

Petitioner's Demonstratives

Netflix, Inc. v. VideoLabs, Inc.

U.S. Patent No. 8,605,794

Case: IPR2023-00891

October 10, 2024

Instituted Grounds

Ground	Claims	Basis
1	1-5, 9-13, 15-17, 20-21	35 U.S.C. §102 based on <i>Comps</i>
2	6-8, 22	35 U.S.C. §103 based on <i>Comps</i> in view of <i>Wan</i>
3	14	35 U.S.C. §103 based on <i>Comps</i> in view of <i>Ahn</i>
4	18, 19	35 U.S.C. §103 based on <i>Comps</i> in view of <i>Kim</i>

Disputed Issues

- 1 “content-related ... data segments”
- 2 “assignment rule”
- 3 Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”
- 4 Outputting “content-related ... data segments” “sequentially” and “chronologically”
- 5 “assignment rule is not based on a timestamp”
- 6 *Comps* and *Wan* render claim 22 obvious
- 7 Dependent claims 2, 3, 7 and 8, 18 and 19

U.S. Patent No. 8,605,794

'794



US008605794B2

U.S. Patent
al.

(10) **Patent No.:** US 8,605,794 B2
 (45) **Date of Patent:** Dec. 10, 2013

(54) **METHOD FOR SYNCHRONIZING CONTENT-DEPENDENT DATA SEGMENTS OF FILES**

(75) **Inventors:** Hermann Hellwagner, Klagenfurt (AT); Jörg Heuf, Oberhaching (DE); Andreas Hutter, München (DE); Michael Ransburg, Maria Rain (AT)

(73) **Assignee:** Siemens Aktiengesellschaft, Munich (DE)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 962 days.

(21) **Appl. No.:** 11/918,276

(22) **PCT Filed:** Mar. 16, 2006

(86) **PCT No.:** PCT/EP2006/060808
 § 371 (c)(1), (2), (4) **Date:** Jan. 21, 2009

(87) **PCT Pub. No.:** WO2006/108750
PCT Pub. Date: Oct. 19, 2006

(65) **Prior Publication Data**
 US 2009/0174815 A1 Jul. 9, 2009

(30) **Foreign Application Priority Data**
 Apr. 12, 2005 (DE) 10 2005 016 866

(51) **Int. Cl.**
H04N 7/50 (2006.01)

(52) **U.S. Cl.**
 USPC: 375/240.26; 375/240

(58) **Field of Classification Search**
 USPC: 375/240.28, 240, 240.01, 240.03, 375/240.18, 240.24
 See application file for complete search history.

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(Continued)

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S. Devillers et al., Metadata streaming use case and requirements, ISO/IEC JTC 1 SC 29/WG11 M11638, Hong Kong, Jan. Apr. 8, 2005, Mar. 1, 2012.

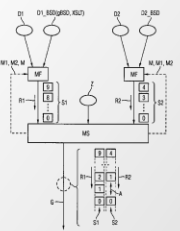
H. Hellwagner et al., Report of CE on Bi-Stream Adaptation in Constrained and Streaming Environments, ISO/IEC JTC 1 SC 29/WG 11 M11706, Hong Kong, Jan. 2005.

(Continued)

ABSTRACT

The synchronization of data segments is particularly necessary for the use of small screens. A method and a device are disclosed for synchronizing content-dependent first data segments of a first data file and content-dependent second data segments of a second data file, the first and second data segments being respectively output in sequence according to their chronological order in such a way that based on a pre-determinable assignment rule for the first and second data segments, each second data segment is output together with a corresponding first data segment.

22 Claims, 5 Drawing Sheets



(10) **Patent No.:**

US 8,605,794 B2

(54) **METHOD FOR SYNCHRONIZING CONTENT-DEPENDENT DATA SEGMENTS OF FILES**

(30) **Foreign Application Priority Data**

Apr. 12, 2005 (DE) 10 2005 016 866

EX1001 ('794 Patent)

Earliest possible priority date is April 12, 2005

'794 Patent | Alleged Problem

No longer only a single television signal for all terminal devices

North America the NTSC standard. Since all television sets in the respective countries are suitable for receiving the television signal encoded e.g. according to the PAL standard, only one television signal needs to be transmitted for a television program. As a result, a transmission of a plurality of differently encoded television signals of a television program, for example as a function of an image size or a performance capability of the television sets, is not required.

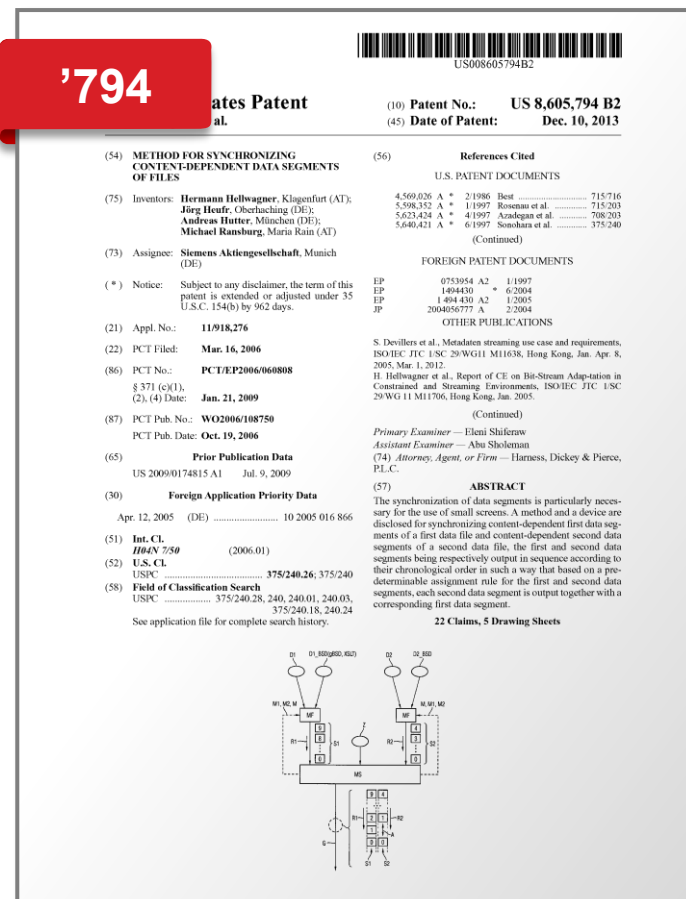
Due to the current introduction of new terminal devices, for example mobile terminals with small screens, it will no longer be possible in the future to provide a single television signal of a television program for all terminal devices. Furthermore it may also be desired to provide different television subscribers with television signals of different quality. In this

EX1001 ('794 Patent) at 1:26-39

New types of data compression algorithms, such as a video coding standard ITU-T H.264 for example, as well as metadata languages, such as e.g. XML (XML=Extended Markup Language), were developed in order to satisfy these requirements. With the aid of said metadata languages, contents of a document and/or a data stream, such as of a television or video signal for example, can be described in a structured manner by means of an XML schema language definition. Based on this definition, information can be obtained as required, with the aid of which information a scaling of the television or video signal for different television subscribers can be realized.

EX1001 ('794 Patent) at 1:44-55

'794 Patent | Disclosed Solution



By way of the method according to at least one embodiment of the invention, it is made possible in a simple manner to synchronize content-related first and second data segments. The synchronization is controlled by way of the pre-definable assignment rule. In this way, content-related data segments can be output together according to their chronological sequence. This is of advantage, since the assignment is carried out without the use of timestamps. In this context the term “output” is understood to mean that first and second data segments are, for example, transmitted, stored together or passed on to a processing unit.

EX1001 ('794 Patent) at 2:36-46

'794 Patent | Representative Claim 1

'794 **Patent**

US008605794B2

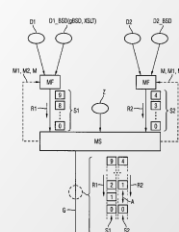
(10) Patent No.: US 8,605,794 B2
(45) Date of Patent: Dec. 10, 2013

(54) METHOD FOR SYNCHRONIZING CONTENT-DEPENDENT DATA SEGMENTS OF FILES
(75) Inventors: Hermann Hellwagner, Klagenfurt (AT); Jörg Heuf, Oberhaching (DE); Andreas Harter, München (DE); Michael Ransburg, Maria Rain (AT)
(73) Assignee: Siemens Aktiengesellschaft, Munich (DE)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 962 days.

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Apr. 12, 2005 (DE) 10 2005 016 866
(51) Int. Cl. H04N 7/50 (2006.01)
U.S. CL. 375/240.26; 375/240
USPC 375/240.28, 240, 240.01, 240.03, 375/240.18, 240.24
See application file for complete search history.

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5,598,352 A * 1/1997 Roscham et al. 715/203
5,623,424 A * 4/1997 Azadegan et al. 708/303
5,640,421 A * 6/1997 Sonohara et al. 375/240
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EP 0753954 A2 1/1997
EP 1404430 * 6/2004
EP 1 404 430 A2 1/2005
JP 2004056777 A 2/2004
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S. Devillers et al., Metadata streaming use case and requirements, ISO/IEC JTC 1 SC 29/WG11 M11638, Hong Kong, Jan. Apr. 8, 2005, Mar. 1, 2012.
H. Hellwagner et al., Report of CE on Bi-Stream Adaptation in Constrained and Streaming Environments, ISO/IEC JTC 1 SC 29/WG 11 M11706, Hong Kong, Jan. 2005.
(Continued)
Primary Examiner — Eleni Shiferaw
Assistant Examiner — Abu Sholeman
(74) Attorney, Agent, or Firm — Harness, Dickey & Pierce, P.L.C.
(57) ABSTRACT
The synchronization of data segments is particularly necessary for the use of small screens. A method and a device are disclosed for synchronizing content-dependent first data segments of a first data file and content-dependent second data segments of a second data file, the first and second data segments being respectively output in sequence according to their chronological order in such a way that based on a pre-determinable assignment rule for the first and second data segments, each second data segment is output together with a corresponding first data segment.

22 Claims, 5 Drawing Sheets



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.

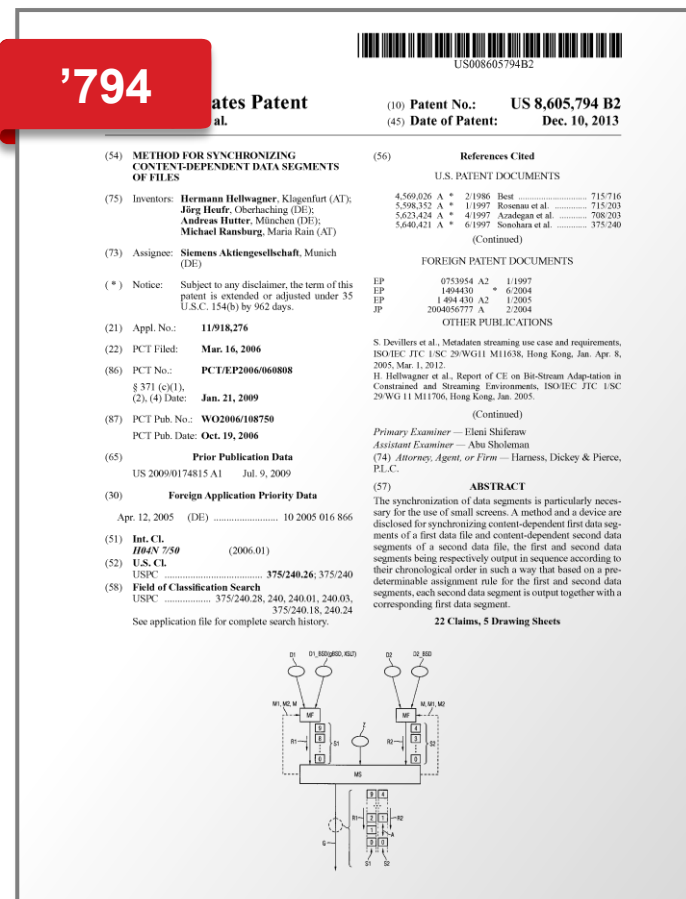
EX1001 ('794 Patent) at Claim 1



1

“content-related...data segments”

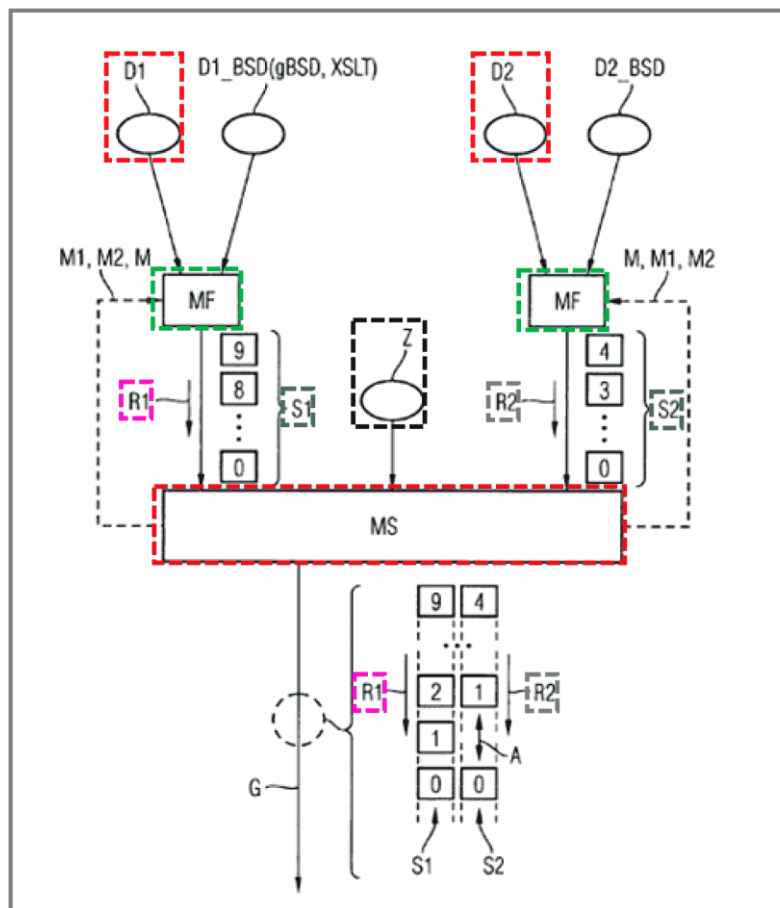
1 “content-related ... data segments”



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 ('794 Patent) at Claim 1

1 “content-related ... data segments”



