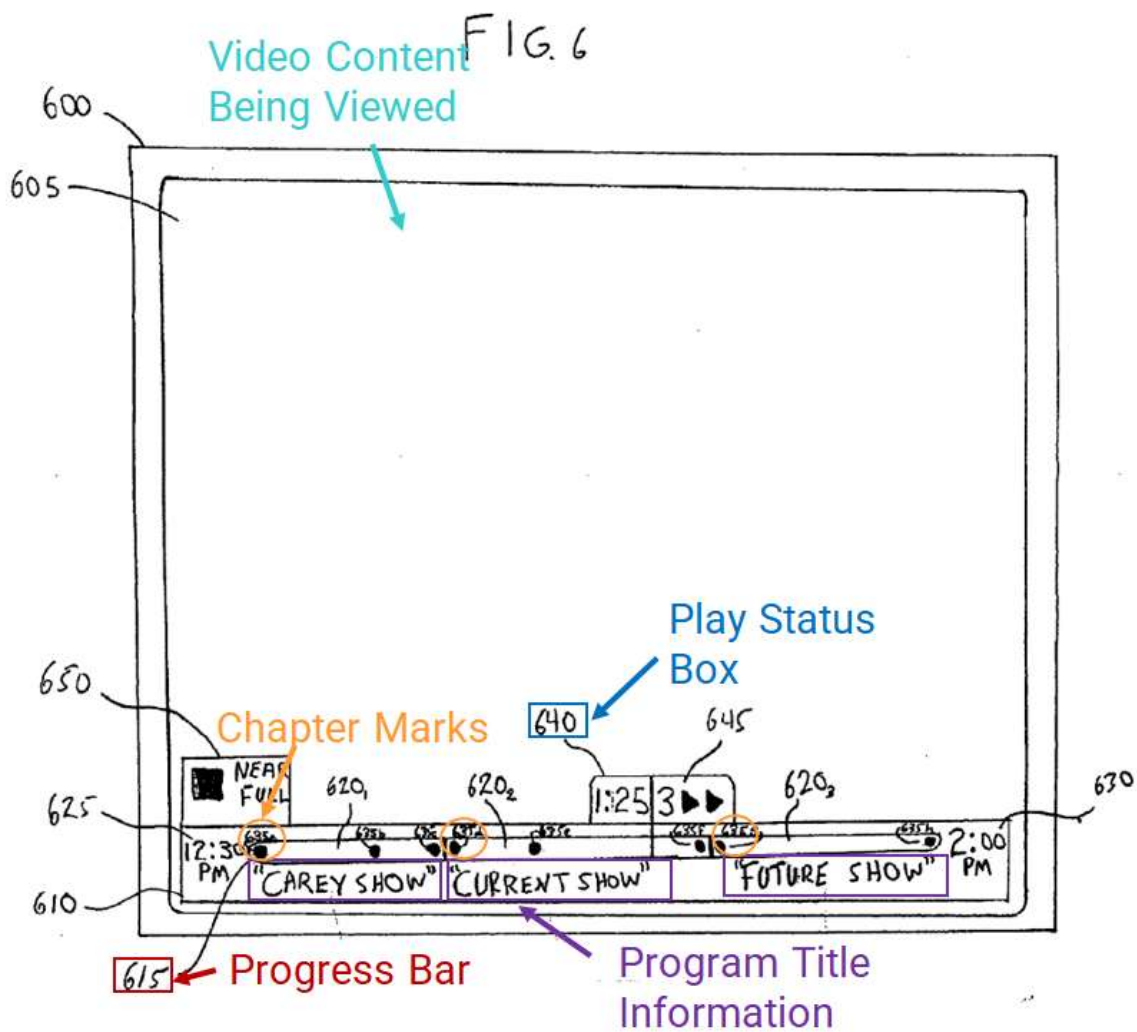
for navigating video content” using “chapter marks” (which Nishikawa also calls “bookmarks”). Nishikawa, [0007], [0017]. An example system in Nishikawa is a “DVR system,” as shown in Figure 1 below. As shown, the DVR system includes a “hard disk or other storage device 108,” onto which content (e.g., broadcast content received as an input stream) may be written. Nishikawa, [0022].



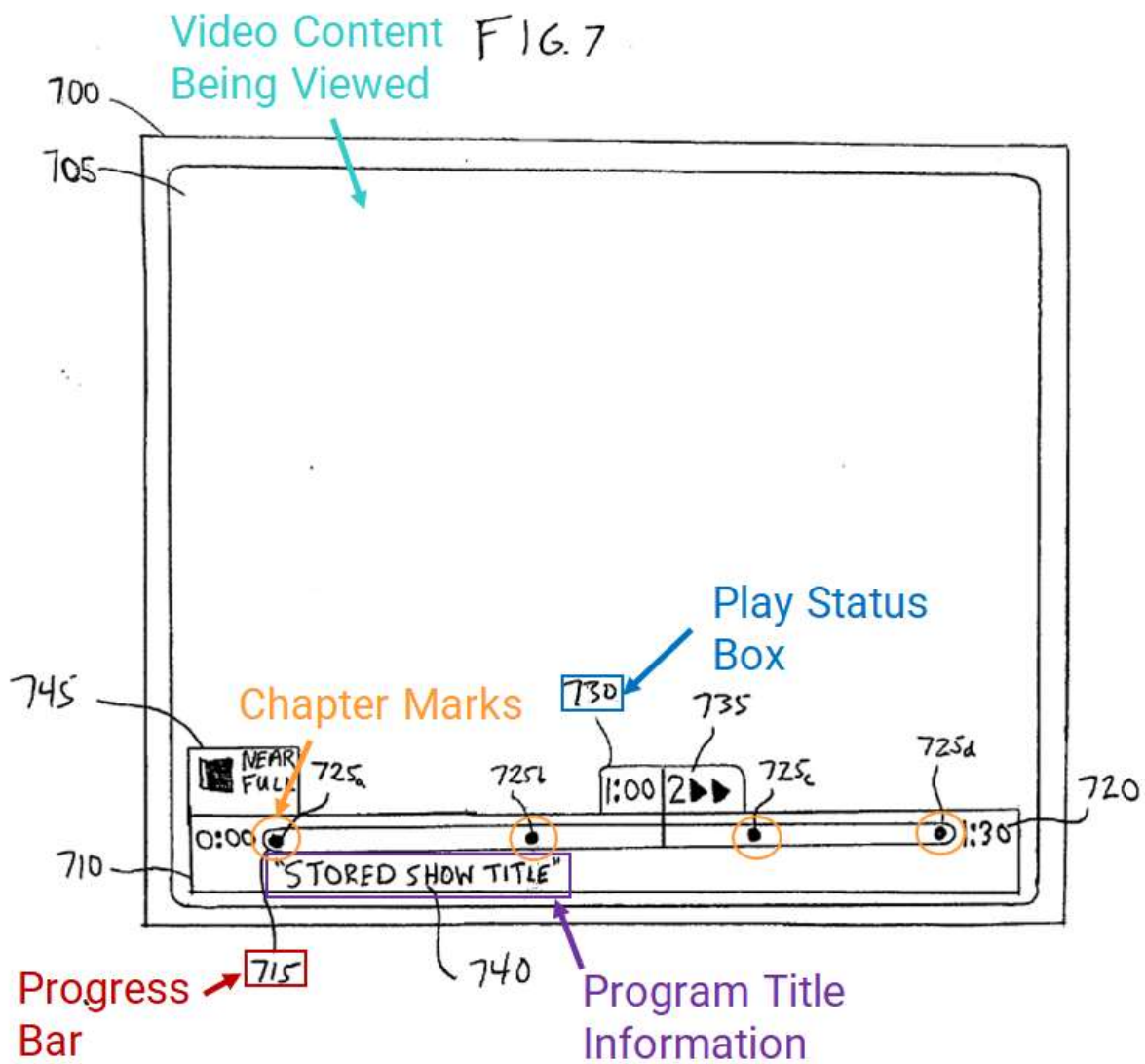
Nishikawa, Figure 1.

47. Nishikawa explains that, while watching content, “a user may input a control instruction to display a DVR status bar,” such as that illustrated in Figures 6–8 below. Nishikawa, [0027]. The status bar is overlaid on the video content being displayed. Nishikawa, [0023], [0031], [0035], [0041]. As shown, Nishikawa’s status bar includes a “**progress bar**” (615, 715) that “is a graphical

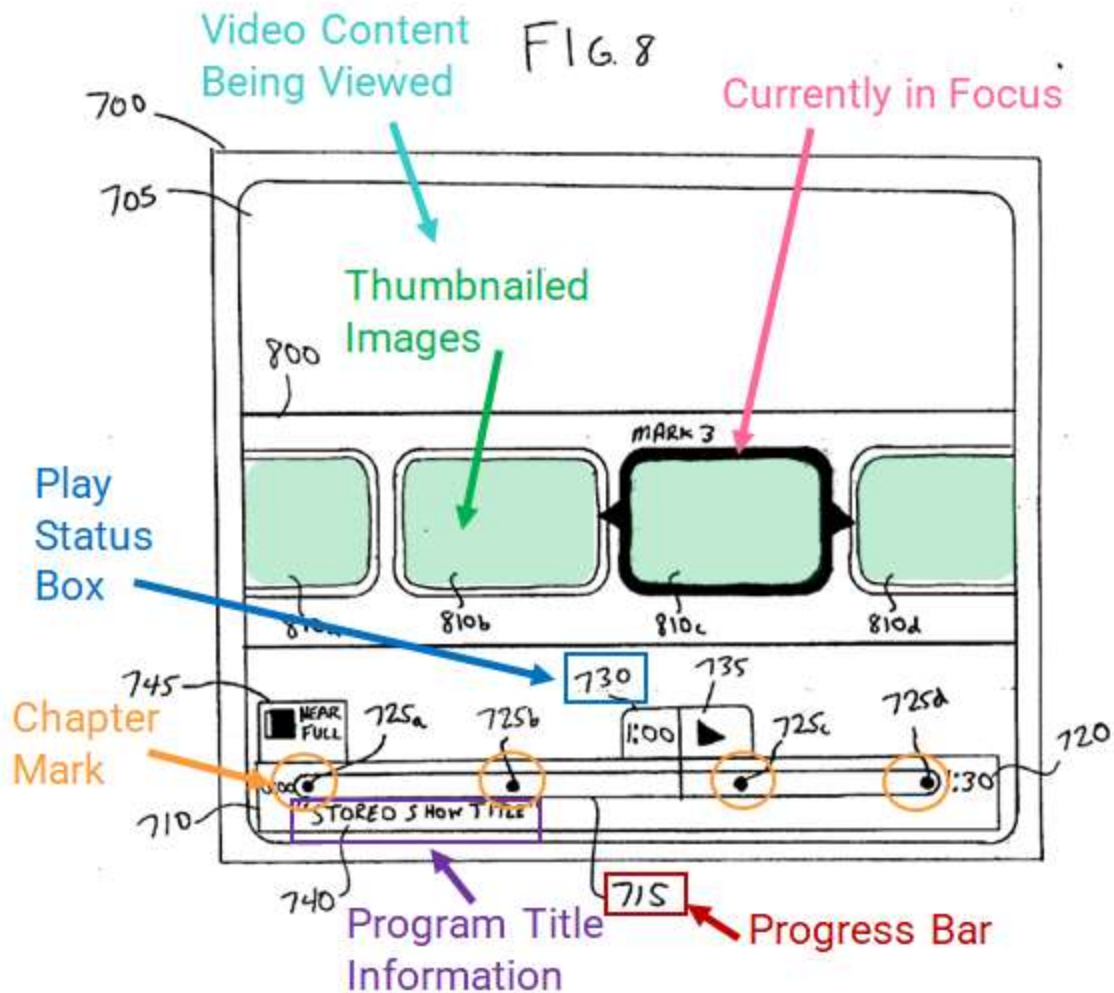
representation of the ... video content.” Nishikawa, [0036], [0042]. The status bar further includes “chapter marks” (635_a-635_h and 725_a-725_d) that “denote the beginning ... of each segment/program” in the video content. Nishikawa, [0038], [0043]. A “play status box” (640, 730) is “used to show the current viewing position” in the video content, and “program title information” is shown “for the stored video content.” Nishikawa, [0040], [0043]-[0044]. As Figure 8 shows, Nishikawa’s status bar also displays “thumbnailed images which correspond to the chapter marks[.]” Nishikawa, [0045]. One thumbnailed image may be “currently in focus,” as shown in Figure 8. Nishikawa, [0046]. Nishikawa also describes “a meta-data file,” stored with the video content, that “contains the marker information” used in the status bar. Nishikawa, [0030].



Nishikawa, Figure 6 (annotated).



Nishikawa, Figure 7 (annotated).



Nishikawa, Figure 8 (annotated).

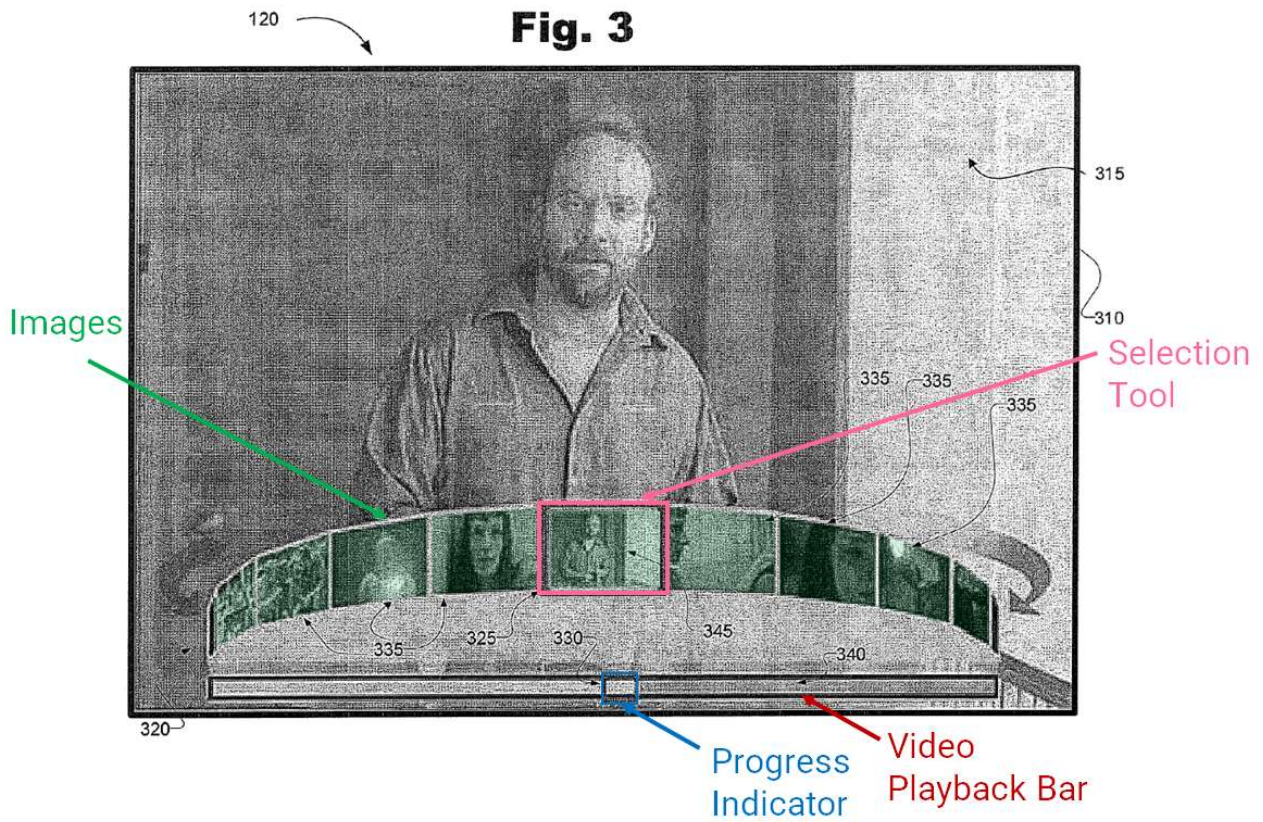
48. Nishikawa teaches that “the status bar is displayed as an overlay onto the video content being viewed” during playback. Nishikawa, [0031]; *see also id.*, [0023], [0035], [0041]. As shown, “the **thumbnailed images** may be displayed in a sequence organized from left to right” along the **progress bar**. Nishikawa, [0033]; *see also id.*, [0046]. Nishikawa explains that the “user may ... scroll through the **thumbnails**, and hence the bookmarks, and select to begin viewing the content

from which ever thumbnail is then chosen.” Nishikawa, [0019]. In this manner, the “user will be able to decide, prior to jumping to the location, whether or not the **image** being shown corresponds to the desired content.” *Id.*

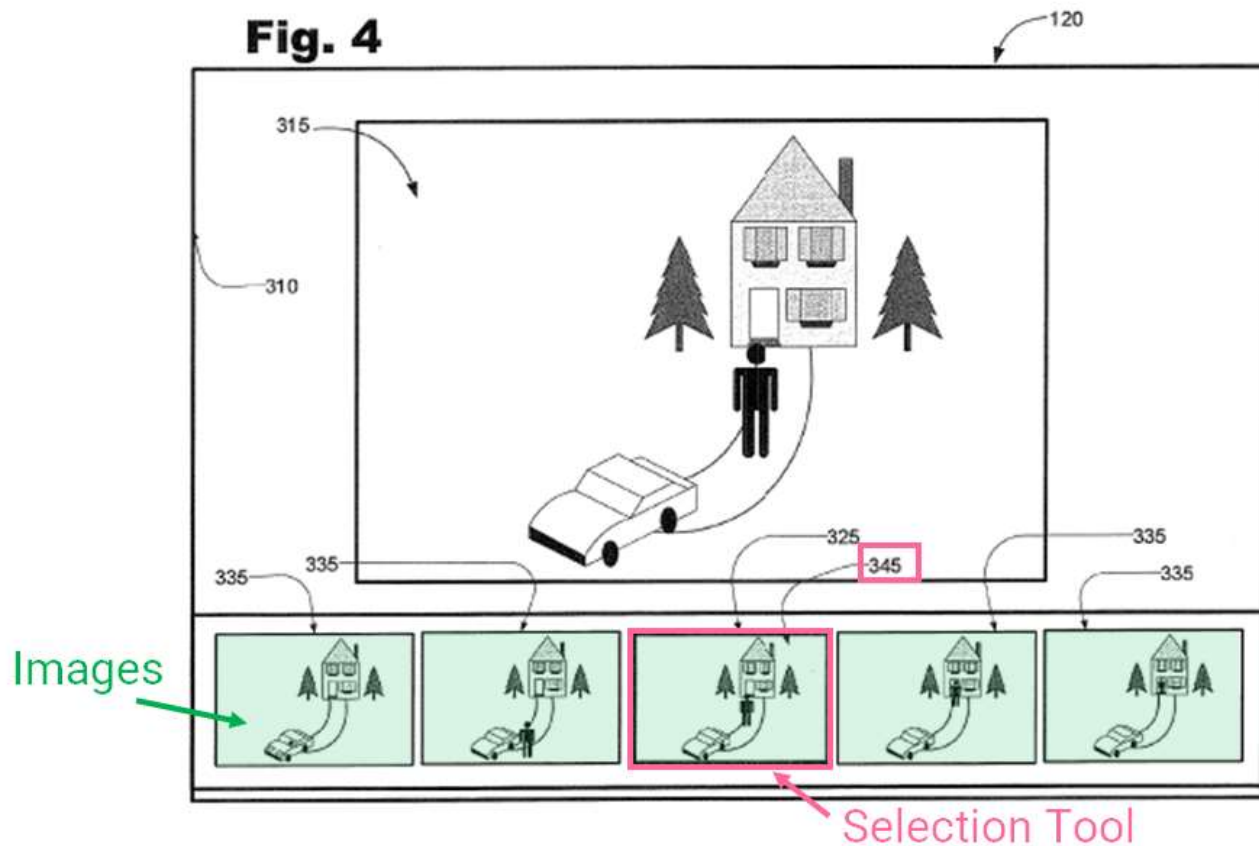
2. Angiolillo

49. I have been informed that Angiolillo, which was filed December 20, 2006, and published June 26, 2008, qualifies as prior art to the '300 patent.

50. Angiolillo describes a “digital video recording (DVR) application” through which “a user may select an option to navigate through media content,” such as a “video.” Angiolillo, [0015], [0028], [0029]. The media content may be stored in a storage device 140, which may include any type of storage medium, including flash memory. Angiolillo, [0026], [0027], [0032], [0074]. Angiolillo explains that, “as is known, [its] digital media files[, e.g., the ‘media content,’] generally include metadata including information such as a title, ... specific images 335 to be displayed in [the] control pane 320, intervals according to which images 335 should be displayed, etc.” Angiolillo, [0074]; *see also id.*, [0068]. This metadata is “retrieved” to be “included in [a] location control pane 320,” such as those shown in Figures 3 and 4. Angiolillo, [0076]; *see also id.*, claims 1, 9, 16, 17, 19, 20.



Angiolillo, Figure 3 (annotated).



Angiolillo, Figure 4 (annotated).

51. Angiolillo’s “location control pane 320” is “overlaid on a portion of the media content” and “used to display a series of individual **images 335**” from the video, as shown. Angiolillo, [0033], [0036]. The location control pane may further include “a **video playback bar 340**” and a “**progress indicator**” that “represent[s] ... the location of an image currently displayed in the media content,” as shown. Angiolillo, [0034]. Angiolillo teaches that a “**selection tool 325**,” shown as a **border**, “is operative to magnify [a] selected image 345 relative to the other images 335 included in [the] control pane[.]” Angiolillo, [0038]. Then, “[a]s a user

navigates from one image 335 to another using selection tool 325, the image 335 which is currently a selected image 345 may be magnified slightly,” but “[w]hen the user navigates away from a given image 335, the previous selected image 345 may return to a ‘pre-magnified’ size.” Angiolillo, [0038].

3. Vahtola

52. I have been informed that Vahtola, which was filed December 7, 2006, and published June 12, 2008, qualifies as prior art to the ’300 patent.

53. Vahtola describes “creating chapters in ... media data while recording” so that “during playback” a user can “jump[] directly to the beginning of [a] desired video sequence.” Vahtola, [0001]-[0002]. To this end, Vahtola describes storing certain “chapter information” for the media, such as “a chapter indicator for indicating the starting point or ending point of a particular portion of the continuous media data” and “a chapter title.” Vahtola, [0008]-[0009].

