

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 17-374-US-CON8)**

Applicant: Gracenote, Inc.)	
	)	Examiner: TBD
Pat. App. No.: TBD)	
	)	Group Art Unit: TBD
Filed: January 31, 2019)	
	)	Confirmation No.: TBD
Title: Method and Device for Generating And)	
Detecting A Fingerprint Functioning As)	
A Trigger Marker In A Multimedia Signal)	

Mail Stop – Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

PRELIMINARY AMENDMENT

In connection with this application, Applicant submits the following amendments and remarks. Amendments to the specification begin on page 2 and remarks begin on page 3.

Applicant believes that no fee is required at this time. However, Applicant authorizes the office to charge any underpayment or credit any overpayment to Deposit Account No. 13-2490 and to treat any filing in this matter that requires an extension of time as incorporating a request for the extension.

Amendments to the Specification

Please amend the paragraph beginning at page 1, line 5 as follows:

This application is a Continuation of U.S. Patent Application No. 16/018,022, filed June 25, 2018, which is a Continuation of U.S. Patent Application No. 15/622,024, filed June 13, 2017 and issued on August 7, 2018 as U.S. Pat. No. 10,045,054, which is a Continuation of U.S. Patent Application No. 15/273,185, filed September 22, 2016 and issued on July 18, 2017 as U.S. Pat. No. 9,712,853, which is a Continuation of U.S. Patent Application Serial No. 15/164,605, filed May 25, 2016 and issued on October 25, 2016 as U.S. Patent No. 9,479,831, which is a Continuation of U.S. Patent Application Serial No. 14/659,044, filed March 16, 2015 and issued on August 2, 2016 as U.S. Patent No. 9,407,962, which is a Continuation of U.S. Patent Application Serial No. 14/151,879, filed January 10, 2014 and issued on June 23, 2015 as U.S. Patent No. 9,066,114, which is a Continuation of U.S. Patent Application Serial No. 13/220,267, filed August 29, 2011 and issued on February 25, 2014 as U.S. Patent No. 8,660,267, which is a Continuation of U.S. Patent Application Serial No. 10/564,297, filed January 10, 2006 and issued on September 13, 2011 as U.S. Patent No. 8,020,000, which is a U.S. National Stage Filing from International Patent Application Serial No. PCT/IB2004/051128, filed July 5, 2004, and published on January 20, 2005 as WO 2005/006758, which claims priority to EP Application No. 03102116.5, filed July 11, 2003, which applications are incorporated by reference herein in their entirety.

Remarks

Please enter the above amendments before examination on the merits.

Should the Examiner wish to discuss this matter with the undersigned, the Examiner is invited to call the undersigned at (312) 913-2125.

Respectfully submitted,

**MCDONNELL BOEHNEN
HULBERT & BERGHOFF LLP**

Date: January 31, 2019

By: /Jason S. Kray/
Jason S. Kray
Reg. No. 66,926

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Jason S. Kray			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
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UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
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IPR2020-00216

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1720

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Application Number:	16264134
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

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37 CFR 1.19 (Document supply fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		17-374-US- CON8_Spec_Cls_Abstract.pdf	2002779	yes	14
			18f814c4b003d673bff4e6863da58c41501a7d5b		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	12	
	Claims		13	13	
	Abstract		14	14	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	17-374-US-CON8_Drawings.pdf	50668	no	3
			5a4b6a7fae5fa3fac7af8fd40a328c40ad0de65a		
Warnings:					
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3	Application Data Sheet	17-374-US-CON8_ADS.pdf	1824301	no	10
			ed113cd73b9b7972b8636bbe8034b0dfd4088571		
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4	Oath or Declaration filed	17-374-US-CON8_Declaration.pdf	410260	no	4
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5	Authorization for Extension of Time all replies	17-374-US- CON8_General_Authorization.pdf	91931	no	1
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6	Information Disclosure Statement (IDS) Form (SB08)	17-374-US-CON8_IDS.pdf	615013	no	12
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7	Power of Attorney	17-374-US-CON8_POA.pdf	260953	no	2
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8		17-374-US-CON8_Preliminary_Amendment.pdf	79795	yes	3
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	Document Description		Start	End	
	Preliminary Amendment		1	1	
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	Applicant Arguments/Remarks Made in an Amendment		3	3	
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9	Fee Worksheet (SB06)	fee-info.pdf	35231	no	2
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

METHOD AND DEVICE FOR GENERATING AND DETECTING A
FINGERPRINT FUNCTIONING AS A TRIGGER MARKER IN A
MULTIMEDIA SIGNAL

5 This application is a Continuation of U.S. Patent Application Serial No.
15/164,605, filed May 25, 2016, which is a continuation of U.S. Patent Application
Serial No. 14/659,044, filed March 16, 2015, which is a Continuation of U.S. Patent
Application Serial No. 14/151,879, filed January 10, 2014 and issued on June 23,
2015 as U.S. Patent No. 9,066,114, which is a Continuation of U.S. Patent
10 Application Serial No. 13/220,267, filed August 29, 2011 and issued on February 25,
2014 as U.S. Patent No. 8,660,267, which is a Continuation of U.S. Patent
Application Serial No. 10/564,297, filed January 10, 2006 and issued on September
13, 2011 as U.S. Patent No. 8,020,000, which is a U.S. National Stage Filing from
International Patent Application Serial No. PCT/IB2004/051128, filed July 5, 2004,
15 and published on January 20, 2005 as WO 2005/006758, which claims priority to
EP Application No. 03102116.5, filed July 11, 2003, which applications are
incorporated by reference herein in their entirety.

 The invention relates to a method, and a corresponding device, of detecting
trigger instants/information in a multimedia signal. The invention also relates to a
20 method, and a corresponding device, of associating trigger information with a
multimedia signal. Further, the invention relates to a computer readable medium
having stored thereon instructions for causing one or more processing units to
execute the method according to the invention.

 A current trend is to enhance passive television viewing and/or music
25 listening on a given playback device by creating more interactive programs and/or
listening experiences or by "connecting" external actions to a piece of video and/or
audio content. As one simple example, a commercial can be enhanced by
embedding a URL to a web site with further information, where the URL can be
extracted and retrieved by the playback device. In order to facilitate such a function
30 it is necessary to enable a reliable detection of time points in a television program, a
movie, a music piece, etc. where such additional information is relevant.

Examples of situations where such additional information is useful or interesting in connection with a broadcast program are:

- 5 – triggerlink: (see e.g. W. ten Kate et.al. "triggerlink - A new dimension in television program making", Lecture Notes in computer Science, vol. 1242, pp51-65, Springer, 1997) triggerlink allows interactivity in television programs. In addition to the normal program, additional information concerning specific segments of the program is available to the viewer through a different distribution channel. At the start of a given segment that is associated with an enhancement (additional information) an icon is
10 displayed, alerting the viewer that additional information may be viewed on his TV. For instance, at the appearance of an actor in a movie, some biographic data of the actor may be made available. In the user terminal (e.g. a set top box, etc.) the icons are overlayed on the video at the relevant time instants, thereby requiring these instants to have been indicated in the video
15 stream.
- Local Insertion: During a national broadcast, specific parts of the program may be replaced by a regional program in some regions. For instance, some advertisements may be replaced by advertisements for local shops, or, in a news show some regions may have their local weather forecast rather than
20 the national one. The national program producer can indicate which segments are suitable for such local insertion. At the local redistribution site (e.g. at the cable head-end), the indicated segments may be replaced by local content.

 In both of the above situations, it is necessary to mark or associate specific
25 time instants in the video stream at which additional information should be available. At these time instants the receiver should be triggered to perform or provide some kind of action. This may be done by such mechanisms as DSM-CC in MPEG/DVB. However, this requires the broadcaster's cooperation to insert these triggers thereby making an enhancement service provider dependent on the
30 broadcaster.

One previously known way of performing time marking in a video stream is e.g. using fields of the MPEG transport stream structure that can be used to hold the marking information.

Another previously known way is using a blanking interval. In analog
5 distribution, the marking information can be embedded in the vertical blanking interval or in the inactive video lines.

Both of the above known ways need the cooperation of all actors in the broadcast chain to make sure that the marking information is not destroyed before the signal arrives at its destination. For instance, in case of the MPEG solution, a re-
10 multiplexing operation could easily remove information that is written in the user data fields in the stream. Moreover, every decoding and successive re-encoding step would certainly not retain this information. In case of the use of the vertical blanking for carrying the trigger information, the situation is even more difficult, as actors in the broadcast chain might write other information at the same position (the
15 vertical blanking is used for many things and there is no uniform agreement about the control over usage of the blanking interval). Also, standards converters (like PAL-NTSC) and other equipment in the broadcast chain may not retain all information in the vertical blanking interval.

Yet another way is using watermarking. A watermark may be embedded in
20 the video frames at the relevant time instants. The Philips Watercast System is, among others, being sold for this purpose. A disadvantage of watermarking is the fact that it necessarily changes the video/audio.

It is an object of the invention to provide a method and corresponding device of relating one or more trigger actions with a multimedia signal and corresponding
25 method and device for detecting one or more trigger actions in a multimedia signal that solves the above-mentioned problems. A further object is to provide this in a simple and efficient way. Another object is to enable simple, reliable and accurate localisation of a given part of a multimedia signal. A further object is to enable detection of trigger actions without modifying the multimedia signal.

30 This is achieved by a method (and corresponding device) of relating one or more trigger actions with a multimedia signal, the method comprising the steps of

- providing at least one trigger time point and for each trigger time point providing at least one representation of least one associated trigger action, where each trigger time point indicates a time point of the multimedia signal for which the at least one associated trigger action is to be available during playback of the multimedia signal, and
- for each given trigger time point deriving a fingerprint on the basis of a segment of the multimedia signal, where the segment of the multimedia signal is unambiguously related with the given trigger time point,
- and by a method (and corresponding device) of detecting one or more trigger actions in a multimedia signal, the method comprising the steps of:
 - generating a fingerprint stream on the basis of the multimedia signal,
 - comparing a segment of the fingerprint stream with one or more fingerprints stored in a second database in order to determine if a match exists or not between the segment and a fingerprint in the second database, the second database further comprising for each stored fingerprint at least one representation of at least one associated action, and
 - if a match exists retrieving the at least one representation of the at least one associated action associated with the matching fingerprint.

In this way, a simple and efficient way of handling time markers in a multimedia signal for given actions is obtained. A fingerprint thereby serves as a trigger of a particular action, event, etc. associated with a particular point in time of the multimedia signal. Further, this is enabled without the multimedia signal needing to be modified. Additionally, the time marking detection is time independent as it is dependent on the specific content of the multimedia signal only thereby avoiding problems if a multimedia signal being a television program or the like is delayed.

A fingerprint of a multimedia object/content/signal is a representation of perceptual features of the object/content/signal part in question. Such fingerprints are sometimes also known as "(robust) hashes". More specifically, a fingerprint of a piece of audio or video is an identifier which is computed over that piece of audio or

video and which does not change even if the content involved is subsequently transcoded, filtered or otherwise modified.

Preferably, the derived fingerprint is an audio and/or video fingerprint. Alternatively, animations and/or streaming text, etc. is used as a source for creating a fingerprint.

Advantageous embodiments of the methods and devices according to the present invention are defined in the sub-claims.

Further, the invention also relates to a computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to the present invention.

Figure 1a schematically illustrates generation of fingerprint(s) used as trigger marker(s) according to the present invention.

Figure 1b schematically illustrates detection and use of fingerprint(s) as trigger marker(s) according to the present invention.

Figure 2 illustrates a schematic block diagram of a fingerprint generation device according to the present invention;

Figure 3 illustrates a schematic block diagram of a playback device detecting and using fingerprints according to the present invention;

Figure 4 illustrates one example of tables/records according to the present invention.

Figure 1a schematically illustrates generation of fingerprint(s) used as trigger marker(s) according to the present invention.

Shown is a digital or analog multimedia signal (101) comprising video and/or audio information/content, where one or more 'trigger' actions (forth denoted actions) is to be associated/related with the multimedia signal (101) at certain given 'trigger' time points (forth denoted time points). The one or more actions associated with each time point is to be available, i.e. triggered, at that given particular time point (T_n ; T_{n+1}) during playback on a playback device. The notation ' T_n ; T_{n+1} ' for a given time point signifies that the time point may be either the shown time point T_n or the shown time point T_{n+1} or in general any suitable (not shown) time point of the

signal (101). The associated actions of multiple time points may be the same, different and/or a mix thereof.

The action(s) to be presented/triggered at a given time point may e.g. comprise retrieving and displaying additional information on a display (e.g. presenting biography data for an actor being shown by the multimedia signal, presenting a selectable URL to a web site containing additional information, etc.), retrieving and playing additional information via a speaker, playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time (e.g. a local weather forecast, a local commercial, etc.) and/or the like. Other examples of action(s) are e.g. stopping/pausing, e.g. temporarily, display/play, executing other control commands, and/or preparing the system for user input(s), e.g. once the trigger action is executed the system waits (for some time) for a specific action of the user. If the trigger action was not executed, the user input will not have any influence. For example, in interactive games the user may only submit his answer after the trigger action has fired/been executed.

For each time point (T_n ; T_{n+1}) a fingerprint (102) is generated on the basis of a part, segment, etc. (forth denoted segment) of the multimedia signal (101), where the segment of the multimedia signal (101) is unambiguously related with the given time point (T_n ; T_{n+1}). Preferably, the segment of the multimedia signal (101) is unambiguously related with the given time point (T_n ; T_{n+1}) by letting the segment of the multimedia signal (101) ending substantially at the given time point (T_n ; T_{n+1}). In alternative embodiments, the segment of the multimedia signal (101) may start substantially at the given time point (T_n ; T_{n+1}), the segment of the multimedia signal (101) is starting or ending at a predetermined distance before or after the given trigger time point (T_n ; T_{n+1}), or the given time point (T_n ; T_{n+1}) may be at a predetermined time point between a start and an end of the segment of the multimedia signal (101).

The size of the fingerprints and/or the segments may both be of a predetermined fixed size or alternatively of a variable size.

One method for computing a robust fingerprint is described in European patent application 01200505.4, although of course any method for computing a robust fingerprint can be used.

European patent application 01200505.4 describes a method that generates
5 robust fingerprints for multimedia content such as, for example, audio clips, where the audio clip is divided in successive (preferably overlapping) time intervals. For each time interval, the frequency spectrum is divided in bands. A robust property of each band (e.g. energy) is computed and represented by a respective fingerprint bit.

