

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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UNIFIED PATENTS, LLC

Petitioner

v.

VL COLLECTIVE IP LLC

Patent Owner

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IPR2022-01086

U.S. Patent 8,605,794

PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT 8,605,794

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**PETITIONER’S EXHIBIT LIST**

EX1001	US Patent 8,605,794 to Hellwagner et al.
EX1002	Prosecution File History of US Application 11/918,276
EX1003	US Patent 5,627,656 to Sonohara <i>et al.</i>
EX1004	US Patent 6,654,933 to Abbott <i>et al.</i>
EX1005	Declaration of Dr. Immanuel Freedman
EX1006	Scheduling Order, <i>Starz Entertainment, LLC v. VL Collective IP, LLC et al.</i> , 1:21-cv-01448-JLH, Dkt. 18 (Feb. 10, 2022)
EX1007	Judge Alan D. Albright case statistics exported from Lex Machina
EX1008	Scheduling Order, <i>VideoLabs, Inc. v. Amazon.com, Inc.</i> , 6:22-cv-00079, Dkt. 36 (May 10, 2022)
EX1009	[reserved]
EX1010	Declaration of Kevin Jakel
EX1011	Microsoft Computer Dictionary (5 <sup>th</sup> ed.) (excerpts)
EX1012	“A Media Synchronization Survey: Reference Model, Specification, and Case Studies”, Blakowski et al., IEEE Journal on Selected Areas in Communications, Vol. 14 No. 1, Jan. 1996.
EX1013	Merriam-Webster’s Collegiate Dictionary (10 <sup>th</sup> ed.) (excerpts)
EX1014	“Interval-Based Conceptual Models for Time-Dependent Multimedia Data,” Little et al., IEEE Transactions on Knowledge and Data Engineering, Vol. 5 No. 4, Aug. 1993.
EX1015	“Synchronization Attributes and Rules of Active Object-Oriented Database for Multimedia Presentation,” Yun et al., Proceedings of the Fourth International Conference on Database Systems for Advanced Applications (DASFAA ’95), Apr. 1995.

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**I. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8**

**A. Real Party-in-Interest**

Pursuant to 37 C.F.R. § 42.8(b)(1), Unified Patents, LLC (“Unified” or “Petitioner”) certifies that Unified is the real party-in-interest, and further certifies that no other party exercised control or could exercise control over Unified’s participation in this proceeding, the filing of this petition, or the conduct of any ensuing trial. In view of *Worlds Inc. v. Bungie, Inc.*, 903 F.3d 1237, 1242–44 (Fed. Cir. 2018), Unified has submitted voluntary discovery in support of its certification. *See* EX1010 (Declaration of Kevin Jakel).

**B. Related Matters**

As of the filing date of this Petition, and to the best knowledge of Petitioner, U.S. Patent 8,605,794 (the “’794 Patent,” EX1001) has been involved the following proceedings:

*Starz Entertainment, LLC v. VL Collective IP, LLC*, Case 1:21-cv-01448 (D. Del.)

*VideoLabs, Inc. v. Amazon.com, Inc. et al.*, Case 6:22-cv-00079 (W.D. Tex.)

*VideoLabs, Inc. v. Netflix Inc.*, Case 1:22-cv-00229 (D. Del.)

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Please address all correspondence to lead and back-up counsel. Petitioner consents to electronic service.

## **II. CERTIFICATION OF GROUNDS FOR STANDING**

Petitioner certifies pursuant to Rule 42.104(a) that the patent for which review is sought is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

## **III. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED**

Pursuant to Rules 42.22(a)(1) and 42.104(b)(1)-(2), Petitioner challenges claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 (“challenged claims”).

### **A. Prior Art Patents and Printed Publications**

The ’794 Patent was filed on March 16, 2006 and claims priority to a German

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application filed April 12, 2005. Thus, Petitioner assumes a priority date of April 12, 2005.

The following references are pertinent to the unpatentability grounds explained below:

1. U.S. Patent 6,654,933 to Abbott et al. (“*Abbott*” (EX1004)) (issued November 25, 2003).
2. U.S. Patent 5,627,656 to Sonohara et al. (“*Sonohara*” (EX1003)) (issued May 6, 1997).

*Abbott* and *Sonohara* qualify as prior art at least under 35 U.S.C. § 102(b) and (a). Neither reference was considered by the examiner or cited during the ’794 Patent’s prosecution.<sup>1</sup>

### **B. Statutory Grounds for Challenges**

This Petition, supported by the declaration of Dr. Immanuel Freedman (EX1005), requests cancellation of the challenged claims under the grounds below:

**Ground #1/#2:** Claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 are anticipated under 35 U.S.C. § 102 by, or in the alternative rendered obvious under 35 U.S.C. § 103

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<sup>1</sup> The face of the ’794 Patent identifies U.S. Patent 5,640,421 to Sonohara as a reference considered by the examiner; this patent is unrelated to the *Sonohara* patent cited herein.

over, *Abbott*.

**Ground #3/#4:** Claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 are anticipated under 35 U.S.C. § 102 by, or in the alternative rendered obvious under 35 U.S.C. § 103 over, *Sonohara*.

#### **IV. U.S. PATENT 8,605,794**

##### **A. Summary**

The challenged claims of the '794 Patent relate to “synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file.” '794 Patent (EX1001), claim 1. In one example of the '794 Patent, “a video data stream and an audio data stream are to be synchronized.” *Id.* at 3:67–4:1. Thus, references to “first data” may be understood as corresponding to video data, and references to “second data” may be understood as corresponding to audio data. Freedman (EX1005), ¶ 35.

The '794 Patent explains that, in its method, “first and second data segments will be output in each case sequentially according to their chronological sequence in such a way that ... each second data segment will be output together with an associated first data segment.” '794 Patent (EX1001), 3:29–39. The '794 Patent explains that the “synchronization is controlled by way of the predefinable assignment rule” such that “content-related data segments can be output together according to their chronological sequence” which is advantageous “since the

assignment is carried out without the use of timestamps.” *Id.* at 2:36–46.

Challenged claim 1 recites aspects of the above disclosure:

1. A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:

sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence

in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.

’794 Patent (EX1001), claim 1.

However, prior to the ’794 Patent, it was known to synchronize content-related segments, e.g., to synchronize segmented video and audio data. It was likewise known to synchronize data by assigning segments of one type of data (e.g., audio data) to segments of video data. For example, *Abbott*, one of the references applied herein, disclosed a synchronization method that mapped audio frames to groups of video data, so that media data delivered to a user was not presented out of sync. *Abbott’s* synchronization method, just like the ’794 Patent, does not rely on a

timestamp to assign audio data to video data. Thus, as analyzed below, and as supported by the declaration of Dr. Freedman, the prior art references presented in this Petition disclose the limitations of the challenged claims, or at least render the challenged claims obvious.

### **B. Level of Ordinary Skill in the Art**

A person of ordinary skill in the art at the priority date (April 12, 2005) for the '794 Patent ("POSITA") would have had a bachelor's degree in electrical or computer engineering, or a closely related scientific field such as computer science, and two years of work experience with streaming multimedia. A lack of experience can be remedied with additional education (e.g., a Master's degree), and likewise, a lack of education can be remedied with additional work experience (e.g., 4-5 years). Freedman (EX1005), ¶¶ 42–44.

### **C. Prosecution History**

The '794 Patent issued from US Patent Application 11/918,276 ("276 Application"), filed October 11, 2007, which was a national stage application of PCT/EP2006/060808 filed March 16, 2006. *See* '794 Patent (EX1001), field (22).

In the first Office Action, the claims were rejected as obvious over the combined teachings of EP 1494430 to Shin and US 5,661,523 to Yamane. EX1002, 225–239. The claims were also rejected under § 101. In response to the rejections, the applicant amended the claims to specify that the recited assignment rule was for

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“assigning each second data segment to a first data segment” (*id.* at 253) and argued that Shin did not disclose this limitation. *Id.* at 252–263.

In response to the applicant’s arguments and amendments, the examiner issued a final Office Action, rejecting the claims as obvious over Rosenau (US 5,598,352) in view of the same Yamane reference as before. *Id.* at 267–292. The examiner and the applicant’s representative then conducted an interview to discuss the rejection, in which a proposed amendment was presented. *See id.* at 311–318. The applicant then filed an amendment without incorporating the discussed proposed amendment (*id.* at 322–327); the amendment instead amended the claims in other respects; specifically, the claims were amended to recite that the data segments were “content-related.” *Id.* With respect to the prior art, the applicant argued that Rosenau did not disclose an “assignment rule for resynchronizing the video data and audio data based on a sequence number.” *Id.* at 328–337.

The examiner then issued another Office Action, maintaining the § 101 rejection, and withdrawing the prior art rejection. *Id.* at 340–348. In allowing the claims over the prior art, the examiner stated “[n]o reason for allowance is needed as the record is clear in light of applicant’s arguments and amendment.” *Id.* at 346. The applicant then filed a further amendment to the claims, adding to claim 1 that the outputting was performed “by a device for synchronizing content-related data.” *Id.* at 374–382.

The examiner subsequently issued a notice of allowance. *Id.* at 387–398. In the “Examiner’s statement of reason of allowance,” the examiner characterized the “closest prior art”, Rosenau, but found that Rosenau’s “synchronizing the frame and skipping the frame to resynchronize is not the equivalent to the” claims, which recited “sequentially outputting data segments on the basis of an assignment rule for assigning one of the content-related second data segments for assigning each one of the content-related second data segment to one of the content-related first data segment.” *Id.* at 395–396. Although the examiner’s statement includes duplicative language, the examiner appears to have focused on the assignment of second data segments to a first data segment as the key allowable subject matter.

However, the examiner did not have the benefit of reviewing the *Abbott* and *Sonohara* references. As detailed below, both references teach the assignment of audio segments (second data segments) to corresponding video segments (first data segments). Had the examiner considered *Abbott* or *Sonohara*, the claims would have been rejected.

## **V. CLAIM CONSTRUCTION**

The Challenged Claims of the ’794 Patent are construed herein “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b) (Nov. 13, 2018). The claim

terms below are thus construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* Petitioner submits that no claim term requires construction beyond their plain and ordinary meaning.

## **VI. CLAIMS 1, 3, 5, 9, 12, 13, 15, 20, AND 21 ARE UNPATENTABLE**

### **A. Grounds 1 & 2: Claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 are anticipated by or rendered obvious by *Abbott***

#### **1. Overview of *Abbott***

*Abbott* discloses an “indexing method for allowing a viewer to control the mode of delivery of program material.” *Abbott* (EX1004), Abstract. As pertinent to the analysis below, *Abbott* discloses a “synchronizing method ... to minimize a time offset between audio and video data.” *Id.*

*Abbott* is analogous art. According to the '794 Patent, “[a]t least one embodiment of the invention specifies a method or, as the case may be, a device which enables content-related first and second data segments to be synchronized in a simple and standard-compliant manner.” '794 Patent (EX1001), 2:24–26. *Abbott* is within this field, as it likewise discloses a “synchronizing method...to minimize a time offset between audio and video data.” *Abbott* (EX1004), Abstract. Thus, *Abbott* is analogous art. Freedman (EX1005), ¶ 55.