54. Vahtola envisions recording media using a “processing element 14” that may be a DVR system. Vahtola, [0028], [0030]. As shown in Figure 1, below, the DVR system may receive media data from a “continuous media data source 12,” such as a “television network[.]” Vahtola, [0029]. Figure 2 below shows that Vahtola’s DVR system includes a “memory 22” used to “store[] content, data, or the like,” including the “continuous media data” and “chapter information.” Vahtola, [0034], [0037]. Vahtola teaches that the memory of the

DVR system may be, among others, “a hard drive, ... a memory card such as a Flash memory card, a Memory stick, a Secure Digital (SD) card and the like[.]”

Vahtola, [0034].

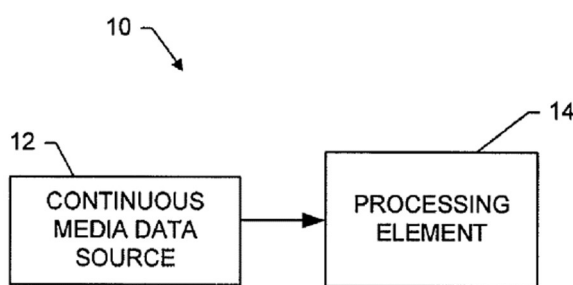


FIG. 1

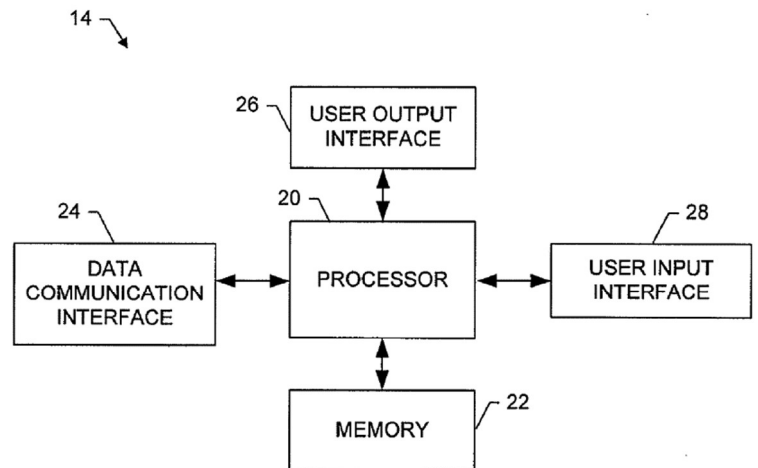


FIG. 2

Vahtola, Figures 1 and 2.

55. As Vahtola explains, when the continuous media data is received, the DVR system stores the content in the memory, “then record[s] chapter information into a separate file in the memory[.]” Vahtola, [0040]. “Generally,” Vahtola teaches, “the chapter information file will include a chapter title or other ID and a chapter location, such as a particular frame or time in the continuous media data recording.” Vahtola, [0041]; *see also id.*, [0042]-[0046] (describing exemplary chapter information files). In one example, Vahtola explains, “the chapter location may comprise a particular time that marks the beginning of a new chapter, the time being relative to the beginning of the recording or relative to some other reference

time.” Vahtola, [0049]. Vahtola also envisions that the chapter information may include “thumbnail images from the chapter[.]” Vahtola, [0061].

56. Vahtola’s DVR system “can use the location information to automatically jump to the stated location in the continuous media data.” Vahtola, [0049]. For example, Vahtola envisions “a table of contents or other menu-type display of the chapters in the recorded continuous media data” in which the “thumbnail images from the chapter[s] ... are displayed.” Vahtola, [0061].

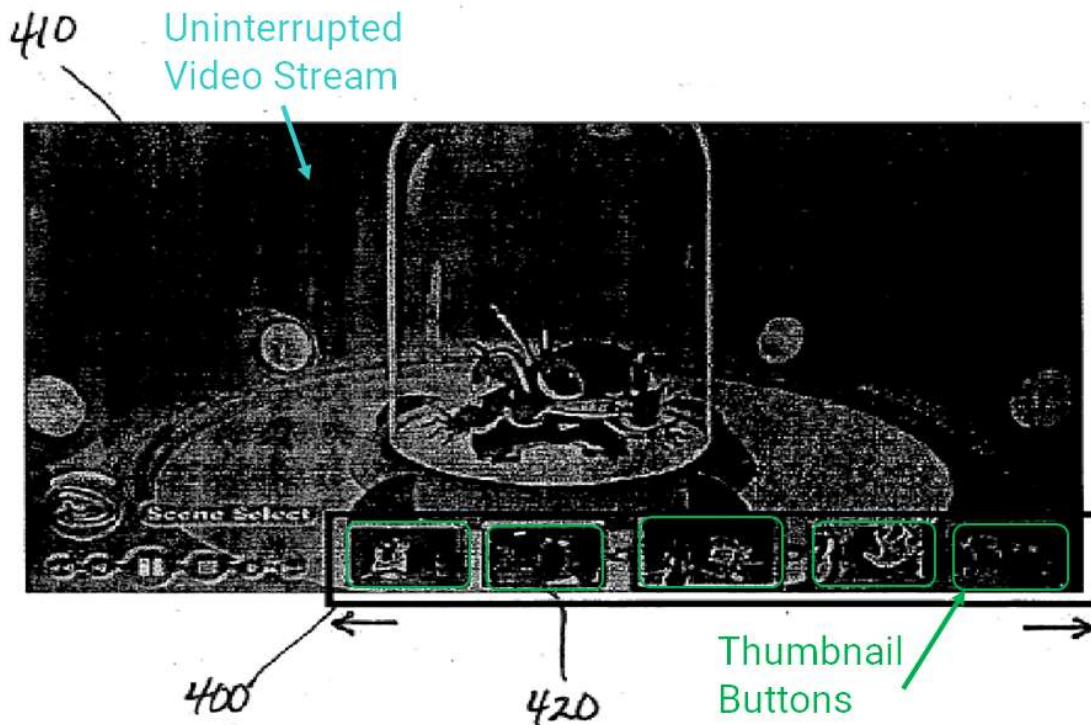
4. Ackley

57. Ackley, filed October 4, 2004, and published April 28, 2005, is prior art to the ’300 patent at least under pre-AIA 35 U.S.C. § 102(a), (b), and (e).

58. Ackley describes “a user interface to control playback and features that may be associated with prerecorded media,” and is overlaid on the media being played. Ackley, Abstract. Ackley’s systems and methods are applicable to any media player known in the art. Ackley, [0008], [0030].

59. Ackley discloses multiple screenshots of the user interface, including examples of a “Controls” submenu that allows a user to navigate through the media being played. Ackley, [0043]-[0049], Figs. 3-5. For example, Figures 4 and 5, below, show a foreground submenu that allows a user to select different scenes in the media playing in the background. Ackley, [0046]-[0047]. The menu (400/500) “is displayed across the bottom portion of the screen and includes **thumbnail**

buttons showing the starting frame of each available scene. The user can scroll through the thumbnails without the video stream 410 being interrupted.” Ackley, [0046]; *see also id.* [0048]. When the user selects one of the thumbnails (e.g., thumbnail 510 in Figure 5), video of the scene portrayed in the thumbnail starts playing within the thumbnail 510. Ackley, [0048], Figure 5. Ackley explains that the menu is displayed, and the user can interact with the menu, while the video in the background continues to play uninterrupted. Ackley, [0009], [0029], [0043], [0044].



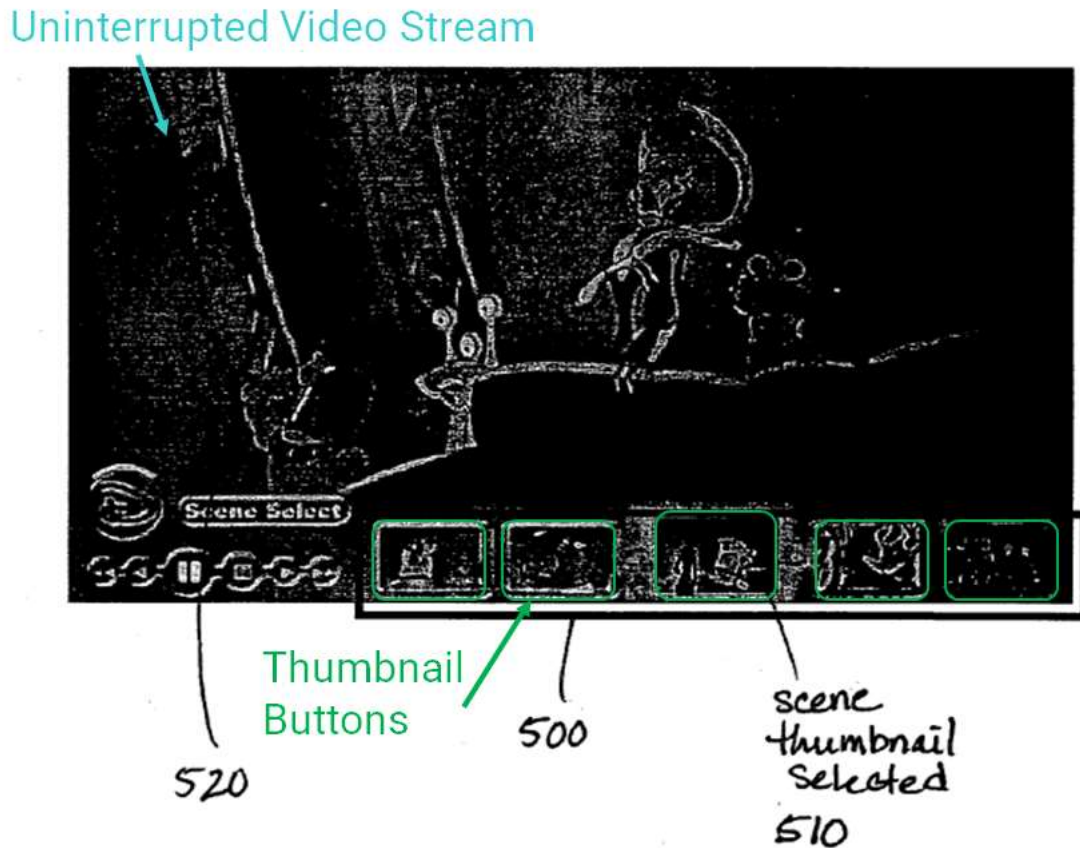


FIG 5

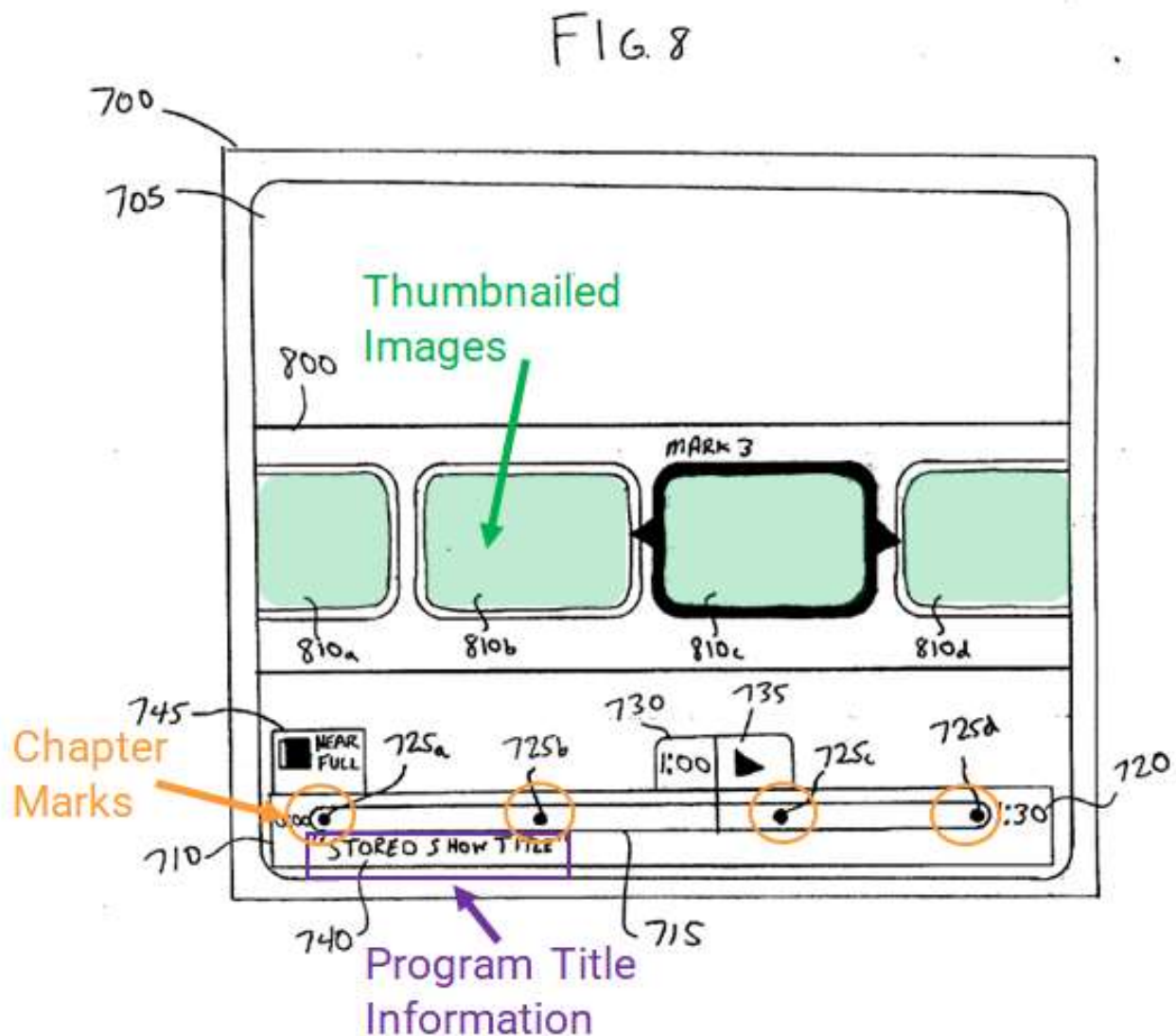
Ackley, Figures 4, 5 (annotated).

B. Reasons to Combine Nishikawa, Angiolillo, and Vahtola (Ground 1)

60. In my opinion, a POSITA would have been motivated and found it obvious to combine Nishikawa's disclosure with the disclosures of Angiolillo and Vahtola. As explained below, it is my opinion that a POSITA implementing Nishikawa would have been motivated to look to Angiolillo and Vahtola's detailed disclosures regarding implementation of a navigation function in a DVR system

like Nishikawa's. Given the similarities in the systems described by Nishikawa, Angiolillo, and Vahtola, as well as the widespread use of DVR systems by the October 21, 2009, earliest claimed priority date of the '300 patent, it is my opinion that a POSITA would have had a reasonable expectation of success in implementing Nishikawa's DVR system according to the disclosures of Angiolillo and Vahtola, as explained below.

61. As I explained above, Nishikawa describes a DVR system that generates a "status bar" to be "overla[id] onto the video content being viewed" by a user. Nishikawa, [0031]. As shown in, for example, Figure 8 below, Nishikawa's status bar includes "**chapter marks**," such as chapter mark 725a that "denote[s] the beginning ... of [a] segment/program" in the video content. Nishikawa, [0038], [0043]. Nishikawa teaches that such **chapter marks** are stored in a "meta-data file" that "may be stored separate from the video content itself." Nishikawa, [0030].



Nishikawa, Figure 8 (annotated).

62. As shown, Nishikawa's status bar also includes "program title information" and "thumbnailed images which correspond to the chapter marks[.]". Nishikawa, [0044]-[0045]. The program title information, Nishikawa explains, may be among certain "programming information" that is "retrieved from [an] electronic programming guide" received with the video content and "collected."

Nishikawa, [0028]. As a POSITA would have recognized, electronic programming guides were widely used to provide titles and other information about video content to systems like Nishikawa's DVR system. As a Federal Register notice from 200 states, for example, "[a]n electronic programming guide ('EPG') is a software-based service or device offered by cable operators and other video programming distributors to consumers to navigate, organize, and differentiates video program offerings." Ex. 1016, 49807. *See also, e.g.*, Ex. 1017 at 20:18-45 and Figure 14 (describing and illustrating display of an electronic programming guide that includes titles, start times, end times, channels, ratings, and descriptions for video content); Ex. 1012, 1:56-59 ("It is also known in the art to provide an electronic program guide (EPG) which provides the viewer with an on-screen listing of the upcoming television programs on the cable television channels available to the viewer.").

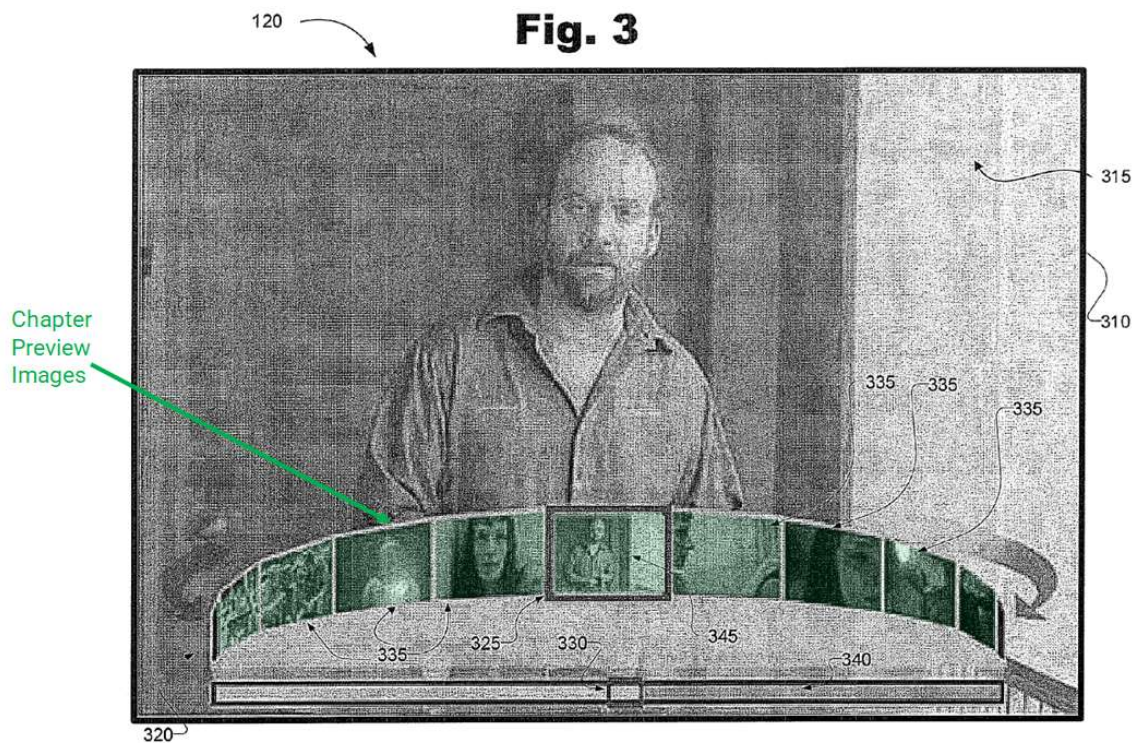
63. According to Nishikawa, the **thumbnailed images** are "generat[ed]" using "instructions" stored in the DVR system's memory. Nishikawa, [0024]. When the DVR system generates the status bar, it will "determine[]" if there are any **thumbnails** to view" and "available **thumbnailed images** ... will be displayed." Nishikawa, [0032]-[0033].

1. From Angiolillo, a POSITA would have been motivated and found it obvious to implement Nishikawa's DVR system to store the **program title information**, **chapter marks**, and information concerning the **thumbnail images** in Nishikawa's meta-data file

64. While Nishikawa thus teaches that the **chapter marks** used in generating the status bar are stored in the "meta-data file," Nishikawa, [0030], Nishikawa does not provide detailed disclosure regarding how or where the DVR system stores the **program title information** and **thumbnail images** that are displayed in the status bar along with the **chapter marks**. Accordingly, a POSITA seeking to implement Nishikawa would have been motivated to look to other references describing the navigation of video content on DVR systems for additional details regarding storage of **program title information** and **thumbnail images** used in navigating the video content. One such reference is Angiolillo, which describes techniques for storing meta data like Nishikawa's of **program title information** and **thumbnail images** and generating a display that, like Nishikawa's status bar, facilitates navigating content in DVR systems.

65. In particular, Angiolillo's DVR system generates a "location control pane" that, like the status bar generated by Nishikawa's DVR system, allows a user to navigate within content. *See, e.g.,* Angiolillo, [0038]. And like the **thumbnail images** used to navigate in Nishikawa's status bar, Angiolillo's location control pane includes "**images**" through which "a user navigates," as shown in Figure 3

below. Angiolillo, [0038]. Finally, just as Nishikawa describes storing the **chapter marks** in the meta-data file for the video content, Angiolillo teaches storing the “**intervals** according to which [the] **images** ... should be displayed” as “metadata” for the content. Angiolillo, [0033]-[0035], [0074]. Angiolillo further teaches that this metadata includes “a **title**” for the content and “information concerning [the] **images**” and/or “the **images** themselves.” Angiolillo, [0074]. Angiolillo explains that “such metadata is ... retrieved” to generate the location control pane. *Id.* And Angiolillo explains that the metadata is stored with the video being played, because it discloses that the “digital media files” that include the video “include [this] metadata” and that they are retrieved together by the system. *Id.*



Angiolillo, Figure 3 (annotated).

66. A POSITA seeking to implement Nishikawa would have been motivated and found it obvious to implement Nishikawa's DVR system to store the program title information and information concerning the thumbnail images in Nishikawa's meta-data file, alongside the chapter marks and with the video content, just as Angiolillo teaches storing the title, information concerning the images, and the intervals in Angiolillo's metadata that is stored with the digital media files. A POSITA would have found Angiolillo's techniques regarding storage and retrieval of the title and information concerning the images readily applicable to Nishikawa's DVR system and would have found it straightforward to implement these techniques for Nishikawa's program title information and thumbnail images to facilitate generation of Nishikawa's status bar.

67. In this implementation, Nishikawa's DVR system would retrieve the program title information, chapter marks, and information concerning the thumbnail images from Nishikawa's meta-data file to generate the status bar, just as Angiolillo's DVR system retrieves its metadata to generate the location control pane. Nishikawa's lack of detailed disclosure on how or where the DVR system stores the program title information and information concerning the thumbnail images would have motivated a POSITA seeking to implement Nishikawa to look to other references, like Angiolillo, that teach these additional

implementation details for storing such data and generating displays for navigating content in DVR systems. Moreover, a POSITA would have recognized that including Nishikawa's **program title information** and information concerning the **thumbnail images** in a meta-data file for the content along with the **chapter marks / intervals**, as taught by Angiolillo, would have improved the overall system by storing the metadata used for generating such displays and the video content in a single location. Such consolidated storage would have facilitated the system's ability to more efficiently retrieve such information to generate the display.