Multimedia content is thus represented by a fingerprint comprising a
10 concatenation of binary values, one for each time interval. The fingerprint does not need to be computed over the whole multimedia content, but can be computed when a portion of a certain length has been received. There can thus be plural fingerprints for one multimedia content, depending on which portion is used to compute the fingerprint over.

Further, video fingerprinting algorithms are known, e.g. from the following
15 disclosure: Job Oostveen, Ton Kalker, Jaap Haitsma: "Feature Extraction and a Database Strategy for Video Fingerprinting". 117-128. IN: Shi-Kuo Chang, Zhe Chen, Suh-Yin Lee (Eds.): Recent Advances in Visual Information Systems, 5th International Conference, VISUAL 2002 Hsin Chu, Taiwan, March 11-13, 2002, Proceedings. Lecture Notes in Computer Science 2314 Springer 2002.
20

According to the present invention, a fingerprint (102) is generated for each time point on the basis of a given segment of the multimedia signal (101) at or near the specific time point.

In this way, a given fingerprint (102) is a trigger marker enabling a very
25 accurate and very precise location of a given time point of the signal (101) without using the specific time point but instead using (a segment of) the signal. Further, this is enabled without changing the signal. For video fingerprinting the localisation is typically frame accurate, at least as long as any distortion of the video signal is not too severe.

30 After a fingerprint (102) has been generated it is stored for later use in a database, memory, storage and/or the like.

There are several advantages in storing fingerprints (102) for a multimedia signal (101) in a database instead of the multimedia signal itself. To name a few: The memory/storage requirements for the database are reduced.

5 The comparison of fingerprints is more efficient than the comparison of the multimedia signals themselves, as fingerprints are substantially shorter than the signals.

Searching in a database for a matching fingerprint is more efficient than searching for a complete multimedia signals, since it involves matching shorter items.

10 Searching for a matching fingerprint is more likely to be successful, as small changes to a multimedia signal (such as encoding in a different format or changing the bit rate) do not affect the fingerprint.

Alternatively, if the multimedia content is in the form of more than a single signal, e.g. a separate audio signal and a separate video signal, the fingerprint(s) 15 (102) may be generated on the basis of a single of them (audio or video) or on both.

The generated fingerprints (102) stored in the database may then be distributed to playback devices via the Internet or in a side-channel of a broadcast channel or via some other channel or other means for use during playback according to the present invention. As other examples of distribution is e.g. physical 20 distribution on a storage medium or in a non-electronic way, e.g. requiring the user to enter the fingerprints and actions manually into the playback device.

In a preferred embodiment, a representation of the associated action(s) is also stored for each fingerprint in the database. These representations are preferably also sent to the playback devices. In an alternative embodiment, representations are 25 not stored in the database or used at all when generating the fingerprints. Another party may then provide the representations to the relevant playback devices as well as a relationship between each fingerprint and its associated action(s).

Figure 1b schematically illustrates detection and use of fingerprint(s) as trigger marker(s) according to the present invention. Shown is a digital or analog 30 multimedia signal (101) comprising video and/or audio information/content, where the signal (101) is played back by a suitable playback device. Further shown is a

fingerprint stream (104) that is generated continuously or substantially continuously on the basis of the multimedia signal (101). Alternatively, the fingerprint stream (104) is generated in segments. The fingerprint stream (104) (or segments) is compared with fingerprints (102) stored in a database. The stored fingerprints (102) generated as explained in connection with Figure 1a at a production site. The database preferably also comprises representations of the one or more associated actions (105) for each stored fingerprint (102). The stored fingerprints (102) are e.g. received via the Internet or in a side-channel of a broadcast channel or via some other channel or other means from the distribution site. The representations of the associated action(s) (105) may also be received like this. In an alternative embodiment, the representations as well as a relationship between each fingerprint and its associated action(s) (105) are provided by another party.

When a match between a segment of the fingerprint stream (104) and a given fingerprint (102) in the database is found the representation(s) of the associated action(s) (105) of that particular fingerprint (102) is retrieved and executed at the appropriate time point (T_n ; T_{n+1}). When a match between a segment of the fingerprint stream (104) and a fingerprint (102) in the database, the appropriate time point (T_n ; T_{n+1}) is also determined when the fingerprints (102) have been generated as explained in connection with Figure 1a. Preferably, the given time point (T_n ; T_{n+1}) is determined by letting the segment of the multimedia signal (101) that the matching fingerprint originally has been based on during generation (according to Figure 1a) ending substantially at the given time point (T_n ; T_{n+1}). In alternative embodiments, the segment of the multimedia signal (101) may start substantially at the given time point (T_n ; T_{n+1}), the segment of the multimedia signal (101) is starting or ending at a predetermined distance before or after the given trigger time point (T_n ; T_{n+1}) or the given time point (T_n ; T_{n+1}) may be at a predetermined time point between a start and an end of the segment of the multimedia signal (101). The playback device simply needs to be aware of the relationship between a given fingerprint and the given time point used during generation.

When a matching fingerprint (102) is determined, the associated one or more actions is also retrieved. The playback device may then execute these actions or present them to a user e.g. awaiting user confirmation before executing them.

The above-mentioned European patent application 01200505.4 describes
5 various matching strategies for matching fingerprints computed for an audio clip with fingerprints stored in a database.

Further European patent application 01202720.7 describes an efficient method of matching a fingerprint representing an unknown information signal with a plurality of fingerprints of identified information signals stored in a database to
10 identify the unknown signal. This method uses reliability information of the extracted fingerprint bits. The fingerprint bits are determined by computing features of an information signal and thresholding said features to obtain the fingerprint bits. If a feature has a value very close to the threshold, a small change in the signal may lead to a fingerprint bit with opposite value. The absolute value of the difference
15 between feature value and threshold is used to mark each fingerprint bit as reliable or unreliable. The reliabilities are subsequently used to improve the actual matching procedure.

A further advantage of the present invention is that if for any reason the broadcast is delayed, the fingerprint matching ensures that the trigger actions still
20 appear at the correct corresponding moment in the broadcast since the invention is time-independent but content-dependent.

Figure 2 illustrates a schematic block diagram of a fingerprint generation device according to the present invention. Shown is fingerprint generation device (200) comprising a multi-media signal input module (201), a fingerprinting module
25 (202), a data base, memory storage and/or the like (203) communicating via a bus (205) or the like under the control of one or more microprocessors (not shown). The fingerprint generation device (200) may in one embodiment optionally also comprise a transmitter and receiver (204) for communicating with other systems, devices, etc. via a wired and/or wireless network e.g. like the Internet.

30 The multi-media signal input module (201) receives multimedia content e.g. in the form of an analog or digital audio and/or video signal and feeds the

multimedia content to the fingerprinting module (202). The fingerprinting module (202) computes a fingerprint on the basis of the received multi-media content. A fingerprint may be derived for the entire content or for a part of the content. Alternatively, several fingerprints may be derived each from a different part.

- 5 According to the present invention, a fingerprint is derived each time that a trigger action is needed, i.e. for each time point (T_n , T_{n+1}), as explained in connection with Figure 1a. A representation of the time point(s) is also supplied to the fingerprinting module (202).

The fingerprinting module (202) then supplies the computed fingerprint(s) to
10 the database (203) preferably together with the associated one or more actions for each fingerprint. As shown in Figure 4, the database (203) comprises fingerprints 'FP1', 'FP2', 'FP3', 'FP4', 'FPS', etc. and respective associated actions 'A1', 'A2', 'A3', 'A4', 'A2, A1', etc.

The database (203) can be organized in various ways to optimize query time
15 and/or data organization. The output of the fingerprinting module (202) should be taken into account when designing the tables in the database (203). In the embodiment shown in Figure 4, the database (203) comprises a single table with entries (records) comprising respective fingerprints and associated (sets) of actions.

Figure 3 illustrates a schematic block diagram of a playback device detecting
20 and using fingerprints according to the present invention. Shown is a playback device (300) comprising a multimedia signal receiver (301), a fingerprint detector (302), a display/play circuit (303), a data base, memory storage and/or the like (203') communicating via a bus (205) or the like under the control of one or more microprocessors (not shown). The playback device (300) may in one embodiment
25 optionally also comprise a transmitter and receiver (204) for communicating with other systems, devices, etc. via a wired and/or wireless network e.g. like the Internet.

The multimedia signal receiver (301) receives the multimedia signal e.g. in the form of an analog or digital audio and/or video signal to be displayed and/or
30 played e.g. from a broadcasting cable, antenna, satellite dish, etc. arrangement (not shown). The received multimedia signal is fed to the fingerprint detector (302) that

derives a fingerprint stream or segments thereof and determines if there are any matches with fingerprints stored in the database as explained in connection with Figure 1b. If a match is found then a representation of the associated action(s) is also retrieved. The appropriate time point for the associated action(s) is given by the matching fingerprint as described above.

The received multimedia signal is displayed and/or played by the a display/play circuit (303) and at the appropriate time point(s) the associated action(s) is executed or presented to a user e.g. awaiting user confirmation before executing the action(s).

Preferably, the data layout of the database (203') corresponds to the one shown in Figure 4.

The playback device (300) may also comprise a buffer mechanism (not shown) for buffering a part of the multimedia signal before displaying/playing it.

Figure 4 illustrates one example of tables/records according to the present invention. Shown is a table comprising fingerprints (102) 'FP1', 'FP2', 'FP3', 'FP4', 'FP5', etc. and respective associated actions (105) 'A1', 'A2', 'A3', 'A4', 'A2, A1', etc. One or more actions (105) are stored for each fingerprint (102). A given fingerprint (102) is only stored in the table once.

In the claims, any reference signs placed between parentheses shall not be constructed as limiting the claim. The word "comprising" does not exclude the presence of elements or steps other than those listed in a claim. The word "a" or "an" preceding an element does not exclude the presence of a plurality of such elements.

The invention can be implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer. In the device claim enumerating several means, several of these means can be embodied by one and the same item of hardware. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS

ABSTRACT

A device is configured to perform a method that detects a trigger marker for an action corresponding to a segment of a multimedia signal. A fingerprint is
5 generated based on the segment of the multimedia signal at a trigger time point. The generated fingerprint is stored in a database and communicated to the device. During playback of the multimedia signal, fingerprints of segments of the multimedia signal are generated and matched against fingerprints in the database. When a match is found, one or more associated actions for the segment are retrieved
10 by the device. The trigger time point may be determined as a time point near or at the segment of the multimedia signal with the matched fingerprint. In this way, trigger markers for actions may be enabled without modifying the multimedia signal.

