Inter Partes Review
U.S. Patent No. 8,605,794

Unified Patents, LLC v. VL Collective IP LLC, IPR2022-01086

Raghav Bajaj,
Jonathan Bowser,
Haynes Boone, LLP

Background on ’794 Patent

The method according to the invention is explained in more detail below with reference to an example embodiment according to FIG. **1**. In this example a video data stream and an audio data stream are to be synchronized. The video data

* * * * EX1001, 3:65-4:1

For every first and second data file D**1**, D**2** there exists in each case a fragmentation description file D**1**_BSD, B**2**_BSD. Said fragmentation description file D**1**_BSD, B**2**_BSD specifies how content-related first and content-related second data segments S**1**, S**2** can be obtained from the respective first and second data file D**12**, D**2**. The term “con-

* * * * EX1001, 4:9-14

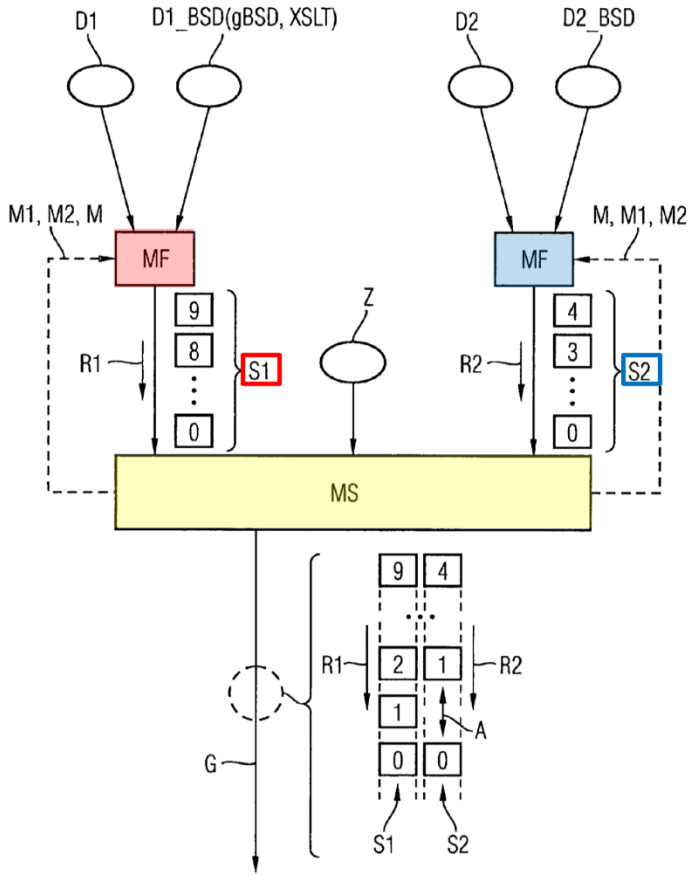
According to FIG. **1**, the first data file D**1** and the first fragmentation description file D**1**_BSD are supplied to a fragmentation module MF. This takes first data segments S**1** from the first data file D**1** according to the fragmentation rule of the first fragmentation description file D**1**_BSD. Said first data segments S**1** are passed by the fragmentation module MF to a synchronization module MS in the same chronological sequence R**1** in which they are to be output. By the first data

* * * * EX1001,4:42-49

A similar procedure to that described above is followed in order to implement the fragmentation of the second data file D**2** by way of the second fragmentation description file D**2**_BSD and hence to output the content-related second data segments S**2** in the chronological sequence R**2**.

EX1001, 5:5-9

FIG 1



EX1001, Fig. 1 (annotated)

Pet., 4-5; EX1001, 3:65-4:1, 4:9-14, 4:42-49, 5:5-9, Fig. 1; Reply, 14.

Background on ’794 Patent

In a next processing step of the method according to an embodiment of the invention, the first and second data segments S1, S2 are synchronized on the basis of a predefinable assignment rule Z. FIG. 3 shows a possible layout of an

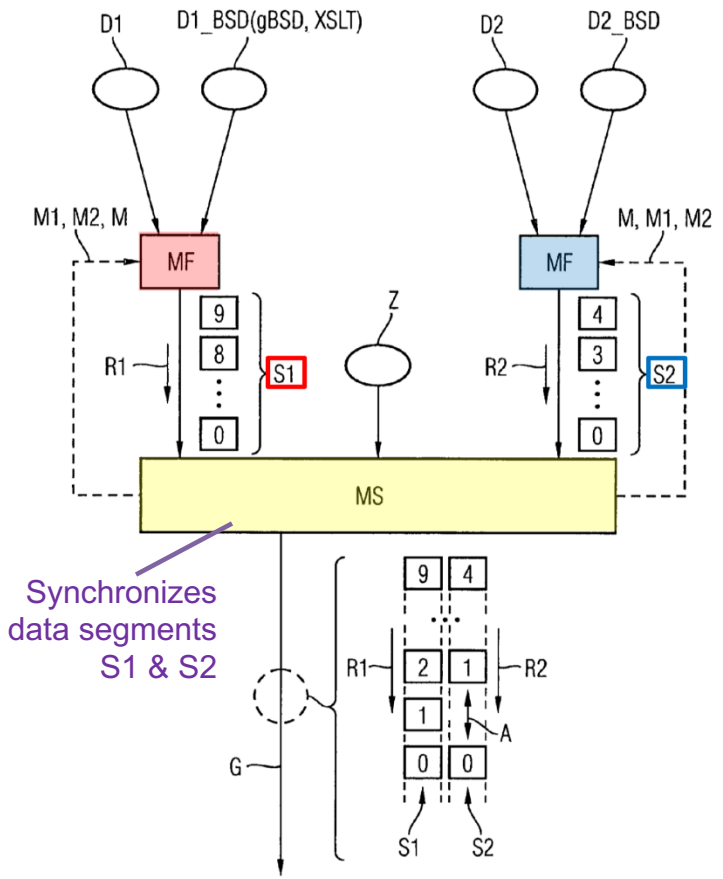
EX1001, 5:10-13

Example in Fig. 1: one audio segment for every second video segment

a) Thus, for example, the second data segment S2 is assigned a first data segment S1 and a further assignment is carried out after a number A of output, sequentially succeeding first data segments S1. If the number A=2, this means that in each case the second first data segment S1 is to be output with the second data segment S2. This constellation is illustrated in FIG. 1. The first and second data segments S1, S2 are output in their chronological sequence R1, R2 by the synchronization module MS at the latter’s data output G. First, the respective first content-related first and second data segments S1, S2 with the numeral 0 are forwarded. Since the number is A=2, the next first data segment S1 with the numeral 1 is now output. Next, a first and a second data segment S1, S2 with the numeral 2 and 1 respectively are in each case output together at the data output G.