68. For a POSITA, this implementation of Nishikawa would have been nothing more than using a known technique (Angiolillo's storing of video along with a metadata file having the **intervals**, a **title**, and information concerning the **images** for a DVR system to generate a display) to improve similar devices (Nishikawa's DVR system, which uses **chapter marks**, a **title**, and **images** to generate a display) in the same way (by storing Nishikawa's **chapter marks**, a **title**, and **images** in Nishikawa's meta-data file along with the video content) to produce the predictable result of a display that allows a user to navigate between chapters using this information. For the same reason, this combination would have been nothing more than applying a known technique (Angiolillo's storing of video along with a metadata file having the **intervals**, a **title**, and information concerning the **images** for a DVR system to generate a display) to a known device (Nishikawa's

DVR system) to improve the device's ability to efficiently retrieve this information and generate the display. Given the similarity between Nishikawa's DVR system, which uses **chapter marks**, a **title**, and **images** to generate a status bar, and Angiolillo's DVR system, which uses **intervals**, a **title**, and **images** to generate a location control pane, a POSITA would have found it straightforward to implement Angiolillo's storage and retrieval techniques for Nishikawa's **program title information** and **thumbnail images** to facilitate generation of Nishikawa's status bar.

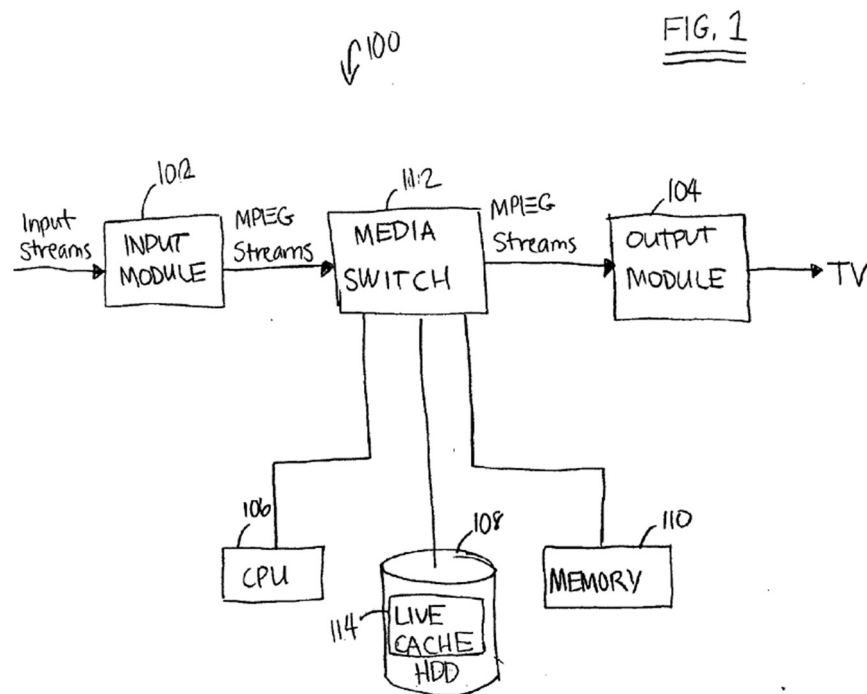
69. A POSITA would also have had a reasonable expectation of success in implementing Nishikawa's DVR system to store the **program title information** and information concerning the **thumbnail images** in Nishikawa's meta-data file along with the **chapter marks**, as Angiolillo's DVR system does. Nishikawa and Angiolillo describe similar DVR systems that generate similar displays (Nishikawa's status bar and Angiolillo's location control pane) for a user to navigate through video content. *See supra* Sections VIII.A.1-2. Moreover, a POSITA would have recognized that Angiolillo's additional implementation details regarding storage of the information used to generate a display are compatible with Nishikawa's DVR system, which already uses a meta-data file to store information used to generate its display. Incorporating these additional implementation details into Nishikawa's DVR system would have been well within

the knowledge and skill of a POSITA, as storing metadata and using metadata to generate displays were familiar techniques in the development of video content systems.

2. From Vahtola, a POSITA would have been motivated and found it obvious to implement Nishikawa's/Angiolillo's system using an SD card

70. Nishikawa teaches that its DVR system includes a “hard disk or other storage device 108,” shown in Figure 1 below, onto which content (e.g., broadcast content received as an input stream) may be written. Nishikawa, [0022]. Nishikawa does not provide additional examples of its “other storage device 108.”

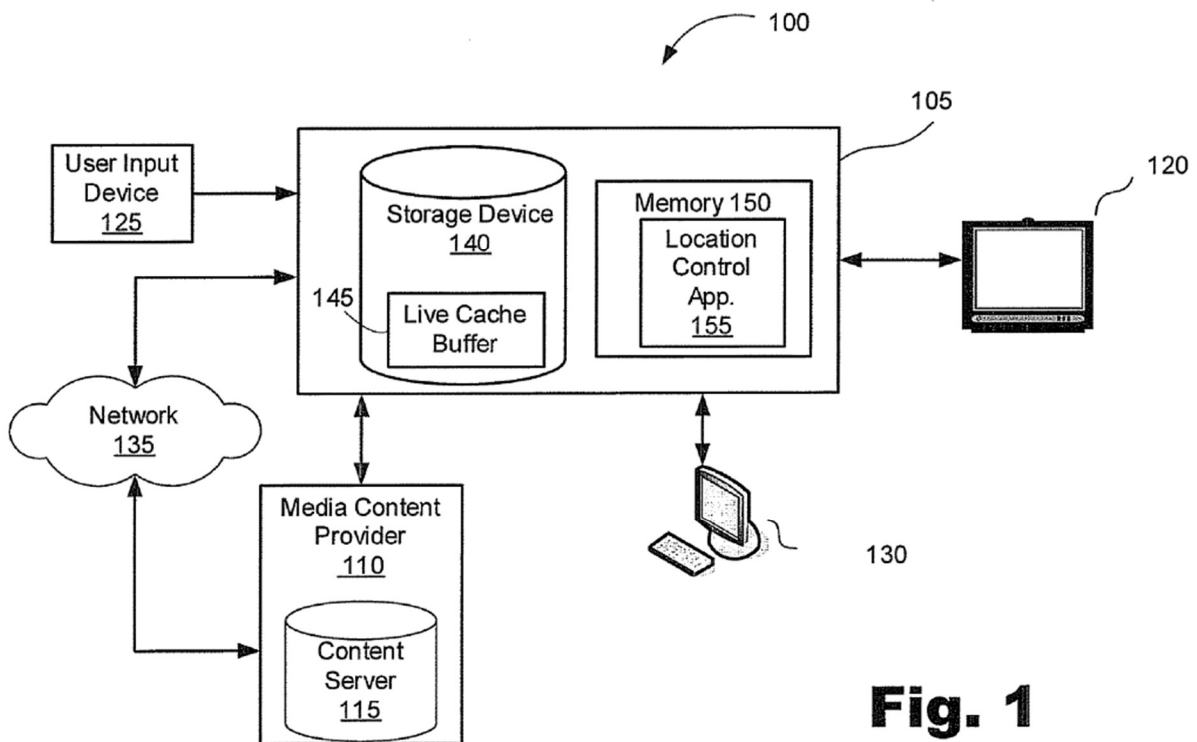
Accordingly, a POSITA seeking to implement Nishikawa would have been motivated to look to other references describing storage devices for use with DVR systems. Two such references are Angiolillo and Vahtola, which describe various storage devices for storing video content in DVR systems.



Nishikawa, Figure 1.

71. Similarly, Angiolillo teaches that its DVR system includes a “storage device 140,” shown in Figure 1 below, onto which content (e.g., television content received from media content provider 110) may be stored. Angiolillo, [0021]-[0022], [0026]. Angiolillo provides as examples of its “storage device” a “hard drive, network drive, flash drive, magnetic disc, optical disc, or other non-volatile storage unit.” Angiolillo, [0026]. A POSITA would have understood Angiolillo’s disclosure of a “flash drive” to teach, or at least render obvious, an SD card because an SD card is, like a flash drive, a flash memory. *See, e.g.*, ’300 patent (“In one embodiment, the SD card 150 is a flash memory device ...”); Ex. 1018 at [0021], [0023] (describing “SD cards” and explaining that “the SD standard is a

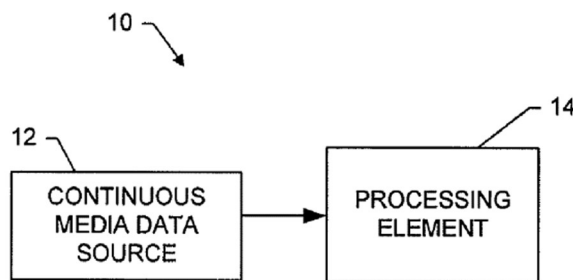
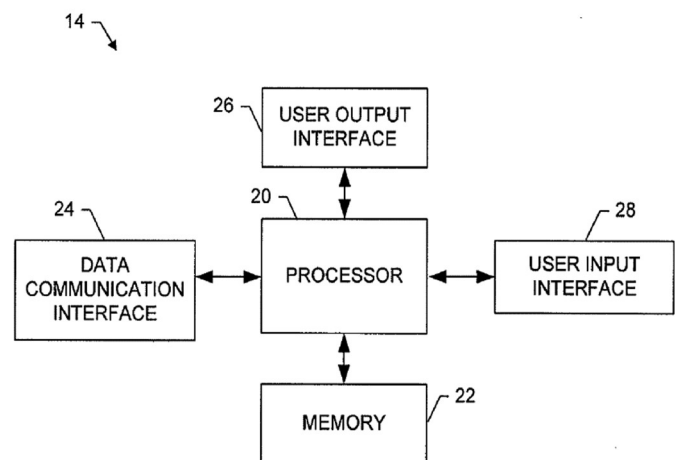
standard related to semiconductor storage devices in which a NAND type flash memory specified by the SD Association (SDA) is used, and is a standard that can be said to be a de facto standard for memory cards, the SD card is widely used.”).



Angiolillo, Figure 1.

72. To the extent it is argued that Nishikawa and Angiolillo do not expressly teach using an SD card as a storage device in a DVR system, a POSITA would have been motivated and found it obvious to do so from Vahtola. Vahtola describes a DVR system that, like Nishikawa’s and Angiolillo’s DVR systems, uses chapters to facilitate a user’s navigation through content. Vahtola, [0001]-[0002]. As shown in Figure 2 below, Vahtola’s DVR system includes a

“memory 22” that, like Nishikawa’s and Angiolillo’s storage devices, is used to store both content and data related to that content, including “chapter information.” Vahtola, [0034]. Vahtola teaches that the memory of the DVR system may be, among others, “a hard drive, ... a memory card such as a Flash memory card, a Memory stick, a Secure Digital (SD) card and the like[.]” Vahtola, [0034].

**FIG. 1****FIG. 2**

Vahtola, Figures 1 and 2.

73. A POSITA would have been motivated and found it obvious to implement Nishikawa’s DVR system (as modified by Angiolillo) using an SD card as the storage device, as taught by Vahtola, for several reasons. First, a POSITA would have recognized from Vahtola that this would merely involve the simple substitution of one known element (Vahtola’s SD card) for another (Nishikawa’s generic “storage device”) to obtain predictable results (reading the content and the metadata from the SD card, just as it is read from the generic storage device in

Nishikawa). Indeed, Vahtola teaches that an SD card is interchangeable with a “hard disk,” an example Nishikawa provides for its storage device. Nishikawa, [0022]; Vahtola, [0034]. Second, a POSITA would have recognized that this would merely have involved using a known technique (Vahtola’s SD card) to improve similar devices (Nishikawa’s and Vahtola’s DVR systems) in the same way. By the October 21, 2009, earliest claimed priority date of the ’300 patent, SD cards were widely used and even governed by a standard, making their use desirable, reliable, and straightforward. As one contemporaneous patent explained, “the SD standard is a standard related to semiconductor storage devices in which a NAND type flash memory specified by the SD Association (SDA) is used[.]” Ex. 1018, [0021]. This “standard,” the patent explained, “can be said to be a de facto standard for memory cards,” as “the SD card is widely used.” *Id.*; *see also* Ex. 1020 (the SD Association stating “SD memory cards are the market leader in digital storage,” are “widely used in ... consumer electronic products,” are a “[m]arket leader and de-facto industry standard,” and are “[w]idely available”).

74. Finally, a POSITA would have been aware of the benefits SD cards provide, including large storage capacity, small physical size, reliability, interoperability, and high data transfer rates, to name a few. *See, e.g.*, Ex. 1019 (SD Association announcing that “[t]he next-generation SDXC (eXtended Capacity) memory card specification, announced today at the 2009 International

CES, dramatically improves consumers' digital lifestyles by providing the portable storage and speed needed to store weeks of high-definition video The new SDXC specification provides up to 2 terabytes storage capacity and accelerates SD interface read/write speeds to 104 megabytes per second this year, with a road map to 300 megabytes per second. The SDXC specification, developed by the SD Association, leapfrogs memory card interface speeds while retaining the world-leading SD interface"); Ex. 1020 (the SD Association listing "SD Memory Card Benefits" including that SD cards are "[u]ltra-compact," "rugged," "reliable," "interoperable and easy to use," have "[h]igh-capacity storage" and "high data transfer speeds").

75. A POSITA would also have had a reasonable expectation of success implementing Nishikawa's system using an SD card, as Vahtola suggests. Indeed, both Vahtola and Angiolillo teach that various storage devices may be implemented with a DVR system like Nishikawa's. Vahtola, [0034] (listing as example "memory device[s]" each of "a hard drive, a CD, a DVD, a Blu-ray disk, a memory card such as a Flash memory card, a Memory stick, a Secure Digital (SD) card and the like, ..."); Angiolillo, [0026] (listing as example "storage device[s]" each of "a hard drive, network drive, flash drive, magnetic disc, optical disc ..."). The '300 patent likewise describes the SD card as just one "example of a media storage device[.]" '300 Patent, 2:62-64. Further, Vahtola's SD card is

compatible with Nishikawa's recorded television content, as Nishikawa contemplates its DVR system recording and playing television content stored in an MPEG format, and Vahtola teaches recording and playing television content in an MPEG format using an SD card. *Compare* Nishikawa, [0020]-[0021] *with* Vahtola, [0030], [0032]. Moreover, the use of SD cards to record and play content was well known. The '300 patent recognizes this, stating "the structural characteristics of the SD card (e.g., form factor, pin connections) [were] defined through the SD Card Association" and providing little detail on how the content and metadata are read from the SD card. '300 Patent, 2:41-43, 3:16-35 (describing the SD card being "receive[d] into [a] slot" on the playback device and using "playback firmware" to "read the data from the SD card"), 4:27-34 (describing "I/O interface 128" in Figure 1B as "a structure to interface with a flash media storage device" such as "an SD reader to communicatively couple with an SD card"), 7:16-27 (describing the SD card being "insert[ed]" and the metadata being "read"). *See also* Ex. 1013, [0008]-[0009], [0028], [0037]); Ex. 1020 (the SD Association stating "SD memory cards are the market leader in digital storage," are "widely used in ... consumer electronic products," are a "[m]arket leader and de-facto industry standard," and are "[w]idely available").

C. The Combination of Nishikawa, Angiolillo, and Vahtola with Ackley (Ground 2)

76. In my opinion, Nishikawa, Angiolillo, and Vahtola would have

rendered obvious all aspects of the Challenged Claims, as explained below. But to the extent it is argued that Nishikawa does not disclose “presenting” its status bar “*during continuous playback of a video*” (Nishikawa does), this would have been obvious to a POSITA because presentation of a user interface, like Nishikawa’s status bar, “*during continuous playback of a video*” was well known. One reference that discloses this is Ackley.

77. Like Nishikawa and Angiolillo, Ackley describes various user interfaces for allowing a user to control playback and navigate between chapters of prerecorded video content. Ackley, Abstract. And like Nishikawa, Ackley describes embodiments in Figures 4 and 5 that show a menu in the foreground overlaid on the video content in the background. *E.g.*, Ackley, [0008], [0043]-[0048].

78. Ackley expressly discloses presenting a user interface for navigating video content “*during continuous playback of a video.*” As Ackley states, when “a user interface is provided to the user for selecting from a plurality of scene selections available within the media[,] [t]he user is able to scroll through the scene selections, perhaps viewed as thumbnail images, *during and without interrupting playback of the media.*” Ackley, [0009]; *see also id.*, Abstract, [0029], [0034], [0035], [0042]-[0046], [0048], claim 17.

79. From Ackley, a POSITA would have been motivated and found it

obvious to implement Nishikawa's status bar to be displayed and allow navigation of the video content without interrupting playback of the video content. A POSITA would have been motivated by, for example, Ackley's criticism of prior art devices where "playback is interrupted" and/or "the user is returned to the main menu to make the selection." Ackley, [0007], [0009]. Indeed, it would have been apparent to a POSITA that avoiding interruption of the video content by continuing playback of the video would create a desirable user experience. A POSITA would have recognized that this would have improved usability of the overall system and led to increased user satisfaction by enabling the user to continue watching the video while deciding whether to navigate to a different chapter within that video.

80. For a POSITA, implementing Nishikawa so that the status bar is presented during continuous playback of the video content would have been simply using a known technique (Ackley's continued playing of video content during display and interaction with the user interface) to improve a similar device (Nishikawa's user interface) in the same way to produce the predictable and desired result of allowing the user to continue watching the video content while making selections from the user interface. A POSITA would have had a reasonable expectation of success implementing Nishikawa in this manner at least because Nishikawa's, Angiolillo's, and Ackley's systems are similar: all are configured to read and present stored video content, and all are configured to generate a user

interface that is overlaid on the video content and allows a user to navigate through the video content by selecting “thumbnail” images in the user interface. *Compare* Nishikawa, [0023], [0041], [0045]-[0046], Figure 8 and Angiolillo, [0043], Figures 3-6 *with* Ackley, [0029]-[0031], [0040], [0046]-[0049], Figures 4-5. In light of these similarities, implementation of Ackley’s continuous video play into Nishikawa would have been straightforward and within the skill of a POSITA.

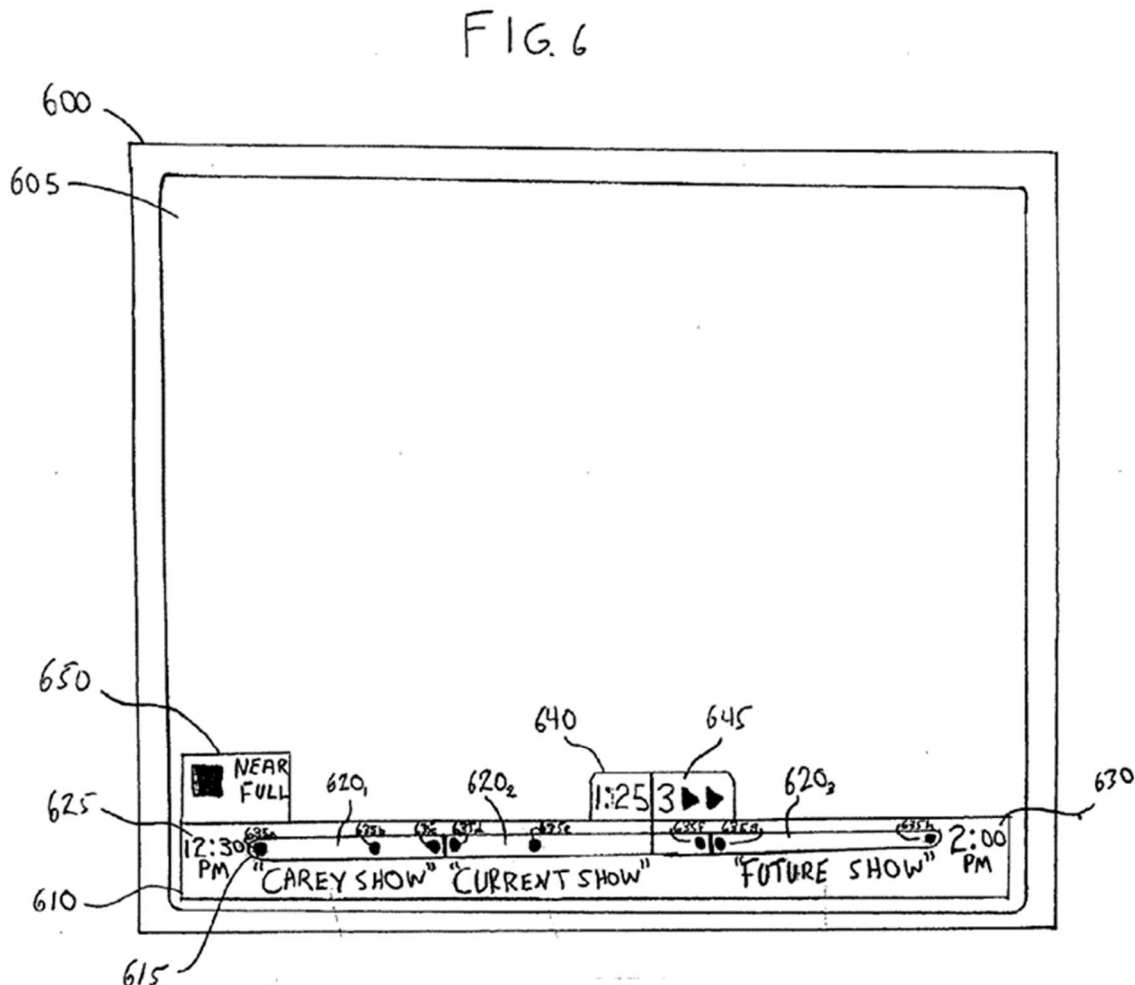
D. Claim 1

1. 1[p] A method for navigating a plurality of chapters of video content within a video, the method comprising:

81. Nishikawa teaches “[a] method for navigating a plurality of chapters of video content within a video” because Nishikawa teaches a method for navigating a plurality of marked “chapters” of video content within a video presentation, as I explain below.

82. Nishikawa describes “[m]ethods ... for navigating video content” using “markers”—which Nishikawa states “may also be referred to” as “chapter marks”—“within a video presentation.” Nishikawa, Abstract, [0017]. Nishikawa explains that these chapter marks “may be used to instantly jump to a particular scene or location within [the] video[.]” Each chapter may “denote[an] individual ... program” or other portion of the video content. Nishikawa, [0036]-[0038]. For example, Nishikawa’s Figure 6 shows video content stored at the DVR system that is “divided into one or more segments 620₁-620₃.” Nishikawa, [0035]-

[0036]. As shown, “chapter marks 635_a-635_h may be used to denote the beginning and ending of each segment/program” (e.g., chapter marks 635_a, 635_c, 635_d, 635_f, 635_g, 635_h) as well as “points other than” these (e.g., chapter marks 635_b, 635_e). Nishikawa, [0038]; *see also id.*, Figures 7 and 8 (showing “chapter marks 725_a-725_d”). Nishikawa explains that these chapter marks can be “used to quickly jump to a particular point” in the video content. Nishikawa, [0038]. *See also* Nishikawa, claim 1 (“A method for navigating video content ...”), [0002], [0005], [0007].