1/3

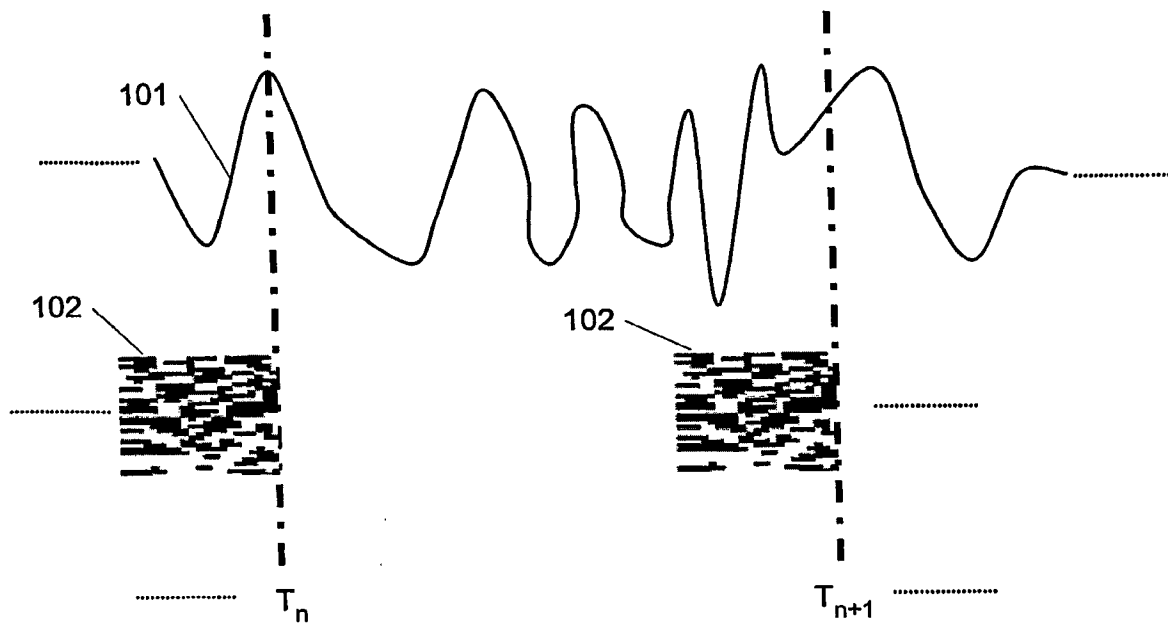


Figure 1a

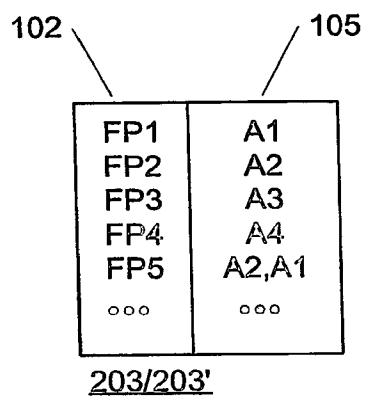
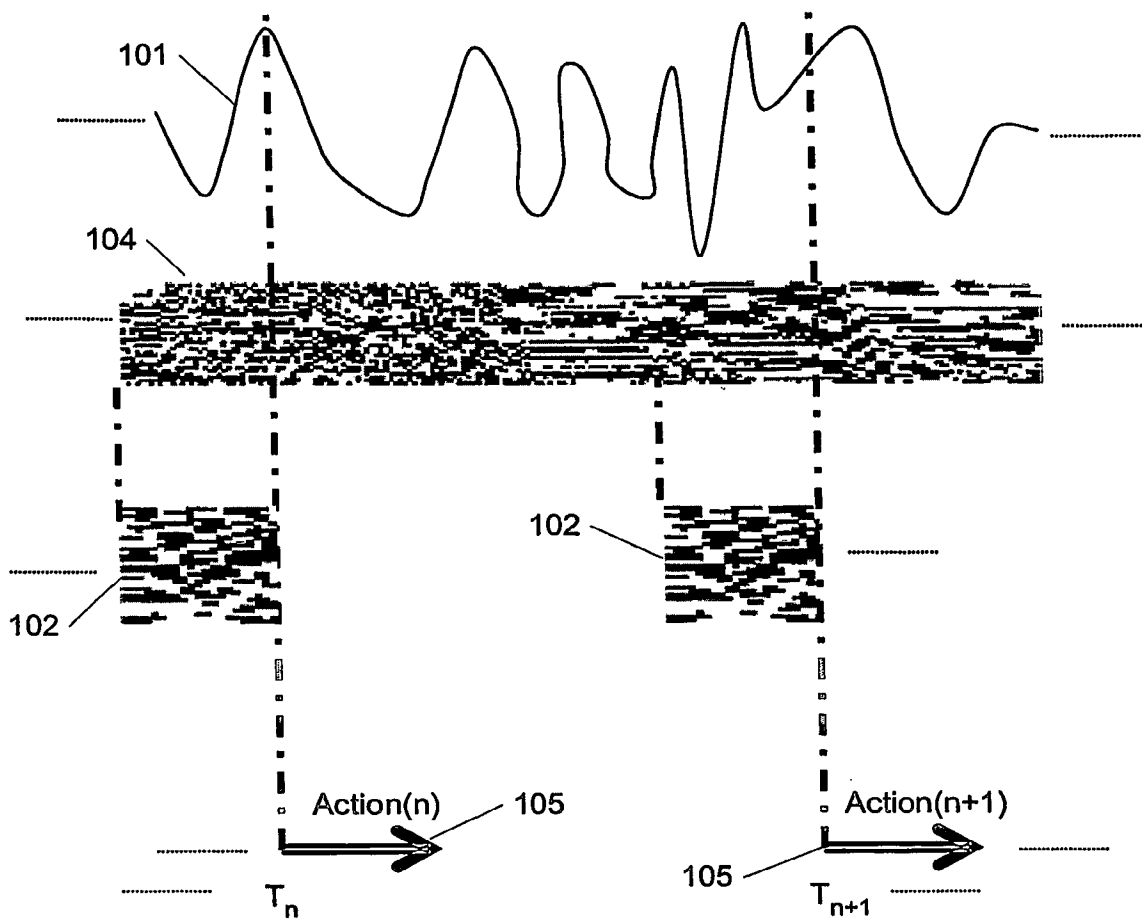
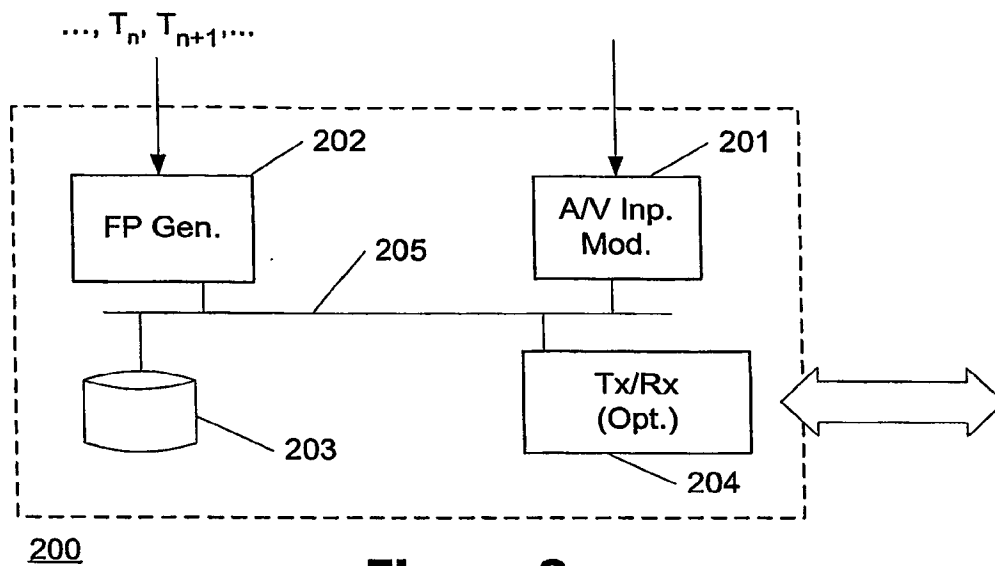
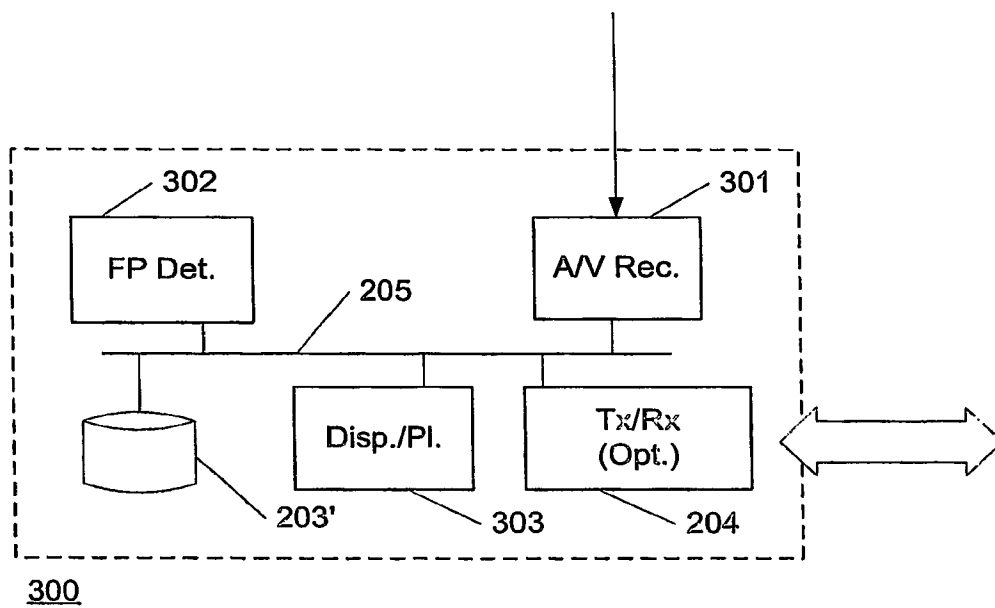


Figure 4

**Figure 1b**

**Figure 2****Figure 3**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Job	Cornelis	Oostveen			
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Haren		Country of Residence ⁱ	NL		
Mailing Address of Inventor:						
Address 1		Bilderdijklaan 2				
Address 2						
City	Haren		State/Province			
Postal Code	9752 EN		Country ⁱ	NL		
Inventor	2				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Warner	Rudolph Theophile	Ten Kate			
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Eindhoven		Country of Residence ⁱ	NL		
Mailing Address of Inventor:						
Address 1		High Tech Campus 34; Room 4.42				
Address 2						
City	Eindhoven		State/Province			
Postal Code	5656 AA		Country ⁱ	NL		
Inventor	3				Remove	
Legal Name						

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Adrianus	Johannes Maria	Denissen	
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service				
City	Eindhoven	Country of Residence ⁱ	NL	

Mailing Address of Inventor:

Address 1	High Tech Campus 34; Room 5.038			
Address 2				
City	Eindhoven	State/Province		
Postal Code	5656 AA	Country ⁱ	NL	
Inventor	4			<input type="button" value="Remove"/>
Legal Name				

Prefix	Given Name	Middle Name	Family Name	Suffix
	David	K.	Roberts	
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service				
City	Cheddar	Country of Residence ⁱ	UK	

Mailing Address of Inventor:

Address 1	21 Thynne Close			
Address 2				
City	Cheddar	State/Province		
Postal Code	BS27 3XR	Country ⁱ	UK	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence Information of this application.	
Customer Number	139404
Email Address	docketing@mbhb.com <input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Application Information:

Title of the Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		
Attorney Docket Number	17-374-US-CON8	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

<input type="checkbox"/> Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/> Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One: <input checked="" type="radio"/> Customer Number <input type="radio"/> US Patent Practitioner <input type="radio"/> Limited Recognition (37 CFR 11.9)			
Customer Number	139404		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
	Continuation of	16018022	2018-06-25		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16018022	Continuation of	15622024	2017-06-13	10045054	2018-08-07
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15622024	Continuation of	15273185	2016-09-22	9712853	2017-07-18
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15273185	Continuation of	15164605	2016-05-25	9479831	2016-10-25
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15164605	Continuation of	14659044	2015-03-16	9407962	2016-08-02
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14659044	Continuation of	14151879	2014-01-10	9066114	2015-06-23
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14151879	Continuation of	13220267	2011-08-29	8660267	2014-02-25
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13220267	Continuation of	10564297	2006-01-10	8020000	2011-09-13

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8	
		Application Number		
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
Prior Application Status	Expired			<input type="button" value="Remove"/>
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
10564297	a 371 of international	PCT/IB2004/051128	2004-07-05	
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	<input type="button" value="Remove"/>
03102116.5	EP	2003-07-11		
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	<input type="button" value="Remove"/>
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p> <p style="text-align: right;"><input type="button" value="Clear"/></p>		
<input checked="" type="radio"/> Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>		
Organization Name	Gracenote, Inc.	
Mailing Address Information For Applicant:		
Address 1	2000 Powell Street	
Address 2	Suite 1380	
City	Emeryville	State/Province
Country	US	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
<input type="button" value="Remove"/>				
If the Assignee or Non-Applicant Assignee is an Organization check here. <input type="checkbox"/>				
Prefix	Given Name	Middle Name	Family Name	Suffix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1		<input type="text"/>		
Address 2		<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>	
Country ⁱ	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jason S. Kray/		Date (YYYY-MM-DD)	2019-01-31
First Name	Jason S.	Last Name	Kray	Registration Number
				66926
Additional Signature may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17-374-US-CON8
		Application Number	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

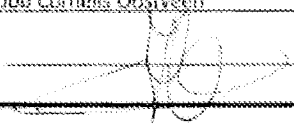
Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

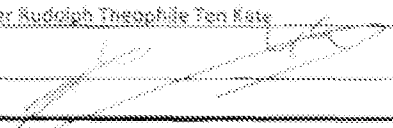
Title of Invention	METHOD AND DEVICE FOR GENERATING AND DETECTING A FINGERPRINT FUNCTIONING AS A TRIGGER MARKER IN A MULTIMEDIA SIGNAL
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input type="checkbox"/> The attached application, or</p> <p><input checked="" type="checkbox"/> United States application or PCT international application number <u>14/151,879</u>, filed on <u>January 10, 2014</u>.</p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.</p> <p>WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p>	
<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>John Cornelis Oostveen</u> Date (Optional): _____</p> <p>Signature: </p>	
<p>Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.</p>	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.61 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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2167.05ZUS3

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	METHOD AND DEVICE FOR GENERATING AND DETECTING A FINGERPRINT FUNCTIONING AS A TRIGGER MARKER IN A MULTIMEDIA SIGNAL
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input type="checkbox"/> The attached application, or <input checked="" type="checkbox"/> United States application or PCT international application number <u>1A/151,879</u>, filed on <u>January 10, 2014</u>.</p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.</p> <p>WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p> <p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>Warner Rudolph Theophile Ten Kate</u> Date (Optional): <u>29 Oct 2014</u></p> <p>Signature: </p> <p>Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.</p>	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or serve a benefit by the public. Submit it to the post by the USPTO to process an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.12 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	METHOD AND DEVICE FOR GENERATING AND DETECTING A FINGERPRINT FUNCTIONING AS A TRIGGER MARKER IN A MULTIMEDIA SIGNAL
-----------------------	--

As the below named inventor, I hereby declare that:

This declaration
is directed to:

- ☐ The attached application, or
- ☒ United States application or PCT international application number 14/151,879
filed on January 10, 2014.

The above identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than (5) years, or both.

WARNING:

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LEGAL NAME OF INVENTOR

Inventor: Adrianus Johannes Maria Derissen Date (Optional) : _____

Signature: 

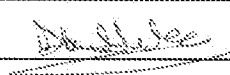
Note: An application data sheet (PTO/GB/14 or equivalent), including naming the entire inventive entity, must accompany this form.
Use an additional PTO/AIA/01 form for each additional inventor.

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2167.052US3

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	METHOD AND DEVICE FOR GENERATING AND DETECTING A FINGERPRINT FUNCTIONING AS A TRIGGER MARKER IN A MULTIMEDIA SIGNAL
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input type="checkbox"/> The attached application, or</p> <p><input checked="" type="checkbox"/> United States application or PCT international application number <u>14/151,879</u>, filed on <u>January 10, 2014</u>.</p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.</p> <p style="text-align: center;">WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p> <p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>David K. Roberts</u> Date (Optional): <u>19 December 2014</u></p> <p>Signature: <u></u></p> <p>Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/AIA/01 form for each additional inventor.</p>	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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2167.052US3

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 17-374-US-CON8)**

Applicant: Gracenote, Inc.)	
	)	Examiner: TBD
Pat. App. No.: TBD)	
	)	Group Art Unit: TBD
Filed: January 31, 2019)	
	)	Confirmation No.: TBD
Title: Method and Device for Generating And)	
Detecting A Fingerprint Functioning As)	
A Trigger Marker In A Multimedia Signal)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

GENERAL DEPOSIT ACCOUNT AUTHORIZATION

In this or any related application filed pursuant to 37 C.F.R. § 1.53, for the entire pendency thereof, and with respect to Deposit Account No. 13-2490, the Commissioner is hereby generally authorized:

(a) under 37 C.F.R. § 1.25(b), subject to the provisions of 37 C.F.R. § 1.311(b), to charge all fees set forth in 37 C.F.R. §§ 1.16 to 1.18; and

(b) under 37 C.F.R. § 1.136(a)(3) to treat any future reply requiring an extension of time as incorporating a request therefor, and specifically authorized to charge any fee that may be due in connection with such a request for extension of time.

Respectfully submitted,

**MCDONNELL BOEHNEN
HULBERT & BERGHOFF LLP**

Date: January 31, 2019

By: /Jason S. Kray/
Jason S. Kray
Reg. No. 66,926

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2019-01-31
	First Named Inventor	Job Cornelis Oostveen et al.	
	Art Unit	TBD	
	Examiner Name	TBD	
	Attorney Docket Number	17-374-US-CON8	

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	1	6785815		2004-08-31	Serret-Avila et al.	
	2	6959865		2005-11-01	Walczyk et al.	
	3	7185201		2007-02-27	Rhoads et al.	
	4	7444353		2008-10-28	Chen et al.	
	5	8020000		2011-09-13	Oostveen et al.	
	6	8660267		2014-02-25	Oostveen et al.	
	7	9066114		2015-06-23	Oostveen et al.	
	8	9407962		2016-08-02	Oostveen et al.	