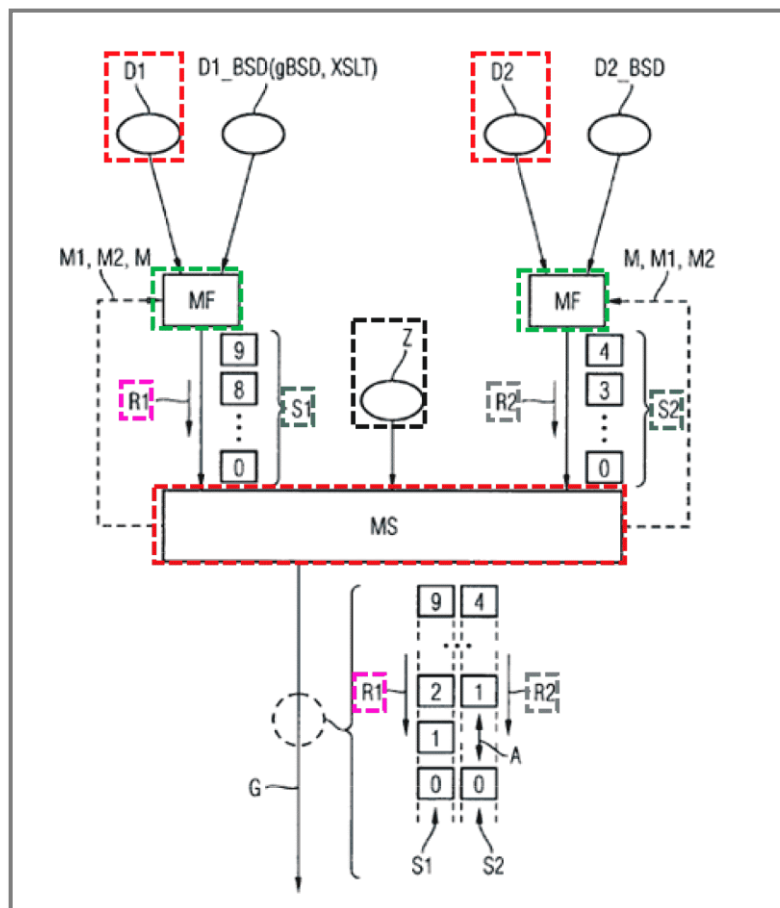
Pet. at 7 ('794 Patent, Fig. 1 (annotated))

'794 Patent

With the method according to at least one embodiment of the invention, media data, in particular video or audio data, and/or metadata, in particular encoded according to the XML standard, are described by way of the first and/or second data file. In this way it is made possible by way of the method according to at least one embodiment of the invention to synchronize a plurality of different data types.

EX1001 ('794 Patent) at 3:4-10

1 “content-related ... data segments”



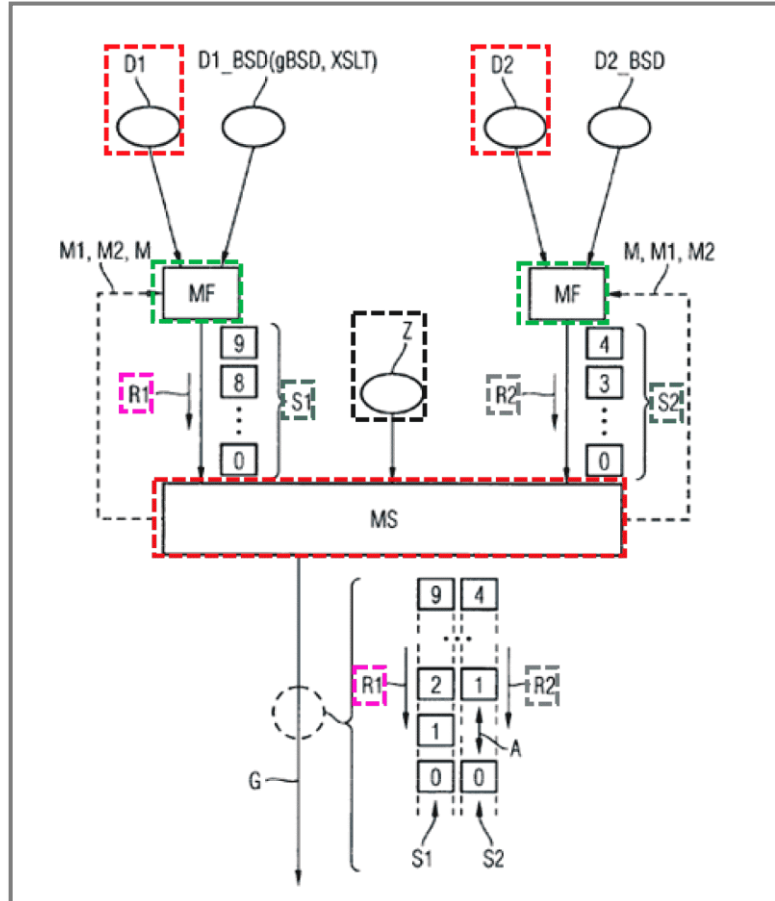
'794 Patent

an audio data stream are to be synchronized. The video data stream has been compressed for example according to the video coding standard MPEG2, MPEG4 or ITU H.264. Said video data stream is identified in FIG. 1 as the first data file D1. The audio data stream has been coded for example using the audio coding standard ITU G.723.1 or MPEG4-AAC. The audio data stream is designated in FIG. 1 by way of a name second data file D2.

EX1001 ('794 Patent) at 4:1-8

Pet. at 7 ('794 Patent, Fig. 1 (annotated))

1 “content-related ... data segments”



'794 Patent

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 file can also be understood thereby, such as e.g. individual images of a video sequence. In the following description data segments always refer to content-based data segments.

EX1001 ('794 Patent) at 4:14-22

Pet. at 7 (“794 Patent, Fig. 1 (annotated))

1 Claim Construction: “content-related ... data segments”

Patent Owner's Current Construction

“segments of content data that
have a syntactical meaning
within the respective data file”

POR at 12

'086 IPR Board's Construction

“segments of content data that
have a syntactical meaning”

'086 IPR, Paper 37 at 18

'794 Patent

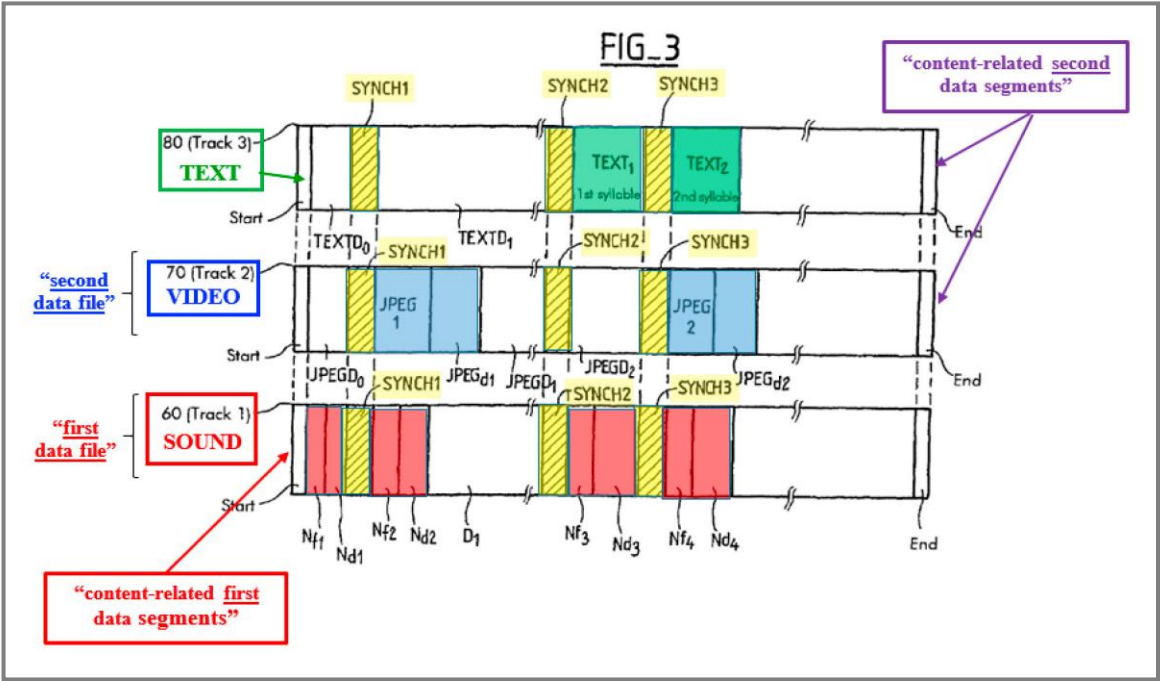
respective first and second data file D12, D2. The term “content-related” is understood to mean that first and second data segments have a syntactical meaning within the respective data file, such as e.g. a plurality of succeeding second data segments represent the speech signal of a specific speaker within a dialog sequence. Furthermore, sections of the data file can also be understood thereby, such as e.g. individual images of a video sequence. In the following description data segments always refer to content-based data segments.

EX1001 ('794 Patent) at 4:14-22

1

Comps Teaches:

“content-related ... data segments”



Pet. at 14 (Comps, Fig. 3 (annotated))

Comps

The invention also provides a device for synchronizing data in a multimedia file containing at least one track in which said data is stored and at least one synchronization command in each track, said device having first means for

* * *

The data in a multimedia file according to the invention can comprise either time values or sound, text or picture coding values. The time values can represent a note duration,

EX1004 (Comps) at 2:24-27; 2:44-46

1

Comps Teaches:

“content-related ... data segments”

Comps

Each track of the file **50** can contain a single type of **data**.

EX1004 (*Comps*) at 2:60

 Audio  Pictures  Text

For example, track **60** can be a MIDI (Musical Instrument Digital Interface) format track for sound, track **70** can contain a sequence of pictures, and track **80** can contain sequences of texts. The different tracks may be intended to

EX1004 (*Comps*) at 2:61-64

In this example:

Track **60** or track **1** contains only MIDI sound data. The sound data could consist of sampled sounds (speech, miscellaneous noises such as applause or microphone noise, etc.).

Track **70** or track **2** contains only data corresponding to sequences of JPEG images. This data could equally be video data.

Track **80** or track **3** contains only data corresponding to text messages.

EX1004 (*Comps*) at 3:10-19

1 Patent Owner Disputes *Comps*' "content-related ... data segments"

Patent Owner:

Comps' data is not "content data," but computer instructions. POR at 39.

Comps

Each track also contains data organized in the form of commands which are executed sequentially by the micro-processor (for example to display a picture or a text).

EX1004 (*Comps*) at 3:5-7

data of a first type, of a second type, etc. is stored in the first file, in the second file, etc., respectively, and grouped into the form of at least one event-related command characterizing an important event or an unimportant event, and

EX1004 (*Comps*) at 2:10-14

1 Patent Owner Disputes *Comps*' "content-related ... data segments"

Patent Owner:

Comps' sole embodiment relies on MIDI for generating sound data. POR at 40.

Comps

For example, track **60** can be a MIDI (Musical Instrument Digital Interface) format track for sound, track **70** can

EX1004 (*Comps*) at 2:61-64

In this example:

Track **60** or track **1** contains only MIDI sound data. The sound data could consist of sampled sounds (speech, miscellaneous noises such as applause or microphone noise, etc.).

EX1004 (*Comps*) at 3:10-14

1 Patent Owner Disputes *Comps*' “content-related ... data segments”



“This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.”

Verizon Servs. Corp. Vonage Holdings Corp., 503, F3d 1295, 1303 (Fed Cir. 2007)

1

Patent Owner Disputes *Comps*' "content-related ... data segments"

Patent Owner:

MIDI data does not include content data; it's instructions for how to play sound content data. POR at 40.

A Tutorial on MIDI and Wavetable Music Synthesis

the 1982/1983 time frame. MIDI data is a very efficient method of representing musical performance information, and this makes MIDI an attractive protocol for computer applications which produce sound, such as multimedia presentations or computer games. However, the lack of standard-

EX2016 at 1

The Musical Instrument Digital Interface (MIDI) protocol provides a standardized and efficient means of conveying musical performance information as electronic data. MIDI information is transmitted in "MIDI messages", which can be thought of as instructions which tell a music synthesizer how to play a piece of music. The Synthesizer re-

EX2016 at 2



2

“assignment rule”

2 Claim Construction: “assignment rule” Limitations

Patent Owner’s changing construction claim positions

'086 IPR (Paper 37 at 19)	“...wherein the assignment is <i>not performed by using exact timing information</i> for the content-related data segments...”
POPR (Paper 10)	No Construction
POR (Paper 28 at 26)	“...wherein the assigning is <i>not performed by adjusting the timing</i> of the content-related data segments...”

2 Claim Construction: “assignment rule” Limitations



“To constitute disclaimer, there must be a ***clear and unmistakable*** disclaimer.”

Thorner v. Sony Comput. Ent. Am. LLC, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012)

2 Claim Construction: “assignment rule” Limitations

The Board already held that there was no clear and unmistakable disclaimer in the '086 IPR

Trials@uspto.gov
571-272-7822

Paper 37
Date: December 18, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,
Petitioner,

v.

VL COLLECTIVE IP LLC,
Patent Owner.

IPR2022-01086
Patent 8,605,794 B2

Before KARL D. EASTHOM, JEFFREY S. SMITH, and
PATRICK M. BOUCHER, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

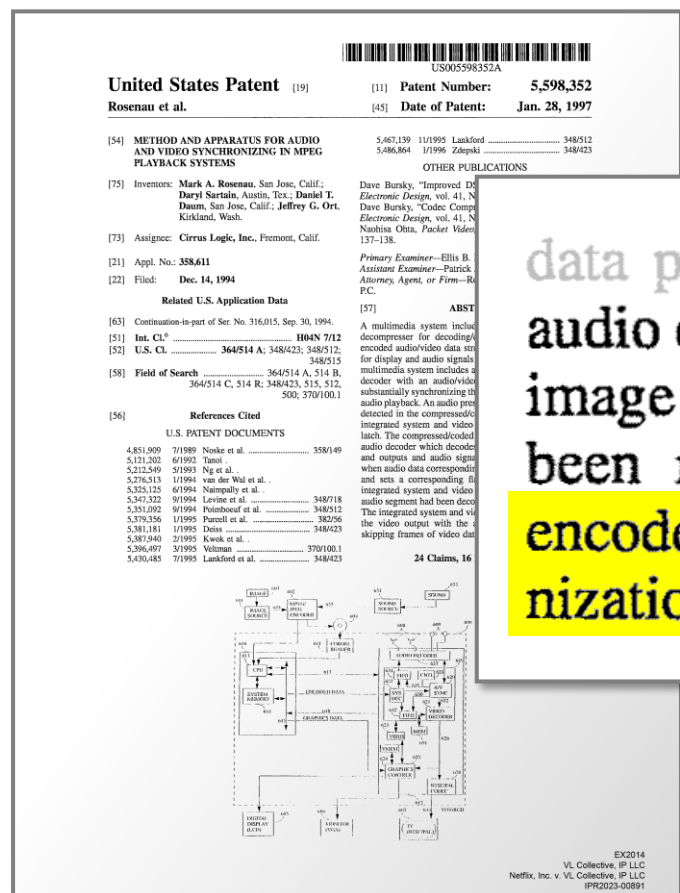
rule”). But the phrase “exact timing information” is used nowhere in the prosecution history, inconsistent with the requisite “existence of a clear and unmistakable disclaimer.” *See generally* Ex. 1002. Rather, we agree with Petitioner that the prosecution history is more fairly characterized as “the applicant argu[ing] that claim 1 was distinguishable over Shin (EX2011) and Rosenau (EX2012) because these references consider time information for synchronization, rather than using an assignment rule for synchronization.” Reply 10 (citing Ex. 1002, 259–260, 334–335; PO Resp. 33–39); *see also*

* * *

As Petitioner states, “the applicant never argued, nor did the examiner suggest, that the assignment rule in the '794 patent is ‘not performed by using exact timing information.’” Reply 10.