EX1001, 5:38-52

FIG 1



EX1001, Fig. 1 (annotated)

Pet., 4-5; EX1001, 5:10-13, 5:38-52; Inst. Dec., 3; Reply, 14.

Claim 1 of ’794 Patent

[1.0] 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:

[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

[1.2] 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.

The device of independent claim 9 recites substantially similar features.

EX1001, claim 1; Pet., 33-35, 55-56; Reply 3 n. 2.

Instituted Claims and Grounds

Claim(s) Challenged	35 U.S.C. §[1]	References
1, 3, 5, 9, 12, 13, 15, 20, and 21	102(a), 102(b)	Abbott
1, 3, 5, 9, 12, 13, 15, 20, and 21	103(a)	Abbott
1, 3, 5, 9, 12, 13, 15, 20, and 21	102(a), 102(b)	Sonohara
1, 3, 5, 9, 12, 13, 15, 20, and 21	103(a)	Sonohara

PO contests Grounds 1-4.

Pet., 3-4; Inst. Dec., 5.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

Claim Construction

Petitioner's Constructions

V. CLAIM CONSTRUCTION

* * * *

prosecution history pertaining to the patent." *Id.* Petitioner submits that no claim term requires construction beyond their plain and ordinary meaning.

Patent Owner Seeks to Construe:

- "content-related…data segments"
- "assignment rule"
- Preambles of claims 1 and 9 as limiting
  - PO: first and second data files in preamble are distinct from each other

Pet., 8-9; POR, 14-41.

Claim Construction

"content-related…data segments"

"assignment rule"

Preambles of claims 1 and 9 are not limiting

Claims 1 and 9 do not require different data files

Patent Owner's Construction of "Content-Related...Data Segments" is Wrong

Patent Owner's Construction

Term	Patent Owner's Proposed Construction
content-related . . . data segments (Claims 1, 9)	data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially

- Patent Owner's construction improperly imports limitations from the specification that are not required by the claims.
- Patent Owner's construction renders other portions of claims 1 and 9 superfluous.
- District Court rejected Patent Owner's construction.

Reply, 3-6; POR, 14-21.

Patent Owner's Construction of "Content-Related…Data Segments" is Unsupported by the Claims

Claim 1

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.

Patent Owner's Proposed Construction
data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially

- Claim 1 recites first and second data segments without further defining the data segments.
- Claim 1 does not require "ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially."

EX1001, claim 1; Reply, 3-4; EX1016, ¶ 23; POR, 14.

Patent Owner's Alleged Support for its Construction of "Content-Related…Data Segments" is Not Recited in Claims

Claim 1

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.

For every first and second data file D1, D2 there exists in each case a fragmentation description file D1_BSD, B2_BSD. Said fragmentation description file D1_BSD, B2_BSD specifies how content-related first and content-related second data segments S1, S2 can be obtained from the respective first and second data file D12, D2. ***The term "content-related" is understood to mean that first and second data segments have a syntactical meaning within the respective data file***, such as e.g. a plurality of succeeding second data segments represent the speech signal of a specific speaker within a dialog sequence.

(EX1001, 4:9-22 (emphasis added).)

POR, 14-15.

- As alleged support, PO relies on the first and second fragmentation description files, which are not recited in the claims.
- Claim 1 does not require the example how the first and second data segments are obtained.

EX1001, claim 1; Reply, 3-5; EX1016, ¶¶ 24-25; POR, 14-15.

If the Board Construes "Content-Related…Data Segments," it Should Adopt the Definitional Construction in the Specification

Definition in Specification

respective first and second data file D12, D2. The term "content-related" is understood to mean that first and second data segments have a syntactical meaning within the respective data file, such as e.g. a plurality of succeeding second data segments represent the speech signal of a specific speaker within a dialog sequence. Furthermore, sections of the data

EX1001, 4:14-19

District Court's Construction

CLAIM TERMS	COURT'S CONSTRUCTIONS
"content-related . . . data segments" ['794 Patent, Claims 1, 3, 7, 8, 9]	**"segments of content data that have a syntactical meaning within the respective data file"**

EX2009, 4

Reply, 5-6; EX1001, 4:14-19, EX2009, 4; EX1016, ¶ 28.

Patent Owner's Construction of "Content-Related…Data Segments" Renders Other Portions of the Claim Superfluous

Claim 1

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.

Patent Owner's Proposed Construction
data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially

- Patent Owner's construction suggests that the data segments ***themselves*** dictate how they will be ordered.
- Claim 1 recites that the data segments are sequentially output based on an "assignment rule."
- Patent Owner's construction renders the assignment rule superfluous.

EX1001, claim 1; Reply, 5; EX1016, ¶ 27; POR, 14.

Claim Construction

"content-related…data segments"

"assignment rule"

Preambles of claims 1 and 9 are not limiting

Claims 1 and 9 do not require different data files

Patent Owner's Construction of "Assignment Rule" is Wrong

Patent Owner's Construction

Term	Patent Owner's Proposed Construction
"assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments" / "assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segments" (Claims 1, 9)	assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments, wherein the assignment is not performed by using exact timing information for the content-related data segments

- Patent Owner's construction is wrong because it:
  - imports an unclaimed negative limitation.
  - is improper under claim differentiation principles.
  - is not supported by prosecution disclaimer.

Reply, 6-10; POR, 32.

Patent Owner's Construction of "Assignment Rule" Imports an Unrequired Negative Limitation

Claim 1

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.