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Application Number		
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First Named Inventor	Job Cornelis Oostveen et al.	
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Examiner Name	TBD	
Attorney Docket Number		17-374-US-CON8

9	9479831		2016-05-25	Oostveen et al.	
10	9712853		2016-09-22	Oostveen et al.	
11	10045054		2018-08-07	Oostveen et al.	

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	2	20020032864	A1	2002-03-14	Rhoads et al.	
	3	20020033844	A1	2002-03-21	Levy et al.	
	4	20020082731	A1	2002-06-27	Pitman et al.	
	5	20020083060	A1	2002-06-27	Wang et al.	
	6	20020116195	A1	2002-08-22	Pitman et al.	

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First Named Inventor	Job Cornelis Oostveen et al.	
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Attorney Docket Number		17-374-US-CON8

7	20020126872	A1	2002-09-12	Brunk et al.	
8	20020178410	A1	2002-11-28	Haitsma et al.	
9	20020199009	A1	2002-12-26	Willner et al.	
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12	20030023852	A1	2003-01-30	Wold	
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17	20040073799	A1	2004-04-15	Hitz et al.	

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20	20050015802	A1	2005-01-20	Masson	
21	20050177372	A1	2005-08-11	Wang et al.	
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23	20060122839	A1	2006-06-08	Li-Chun Wang et al.	
24	20060277409	A1	2006-12-07	Galwas	
25	20080209466	A1	2008-08-28	Ishida et al.	
26	20120016876	A1	2012-01-19	Oostveen et al.	
27	20140130077	A1	2014-05-08	Oostveen et al.	
28	20150189380	A1	2015-07-02	Oostveen et al.	

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	1	EP 1054335 A2	EP	A2	2000-11-22	Grossi et al.		
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	3	WO 2001061508 A1	WO	A1	2001-08-23	Ramos et al.		
	4	WO 2001071960 A1	WO	A1	2001-09-27	Levy et al.		
	5	WO 0208945 A1	WO	A1	2002-01-31	Levy		
	6	WO 2003043329 A2	WO	A2	2003-05-22	Masson		
	7	WO 03096337 A2	WO	A2	2003-11-20	Van Der Veen et al.		
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	2	U.S. Patent Application No. 10/564,297, Examiner Interview Summary dated 10-12-2010, 4 pages.	
	3	U.S. Patent Application No. 10/564,297, Examiner Interview Summary dated 10-12-2010, 1 page.	
	4	U.S. Patent Application No. 10/564,297, Final Office Action dated 12-22-2010, 10 pages.	
	5	U.S. Patent Application No. 10/564,297, Final Office Action mailed 04-01-2010, 13 pages.	
	6	U.S. Patent Application No. 10/564,297, Non-Final Office Action mailed 10-26-2009, 11 pages.	
	7	U.S. Patent Application No. 10/564,297, Notice of Allowance mailed 05-13-2011, 5 pages.	
	8	U.S. Patent Application No. 10/564,297, Preliminary Amendment filed 01-20-2006, 4 pages.	
	9	U.S. Patent Application No. 10/564,297, Response filed 06-29-2010 to Final Office Action mailed 04-01-2010, 13 pages.	

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Attorney Docket Number		17-374-US-CON8

10	U.S. Patent Application No. 10/564,297, Response filed 01-26-2010 to Non-final Office Action mailed 10-26-2009, 13 pages.
11	U.S. Patent Application No. 10/564,297, Response filed 10-12-2010 to Non-Final Office Action mailed 07-12-2010, 14 pages.
12	U.S. Patent Application No. 10/564,297, Response filed 03-16-2011 to Final Office Action mailed 12-22-2010, 11 pages.
13	U.S. Patent Application No. 10/564,297, Response filed 08-10-2009 to Restriction Requirement mailed 07-10-2009, 4 pages.
14	U.S. Patent Application No. 10/564,297, Restriction Requirement mailed 07-10-2009, 6 pages.
15	U.S. Patent Application No. 13/220,267, Non-Final Office Action mailed 03-20-2013, 12 pages.
16	U.S. Patent Application No. 13/220,267, Notice of Allowance mailed 10-11-2013, 9 pages.
17	U.S. Patent Application No. 13/220,267, Preliminary Amendment filed 09-01-2011, 11 pages.
18	U.S. Patent Application No. 13/220,267, Response filed 06-18-2013 to Non-Final Office Action mailed 03-20-2013, 15 pages.
19	U.S. Patent Application No. 14/151,879, Final Office Action mailed 02-24-2015, 5 pages.
20	U.S. Patent Application No. 14/151,879, Non-Final Office Action mailed 10-10-2014, 10 pages.

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21	J.S. Patent Application No. 14/151,879, Notice of Allowance mailed 03-06-2015, 8 pages.
22	J.S. Patent Application No. 14/151,879, Preliminary Amendment filed 09-03-2014, 11 pages.
23	J.S. Patent Application No. 14/151,879, Response filed 01-12-2015 to Non-Final Office Action mailed 10-10-2014, 18 pages.
24	J.S. Patent Application No. 14/659,044, Non-Final Office Action mailed 11-03-2015, 8 pages.
25	J.S. Patent Application No. 14/569,044, Notice of Allowance mailed 03-30-2016, 7 pages.
26	J.S. Patent Application No. 14/569,044, Preliminary Amendment filed 03-23-2015, 8 pages.
27	J.S. Patent Application No. 14/659,044, Response filed 03-03-2016 to Non-Final Office Action mailed 11-03-2015, 14 pages.
28	J.S. Patent Application No. 15/164,605, Notice of Allowance mailed 09-14-2016, 13 pages.
29	J.S. Patent Application No. 15/164,605, Preliminary Amendment filed 05-27-2016, 9 pages.
30	European Patent Application No. 04744496.3, Decision to Refuse mailed 05-17-2010, 2 pages.
31	European Patent Application No. 04744496.3, Examination Report mailed 08-04-2008, 4 pages.

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Attorney Docket Number		17-374-US-CON8

32	European Patent Application No. 04744496.3, Office Action mailed 03-09-2006, 2 pages.
33	European Patent Application No. 04744496.3, Office Action mailed 06-04-2007, 1 page.
34	European Patent Application No. 04744496.3, Office Action mailed 12-21-2006, 2 pages.
35	European Patent Application No. 04744496.3, Response filed 01-12-2009 to Examination Report mailed 08-04-2008, 16 pages.
36	European Patent Application No. 04744496.3, Response filed 07-30-2007 to Office Action mailed 12-21-2006, 3 pages.
37	International Patent Application No. PCT/IB2004/051128, International Preliminary Report on Patentability mailed 01-16-2006, 7 pages.
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39	International Patent Application No. PCT/IB2004/051128, Written Opinion mailed 11-10-2004, 6 pages.
40	Japan Patent Application No. 2006-518477, Office Action mailed 05-25-2010, with English Translation of Claims, 5 pages.
41	ALATTAR, Adnan M., "Bridging Printed Media and the Internet Via Digimarc's Watermarking Technology," 5 pages.
42	OOSTVEEN, J., et al., "Feature Extraction and a Database Strategy for Video Fingerprinting," Lecture Notes in Computer Science, 2314 (03/11/2002), pages 117-128.

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First Named Inventor	Job Cornelis Oostveen et al.	
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Examiner Name	TBD	
Attorney Docket Number	17-374-US-CON8	

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	17-374-US-CON8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jason S. Kray/	Date (YYYY-MM-DD)	2019-01-31
Name/Print	Jason S. Kray	Registration Number	66,926

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	TBD
Filing Date	January 31, 2019
First Named Inventor	Job Cornelis Oostveen
Title	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	17-374-US-CON8

SIGNATURE of Applicant or Patent Practitioner

Signature	/Jason S. Kray/	Date (Optional)	January 31, 2019
Name	Jason S. Kray	Registration Number	66,926
Title (if Applicant is a juristic entity)	Patent Practitioner		
Applicant Name (if Applicant is a juristic entity)	Gracernote, Inc.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 2 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IPR2020-00216

Gracernote EX2008 Page 54

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

139404

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

OR

Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Gracernote, Inc.



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Salvador Karotki

Title

Vice President

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/264,134	01/31/2019		1720	17-374-US-CON8		

139404

McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

CONFIRMATION NO. 4451
FILING RECEIPT



Date Mailed: 02/19/2019

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Job Cornelis Oostveen, Haren, NETHERLANDS;
Warner Rudolph Theophile Ten Kate, Eindhoven, NETHERLANDS;
Adrianus Johannes Maria Denissen, Eindhoven, NETHERLANDS;
David K. Roberts, Cheddar, UNITED KINGDOM;

Applicant(s)

Gracenote, Inc., Emeryville, CA;

Power of Attorney: The patent practitioners associated with Customer Number 139404

Domestic Priority data as claimed by applicant

This application is a CON of 16/018,022 06/25/2018
which is a CON of 15/622,024 06/13/2017 PAT 10045054
which is a CON of 15/273,185 09/22/2016 PAT 9712853
which is a CON of 15/164,605 05/25/2016 PAT 9479831
which is a CON of 14/659,044 03/16/2015 PAT 9407962
which is a CON of 14/151,879 01/10/2014 PAT 9066114
which is a CON of 13/220,267 08/29/2011 PAT 8660267
which is a CON of 10/564,297 01/10/2006 PAT 8020000
which is a 371 of PCT/IB2004/051128 07/05/2004

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

EUROPEAN PATENT OFFICE (EPO) 03102116.5 07/11/2003 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 02/19/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/264,134**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign

page 2 of 4

patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8

CONFIRMATION NO. 4451

FORMALITIES LETTER



139404
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

Date Mailed: 02/19/2019

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The specification does not include at least one claim.
A complete specification as prescribed by 35 U.S.C. 112 is required.
Applicant must submit at least one claim. If more than 3 independent claims, more than 20 total claims, and/or a multiple dependent claim are submitted, excess claims fees are required at the time of submission of such claims (see 37 CFR 1.16(h)-(j)).
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
The surcharge is due for any one of:
 - late submission of the basic filing fee, search fee, or examination fee,
 - late submission of inventor's oath or declaration,
 - filing an application that does not contain at least one claim on filing, or
 - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **160** surcharge.
- \$(**0**) previous unapplied payment amount.
- \$ **160** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mabebe/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
16/264,134

APPLICATION AS FILED - PART I

(Column 1)		(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(j))	0	minus 20 = *			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	0	minus 3 = *				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
			TOTAL			TOTAL	1720

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
		Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
		Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))								OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
		Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
		Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))								OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 17-374-US-CON8)**

Applicant: Gracenote, Inc.)	
	)	Examiner: TBD
Pat. App. No.: 16/264,134)	
	)	Group Art Unit: 2435
Filed: January 31, 2019)	
	)	Confirmation No.: 4451
Title: Method and Device for Generating and)	
Detecting a Fingerprint Functioning as)	
a Trigger Marker in a Multimedia Signal)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

**RESPONSE TO NOTICE OF MISSING PARTS
OF NONPROVISIONAL APPLICATION DATED FEBRUARY 19, 2019**

This paper is being submitted in reply to the notice of missing parts of nonprovisional application dated February 19, 2019. Applicant hereby requests a three-month extension, extending the time to respond to July 19, 2019 and, thus, this response is timely. The Commissioner is authorized to deduct the extension fees from Deposit Account No. 13-2490, Order No. 17-374-US-CON8. Applicant requests that the Examiner enter the following remarks into the record for this application.

Amendments to the claims begin on page 2.

Remarks begin on page 8.

Applicant authorizes the office to charge any underpayment or credit any overpayment to Deposit Account No. 13-2490 and to treat any filing in this matter that requires an extension of time as incorporating a request for the extension.

Electronic Patent Application Fee Transmittal

Application Number:	16264134			
Filing Date:	31-Jan-2019			
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Jason S. Kray			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	2	100	200
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	1253	1	1400	1400
Miscellaneous:				
Total in USD (\$)				1760

Electronic Acknowledgement Receipt

EFS ID:	36597723
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Jason S. Kray
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	16-JUL-2019
Filing Date:	31-JAN-2019
Time Stamp:	14:44:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1760
RAM confirmation Number	071719INTEFSW14451200
Deposit Account	132490
Authorized User	Jason Kray

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00216

37 CFR 1.19 (Document supply fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		17-374-US-CON8_Response_MP.pdf	94623	yes	8
			2ae364c7164d85316ea7adbe4da6208baca505aa		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		8	8	
	Claims		2	7	
	Applicant Response to Pre-Exam Formalities Notice		1	1	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	34340	no	2
			6a1de18f9cda0970491bcf4803705559580170f2		
Warnings:					
Information:					
Total Files Size (in bytes):			128963		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Remarks

Should the Examiner wish to discuss this matter with the undersigned, the Examiner is invited to call the undersigned at (312) 913-2125.

Respectfully submitted,

**MCDONNELL BOEHNEN
HULBERT & BERGHOFF LLP**

Date: July 16, 2019

By: /Jason S. Kray/
Jason S. Kray
Reg. No. 66,926

Amendments to the Claims

1. (New) A system comprising:
a memory that stores instructions; and
one or more processors configured by the instructions to perform operations comprising:
deriving fingerprints from respective segments of multimedia content while the
multimedia content is being played by a multimedia playback device;
comparing the derived fingerprints to one or more reference fingerprints
representing features of the multimedia content, wherein at least one
reference fingerprint of the one or more reference fingerprints is
associated with an action;
determining that one of the derived fingerprints matches the at least one reference
fingerprint; and
in response to determining that the one of the derived fingerprints matches the at
least one reference fingerprint, causing execution of the action associated
with the at least one reference fingerprint,
wherein the action to be executed is associated with a time point indicating when, in the
multimedia content, the action is to be executed.
2. (New) The system of claim 1, wherein each derived fingerprint is a respective
audio fingerprint.
3. (New) The system of claim 1, wherein the multimedia playback device comprises
at least one of a display device or a speaker, and

wherein playing the multimedia content on the multimedia playback device comprises at least one of (i) displaying at least some of the multimedia content on the display device or (ii) playing at least some of the multimedia content via the speaker.