'086 IPR FWD (Paper 37 at 21-22)

2 Claim Construction: “assignment rule” Limitations



Rosenau

data packets such as 311. The infrequent interspersions of audio data packets between video data packets may cause an image frame to be displayed before or after the audio has been reproduced. Time stamps are provided within the encoded/compressed data stream to facilitate the synchronization of audio and video.

EX2014 at 3:1-6

2 Claim Construction: “assignment rule” Limitations

Patent Owner:

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,

Petitioner

v.

VL COLLECTIVE IP LLC,

Patent Owner

IPR2023-00891
U.S. Patent 8,605,794

PATENT OWNER’S SUR-REPLY

The Board is only required to “construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citation omitted). In *Unified*, PO proposed a construction of “assignment rule” that was appropriate given the references and disputes at issue. Here, there are different references and different disputes. Accordingly, PO has proposed a different construction that clarifies a different aspect of the scope of an “assignment rule” (i.e., that adjusting the pre-set timing of data segments is not an assignment rule). PO has not changed its view of the scope of “assignment rule”—PO believes that both its proposed constructions appropriately clarify the term’s meaning. But only the above construction is “necessary to resolve the controversy.”

PO Sur-Reply (Paper 44 at 4)

2 Claim Construction: “assignment rule” Limitations



“An applicant's repeated and consistent remarks during prosecution can define a claim term—especially where, as here, there is "no plain or ordinary meaning to the claim term" and the specification provides no clear interpretation.”

Personalized Media Commc'ns, LLC v. Apple Inc., 952 F.3d 1336, 1345 (Fed Cir. 2020)

Comps Teaches:

“assignment rule” Limitations

'794 Patent, 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.

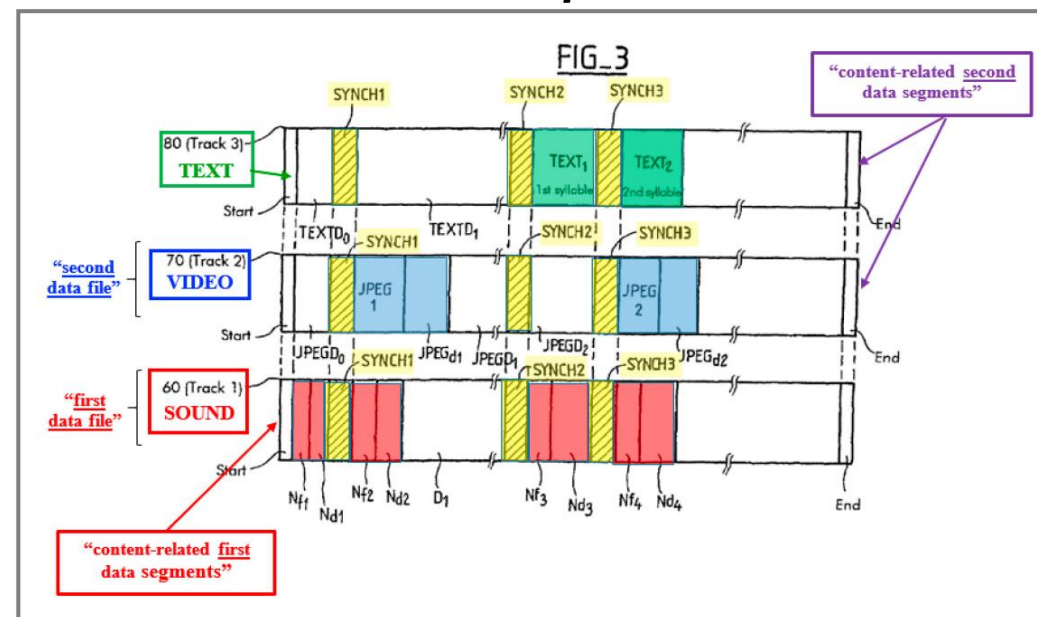
EX1001 ('794 Patent) at Claim 1

POR at 43-47; EX1001 at Claim 1; Pet. at 31-35; Reply at 11-14; EX1003 ¶¶ 85-90; EX1004 at 1:41-52, 1:65-2:2, 2:10-23, 2:48-51, 3:44-47, 4:29-50, 4:56-57, Fig. 3; EX2012 at 57:5-7, 76:19-22

Thus, the “assignment rule” which “assign[s] each one of the content-related second data segments to one of the content-related first data segments” is the synchronization commands being executed by the microprocessors. Like the

Pet. at 33

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

Comps Teaches:
“assignment rule” Limitations

'794 Patent, 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.

EX1001 ('794 Patent) at Claim 1

SYNCH1	Nf ₂ ;Nd ₂ JPEG ₁ :JPEGd ₁
SYNCH2	Nf ₃ ;Nd ₃ TEXT ₁
SYNCH3	Nf ₄ ;Nd ₄ JPEG ₂ :JPEGd ₂ TEXT ₂

POR at 43-47; EX1001 at Claim 1; Pet. at 31-35; Reply at 11-14; EX1003 ¶¶ 85-90; EX1004 at 1:41-52, 1:65-2:2, 2:10-23, 2:48-51, 3:44-47, 4:29-50, 4:56-57, Fig. 3; EX2012 at 57:5-7, 76:19-22

Comps Teaches: “assignment rule” Limitations

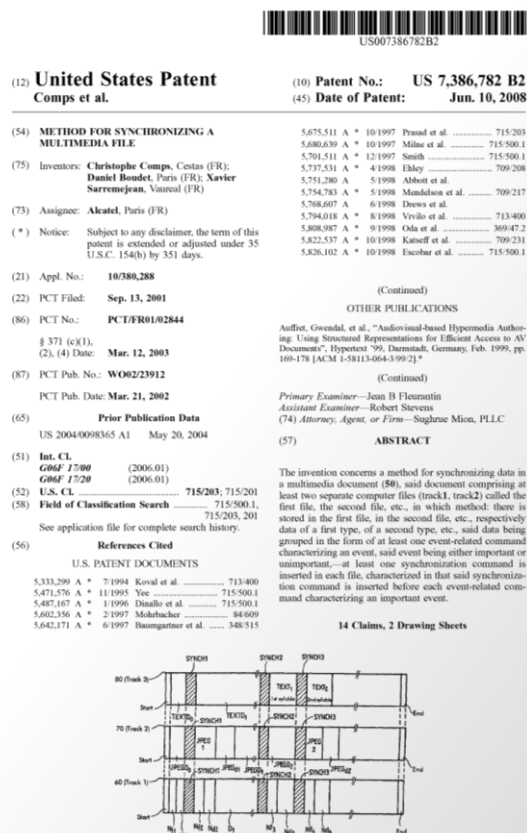
Comps

data of a first type, of a second type, etc. is stored in the first file, in the second file, etc., respectively, and grouped into the form of at least one event-related command characterizing an important event or an unimportant event, and

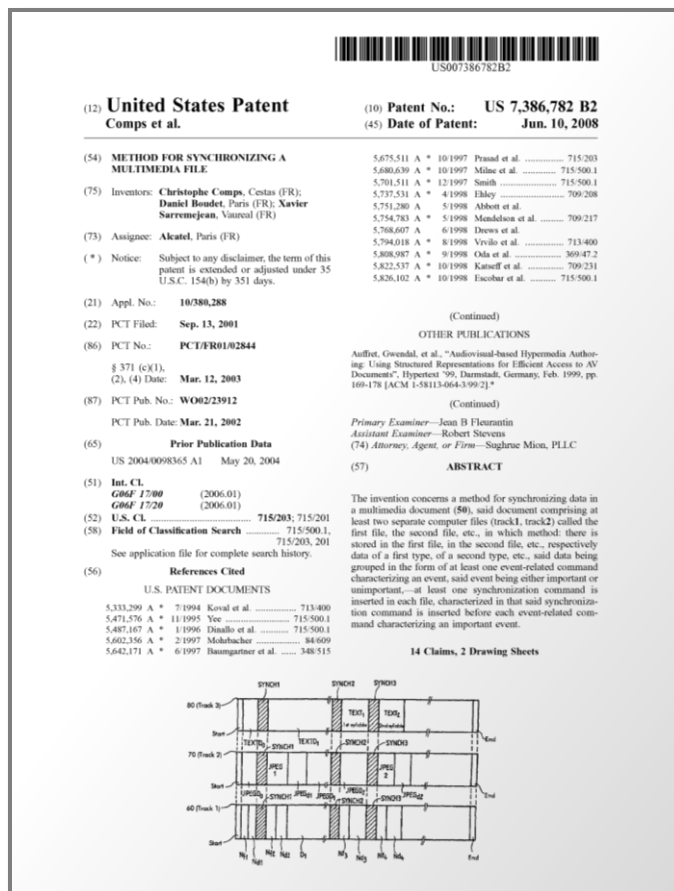
* * *

The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

EX1004 (Comps) at 2:10-14; 2:20-23



Comps Teaches: “assignment rule” Limitations



Comps

at least one synchronization command is inserted into each file, which method is characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

* * *

time between two events. According to the invention, the tracks of the multimedia file also include synchronization commands related to the various events included in the track (note, picture, text, etc.).

* * *

The synchronization commands are not temporal commands, as in the prior art, but are instead dependent on a specific event. Thus the fields SYNCH_i are not present in the tracks at regular time intervals.

Comps Teaches:

“assignment rule” Limitations

Comps is distinguished from the prior art

The prior art solution is temporal synchronization.

In the FIG. 1 example, the microprocessor μp_1 , which reads the track 1 containing sound, sends synchronization data every 3 μs to the microprocessor μp_2 , which reads the track 2 containing text. The synchronization data can optionally be stored in the multimedia file.

Thus the microprocessor μp_2 verifies every 3 μs whether its clock is synchronized to that of the first microprocessor μp_1 . If the microprocessor μp_2 finds that it is in advance of the other one, it calculates the time difference and stops reading track 2 for that period of time. It then restarts in synchronism with the microprocessor μp_1 . It is apparent that

EX1004 (*Comps*) at 1:44-52

The above solution also has a further and major disadvantage: the synchronization data can reach the microprocessor μp_2 while it is in the middle of displaying a phrase. The display of the phrase is then stopped short, and the user does not receive the impression of fluid presentation of data.

EX1004 (*Comps*) at 1:65 – 2:2

Patent Owner Disputes:

“assignment rule”

Patent Owner:

Comps adjusts the timing of events in slave tracks and is not an “assignment rule.” POR at 44-45.

(12) United States Patent Comps et al.		(10) Patent No.: US 7,386,782 B2	(45) Date of Patent: Jun. 10, 2008
(54) METHOD FOR SYNCHRONIZING A MULTIMEDIA FILE	5,675,511 A * 10/1997 Praad et al. 715/20	5,680,639 A * 10/1997 Milne et al. 715/500	
(75) Inventors: Christophe Comps, Cestas (FR); Daniel Bondet, Paris (FR); Xavier Sarremejean, Vaureal (FR)	5,701,511 A * 12/1997 Smith 715/500	5,737,531 A * 4/1998 Ebkey 709/20	
(73) Assignee: Alcatel, Paris (FR)	5,751,280 A * 5/1998 Abbott et al. 709/21	5,754,783 A * 5/1998 Mondelson et al. 709/21	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 351 days.	5,768,607 A * 6/1998 Drews et al. 713/40	5,794,018 A * 8/1998 Virilo et al. 369/47	
(21) Appl. No.: 10/380,288	5,808,987 A * 9/1998 Oda et al. 709/23	5,822,537 A * 10/1998 Kaseff et al. 715/500	
(22) PCT Filed: Sep. 13, 2001	5,826,102 A * 10/1998 Escobar et al. 715/500		
(86) PCT No.: PCT/FR01/02844	(Continued)		
§ 371 (c)(1), (2), (4) Date: Mar. 12, 2003	OTHER PUBLICATIONS		
(87) PCT Pub. No.: WO02/23912	Auffret, Gwendal, et al., "Audiovisual-based Hypermedia Authoring: Using Structured Representations for Efficient Access to A Documents", Hypertext '99, Darmstadt, Germany, Feb. 1999, pp. 169-178 [ACM 1-58113-0664-3/99-2].*		
PCT Pub. Date: Mar. 21, 2002	(Continued)		
(65) Prior Publication Data	Primary Examiner—Jean B Fleurantin		
US 2004/0098365 A1 May 20, 2004	Assistant Examiner—Robert Stevens		
(51) Int. Cl.	(74) Attorney, Agent, or Firm—Sughrue Mion, PLLC		
G06F 17/00 (2006.01)	(57) ABSTRACT		
G06F 17/20 (2006.01)	The invention concerns a method for synchronizing data in a multimedia document (50), said document comprising at least two separate computer files (track1, track2) called the first file, the second file, etc., in which method: there is stored in the first file, in the second file, etc., respectively		
(52) U.S. Cl. 715/203; 715/201			
(58) Field of Classification Search 715/500.1, 715/203, 201			

If, at the moment it receives data, the slave microprocessor dedicated to track i, which is lagging behind, has not yet encountered the field SYNCH1 in track i, it continues to scan its file without executing the commands encountered, in order to reach the field SYNCH1 as quickly as possible. It then resumes execution of commands encountered after the field SYNCH1.