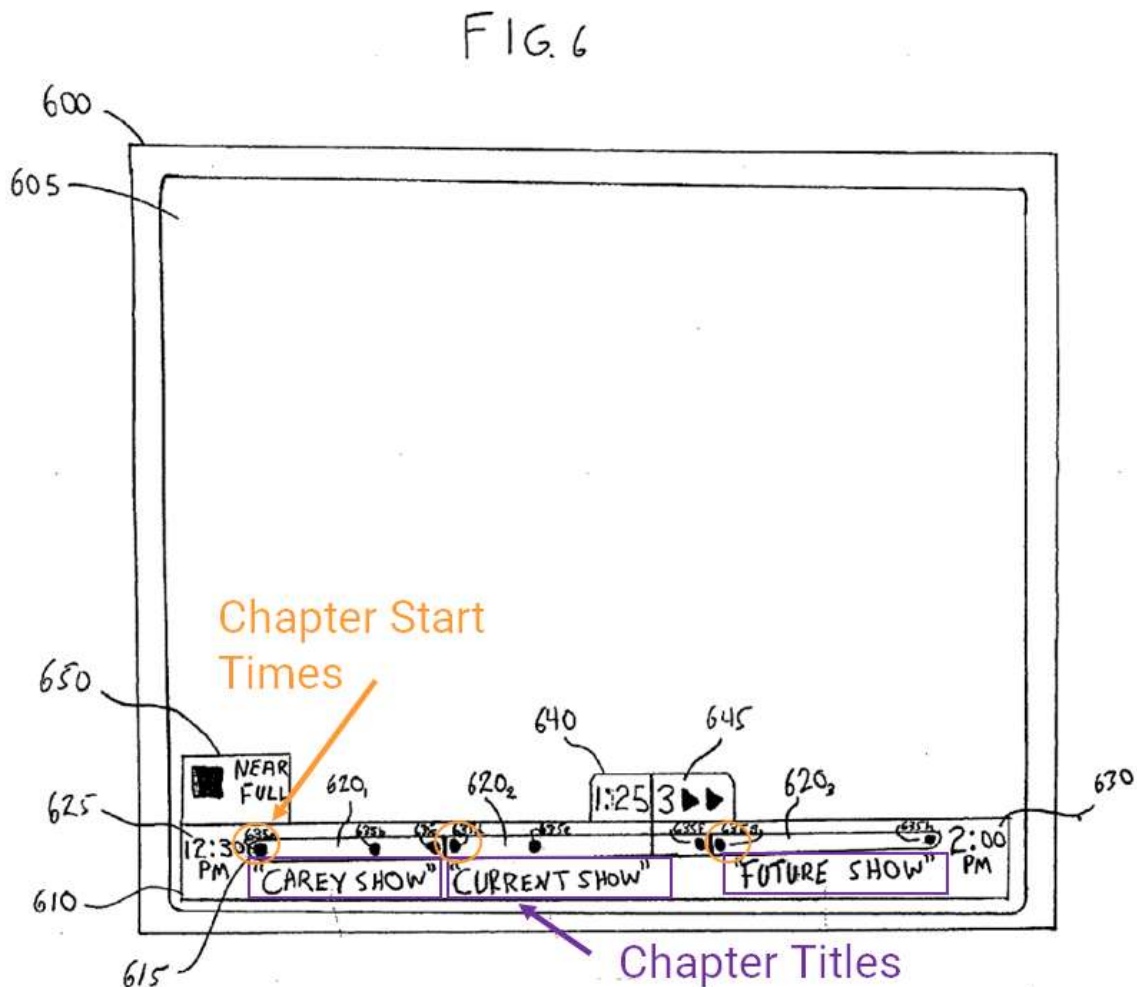
Nishikawa, Figure 6.

2. 1[a] reading from a metadata file stored with the video **chapter titles**, **chapter start times**, and location on a secure digital card (SD card) of **chapter preview images** that correspond to the playable content as initially configured and stored on the secure digital card, each chapter comprising a segment of content of the video;

83. Nishikawa, Angiolillo, and Vahtola teach this limitation, as I explain below.

a) 1[a](1) reading from a metadata file stored with the video **chapter titles**, **chapter start times**, and location ... of **chapter preview images** that correspond to the playable content ..., each chapter comprising a segment of content of the video

84. Nishikawa teaches “each chapter comprising a segment of content of the video” because each chapter in Nishikawa is a segment of the video content recorded by the DVR system. For example, as Nishikawa’s Figure 6 shows, chapter marks 635_a-635_h are used to indicate segments of the content in the “stored ... video content” at the DVR system. Nishikawa, [0036].



Nishikawa, Figure 6 (annotated).

85. Nishikawa teaches “reading ... **chapter titles** [and] **chapter start times**” because Nishikawa teaches displaying each of **title information** (i.e., “**chapter titles**”) and **chapter marks** (i.e., “**chapter start times**”) that “denote the beginning ... of each segment[,]” as Figure 6 shows. For example, for one segment of the video, the **title information** “CAREY SHOW” is displayed, and **chapter mark** 635_a denotes the time at which it begins. While Nishikawa describes **title information**

corresponding to the name of a program, as shown, a POSITA would have recognized that titles could be given any name, as it was known to allow a user to associate predetermined, automatic, or user-created titles with chapter marks as the chapter marks were inserted in the video content. Vahtola, for instance, describes “chapter titles” ranging from “user defined titles” to “standard or otherwise computer-generated titles” like “‘Chapter [n]’ where n initially is equal to one and increases by a value of one each time a new chapter is generated.” Vahtola, [0056].) A POSITA would have understood Nishikawa to teach “reading” the **title information** and **chapter marks** because a POSITA would have recognized that, in order for Nishikawa’s DVR system to display the **title information** and **chapter marks**, this information would necessarily be “read[]” from the memory storing it. Nishikawa, [0024], [0030].

86. Finally, Nishikawa teaches “reading from [the] metadata file stored with the video ... [a] location ... of **chapter preview images** that correspond to the playable content” because—like the chapter marks and titles—Nishikawa teaches displaying “**thumbnail images**” (i.e., “**chapter preview images**”) “that are representative of the video content.” Nishikawa, Abstract. Nishikawa explains that “**thumbnail images** representative of the content at the previously-placed **chapter marks**” may be displayed along with the **title information** and **chapter marks**, as shown in Nishikawa’s Figure 8. While Nishikawa does not expressly state that “a

location ... of” these **thumbnail images** is “read[] from a metadata file,” a POSITA would have been motivated and found it obvious to implement Nishikawa in this way. Nishikawa teaches that the “[m]emory 110” of the DVR system includes “instructions for generating [these] **thumbnail images**,” and that the DVR system is able to “determine[] if there are any **thumbnails** to view” and, if so, display them. Nishikawa, [0024], [0032]-[0033]. From this, a POSITA would have understood Nishikawa to teach that the DVR system stores “a location ... of” the **thumbnail images** that is “read[],” for at least three reasons. First, a POSITA would have recognized that, once the **thumbnail images** are “generat[ed]” by the DVR system, the generated **thumbnail images** would be stored in “a location” of the DVR system so as to be available for future retrieval and display. Otherwise, the DVR system would have to re-generate the **thumbnail images** each time they were needed, which would be inefficient. Second, a POSITA would have recognized that this “location” where the generated **thumbnail images** are stored would itself need to be stored so that the DVR system could later identify that location and retrieve the **thumbnail images** for display. The DVR system would, when generating the status bar, use the location of the **thumbnail images** to retrieve the **thumbnail images** for display in the status bar. Third, a POSITA would have understood that, in order to display the **thumbnail images**, the DVR system would necessarily “read[]” the stored location of the **thumbnail images** to

retrieve them from that location. That is, the DVR system would, when generating the status bar, read the location of the **thumbnail images** in order to retrieve the **thumbnail images** from that location for display in the status bar. Thus, a POSITA would have understood Nishikawa to teach that the DVR system stores “a location ... of” the **thumbnail images** that is “read[.]”

87. Finally, while Nishikawa does not expressly teach that the **program title information** and the “location ... of” the **thumbnail images** are “read[] from [the] metadata file stored with the video,” a POSITA would have been motivated and found it obvious to implement Nishikawa’s DVR system to store the **program title information**, **chapter marks**, and location of the **thumbnail images** in Nishikawa’s meta-data file with the video based on Angiolillo, for at least the reasons explained I explained in Section VIII.B.1. Vahtola provides additional rationale for doing so because it explains that its “memory 22” stores both content and data related to that content, including “chapter information.” Vahtola, [0034]. As explained, in such an implementation, Nishikawa’s DVR system would retrieve the **program title information**, **chapter marks**, and location of the **thumbnail images** from Nishikawa’s meta-data file stored with the video to generate the status bar, just as Angiolillo’s DVR system retrieves its metadata to generate the location control pane. Thus, Nishikawa and Angiolillo teach “reading from a metadata file stored with the video **chapter titles**, **chapter start times**, and location ... of **chapter**

preview images that correspond to the playable content.”

b) 1[a](2) reading from [the] metadata file stored with the video ... location on a secure digital card (SD card) of [the] chapter preview images that correspond to the playable content as initially configured and stored on the secure digital card;

88. From Vahtola, a POSITA would have been motivated and found it obvious to implement Nishikawa’s/Angiolillo’s system using an SD card as Nishikawa’s storage device for at least the reasons explained I explained in Section VIII.B.2. In such an implementation, Nishikawa’s “hard disk or other storage device 108” would take the form of an SD card. Nishikawa, [0017], [0030].

89. Moreover, in this implementation, a POSITA would have been motivated and found it obvious to store Nishikawa’s thumbnail images in a location on the SD card. As I explained for claim limitation 1[a](1), a POSITA would have recognized that, once Nishikawa’s thumbnail images are “generat[ed]” by the DVR system, the generated thumbnail images would be stored in “a location” of the DVR system so as to be available for future retrieval and display. A POSITA would have been motivated and found it obvious to store the generated thumbnail images on an SD card for at least two reasons. First, in such an implementation, Nishikawa’s meta-data file would be stored on the SD card (as it is on Nishikawa’s “storage device”), and Angiolillo envisions storing the images themselves alongside the metadata. Angiolillo, [0074]. Second, a POSITA

would have recognized that storing the **thumbnail images** on the SD card would have improved the overall system by storing the **thumbnail images** and the metadata used for generating Nishikawa's status bar in a single location. As a POSITA would have recognized, such consolidated storage of the metadata and the **thumbnail images** would have facilitated the DVR system's ability to more efficiently retrieve such information to generate the status bar. In such an implementation, Nishikawa's **thumbnail images** would be stored "in a location on a secure digital card (SD card)."

90. Thus, because Nishikawa and Angiolillo teach "reading from a metadata file stored with the video ... location" on Nishikawa's storage device "of **chapter preview images** that correspond to the playable content" stored on Nishikawa's storage device, and a POSITA would have been motivated and found it obvious from Angiolillo and Vahtola to implement Nishikawa's storage device as an SD card and store Nishikawa's **thumbnail images** there, Nishikawa, Angiolillo, and Vahtola teach "reading from [the] metadata file stored with the video ... location on a secure digital card (SD card) of [the] **chapter preview images** that correspond to the playable content ... stored on the secure digital card."

91. In such an implementation, Nishikawa's **thumbnail images** would also correspond to the playable content "as initially configured and stored on the

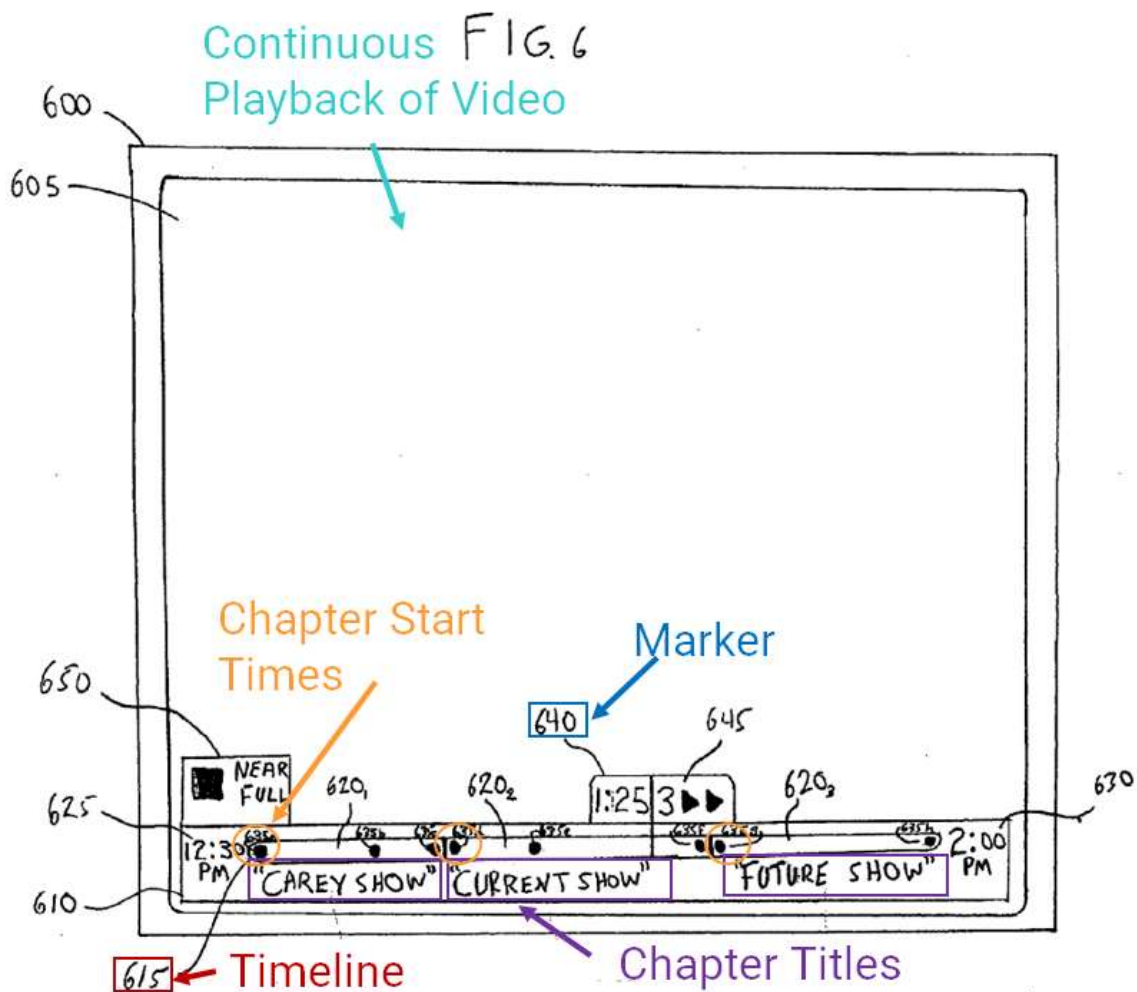
secure digital card,” at least because Nishikawa’s **thumbnailed images** would correspond to programs as they are initially configured and stored on the SD card. Indeed, Vahtola specifically envisions chapter information being added as the video content is stored on the SD card. As Vahtola explains, with the SD card “a user [can] record continuous media data (e.g., video and/or audio data) and, at the same time, create chapters for the recorded continuous media data.” Vahtola, [0004]. This is in contrast to “add[ing] chapters to already-recorded video files.” Vahtola, [0003]. Once the chapters and video content are stored on the SD card, Vahtola’s SD card is, like a DVD, “removable” for use with any playback device. Vahtola, [0034]; see also Ex. 1002 at 176 (“Applicant’s claims recite the ability to read a chapter index that is stored with the video from the onset. ... [O]ne of ordinary skill in the art would recognize the SD and DVD technology operate in this manner[.]”). Thus, when implemented according to Vahtola, Nishikawa’s playable content is stored on the SD card and, “at the same time,” the chapters are created. Vahtola, [0004]. This SD card is then “removable” for use with any playback device. Vahtola, [0034]. As a POSITA would have recognized, such a removable SD card storing the playable content, chapter marks, and other metadata has the benefit of being movable from system to system (e.g., to another DVR system, to a personal computer, etc.), which allows a user to easily view and navigate the video content on other systems. In such an implementation,

Nishikawa's thumbnailed images would correspond to the playable content "as initially configured and stored on the secure digital card."

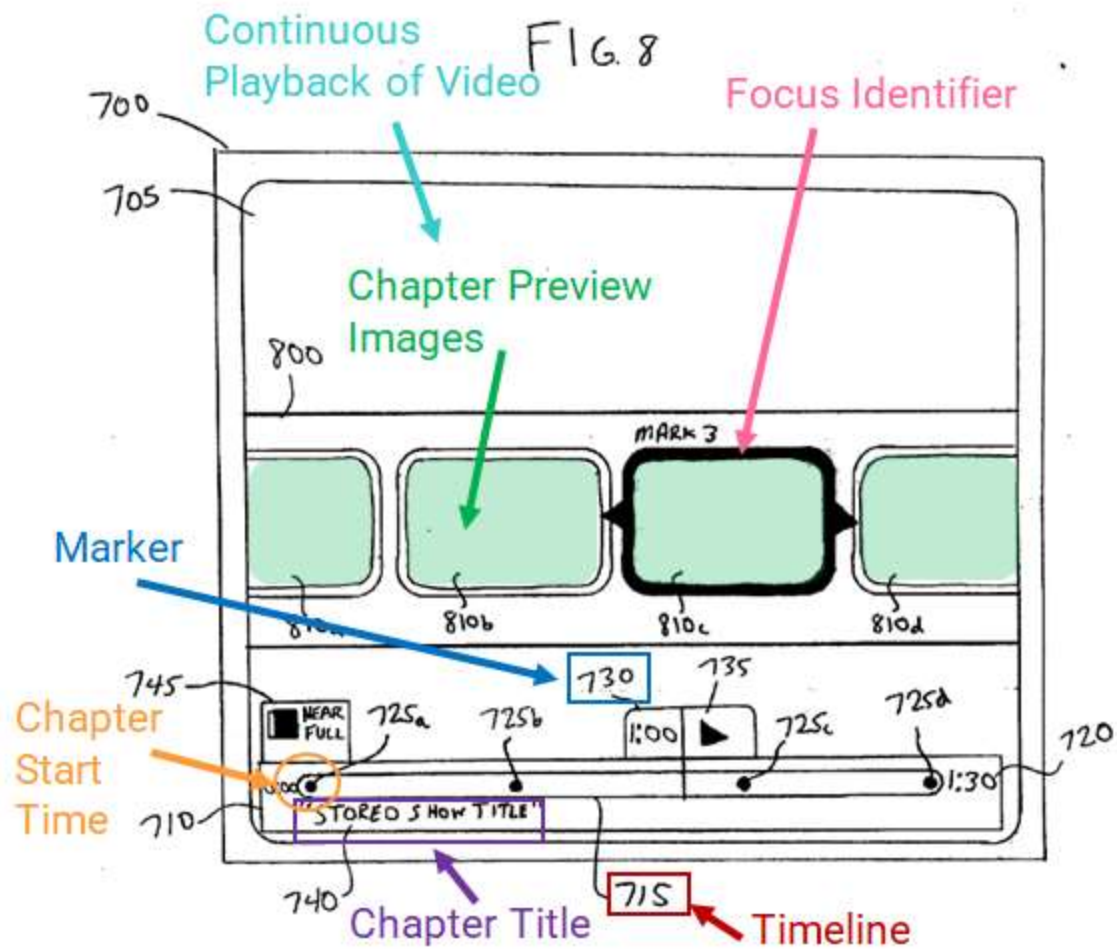
3. 1[b] presenting, **during continuous playback of a video**, an on-screen display to a user, the on-screen display including a **timeline** having a demarcation for the beginning of each of the plurality of chapters of the video and having a **marker** corresponding to a current position in the video playback, the **timeline** assembled from the **chapter titles**, the **chapter start times**, and the location on the secure digital card of **chapter preview images** that correspond to the playable content stored as part of the metadata, and the on-screen display including one image for each of the plurality of chapters from the **chapter preview images** displayed in sequential order parallel to the **timeline**, wherein a **focus identifier** marks an image of a chapter corresponding to the current position within the continuous video playback;

92. Nishikawa teaches "presenting, **during continuous playback of a video**, an on-screen display to a user." Nishikawa describes an on-screen display called a "status bar" that is "**overlaid on the screen ... of the video content**," as illustrated in Figures 6-8. Nishikawa, [0035]; *see also* Nishikawa, [0025], [0031], [0041], [0045], Figures 6-8; Angiolillo, [0034], Figure 3. A POSITA would have understood from Nishikawa that the status bar is "present[ed] **during continuous playback of a video**" because Nishikawa envisions the "status bar is displayed as an overlay onto the video content being viewed," which indicates the video content continues to play. Nishikawa, [0031]; *see also* Nishikawa, [0023] (stating, with reference to Figure 1, the on-screen display "will be overlaid on top of the ... analog video signal" provided to the output module 104), [0035], [0041], claims 7,

19, 31 (similar).



Nishikawa, Figure 6 (annotated).



Nishikawa, Figure 8 (annotated).

93. To the extent it is argued that Nishikawa does not disclose presenting its on-screen display “**during continuous playback of a video**,” Ackley (Ground 2) expressly discloses this feature for the reasons discussed above in Section VIII.C. See Ackley, Abstract, [0009], [0029], [0034], [0035], [0042]-[0046], [0048], claim 17, Figs. 4-5. Moreover, it would have been obvious to incorporate this teaching from Ackley into Nishikawa’s user interface for the reasons discussed above in Section VIII.C.

94. Nishikawa also teaches “the on-screen display including a **timeline** having a demarcation for the beginning of each of the plurality of chapters of the video and having a **marker** corresponding to a current position in the video playback.” As shown, Nishikawa’s status bar includes a “**progress bar**” (615 or 715) (i.e., “**timeline**”) having a demarcation for the beginning of each of the segments in the video content. Nishikawa, [0036], [0042]. As Nishikawa explains with reference to Figure 6, “the **progress bar** 615 may be divided into one or more segments 620₁-620₃.” Nishikawa, [0036]. Each segment 620₁-620₃ is demarcated with “a beginning mark,” shown as 635_a, 635_d, and 635_g, respectively. Nishikawa, [0038]. Nishikawa’s progress bar also includes a “**marker**” called a “**play status box**” (labeled 640 or 730) (i.e., “**marker**”) that “correspond[s] to a current position in the video playback.” Nishikawa [0043]. As Nishikawa explains, “**play status box** 730 may be used to show the current viewing position in the stored program.” Nishikawa, [0043].