4. (New) The system of claim 3, wherein the operations further comprise playing the multimedia content on the multimedia playback device.

5. (New) The system of claim 3, wherein the action to be executed comprises at least one action in the group consisting of:

retrieving and displaying additional information on the display device; or
retrieving and playing additional information via the speaker.

6. (New) The system of claim 1, wherein the action to be executed comprises playing another multimedia content instead of the multimedia content for a period of time.

7. (New) The system of claim 1, wherein the action to be executed comprises presenting data overlaid on the multimedia content.

8. (New) The system of claim 1, wherein the action to be executed comprises replacing national content in the multimedia content with local content.

9. (New) The system of claim 1, wherein the action to be executed comprises executing a control command.

10. (New) The system of claim 1, wherein the action to be executed comprises preparing the multimedia playback device to receive a user input.

11. (New) The system of claim 1, further comprising a receiver, wherein the operations further comprise:

receiving, by the receiver, the one or more reference fingerprints;

responsive to receiving the one or more reference fingerprints, storing the one or more reference fingerprints in the memory for comparison with the derived fingerprints;

receiving, by the receiver, for each reference fingerprint of the at least one reference fingerprint, a representation of the action with which the reference fingerprint is associated; and

responsive to receiving each representation of the action, storing in the memory the representation in association with the reference fingerprint associated with the representation.

12. (New) A non-transitory machine-readable storage medium having stored thereon, program instructions that when executed by a processor of a machine, cause the machine to perform operations comprising:

determining a trigger fingerprint from a segment of a media stream, wherein the trigger fingerprint is a representation of features of the segment;

matching the trigger fingerprint to a reference fingerprint, wherein the reference fingerprint is stored in a database of reference fingerprints and is associated with a reference action, and wherein the reference action is associated with a time point indicating when, in the media stream, the reference action is to be performed; and

responsive to matching the trigger fingerprint to the reference fingerprint, causing execution of the reference action at the time point.

13. (New) The non-transitory machine-readable storage medium of claim 12, wherein the trigger fingerprint is an audio fingerprint.

14. (New) The non-transitory machine-readable storage medium of claim 12, wherein causing the execution of the reference action at the time point comprises playing, using at least one of a display device or a speaker, a second media stream in place of the media stream at the time point.

15. (New) The non-transitory machine-readable storage medium of claim 12, wherein causing the execution of the reference action at the time point comprises presenting, using a display device, data overlayed on multimedia content of the media stream.

16. (New) The non-transitory machine-readable storage medium of claim 12, wherein the operations further comprise:

before determining the trigger fingerprint, receiving a plurality of reference fingerprints that include the reference fingerprint matched with the trigger fingerprint;

storing, in a memory, the received plurality of reference fingerprints for comparison with the trigger fingerprint;

receiving for the reference fingerprint matched with the trigger fingerprint, a representation of one or more actions with which the reference fingerprint is associated; and

responsive to receiving the representation of the one or more actions, storing in the memory the representation in association with the reference fingerprint.

17. (New) A method comprising:

deriving fingerprints from respective segments of multimedia content while the multimedia content is being played by a multimedia playback device;

comparing the derived fingerprints to one or more reference fingerprints representing features of the multimedia content, wherein at least one reference fingerprint of the one or more reference fingerprints is associated with an action;

determining that one of the derived fingerprints matches the at least one reference fingerprint; and

in response to determining that the one of the derived fingerprints matches the at least one reference fingerprint, causing execution of the action associated with the at least one reference fingerprint,

wherein the action to be executed is associated with a time point indicating when, in the multimedia content, the action is to be executed.

18. (New) The method of claim 17, wherein each derived fingerprint is a respective audio fingerprint.

19. (New) The method of claim 17, wherein the multimedia playback device comprises at least one of a display device or a speaker, and

wherein playing the multimedia content on the multimedia playback device comprises at least one of (i) displaying at least some of the multimedia content on the display device or (ii) playing at least some of the multimedia content via the speaker.

20. (New) The method of claim 19, further comprising playing the multimedia content on the multimedia playback device.

21. (New) The method of claim 19, wherein the action to be executed comprises retrieving and displaying additional information on the display device.

22. (New) The method of claim 19, wherein the action to be executed comprises retrieving and playing additional information via the speaker.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/264,134			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760		
TOTAL CLAIMS (37 CFR 1.16(j))	22 minus 20 =	*				x 100 =	200		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 460 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00		
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1920		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)		
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	x =	=		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	x =	=		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE		TOTAL ADD'L FEE			
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)		
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	x =	=		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	x =	=		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE		TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/264,134	01/31/2019		2080	17-374-US-CON8	22	3

139404

McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

CONFIRMATION NO. 4451
UPDATED FILING RECEIPT



Date Mailed: 07/18/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

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Power of Attorney: The patent practitioners associated with Customer Number 139404

Domestic Priority data as claimed by applicant

This application is a CON of 16/018,022 06/25/2018 PAT 10250916
which is a CON of 15/622,024 06/13/2017 PAT 10045054
which is a CON of 15/273,185 09/22/2016 PAT 9712853
which is a CON of 15/164,605 05/25/2016 PAT 9479831
which is a CON of 14/659,044 03/16/2015 PAT 9407962
which is a CON of 14/151,879 01/10/2014 PAT 9066114
which is a CON of 13/220,267 08/29/2011 PAT 8660267
which is a CON of 10/564,297 01/10/2006 PAT 8020000
which is a 371 of PCT/IB2004/051128 07/05/2004

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

EUROPEAN PATENT OFFICE (EPO) 03102116.5 07/11/2003 No Access Code Provided

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If Required, Foreign Filing License Granted: 02/19/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/264,134**

Projected Publication Date: 10/24/2019

Non-Publication Request: No

Early Publication Request: No

Title

Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Attestation

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The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

03102116.5

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk



Anmeldung Nr:
Application no.: 03102116.5
Demande no:

Anmeldetag:
Date of filing: 11.07.03
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

Koninklijke Philips Electronics N.V.
Groenewoudseweg 1
5621 BA Eindhoven
PAYS-BAS

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

Method and device for generating and detecting a fingerprint functioning as a
trigger marker in a multimedia signal

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s)
revendiquée(s)
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/
Classification internationale des brevets:

H04N7/00

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of
filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL
PT RO SE SI SK TR LI

Method and device for generating and detecting a fingerprint functioning as a trigger marker in a multimedia signal

5 The invention relates to a method, and a corresponding device, of detecting trigger instants/information in a multimedia signal. The invention also relates to a method, and a corresponding device, of associating trigger information with a multimedia signal. Further, the invention relates to a computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to the invention.

10

A current trend is to enhance passive television viewing and/or music listening on a given playback device by creating more interactive programs and/or listening experiences or by “connecting” external actions to a piece of video and/or audio content. As one simple example, a commercial can be enhanced by embedding a URL to a web site with further information, where the URL can be extracted and retrieved by the playback device. In order to facilitate such a function it is necessary to enable a reliable detection of time points in a television program, a movie, a music piece, etc. where such additional information is relevant.

20 Examples of situations where such additional information is useful or interesting in connection with a broadcast program are:

- trigg&link: (see e.g. W. ten Kate et.al. “trigg&link – A new dimension in television program making”, Lecture Notes in computer Science, vol. 1242, pp51-65, Springer, 1997) trigg&link allows interactivity in television programs. In addition to the normal program, additional information concerning specific segments of the program is available to the viewer through a different distribution channel. At the start of a given segment that is associated with an enhancement (additional information) an icon is displayed, alerting the viewer that additional information may be viewed on his TV. For instance, at the appearance of an actor in a movie, some biographic data of the actor may be made available. In the user terminal (e.g. a set top box, etc.) the icons

are overlayed on the video at the relevant time instants, thereby requiring these instants to have been indicated in the video stream.

- Local Insertion: During a national broadcast, specific parts of the program may be replaced by a regional program in some regions. For instance, some advertisements may be replaced by advertisements for local shops, or, in a news show some regions may have their local weather forecast rather than the national one. The national program producer can indicate which segments are suitable for such local insertion. At the local redistribution site (e.g. at the cable head-end), the indicated segments may be replaced by local content.

10 In both of the above situations, it is necessary to mark or associate specific time instants in the video stream at which additional information should be available. At these time instants the receiver should be triggered to perform or provide some kind of action. This may be done by such mechanisms as DSM-CC in MPEG/DVB. However, this requires the broadcaster's cooperation to insert these triggers thereby making an
15 enhancement service provider dependent on the broadcaster.

One previously known way of performing time marking in a video stream is e.g. using fields of the MPEG transport stream structure that can be used to hold the marking information.

20 Another previously known way is using a blanking interval. In analog distribution, the marking information can be embedded in the vertical blanking interval or in the inactive video lines.

Both of the above known ways need the cooperation of all actors in the broadcast chain to make sure that the marking information is not destroyed before the signal arrives at its destination. For instance, in case of the MPEG solution, a re-multiplexing
25 operation could easily remove information that is written in the user data fields in the stream. Moreover, every decoding and successive re-encoding step would certainly not retain this information. In case of the use of the vertical blanking for carrying the trigger information, the situation is even more difficult, as actors in the broadcast chain might write other information at the same position (the vertical blanking is used for many things and there is no
30 uniform agreement about the control over usage of the blanking interval). Also, standards converters (like PAL-NTSC) and other equipment in the broadcast chain may not retain all information in the vertical blanking interval.

Yet another way is using watermarking. A watermark may be embedded in the video frames at the relevant time instants. The Philips Watercast System is, among others,

being sold for this purpose. A disadvantage of watermarking is the fact that it necessarily changes the video/audio.

5 It is an object of the invention to provide a method and corresponding device of relating one or more trigger actions with a multimedia signal and corresponding method and device for detecting one or more trigger actions in a multimedia signal that solves the above-mentioned problems. A further object is to provide this in a simple and efficient way. Another object is to enable simple, reliable and accurate localisation of a given part of a
10 multimedia signal. A further object is to enable detection of trigger actions without modifying the multimedia signal.

 This is achieved by a method (and corresponding device) of relating one or more trigger actions with a multimedia signal, the method comprising the steps of

- providing at least one trigger time point and for each trigger time point providing at
15 least one representation of least one associated trigger action, where each trigger time point indicates a time point of the multimedia signal for which the at least one associated trigger action is to be available during playback of the multimedia signal, and
- for each given trigger time point deriving a fingerprint on the basis of a segment of
20 the multimedia signal, where the segment of the multimedia signal is unambiguously related with the given trigger time point,
- and by a method (and corresponding device) of detecting one or more trigger actions in a multimedia signal, the method comprising the steps of:
 - generating a fingerprint stream on the basis of the multimedia signal,
 - 25 - comparing a segment of the fingerprint stream with one or more fingerprints stored in a second database in order to determine if a match exists or not between the segment and a fingerprint in the second database, the second database further comprising for each stored fingerprint at least one representation of at least one associated action, and
 - 30 - if a match exists retrieving the at least one representation of the at least one associated action associated with the matching fingerprint.

 In this way, a simple and efficient way of handling time markers in a multimedia signal for given actions is obtained. A fingerprint thereby serves as a trigger of a particular action, event, etc. associated with a particular point in time of the multimedia

signal. Further, this is enabled without the multimedia signal needing to be modified. Additionally, the time marking detection is time independent as it is dependent on the specific content of the multimedia signal only thereby avoiding problems if a multimedia signal being a television program or the like is delayed.

5 A fingerprint of a multimedia object/content/signal is a representation of perceptual features of the object/content/signal part in question. Such fingerprints are sometimes also known as “(robust) hashes”. More specifically, a fingerprint of a piece of audio or video is an identifier which is computed over that piece of audio or video and which does not change even if the content involved is subsequently transcoded, filtered or otherwise
10 modified.

 Preferably, the derived fingerprint is an audio and/or video fingerprint. Alternatively, animations and/or streaming text, etc. is used as a source for creating a fingerprint.

 Advantageous embodiments of the methods and devices according to the
15 present invention are defined in the sub-claims.

 Further, the invention also relates to a computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to the present invention.

20

 Figure 1a schematically illustrates generation of fingerprint(s) used as trigger marker(s) according to the present invention.

 Figure 1b schematically illustrates detection and use of fingerprint(s) as trigger marker(s) according to the present invention.

25 Figure 2 illustrates a schematic block diagram of a fingerprint generation device according to the present invention;

 Figure 3 illustrates a schematic block diagram of a playback device detecting and using fingerprints according to the present invention;

 Figure 4 illustrates one example of tables/records according to the present
30 invention.

 Figure 1a schematically illustrates generation of fingerprint(s) used as trigger marker(s) according to the present invention.

Shown is a digital or analog multimedia signal (101) comprising video and/or audio information/content, where one or more 'trigger' actions (forth denoted actions) is to be associated/related with the multimedia signal (101) at certain given 'trigger' time points (forth denoted time points). The one or more actions associated with each time point is to be available, i.e. triggered, at that given particular time point ($T_n; T_{n+1}$) during playback on a playback device. The notation ' $(T_n; T_{n+1})$ ' for a given time point signifies that the time point may be either the shown time point T_n or the shown time point T_{n+1} or in general any suitable (not shown) time point of the signal (101). The associated actions of multiple time points may be the same, different and/or a mix thereof.

The action(s) to be presented/triggered at a given time point may e.g. comprise retrieving and displaying additional information on a display (e.g. presenting biography data for an actor being shown by the multimedia signal, presenting a selectable URL to a web site containing additional information, etc.), retrieving and playing additional information via a speaker, playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time (e.g. a local weather forecast, a local commercial, etc.) and/or the like. Other examples of action(s) are e.g. stopping/pausing, e.g. temporarily, display/play, executing other control commands, and/or preparing the system for user input(s), e.g. once the trigger action is executed the system waits (for some time) for a specific action of the user. If the trigger action was not executed, the user input will not have any influence. For example, in interactive games the user may only submit his answer after the trigger action has fired/been executed.