EX1004 (*Comps*) at 4:30-37

EX1001 at Claim 1; Pet. at 31-35; POR at 43-47; Reply at 11-14; EX1003 ¶¶ 85-90; EX1004 at 1:41-52, 1:65-2:2, 2:10-23, 2:48-51, 3:44-47, 4:29-50, 4:56-57, Fig. 3; EX2012 at 57:5-7, 76:19-22

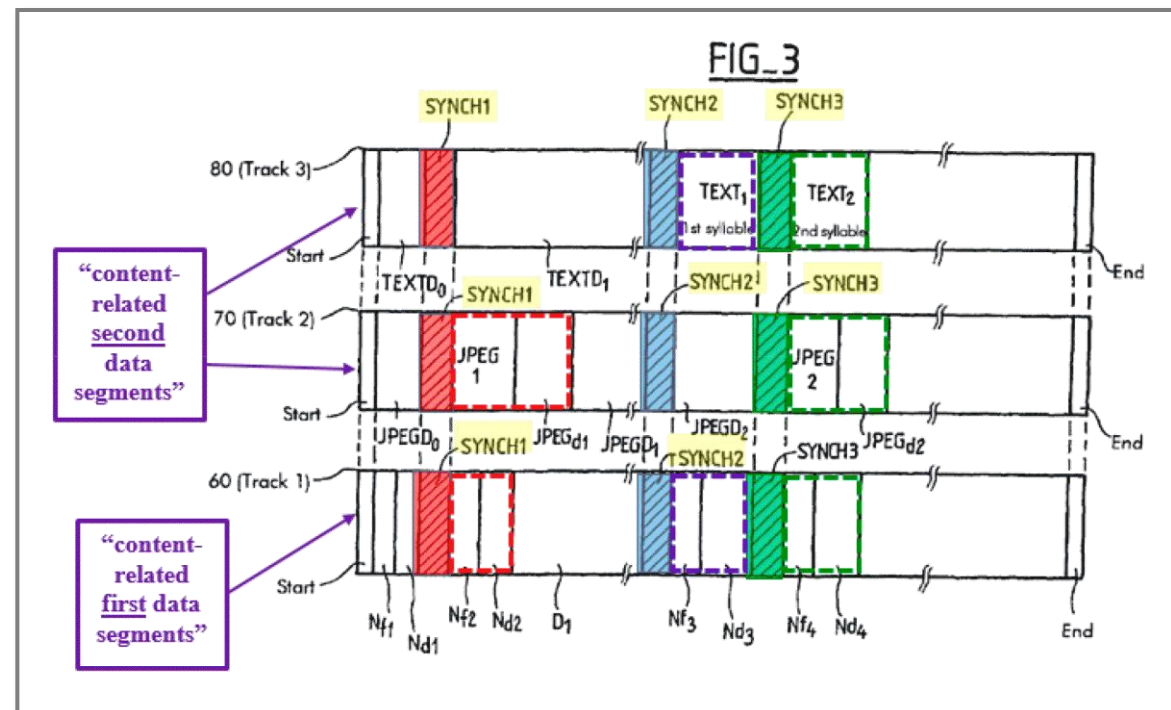
Patent Owner Disputes:

“assignment rule”

Important events are not skipped in *Comps*

Thus each important command, i.e. a command whose execution must not be interrupted, is represented by a given field preceded by a field representing a synchronization command. The synchronization command is at the same place in all the other tracks. Because of this, different tracks are resynchronized before any important command, if necessary.

EX1004 (*Comps*) at 4:44-50



Pet. at 34 (*Comps*, Fig. 3 (annotated))

3

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

3

Comps Teaches:

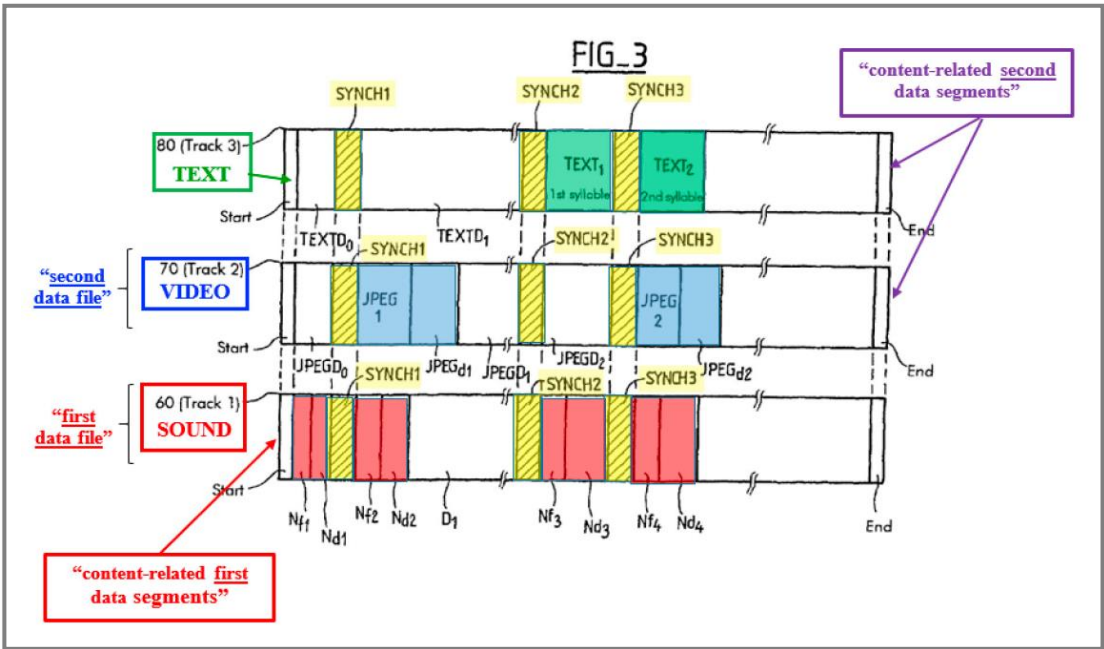
Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

'794 Patent, 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.

EX1001 ('794 Patent) at Claim 1

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90,
EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3;
EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

3

Comps Teaches:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

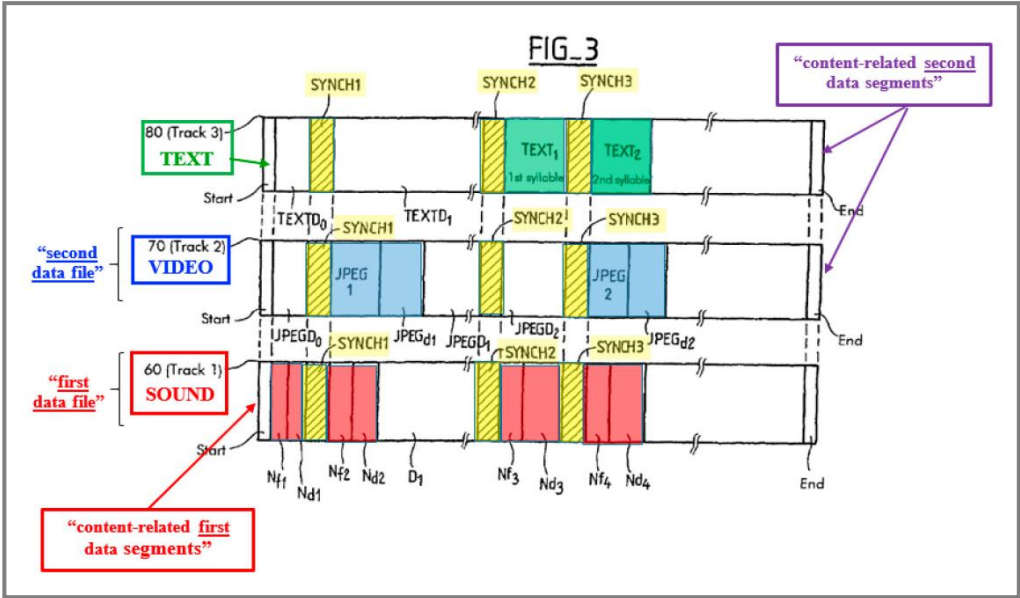
'794 Patent, Claim 1

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.

EX1001 ('794 Patent) at Claim 1

EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

Comps

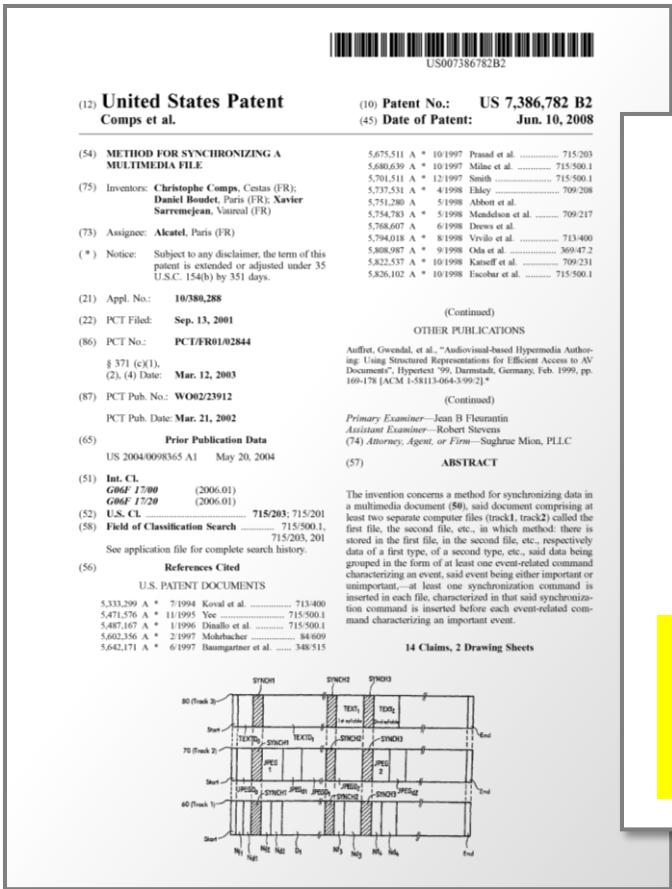


Pet. at 31 (Comps, Fig. 3 (annotated))

SYNCH1	Nf ₂ ;Nd ₂ JPEG ₁ :JPEGd ₁
SYNCH2	Nf ₃ ;Nd ₃ TEXT ₁
SYNCH3	Nf ₄ ;Nd ₄ JPEG ₂ :JPEGd ₂ TEXT ₂

Comps Teaches:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”



Comps

data of a first type, of a second type, etc. is stored in the first file, in the second file, etc., respectively, and grouped into the form of at least one event-related command characterizing an important event or an unimportant event, and

* * *

The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

EX1004 (Comps) at 2:10-14; 2:20-23

EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

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Comps Teaches:

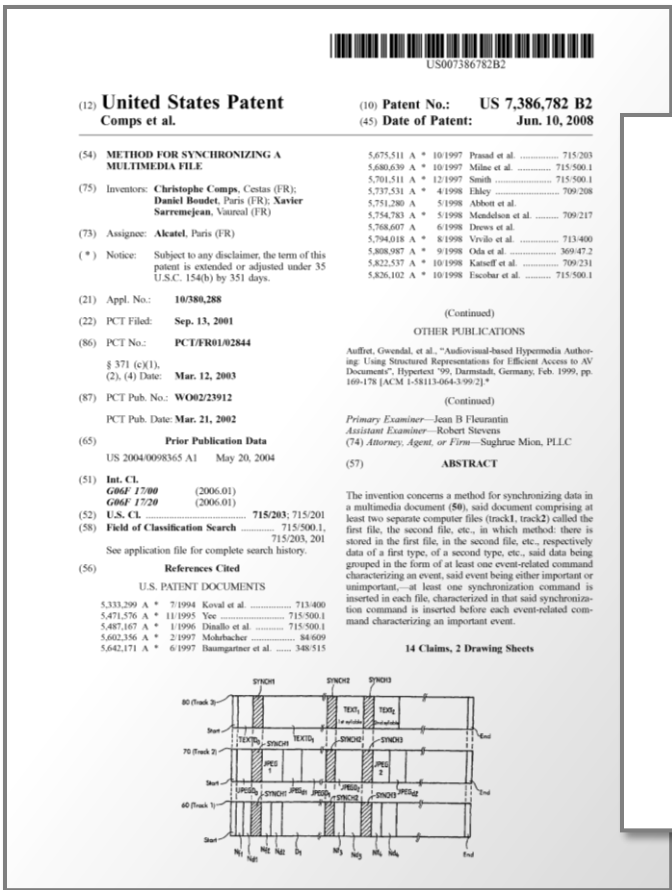
Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Comps

at least one synchronization command is inserted into each file, which method is characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

* * *

Thus each important command, i.e. a command whose execution must not be interrupted, is represented by a given field preceded by a field representing a synchronization command. The synchronization command is at the same



EX1004 (Comps) at 2:15-19; 4:44-47

EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

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Patent Owner Disputes:

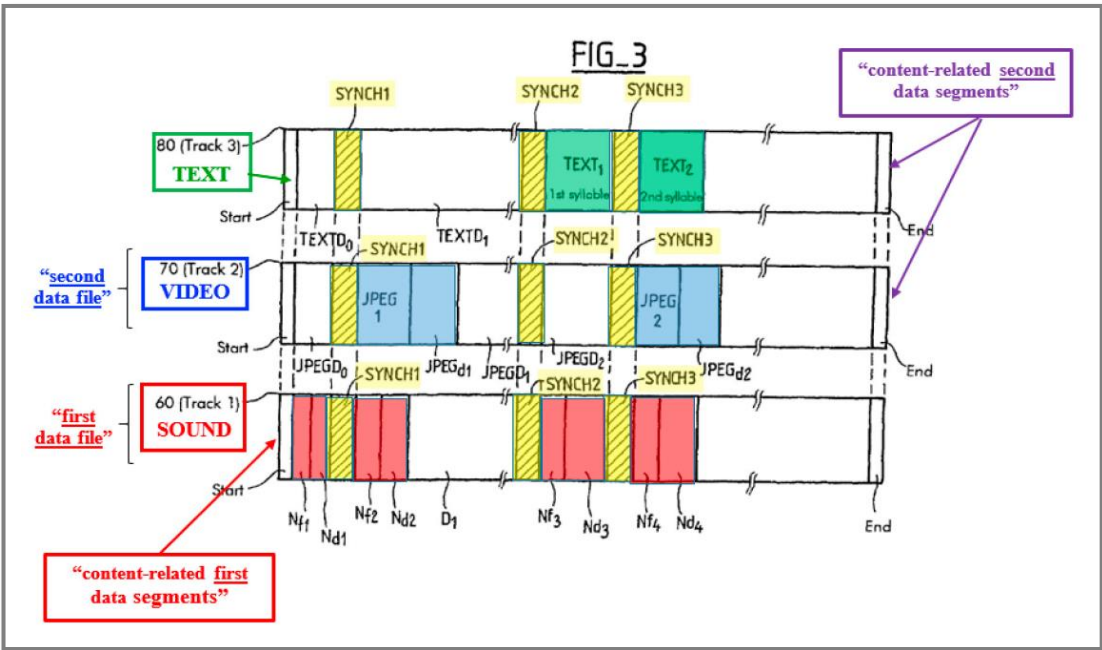
Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

Comps’ waiting times are “content-related...data segments”. Sur-reply at 19.