95. Nishikawa, Angiolillo, and Vahtola teach that “the **timeline** [is] assembled from the **chapter titles**, the **chapter start times**, and the location on the secure digital card of **chapter preview images** that correspond to the playable content stored as part of the metadata.” As explained above for element 1[a], a POSITA would have been motivated and found it obvious from Angiolillo and Vahtola to implement Nishikawa such that the location of the **thumbnail images**

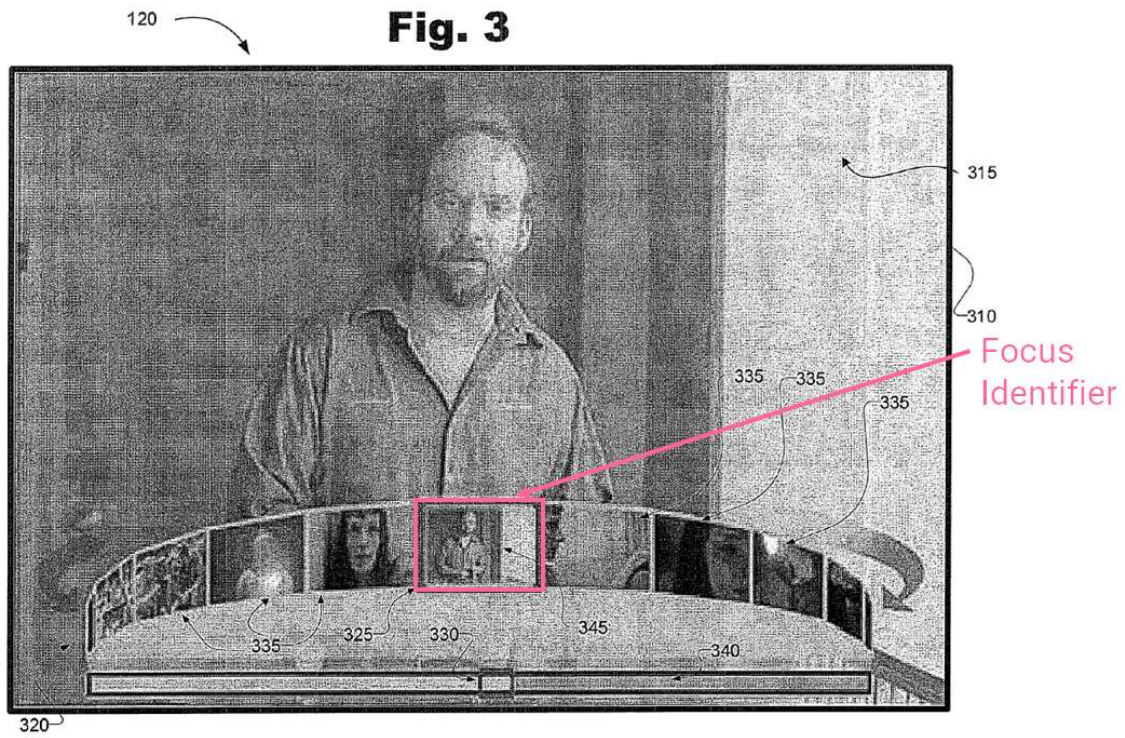
is a location on a secured digital card, and the **title information**, the **beginning marks** (also called “**chapter marks**”), and the location of the **thumbnail images** that correspond to the playable content are stored as part of the metadata that is stored with the video. *See* Section VIII.B.1, Section VIII.D.2. As shown in Figures 6 and 8, Nishikawa’s **progress bar** is assembled from the **title information**, the **chapter marks**, and the location of the **thumbnail images**. The **progress bar** includes each of the **title information** (unlabeled in Figure 6; labeled 740 in Figure 8), the **chapter marks** (labeled 635_a, 635_d, and 635_g), and the **thumbnail images**, which Nishikawa’s DVR system retrieves for display using the location of the **thumbnail images**, as I explained above (*see* Section VIII.D.2).

96. Nishikawa also teaches “the on-screen display including one image for each of the plurality of chapters from the **chapter preview images** displayed in sequential order parallel to the **timeline**.” In Nishikawa, each of the “one or more **thumbnail images** [is] representative of the content at the ... **chapter marks**.” Nishikawa, [0024]. And as shown in Figure 8, Nishikawa’s status bar includes one of the **thumbnail images** (labeled 810_a-810_d) for each of the segments displayed parallel to the **progress bar**. Nishikawa’s **thumbnail images** are “displayed in sequential order” because Nishikawa explains that “the **thumbnail images** may be displayed in a sequence organized from left to right, with the left-most thumbnail corresponding to the first [chapter] mark ... and the right-most

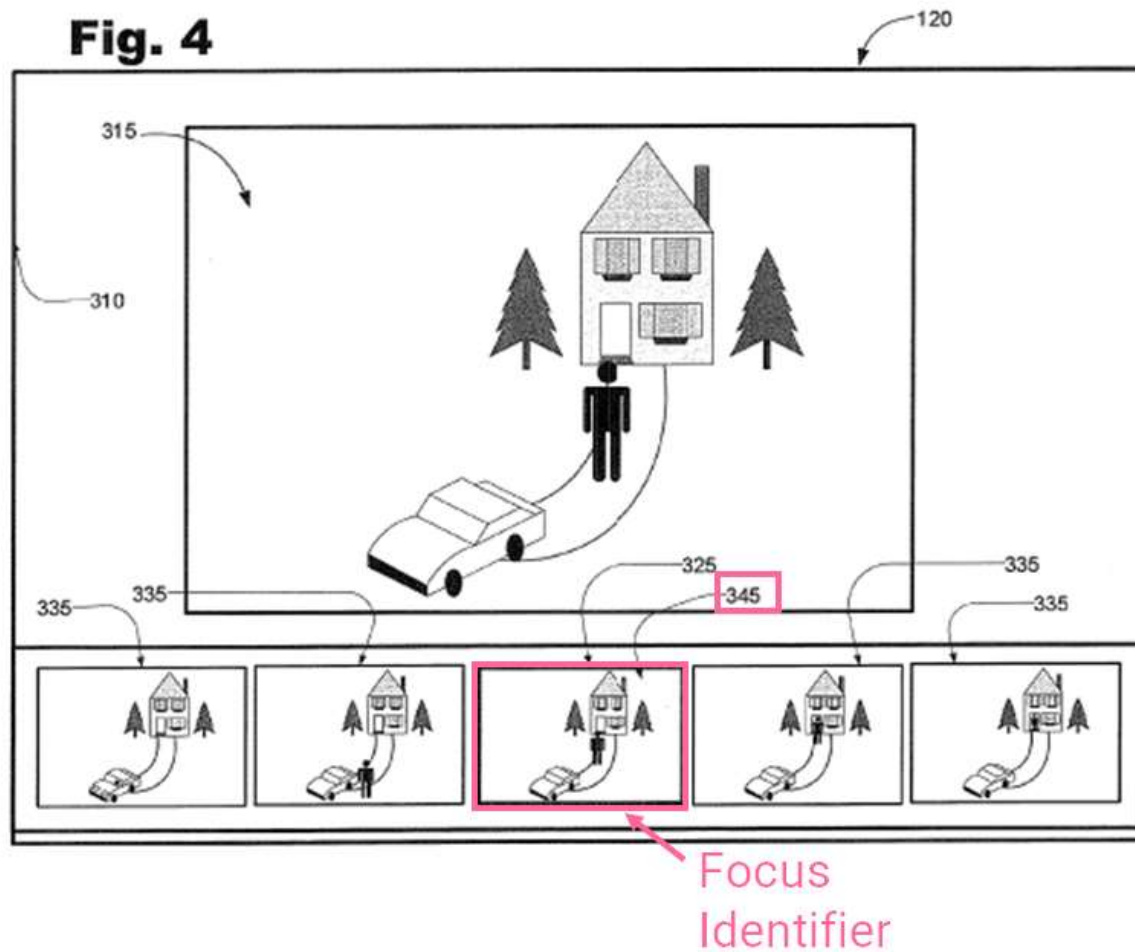
thumbnail corresponding to the last [chapter] mark[.]” Nishikawa, [0017] (equating “bookmarks” and “chapter marks”), [0033].

97. Finally, Nishikawa teaches that “a **focus identifier** marks an image of a chapter corresponding to the current position within the continuous video playback.” As Figure 8 shows, Nishikawa’s status bar includes a **border** (i.e., “**focus identifier**”) that marks the thumbnail image of a chapter, here the chapter labeled “Mark 3.” Nishikawa, [0046]. The thumbnail with the border, Nishikawa explains, is “the thumbnail currently in focus” in the playback of the video content. Nishikawa, [0046].

98. To the extent it is argued Nishikawa does not teach this, a POSITA would have found it obvious based on Angiolillo. Angiolillo teaches a “**selection tool** 325,” shown as a **border** in Figures 3 and 4 below, that “is operative to magnify [a] selected image 345 relative to the other images 335 included in [the] control pane[.]” Angiolillo, [0038], Figures 3-6. As shown, Angiolillo’s **selection tool** (i.e., “**focus identifier**”) “marks an image of a chapter corresponding to the current position within the continuous video playback.” *See also* Angiolillo, Figures 3-6. From Angiolillo, a POSITA would have been motivated and found it obvious to use Nishikawa’s **border** to likewise “mark[] an image of a chapter corresponding to the current position within the continuous video playback.”



Angiolillo, Figure 3 (annotated).

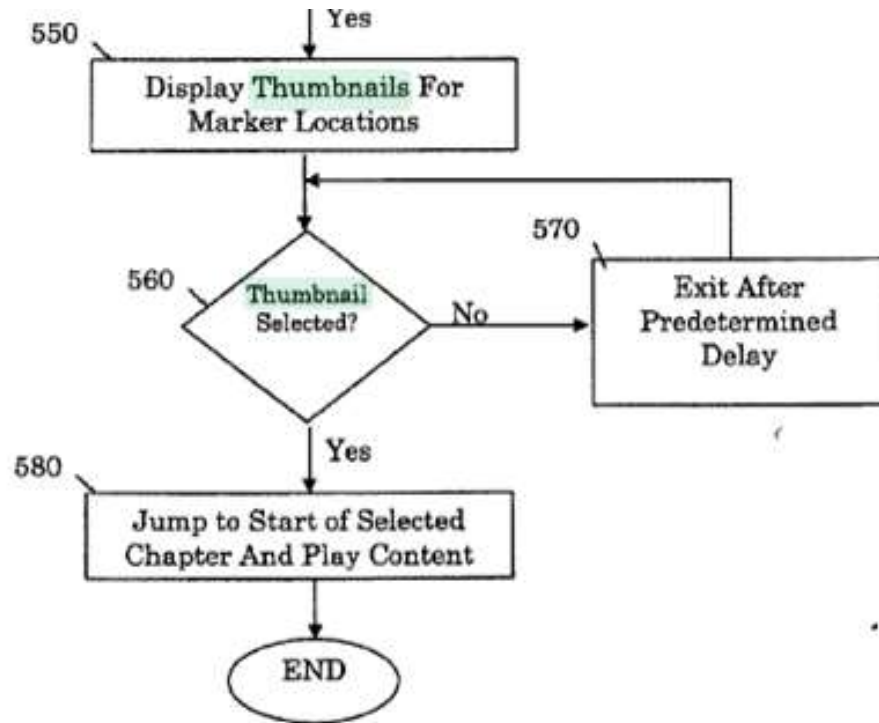


Angiolillo, Figure 4 (annotated).

4. 1[c] receiving a selection of one of the **chapter preview images** as chapter skip input **during the continuous playback of the video**;

99. Nishikawa teaches “receiving a selection of one of the **chapter preview images** as chapter skip input **during the continuous playback of the video**” because Nishikawa teaches receiving a selection of one of the **thumbnail images** as an input to jump to another chapter. As Nishikawa explains with reference to

Figure 5 below, “[o]nce the ... **thumbnailed images** are displayed, ... a user may decide to select one of the **thumbnails**.” Nishikawa, [0034]. When “a user selection is detected at block 560 ... the current viewing location will jump to the selected bookmark and the video content will begin playing from that point.” Nishikawa, [0034]. *See also* Nishikawa, [0019], [0029], [0043] (further describing using **thumbnailed images** to jump to a chapter). A POSITA would have understood from Nishikawa that the **thumbnailed images** are displayed, and the user’s selection to jump to another chapter is received, **during the continuous playback of the video** because Nishikawa envisions that the status bar—which includes the **thumbnailed images** for selection by the user—is “displayed as an overlay onto the video content being viewed.” Nishikawa, [0031]; *see also* Nishikawa, [0025] (explaining that the status bar is displayed along with “the programming being displayed”), [0035] (“status bar ... being overlaid on the screen ... of the video content, which may be ... stored, cached, or live video content”), [0041] (similar).



Nishikawa, Figure 5 (annotated).

100. The '300 patent acknowledges that prior art systems could receive a selection of one of the **chapter preview images** as a chapter skip input.

The '300 patent states, for example, that “[a]n interface of most DVD players” known in the art “allows a user to navigate to s selected chapter, for example, by selecting a preview image or a chapter title from a DVD menu, in order to begin viewing the DVD content from that chapter.” ’300 Patent, 1:19-32

101. To the extent it is argued that Nishikawa does not disclose receiving user input through its user interface “**during the continuous playback of the video,**” Ackley expressly discloses this feature, as I explained above in Section VIII.C. *See*

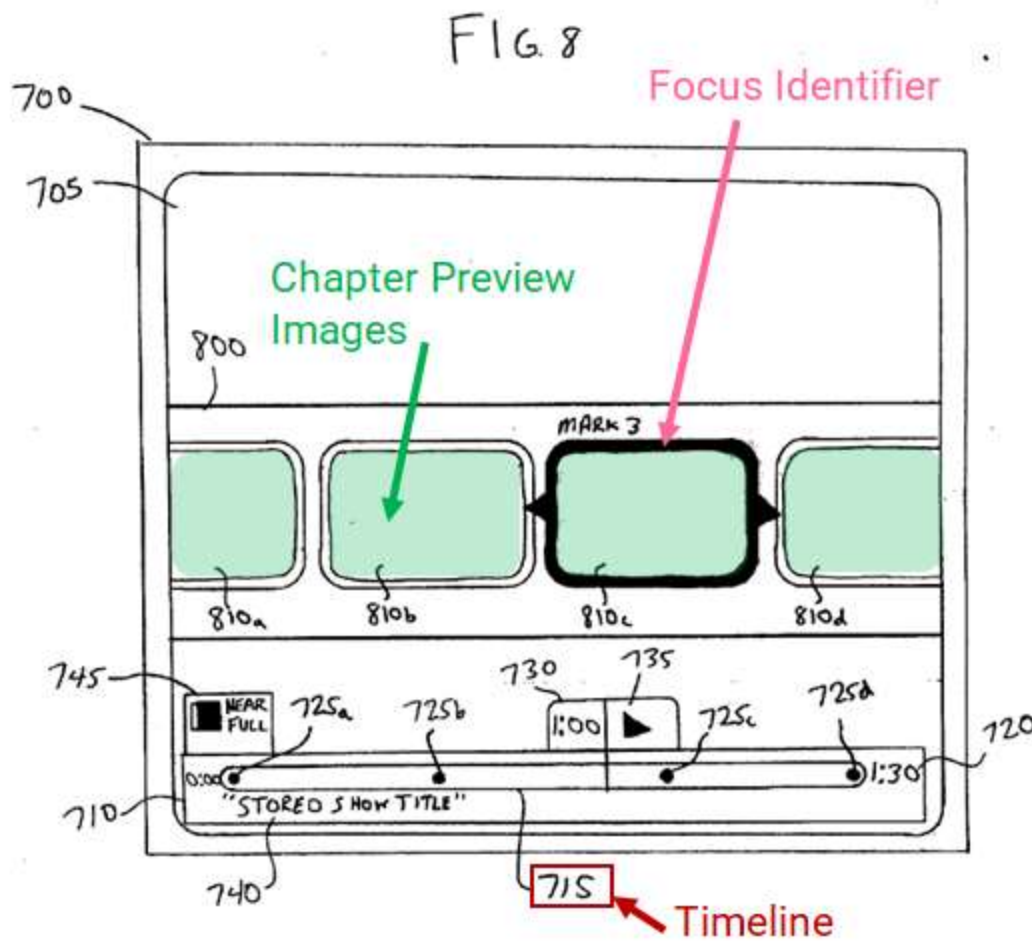
Ackley, [0029], [0042]; *see also id.*, Abstract, [0009], [0034], [0035], [0043]-[0046], [0048], claim 17, Figs. 4-5. Moreover, it would have been obvious to incorporate this teaching from Ackley into Nishikawa's status bar for the reasons discussed above in Section VIII.C.

5. 1[d] moving the at least one **image from each chapter one position along the **line** with respect to the **focus identifier**, according to the chapter skip input, wherein the one **image** is moved to the left when the chapter skip input indicates a skip forward and wherein the one **image** is moved to the right when the chapter skip input indicates a skip backward; and**

102. Nishikawa and Angiolillo teach this limitation. As Nishikawa explains with reference to Figure 8, below, “the **thumbnailed images** [i.e., ‘at least one **image**’] may be displayed in a sequence” along the **progress bar** (i.e., “**line**”) that is “organized from left to right, with the left-most thumbnail corresponding to the first [chapter] mark ... and the right-most thumbnail corresponding to the last [chapter] mark,” and the **border** marks “the **thumbnail** currently in **focus**” in the playback of the video content. Nishikawa, [0017] (equating “bookmarks” and “chapter marks”), [0033], [0036]. When a user “decide[s] to select one of the **thumbnails**” corresponding to a chapter mark, and the “user selection is detected,” then “the current viewing location will jump to the selected [chapter] mark and the video content will begin playing from that point.” Nishikawa, [0034]. For example, Nishikawa explains that “a user may scroll through the available **thumbnails** ... using a left and right navigation,” with a particular “**thumbnail** currently in **focus**”

as the user scrolls. Nishikawa, [0046].

103. Because the “current viewing location” is marked by the **border** in Nishikawa, a POSITA would have understood that, when the user selects to jump from the current chapter mark to the next chapter mark along the **progress bar** (that is, the chapter mark immediately to the right along the progress bar), the **thumbnail images** along the **progress bar** will move one position to the left along the **progress bar** with respect to the **border** so that the **thumbnail image** corresponding to the next chapter mark (to which the user selected to jump as the new viewing location) is now in the **border**. Moreover, because Nishikawa envisions using “left and right navigation” to change the “**thumbnail** currently in **focus**,” Nishikawa, [0046], a POSITA would have understood that the **thumbnail image** currently in focus is moved to the left of the **border** when the user’s selected chapter mark is a jump forward and is moved to the right of the **border** when the user’s selected chapter mark is a jump backward.



Nishikawa, Figure 8 (annotated).

104. To the extent it is argued Nishikawa does not expressly teach this, a POSITA would have been motivated and found it obvious to implement Nishikawa in this manner based on Angiolillo. As shown, Angiolillo's location control pane, like Nishikawa's status bar, allows a user to navigate through content using "displayed images 335" (i.e., "at least one image") from the content. Angiolillo, [0041]. As Angiolillo explains with reference to Figures 2 and 3 below, when "user input has been received indicating that the user has selected to navigate the

displayed **images 335**,” the “**image selection tool 325**” (i.e., “**focus identifier**”) “may remain substantially still while the displayed **images 335** move relative thereto” along a **timeline** called a “**video playback bar 340**,” as shown. Angiolillo, [0054]. “For example,” Angiolillo explains, “if the user pressed the right arrow 215, the displayed **images 335** may shift to the left by one image 335.” Angiolillo, [0054]. “Consequently, an **image 345** which was initially selected by the **image selection tool 325** will shift and subsequently be located to the left of the **image selection tool 325**, while the **image selection tool 325** remains in place on the location control pane 320.” Angiolillo, [0054].

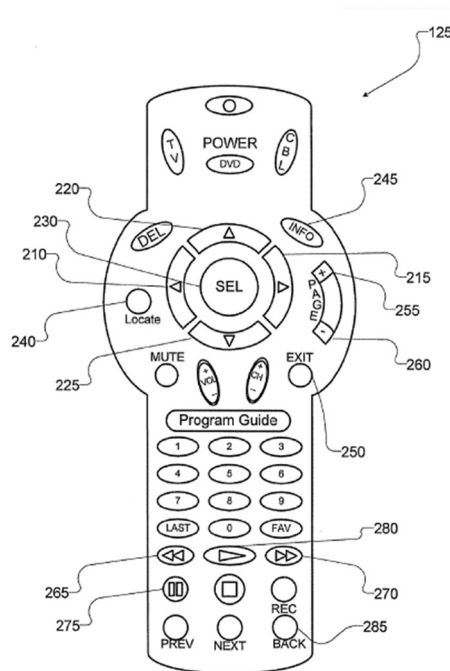
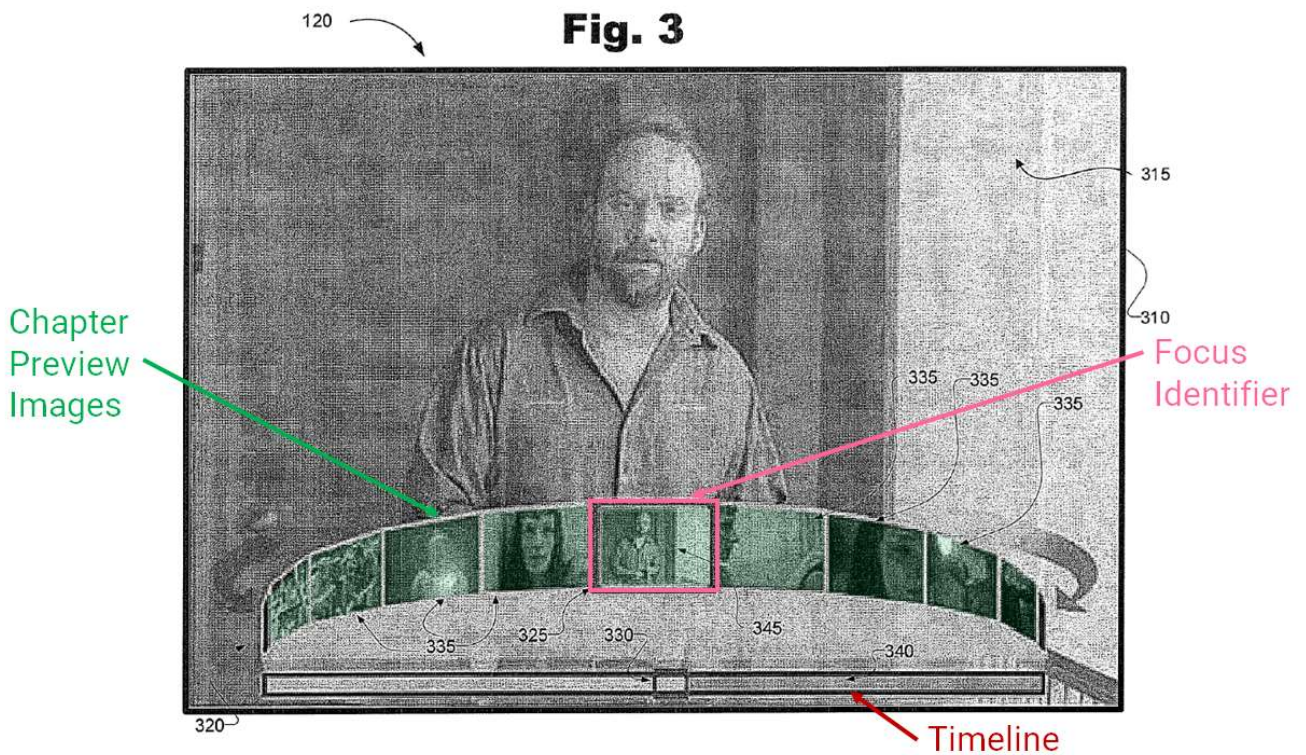


Fig. 2

Angiolillo, Figure 2.