## 2. Analysis

### Claim 1

***[1.0] A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:***

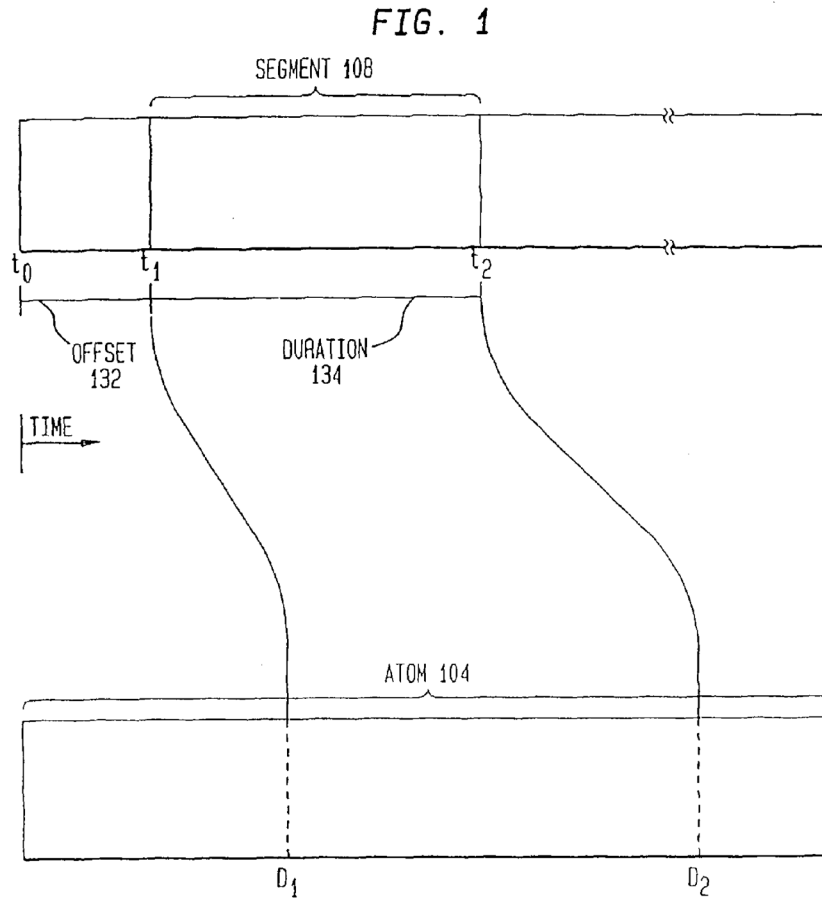
To the extent the preamble is limiting, *Abbott* discloses it. Specifically, *Abbott* discloses a method for media stream synchronization (a *method for synchronizing*), and details that its method synchronizes between Groups of Pictures (*content-related first data segments*) of a video atom file (*of a first data file*) and audio frames (*content-related second data segments*) of an audio atom file (*of a second data file*).

First, *Abbott* discloses a *method for synchronizing content-related first data segments and content-related second data segments*. *Abbott* discloses a “system and **method** for **media stream** indexing and **synchronization**.” *Abbott* (EX1004), 1:11–13, *see also id.* at Fig. 10, 4:36–38 (“process for synchronizing one or more auxiliary atoms containing media data with a base atom containing media data.”)

*Abbott* operates with reference to an “object hierarchy.” *Abbott* (EX1004), 5:46–55. In *Abbott*’s object hierarchy, “data representing the program material is contained in an atom” and it explains that, in one example, “a movie can be partitioned into two atoms, one atom for video, and another atom for audio.” *Id.* at 5:56–61. *Abbott* further explains that an “atom may be stored in any suitable manner on a storage device or other suitable memory means. This may include, for example,

**a file on a disk in a server....”** *Id.* at 6:3–8. Each atom, therefore, corresponds to a *data file*, and thus, the atom for video is a *first data file* and the atom for audio is a *second data file*. Freedman (EX1005), ¶¶ 56–59.

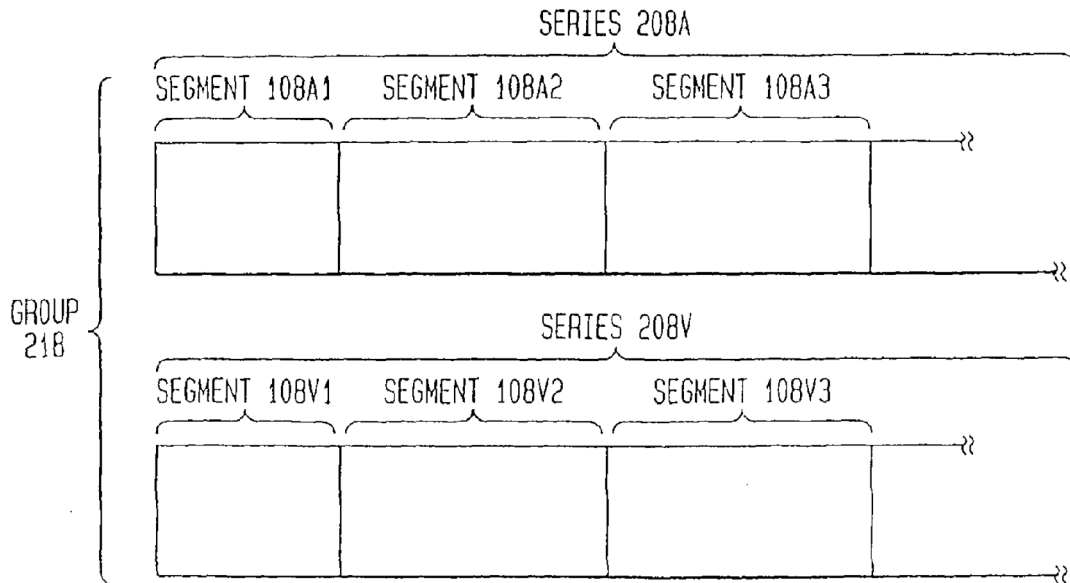
*Abbott* then explains that an “atom is thus the basic building block of the object hierarchy” and details a further division referred to as a segment, which “identifies a portion of one particular atom, i.e., program material data or ‘atom data’ between two points in time.” *Abbott* (EX1004), 6:24–42. *Abbott* further explains that a “segment may identify only a portion of the atom” including “atom data between two arbitrary times in the program material.” *Id.* This is depicted in Figure 1, which “illustrates the relationship between an atom and a segment.” *Id.* at 6:52–7:6.



***Abbott (EX1004), Figure 1***

*Abbott* further explains that a “series” may be formed by “sequentially ordering one or more segments” and further, that a “group is formed by joining or grouping series.” *Id.* at 7:7–8, 7:16–18. This is depicted in Figure 2, which is “a diagram illustrating two series 208 (208A and 208V) and a group 218.” *Id.* at 7:36–37.

FIG. 2



**Abbott (EX1004), Figure 2**

*Abbott* also discloses video data segmented into “Groups of Pictures” and audio data segmented into audio frames, which correspond to and are mapped to the recited *first data segments* and *second data segments* as is further detailed in the analysis of limitation [1.1], *infra*. *Abbott* (EX1004), 17:3–41.

Thus, *Abbott* discloses *segments* of the atoms, and based on its disclosure of an atom stored in a file for video and an atom stored in a file for audio detailed above, discloses *content-related first data segments of a first data file* and *content-related data segments of a second data file* as recited. Freedman (EX1005), ¶¶ 60–63.

Finally, *Abbott* explains *synchronizing* these segments. As noted above, in *Abbott*, a “series is formed by sequentially ordering one or more segments” and a “group is formed by joining or grouping series in parallel for parallel, simultaneous

delivery of the corresponding data.” *Id.* at 7:7–8, 7:16–18. *Abbott* also describes “synchronized delivery” of such data, and thus discloses *synchronizing* as recited. Specifically, *Abbott* explains: “synchronized delivery enables the video to be synchronized with the audio.” *Id.* at 7:16–26; Freedman (EX1005), ¶ 64.

Thus, by describing: atom data that includes video and audio; the division of atom data into segments (Groups of Pictures for video and audio frames for audio); and the synchronization of segments of atom data, *Abbott* discloses *synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file* as recited. Freedman (EX1005), ¶¶ 56–65.

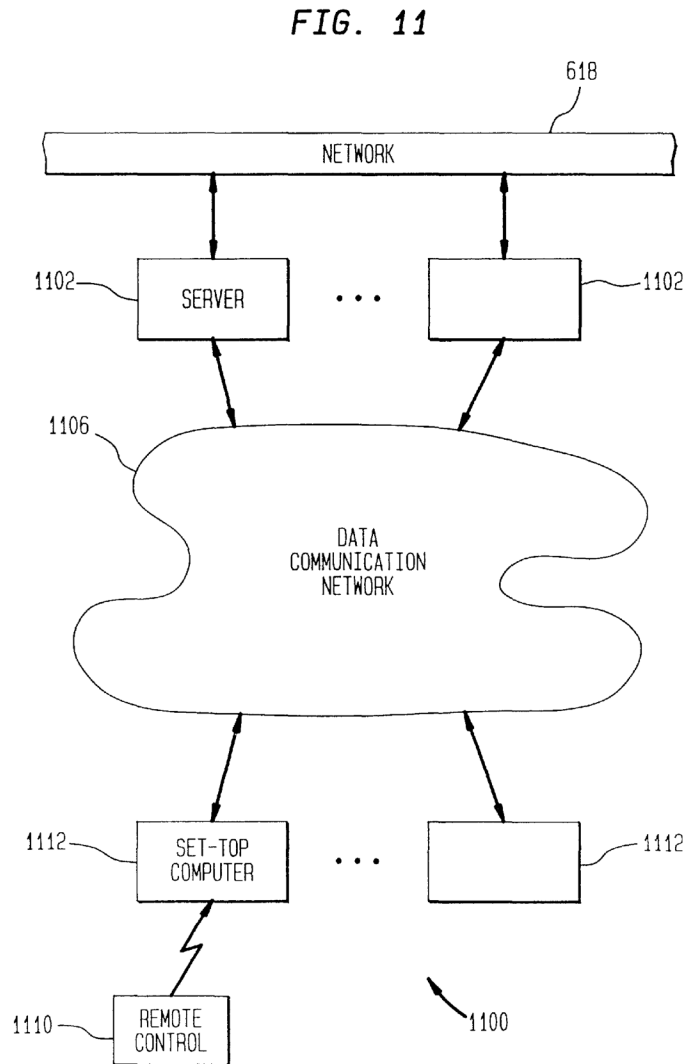
***[1.1] sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence;***

*Abbott* discloses this limitation.