	Patent Owner's Proposed Construction
1)	assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments,
2)	wherein the assignment is not performed by using exact timing information for the content-related data segments

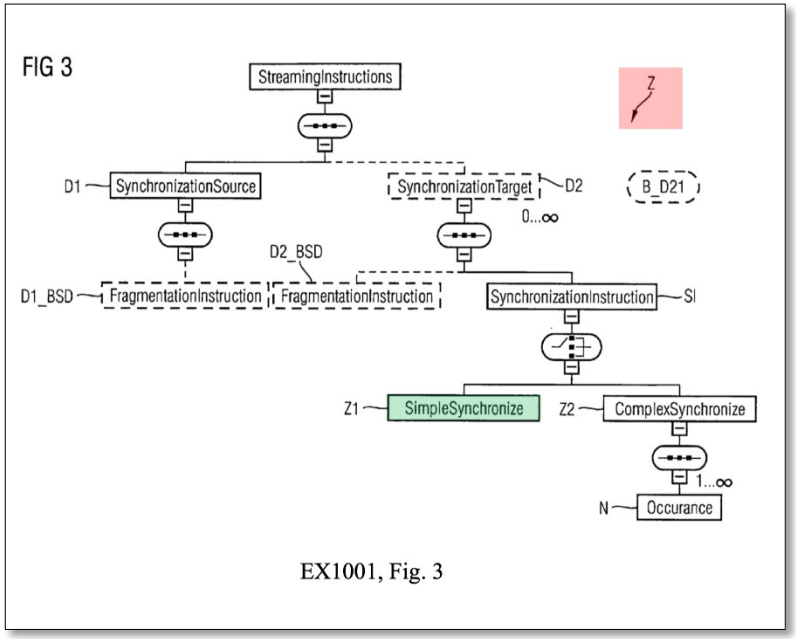
- Patent Owner's construction has two parts:
  1) Claim language itself, and
  2) Added negative limitation
- Patent Owner's negative limitation is not required by claims 1 and 9.

EX1001, claim 1; Reply, 7-8; EX1016, ¶¶ 35-36.

The Negative Limitation in Patent Owner's "Assignment Rule" Construction is Not Required by the Embodiments of the '794 Patent

Dr. Freedman

part (2), which is a negative limitation that is not required by claims 1 and 9. I understand that limitations from the specification should not be imported when the disclosed embodiments do not require that limitation. For example, the '794 Patent describes that the assignment rule "can be described merely by the specification of [a] number" of first data segments that are assigned to second data segments. EX1001, 2:47-54. In one embodiment, the assignment rule specifies that one audio segment (e.g., second data segment) is assigned to every second video segment (e.g., first data segment). EX1001, 5:38-58. For example, as shown in Figure 3 below, the '794 Patent explains that the **assignment rule Z** can have a "SimpleSychronize" XML-based **assignment rule Z1** providing that each audio data segment is output with every second video data segment. EX1001, 5:38-58, 3:52-53 ("FIG. 3 shows a tree diagram for the pictorial representation of an assignment rule.").



EX1001, Fig. 3

- There is no embodiment that *requires* the negative limitation in Patent Owner's proposed construction.

Reply, 7-8; EX1016, ¶ 36.

The Board Should Construe "Assignment Rule" According to its Plain and Ordinary Meaning

District Court rejected Patent Owner's construction with the same added negative limitation.

CLAIM TERMS	COURT'S CONSTRUCTIONS
"assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments" / **"assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segment" /** **"assignment rule" /** **"the assignment rule is not based on a timestamp"** **(collectively, the "assignment rule limitations")** ['794 Patent, Claims 1, 3, 9, 16, 17, 20, 21]	**No construction necessary.**

Reply, 6-7; EX2009, 3; EX2005, 8 (PO's construction).

The Negative Limitation in Patent Owner's "Assignment Rule" Fails Under Claim Differentiation Principles

Patent Owner equates "exact timing information" with "timestamps."

> references. By distinguishing the references in this manner, the patentee disclaimed certain subject matter. Namely, assignment rules in which the content-related data segments are assigned to one another using exact timing information (such as timestamps). Patent Owner's construction for the "assignment rule" claim limitations reflects this disclaimer.

POR, 32-33.

Claims 1 and 9 cannot be construed to require a negative limitation that is already recited in dependent claims 20 and 21.

> **20**. The method of claim **1**, wherein the assignment rule is not based on a timestamp.
>
> **21**. The device of claim **9**, wherein the assignment rule is not based on a timestamp.

Reply, 8-9; POR, 32-33; EX1001, claims 20-21.

The Negative Limitation in Patent Owner's "Assignment Rule" Fails Under Claim Differentiation Principles

According to Patent Owner, dependent claims 20-21 are ***broader*** than the negative limitation in its proposed construction of "assignment rule."

> Patent Owner notes that this disclaimer, and its resulting carve out from the "assignment rule," is not coextensive with the negative limitation of claims 20 and 21. Claims 20 and 21 further limit independent claims 1 and 9, respectively, by requiring that "the assignment rule is not based on a timestamp." While Patent Owner's construction requires that the assignment is not performed by "using" exact timing information (such as timestamps), claims 20 and 21 prohibit assignment rules that are "based on" a timestamp. The negative limitation in claims 20 and 21 is broader, and so more limiting, than Patent Owner's construction. Accordingly,

POR, 39-40.

> **20**. The method of claim **1**, wherein the assignment rule is not based on a timestamp.
>
> **21**. The device of claim **9**, wherein the assignment rule is not based on a timestamp.

POR, 39-40; EX1001, claims 20-21.

No Disclaimer to Support Patent Owner's "Assignment Rule" Construction

There was no clear and unambiguous disavowal of claim scope during prosecution.

Dr. Freedman

> rule. EX1002, 395-396. However, the applicant never argued, nor did the Examiner make any suggestion, that the assignment rule disclosed in the '794 patent cannot be based on a timestamp or that the assignment rule is somehow "not performed by using exact timing information." Therefore, the applicant's arguments against the Shin and Rosenau references do not constitute clear and unambiguous disavowal of claim scope. As such, there is no prosecution history disclaimer to support Patent Owner's improper construction of the "assignment rule" limitation.

- The District Court rejected Patent Owner's disclaimer argument.

EX1016, ¶¶ 39-40; Reply, 9-10; EX1018, 109:15-110:1.

Claim Construction

"content-related…data segments"

"assignment rule"

Preambles of claims 1 and 9 are not limiting

Claims 1 and 9 do not require different data files

Patent Owner's Construction of the Preambles is Wrong

Patent Owner's Construction

Term	Patent Owner's Proposed Construction
Preambles (claims 1, 9)	The preambles are construed to be limiting. The first data file and the second data file are distinct from each other.

The Board need not decide whether the preambles are limiting:

- *Sonohara* and *Abbott* each teach the preambles.

Patent Owner's construction is wrong:

- The preambles do not recite any essential structure to carry out the bodies of claims 1 and 9.
- Claims 1 and 9 do not require synchronization of the first data file with the second data file.
  - The claims require synchronization of *data segments*.

Reply, 10-15; POR, 21-32.