For each time point ($T_n; T_{n+1}$) a fingerprint (102) is generated on the basis of a part, segment, etc. (forth denoted segment) of the multimedia signal (101), where the segment of the multimedia signal (101) is unambiguously related with the given time point ($T_n; T_{n+1}$). Preferably, the segment of the multimedia signal (101) is unambiguously related with the given time point ($T_n; T_{n+1}$) by letting the segment of the multimedia signal (101) ending substantially at the given time point ($T_n; T_{n+1}$). In alternative embodiments, the segment of the multimedia signal (101) may start substantially at the given time point ($T_n; T_{n+1}$), the segment of the multimedia signal (101) is starting or ending at a predetermined distance before or after the given trigger time point ($T_n; T_{n+1}$), or the given time point ($T_n; T_{n+1}$) may be at a predetermined time point between a start and an end of the segment of the multimedia signal (101).

The size of the fingerprints and/or the segments may both be of a predetermined fixed size or alternatively of a variable size.

One method for computing a robust fingerprint is described in European patent application 01200505.4, although of course any method for computing a robust fingerprint can be used.

European patent application 01200505.4 describes a method that generates
5 robust fingerprints for multimedia content such as, for example, audio clips, where the audio clip is divided in successive (preferably overlapping) time intervals. For each time interval, the frequency spectrum is divided in bands. A robust property of each band (e.g. energy) is computed and represented by a respective fingerprint bit.

Multimedia content is thus represented by a fingerprint comprising a
10 concatenation of binary values, one for each time interval. The fingerprint does not need to be computed over the whole multimedia content, but can be computed when a portion of a certain length has been received. There can thus be plural fingerprints for one multimedia content, depending on which portion is used to compute the fingerprint over.

Further, video fingerprinting algorithms are known, e.g. from the following
15 disclosure: Job Oostveen, Ton Kalker, Jaap Haitma: "Feature Extraction and a Database Strategy for Video Fingerprinting". 117-128. IN: Shi-Kuo Chang, Zhe Chen, Suh-Yin Lee (Eds.): Recent Advances in Visual Information Systems, 5th International Conference, VISUAL 2002 Hsin Chu, Taiwan, March 11-13, 2002, Proceedings. Lecture Notes in Computer Science 2314 Springer 2002.

20 According to the present invention, a fingerprint (102) is generated for each time point on the basis of a given segment of the multimedia signal (101) at or near the specific time point.

In this way, a given fingerprint (102) is a trigger marker enabling a very accurate and very precise location of a given time point of the signal (101) without using the
25 specific time point but instead using (a segment of) the signal. Further, this is enabled without changing the signal. For video fingerprinting the localisation is typically frame accurate, at least as long as any distortion of the video signal is not too severe.

After a fingerprint (102) has been generated it is stored for later use in a database, memory, storage and/or the like.

30 There are several advantages in storing fingerprints (102) for a multimedia signal (101) in a database instead of the multimedia signal itself. To name a few: The memory/storage requirements for the database are reduced.

The comparison of fingerprints is more efficient than the comparison of the multimedia signals themselves, as fingerprints are substantially shorter than the signals.

Searching in a database for a matching fingerprint is more efficient than searching for a complete multimedia signals, since it involves matching shorter items.

Searching for a matching fingerprint is more likely to be successful, as small changes to a multimedia signal (such as encoding in a different format or changing the bit rate) do not affect the fingerprint.

Alternatively, if the multimedia content is in the form of more than a single signal, e.g. a separate audio signal and a separate video signal, the fingerprint(s) (102) may be generated on the basis of a single of them (audio or video) or on both.

The generated fingerprints (102) stored in the database may then be distributed to playback devices via the Internet or in a side-channel of a broadcast channel or via some other channel or other means for use during playback according to the present invention. As other examples of distribution is e.g. physical distribution on a storage medium or in a non-electronic way, e.g. requiring the user to enter the fingerprints and actions manually into the playback device.

In a preferred embodiment, a representation of the associated action(s) is also stored for each fingerprint in the database. These representations are preferably also sent to the playback devices. In an alternative embodiment, representations are not stored in the database or used at all when generating the fingerprints. Another party may then provide the representations to the relevant playback devices as well as a relationship between each fingerprint and its associated action(s).

Figure 1b schematically illustrates detection and use of fingerprint(s) as trigger marker(s) according to the present invention. Shown is a digital or analog multimedia signal (101) comprising video and/or audio information/content, where the signal (101) is played back by a suitable playback device. Further shown is a fingerprint stream (104) that is generated continuously or substantially continuously on the basis of the multimedia signal (101). Alternatively, the fingerprint stream (104) is generated in segments. The fingerprint stream (104) (or segments) is compared with fingerprints (102) stored in a database. The stored fingerprints (102) generated as explained in connection with Figure 1a at a production site. The database preferably also comprises representations of the one or more associated actions (105) for each stored fingerprint (102). The stored fingerprints (102) are e.g. received via the Internet or in a side-channel of a broadcast channel or via some other channel or other means from the distribution site. The representations of the associated action(s) (105) may also be received like this. In an alternative embodiment, the representations as well as a

relationship between each fingerprint and its associated action(s) (105) are provided by another party.

When a match between a segment of the fingerprint stream (104) and a given fingerprint (102) in the database is found the representation(s) of the associated action(s) (105) of that particular fingerprint (102) is retrieved and executed at the appropriate time point ($T_n; T_{n+1}$). When a match between a segment of the fingerprint stream (104) and a fingerprint (102) in the database, the appropriate time point ($T_n; T_{n+1}$) is also determined when the fingerprints (102) have been generated as explained in connection with Figure 1a. Preferably, the given time point ($T_n; T_{n+1}$) is determined by letting the segment of the multimedia signal (101) that the matching fingerprint originally has been based on during generation (according to Figure 1a) ending substantially at the given time point ($T_n; T_{n+1}$). In alternative embodiments, the segment of the multimedia signal (101) may start substantially at the given time point ($T_n; T_{n+1}$), the segment of the multimedia signal (101) is starting or ending at a predetermined distance before or after the given trigger time point ($T_n; T_{n+1}$) or the given time point ($T_n; T_{n+1}$) may be at a predetermined time point between a start and an end of the segment of the multimedia signal (101). The playback device simply needs to be aware of the relationship between a given fingerprint and the given time point used during generation.

When a matching fingerprint (102) is determined, the associated one or more actions is also retrieved. The playback device may then execute these actions or present them to a user e.g. awaiting user confirmation before executing them.

The above-mentioned European patent application 01200505.4 describes various matching strategies for matching fingerprints computed for an audio clip with fingerprints stored in a database.

Further European patent application 01202720.7 describes an efficient method of matching a fingerprint representing an unknown information signal with a plurality of fingerprints of identified information signals stored in a database to identify the unknown signal. This method uses reliability information of the extracted fingerprint bits. The fingerprint bits are determined by computing features of an information signal and thresholding said features to obtain the fingerprint bits. If a feature has a value very close to the threshold, a small change in the signal may lead to a fingerprint bit with opposite value. The absolute value of the difference between feature value and threshold is used to mark each fingerprint bit as reliable or unreliable. The reliabilities are subsequently used to improve the actual matching procedure.

A further advantage of the present invention is that if for any reason the broadcast is delayed, the fingerprint matching ensures that the trigger actions still appear at the correct corresponding moment in the broadcast since the invention is time-independent but content-dependent.

5 Figure 2 illustrates a schematic block diagram of a fingerprint generation device according to the present invention. Shown is fingerprint generation device (200) comprising a multi-media signal input module (201), a fingerprinting module (202), a data base, memory storage and/or the like (203) communicating via a bus (205) or the like under the control of one or more microprocessors (not shown). The fingerprint generation device
10 (200) may in one embodiment optionally also comprise a transmitter and receiver (204) for communicating with other systems, devices, etc. via a wired and/or wireless network e.g. like the Internet.

 The multi-media signal input module (201) receives multimedia content e.g. in the form of an analog or digital audio and/or video signal and feeds the multimedia content to
15 the fingerprinting module (202). The fingerprinting module (202) computes a fingerprint on the basis of the received multi-media content. A fingerprint may be derived for the entire content or for a part of the content. Alternatively, several fingerprints may be derived each from a different part. According to the present invention, a fingerprint is derived each time that a trigger action is needed, i.e. for each time point (T_n ; T_{n+1}), as explained in connection
20 with Figure 1a. A representation of the time point(s) is also supplied to the fingerprinting module (202).

 The fingerprinting module (202) then supplies the computed fingerprint(s) to the database (203) preferably together with the associated one or more actions for each fingerprint. As shown in Figure 4, the database (203) comprises fingerprints 'FP1', 'FP2',
25 'FP3', 'FP4', 'FP5', etc. and respective associated actions 'A1', 'A2', 'A3', 'A4', 'A2, A1', etc.

 The database (203) can be organized in various ways to optimize query time and/or data organization. The output of the fingerprinting module (202) should be taken into account when designing the tables in the database (203). In the embodiment shown in Figure
30 4, the database (203) comprises a single table with entries (records) comprising respective fingerprints and associated (sets) of actions.

 Figure 3 illustrates a schematic block diagram of a playback device detecting and using fingerprints according to the present invention. Shown is a playback device (300) comprising a multimedia signal receiver (301), a fingerprint detector (302), a display/play

circuit (303), a data base, memory storage and/or the like (203') communicating via a bus (205) or the like under the control of one or more microprocessors (not shown). The playback device (300) may in one embodiment optionally also comprise a transmitter and receiver (204) for communicating with other systems, devices, etc. via a wired and/or wireless
5 network e.g. like the Internet.

The multimedia signal receiver (301) receives the multimedia signal e.g. in the form of an analog or digital audio and/or video signal to be displayed and/or played e.g. from a broadcasting cable, antenna, satellite dish, etc. arrangement (not shown). The received multimedia signal is fed to the fingerprint detector (302) that derives a fingerprint stream or
10 segments thereof and determines if there are any matches with fingerprints stored in the database as explained in connection with Figure 1b. If a match is found then a representation of the associated action(s) is also retrieved. The appropriate time point for the associated action(s) is given by the matching fingerprint as described above.

The received multimedia signal is displayed and/or played by the a
15 display/play circuit (303) and at the appropriate time point(s) the associated action(s) is executed or presented to a user e.g. awaiting user confirmation before executing the action(s).

Preferably, the data layout of the database (203') corresponds to the one shown in Figure 4.

The playback device (300) may also comprise a buffer mechanism (not
20 shown) for buffering a part of the multimedia signal before displaying/playing it.

Figure 4 illustrates one example of tables/records according to the present invention. Shown is a table comprising fingerprints (102) 'FP1', 'FP2', 'FP3', 'FP4', 'FP5', etc. and respective associated actions (105) 'A1', 'A2', 'A3', 'A4', 'A2, A1', etc. One or more actions (105) are stored for each fingerprint (102). A given fingerprint (102) is only
25 stored in the table once.

In the claims, any reference signs placed between parentheses shall not be constructed as limiting the claim. The word "comprising" does not exclude the presence of elements or steps other than those listed in a claim. The word "a" or "an" preceding an element does not exclude the presence of a plurality of such elements.

30 The invention can be implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer. In the device claim enumerating several means, several of these means can be embodied by one and the same item of hardware. The mere fact that certain measures are recited in mutually different

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dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS:

1. A method of relating one or more trigger actions with a multimedia signal (101), the method comprising the steps of
 - providing at least one trigger time point (T_n ; T_{n+1}) and for each trigger time point (T_n ; T_{n+1}) providing at least one representation of least one associated trigger action (105),
5 where each trigger time point (T_n ; T_{n+1}) indicates a time point of the multimedia signal (101) for which the at least one associated trigger action is to be available during playback of the multimedia signal (101), and
 - for each given trigger time point (T_n ; T_{n+1}) deriving a fingerprint (102) on the basis of a segment of the multimedia signal (101), where the segment of the multimedia signal
10 (101) is unambiguously related with the given trigger time point (T_n ; T_{n+1}).
2. A method according to claim 1, characterized in that the method further comprises for each obtained trigger time point (T_n ; T_{n+1}), storing the derived fingerprint (102) and the at least one representation of the at least one associated trigger action (105) in a first
15 database (203).
3. A method according to claims 1, 2, characterized in that the one or more derived fingerprints (102) and/or the at least one representation of at least one associated trigger action (105) for the multimedia signal (101) is transmitted to a playback-device (300)
20 via the Internet or in a side-channel of a broadcast channel or via some other channel or means.
4. A method according to claims 1 to 3, characterized in that the segment of the multimedia signal (101) is unambiguously related with the given trigger time point (T_n ; T_{n+1})
25 according to:
 - the segment of the multimedia signal (101) ending substantially at the given trigger time point (T_n ; T_{n+1}),
 - the segment of the multimedia signal (101) starting substantially at the given trigger time point (T_n ; T_{n+1}),

- the segment of the multimedia signal (101) starting or ending at a predetermined distance before or after the given trigger time point (T_n ; T_{n+1}), or
- the given trigger time point (T_n ; T_{n+1}) being at a predetermined time point between a start and an end of the segment of the multimedia signal (101).

5

5. A method of detecting one or more trigger actions in a multimedia signal (101), the method comprising the steps of:

- generating a fingerprint stream (104) on the basis of the multimedia signal (101),
- comparing a segment of the fingerprint stream (104) with one or more fingerprints (102) stored in a second database (203') in order to determine if a match exists or not between the segment and a fingerprint (102) in the second database (203'), the second database (203') further comprising for each stored fingerprint (102) at least one representation of at least one associated action (105), and
- if a match exists retrieving the at least one representation of the at least one associated action (105) associated with the matching fingerprint (102).

10
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6. A method according to claim 5, characterized in that said method further comprises the step of: executing the at least one associated action (105) associated with the matching fingerprint (102) at an appropriate trigger time point (T_n ; T_{n+1}).

20

7. A method according to claim 6, characterized in that the appropriate trigger time point (T_n ; T_{n+1}) is given by an unambiguously relation with a segment of a multimedia signal (101) used during generation of the matching fingerprint (102).

25 8. A method according to claims 1 to 4 or claims 5 to 7, characterized in that said multimedia signal (101) is an audio signal, a video signal or a combined audio/video signal.

9. A method according to claims 1 to 4 or claims 5 to 8, characterized in that said at least one associated trigger action (105) is selected from the group of:

- retrieving and displaying additional information on a display,
- retrieving and playing additional information via a speaker,
- playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time,
- stopping/pausing, e.g. temporarily, display/play,

30

- executing other control commands, and/or
- preparing the system for user inputs.

10. A method according to claims 1 to 4 or claims 5 to 9, characterized in that the
5 derived fingerprint (102) and/or the fingerprint (102) in the second database (203') is an audio and/or video fingerprint (102).