***sequentially outputting, by a device for synchronizing content-related data***

First, *Abbott* discloses outputting *by a device for synchronizing content-related data* because it describes a “media delivery system using the object hierarchy of the present invention.” *Abbott* (EX1004), 7:57–59. *Abbott* further explains that “group 218 media data arranged in accordance with the viewer’s command is transmitted from remote servers 1102 via data communication network 1106 to set-

top computer 1112.” *Id.* at 21:33–37.



***Abbott (EX1004), Figure 11***

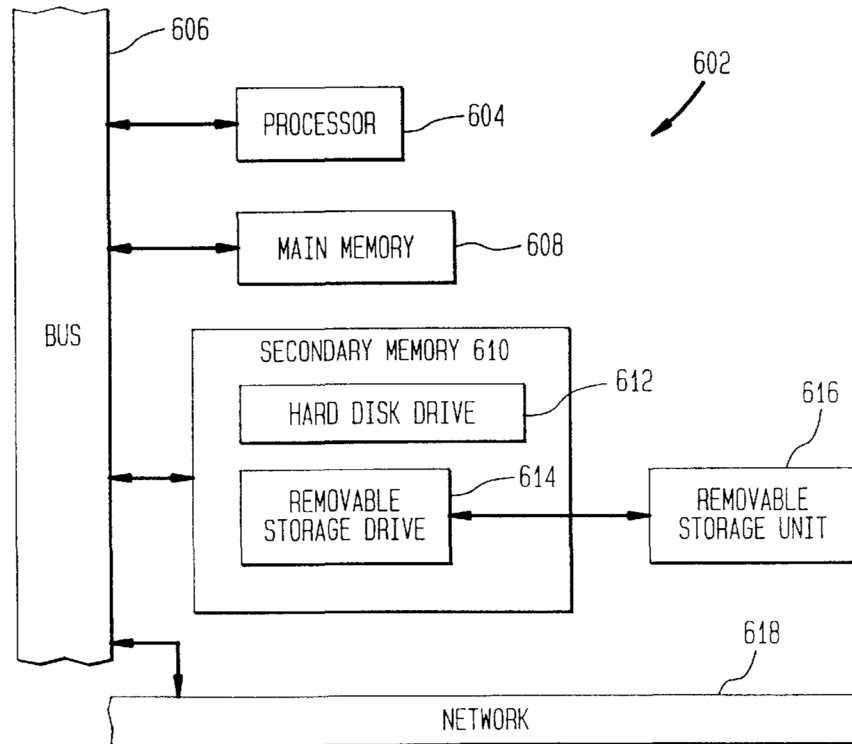
At the set-top computer 1112 “media data is then decoded, as necessary, by set-top computer 1112 for display on the viewer’s television.” *Id.* This decoding operation by the set-top computer discloses *sequentially outputting, by a device for synchronizing content-related data* as recited, based on the ’794 Patent’s examples

of “output” as including passing data “to a processing unit” (’794 Patent (EX1001), 2:43–46), as a POSITA would have recognized decoding media data by a set-top computer to include processing that data by a processor of the set-top computer. Freedman (EX1005), ¶ 70. Further, because the set-top computer 1112 is part of Figure 11’s “system that uses the object hierarchy and indexing and synchronization methods of the present invention for interactive delivery of program material to a viewer,” a POSITA would have recognized that the set-top computer decodes the media such that “program material” is “delivered to the viewer in a synchronized manner” as disclosed throughout *Abbott*. *Abbott* (EX1004), 20:11–13; Freedman (EX1005), ¶ 71. Thus, *Abbott* discloses *sequentially outputting, by a device for synchronizing content-related data* (the set-top computer 1112). Freedman (EX1005), ¶¶ 68–71.

*Abbott* also describes a “computer system for storing and arranging media data for delivery to a viewer using the object hierarchy as described herein” which includes a connection to a network “so that program material may be retrieved and delivered to a viewer.” *Abbott* (EX1004), 11:59–65, 12:18–24. This “exemplary computer system 602 is shown in FIG. 6” and also corresponds to a *device for synchronizing content-related data* as it includes “control logic, when executed by processor 604” which “causes computer system 602 to store, arrange, format, and deliver media data to a viewer using the object hierarchy of the invention.” *Id.* at

12:34–40.

**FIG. 6**



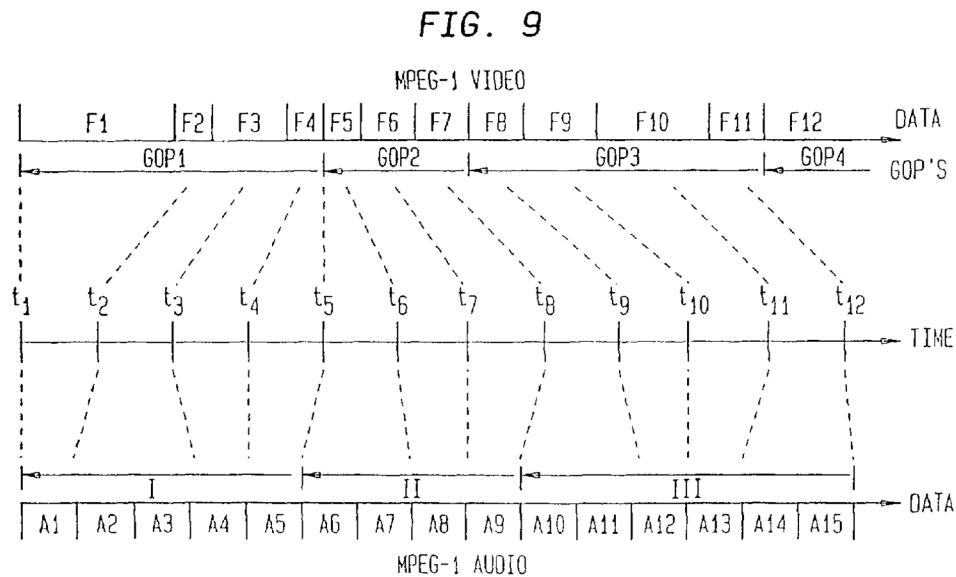
***Abbott (EX1004), Figure 6***

The arrangement and delivery of media data by the computer system 602 as described also discloses *sequentially outputting, by a device for synchronizing content-related data* as recited, based on the '794 Patent's examples of "output" as including transmission. See '794 Patent (EX1001), 2:43–46. Thus, *Abbott* discloses *outputting, by a device for synchronizing content-related data* (computer system 602). Freedman (EX1005), ¶¶ 72–73.

*sequentially outputting ... the content-related first data segments and the content-related second data segments according to their chronological sequence*

*Abbott* also discloses *sequentially outputting ... the content-related first data segments and the content-related second data segments according to their chronological sequence*. In a section titled Media Stream Synchronization, *Abbott* discloses that “it is necessary to correlate the audio data with the corresponding video data to ensure that the audio and video remain synchronized.” *Abbott* (EX1004), 18:48–57. *Abbott* further describes that the “media stream synchronization method of the present invention ensures that the data from every series in a group starts out in synchrony, and remains in synchrony after any repositioning of the viewpoint within the program material.” *Id.*

*Abbott* depicts *the content-related first data segments and the content-related second data segments according to their chronological sequence* in Figure 9.



**Abbott (EX1004), Figure 9**

Abbott explains Figure 9 with respect to video data, segmented as “Groups of Pictures” (i.e., *content-related first data segments*) as follows:

In some encoding protocols, such as MPEG-1, **video data frames** are **grouped together into units referred to herein as “Groups of Pictures” (GOPs)**. A GOP is comprised of one or more frames. In an environment using GOP, an index file is preferably constructed that allows a viewer to skip only to the beginning of a GOP, not simply to the beginning of a frame within the GOP. FIG. 9 illustrates the relationship between frames and a GOP. FIG. 9 shows MPEG-1 video data divided into twelve frames, shown as F1, F2, . . . F12. The twelve frames are further grouped into four GOPs, shown as GOP1, GOP2, GOP3, and GOP4. Particularly, frames F1, F2, F3, and F4 are in GOP1, frames F5, F6, and F7 are in GOP2, frames F8, F9, F10, and F11 are in GOP3, and frame F12 is in GOP4. **The time axis shown in FIG. 9 is marked at regular intervals, i.e., the frame duration**

or time for which a particular frame is presented, generally approximately 1/30 sec. Dashed lines correlate the beginning of each frame with the corresponding time. **Frame F1 begins at time t1, frame F2 begins at time t2, frame F3 begins at time t3, etc.** The MPEG-1 video data of FIG. 9 has a fixed index duration, the index duration being the duration of each frame, or 1/30 sec. FIG. 9 illustrates that although frames F1-F12 all have the same duration, the frames have varying sizes. For example, frame F1 is larger than frame F2, i.e., frame F1 contains more data than frame F2.

*Abbott* (EX1004), 17:3–26.

*Abbott* then describes Figure 9 with respect to audio data, segmented as audio frames (i.e., *content-related second data segments*) as follows:

MPEG-1 audio has only one grouping level so that “audio frames” are not further grouped into “audio GOPS”. The **MPEG-1 audio data of FIG. 9 is broken down into fifteen audio frames A1, A23, . . . A15**. Each of the audio frames shown in FIG. 9 has a fixed [frame] size so that there is the same amount of data in each audio frame. The duration of each audio frame is the same. **It can be seen from the time line in FIG. 9 that the index duration for the audio data is the same as the index duration of the video data.**

*Id.* at 17:27–35.

Thus, as shown in Figure 9, the *first data segments* (video Groups of Pictures) and *second data segments* (audio frames) are ordered *according to their chronological sequence* and Figure 9 explicitly shows the segments ordered

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according to time. Freedman (EX1005), ¶¶ 74–79. A POSITA would have thus recognized that the segments would be *output[]* in time order, or *according to their chronological sequence*.

Further, *Abbott* explains that the “object hierarchy of the present invention provides for **sequentially ordering data** (concatenating in an ordered sequence).” *Abbott* (EX1004), 5:50–52. Thus, *Abbott* discloses *sequentially outputting ... the content-related first data segments and the content-related second data segments according to their chronological sequence* as recited. Freedman (EX1005), ¶¶ 80–81.

***[1.2] in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.***

*Abbott* discloses this limitation.