Comps’:

- Events are either “important” or “unimportant.”
EX1004 (*Comps*) at 2:10-14
- Synchronization commands are inserted before each “important event.”
EX1004 (*Comps*) at 2:17-19
- “important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.”
EX1004 (*Comps*) at 2:20-24



Pet. at 31 (*Comps*, Fig. 3 (annotated))

POR at 51-54; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; Sur-reply at 10-19; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

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Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

Comps’ waiting times are “content-related...data segments”. Sur-reply at 19.

Comps

coding values. The time values can represent a note duration, an image display time, a track start or end time, or a waiting time between two events. According to the invention, the

* * *

define a second note. The field D₁ represents a waiting time before presenting the subsequent notes of the track.

* * *

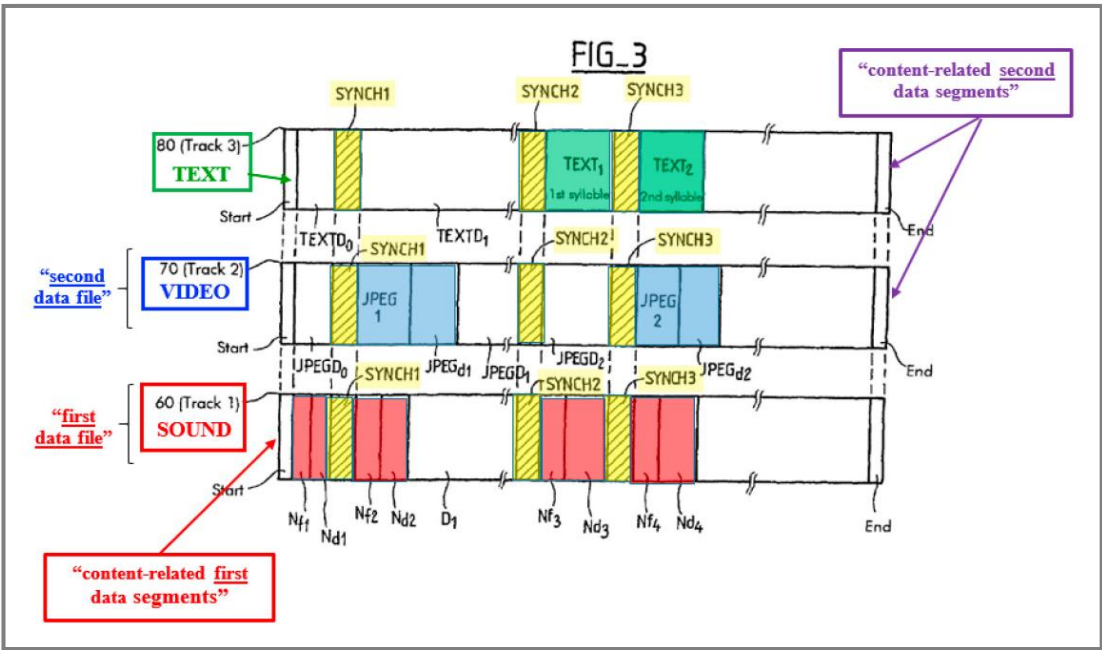
The fields JPEGD₀, JPEGD₁ and JPEGD₂ represent waiting times before or between images.

* * *

and TEXT₂ must be presented to the user. The fields TEXTD₀ and TEXTD₁ represent waiting times before a text.

EX1004 (Comps) at 2:45-50; 3:25-26; 3:36-37; 3:40-41

POR at 51-54; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; Sur-reply at 10-19; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17



Pet. at 31 (Comps, Fig. 3 (annotated))

3

Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

The “absence of sound (or an image) itself constitutes sound (or image) data.” POR at 54.

Comps

coding values. The time values can represent a note duration, an image display time, a track start or end time, or a waiting time between two events. According to the invention, the

* * *

define a second note. The field D_1 represents a waiting time before presenting the subsequent notes of the track.

* * *

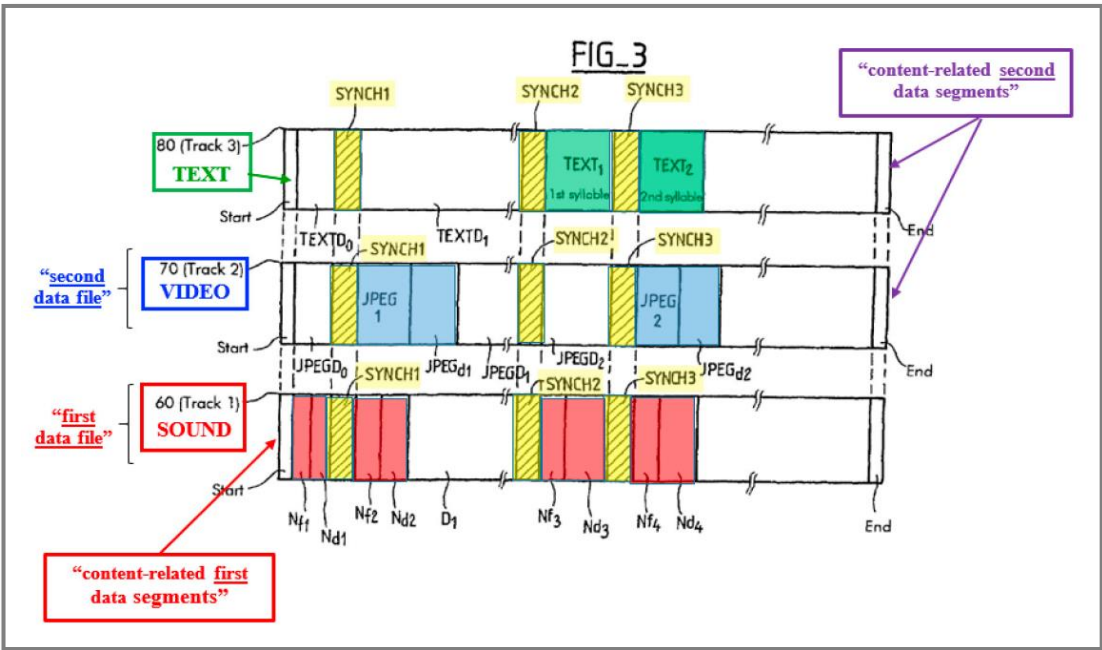
The fields $JPEGD_0$, $JPEGD_1$ and $JPEGD_2$ represent waiting times before or between images.

* * *

and $TEXT_2$ must be presented to the user. The fields $TEXTD_0$ and $TEXTD_1$ represent waiting times before a text.

EX1004 (Comps) at 2:45-50; 3:25-26; 3:36-37; 3:40-41

POR at 51-54; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17;
EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47,
Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17



Pet. at 31 (Comps, Fig. 3 (annotated))

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Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

“Petitioner Improperly Treats Multiple Events as a Single Data Segment.” Sur-Reply at 14.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,
Petitioner

v.

VL COLLECTIVE IP LLC,
Patent Owner

IPR2023-00891
U.S. Patent 8,605,794

PATENT OWNER’S SUR-REPLY

Comps consistently describes each event (or “field”), even when it is part of a note, as a separate unit of data. EX1004, 3:22-43 (“A first field Nf_1 represents the frequency . . . a second field Nd_1 represents its duration.”). Moreover, each event is shown as a *distinct* data segment and represents a computer command that is executed sequentially, even when two events comprise a note. EX1004, Fig. 3, 3:8-4:50.

Paper 44, Sur-Reply at 14-15

POR at 51-54; PO Sur-Reply at 14-15; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

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Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

“Petitioner Improperly Treats Multiple Events as a Single Data Segment.” Sur-Reply at 14.

Comps

The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

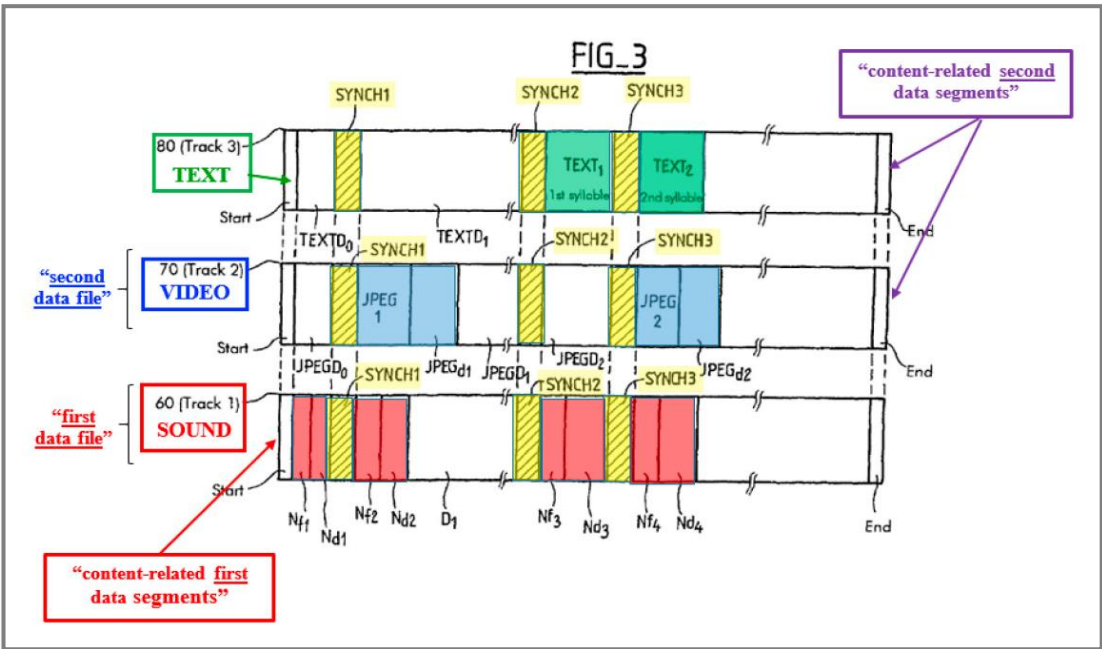
* * *

time between two events. According to the invention, the tracks of the multimedia file also include synchronization commands related to the various events included in the track (note, picture, text, etc.).

* * *

Track 1 contains data relating to sound. A first field Nf_1 represents the frequency of a first note and a second field Nd_1 represents its duration. Likewise, the fields Nh_2 and Nd_2 define a second note. The field D_1 represents a waiting time

EX1004 (Comps) at 2:20-23; 2:47-50; 3:22-25



Pet. at 31 (Comps, Fig. 3 (annotated))

POR at 51-54; PO Sur-Reply at 14-15; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

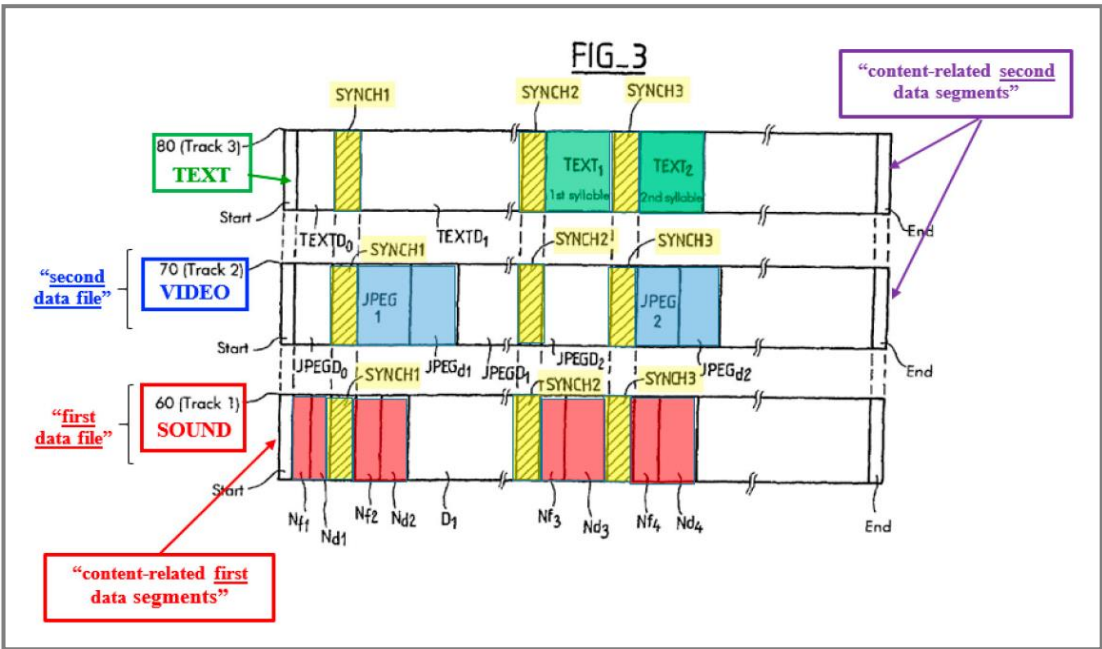
Patent Owner:

“Petitioner Improperly Treats Multiple Events as a Single Data Segment.” Sur-Reply at 14.

’794 Patent, 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.

EX1001 (’794 Patent) at Claim 1



Pet. at 31 (Comps, Fig. 3 (annotated))

POR at 51-54; PO Sur-Reply at 14-15; EX1001 at Claim 1; Pet. at 27-35; Reply at 14-17; EX1003 ¶¶ 85-90, EX1004 at 2:10-14, 2:17-24, 2:45-50, 3:22-41, 4:44-47, Fig. 3; EX1024 at 85:13-17; EX2012 at 37:10-21, 39:8-40:16, 43:2-17

3

Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

Comps “cautions against using SYNCH commands frequently. EX1004, Abstract, 1:41-2:34.” Sur-reply at 13-14.

Comps

The prior art solution is temporal synchronization.

In the FIG. 1 example, the microprocessor μp_1 , which reads the track 1 containing sound, sends synchronization data every 3 μs to the microprocessor μp_2 , which reads the track 2 containing text. The synchronization data can optionally be stored in the multimedia file.

EX1004 (*Comps*) at 1:41-46

synchronism with the microprocessor μp_1 . It is apparent that the better the synchronization required, the greater the quantity of synchronization data that has to be sent and the more frequently it has to be sent.

EX1004 (*Comps*) at 1:52-55

Storing recurrent synchronization data is costly in terms of memory: the flow of data exchanged is burdened with many exchanges of synchronization data, which overloads the memory.

The above solution also has a further and major disadvantage: the synchronization data can reach the microprocessor μp_2 while it is in the middle of displaying a phrase. The display of the phrase is then stopped short, and the user does not receive the impression of fluid presentation of data.

The object of the present invention is to reduce the size of multimedia files, to optimize the quantity of data exchanged, and to provide optimum synchronization.