Angiolillo, Figure 3 (annotated).

105. From Angiolillo, a POSITA would have been motivated and found it obvious to implement Nishikawa's status bar so that the **border**, like Angiolillo's **selection tool**, remains "substantially still," and the **thumbnailed images** move relative to the **border**, just as Angiolillo's **images** move relative to the **selection tool**. The intuitive nature of Angiolillo's **selection tool**, which allows a user to focus in a single location on the screen by remaining "substantially still," presents a simple and intuitive user interface that a POSITA would readily have recognized as desirable in a user interface. In such an implementation of Nishikawa's status bar, Nishikawa and Angiolillo would teach "moving the at least one **image** from

each chapter one position along the **line** with respect to the **focus identifier**, according to the chapter skip input” because Nishikawa’s **thumbnail image** for the current chapter would be moved “left by one image,” as Angiolillo teaches ([0054]), along Nishikawa’s **progress bar** with respect to the **border**, according to the user’s selection to jump to the next chapter.

106. Moreover, in such an implementation of Nishikawa’s status bar, Nishikawa and Angiolillo would teach that “the one **image** is moved to the left when the chapter skip input indicates a skip forward and wherein the one **image** is moved to the right when the chapter skip input indicates a skip backward” because Nishikawa’s **thumbnail image** for the current chapter would be moved to the left when the user pressed the right arrow 215 to jump forward a chapter and would be moved to the right when the user pressed the left arrow 210 to jump backward a chapter. For a POSITA, it would have been straightforward to implement Nishikawa’s status bar in this manner, as such chapter skip features were well known prior to the October 21, 2009, earliest filing date, as the ’300 patent acknowledges. ’300 Patent, 1:19-32 (“[M]odern DVD players commonly have a chapter skip feature that when selected by the user while the DVD is playing, for example by depressing a corresponding button on the DVD player remote control, causes the playback of the DVD to skip forward to the next chapter delineation in the DVD content,” and “depressing a backward skip button on the DVD player

remote control causes the playback of the DVD to skip backward to the previous chapter delineation in the DVD content”).

6. 1[e] skipping playback of the video to a chapter identified by the **focus identifier such that the video playback continues from the position of the chapter identified by the **focus identifier**.**

107. Nishikawa and Angiolillo teach “a chapter identified by the **focus identifier**” for the same reasons Nishikawa and Angiolillo teach “a **focus identifier** [that] marks an image of a chapter,” as explained for limitation 1[b], and “moving the at least one **image** from each chapter ... with respect to the **focus identifier**,” as explained for limitation 1[d]. *See* Sections VIII.D.3, VIII.D.5.

108. Nishikawa and Angiolillo also teach “skipping playback of the video to a chapter identified by the **focus identifier** such that the video playback continues from the position of the chapter identified by the **focus identifier**.” As Nishikawa explains, the user may “scroll through the thumbnails, and hence the [chapter] marks, and select to begin viewing the content from [whichever] thumbnail is then chosen.” Nishikawa, [0019]. When “a user selection” of a thumbnail image for a chapter is received, “the current viewing location,” indicated by the **border** around the thumbnail image, “will jump to the selected [chapter] mark and the video content will begin playing from that point.” Nishikawa, [0034]; *see also* Nishikawa, [0019], [0043], [0046]; Angiolillo, [0042] (“an image [] has been selected at which to begin, skip to, or resume playback of [the] media

content”), [0058] (similar); ’300 Patent, 1:19-32 (acknowledging that “[a]n interface of most DVD players” known in the art “allows a user to navigate to a selected chapter ... in order to begin viewing the DVD content from that chapter.”)

E. Claim 2: The method of claim 1, wherein the on-screen display includes a video preview from at least one of the plurality of chapters of the video that is displayed in order in the **line with the rest of the at least one **images** from the rest of the plurality of chapters.**

109. Nishikawa and Vahtola render obvious the additional limitation of claim 2. As discussed above regarding limitations 1[a]-1[b], Nishikawa discloses that the on-screen display (Nishikawa’s “status bar”) includes **chapter preview images** (i.e., Nishikawa’s “**thumbnailed images**”) for each of the plurality of chapters that are displayed parallel to the **timeline** (i.e., Nishikawa’s “**progress bar**”) on the display. *See supra* Sections VIII.D.2-3; Nishikawa, [0019], [0032]-[0034], [0045]-[0046]. Nishikawa explains that these thumbnail images are representative of the content at their respective chapter marks and may be captured from that content. Nishikawa, [0024], [0033]. Nishikawa also explains that displaying the thumbnailed images with the DVR status bar may be advantageous because the user can view the image to decide whether it corresponds to the desired content. *E.g.*, Nishikawa, [0019]. For example, the user can select a particular thumbnail to begin viewing content from that location. *E.g., id.*

110. Vahtola similarly discloses a “menu-type display . . . in which **thumbnail images** [i.e., ‘the at least one **images**’] from the chapter or even portions

of the continuous media data from each chapter are displayed in such a menu.”

Vahtola, [0061]. Vahtola explains that the first frame may be used as the thumbnail image, while the first several seconds of each chapter may be used as the continuous media portion. Vahtola, [0061]. Vahtola’s “portion[] of the continuous media data” is a “video preview from at least one of the plurality of chapters,” as claimed.

111. A POSITA would have been motivated and found it obvious to incorporate Vahtola’s video previews (the first several seconds of each chapter) into Nishikawa’s status bar in place of one or more of the thumbnail images or at least two reasons. . First, a POSITA would have recognized that Vahtola’s video previews, like Nishikawa’s thumbnail images, would have allowed the user to determine whether a particular chapter corresponds to the desired content that the user wanted to view. Moreover, a POSITA would have recognized that Vahtola’s video previews, being several seconds instead of the still image of Nishikawa’s thumbnail images, would have further aided the user in making this determination by providing the user with even more information.

112. A POSITA thus would have been motivated and found it obvious to modify Nishikawa’s status bar to give the user the option to view the video preview for one or more chapters. For example, in such a modification, if a user selected a thumbnail image along Nishikawa’s progress bar (*see, e.g.,* Nishikawa,

[0019]), the video preview of the chapter corresponding to that thumbnail would play. This would enable the user to confirm that the content in the video preview was the desired content and then select the video preview to begin viewing the video content at the chapter mark corresponding to the selected video preview in Nishikawa's screen. A POSITA would have been motivated to make this modification because it would have furthered Nishikawa's goal of allowing the user to ensure the desired content was being selected. This modification also would have been nothing more than using a known technique (Vahtola's disclosure of using video as well as thumbnail previews) to improve a similar device (Nishikawa's disclosure of using thumbnail previews) in the same way and to achieve the predictable result of better enabling a user to select and view desired content via Nishikawa's menu. A POSITA would have had a reasonable expectation of success implementing Nishikawa's thumbnail images as video previews, as Vahtola teaches, because including Vahtola's video previews in Nishikawa's status bar would have been straightforward and within the skill of a POSITA, especially given the similarity in Nishikawa's and Vahtola's systems. Indeed, Nishikawa and Vahtola both envision using thumbnail images to aid a user in navigating video content. *Compare* Nishikawa, [0045]-[0046], Figure 8 *with* Vahtola, [0061]. And, as Vahtola's disclosure shows, augmenting "thumbnail images from the chapter" with "portions of the continuous media data from each

chapter” in a “menu-type display” was known.

113. Moreover, this modification to Nishikawa is expressly disclosed in Ackley, and to the extent it is argued that Vahtola does not teach a video preview, it would have been obvious to include Ackley’s video preview disclosures for the same reasons discussed above in this section, e.g., to allow the user to ensure the desired content was being selected. For example, Ackley describes a scene selection menu that is similar to those described in Nishikawa and Vahtola. As shown in Figure 5 below, Ackley’s menu includes **thumbnail images** (i.e., “the at least one **images**”) displayed in a **line**, as shown, that correspond to chapters in the video. Ackley, [0009], [0046]-[0049], Figs. 4, 5. In an embodiment, thumbnails corresponding to video chapters are displayed in the foreground menu 400/500 while the video stream 410/520 continues playing in the background, allowing the user to scroll through the thumbnails without the video being interrupted. Ackley, [0046]. When the user selects one of the thumbnails (e.g., thumbnail 510 in Figure 5), video of the scene portrayed in the thumbnail starts playing within the thumbnail 510. Ackley, [0048]. Thus, the video preview from a chapter is displayed in the **line** with the remaining **thumbnails** from the rest of the chapters. Ackley, [0048], Figure 5. If the user selects that thumbnail again, the main video stream 520 then switches to the selection. Ackley, [0048].

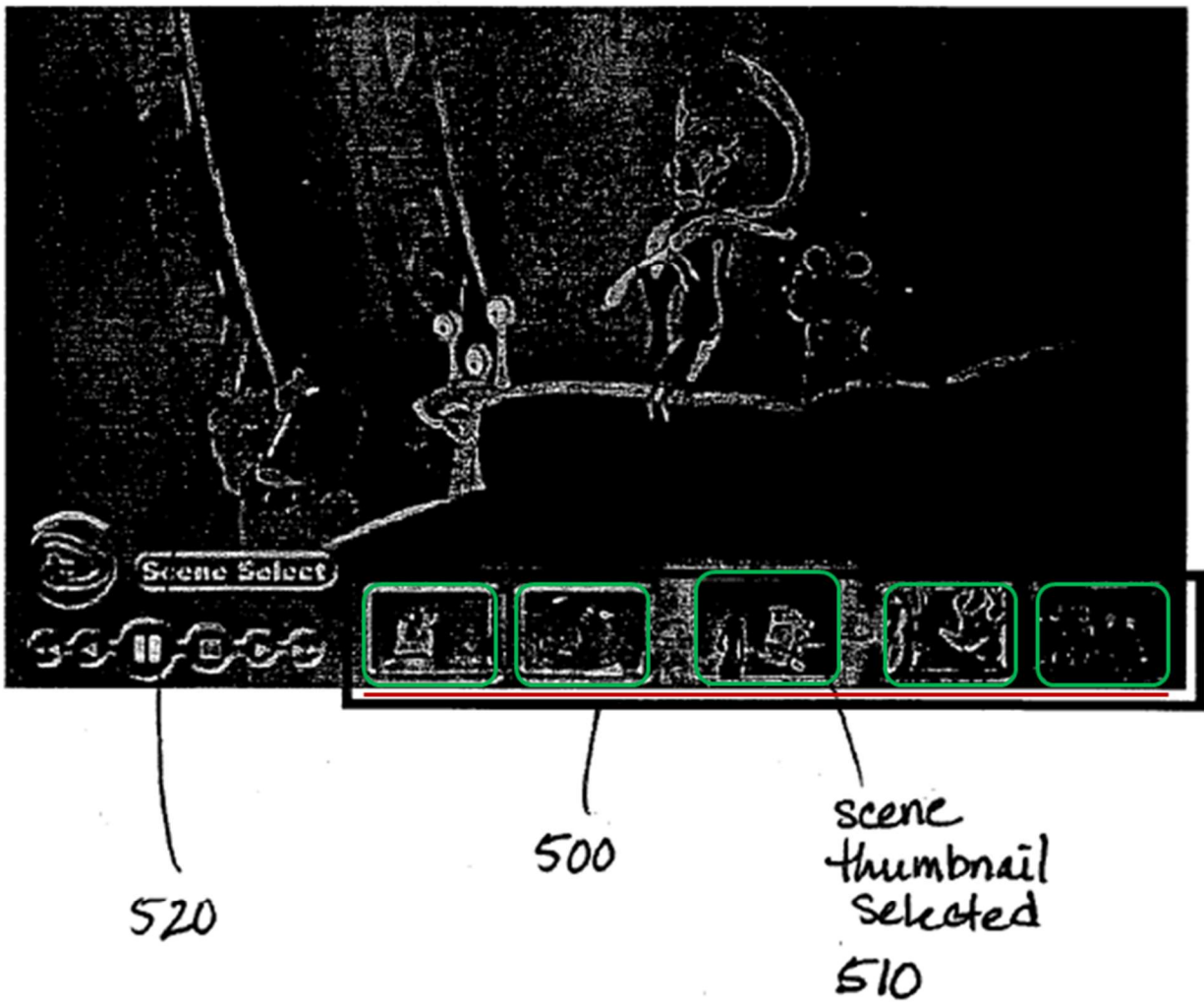


FIG 5

Ackley, Fig. 5 (annotated).

F. Claim 3: The method of claim 1, wherein the video comprises secured media content on a flash memory device.

114. Nishikawa, Angiolillo, and Vahtola teach this limitation for the reasons discussed above regarding limitation 1[a]. For example, as discussed

above, the combination of these references teaches and renders obvious storing the video content in a memory, including in an SD card and/or flash drive. *See supra* Section VIII.D.2; *see also* Nishikawa, [0017], [0022], [0030]; Angiolillo, [0026]-[0027], [0030], [0034]; Vahtola [0030], [0034]. A POSITA would have known that an SD card is a type of flash memory device. '300 Patent ("In one embodiment, the SD card 150 is a flash memory device ..."). Moreover, a POSITA would have found it obvious to store Nishikawa's video content as "secured media content" on the SD card. A POSITA would have been motivated to do so to prevent the well-known risks of piracy, tampering, and other unauthorized uses of video content. The prior art evidences these known risks, as well as the use of secure storage on SD cards to address them. Shen, for example, proposes storing videos as secured media data (including on an SD card) to prevent "unauthorized duplication and the associated loss of revenue" to copyright owners. *See, e.g.*, Ex. 1022, 1:11-18, 3:3-14, 4:3-8, 4:3-20. Chow likewise identifies risks relating to unsecured media content on SD cards, including "forgery," "tampering," "theft," and "piracy." *See, e.g.*, Ex. 1021, [0002]-[0003], [0052]. Elazar similarly recognizes the risks of "piracy" and "sharing of copyrighted digital content by parties that are not licensed to do so" and proposes secure media storage on an SD card. *See, e.g.*, Ex. 1023, [0010]-[0012], [0119], [0123]-[0125], Figure 9. A POSITA would have recognized that video content stored on a Secure Digital ("SD") card, would have been

“secured media content” within the meaning of the ’300 patent. I did not see in the ’300 patent any narrower definition of “secured media content” than content stored on an SD card. *See* ’300 patent, Figure 4 (step 401), 7:11-19.

G. Claim 4: The method of claim 3, further comprising: initiating playback of the video from the flash memory device; reading metadata from the flash memory device; matching the read metadata from the flash memory device with the video; and assembling the video and the metadata in a memory structure to retrieve for playback and display.

115. As discussed above regarding claims 1 and 3, Nishikawa, Angiolillo, and Vahtola teach that the “video” and the “metadata file stored with the video” that is used in “presenting ... [the] on-screen display,” is stored on a flash memory device such as an SD card. *See supra* Sections VIII.B, VIII.D.2-3, VIII.F. Moreover, as discussed above, Nishikawa, Angiolillo, and Vahtola also teach “reading from [the] metadata file stored with the video” on the flash memory device and enabling “playback of [the] video” (and “playing video”) from the flash memory device. *See supra* Sections VIII.B, VIII.D.2-3, VIII.F. These teachings also teach at least “initiating playback of the video from the flash memory device” and “reading metadata from the flash memory device.”

116. Nishikawa, alone or with Angiolillo or Ackley also teaches claim 4 for the following additional reasons.

117. Nishikawa and Angiolillo teach “initiating playback of the video from the flash memory device.” As shown in Figure 7 below, Angiolillo discloses a

process for providing its control pane 320 together with the displayed media content. Angiolillo, [0046].

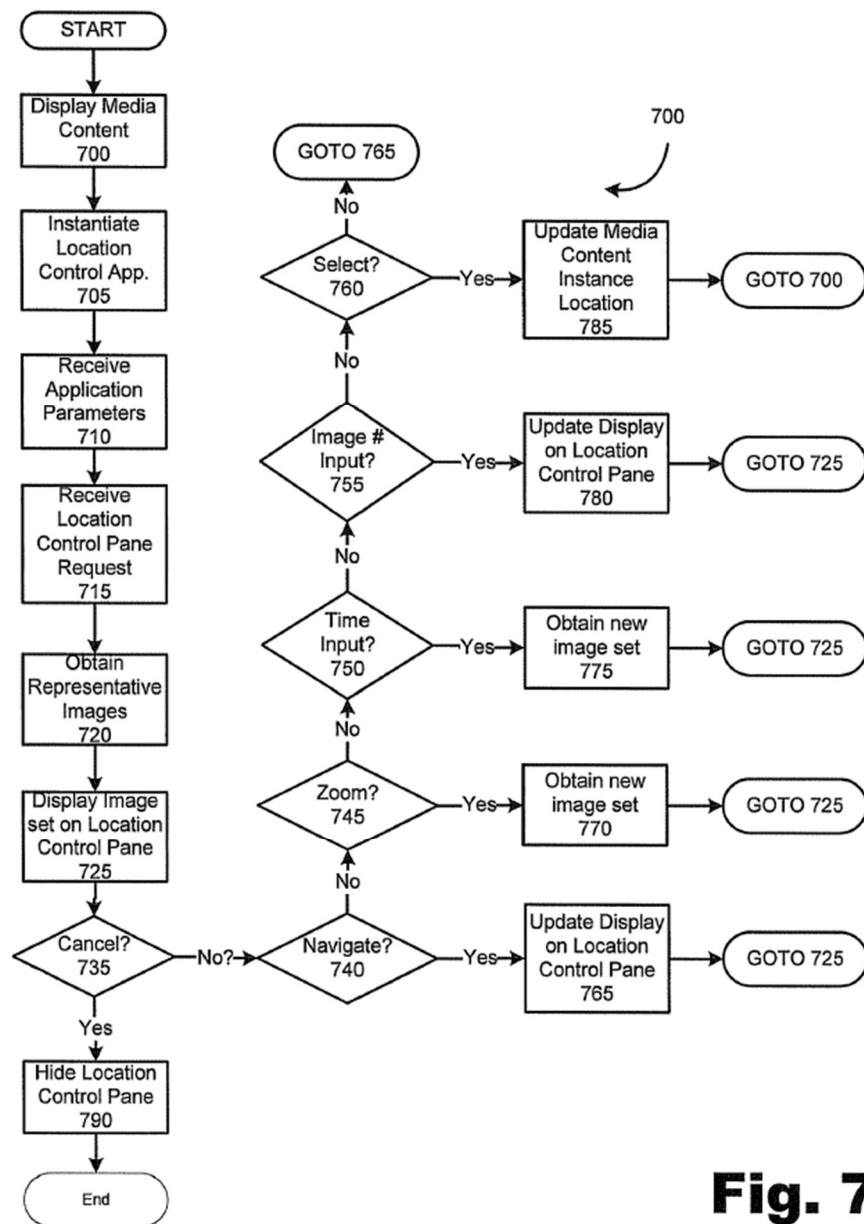


Fig. 7

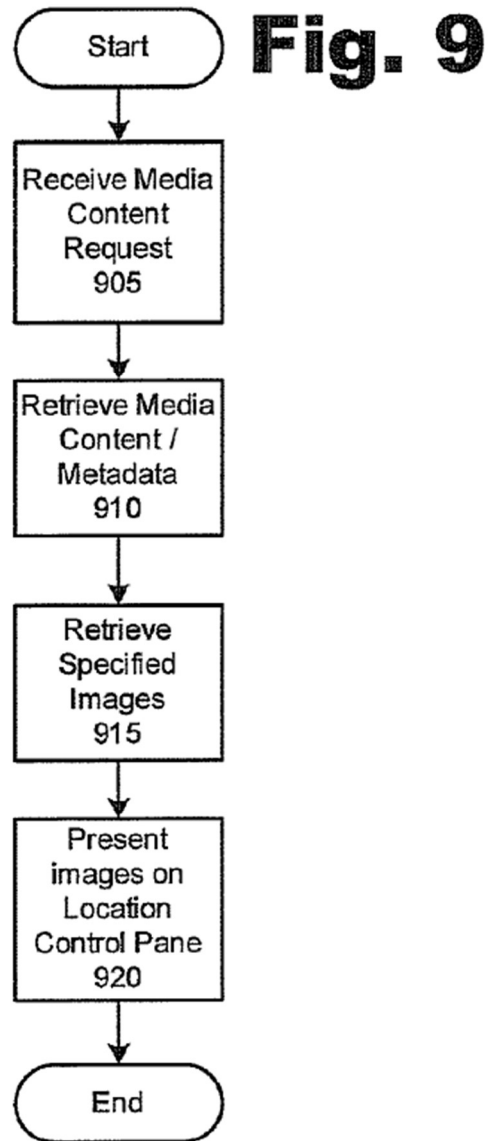
Angiolillo, Figure 7.

118. As shown, step 700 of this process is “Display Media Content.” As

Angiolillo explains, “[i]n step 700, processing subsystem 105 presents a media content instance 315 to the user[,]” such as “a program stored on a PVR[.]”

Angiolillo, [0047].