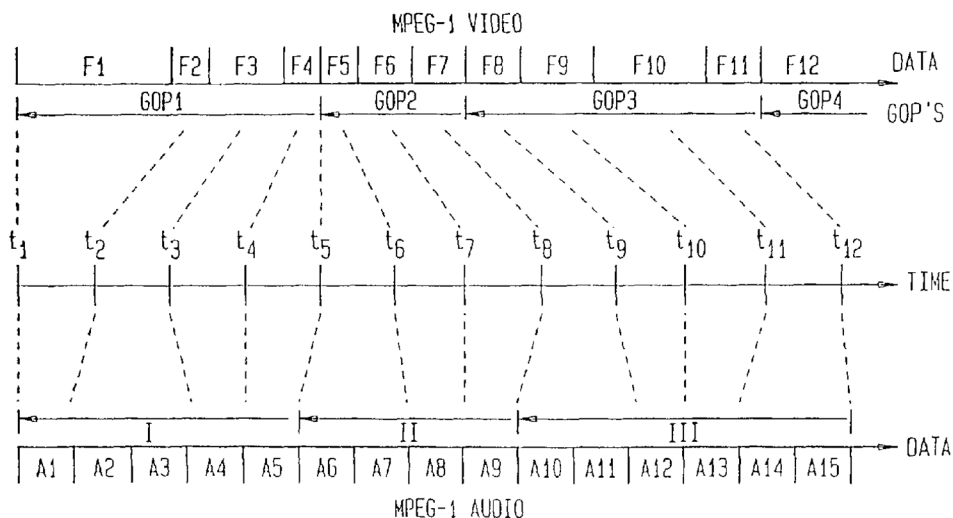
*Abbott* describes that “it is necessary to correlate the audio data with the corresponding video data to ensure that the audio and video remain synchronized.” *Abbott* (EX1004), 18:49–53. To do so, *Abbott* explains that “synchronization is done by correlating audio frames of the audio data with GOPs of the video data.” *Id.* at 18:58–63.

*Abbott* explains further how this is performed:

When jumping to various points in an item of program material, the indexing method of the present invention ensures that a jump is made to the beginning of a GOP. **To prevent audio data from being “out of sync”, it is necessary to correlate the corresponding audio data to each GOP.** To do so, an index file for the video data is constructed first. As discussed above with respect to FIG. 9, an index file for the video data would contain repeated atom-relative byte positions for the frames within GOP1, repeated atom-relative byte positions for the frames within [GOP2], repeated atom-relative byte positions for the frames within GOP3, etc. **Such a video data index file is then used to construct an index file for the corresponding audio data. An audio data index file is constructed so that, for the set of audio frames that most closely spans the time interval spanned by each GOP, each audio frame in that set is assigned the same atom-relative byte position.** The assigned atom-relative byte position is the beginning of the set of audio frames. This synchronization method is illustrated in FIG. 9.

*Abbott* (EX1004), 18:66–19:17.

FIG. 9



*Abbott* (EX1004), Figure 9

*Abbott* then details Figure 9 in more detail, stating:

As shown in FIG. 9, **GOP1 spans the time interval from t1 to t5**. Audio frames A1, A2, A3, A4, and A5 (set I shown in FIG. 9) come closest to spanning this same time interval. In accordance with the synchronization method of the present invention, **audio frames A1, A2, A3, A4, and A5 are assigned unique index numbers, but each of these index numbers points to the same atom-relative byte position that is the beginning of audio frame A1**. Likewise, **GOP2 spans the time interval from t5 to t8**. Audio frames A6, A7, A8, and A9 (set II shown in FIG. 9) come closest to spanning this same time interval. **In accordance with the synchronization method of the present invention, audio frames A6 through A9 are assigned unique index numbers, but each of these index numbers points to the same atom-relative byte position that is the beginning of audio frame A6**. The same methodology would apply so that unique index

numbers are assigned to audio frames A10-A15 (set III shown in FIG. 9), but each of these index numbers points to the same atom-relative byte position that is the beginning of audio frame A10. The index numbers and corresponding atom-relative byte positions for the audio are thus selected to most closely match the GOP pattern in the corresponding video.

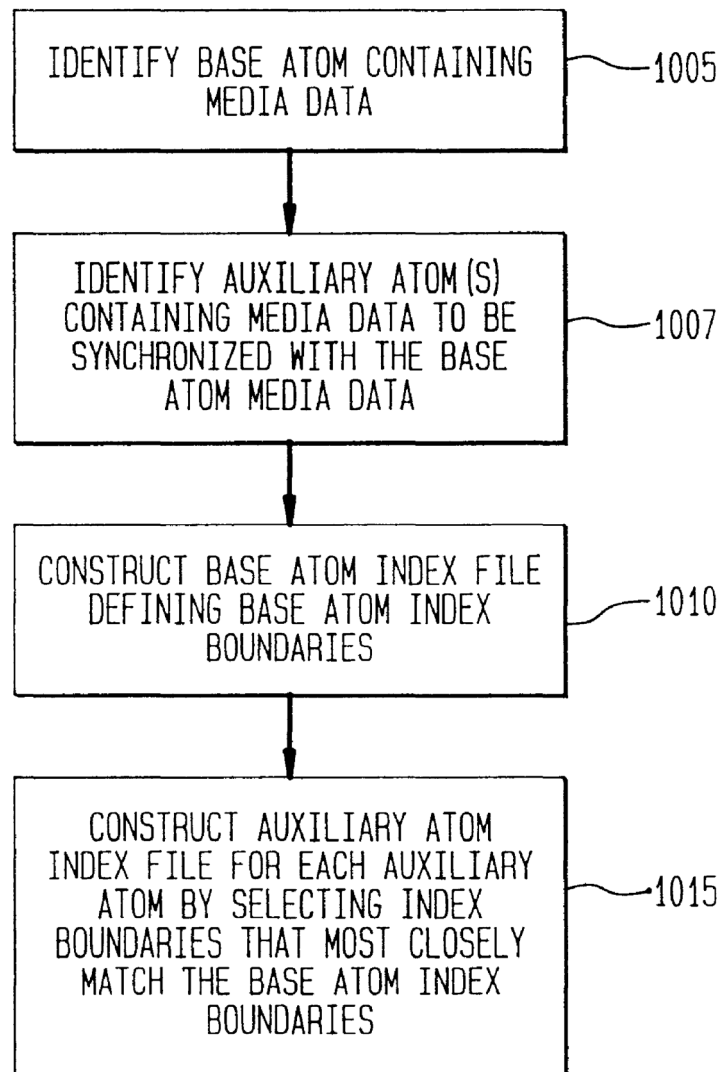
*Id.* at 19:18–39.

Based on the above discussion, *Abbott* discloses that *each of the content-related second data segments* (audio frames) *is output together with an associated one of the content-related first data segments* (a group of pictures) and *assigning each one of the content-related second data segments to one of the content-related first data segments* (e.g., audio frame A1 is assigned to group of pictures GOP1, audio frame A6 is assigned to group of pictures GOP2, and so on). Freedman (EX1005), ¶¶ 82–86.

*Abbott* further discloses that the information assigning audio frames to a Group of Pictures is contained in an “index file for the video data” and an “audio data index file.” *Abbott* (EX1004), 18:66–19:17. *Abbott* describes that “an index file is used to correlate index number with a corresponding data position,” such as “the beginning of a frame of media data, or the beginning of a group of pictures of media data.” *Id.*, 2:39–44; *see also id.* at 2:51–60 (“constructing a base atom index file that contains base atom index boundaries...the base atom index boundaries are Groups of Pictures boundaries...auxiliary atom index file is constructed by selecting

the auxiliary atom index boundaries that most closely match the base atom index boundaries, thereby synchronizing media data...”); 20:6–24. *Compare with, e.g.,* ’794 Patent (EX1001), 2:55–59 (“the predefinable **assignment rule** is formed in such a way that for each second data segment a first data segment is assigned by specification of a number, the number representing a position of the first data segment within the chronological sequence of the first data segments.”). As detailed above, the “audio index file” is constructed so that “each audio frame” in a particular set “is assigned the same atom-relative byte position.” *Abbott* (EX1004), 19:1–17. This is described further with reference to Figure 10, which is a “flow diagram illustrating a process for synchronizing one or more auxiliary atoms containing media data with a base atom containing media data.” *Id.* at 19:58–60; *see also* Freedman (EX1005), ¶¶ 83–88.

**FIG. 10**



***Abbott (EX1004), Figure 10***

*Abbott* explains: “In the example illustrated in FIG. 9, the index boundaries for a base atom containing MPEG-1 video data are the boundaries defined by the

GOPs. In a step 1015, an auxiliary atom index file is constructed for each auxiliary atom by selecting auxiliary atom index boundaries that most closely match the base atom index boundaries in the base atom index file. In this manner, the media data contained in the auxiliary atoms is synchronized with the media data contained in the base atom.... For example, a base atom may contain video data with the index file constructed so that the base atom index boundaries are Groups of Pictures (GOP) boundaries as described above. In such a scenario, one of the auxiliary atoms may contain corresponding audio data.... Index files are created for the audio data ... by selecting the index boundaries that most closely match the Groups of Pictures boundaries (index boundaries) of the base atom.” *Id.* at 19:60–20:24. Thus, the index files, which map audio frames to Groups of Pictures using the index boundaries of the audio and video, correspond to *an assignment rule* which is for *assigning each one of the content-related second data segments* (audio frames) to *one of the content-related first data segments* (Groups of Pictures). Freedman (EX1005), ¶¶ 89–90.

The ’794 Patent does not specify the format of the *assignment rule*; however, a POSITA would have recognized that a file, such as *Abbott’s* index file, to be within the scope of the term *rule*, because the ’794 Patent provides an example of an “assignment rule Z...in an XML-based document” (e.g., a file). ’794 Patent (EX1001), 5:19–21; *see also id.*, Figure 4; Freedman (EX1005), ¶ 91. Additionally,

a POSITA would have recognized *Abbott's* index files to correspond to an *assignment rule* as both the index files and claimed *assignment rules* are implemented in computer instructions and cause a computer to perform actions in a specific way, i.e., to output audio and video in a synchronized manner. Freedman (EX1005), ¶ 92. Thus, *Abbott's* index files at least render obvious the recited *assignment rule*.

Thus, *Abbott* discloses *outputting ... in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments* as recited. Freedman (EX1005), ¶¶ 83–93. *Abbott* therefore discloses each and every limitation of claim 1, arranged as in the claim, and anticipates claim 1.

To the extent *Abbott* is considered to not anticipate claim 1, the differences between *Abbott* and claim 1 are such that the invention as a whole would have been obvious before the priority date of the '794 Patent to a POSITA.

For example, Patent Owner may argue that *Abbott* does not explicitly disclose that the video data segments and audio data segments are output *sequentially*, but this would have been obvious to a POSITA at the time of the '794 Patent, as a POSITA would have recognized that media data is intended to be output *sequentially*

– for example, it would be logical to a POSITA that “the audio and video tracks of a movie” would be output in sequence, from the start of the movie to the end. Even if the viewer were “to skip to an arbitrary point in time in an item of program material,” (*Abbott* (EX1004), 15:55–57) after skipping to that time, the content at that point in time would be output and presented *sequentially*, in time order. Freedman (EX1005), ¶¶ 94–97. This would have been no more than common sense at the time of the ’794 Patent, given a POSITA’s background knowledge in delivery of multimedia content. *Id.*

Patent Owner may also argue that *Abbott* does not explicitly disclose that *second data segments* are *output together* with *first data segments*. Again, this would have been obvious in view of *Abbott*’s disclosure. For example, *Abbott* discloses that a workstation may “display a video portion of the program material” and “audibly output an audio portion of the program material for the workstation user.” *Abbott* (EX1004), 21:61–65. *Abbott* also discloses that “[u]sing the synchronization method of the present invention, the offset or ‘out of sync’ time between audio and video is generally held to be within one frame duration.” *Id.* at 19:40–43. Thus, *Abbott* teaches, or at least suggests to a POSITA, that audio data (*second data segments*) are to be *output together* with video data (*first data segments*). Freedman (EX1005), ¶ 98.