EX1004 (*Comps*) at 1:61 – 2:5

3

Patent Owner Disputes:

Outputting “each” of the “content-related second data segments” together with a “content-related first data segment” based on an “assignment rule”

Patent Owner:

Comps “cautions against using SYNCH commands frequently. EX1004, Abstract, 1:41-2:34.” Sur-reply at 13.

UNITED STATES PATENT AND TRADEMARK OFFICE

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VL COLLECTIVE IP LLC,

Patent Owner

IPR2023-00891
U.S. Patent 8,605,794

PATENT OWNER’S SUR-REPLY

A. Claim Construction		
Term	PO Construction	Petitioner Construction ²
“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” (claim 1, and similar in claims 9 and 22)	every content-related second data segment is output together with an associated one of the content-related first data segments on the basis of an assignment rule (claim 1, and similar for claims 9 and 22)	every content-related second data segment is output together with an associated one of the content-related first data segments on the basis of an assignment rule. “data segment” can comprise one or more data segments (claim 1, and similar for claims 9 and 22)

4

**Outputting “content-related ... data segments”
“sequentially” and “chronologically”**

Comps Teaches:

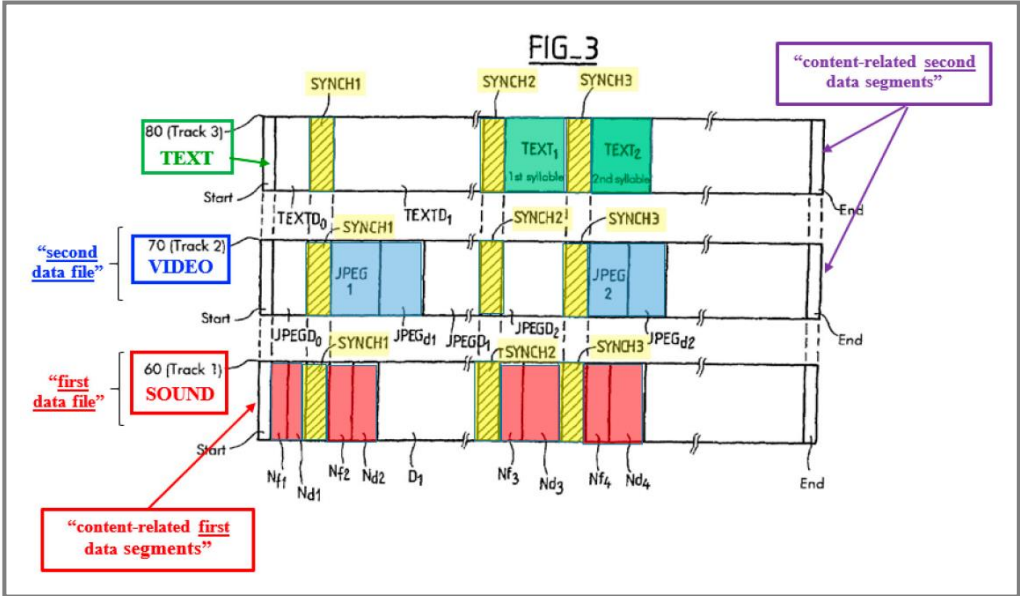
Outputting “content-related ... data segments” “sequentially” and “chronologically”

'794 Patent, 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.

EX1001 ('794 Patent) at Claim 1

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

SYNCH1	Nf ₂ ;Nd ₂ JPEG ₁ :JPEGd ₁
SYNCH2	Nf ₃ ;Nd ₃ TEXT ₁
SYNCH3	Nf ₄ ;Nd ₄ JPEG ₂ :JPEGd ₂ TEXT ₂

EX1001 at Claim 1; Pet. at 27-31; Reply at 17-20; EX1003 ¶¶ 79-84, EX1004 at 1:65-2:2, 2:15-24, 3:32-35, 3:38-40, 3:57-4:2, 4:30-37, 4:44-57, Fig. 3

Patent Owner Disputes:

Outputting “content-related ... data segments” “sequentially” and “chronologically”

Patent Owner:

The “*complete set of alleged data segments* in the alleged data files are not output ... sequentially and chronologically.” POR at 55.

'794 Patent, Claim 1

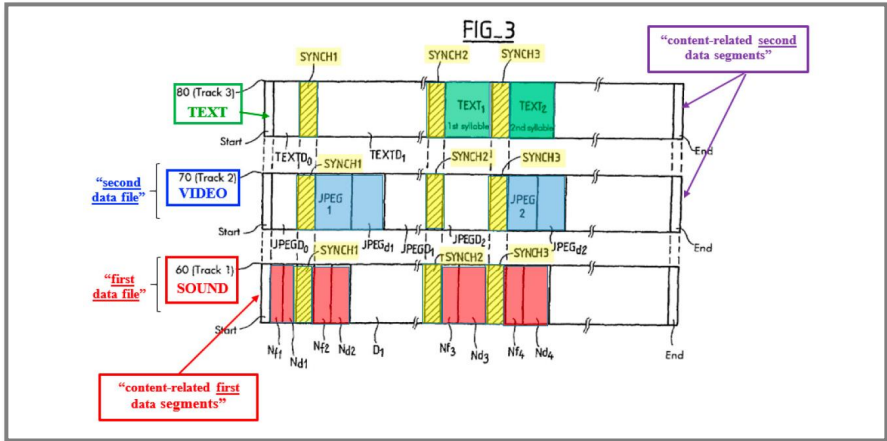
1. A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:

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.

EX1001 ('794 Patent) at Claim 1

POR at 55-57; EX1001 at Claim 1; Pet. at 27-31; Reply at 17-20; EX1003 ¶¶ 79-84, EX1004 at 1:65-2:2, 2:15-24, 3:32-35, 3:38-40, 3:57-4:2, 4:30-37, 4:44-57, Fig. 3

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

SYNCH1	Nf ₂ ;Nd ₂ JPEG ₁ :JPEGd ₁
SYNCH2	Nf ₃ ;Nd ₃ TEXT ₁
SYNCH3	Nf ₄ ;Nd ₄ JPEG ₂ :JPEGd ₂ TEXT ₂

Patent Owner Disputes:

Outputting “content-related ... data segments” “sequentially” and “chronologically”

Patent Owner:

“events in the slave tracks...may be skipped” resulting in events “that are not in chronological order.”
 POR at 56.

Comps

The method is advantageously characterized in that the important event corresponds to a command to display a text, a command to display a picture, or a command to reproduce a sound.

EX1004 (Comps) at 2:20-23

Thus each important command, i.e. a command whose execution must not be interrupted, is represented by a given field preceded by a field representing a synchronization command. The synchronization command is at the same place in all the other tracks. Because of this, different tracks are resynchronized before any important command, if necessary.

EX1004 (Comps) at 4:44-50

JPEG images. In this example, two JPEG images represented by the fields JPEG1 and JPEG2 must be presented to the user for a given time represented by the field JPEGd₁ for the image JPEG1 and the field JPEGd₂ for the image JPEG2.

EX1004 (Comps) at 3:32-35

Track 3 contains data corresponding to text messages. In this example two syllables represented by the fields TEXT1 and TEXT2 must be presented to the user. The fields

EX1004 (Comps) at 3:38-40

Patent Owner Disputes:

Outputting “content-related ... data segments” “sequentially” and “chronologically”

Patent Owner:

“events in the slave tracks...may be skipped” resulting in events “that are not in chronological order.”
 POR at 56.

Comps

If, at the moment it receives data, the slave microprocessor dedicated to track i, which is lagging behind, has not yet encountered the field SYNCH1 in track i, it continues to scan its file without executing the commands encountered, in order to reach the field SYNCH1 as quickly as possible. It then resumes execution of commands encountered after the field SYNCH 1.

EX1004 (Comps) at 4:30-37

The above solution also has a further and major disadvantage: the synchronization data can reach the microprocessor μp_2 while it is in the middle of displaying a phrase. The display of the phrase is then stopped short, and the user does not receive the impression of fluid presentation of data.

EX1004 (Comps) at 1:65 – 2:2

Thus the invention synchronizes data in a multimedia file without overloading the memory with unnecessary synchronization data, and thereby restricting transfers of synchronization data between the microprocessors, without overloading the tracks with large quantities of unnecessary synchronization data, and most importantly without the execution of an important command stopping in the middle.

EX1004 (Comps) at 4:51-57

Patent Owner Disputes:

Outputting “content-related ... data segments” “sequentially” and “chronologically”

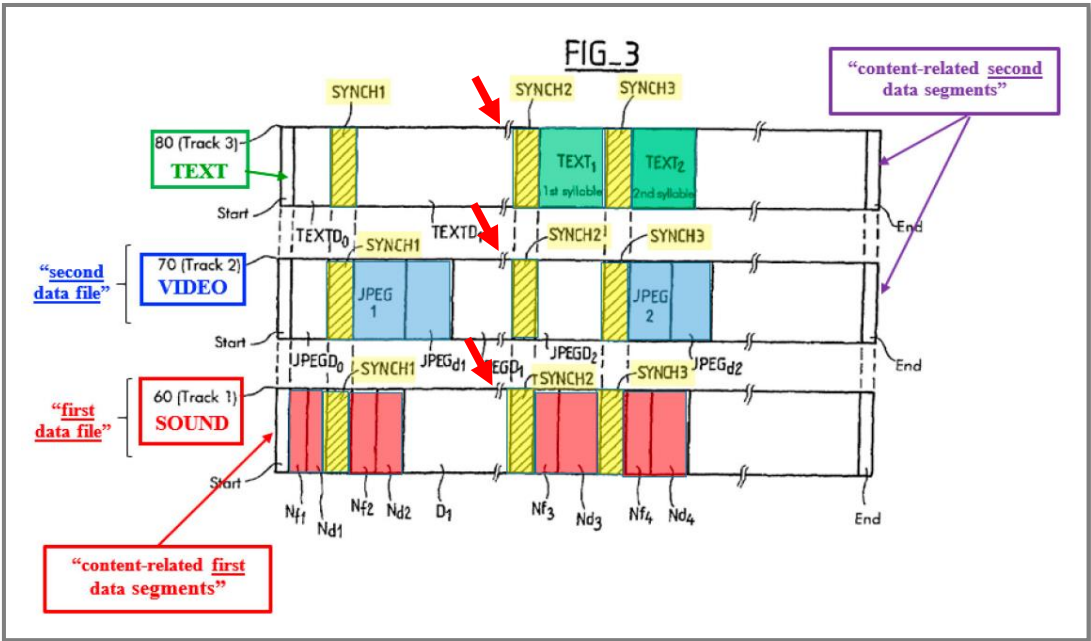
Patent Owner:

There are other multiple events indicated by the “squiggly line” before SYNCH2 in Figure 3. POR at 56.

Comps

at least one synchronization command is inserted into each file, which method is characterized in that said synchronization command is inserted before each event-related command characterizing an important event.

EX1004 (Comps) at 2:15-19



Pet. at 31 (Comps, Fig. 3 (annotated))

5

“assignment rule is not based on a timestamp”

Comps Teaches:

An “assignment rule not based on a timestamp”

'794 Patent, Claims 20-21

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.

EX1001 ('794 Patent) at Claims 20-21

Comps

The synchronization commands are not temporal commands, as in the prior art, but are instead dependent on a specific event. Thus the fields SYNCH_i are not present in the tracks at regular time intervals.

EX1004 (Comps) at 3:44-47

Patent Owner Disputes *Comps* Teaches an “assignment rule not based on a timestamp”

Patent Owner:

“SYNCH commands of *Comps* synchronize important events by forcing the slave tracks to follow the precise timing data (i.e., the “timestamps”) of the master track.” POR at 57.

Comps

The synchronization commands are not temporal commands, as in the prior art, but are instead dependent on a specific event. Thus the fields SYNCH_i are not present in the tracks at regular time intervals.

EX1004 (*Comps*) at 3:44-47



Bederson | Petitioner Expert

125. More specifically, *Comps* synchronization commands work by having a “master” track (such as the audio in Track 1) whose microprocessor sends a synchronization command to the microprocessors that control the other “slave” tracks. (“Synchronizing the three tracks must not entail interrupting the music heard by the user. The microprocessor dedicated to reading this track is considered to be the master.”) *Id.* 3:49-52; *see also id.*, 4:22-28. *Comps* uses synchronization commands in this manner, as described, to avoid the use of timestamps.

EX1003 (Bederson Declaration) at ¶ 125



6

***Comps and Wan* render claim 22 obvious**

6 Comps and Wan Render Claim 22 Obvious

'794 Patent, Claim 22

22. 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:

determining an order for the content-related first data segments to be read out from the first data file and an order for the content-related second data segments to be read out from the second data file, the content-related first data segments being ordered according to corresponding first content-related markers and the content-related second data segments being ordered according to corresponding second content-related markers;

assigning, according to an assignment rule, each of the ordered content-related second data segments that are read out from the second data file with a corresponding one of the ordered content-related first data segments that are read out from the first data file; and

sequentially outputting, by a device for synchronizing content-related data, in a chronological sequence, each of the assigned content-related first data segments and the assigned content-related second data segments.