Antecedent Basis Alone is Insufficient to Render the Preambles Limiting

Dr. Freedman

on antecedent basis from the preambles of claims 1 and 9. The bodies of claims 1 and 9 and the limitations of dependent claims 5, 13, 18, and 19 define structurally complete concepts without reliance on the preambles except for a few non-determinative instances of antecedent basis. For example, the content-related first data structures and the content-related second data structures are sequentially output according to an assignment rule in the bodies of claims 1 and 9 regardless of whether the content-related first data structures or the content-related second data structures originated from "a first data file" or a "second data file." Therefore, in my opinion, the preambles of claims 1 and 9 are not limiting because they do not provide "needed clarity about where the content-related data segments come from, and within which file the data segments have 'syntactical meaning,'" as Dr. Goodrich alleges.

EX1016, ¶ 42

Claim 1

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.

Reply, 11-12; EX1016, ¶¶ 42-43; EX1001, claim 1.

Claim Construction

"content-related…data segments"

"assignment rule"

Preambles of claims 1 and 9 are not limiting

Claims 1 and 9 do not require different data files

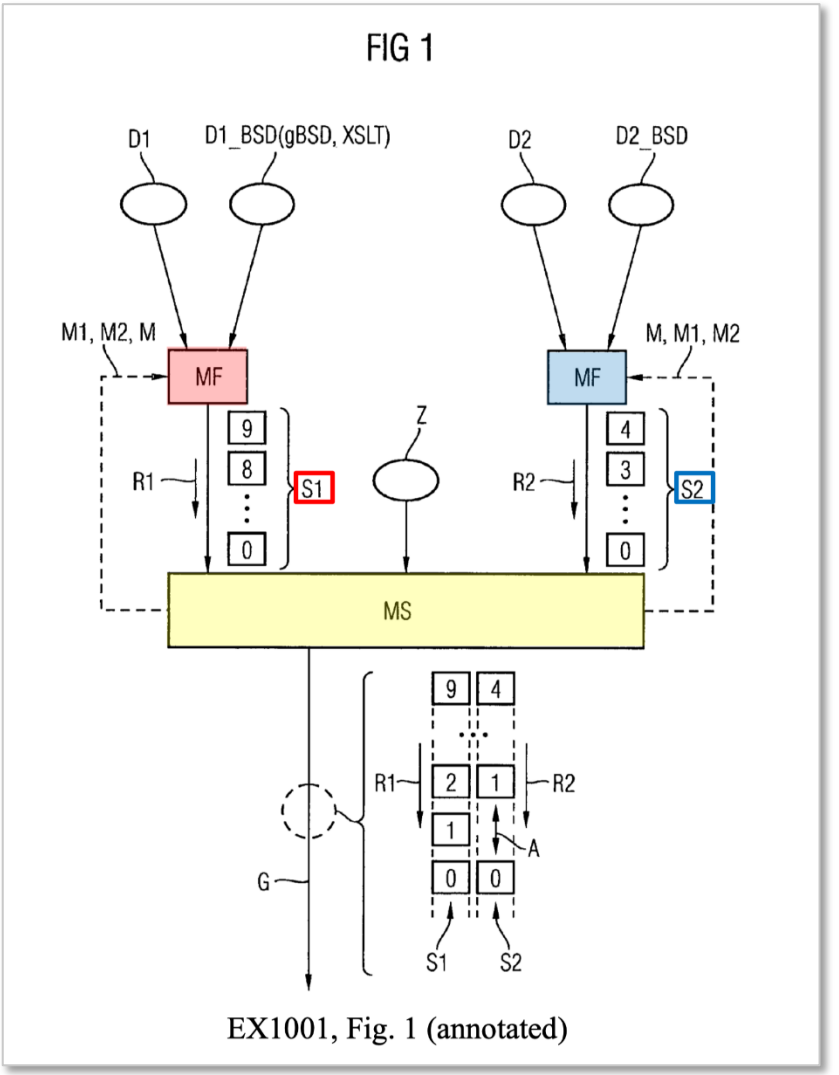
Claims 1 and 9 Require Synchronization of First and Second *Data Segments*, Not First and Second Data Files

Dr. Freedman

Decision, 10. The content-related first and second data segments are sequentially output according to an assignment rule in claims 1 and 9 entirely independent from "a first data file" and "a second data file" recited in the preamble of claims 1 and 9.. As shown in Figure 1 of the '794 patent, below, the synchronization module MS merely operates on the first data segments **S1** after they have been fragmented by the **first fragmentation module MF**, and operates on the second data segments **S2** after they have been fragmented by the **second fragmentation module MF**. EX1001, 4:42-49, 5:5-9. In other words, the segments' origin (from data files D1 and D2) does not change the operation of the synchronization module MS.

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.



EX1001, Fig. 1 (annotated)

Reply, 13-15; EX1016, ¶ 44; EX1001, claim 1; Inst. Dec., 10.

Patent Owner's Arguments About Claim 5 are Wrong

PO's argument that claim 5 "does not add a requirement that the first and second data files are distinct" (POR, 29-30) is wrong for the reasons noted by the Board. ID, 9-10 (claim 5 "appears to add a limitation that the first and second data files are distinct."). This requirement in claim 5 means that distinct data files are "not part of the underlying independent claim." *Id*.

Reply, 15

Although we do not find it necessary for purposes of this Decision to decide whether the claims require distinct data files, we note that claim 5, which depends from independent claim 1, recites that "media data are represented by at least one of the first data file and the second data file." Ex. 1001, 8:9–11. This recitation appears to add a limitation that the first and second data files are distinct, potentially suggesting that such a requirement is not part of the underlying independent claim. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) ("[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.").

Inst. Dec., 9-10

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.

5. 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.

Reply, 15; Inst. Dec., 9-10, EX1001, claims 1 & 5.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

Sonohara Discloses Synchronizing and Sequentially Outputting Content-Related Data Files From Two Distinct Files

Dr. Freedman

47. First, as I discussed in my original Declaration (EX1005), *Sonohara* discloses that the *content-related first data segments* (e.g., image data segments) are *of a first data file* and the *content-related second data segments* (e.g., sound data segments) are *of a second data file*, because the image data and sound data originate from an "**image file 11**" and a "**sound file 12**," as shown in Figure 4 below. EX1003, 4:12-20; EX1005, ¶¶ 130-31.