Additionally, as detailed in the analysis of limitation [1.2], to the extent *Abbott*

does not explicitly disclose an *assignment rule*, a POSITA would have recognized that *Abbott*'s index files render obvious an *assignment rule*, because the index file maps audio frames to Groups of Pictures so that they are output together (i.e., the index files perform the same function of *assigning each one of the content-related second data segments to one of the content-related first data segments*). Freedman (EX1005), ¶ 99.

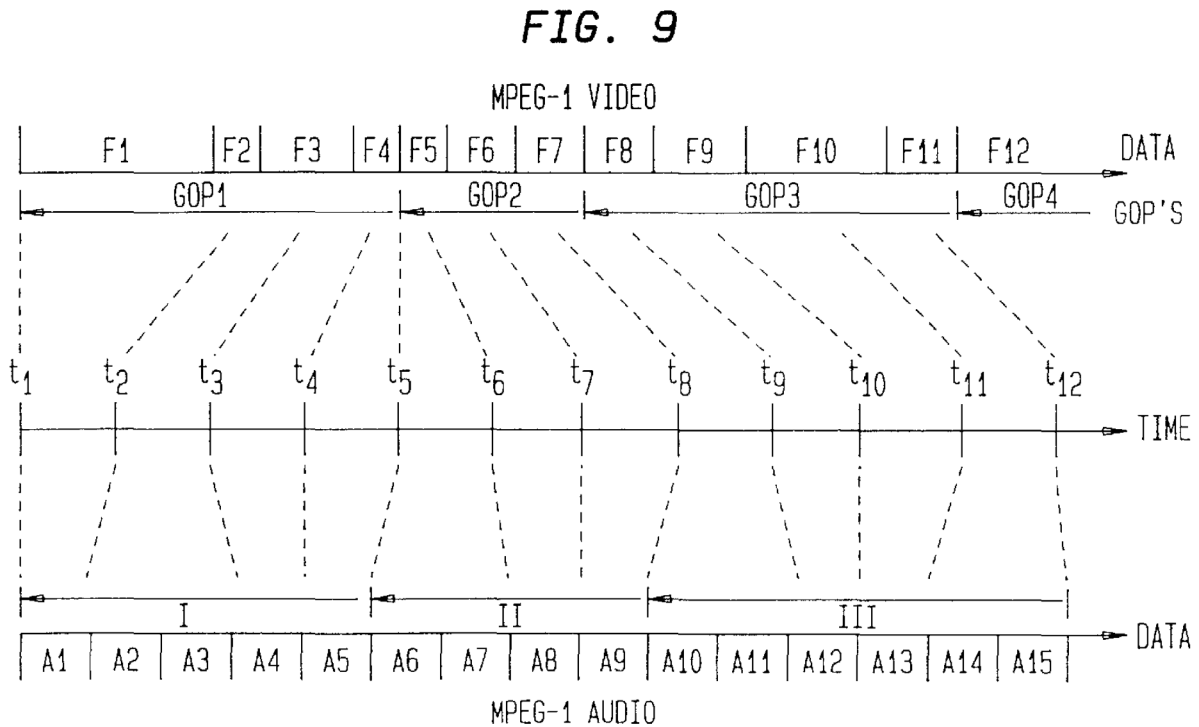
Thus, *Abbott* also renders claim 1 obvious to a POSITA.

### **Claim 3**

***[3.1] The method as claimed in claim 1, wherein the assignment rule is formed in such a way that, for each of the content-related second data segments, the content-related first data segments are assigned by specification of a number, the number representing a position of the content-related first data segments within the order of content-related first data segments.***

*Abbott* discloses, or at least renders obvious, this limitation. Specifically, in *Abbott*, for each of the content-related second data segments (e.g., “[a]udio frames A1, A2, A3, A4, and A5”), the content-related first data segments (e.g., “GOP1”) are assigned by specification of a number (e.g., the number 1), the number representing a position of the content-related first data segments within the order of content-related first data segments (GOP1 is the first video segment within the order of video segments GOP2, GOP3, and so on). *Abbott* (EX1004), 19:18–39; see also

*id.* at Fig. 9.



***Abbott (EX1004), Fig. 9***

Thus, *Abbott* discloses, or at least renders obvious, this limitation. Freedman (EX1005), ¶¶ 101–103.

### **Claim 5**

***[5.1] The method as claimed in claim 1, wherein media data are represented by at least one of the first data file and the second data file.***

*Abbott* discloses, or at least renders obvious, this limitation. As detailed above, *the first data file* is a video atom, and the *second data file* is an audio atom.

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*See Abbott (EX1004), 5:56–61, 6:3–8. Thus, media data are represented by at least one of the first data file and the second data file. Freedman (EX1005), ¶¶ 104–105.*

### **Claim 12**

***[12.1] The method as claimed in claim 5, wherein the media data include at least one of video and audio data.***

*Abbott discloses, or at least renders obvious, this limitation. As detailed in the analysis of claim 5, Abbott discloses media data including both video and audio data. Freedman (EX1005), ¶ 106.*

### **Claim 13**

***[13.1] The method as claimed in claim 1, wherein at least one of media data and metadata are represented by at least one of the first data file and the second data file.***

*Abbott discloses, or at least renders obvious, this limitation. As detailed above in the analysis of limitation [5.1], media data ... are represented by at least one of the first data file and the second data file as the first data file is a video atom and the second data file is an audio atom. Freedman (EX1005), ¶ 107.*

### **Claim 15**

***[15.1] The method as claimed in claim 13, wherein the media data include at least one of video and audio data.***

*Abbott* discloses, or at least renders obvious, this limitation. As detailed in the analysis of claim 13, the atoms include video data and audio data, and thus, *the media data include at least one of video and audio data* as recited. Freedman (EX1005), ¶ 108.

### **Claim 20**

***[20.1] The method of claim 1, wherein the assignment rule is not based on a timestamp.***

*Abbott* discloses, or at least renders obvious, this limitation. *Abbott* describes, for example, that “GOP1 spans the time interval from t1 to t5” and that “[a]udio frames A1, A2, A3, A4, and A5 are assigned unique index numbers, but each of these index numbers points to the same atom-relative byte position that is the beginning of audio frame.” *Abbott* (EX1004), 19:18–25. Thus, *Abbott*’s rule relies upon byte positions, not *a timestamp*, to assign *content-related second data segments* to a *content-related first segment* and thus discloses this limitation. Freedman (EX1005), ¶¶ 109–110.

### **Claim 9**

***[9.0] A device for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, comprising:***

*Abbott* discloses, or at least renders obvious, this limitation.

This limitation is substantively identical to limitation [1.0], except that claim 9 recites a *device* instead of a *method*. To the extent the *device for synchronizing* recited in the preamble is limiting, *Abbott* discloses multiple examples of a *device for synchronizing* as recited. For example, *Abbott* discloses a “computer system for indexing media data for delivery to a viewer using the indexing method as described herein.” *Abbott* (EX1004), 20:42–44. As detailed in the analysis of limitation [1.0], *Abbott* discloses a “system and **method** for **media stream** indexing and **synchronization**.” *Abbott* (EX1004), 1:11–13. Thus, the computer system is a *device for synchronizing* as recited.

*Abbott* also discloses a “system that uses the object hierarchy and indexing and synchronization methods of the present invention for interactive delivery of program material to a viewer.” *Id.* at 20:55–59. Finally, *Abbott* discloses “a system that uses the object hierarchy and indexing and synchronization methods of the present invention for interactive delivery of program material to a workstation” (*id.* at 21:38–42) which includes “computer means that enable the workstation to...display a video portion of the program material; and to audibly output an audio portion of the program material for the workstation user.” *Id.* at 21:57–64. As in the preceding paragraph, the methods described in *Abbott* are *for synchronizing*. Thus, *Abbott* discloses a *device for synchronizing* as recited. Freedman (EX1005), ¶ 114.

As detailed in the analysis of limitation [1.0], *Abbott* also discloses *synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file* as recited. Thus, *Abbott* discloses the preamble of claim 9. Freedman (EX1005), ¶¶ 111–116.

***[9.1] a synchronization device configured to output each of the content-related first data segments and the content-related second data segments, sequentially, according to their chronological sequence;***

*Abbott* discloses, or at least renders obvious, this limitation. This limitation is substantively identical to limitation [1.1], and thus, *Abbott* discloses, or at least renders obvious, limitation [9.1] for the same reasons set forth with respect to limitation [1.1]. Freedman (EX1005), ¶ 117.

***[9.2] each of the content-related second data segments being output together with an associated one of the content-related first data segments based upon an assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segment.***

*Abbott* discloses, or at least renders obvious, this limitation. This limitation is substantively identical to limitation [1.2], and thus, *Abbott* discloses limitation [9.2] for the same reasons set forth with respect to limitation [1.2]. Freedman (EX1005), ¶ 118. Likewise, for the reasons set forth above in the analysis of claim 1, in the alternative, *Abbott* renders obvious claim 9.

## **Claim 21**

***[21.1] The device of claim 9, wherein the assignment rule is not based on a timestamp.***

*Abbott* discloses, or at least renders obvious, this limitation. *See* analysis of limitation [20.1], *supra*.

### **B. Grounds 3 and 4: Claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 are anticipated by or rendered obvious by *Sonohara***

#### **1. Overview of *Sonohara***

*Sonohara* discloses a “motion picture reproducing apparatus.” *Sonohara* (EX1003), Abstract. *Sonohara*’s apparatus reproduces “a file composed of a header[,], an image track on which image data have been recorded for a predetermined period of time and a sound track on which sound data have been recorded for the predetermined period of time.” *Id.* *Sonohara* further specifies that the “image and sound data of the file are provided with track and data identifying numbers by a track identifying section and a data identifying section” and this data is “outputted to a data synchronizing section.” *Id.*

The “data synchronizing section reads in order the Image data and the sound data on the basis of the control information of the header, synchronizes the image data and the sound data to which the same data identifying numbers have been

imparted with reference to the track and data identifying numbers which have been given to the image and sound data, and outputs the image and sound data to reproduction units.” *Id.*

*Sonohara* is analogous art. Freedman (EX1005), ¶ 124. According to the ’794 Patent, “[a]t least one embodiment of the invention specifies a method or, as the case may be, a device which enables content-related first and second data segments to be synchronized in a simple and standard-compliant manner.” ’794 Patent (EX1001), 2:24–26. *Sonohara* is within this field, as it likewise discloses a “motion picture reproducing apparatus” that synchronizes audio and video data segments. *Sonohara* (EX1003), Abstract. Thus, *Sonohara* is analogous art. Freedman (EX1005), ¶ 124.