EX1001 ('794 Patent) at Claim 22

Wan

[0053] In FIG. 4C, a multimedia stream 40 is shown which includes an audio stream 41 and a video stream 42. Also included is a high-level scene description stream 46 comprising (compound or primitive) nodes of media objects and having leaf nodes (which are primitive media objects) that point to object descriptors OD_n that make up an object descriptor stream 47. A number of low level description

* * *

running of the movie. This is to be contrasted with arbitrary descriptions which have no definable temporal relationship with the streamed content. An example of such may be a

EX1005 (Wan) at [0053], [0054]

6 Comps and Wan Render Claim 22 Obvious

'794 Patent, Claim 22

22. 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:

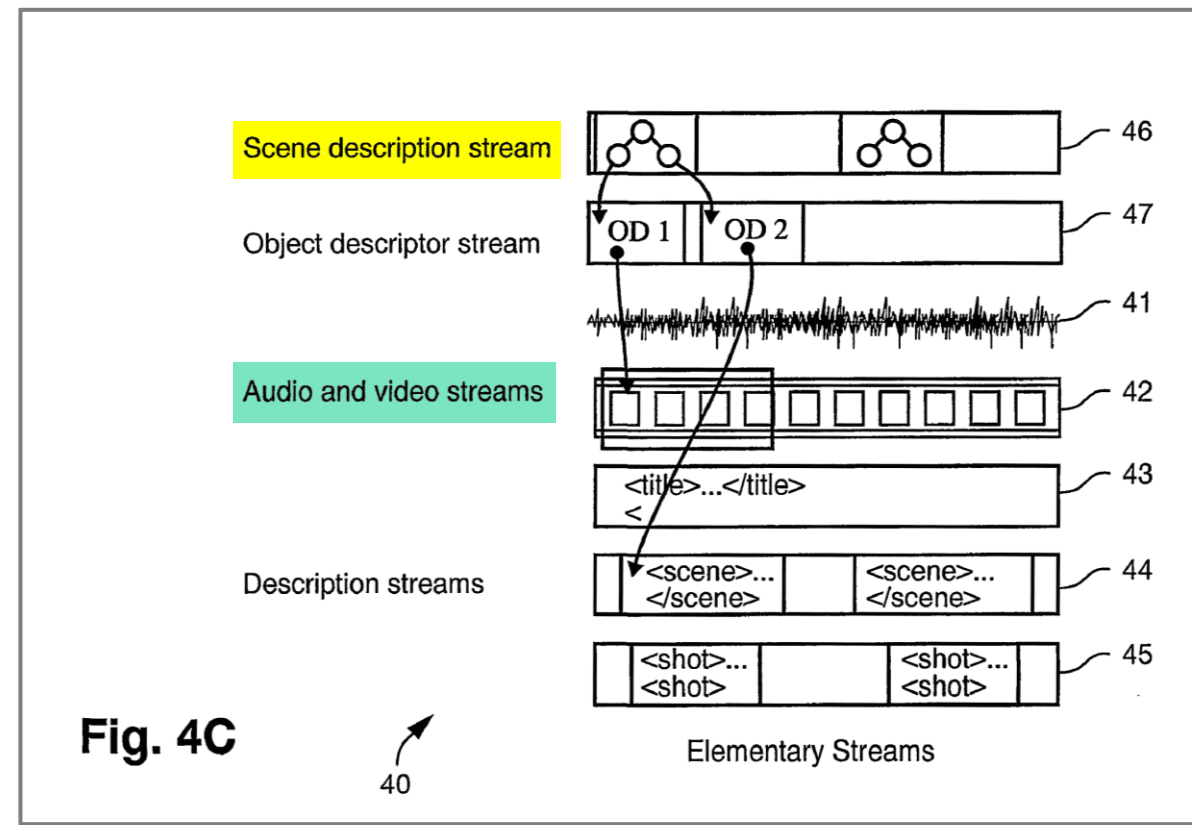
determining an order for the content-related first data segments to be read out from the first data file and an order for the content-related second data segments to be read out from the second data file, the content-related first data segments being ordered according to corresponding first content-related markers and the content-related second data segments being ordered according to corresponding second content-related markers;

assigning, according to an assignment rule, each of the ordered content-related second data segments that are read out from the second data file with a corresponding one of the ordered content-related first data segments that are read out from the first data file; and

sequentially outputting, by a device for synchronizing content-related data, in a chronological sequence, each of the assigned content-related first data segments and the assigned content-related second data segments.

EX1001 ('794 Patent) at Claim 22

Wan



EX1005 (Wan) at Fig. 4C

6 Comps and Wan Render Claim 22 Obvious

'794 Patent, Claim 22

22. 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:

determining an order for the content-related first data segments to be read out from the first data file and an order for the content-related second data segments to be read out from the second data file, the content-related first data segments being ordered according to corresponding first content-related markers and the content-related second data segments being ordered according to corresponding second content-related markers;

assigning, according to an assignment rule, each of the ordered content-related second data segments that are read out from the second data file with a corresponding one of the ordered content-related first data segments that are read out from the first data file; and

sequentially outputting, by a device for synchronizing content-related data, in a chronological sequence, each of the assigned content-related first data segments and the assigned content-related second data segments.

EX1001 ('794 Patent) at Claim 22



Bederson | Petitioner Expert

142. *Comps* describes that each track 60, 70, 80 contains corresponding data segments, *e.g.*, sound segments played after the Start field in the order $Nf_1:Nd_1$, $Nf_2:Nd_2$, $Nf_3:Nd_3$, $Nf_4:Nd_4$ for the sound track 60, picture segments are displayed after the Start field in the order $JPEG_1:JPEG_{d1}$, $JPEG_2:JPEG_{d2}$ for the picture track 70, and text segments are displayed after the Start field in the order of $TEXT_1$, $TEXT_2$ for the text track 80. *Id.*, 3:22-41. The sound fields $Nf_1:Nd_1$, $Nf_2:Nd_2$, $Nf_3:Nd_3$, $Nf_4:Nd_4$ are “first content-related markers” and the picture fields $JPEG_1:JPEG_{d1}$, $JPEG_2:JPEG_{d2}$, and text fields $TEXT_1$, $TEXT_2$ are “second content-related markers.” *Id.*, 3:22-37. *Comps* in view of *Wan*, therefore, discloses this element.

EX1003 (Bederson Declaration) at ¶ 142

6 Patent Owner Disputes *Comps* and *Wan* Render Claim 22 Obvious

Patent Owner:

The *Comps* and *Wan* combination is based on impermissible hindsight. *Wan*'s scene description stream "does not order any data segments and is not a content-related marker." POR at 60.

'794 Patent, Claim 22

22. 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:

determining an order for the content-related first data segments to be read out from the first data file and an order for the content-related second data segments to be read out from the second data file, the content-related first data segments being ordered according to corresponding first content-related markers and the content-related second data segments being ordered according to corresponding second content-related markers;

assigning, according to an assignment rule, each of the ordered content-related second data segments that are read out from the second data file with a corresponding

EX1001 ('794 Patent) at Claim 22



Bederson | Petitioner Expert

148. First, a POSITA would have looked to *Wan* because it is analogous art to *Comps*. *Comps*, 2:6-9 (the invention provides a method of synchronizing multimedia data including "at least two separate data files (track1, track2) referred to as the first file, the second file, etc."); *Wan*, [0043-0045] (disclosing that descriptions 33 are synchronized with associated audio files 31 and video files 32 using an internal time graph constructed by an encoder 34). It is my opinion that both *Comps* and *Wan* are directed to a method of synchronizing multimedia data. See, e.g., *Comps*, Title, Abstract, 1:4-5, 2:6-19; *Wan*, [0045, 0052, 0063, 0068], Claim 13.

EX1003 (Bederson Declaration) at ¶ 148

6 Patent Owner Disputes *Comps* and *Wan* Render Claim 22 Obvious

Patent Owner:

The *Comps* and *Wan* combination is based on impermissible hindsight. *Wan*'s scene description stream "does not order any data segments and is not a content-related marker." POR at 60.

'794 Patent, Claim 22

22. 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:

determining an order for the content-related first data segments to be read out from the first data file and an order for the content-related second data segments to be read out from the second data file, the content-related first data segments being ordered according to corresponding first content-related markers and the content-related second data segments being ordered according to corresponding second content-related markers;

assigning, according to an assignment rule, each of the ordered content-related second data segments that are read out from the second data file with a corresponding

EX1001 ('794 Patent) at Claim 22



Bederson | Petitioner Expert

149. Second, *Comps* itself provides motivation to look to *Wan*. *Comps* recognizes the issue of resource constraints for processing multimedia files, specifically disclosing "the size of multimedia files and the computation power needed to process them constitute a problem." *Comps*, 1:5-10, 1:56-58 ("The available memory is limited for reasons of overall size and battery life [of mobile terminals]."). As a solution to this issue, *Wan* discloses, for example, that "[t]he description does not have to be repeated as frequently as the AV content because the description changes much less frequently and, at the same time, consumes significantly fewer computing resources at the decoder end." *Wan*, [0073]. *Wan*

EX1003 (Bederson Declaration) at ¶ 149



7

Dependent claims 2, 3, 7 and 8, 18 and 19

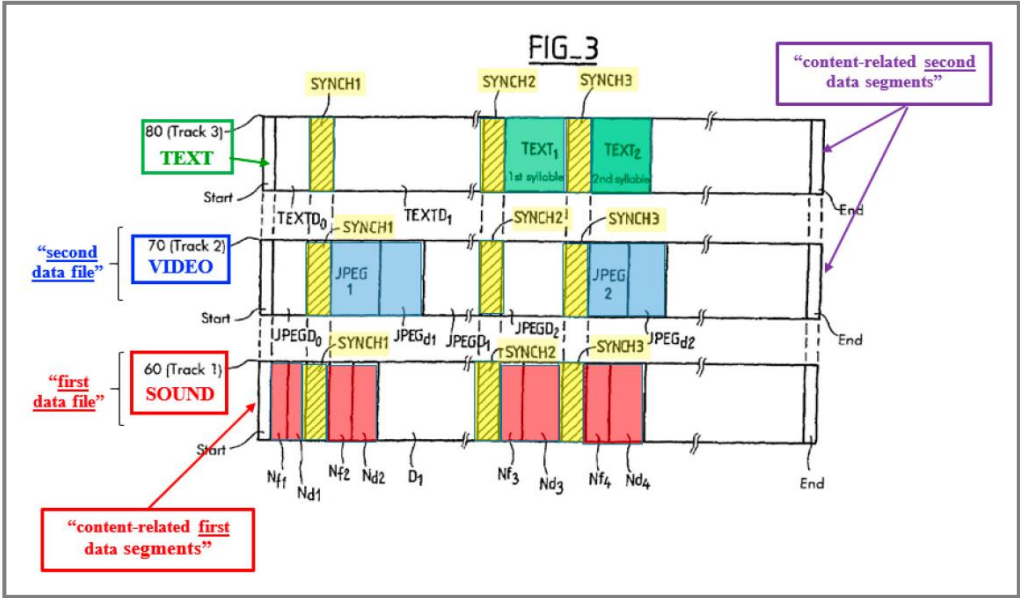
'794 Patent, Claim 2

2. The method as claimed in claim 1, wherein the assignment rule is formed in such a way that each of the content-related second data segments are assigned to precisely one of the content-related first data segments and a further assignment is carried out after a number of sequentially succeeding content-related first data segments.

EX1001 ('794 Patent) at Claim 2

EX1001 at Claim 2; Pet. at 28, 31, 35-37; Reply at 24; EX1003 ¶¶ 91-92; EX1004 at 4:44-47, Fig. 3.

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

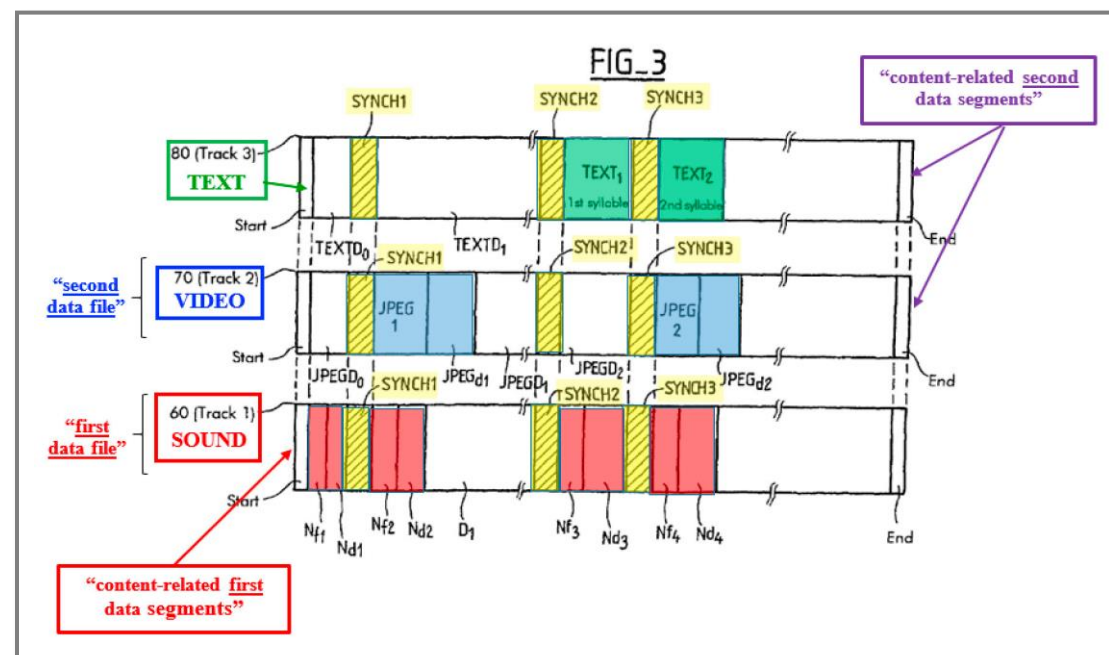
SYNCH1	Nf ₂ ;Nd ₂ JPEG ₁ :JPEGd ₁
SYNCH2	Nf ₃ ;Nd ₃ TEXT ₁
SYNCH3	Nf ₄ ;Nd ₄ JPEG ₂ :JPEGd ₂ TEXT ₂

'794 Patent, Claim 3

3. 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.

EX1001 ('794 Patent) at Claim 3

Comps



Pet. at 31 (Comps, Fig. 3 (annotated))

7 *Comps and Wan* Render Claim 7 Obvious

'794 Patent

7. The method as claimed in claim 1, further comprising: determining, based upon a content-related marker, which content-related first data segments and content-related second data segments are to be output first in time.

EX1001 ('794 Patent) at Claim 7

within the associated data file D1, D2. In the example according to FIG. 4, a first and a second marker M1, M2 are inserted, the first marker M1 being identified by means of a text "Start_1" and the second marker by way of a text "Start_2". In

EX1001 ('794 Patent) at 6:60-63

7 Patent Owner Disputes *Comps* Teaches Claim 7

Patent Owner:

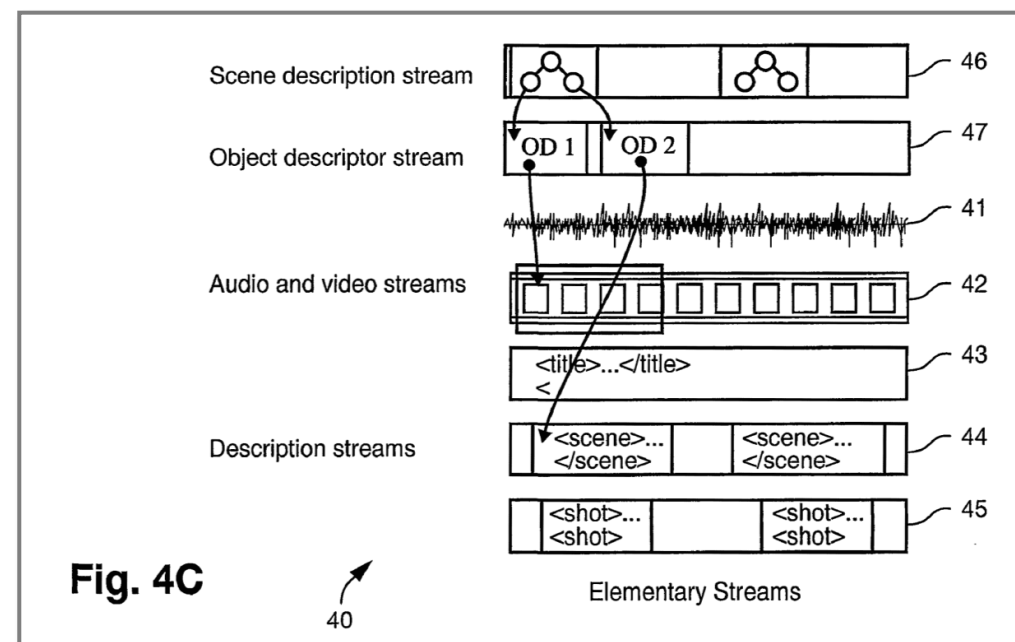
“There is no need to determine which event is to be output first in *Comps* as it will always be the one at the beginning of the track.” POR at 63.