11. A multimedia device (200) for relating one or more trigger actions with a multimedia signal (101), the device comprising
10 - means (202; 204) for providing at least one trigger time point (T_n ; T_{n+1}) and for each trigger time point (T_n ; T_{n+1}) providing at least one representation of at least one associated trigger action (105), where each trigger time point (T_n ; T_{n+1}) indicates a time point of the multimedia signal (101) for which the at least one associated trigger action is to be available during playback of the multimedia signal (101), and
15 - a fingerprint generator (202) adapted to for each given trigger time point (T_n ; T_{n+1}) deriving a fingerprint (102) on the basis of a segment of the multimedia signal (101), where the segment of the multimedia signal (101) is unambiguously related with the given trigger time point (T_n ; T_{n+1}).

20 12. A device according to claim 11, characterized in that the device further comprises a first database (203) having stored the derived fingerprint (102) and the at least one representation of the at least one associated trigger action (105) for each obtained trigger time point (T_n ; T_{n+1}).

25 13. A device according to claims 11, 12, characterized in that the device further comprises a transmitter (204) for transmitting the one or more derived fingerprints (102) and/or the at least one representation of at least one associated trigger action (105) for the multimedia signal (101) to a playback-device (300) via the Internet or in a side-channel of a broadcast channel or via some other channel or means.

30 14. A device according to claims 11 to 13, characterized in that the segment of the multimedia signal (101) is unambiguously related with the given trigger time point (T_n ; T_{n+1}) according to:

- the segment of the multimedia signal (101) ending substantially at the given trigger time point ($T_n; T_{n+1}$),
 - the segment of the multimedia signal (101) starting substantially at the given trigger time point ($T_n; T_{n+1}$),
 - 5 - the segment of the multimedia signal (101) starting or ending at a predetermined distance before or after the given trigger time point ($T_n; T_{n+1}$), or
 - the given trigger time point ($T_n; T_{n+1}$) being at a predetermined time point between a start and an end of the segment of the multimedia signal (101).
- 10 15. A audio and/or video playback device (300) for detecting one or more trigger actions in a multimedia signal (101) comprising:
- means (302) for generating a fingerprint stream (104) on the basis of the multimedia signal (101),
 - means (302) for comparing a segment of the fingerprint stream (104) with one or
 - 15 more fingerprints (102) stored in a second database (203') in order to determine if a match exists or not between the segment and a fingerprint (102) in the second database (203'), the second database (203') further comprising for each stored fingerprint (102) at least one representation of at least one associated action (105), and
 - 20 - means (302) for, if a match exists, retrieving the at least one representation of the at least one associated action (105) associated with the matching fingerprint (102).
16. A device according to claim 15, characterized in that said device further comprises: means (303) for executing the at least one associated action (105) associated with
- 25 the matching fingerprint (102) at an appropriate trigger time point ($T_n; T_{n+1}$).
17. A device according to claim 16, characterized in that the appropriate trigger time point ($T_n; T_{n+1}$) is given by an unambiguously relation with a segment of a multimedia signal (101) used during generation of the matching fingerprint (102).
- 30 18. A device according to claims 11 to 14 or claims 15 to 17, characterized in that said multimedia signal (101) is an audio signal, a video signal or a combined audio/video signal.

19. A device according to claims 11 to 14 or claims 15 to 18, characterized in that said at least one associated trigger action (105) is selected from the group of:

- retrieving and displaying additional information on a display,
- retrieving and playing additional information via a speaker,
- 5 - playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time,
- stopping/pausing, e.g. temporarily, display/play,
- executing other control commands, and/or
- prepairing the system for user inputs.

10

20. A device according to claims 11 to 14 or claims 15 to 19, characterized in that the derived fingerprint (102) and/or the fingerprint (102) in the second database (203') is an audio and/or video fingerprint (102).

15 21. A computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to any one of claims 1 to 4 or any one of claims 5 to 10.

ABSTRACT:

This invention relates to a device and a method of relating one or more trigger actions with a multimedia signal and corresponding method and device for detecting one or more trigger actions in a multimedia signal. One fingerprint is generated on the basis of a segment of the multimedia signal at each trigger time point. The generated fingerprint(s) is
5 stored in a database and communicated to playback devices. During playback fingerprints of the multimedia signal are generated and matched against fingerprints in the database. When a match is found, associated trigger actions is retrieved. The trigger time point is determined as a time point near or at a segment of the multimedia signal that caused a fingerprint to match.

In this way, a simple and reliable way of detecting trigger markers for trigger
10 actions is enabled without modifying the multimedia signal.

Figure 1b

1/3

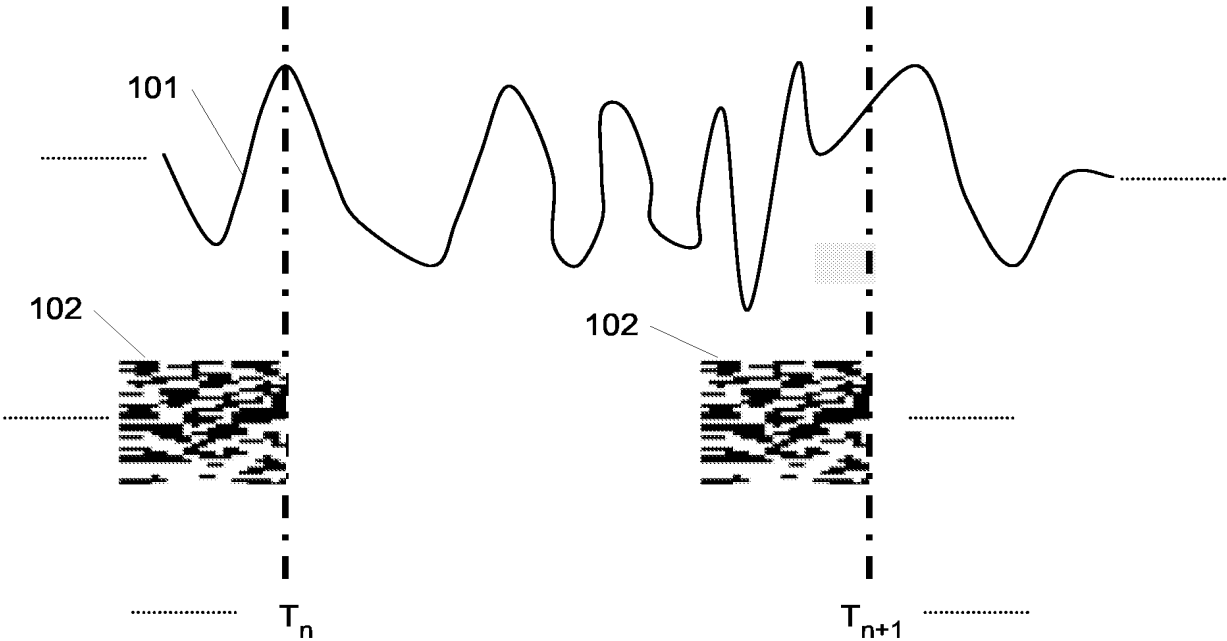


Figure 1a

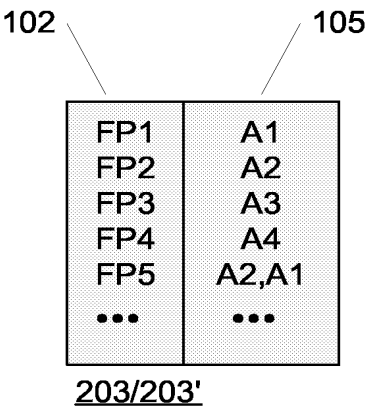
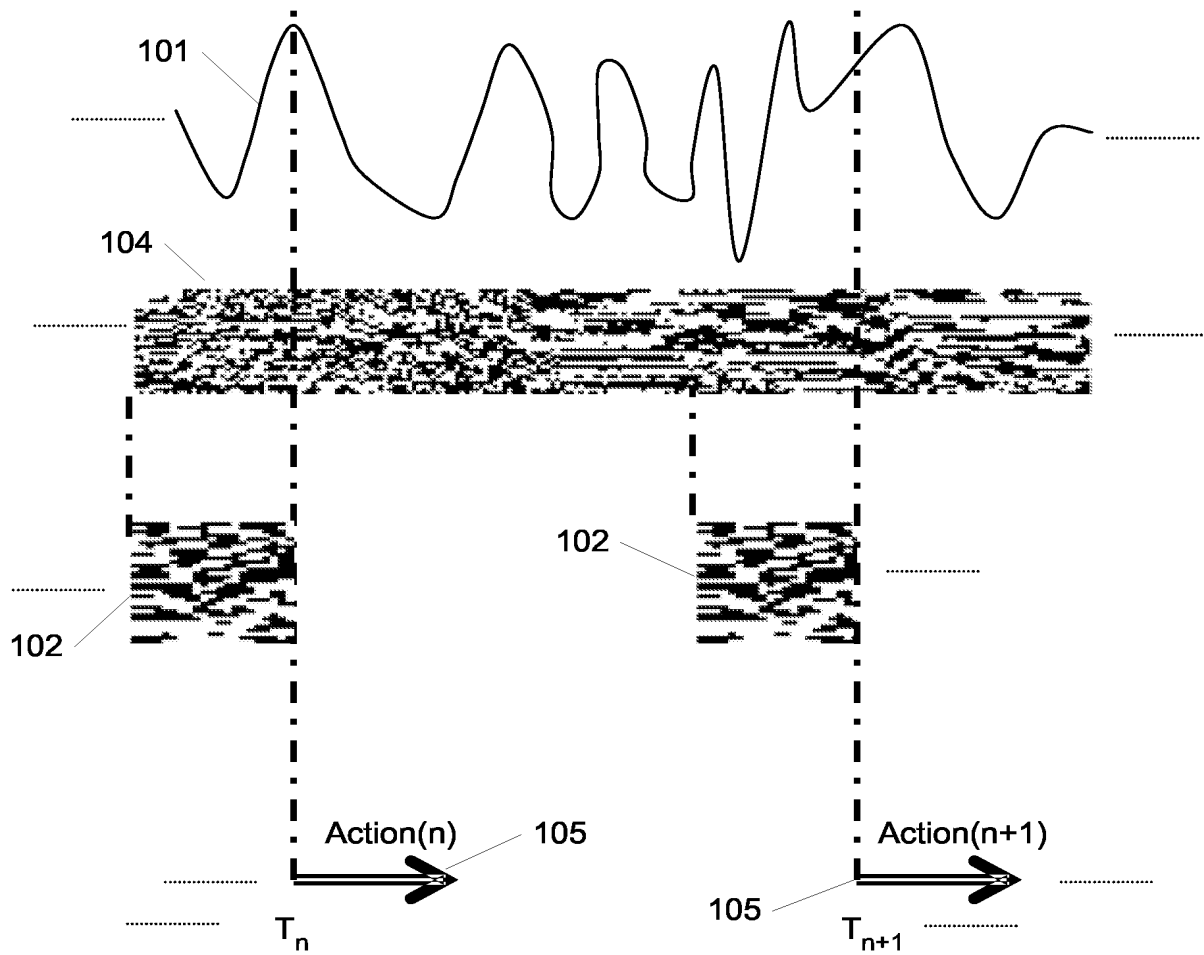


Figure 4

2/3

**Figure 1b**

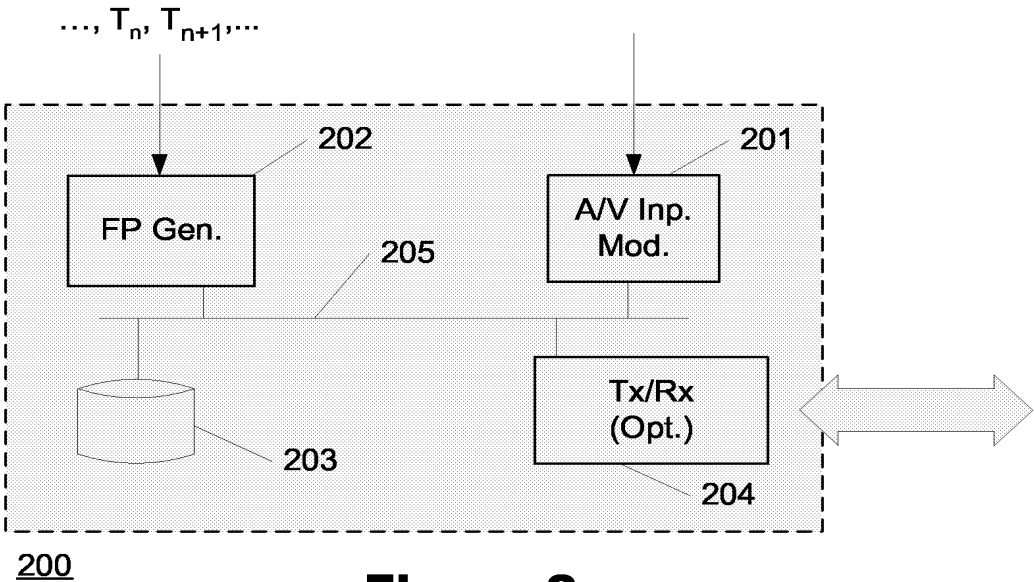


Figure 2

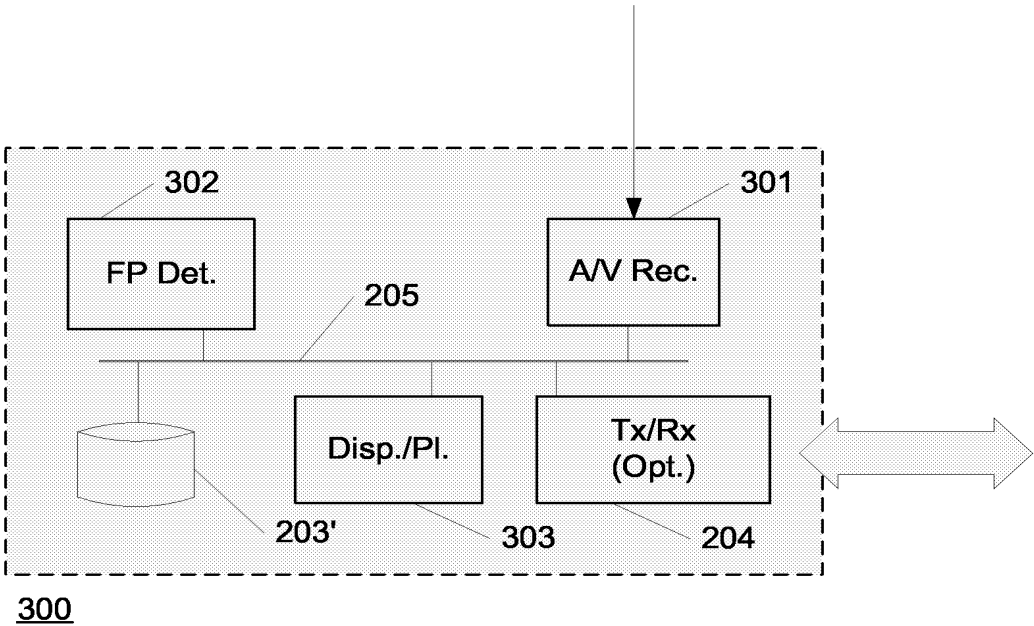


Figure 3

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16264134
	Filing Date	2019-01-31
	First Named Inventor	Job Cornelis Oostveen et al.
	Art Unit	2435
	Examiner Name	Darren B. Schwartz
	Attorney Docket Number	17-374-US-CON8