## 2. Analysis

### **Claim 1**

***[1.0] A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:***

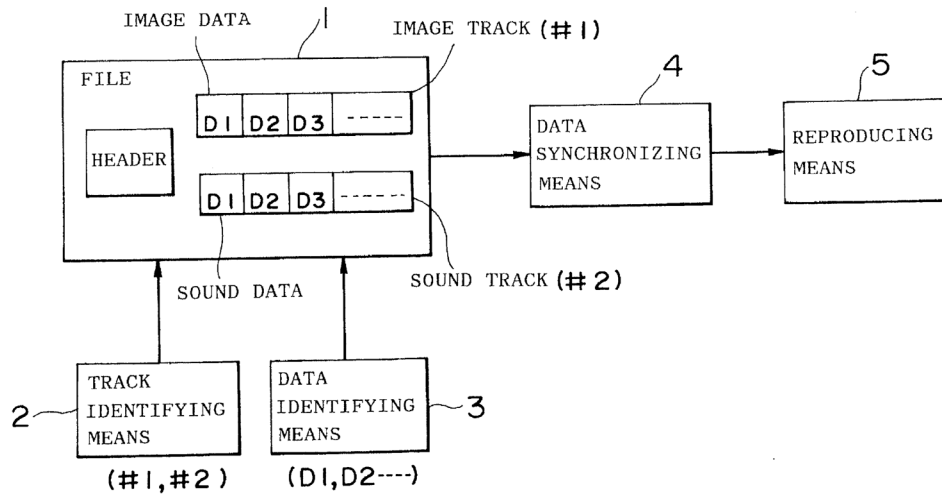
To the extent the preamble is limiting, *Sonohara* discloses it.

First, *Sonohara* discloses *synchronizing content-related first data segments and content-related second data segments*. *Sonhara* discloses “data synchronizing means 4 is included for reading, in order, the image data and the sound data in the

file 1 based on the control information of the header, and at the same time **for synchronously outputting the image data and the sound data...**” *Sonohara* (EX1003), 1:66–2:4, *see also* claim 1.

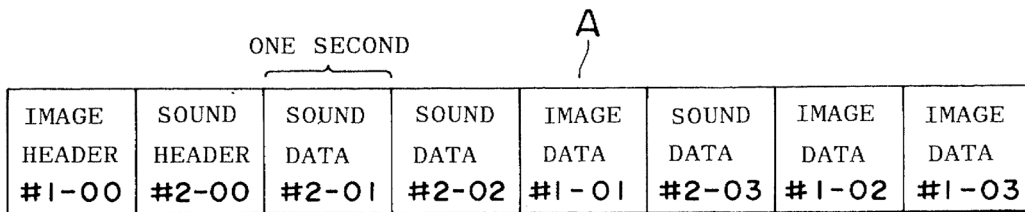
*Sonohara* uses *segments* of the image data (*first data*) and sound data (*second data*) as recited, because *Sonohara* further describes that a “track identifying means 2 is included for imparting, to the image data and the sound data **for every unit time**, track identifying numbers for identifying either the image track or the sound track.” *Sonohara* (EX1003), 1:59–65; claim 1, 11:59–62; *see also id.* at 5:57–65 (“the image data...are read by the image/sound data formation/renewal section 13 for a unit time (one second) to carry out the image data block formation process...”); 6:14–17 (“track identifying number #1 is given to the image data for every unit time....”); 6:44–46 (“track number #2 is given to the sound data for every unit time....”). Each portion of data for a unit of time corresponds to a *segment* as recited. *Sonohara*’s use of *segments* of the image data and audio data is depicted in Figure 1 and Figure 7:

FIG.1



*Sonohara (EX1003), Figure 1*

FIG.7



*Sonohara (EX1003), Figure 7*

*See also Sonohara (EX1003), 1:51–3:24 (explaining Figure 1); 5:44–6:67*

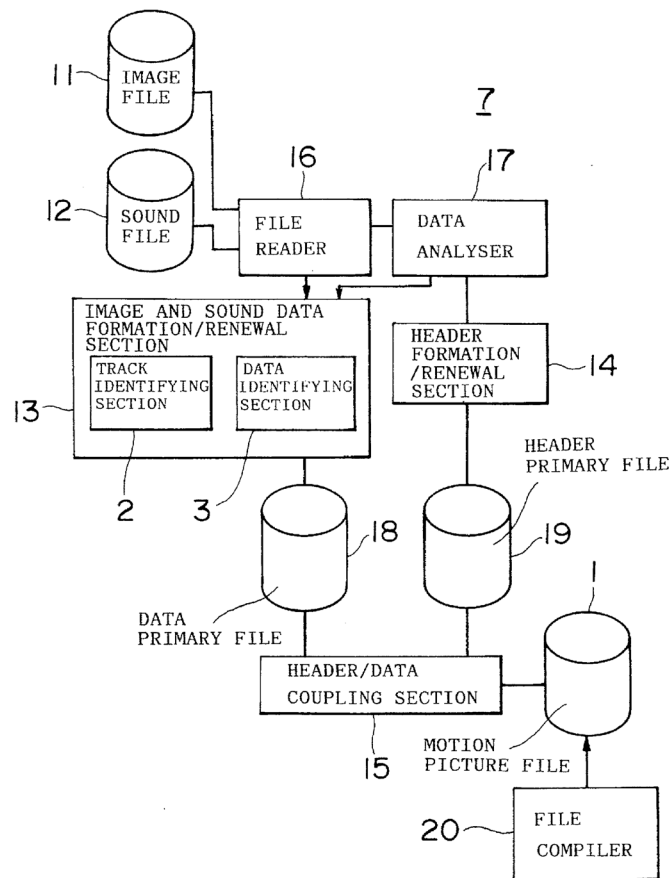
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(explaining Figure 7). For example, as described with reference to Figure 1, *Sonohara* describes that “the image and sound data of the file 1 are associated with the track and data identifying numbers for every unit time” (i.e., for each segment), and *Sonohara* then describes “synchronizing the image and sound data to which the same data identifying numbers have been imparted.....” *Id.* at 1:51–3:24.

Thus, by describing the synchronous output of image data and sound data, and by describing that image data and sound data are divided into unit time segments, *Sonohara* discloses *synchronizing content-related first data segments* and *content-related second data segments*. Freedman (EX1005), ¶¶ 125–129.

*Sonohara* also discloses that the *content-related first data segments* are of a *first data file* and the *content-related second data segments* are of a *second data file*. This is because, in *Sonohara*, the image data and sound data originate from an “image file 11” and a “sound file 12” as depicted in Figure 4.

FIG. 4



**Sonohara (EX1003), Figure 4**

*Sonohara* further explains with respect to Figure 4 that the “file production processing device 7” is “**provided with an image file 11** onto which image data of motion picture having a plurality of frames per unit time have been recorded for a predetermined period of time, and **a sound file 12** onto which audio data have been recorded for a predetermined period of time corresponding to the image data. The image file 11 and the sound file 12 are formed on a magneto-optical disc.” *Sonohara* (EX1003), 4:12–20. Thus, the *content-related first data segments* are from the “image file 11” (*a first data file*) and the *content-related second data segments* are

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from the “sound file 12” (a *second data file*). Freedman (EX1005), ¶¶ 130–131.

Accordingly, by disclosing image data and audio data from an image file and sound file, and by describing the synchronization of units of the image and audio data, *Sonohara* discloses *synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file* as recited. Freedman (EX1005), ¶¶ 125–132.

***[1.1] sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence;***

*Sonohara* discloses this limitation.

*Sonohara* discloses that the “data synchronizing means may **synchronously reproduce the image data and sound data** by using a controller 43 for outputting the data by reading synchronously the image and sound data to which the same data identifying numbers have been given with reference to the track identifying number and the data identifying number stored in the memory means 42.” *Sonohara* (EX1003), 2:45–51; *see also id.* at 8:53–62.

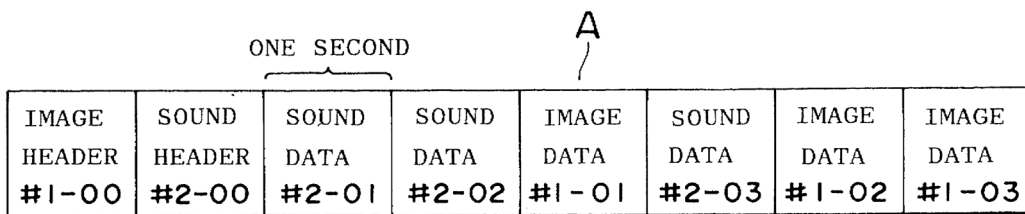
*Sonohara* discloses that this output is *sequential*[] because, for example, the image data portion #1-02 and sound data portions #2-02 are shown as being output together after the output of image data portion #1-01 and sound data portion #2-01. Freedman (EX1005), ¶ 135; *see also Sonohara* (EX1003), Fig. 8. Further, *Sonohara*

explains that, in the production of the file, “data identifying section 3 gives data identifying numbers 01, 02, 03, ... for representing **the order of the data** within the image track 22 or the sound track 23 to the image data and the sound data per unit time. In the apparatus, the same data identifying numbers are given to the image data and the sound data to be synchronized with the image data. Accordingly, in the file 1, the track identifying numbers and the data identifying numbers are imparted to the image data and the sound data per unit time by the track identifying section 2 and the data identifying section 3.” *Sonohara* (EX1003), 4:45–54; *see also id.* at 1:62–65 (“data identifying means 3 is included for imparting, to the image data and the sound data for every unit time, data identifying numbers representative of **an order of data within the image track and the sound track.**”), 2:5–6 (“image and sound data of the file 1 are associated with the track and data identifying numbers for every unit time”), 2:12–16 (“synchronizing the image and sound data to which the same data identifying numbers have been imparted with reference to the track and data identifying numbers given to the image data and sound data”); 5:57–6:11 (describing imparting data identifying number 01 and 02 “in order of the data”).

Thus, the data identifying numbers are assigned based on how the image or sound data is ordered in the original image track or sound track, and a POSITA would have recognized that the order of an image track or sound track for a motion picture would be *chronological*. This is supported by Figure 7 of *Sonohara*, which

depicts the data identifying numbers 01, 02, 03 for the image data and sound data; because these data identifying numbers represent “the order of the data” within the image track and sound track “per unit time”, the data identifying numbers are *sequential ... according to their chronological sequence*, consistent with a dictionary definition of *chronological*. Freedman (EX1005), ¶¶ 133–135 (citing, e.g., Webster’s Dictionary (EX1011) (“chronological...arranged in the order of time.”)). Further, because *Sonohara* explains that the output occurs in this sequence, the output of the segments is likewise *sequential ... according to their chronological sequence* as recited. Freedman (EX1005), ¶ 135.

FIG. 7



***Sonohara* (EX1003), Figure 7**

Output in a *chronological sequence* is also supported by other portions of *Sonohara*. For example, *Sonohara* details that image data is “obtained by picking up a moving object by a CCD (charge coupled device) and “[s]imultaneously with the recording operation of the image data, sounds generated in the object are

input...and the audio data is converted into digital data and recorded in an audio file.” *Sonohara* (EX1003), 1:19–29. Logically, to reproduce the captured image data from the CCD and corresponding audio data, and in the context of a “motion picture reproducing apparatus” (i.e., a movie apparatus), such reproduction would be in a *chronological sequence*, i.e., reproduced in the same sequence as the data was captured. Freedman (EX1005), ¶ 136. For example, a POSITA would have recognized that, in reproducing a motion picture, the order in which the motion picture is stored is in a *chronological sequence* so that the movie, when reproduced, is understandable to the viewer. Freedman (EX1005), ¶ 136.