119. Figure 9 of Angiolillo, below, provides additional detail. As shown, in step 905, “processing subsystem 105 receives a selection for a media content instance[.]” Angiolillo, [0072]. “Next, in step 910,” processing subsystem 105 retrieves the requested media content instance 315, e.g., from storage 140.” *Id.*, [0074]. Because Angiolillo teaches that “storage 140” may be a flash drive, *id.*, [0026], Angiolillo teaches initiating playback of the media content instance from the flash drive. A POSITA implementing Nishikawa according to Angiolillo and Vahtola, *see* Section VIII.B, would have been motivated by Angiolillo to implement Nishikawa’s DVR system to initiate playback of the video content from the flash memory device, as Angiolillo teaches.



Angiolillo, Figure 9.

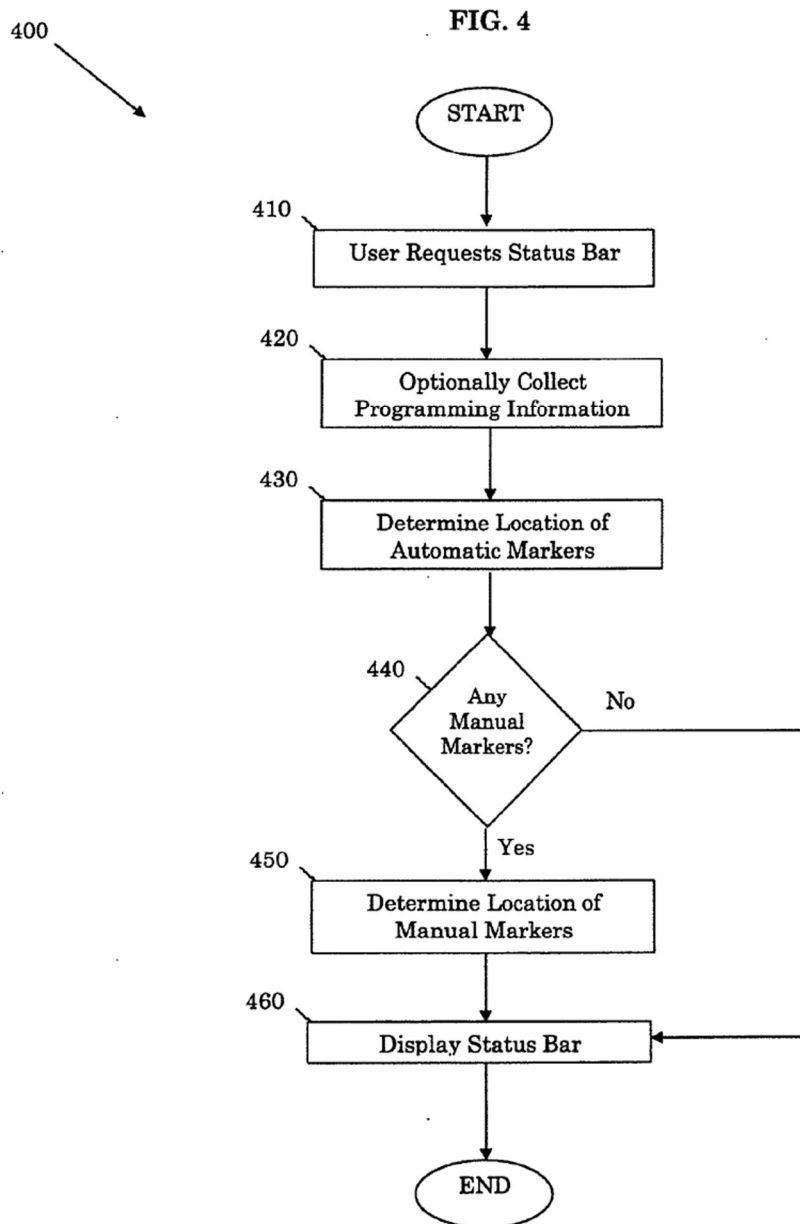
120. Nishikawa and Angiolillo also teach “reading metadata from the flash memory device.” In step 720 of Figure 7, for example, Angiolillo teaches “Obtain[ing] Representative Images.” As Angiolillo explains, “the images 335”

used in the location control pane (which are metadata) are “obtained by processing subsystem 105.” *Id.*, [0051]. One “[e]xemplary process[] for obtaining a set of images 335” is illustrated in Figure 9. *Id.*

121. As shown in Figure 9, at “step 910, processing subsystem 105 retrieves the requested media content instance 315, e.g., from storage 140.” *Id.*, [0074]. Angiolillo teaches that “storage 140” may be a flash drive. *Id.*, [0026]. “As is known,” Angiolillo continues, “digital media files generally include metadata including information such as a title, names of actors, a rating, a year of release, etc.” as well as “information concerning specific images 335 to be displayed in control pane 320, intervals according to which images 335 should be displayed, etc.” *Id.*, [0074]. A POSITA implementing Nishikawa according to Angiolillo and Vahtola, *see* Section VIII.B, would have been motivated by Angiolillo to implement Nishikawa’s DVR system to read Nishikawa’s meta-data file from the SD card (“flash memory device”), as Angiolillo teaches.

122. Nishikawa and Angiolillo further teach “matching the read metadata from the flash memory device with the video.” Nishikawa, for example, describes matching metadata with the video content in a process relating to its “thumbnailed images.” As shown in Figure 4 below, when a user requests to view the status bar, Nishikawa’s system determines “the locations of any ... markers” in the video content at steps 430 and 440. Nishikawa, [0029]-[0030]. “[O]nce all the markers

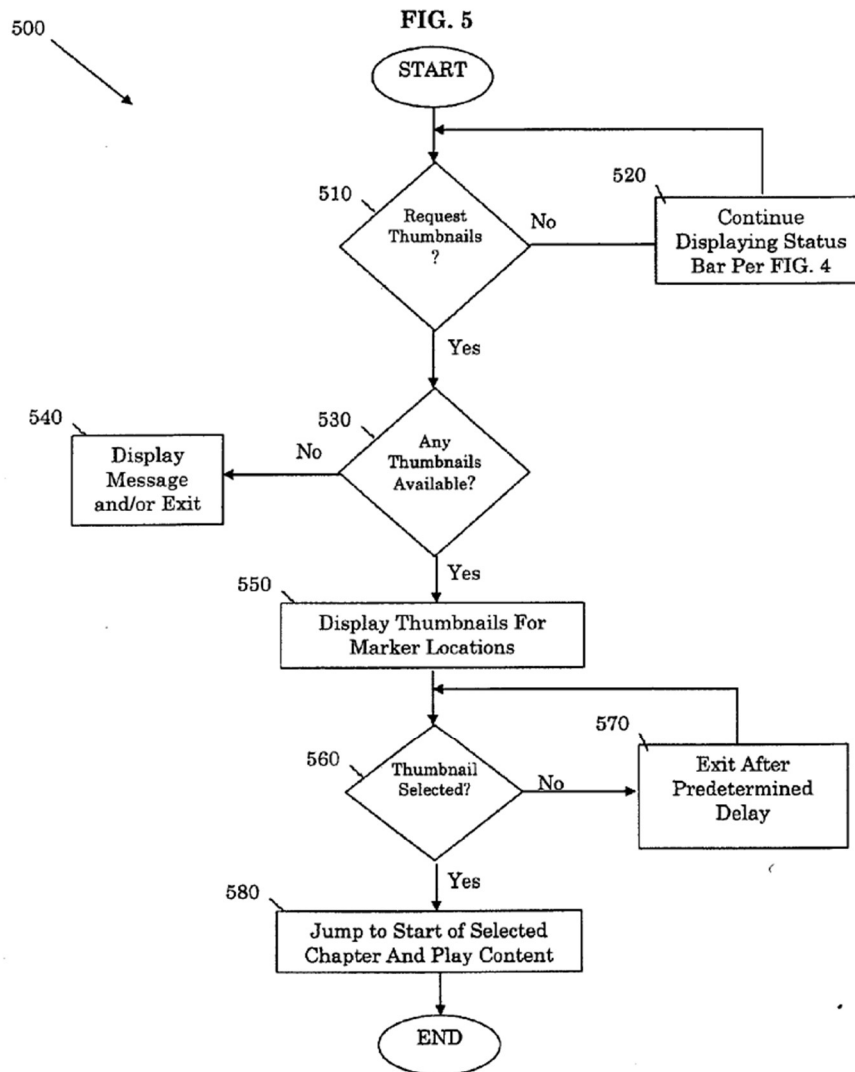
have been located, ... the status bar, along with the identified bookmarks, may then be presented on-screen to the user” at step 460.



Nishikawa, Figure 4.

123. As explained above for limitation 1[b] (Section VIII.D.3),

Nishikawa's status bar includes thumbnailled images corresponding to each of its bookmarks. Figure 5, below, illustrates Nishikawa's process "for displaying [the] one or more thumbnailled images which correspond to the bookmarks." Nishikawa, [0032]. As shown, if a user "request[s] to view any available thumbnailled images" at block 520, then at block 530 Nishikawa's system "determines if there are any thumbnails to view." *Id.* If so, at block 550 "any available thumbnailled images ... will be displayed" according to their corresponding bookmarks (e.g., "the left-most thumbnail corresponding to the first bookmark ... the right-most thumbnail corresponding to the last bookmark ..."). *Id.*, [0033]. A POSITA would have recognized that, in order to display the thumbnails at the corresponding bookmarks in the video content, Nishikawa's system would necessarily "match[] the read metadata"—the bookmarks—"with the video"—the video content.



Nishikawa, Figure 5.

124. A POSITA would have recognized that Nishikawa's DVR system, when implemented according to Angiolillo and Vahtola, *see* Section VIII.B, would "match[] the read metadata from the flash memory device with the video." Like Nishikawa's process for its thumbnailed images, Angiolillo's process for its "images" "match[es] the read metadata ... with the video." In step 910, for

example, Angiolillo teaches retrieving both the “media content instance” and the corresponding “metadata” for the media content instance from “storage 140,” which may be a flash memory. Angiolillo, [0026], [0074]. Then, in step 915, Angiolillo teaches “retrieving from [the] media content instance 315 [the] images 355 specified in the metadata retrieved in 910” so that, at step 920, “the images 335” can be “included in [the] location access control pane 320[.]” *Id.*, [0075], [0076]; *see also id.* [0068] (the metadata “accompan[ies] the media content”), [0074] (“digital media files generally include metadata”).

125. From this, a POSITA would have understood Angiolillo to teach “matching the read metadata from the flash memory device with the video.” This is because, as a POSITA would have recognized, in order to “retriev[e] from [the] media content instance 315 [the] images 355 specified in the metadata retrieved in 910” and include[] those images in the location control pane, Angiolillo’s system would necessarily “match” the metadata (including the “intervals according to which the images 335 should be displayed”) with the media content instance.

126. A POSITA would have found it obvious to implement Nishikawa with a process like Angiolillo’s for “matching the read metadata from the flash memory device with the video” because Nishikawa describes a similar process for its “thumbnailed images.”

127. To the extent it is argued that Angiolillo and/or Nishikawa do not

teach this step, Ackley does. Ackley explains that “[o]nce the menu items and graphics necessary to control and navigate the media are loaded in memory 170, the CPU 115 would then map the contents of the media to the menu items and build an appropriate menu to navigate the contents of the media.” Ackley, [0033]. Ackley’s “menu items” include “thumbnail images” akin to Nishikawa’s. *Id.*, [0009], Figures 4, 5. A POSITA would have understood Ackley’s disclosure of “map[ping] the contents of the media to the menu items” to teach “matching the read metadata”—including the thumbnail images—“with the video”—that is, the media content. A POSITA would have found it obvious to implement Nishikawa with a process like Angiolillo’s for “matching the read metadata from the flash memory device with the video” because Nishikawa describes a similar process for its “thumbnailed images.” *Id.* [0033]. *See also* Section VIII.A.1, Section VIII.D.3.

128. Finally, Nishikawa and Angiolillo teach “assembling the video and the metadata in a memory structure to retrieve for playback and display.” As explained in Section VIII.B.1, from Angiolillo, a POSITA would have been motivated and found it obvious to implement Nishikawa’s DVR system to store the program title information, chapter marks, and information concerning the thumbnailed images in Nishikawa’s meta-data file. Also from Angiolillo, a POSITA would have been motivated and found it obvious to assemble Nishikawa’s meta-data file and video content in a “digital file,” as Angiolillo

describes. As Angiolillo explains: “As is known, digital media files” like Angiolillo’s media content instance “generally include metadata including information such as a title, names of actors, a rating, a year of release, etc.,” “information concerning [the] specific images 335 to be displayed in control pane 320, intervals according to which images 335 should be displayed, etc.,” and even “the images themselves as a digitally encoded image, such as a JPEG image or a GIF image.” Angiolillo, [0074]. A POSITA would have understood such a digital media file to be a “memory structure.” A POSITA would have understood that Nishikawa’s meta-data and video content, assembled into such a digital file, is “retrieve[d] for playback and display,” because Nishikawa teaches retrieving the video content and metadata to play back the video content and present the status bar (*see, e.g.*, Sections VIII.D.2-3) and Angiolillo teaches that the digital file is “retrieve[d]” to play back the media content instance and present the location control pane (*see, e.g.*, Angiolillo, [0074] (“processing subsystem 105 retrieves the requested media content instance 315 ... As is known, digital media files generally include metadata ... Accordingly, such metadata is also retrieved[.]”), Figures 3-6).

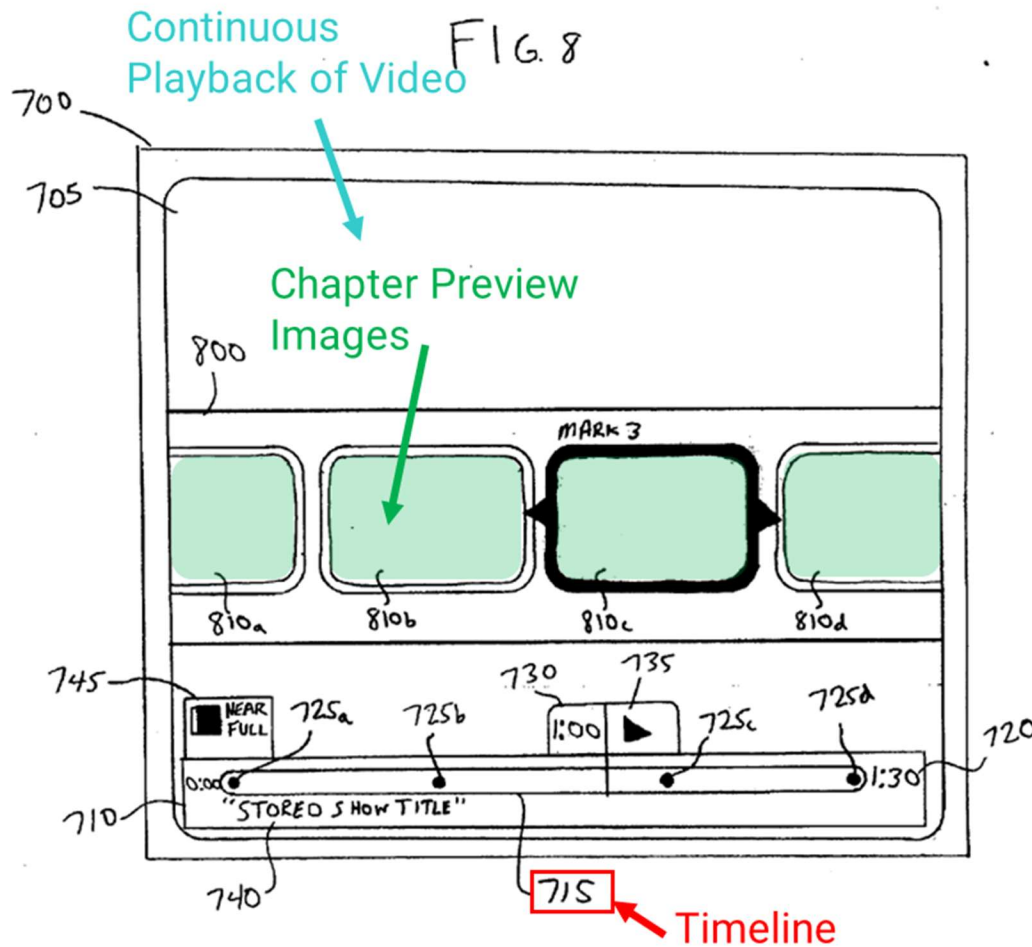
H. Claim 5: The method of claim 1, wherein the metadata comprises chapter titles, chapter start times and location on the flash memory device.

129. Nishikawa, Angiolillo, and Vahtola render obvious this limitation for

at least the reasons discussed above regarding limitation 1[a]. *See supra* Section VIII.D.2; *see also* Nishikawa, [0017], [0030]; Angiolillo, [0026]-[0027], Vahtola, [0030], [0034]. A POSITA would have known that an SD card is a type of flash memory device. *See, e.g.*, '300 Patent (“In one embodiment, the SD card 150 is a flash memory device ...”).

I. Claim 6: The method of claim 1 wherein the **timeline and the one **image** from each of the plurality of chapters displayed in order in a line are displayed vertically.**

130. Nishikawa and Angiolillo render obvious this additional limitation. As discussed above in connection with limitation 1[b], Nishikawa discloses displaying the **timeline** and the one **image** from each of the plurality of chapters displayed in order in a line, but they are displayed horizontally instead of vertically, as recited in claim 6:

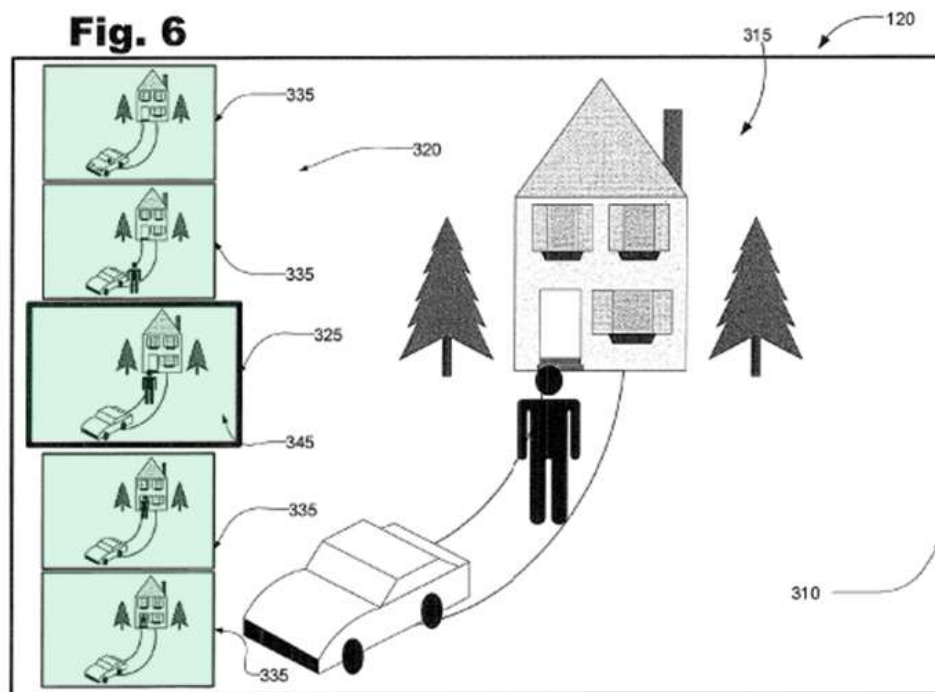


Nishikawa, Figure 8 (annotated).

131. Nishikawa also discloses, however, that “numerous other configurations may similarly be used for presenting the status bar to the user.” Nishikawa, [0031].

132. Based on Angiolillo and their own knowledge, a POSITA would have been motivated and found it obvious to display Nishikawa’s **timeline** and **images** vertically, as one of Nishikawa’s contemplated “other configurations.” Angiolillo discloses multiple embodiments for displaying a control pane 320, including

displaying the timeline and images horizontally (Figs. 3, 4) as well as vertically (Figs. 5, 6). For example, Figure 6 below illustrates a vertical timeline. *See also id.*, Figure 5, [0038]-[0039].



Angiolillo, Figure 6 (annotated).

133. Angiolillo further describes providing the horizontal or vertical layouts as user-“[c]onfigurable parameters” for the control pane 320, such that a user can select between horizontal, vertical, or other configurations. Angiolillo, [0043]. This is important, Angiolillo discloses, because it allows a user to “configure control pane 320 in a manner that will minimize the interference that location control pane 320 may have on the viewing habits and preferences of the

user.” Angiolillo, [0044].

134. Based on these teachings, a POSITA would have been motivated to provide Nishikawa’s timeline and images in a vertical orientation, e.g., to provide the user an option to choose between horizontal and vertical orientations. Angiolillo provides the express motivation to do so: to improve the user’s experience and allow the user to customize the presentation to minimize interference with viewing the background video and to suit the user’s preferences. Angiolillo, [0043]-[0044]. A POSITA would have understood that using a flexible, customizable interface with options to display the timeline vertically or horizontally would improve the user experience. A POSITA would have been motivated to do so because providing users with these options might lead to more widespread adoption of Nishikawa’s system. It would also allow users to adjust the display preferences based on the video being played. For example, based on the aspect ratio of both the video and the screen being used, a vertical timeline might interfere less with the video being viewed than a horizontal timeline, and providing both options to the user would thus improve the user experience.