EX1016, ¶ 47

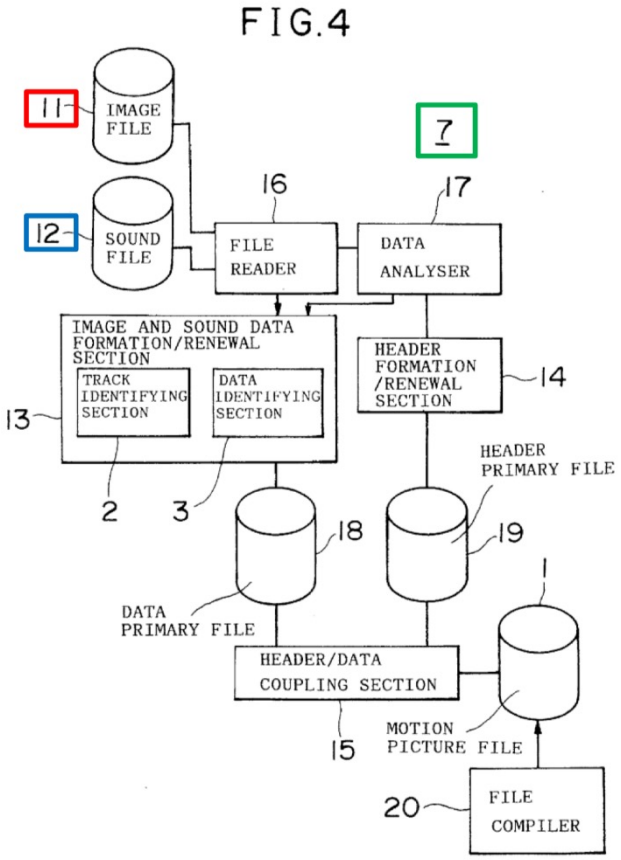
Sonohara

Structure of File Production Processing Device 7

FIG. 4 is a block diagram showing a structure of the file production processing device 7. In FIG. 4, 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, 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.

EX1003, 4:12-20

Sonohara



EX1003, Fig. 4 (annotated)

Pet., 40-42; Reply, 15-16; EX1003, 4:12-20, Fig. 4; EX1016, ¶ 47; EX1005, ¶¶ 130-131.

Sonohara's File Production Processing Device Produces the File Containing Image Data Segments and Sound Data Segments

Dr. Freedman

48. *Sonohara*'s Figure 4 above "is a block diagram showing a structure of the **file production processing device 7**." EX1003, 4:12-13. As shown in Figure 2 below, *Sonohara* discloses that the "motion picture reproducing apparatus 2" "includes a **file 1** into which image data of a moving object and audio data are stored, a **file production processing device 7** for producing the **file 1**, and a file reproduction processing device 8 for reproducing the video data and audio data of the **file 1**." EX1003, 3:49-58.

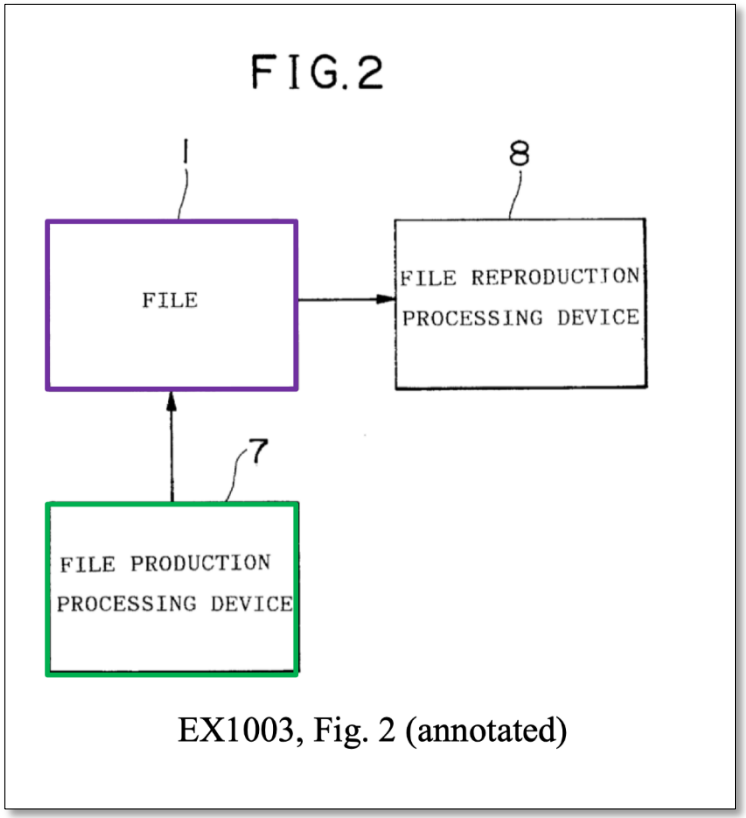
EX1016, ¶ 48

Sonohara

As shown in FIG. 2, the apparatus includes a file 1 into which image data of a moving object and audio data are stored, a file production processing device 7 for producing the file 1, and a file reproduction processing device 8 for reproducing the video data and audio data of the file 1.

EX1003, 3:54-58

Sonohara



EX1003, Fig. 2 (annotated)

Reply, 17-18; EX1016, ¶¶ 48-49; EX1003, 3:54-58, Fig. 2.

Sonohara Synchronizes Image Data Segments and Sound Data Segments in the File Created by the File Production Processing Device

Dr. Freedman

49. As explained in my original Declaration, *Sonohara* discloses synchronizing the *content-related first data segments* (**image data segments**) and the *content-related second data segments* (**sound data segments**) in the **file 1**, as shown in Fig. 1 below. EX1005, ¶¶125-129 (citing EX1003, 1:59-2:4, claim 1, 11:59-62, 5:57-65, 5:14-17, 5:44-6:67). The **file 1** containing the *content-related first data segments* (**image data segments**) and the *content-related second data segments* (**sound data segments**) was created by the **file production processing device 7** from the **image file 11** and the **sound file 12**, as shown above with respect to Figures 2 and 4.