Thus, *Sonohara* discloses that the data identifying numbers of the image data and sound data segments, and thus the output of those segments, is *sequential ... according to their chronological sequence* as recited. Freedman (EX1005), ¶¶ 133–137.

To the extent *Sonohara* is not considered to disclose output of segments *according to their chronological sequence* it would have been obvious to a POSITA to use *Sonohara* in this way. This is because *Sonohara* discloses a “motion picture reproducing apparatus” and a POSITA would have recognized the purpose of such an apparatus is to reproduce a movie, which would be unintelligible if the audio and video were not output in a *chronological sequence*. Freedman (EX1005), ¶ 138.

*Sonohara* also discloses that this is performed *by a device for synchronizing*

*content-related data* as it discloses a “motion picture reproducing apparatus in synchronism with the sound, which apparatus is capable of reproducing the video data and audio data contained in the file in synchronism.” *Sonohara* (EX1003), 1:45–48.

Thus, *Sonohara* discloses, or at least renders obvious to a POSITA, *sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence.* Freedman (EX1005), ¶¶ 133–140.

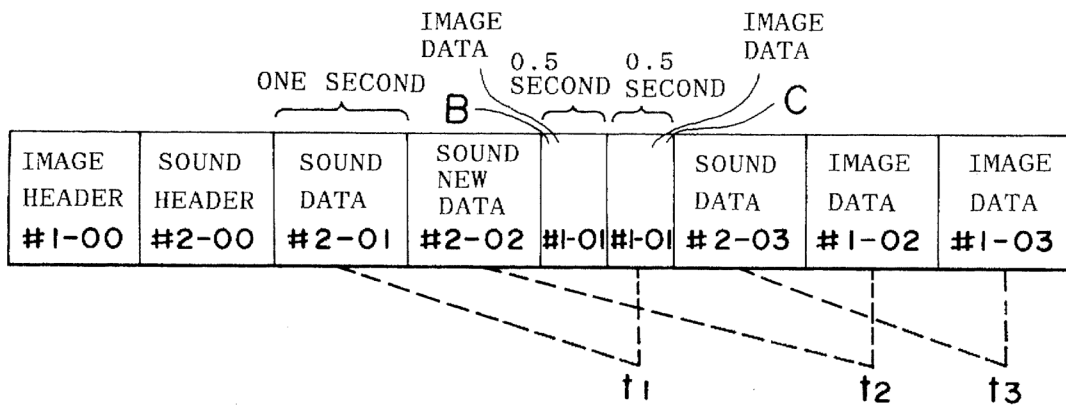
***[1.2] in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.***

*Sonohara* discloses this limitation.

*Sonohara* details in Figure 9 “a flowchart showing a file reproduction process.” *Sonohara* (EX1003), 7:1–3. In this process, “the reproduction of the image data and sound data of the file 1a compiled by the file compiler 20 is now explained.” *Id.* at 7:3–6.

In describing Figure 9, *Sonohara* refers to the file of Figure 8, reproduced below.

FIG. 8



*Sonohara* (EX1003), Figure 8

*Sonohara* states:

[I]n the example shown in FIG. 8, at the time  $t_1$ , the sound data #2-01 for one second and the new image data #1-01 for 0.5 seconds and the image data #1-01 for 0.5 seconds are read in synchronism. The image data display process is carried out by the image data processing section 52 to display the image data on the image display section 54. Also, the sound reproduction process is carried out in synchronism with the image reproduction process by the sound data processing section 53 to output the sound data to the speaker 55 (step 208).”

*Sonohara* (EX1003), 7:33–42. That is, *Sonohara* outputs the sound and image segments that have the same identifying number (“sound data #2-01” and “image data #1-01”) at the same time (“in synchronism”) and thus discloses *outputting ... content-related second data segments ... together with an associated one of the*

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*content-related first data segments.* Freedman (EX1005), ¶¶ 141–144.

*Sonohara* then explains that “the new image data #1-01, the image data #1-01 and the sound data #2-01 have been read out so that the reading region 42 has a blank in process of step 209.” *Sonohara* (EX1003), 7:43–48. Thus, “the process following the step 202 is repetitively carried out.” *Id.* *Sonohara* then explains that “in the example shown in FIG. 8, at time t2, the sound data #2-02 for one second and the image data #1-02 for one second are read in synchronism.” *Id.* at 7:49–51.

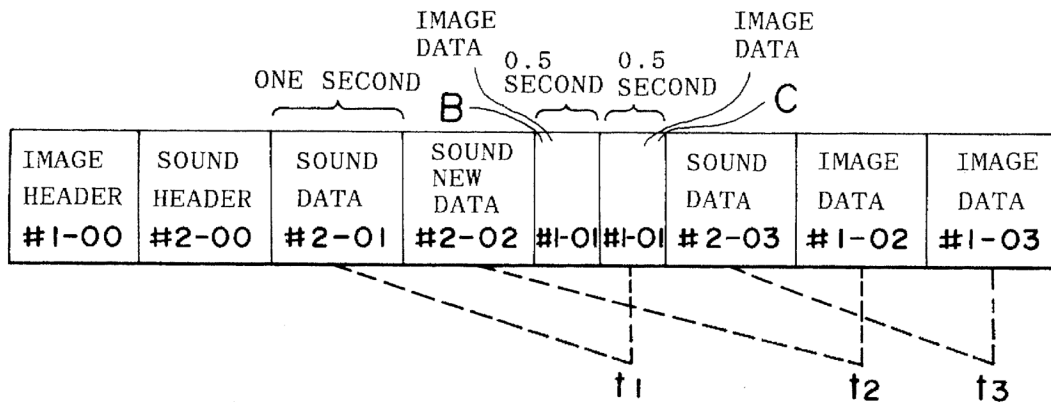
Thus, *Sonohara* discloses *outputting ... in such a way that each of the content-related second data segments (e.g., sound data segment #2-01) is output together with an associated one of the content-related first data segments (e.g., image data segment #1-01).* Freedman (EX1005), ¶¶ 145–146. As *Sonohara* discloses, this process continues after the segments with the “01” identifier, such that sound data segment #2-02 and image data segment #1-02 are subsequently output together. *Id.* at ¶ 147.

*Sonohara* further discloses that this is done *on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.* Specifically, the system of *Sonohara* outputs the data based on the control information in the header (*an assignment rule*), where the header “includ[es] control information for controlling transfer of said image data and said sound data...said control information **indicating a relationship between**

**said image data and said sound data...**” *Sonohara* (EX1003), claim 1. This process is described in more detail with respect to Figure 6, which shows “a formation process of the file.” *Sonohara* (EX1003), 5:43–44. The flowchart of Figure 6 starts with the file (element 1) shown in Figure 7 and results in the file (element 1a) shown in Figure 8. *See id.* at 5:44–6:67. In this process, for every unit time, **“the sound data and the image data are coupled** with each other (step 112).” *Id.* at 6:41–42. Coupling the sound data with the image data *assign[s] each one of the content-related second data segments to one of the content-related first data segments*. Freedman (EX1005), ¶¶ 148–150. Further, the information that represents the assignment is contained in the control information in the header, which discloses, or at least renders obvious, the recited *assignment rule*, as it controls the synchronization process such that *each one of the content-related second data segments* is assigned to *one of the content-related first data segments*. Freedman (EX1005), ¶ 150.

For example, as shown in Figure 8 of *Sonohara*, the control information in the header assigns sound data #2-01 to image data #1-01 so that the segments are output synchronously at time t1. *See Sonohara* (EX1003), 7:33–36; Freedman (EX1005), ¶ 151. Likewise, the control information in the header assigns sound data #2-02 to image data #1-02 so that they are output synchronously at time t2. *See Sonohara* (EX1003), 7:48–50; Freedman (EX1005), ¶ 151.

FIG. 8



*Sonohara* (EX1003), Figure 8

*Sonohara's* control information in the header therefore discloses, or at least renders obvious to a POSITA, an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments. Freedman (EX1005), ¶ 152.

*Sonohara* therefore discloses outputting ... in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments as recited. Freedman (EX1005), ¶¶ 141–153. *Sonohara* thus anticipates claim 1, as it discloses each and every limitation, arranged as in the claim.

In the alternative, *Sonohara* renders obvious claim 1, as the differences between *Sonohara* and claim 1 are such that the invention as a whole would have been obvious before the priority date of the '794 Patent to a POSITA. For example, as detailed in the analysis of limitation [1.1], to the extent *Sonohara* does not explicitly disclose outputting segments *according to their chronological sequence* it would have been obvious to a POSITA that *Sonohara* rendered such output obvious. Freedman (EX1005), ¶ 155.

Likewise, as detailed in the analysis of limitation [1.2], to the extent *Sonohara* does not explicitly disclose an *assignment rule*, a POSITA would have recognized that *Sonohara's* control information in the header renders obvious an *assignment rule*, because the control information in the header couples together segments with the same identifying number so that they are output together (i.e., the control information in the header performs the same function of *assigning each one of the content-related second data segments to one of the content-related first data segments*). Freedman (EX1005), ¶ 156.

Thus, *Sonohara* also renders obvious claim 1.

### **Claim 3**

***[3.1] The method as claimed in claim 1, wherein the assignment rule is formed in such a way that, for each of the content-related second data segments, the content-related first data segments are assigned by specification of a number, the number***

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*representing a position of the content-related first data segments within the order of content-related first data segments.*

*Sonohara* discloses, or at least renders obvious, this limitation.

Specifically, *Sonohara*'s control information in the header shows that, *for each of the content-related second data segments* (e.g., sound data #2-01), *the content-related first data segments* (e.g., image data #1-01) *are assigned by specification of a number* (the **01** portion of the header information). See analysis of limitation [1.2], *see also Sonohara* (EX1003), 5:41–6:67 (“data identifying section 3 gives **01 in order of the data as the data identifying numbers**”), 7:33–50, 5:17–23 (“at the same time reading, in synchronism, the image data and sound data to which the same data identifying numbers are given”). *Sonohara* further describes this *number representing a position of the content-related first data segments within the order of content-related first data segments*: as shown in Figure 8, and as described by *Sonohara*, the “data identifying section 3 gives data identifying numbers 01, 02, 03, ... for representing **the order of the data** within the image track 22 or the sound track 23 to the image data and the sound data per unit time.” *Sonohara* (EX1003), 4:45–48, *see also id.* at 7:33–59 (describing Figure 8 example: “at the time t1, the sound data #2-01 [and] image data #1-01...are read in synchronism....at time t2, the sound data #2-02 [and] image data #1-02...are read in synchronism.”). Thus, the numbers represent *a position of the content-related first data segments within the order of content-related first data segments* as recited, and

*Sonohara* therefore discloses, or renders obvious, this claim. Freedman (EX1005), ¶¶ 157–160.