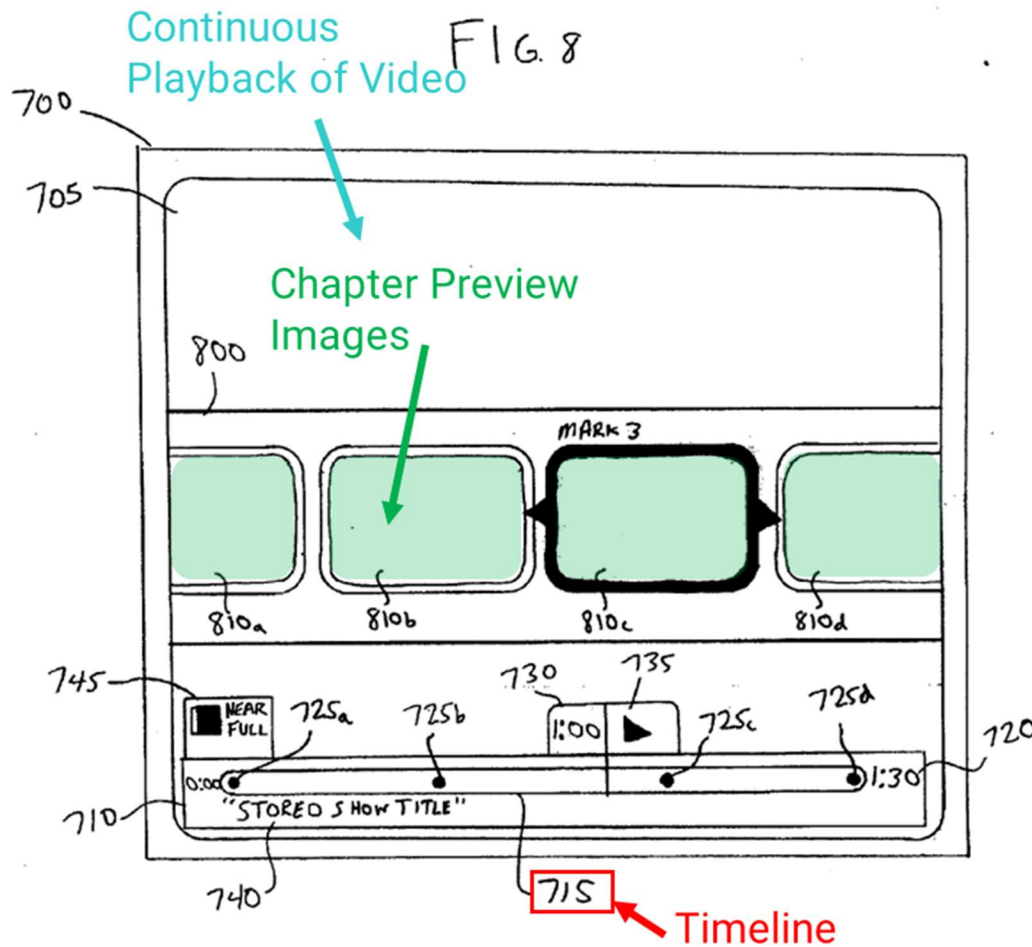
135. Moreover, a POSITA would have had a reasonable expectation of success in making this modification to Nishikawa’s menu. Both Nishikawa and Angiolillo contemplate different configurations for their menus, and modifying the appearance of a graphical user interface, like Nishikawa’s status bar with timeline

and images, would have been well within the skill level of a POSITA.

J. Claim 7: The method of claim 1 wherein the **timeline and the one **image** from each of the plurality of chapters displayed in order in a line are displayed as an overlay in the foreground **during the continuous playback of the video**.**

136. Nishikawa discloses this additional limitation of claim 7. For the reasons discussed above regarding limitation 1[b], Nishikawa discloses displaying, during **continuous playback of the video**, a status bar that includes the **timeline** and the one **image** from each of the plurality of chapters in sequential order parallel to the **timeline**. *See supra* Section VIII.D.3.

137. Moreover, for the reasons discussed above regarding limitation 1[b], Nishikawa's status bar of Figures 6-8 (which includes the timeline and images) is displayed as an overlay in the foreground over the continuously played video. For example, Nishikawa explains that in Figures 6 and 7 "the status bar is displayed as an *overlay* onto the video content being viewed." Nishikawa, [0031]; *see also id.*, [0035] ("status bar 610 is being overlaid on the screen 605 of the video content"), [0041] ("status bar 710 is being overlaid on the screen 705 of the video content"), [0045] ("FIG. 8 depicts another embodiment of the screen 705 of FIG. 7.").



Nishikawa, Figure 8 (annotated).

138. To the extent it is argued that Nishikawa does not disclose that its user interface with these features is “overlay[ed] in the foreground **during the continuous playback of the video**,” Ackley expressly discloses this feature for the reasons I explained above in Sections VIII.C and VIII.D.3-4. *See* Ackley, Abstract, [0008], [0009], [0029], [0034], [0035], [0042]-[0046], [0048], claim 17, Figs. 4-5. Moreover, it would have been obvious to incorporate this teaching from Ackley into Nishikawa’s user interface for the reasons discussed above in those Sections.

K. Claim 8

1. 8[p] A non-transitory computer readable medium storing instructions thereon, the instructions when executed causing at least one processor to:

139. The preamble recites only a conventional “computer readable medium” or “CRM” configuration where the CRM includes instructions that are executed by a processor to perform the remaining steps of claim 8, which mirror those of claim 1. To the extent the preamble is limiting, Nishikawa and Angiolillo disclose it.

140. Nishikawa discloses a “non-transitory computer readable medium” because it discloses “storage device 108” as well as a “volatile memory 110.” Nishikawa, [0022], Figure 1. A POSITA would have understood that, because memory 110 is volatile, any programs would be stored in storage device 108 and then loaded into memory 110. Nishikawa discloses a processor because it discloses CPU 106. *Id.* Nishikawa discloses that memory 110 includes instructions for causing the CPU 106 to perform the various operations described in its disclosures, which as discussed above teach the method steps of claim 1. Nishikawa, [0024]. Nishikawa’s claims also disclose “a memory containing one or more instruction[s]” that a “processor coupled to said memory . . . execute[s]” to perform a variety of steps, including displaying Nishikawa’s status bar and accessing a desired viewing location of video content based on user input from the

status bar. Nishikawa, claims 13-22.

141. Likewise, Angiolillo discloses that its disclosed processes are implemented as instructions executable by a processor that receives instructions from a memory, including a non-transitory memory. Angiolillo, [0030]-[0032]. It describes this configuration as known in the art, *id.*, which is consistent with the understanding of a POSITA.

2. 8[a] read from a metadata file associated with and stored with a video **chapter titles**, **chapter start times**, and location on a secure digital card (SD card) of **chapter preview images** that correspond to the playable content as initially configured and stored on the secure digital card, each chapter comprising a segment of content of the video;

142. *See* claim element 1[a]. Nishikawa, Angiolillo, and Vahtola further teach that the “metadata file” is “associated with” the video. Angiolillo, for instance, teaches that the metadata “accompan[ies] the media content.” Angiolillo, [0068]. Moreover, associating metadata with content was well known. *See, eg.*, Angiolillo, [0074] (“As is known, digital media files generally include metadata ...”); Ex. 1014, 305.

3. 8[b] present, **during continuous playback of a video**, an on-screen display to a user, the on-screen display including a **timeline** having a demarcation for the beginning of each of the plurality of chapter[s] of the video and having a **marker** corresponding to a current position in the video playback, the **timeline** assembled from the **chapter titles**, the **chapter start times**, and the location on the SD card of **chapter preview images** that correspond to the playable content stored as part of the metadata, and the on-screen display including one image for each of the plurality of chapters from the **chapter preview images** displayed in sequential order parallel to the **timeline**, wherein a **focus identifier** marks an image of a chapter corresponding to the current position within the continuous video playback;

143. See claim element 1[b].

4. 8[c] receive a selection of one of the **chapter preview images** as chapter skip input **during the continuous playback of the video**;

144. See claim element 1[c].

5. 8[d] move the at least one image from each chapter one position along the **line** with respect to the **focus identifier**, according to the chapter skip input, wherein the one image is moved to the left when the chapter skip input indicates a skip forward and wherein the one image is moved to the right when the chapter skip input indicates a skip backward; and

145. See claim element 1[d].

6. 8[e] skipping *[sic]* playback of the video to a chapter identified by the **focus identifier** such that the video playback continues from the position of the chapter identified by the **focus identifier**.

146. See claim element 1[e].

L. Claim 9: The computer readable computer medium of claim 8, wherein the on-screen display includes a video preview from at least one of the plurality of chapters of the video that is displayed in order in the **line** with the rest of the at least one **images** from the rest of the plurality of chapters.

147. See claim 2.

M. Claim 10: The computer readable computer medium of claim 8, wherein the video comprises secured media content on a flash memory device.

148. See claim 3.

N. Claim 11: The computer readable computer medium of claim 10, further comprising instructions that cause the at least one processor to: initiate playback of the video from the flash memory device; read metadata from the flash memory device; match the read metadata from the flash memory device with the video; and assemble the video and the metadata in a memory structure to retrieve for playback.

149. See claim 4.

O. Claim 12: The computer readable computer medium of claim 8, wherein the metadata comprises **chapter titles**, **chapter start times** and location on the flash memory device.

150. See claim 5.

P. Claim 13: The computer readable medium of claim 8 wherein the **timeline** and the at least one **image** from each of the plurality of chapters displayed in order in a line are displayed vertically.

151. See claim 6.

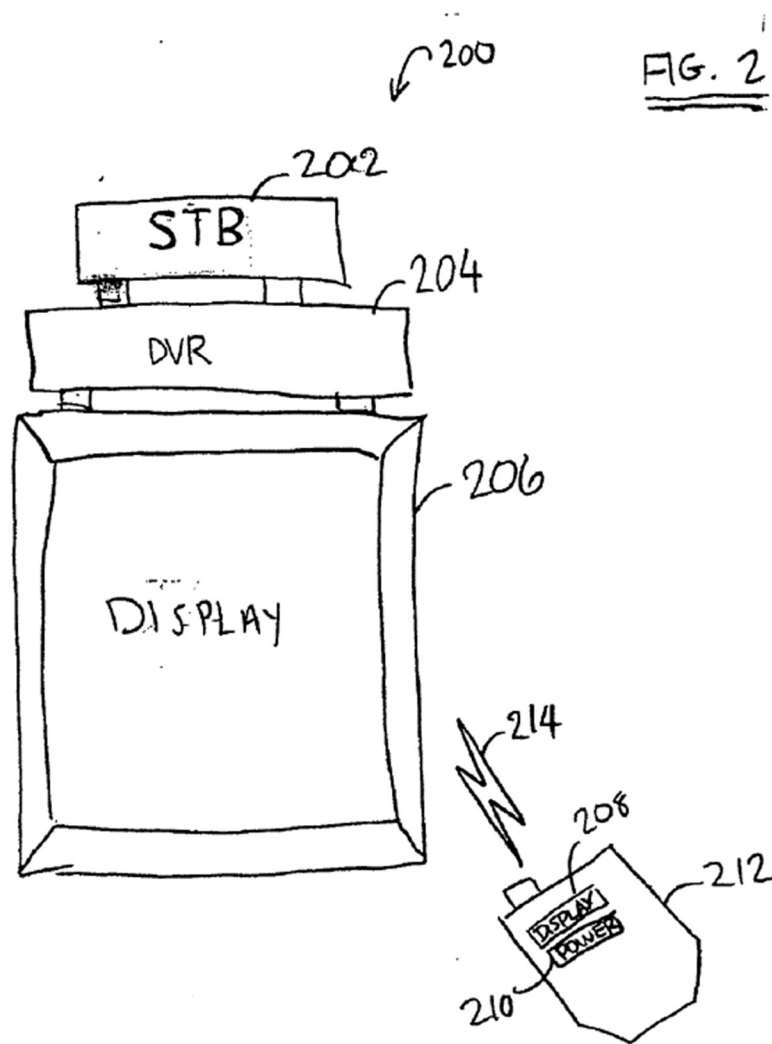
Q. Claim 14: The computer readable medium of claim 8 wherein the **timeline** and the at least one **image** from each of the plurality of chapters displayed in order in a line are displayed as an overlay in the foreground **during the continuous playback of the video**.

152. See claim 7.

R. Claim 15

1. 15[p] An apparatus for navigating a plurality of chapters of video content within a video, the apparatus comprising:

153. Nishikawa teaches this. Nishikawa teaches “navigating a plurality of chapters of video content within a video.” See claim element 1[p]. Nishikawa teaches “an apparatus for [such] navigating” because Nishikawa describes a “system 200” that includes a “DVR 204” and a “display device 206,” as shown in Figure 2. Nishikawa, [0025].



Nishikawa, Figure 2.

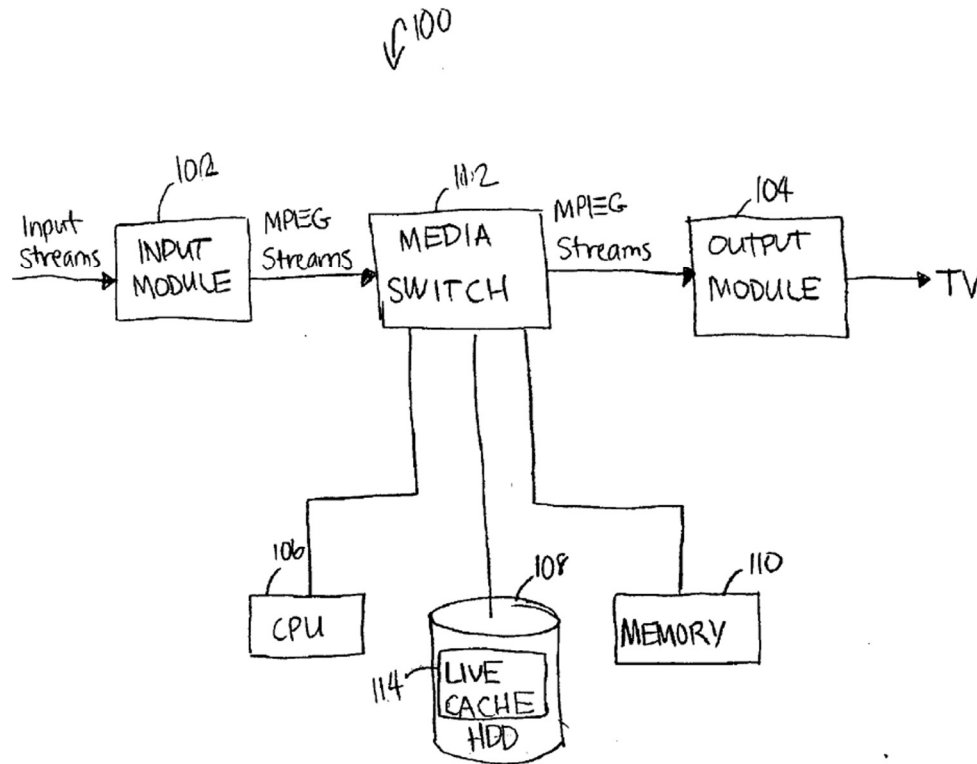
2. 15[a] a video screen; and

154. Nishikawa discloses “a video screen” because Nishikawa teaches that the “display device 206” of its system has a “screen.” Nishikawa, [0025].

3. 15[b] a processor, the processor configured to execute:

155. Nishikawa discloses “a processor” because Nishikawa’s DVR system includes a “microprocessor CPU 106” and “instructions for causing the CPU 106

to perform . . . DVR-related operations[.]” Nishikawa, [0022], [0024]. As shown



Nishikawa, Figure 1.

4. 15[c] a chapter presentation module, configured to: read from a metadata file associated with and stored with the video **chapter titles**, **chapter start times**, and location on a secure digital card (SD card) of **chapter preview images** that correspond to the playable content as initially configured and stored on the secure digital card, each chapter comprising a segment of content of the video; and

156. As explained for claim element 1[a], Nishikawa, Angiolillo, and Vahtola teach this “read[ing]” step. It would have been obvious to implement this “read[ing]” step as a “chapter presentation module” that forms part of the “instructions” that cause Nishikawa’s “CPU” to control the DVR system.

Nishikawa, [0024]. A POSITA would have been motivated and found it obvious to do so at least because Vahtola teaches that “instructions” for a “processing element” like Nishikawa’s CPU “may comprise software,” which commonly included “modules.” Vahtola, [0035]. Incorporating this “read[ing]” step into Nishikawa’s instructions as a “chapter presentation module” would have been a combination of familiar elements according to known methods to yield predictable results.

5. 15[d] [a chapter presentation module, configured to:] present, **during continuous playback of a video**, an on-screen display on the video screen, the on-screen display including a **timeline** having a demarcation for the beginning of each of the plurality of chapters of the video and having a **marker** corresponding to a current position in the video playback, the **timeline** assembled from the **chapter titles**, the **chapter start times**, and the location on the SD card of **chapter preview images** that correspond to the playable content stored as part of the metadata, and the on-screen display including one image for each of the plurality of chapters from the **chapter preview images** displayed in sequential order parallel to the **timeline**, wherein a **focus identifier** marks an image of a chapter corresponding to the current position within the continuous video playback;

157. As explained for claim element 1[b], Nishikawa, Angiolillo, and Vahtola teach this “present[ing]” step. Nishikawa also teaches that its status bar (the “on-screen display”) is presented “on the video screen,” because Nishikawa teaches “displaying information in a status bar at the bottom of the screen” of its display device. Nishikawa, [0025]. It would have been obvious to incorporate this “present[ing]” step into Nishikawa’s instructions as a “chapter presentation

module” for at least the reasons explained for claim element 15[c].

6. 15[e] a receive module configured to receive a selection of one of the **chapter preview images** as chapter skip input **during the continuous playback of the video**;

158. As explained for claim element 1[c], Nishikawa teaches this “receiv[ing]” step. It would have been obvious to incorporate this “receiv[ing]” step into Nishikawa’s instructions as a “receive module” for at least the reasons explained in connection with the “chapter presentation module” in claim element 15[c].

7. 15[f] a move module configured to move the at least one image from each chapter one position along the **line** with respect to the **focus identifier**, according to the chapter skip input, wherein the one image is moved to the left when the chapter skip input indicates a skip forward and wherein the one image is moved to the right when the chapter skip input indicates a skip backward; and

159. As explained for claim element 1[d], Nishikawa and Angiolillo teach this “mov[ing]” step. It would have been obvious to incorporate this “mov[ing]” step into Nishikawa’s instructions as a “move module” for at least the reasons explained in connection with the “chapter presentation module” in claim element 15[c].

8. 15[g] a resume module for skipping playback of the video to a chapter identified by the **focus identifier** such that the video playback continues from the position of the chapter identified by the **focus identifier**.

160. As explained for claim element 1[e], Nishikawa and Angiolillo this

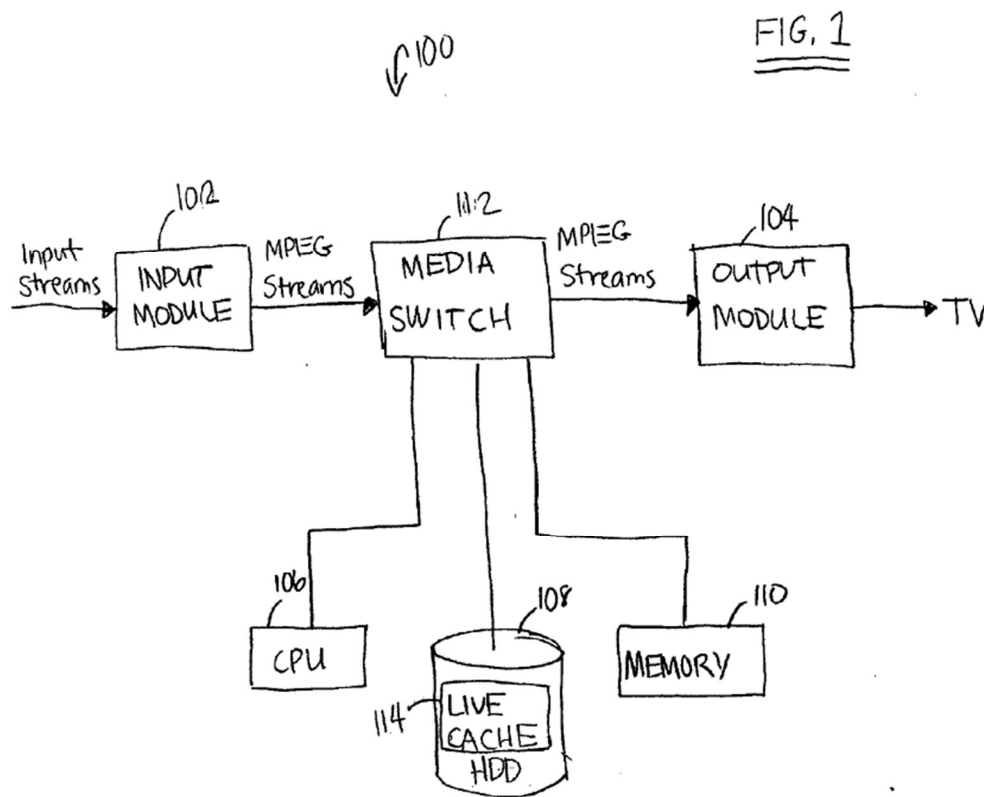
“skipping” step. It would have been obvious to incorporate this “skipping” step into Nishikawa’s instructions as a “resume module” for at least the reasons explained in connection with the “chapter presentation module” in claim element 15[c].

S. Claim 16: The apparatus of claim 15, wherein the on-screen display includes a video preview from at least one of the plurality of chapters of the video that is displayed in order in the **line with the rest of the at least one **images** from the rest of the plurality of chapters.**

161. See claim 2.

T. Claim 17: The apparatus of claim 15, further comprising a secured digital memory device interface, the secured digital memory device interface for receiving a secured media memory device having the video.

162. Nishikawa and Vahtola teach this. As shown in Figure 1, Nishikawa’s DVR system includes a “hard disk or storage device 108.” Nishikawa, [0022].



Nishikawa, Figure 1.

163. As explained in Section VIII.B.2, a POSITA would have been motivated and found it obvious to implement Nishikawa's DVR system (as modified by Angiolillo) using an SD card as the storage device 108, as taught by Vahtola. Vahtola teaches that its DVR system may employ "a Secure Digital (SD) card)" that "stores content" and is "removable." Vahtola, [0034]. From this, a POSITA would have understood Vahtola to teach that the DVR system has an "interface" that "receiv[es]" the SD card storing the content. Such interfaces for SD cards were well known. *Id.* (citing, e.g., Ex. 1015, 3:1-3, 5:22-33).

U. Claim 18: The apparatus of claim 17, wherein the processor is further configured to execute: a playback module for initiating playback of the video from the secured digital memory device; a reading module for reading metadata from the secured digital memory device; a match module for matching the read metadata from the secured digital memory device with the video; and an assembly module for assembling the video and the metadata in a memory structure to retrieve for playback and display.

164. As explained for claim 4, Nishikawa, Angiolillo, and Vahtola teach the “initiating playback,” “reading metadata,” “matching,” and “assembling” steps. It would have been obvious to incorporate these steps into Nishikawa’s instructions as a “playback module,” “reading module,” “match module,” and “assembly module,” respectively, for at least the reasons explained in connection with the “chapter presentation module” in claim element 15[c].

V. Claim 19: The apparatus of claim 15, wherein the metadata comprises chapter titles, chapter start times and location on the flash memory device.

165. See claim 5.

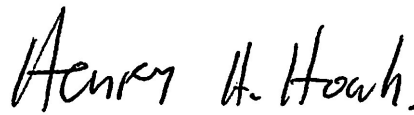
W. Claim 20: The apparatus of claim 15 wherein the timeline and the one image from each of the plurality of chapters displayed in order in a line are displayed vertically on the video screen.

166. See claim 6. Nishikawa and Angiolillo also teaches that when “the timeline and the one image ... are displayed vertically” it is “on the video screen,” because Nishikawa teaches that its status bar (which includes the progress bar and thumbnail images) is presented on “the screen” of its display device. Nishikawa, [0025].

IX. Conclusion

167. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on 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 or Title 18 of the United States Code.

Date: November 18, 2024



Henry Houh, Ph.D.