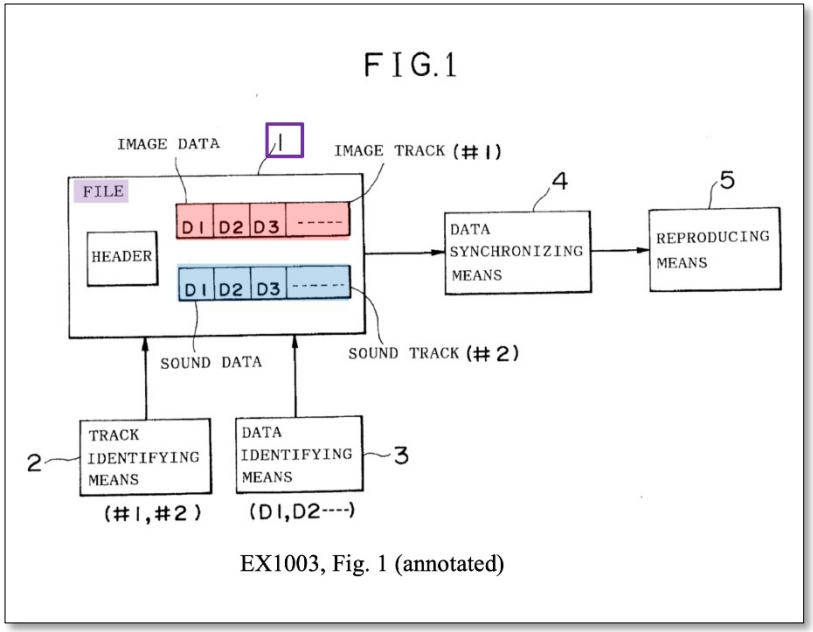
EX1016, ¶ 49

Sonohara

A 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. Additionally, a reproduction means **5** is included for reproducing the image data and the sound data.

EX1003, 1:67-2:4, claim 1

Sonohara



EX1003, Fig. 1 (annotated)

Pet., 37-40; Reply, 17-18; EX1016, ¶ 49; EX1003, 1:67-2:4, claim 1.

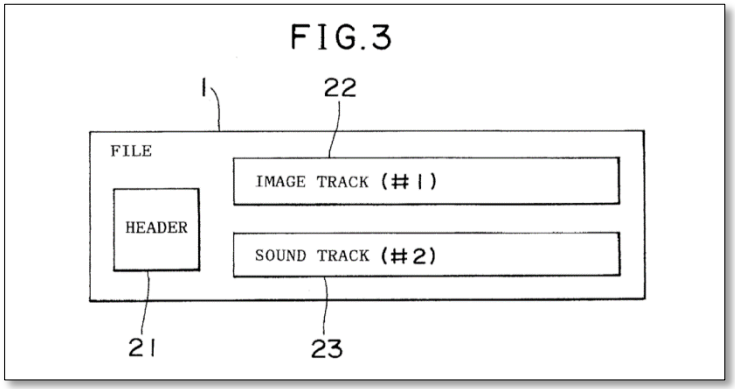
Sonohara's File 1 is Created from Image File 11 and Sound File 12, and Has Syntax Information for the Image Track and Sound Track

Dr. Freedman

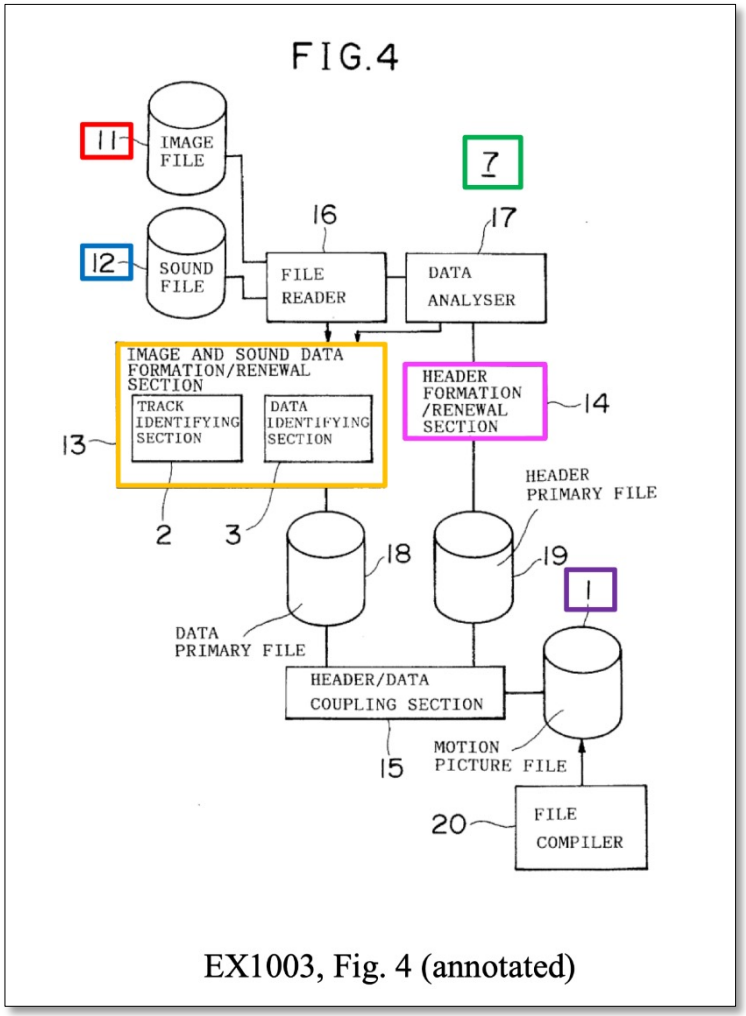
"image file 11" and "sound file 12," as shown in Figure 4. The **single data file 1** does not have separate syntaxes as Dr. Goodrich contends. EX2007, ¶74. Rather, as shown in Figure 4 below, the **single data file 1** has the syntaxes (e.g., header and track identification numbers) as assigned by the **image and sound data formation/renewal section 13** and the **header formation/renewal section 14** of the **file production processing device 7**, which produces the **single data file 1** that contains the image and audio data segments as shown in Figure 1. EX1003, 4:25-67 (explaining that file 1 is created with header information including track identification numbers for the image and sound portions of the file 1).

EX1016, ¶ 52

Sonohara



Sonohara



EX1003, Fig. 4 (annotated)

Reply, 18-21; EX1016, ¶¶ 50-53; EX1003, 4:25-67, 3:67-4:7, Figs. 3-4.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

Sonohara Discloses the Claimed Assignment Rule

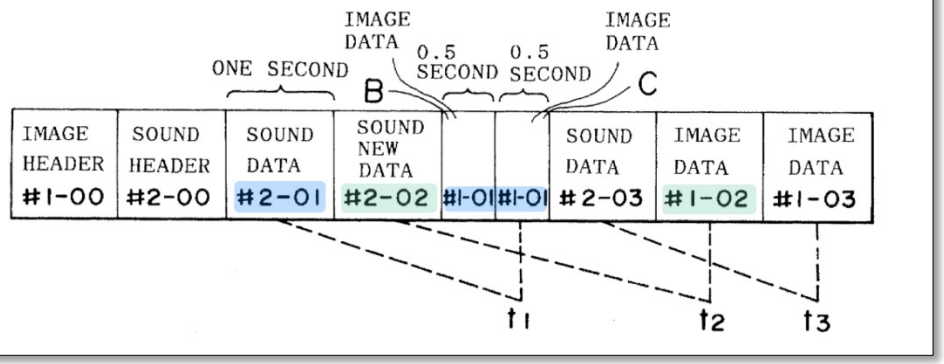
Dr. Freedman

data segments to each other. In particular, as shown in Figure 8 below, *Sonohara* discloses synchronizing and outputting the image and sound segments that have the same identifying number (e.g., "sound data #2-01" and "image data #1-01") at the same time based on the control information in the header (an assignment rule), where the header includes control information for controlling transfer of said image data and said sound data…said control information **indicating a relationship between the image data and said sound data**. EX1005, ¶¶143-152 (citing EX1003, 7:33-51, claim 1, 6:41-42).