### **Claim 5**

***[5.1] The method as claimed in claim 1, wherein media data are represented by at least one of the first data file and the second data file.***

*Sonohara* discloses, or at least renders obvious, this limitation. In *Sonohara*, the *first data file* is video data contained in an image file (i.e., image file 11): “the apparatus is provided with an image file 11 onto which image data of motion picture having a plurality of frames per unit time have been recorded for a predetermined period of time.” Likewise, the *second data file* is audio data contained in a sound file (i.e., sound file 12): “a sound file 12 onto which audio data have been recorded for a predetermined period of time corresponding to the image data.” Thus, *Sonohara* discloses that *media data are represented by at least one of the first data file and the second data file*. Freedman (EX1005), ¶¶ 161–162.

### **Claim 12**

***[12.1] The method as claimed in claim 5, wherein the media data include at least one of video and audio data.***

*Sonohara* discloses, or at least renders obvious, this limitation. As detailed in

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the analysis of claim 5, *Sonohara* discloses video and audio data. Freedman (EX1005), ¶ 163.

### **Claim 13**

***[13.1] The method as claimed in claim 1, wherein at least one of media data and metadata are represented by at least one of the first data file and the second data file.***

*Sonohara* discloses, or at least renders obvious, this limitation. As detailed in the analysis of claim 5, *Sonohara* discloses video data as *the first data file*. Freedman (EX1005), ¶ 164.

### **Claim 15**

***[15.1] The method as claimed in claim 13, wherein the media data include at least one of video and audio data.***

*Sonohara* discloses, or at least renders obvious, this limitation. As detailed in the analysis of claim 5, *Sonohara* discloses video and audio data. Freedman (EX1005), ¶ 165.

### **Claim 20**

***[20.1] The method of claim 1, wherein the assignment rule is not based on a timestamp.***

*Sonohara* discloses, or at least renders obvious, this limitation. *Sonohara's*

*assignment rule* (i.e., the synchronization information in the header), uses “data identifying numbers,” and does not use *a timestamp*. *Sonohara* (EX1003), Abstract, Fig. 8. Thus, *Sonohara* discloses, or at least renders obvious, this limitation. Freedman (EX1005), ¶¶ 166–169.<sup>2</sup>

### **Claim 9**

***[9.0] A device for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, comprising:***

*Sonohara* discloses, or at least renders obvious, this limitation.

This limitation is substantively identical to limitation [1.0], except that claim 9 recites a *device* instead of a *method*. *Sonohara* discloses a *device* as recited, as it discloses a “file reproduction processing device 8 for reproducing the video data and audio data of the file 1.” *Sonohara* (EX1003), 3:54–58. This “device 8 has a reader 41 for reading, in order, the image data and the sound data from the file 1 on the

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<sup>2</sup> As Dr. Freedman explains, a *timestamp* or “time code” (see ’794 Patent (EX1001), 6:47) would be understood to be an absolute time or time range, e.g., 0:00.00–0:01.00. *Sonohara* does not use absolute times or time ranges, but instead uses the data identifying numbers, which are not limited to alignment with time units, and thus *Sonohara* discloses or at least renders obvious this limitation. Freedman (EX1005), ¶ 167.

basis of the control information of the header 21.” *Id.* at 5:9–13. The device also includes a “main controller 43...for controlling the file reader 41 and at the same time **reading, in synchronism**, the image data and sound data to which the same data identifying numbers are given.” *Id.* at 5:17–20. Thus, *Sonohara* discloses a *device for synchronizing* as recited. Freedman (EX1005), ¶¶ 170–172.

***[9.1] a synchronization device configured to output each of the content-related first data segments and the content-related second data segments, sequentially, according to their chronological sequence;***

*Sonohara* discloses, or at least renders obvious, this limitation. This limitation is substantively identical to limitation [1.1], and thus, *Sonohara* discloses, or at least renders obvious, limitation [9.1] for the same reasons set forth with respect to limitation [1.1]. Freedman (EX1005), ¶¶ 173–174.

***[9.2] each of the content-related second data segments being output together with an associated one of the content-related first data segments based upon an assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segment.***

*Sonohara* discloses, or at least renders obvious, this limitation. This limitation is substantively identical to limitation [1.2], and thus, *Sonohara* discloses, or at least renders obvious, limitation [9.2] for the same reasons set forth with respect to limitation [1.2]. Freedman (EX1005), ¶¶ 175–177.

**Claim 21**

*[21.1] The device of claim 9, wherein the assignment rule is not based on a timestamp.*

*Sonohara* discloses, or at least renders obvious, this limitation. *See supra* analysis of limitation [20.1]. Freedman (EX1005), ¶ 178.

**VII. DISCRETIONARY INSTITUTION**

Petitioner respectfully submits that the Board should not exercise discretion under 35 U.S.C. §§314(a) or 325(d) to deny this Petition.

**A. The Board Should Not Exercise Discretion to Deny Under § 325(d) Based on Previously Cited Art**

None of the asserted prior art was “the basis for rejection” during examination and there is no “overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art.” *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17-18 (PTAB Dec. 15, 2017) (precedential). Thus, discretionary denial under § 325(d) would not be appropriate.

**B. The Board Should Not Exercise Discretion to Deny Under § 314(a) Based on Previous Petitions**

The Board should also not exercise discretion under § 314(a), as the ’794 Patent has not been challenged in any prior petition and thus no *General Plastic* factors apply. *See General Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*,

IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (§II.B.4.i. precedential).

**C. The Board Should Not Exercise Discretion to Deny Under § 314(a) Based on Parallel Litigations**

Patent Owner has asserted the '794 Patent in three litigations (“the Parallel Litigations”) in the District of Delaware and the Western District of Texas. *See* § I.B.

Petitioner is not a defendant, real party-in-interest, or privy of any district court defendant, and Petitioner is not involved in any district court litigation. *See* Jakel Declaration (EX1010). Petitioner has not communicated with any district court litigant regarding this Petition, the Parallel Litigations, or the '794 Patent. *Id.*

Under the analysis set forth in *Fintiv* (*Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”)), the Board should not deny this Petition.

Regarding the first factor, it is speculative whether a district court would grant a stay in any proceedings involving the '794 Patent. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (finding that, absent evidence a stay will be granted, this factor does not weigh for or against discretionary denial); *Sand Revolution II, LLC v. Cont'l Intermodal Grp.–Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) (finding same).

Regarding the second factor, a trial date was set by Chief Judge Connolly in the *Starz* Delaware case for March 11, 2024, which would be approximately three months *after* a final written decision would be due in this case. *See* EX1006, p. 27. In the *Netflix* Delaware case, the '794 Patent was recently added in an amended complaint filed May 6, 2022; no answer has been filed, and no trial date has been set. A trial date has been set in the Western District of Texas case for October 26, 2023. *See* EX1008, p. 4. Further, whether any trials will proceed at all, let alone as scheduled is speculative at best. *See, e.g., See, e.g., Dish Network v. Broadband iTV, Inc.*, IPR2020-01280, Paper 17 at 17–18 (PTAB Jan. 21, 2021). For example, the Western District of Texas case is before Judge Albright, who has held only two patent trials in the over 1500 terminated cases over which he has presided. EX1007, 1. Given Unified's independent purpose of deterring this non-practicing entity ("NPE") from continuing its wave of litigation against a sector of industry, the relevance of the timing or the occurrence of trial is greatly attenuated as compared to *Dish*.

Regarding the third factor, it appears, based on the public docket, that minimal investment will be made with respect to the merits of invalidity at the time of the institution decision. An institution decision is expected by December 2022. In the *Starz* Delaware case, the *Markman* hearing will occur on December 16, 2022, but it is unclear when a *Markman* ruling will issue. EX1006, p. 26. Invalidity contentions

are due in June 2022, but fact discovery does not close until April 2023, and expert discovery does not close until August 2023. *See id.* In the Western District of Texas case, a “placeholder” date for the *Markman* hearing is set for October 13, 2022, but it is unclear when a *Markman* ruling will issue. EX1008, p. 2. Final invalidity contentions are not due until December 2022, fact discovery does not close until May 2023, and expert discovery does not close until July 2023. *Id.* at 3. In the *Netflix* Delaware case, no proposed schedule has been filed. Thus, at the time of the institution decision, a significant amount of work related to the merits of invalidity will remain in all cases. Thus, this factor weighs in favor of institution.

Regarding the fourth factor, Petitioner is not a party to any co-pending case, so it is unaware of any overlap in issues. The complaint in the *Starz* case addresses the '794 Patent's invalidity over US Patent 8,015,480, which is related to the *Abbott* reference applied in Grounds 1 and 2; however, any overlap with the *Starz* case is speculative, at best, as invalidity contentions have not yet been filed. Further, as Petitioner's perspective, goals and business model is unique, it has independently pursued invalidity grounds without discussion, interaction, involvement, or input of any kind with any defendant. EX1010, ¶ 13.

Regarding the fifth factor, Petitioner is not a defendant in any co-pending litigation. None of the defendants have control over the Petition or Petitioner, and likewise, Petitioner has no ability to control the defendants. *See* EX1010, ¶ 6;

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*Unified Patents, LLC v. Gesture Technology Partners, LLC*, IPR2021-00917, Paper

11 at 42 (PTAB Nov. 22, 2021).

Regarding the sixth factor, the Petition speaks for itself as to its strong merit. VideoLabs has indicated that the '794 Patent applies to widely-used streaming technologies. Reaching a determination as to the unpatentability of the '794 Patent would be in the interest of efficiency.

Thus, the *Fintiv* factors weigh heavily against discretionary denial.

#### **D. Discretionary Factors Summary**

As detailed above, none of the discretionary bases under either §§ 325(d) or 314(a) support denial.

### **VIII. CONCLUSION**

Petitioner asks that the Office order an *inter partes* review trial for claims 1, 3, 5, 9, 12, 13, 15, 20, and 21 and then cancel these claims as unpatentable.

Respectfully submitted,

June 7, 2022

/Raghav Bajaj/  
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**IX. CERTIFICATE OF WORD COUNT**

Pursuant to 37 C.F.R. §42.24, the undersigned attorney for the Petitioner, Unified Patents, LLC, declares that the argument section of this Petition (Sections II-VIII) has 11,388 words, according to the word count tool in Microsoft Word™.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Unified Patents, LLC	§	Petition for <i>Inter Partes</i> Review
Petitioner	§	
	§	U.S. Patent 8,605,794
	§	
	§	

**CERTIFICATE OF SERVICE**

The undersigned certifies, in accordance with 37 C.F.R. §§42.105 and 42.6, that service was made on the Patent Owner as detailed below.

*Date of service* June 7, 2022

*Manner of service* United States Postal Service Priority Mail Express

*Documents served* Petition for *Inter Partes* Review, including Exhibit List; Exhibits 1001 through 1008 and 1010 through 1015

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