Wan

poral relationship with the content. An example of this is a description of a particular scene in a movie, that provides for multiple camera angles to be viewed, thus permitting viewer access to multiple video streams for which only one video stream may, practically speaking, be viewed in the real-time running of the movie. This is to be contrasted with arbitrary descriptions which have no definable temporal relationship with the streamed content. An example of such may be a

EX1005 (Wan) at [0054]

Wan



EX1005 (Wan) at Fig. 4C

7 Comps and Wan Render Claim 8 Obvious

Patent Owner:

“*Wan* is completely silent whether updates to scene graphs can be used for determining which of the alleged content-related data segments are to be output first in time.” POR at 63-64.

'794 Patent, Claim 8

8. The method as claimed in claim 7, wherein at least one of a scene change in an image sequence and a change of speaker in a speech sequence is identified by way of at least one of the first content-related markers and the second content-related markers.

EX1001 ('794 Patent) at Claim 8

POR at 63-64; EX1001 at Claim 8; Pet. at 51-56; Reply at 25-26; EX1003 ¶¶ 133-137, 141; EX1004 at 3:31-37; EX1005 at [0003]-[0004], [0038]-[0039], [0047], [0053]-[0054], Fig. 4C

Wan

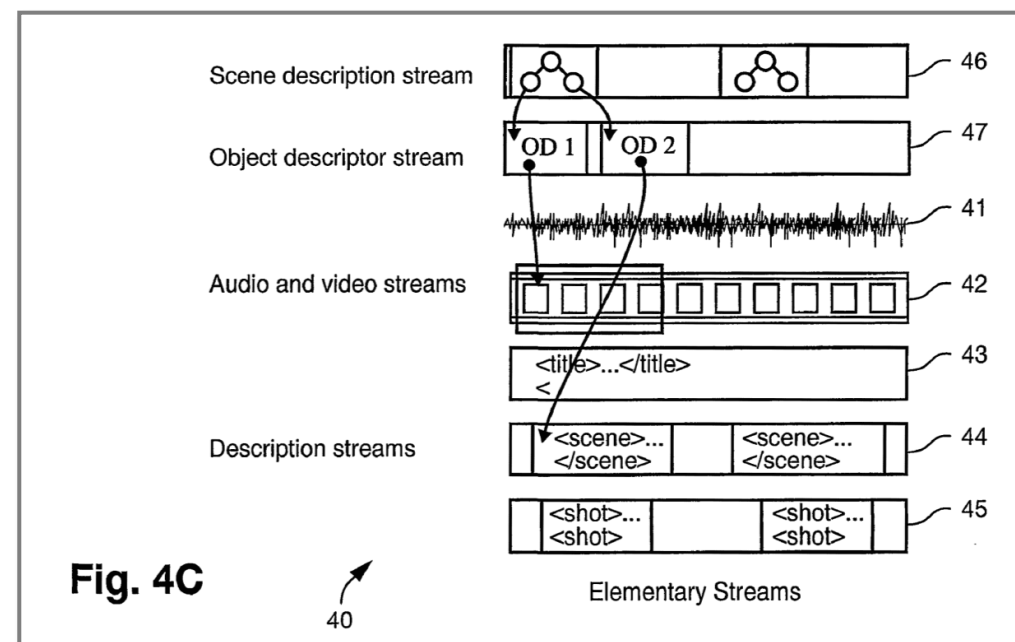


Fig. 4C

EX1005 (*Wan*) at Fig. 4C

7 Comps and Wan Render Claim 8 Obvious

Patent Owner:

“*Wan* is completely silent whether updates to scene graphs can be used for determining which of the alleged content-related data segments are to be output first in time.” POR at 63-64.

'794 Patent, Claim 8

8. The method as claimed in claim 7, wherein at least one of a scene change in an image sequence and a change of speaker in a speech sequence is identified by way of at least one of the first content-related markers and the second content-related markers.

EX1001 ('794 Patent) at Claim 8



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to object descriptors OD_n that make up an object descriptor stream 47.”). *Wan* also describes that those markers as part of the scene description stream define a temporal relationship among the streamed content. *Id.*, [0054] (“This is to be contrasted with arbitrary descriptions which have no definable temporal relationship with the stream content.”).

EX1003 (Bederson Declaration) at ¶ 141

7 Comps and Kim Render Claims 18 and 19 Obvious

'794 Patent, Claims 18 and 19

18. The method of claim 1, wherein the assignment rule is maintained in a file separate from the first data file and the second data file.

19. The device of claim 9, wherein the assignment rule is maintained in a file separate from the first data file and the second data file.

EX1001 ('794 Patent) at Claims 18 and 19

Patent Owner:

Petitioner does not map assignment rule to a "SYNCH ID." POR at 64.

Comps discloses this limitation. *Bederson* ¶¶85-90. As discussed above in section VII.A.1.b, "each of the content-related second data segments is output together with an associated one of the content-related first data segments." Specifically, microprocessors sequentially execute synchronization commands (i.e., SYNCH1, SYNCH2, SYNCH3) to "output together" the picture segments and/or text segments stored in tracks 70 and 80 (the "content-related second data segments") with the "associated" sound segments in track 60 (the "content-related first data segments").

Pet. at 32

7 Comps and Kim Render Claims 18 and 19 Obvious

Patent Owner:

“Storing a SYNCH command in a separate file would break *Comps*.” POR at 64.



Bederson | Petitioner Expert

song and additional data.” *Kim*, [0030] (emphasis added). The segmentized lyric or user data may be recorded “in a file separated from the management information file storing management information for controlling reproduction of all of recorded audio data.” *Id.*, Claim 7 (emphasis added); see also Claim 6; [0032, 0034, 0040-0045].

165. A POSITA would look to *Kim* and learn that any kind of information regarding management of information files could be stored in a file that was separate from the information files. This would include the SYNCH commands of *Comps*,

where is information regarding management of content information. Thus, the combination of *Comps* and *Kim* would store the SYNC ids of *Comps* in a file separate from its content files, thus rendering claim 18 obvious.

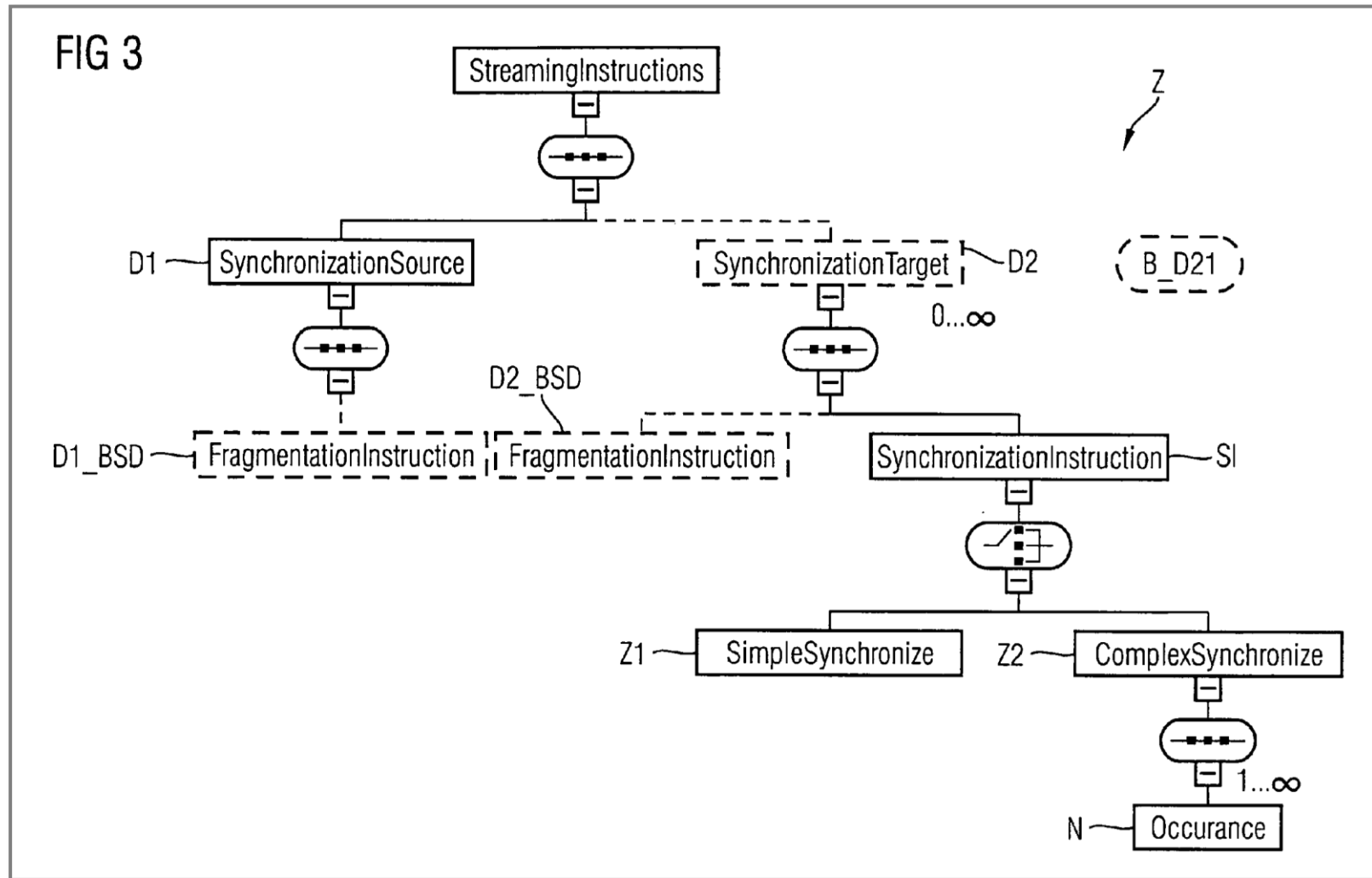
166. It is my opinion that this combination would have a reasonable expectation of success since deciding how to structure data in a computer system, such as storing data in the same file or separate files was a well-known technique and one of just two possibilities.

'794 Patent, Figure 2

D1_BSD
↙

```
<?xml version="1.0" encoding="UTF-8"?>
<dia:DIA xmlns="urn:mpeg:mpeg21:2003:01-DIA-gBSD-NS"
  xmlns:dia="urn:mpeg:mpeg21:2003:01-DIA-NS"
  xmlns:gbsd="urn:mpeg:mpeg21:2003:01-DIA-gBSD-NS"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="urn:mpeg:mpeg21:2003:01-DIA-gBSD-NS gBSSchema.xsd">
  <dia:Description xsi:type="gBSDType">
    <Header>
      <ClassificationAlias alias="MV4" href="urn:mpeg:mpeg4:video:cs:
syntacticalLabels"/>
      <DefaultValues addressUnit="byte" addressMode="Absolute" globalAddressInfo=
"Content/starwars.cmp"/>
    </Header>
    <gBSDUnit syntacticalLabel=":MV4:VO" start="0" length="4"/>
    <gBSDUnit syntacticalLabel=":MV4:VOL" start="4" length="22"/>
    <gBSDUnit start="26" length="99983" marker="Start-1">M1, M
      <gBSDUnit syntacticalLabel=":MV4:I_VOP" start="26" length="2877"/>X1
      <gBSDUnit syntacticalLabel=":MV4:P_VOP" start="2903" length="64"/>
      <gBSDUnit syntacticalLabel=":MV4:B_VOP" start="2967" length="17"/>
      <gBSDUnit syntacticalLabel=":MV4:B_VOP" start="2984" length="16"/>
      <!--... and so on ...-->
      <gBSDUnit syntacticalLabel=":MV4:P_VOP" start="98296" length="1713"/>
    </gBSDUnit>
    <gBSDUnit start="100009" length="68022" marker="Start-2">M2
      <gBSDUnit syntacticalLabel=":MV4:I_VOP" start="100009" length="1825"/>X2
      <gBSDUnit syntacticalLabel=":MV4:P_VOP" start="101834" length="1780"/>
      <!--... and so on ...-->
      <gBSDUnit syntacticalLabel=":MV4:I_VOP" start="166802" length="1229"/>
    </gBSDUnit>
    <!--... and so on ...-->
  </dia:Description>
</dia:DIA>
```

'794 Patent, Figure 3



'794 Patent, Figure 4

Z, Z_K

```

<StreamingInstructions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="streaming_instructions.xsd">
  <SynchronizationSource type="urn:mpeg4:audio" uri="bsac_22khz_101.raw">
    <FragmentationInstruction type="gbsd:gBSDType"
uri="gBSD_Instructionrack.xml"/>
  </SynchronizationSource>
  <SynchronizationTarget type="text/xml" uri="bsac_22khz_101.xml">
    <FragmentationInstruction type="http://www.w3.org/1999/XSL/Transform"
uri="fragment_gBSD.xslt"/>
    <SynchronizationInstruction>
      <!-- One Target AU maps to each 16th Source AU -->
      Z1 <SimpleSynchronize frequency="16"/>
      </SynchronizationInstruction>
    </SynchronizationTarget>
    <SynchronizationTarget type="text/xml" uri="bsac_aqos_22khz_101.xml">
      <FragmentationInstruction type="http://www.w3.org/1999/XSL/Transform"
uri="fragment_aqos.xslt"/>
      <SynchronizationInstruction>
        Z2 <ComplexSynchronize>
          <!-- The first two synchronization target fragments map to the first
synchronization source fragment -->
          <Occurance value="0"/> N
          <Occurance value="0"/> N
          <!-- The following four synchronization target fragments map to the
second synchronization source fragment -->
          <Occurance value="1"/> N
          <Occurance value="1"/>
          <Occurance value="1"/>
          <Occurance value="1"/> N
        </ComplexSynchronize>
      </SynchronizationInstruction>
    </SynchronizationTarget>
  </StreamingInstructions>
  
```

B_D1

B_D21

B_D22

A

'794 Patent, Figure 5