EX1016, ¶ 59

Sonohara

FIG.8



Sonohara

For example, in the example shown in FIG. **8**, at the time **t1**, 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.

* * * *

Subsequently, 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 the process of the step **209**. Then, returning back to the step **202**, the process following the step **202** is repetitively carried out.

Further, 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.

* * * *

a header including control information for controlling transfer of said image data and said sound data, said header stored as a separate track from said image and said sound tracks, said control information indicating a relationship between said image data and said sound data, said image and sound tracks not corresponding one-to-one to physical tracks of a recording disk;

EX1003, 7:33-51, claim 1

Pet., 47-49; Reply, 24-26; EX1016, ¶ 59; EX1003, 7:33-51, claim 1, 6:41-42, Fig. 8.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

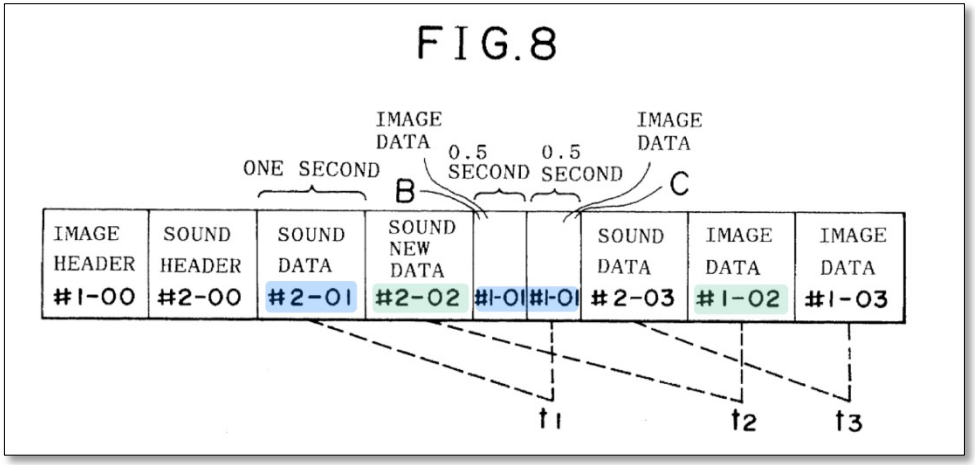
Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

Sonohara Discloses the Claimed Assignment Rule

data segments are reproduced together. POR, 63-65. *Sonohara*'s assignment rule is not based on a timestamp because it uses synchronization information (data and track identifiers) in the file header for the image and audio data segments (e.g., "sound data #2-01" and "image data #1-01" in Figure 8) to output and synchronize image and audio segments. Pet., 54-55 (citing EX1003, Abstract, Fig. 8); EX1005, ¶166-169.

Reply, 27

Sonohara



Sonohara

[57] **ABSTRACT**

A motion picture reproducing apparatus having 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. 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, respectively, and are outputted to a data synchronizing section. 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 data and sound data, and outputs the image and sound data to reproduction units.

EX1003, Abstract

Pet., 54-55; Reply, 26-27; EX1003, Abstract; EX1005, ¶¶ 166-169.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

For *Abbott* Grounds, Patent Owner Has Presented Only Attorney Argument That Is Rebutted by Dr. Freedman's Testimony.

In its POPR, PO presented only attorney argument contending that *Abbott* does not disclose outputting *each* of the second data segments together with a first data segment based on an assignment rule. POPR, 27-33. In the Institution Decision, the Board "agree[d] with Patent Owner's characterization of Abbott's disclosure." ID, 17. In its Response, PO again relied only on attorney argument,[5] reiterating its argument that *Abbott* allegedly teaches only outputting an audio segment with the first video segment of a group of pictures (GOP). POR, 41-47.

PO's characterization of *Abbott* was, and is, incorrect. The Board's reliance on PO's attorney argument should be reconsidered in light of Dr. Freedman's testimony, which conclusively rebuts PO's incorrect arguments. EX1016, ¶¶62-68. PO has not argued against the *Abbott*-based grounds under its erroneous constructions, and thus has waived any arguments against *Abbott* under its erroneous constructions.

Reply, 27-28.

Abbott Discloses Video Data Segmented Into Groups of Pictures (GOPs) and Audio Data Segmented Into Audio Frames

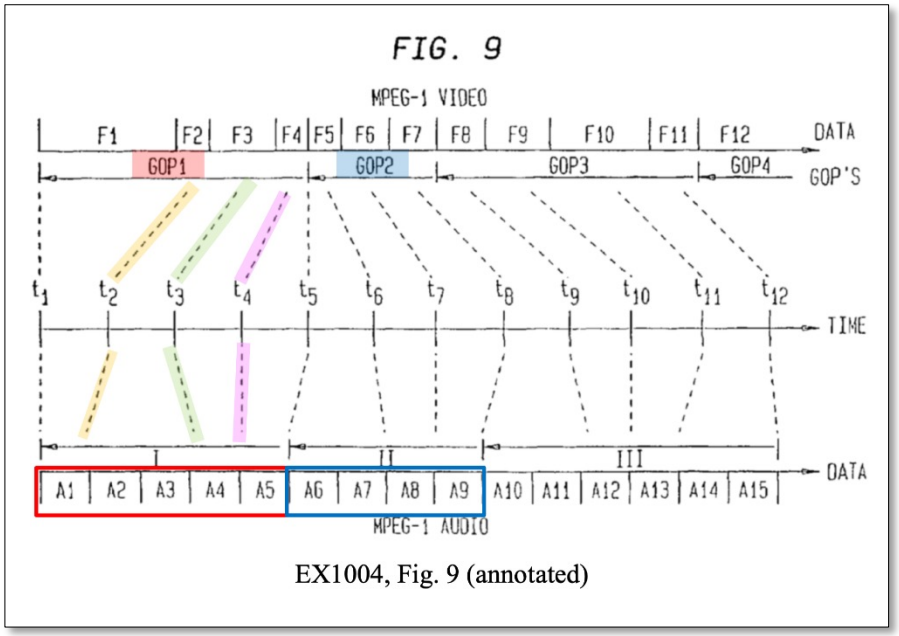
Dr. Freedman

63. As explained in my original declaration (EX1005), *Abbott* discloses video data segmented into "Groups of Pictures" (GOPs) ("*first data segments*"), and audio data segmented into audio frames ("*second data segments*"). EX1004, 17:3-41; EX1005, ¶62. Abbott's Figure 9 below shows an example where **GOP1** includes video segments F1-F4, **GOP2** includes video segments F5-F7, and so on. EX1005, ¶77 (citing EX1004, 17:3-26). Thus, the example of Figure 9 shows four GOPs respectively corresponding to four *first data segments*. EX1005, ¶77.

64. As explained in my original Declaration and as shown in Figure 9 above, multiple audio frames ("*content-related second data segments*") are assigned to one GOP. For example, **audio segments A1-A5** are assigned to **GOP1** (spanning time interval t_1 to t_5), and **audio segments A6-A9** are assigned to **GOP2** (spanning time interval t_5 to t_8). EX1005, ¶78 (citing EX1004, 17:27-35).

EX1016, ¶¶ 63-64

Abbott



EX1004, Fig. 9 (annotated)

Pet., 19-20; EX1004, 17:3-35; Fig. 9; EX1016, ¶¶ 63-64; EX1005, ¶¶ 77-79.

Abbott Discloses Outputting Each of the Second Data Segments Together With a First Data Segment

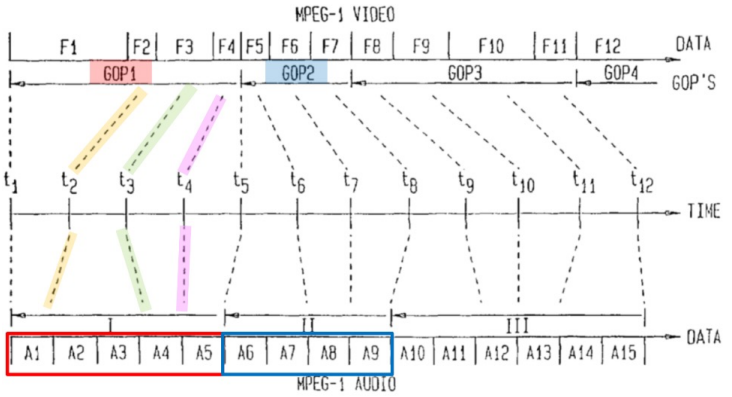
Dr. Freedman

teachings of *Abbott* and a POSITA's interpretation of *Abbott*. As shown in Figure 9 above, audio segment A1 is output at the beginning of GOP1 (i.e., frame F1). Then, at time t_2, audio frames A2 and A3 are output sequentially with frame F2 of GOP1, not at the start of GOP1 (i.e., frame F1). At time t_3, audio frame A4 is output with frame F3 of GOP1, not at the start of GOP1. At time t4, audio frame A5 is output with frame F4 of GOP1, not at the start of GOP1. This is shown by the color annotations added to Figure 9 above for audio frames A2-A5, which merely emphasize the dotted line correspondence shown in *Abbott*'s Fig. 9. Thus, contrary to Patent Owner's argument, *Abbott* does not indicate that each audio frame assigned to a GOP is output at the beginning of that GOP, or that "the same video GOP" is "partially output multiple times in a row"; such an interpretation is contrary to *Abbott's* express disclosure and nonsensical. *See, e.g.*, EX1004, 18:49-65 (*Abbott* indicating that it "ensure[s] that the audio and video **remain** synchronized" without "a time delay or offset between the video and the audio" which is inconsistent with Patent Owner's characterization of *Abbott* as repeatedly outputting a segment of video with multiple audio segments). A POSITA would not understand *Abbott* as outputting each audio frame A1-A5 with the **start** of GOP1 (POR, 44), because doing so would mean that each audio frame A1-A5 would "remain synchronized" without "a time delay or offset between the video and the audio." Outputting each

EX1016, ¶ 65

Abbott

FIG. 9



EX1004, Fig. 9 (annotated)

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.

Reply, 29-31; Pet., 21-24; EX1016, ¶ 65; EX1005, ¶¶ 82-86; EX1001, claim 1.

Claim Construction

Sonohara discloses synchronizing and sequentially outputting content-related data segments from two distinct files

Sonohara discloses the claimed assignment rule

Sonohara's assignment rule is not based on a timestamp

Abbott discloses outputting each of the second data segments with a first data segment

Abbott discloses outputting each second data segment with a first data segment based on an assignment rule

Abbott Discloses Outputting Each of the Second Data Segments Together With a First Data Segment Based On an Assignment Rule

Dr. Freedman

83. *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.

EX1005, ¶ 83

67. Abbott also discloses that the audio data segments are output with the video frames of a GOP by using an index file ("assignment rule"), which correlates audio segments with a GOP. EX1005, ¶¶84-87 (citing EX1004, 18:66-19:17, 20:6-24, 19:55-64). Patent Owner incorrectly contends that "Abbott's index files correlate

* * * *

Abbott. As shown in Figure 9 above, multiple audio segments (e.g., A1-A5) are assigned to a GOP (GOP1) (an assignment rule for assigning each of one of the content-related second data segments to one of the content-related first data segments), and upon output, the audio segments are sequentially output in such a way that each of the audio segments A1-A5 are output together with an associated one of the content-related first data segments (i.e., GOP1), such that the audio segments are synchronized with constituent video frames of a GOP. As such, Patent

EX1016, ¶ 67

Abbott

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 GOP**1**, repeated atom-relative byte positions for the frames within GOP**2**, repeated atom-relative byte positions for the frames within GOP**3**, 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**.

EX1004, 9:1-17

EX1005, ¶ 83; EX1016, ¶ 67; Pet., 24-25; Reply, 31-32; EX1004, 9:1-17.

Inter Partes Review
U.S. Patent No. 8,605,794

Unified Patents, LLC v. VL Collective IP LLC, IPR2022-01086

Raghav Bajaj,
Jonathan Bowser,
Haynes Boone, LLP