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

1	Complaint, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 10/17/2018 (106 pages)
2	Defendant's Opening Brief in Support of its Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 03/04/2019 (52 pages)
3	Plaintiff's Memorandum in Opposition to Defendant's Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 04/01/2019 (31 pages)
4	Defendant's Reply Brief in Support of its Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 04/15/2019 (14 pages)

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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jason S. Kray/	Date (YYYY-MM-DD)	2019-09-05
Name/Print	Jason S. Kray	Registration Number	66,926

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	37069796
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Jason S. Kray
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	05-SEP-2019
Filing Date:	31-JAN-2019
Time Stamp:	09:06:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL1.pdf	10026438	no	106
			138479cd559e48e2f1a626d3eab8f5c09fcd b01d		

Warnings:

IPR2020-00216

Information:					
2	Non Patent Literature	NPL2.pdf	1563304	no	52
			0c673b911dd3f590e7c9c2afd47e22b85dd d6146		
Warnings:					
Information:					
3	Non Patent Literature	NPL3.pdf	597208	no	31
			4e872e141d1ceb3810d28e4995b76721b6 0530ea		
Warnings:					
Information:					
4	Non Patent Literature	NPL4.pdf	209230	no	14
			1ce9b6ab6ccd5dc60a1c1aa372fc70f97fde 67ad		
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	17-374-US-CON8_suppl_IDS. pdf	612453	no	4
			3842861e6957998f582a6a0a4857fb88ba7 d7a20		
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
Total Files Size (in bytes):			13008633		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	
Application Number	16264134	
Filing Date	31-Jan-2019	
First Named Inventor	Job Oostveen	
Attorney Docket Number	17-374-US-CON8	
Title of Invention	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal	
<input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action <input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.		
Owner	Percent Interest	
Gracernote Inc.	100%	
The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s) 9407962 9066114 8660267 8020000 10250916 10045054 9712853 9479831		

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

☒ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

☐ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

- ☐ Small Entity
- ☐ Micro Entity
- ☒ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

☒ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 66926

☐ A sole inventor

☐ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

☐ A joint inventor; all of whom are signing this request

Signature	/Jason S. Kray/
Name	Jason S. Kray

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	16264134			
Filing Date:	31-Jan-2019			
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Jason S. Kray			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16264134

Filing Date: 31-Jan-2019

Applicant/Patent under Reexamination: Oostveen

Electronic Terminal Disclaimer filed on September 5, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	37070439
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Jason S. Kray
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	05-SEP-2019
Filing Date:	31-JAN-2019
Time Stamp:	09:49:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 160
RAM confirmation Number	E201995049049050
Deposit Account	132490
Authorized User	Jason Kray

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00216

37 CFR 1.19 (Document supply fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	36249	no	3
			2d4aa71fb9396535749b9911ccce36014adc24e		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30687	no	2
			a04546f7595f0d4fd2c286a4745676974701b64c		

Warnings:

Information:

Total Files Size (in bytes):	66936
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 17-374-US-CON8)**

Applicant: Gracenote, Inc.)	
	)	Examiner: Darren B. Schwartz
Pat. App. No.: 16/264,134)	
	)	Group Art Unit: 2435
Filed: January 31, 2019)	
	)	Confirmation No.: 4451
Title: Method and Device for Generating and)	
Detecting a Fingerprint Functioning as)	
a Trigger Marker in a Multimedia Signal)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

INTERVIEW SUMMARY

On August 28, 2019, Examiner Schwartz initiated a telephonic interview with Applicant's representative (Jason Kray). During the interview, the Examiner indicated that the claims would be allowed if a terminal disclaimer was filed to overcome potential double patenting rejections based on the issued patents in the chain of priority of the present application. Applicant thanks the Examiner for his time and consideration of this matter.

Respectfully submitted,

McDONNELL BOEHNEN

HULBERT & BERGHOFF LLP

Date: September 5, 2019

By: /Jason S. Kray/
Jason S. Kray
Registration No. 66,926

Electronic Acknowledgement Receipt

EFS ID:	37070492
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Jason S. Kray
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	05-SEP-2019
Filing Date:	31-JAN-2019
Time Stamp:	09:52:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant summary of interview with examiner	17-374-US-CON8_Interview_Summary.pdf	92038 c0912228b2b18698e766fb157c0e2526fdc4a0eb	no	1

Warnings:

IPR2020-00216

Information:	
Total Files Size (in bytes):	92038
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

139404 7590 10/16/2019
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

EXAMINER	
SCHWARTZ, DARREN B	
ART UNIT	PAPER NUMBER

2435

DATE MAILED: 10/16/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

TITLE OF INVENTION: Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	01/16/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

139404 7590 10/16/2019
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

TITLE OF INVENTION: Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	01/16/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
SCHWARTZ, DARREN B	2435	726-027000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451
139404	7590	10/16/2019	EXAMINER	
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote 300 South Wacker Drive, Suite 3100 Chicago, IL 60606			SCHWARTZ, DARREN B	
			ART UNIT	PAPER NUMBER
			2435	
DATE MAILED: 10/16/2019				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation of Federal, State, or local law.

Notice of Allowability	Application No. 16/264,134	Applicant(s) Oostveen et al.	
	Examiner DARREN B SCHWARTZ	Art Unit 2435	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to filings 31 Jan 2019 and 16 July 2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-22. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☒ All b) ☐ Some *c) ☐ None of the:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>1-31-19 9-5-19</u> . 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material _____. 4. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date. <u>20190828</u> .	5. <input type="checkbox"/> Examiner's Amendment/Comment 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 7. <input type="checkbox"/> Other _____.
--	--

/DARREN B SCHWARTZ/
Primary Examiner, Art Unit 2435

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Claims 1-22 are presented for examination.

Terminal Disclaimer

The terminal disclaimer filed on 05 September 2019 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 8020000, 8660267, 9066114, 9407962, 9479831, 9712853, 10045054 & 10250916 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 1-22 are allowed.

The Examiner notes at the time of examination, the instant claims are statutory in view of the 2019 Revised Patent Subject Matter Eligibility Guidance; see also Federal Register 07 Jan 2019, Vol. 84, No. 4.

The claims are directed to novel and non-obvious methods, devices and computer readable medium for detecting trigger instants/information in a multimedia signal where, at least, in response to determining that one of derived fingerprints matches at least one reference fingerprint, causing execution of an action associated with the at least one reference fingerprint, wherein the action to be executed is associated with a time point indicating when, in the multimedia content, the action is to be executed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARREN B SCHWARTZ whose telephone number is (571)270-3850. The examiner can normally be reached on 9am-7pm EST, Monday-Thursday, 9am-5pm EST, Friday.


Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph P Hirl can be reached on (571)272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DARREN B SCHWARTZ/
Primary Examiner, Art Unit 2435

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: This document memorializes a series of interviews between the Examiner and Applicant's Representative initiated by the Examiner; the Examiner indicated that an updated search of the art was conducted. The Examiner indicated the only issues were directed to non-statutory double patenting in view of the parent cases and the filing of a Terminal Disclaimer (TD) would obviate these issues and place the case in condition for allowance; Applicant's Representative acknowledged the Examiner's findings and indicated Applicant would be consulted. In a subsequent correspondence initiated by Applicant's Representative, it was agreed that a TD would be filed; the Examiner indicated that upon approval of the TD, the claims would be in condition for allowance.

<i>Search Notes</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

CPC - Searched*		
Symbol	Date	Examiner
H04N21/23418 H04N21/23109 H04N21/4394 H04N21/8133 H04N21/433 H04N21/8126 H04N21/435 H04N21/44008 H04N21/4586 H04N21/6587 H04N19/467	10/05/2019	DS

CPC Combination Sets - Searched*		
Symbol	Date	Examiner


US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.


Search Notes		
Search Notes	Date	Examiner
CPC search (H04N21/23418 H04N21/23109 H04N21/4394 H04N21/8133 H04N21/433 H04N21/8126 H04N21/435 H04N21/44008 H04N21/4586 H04N21/6587 H04N19/467) with keywords (see search history)	10/05/2019	DS
keywords search (see search history)	10/05/2019	DS
NPL search (see search history)	10/05/2019	DS
Inventor, Assignment, Double Patenting, Interference search (see search history)	10/05/2019	DS
Reviewed FAMILY applications	10/05/2019	DS

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	keywords search in East (USPAT, US-PGPUB) (see search history)	10/05/2019	DS

/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435	
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<i>Search Notes</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435	
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<i>Index of Claims</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected


CLAIMS										
<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47										
CLAIM			DATE							
Final	Original	10/05/2019								
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
7	7	=								
8	8	=								
9	9	=								
10	10	=								
11	11	=								
12	12	=								
13	13	=								
14	14	=								
15	15	=								
16	16	=								
17	17	=								
18	18	=								
19	19	=								
20	20	=								
21	21	=								
22	22	=								

Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

CPC						
Symbol					Type	Version
H04N	/	21	/	23418	F	2013-01-01
H04N	/	21	/	8133	I	2013-01-01
H04N	/	21	/	435	I	2013-01-01
H04N	/	21	/	6587	I	2013-01-01
H04N	/	21	/	4586	I	2013-01-01
H04N	/	21	/	44008	I	2013-01-01
H04N	/	21	/	4394	I	2013-01-01
H04N	/	21	/	8126	I	2013-01-01
H04N	/	21	/	433	I	2013-01-01
H04N	/	21	/	23109	I	2013-01-01
H04N	/	19	/	467	I	2014-11-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) 05 October 2019		O.G. Print Claim(s) 1	O.G. Print Figure 1b


Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	21	/	234
H04N	/	21	/	231
H04N	/	21	/	439
H04N	/	21	/	81
H04N	/	21	/	433
H04N	/	21	/	435
H04N	/	21	/	44
H04N	/	21	/	458
H04N	/	21	/	6587
H04N	/	19	/	467
NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) _____		05 October 2019 O.G. Print Claim(s) 1	O.G. Print Figure 1b

Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant	<input type="checkbox"/> CPA	<input checked="" type="checkbox"/> T.D.	<input type="checkbox"/> R.1.47
--	------------------------------	--	---------------------------------

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	21	21										
4	4	13	13	22	22										
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) 05 October 2019		O.G. Print Claim(s) 1	O.G. Print Figure 1b

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number

Filing Date

2019-01-31

First Named Inventor

Job Cornelis Oostveen et al.

Art Unit

TBD

Examiner Name

TBD

Attorney Docket Number

17-374-US-CON8

U.S.PATENTS

Remove

Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	6785815		2004-08-31	Serret-Avila et al.	
	2	6959865		2005-11-01	Walczyk et al.	
	3	7185201		2007-02-27	Rhoads et al.	
	4	7444353		2008-10-28	Chen et al.	
	5	8020000		2011-09-13	Oostveen et al.	
	6	8660267		2014-02-25	Oostveen et al.	
	7	9066114		2015-06-23	Oostveen et al.	
	8	9407962		2016-08-02	Oostveen et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	17-374-US-CON8

9	9479831	2016-05-25	Oostveen et al.
10	9712853	2016-09-22	Oostveen et al.
11	10045054	2018-08-07	Oostveen et al.

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20020028000	A1	2002-03-07	Conwell et al.	
	2	20020032864	A1	2002-03-14	Rhoads et al.	
	3	20020033844	A1	2002-03-21	Levy et al.	
	4	20020082731	A1	2002-06-27	Pitman et al.	
	5	20020083060	A1	2002-06-27	Wang et al.	
	6	20020116195	A1	2002-08-22	Pitman et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.	
Art Unit		TBD
Examiner Name	TBD	
Attorney Docket Number		17-374-US-CON8

7	20020126872	A1	2002-09-12	Brunk et al.	
8	20020178410	A1	2002-11-28	Haitsma et al.	
9	20020199009	A1	2002-12-26	Willner et al.	
10	20030002638	A1	2003-01-02	Kaars	
11	20030021441	A1	2003-01-30	Levy et al.	
12	20030023852	A1	2003-01-30	Wold	
13	20030120923	A1	2003-06-26	Gilman et al.	
14	20030174861	A1	2003-09-18	Levy et al.	
15	20030231868	A1	2003-12-18	Herley	
16	20040001161	A1	2004-01-01	Herley	
17	20040073799	A1	2004-04-15	Hitz et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.	
Art Unit		TBD
Examiner Name	TBD	
Attorney Docket Number		17-374-US-CON8

18	20040189873	A1	2004-09-30	Konig et al.	
19	20040194130	A1	2004-09-30	Konig et al.	
20	20050015802	A1	2005-01-20	Masson	
21	20050177372	A1	2005-08-11	Wang et al.	
22	20060015855	A1	2006-01-19	Kumamoto	
23	20060122839	A1	2006-06-08	Li-Chun Wang et al.	
24	20060277409	A1	2006-12-07	Galwas	
25	20080209466	A1	2008-08-28	Ishida et al.	
26	20120016876	A1	2012-01-19	Oostveen et al.	
27	20140130077	A1	2014-05-08	Oostveen et al.	
28	20150189380	A1	2015-07-02	Oostveen et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.	
Art Unit	TBD	
Examiner Name	TBD	
Attorney Docket Number	17-374-US-CON8	

	29	20160269780	A1	2016-09-15	Oostveen et al.
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If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	EP 1054335 A2	EP	A2	2000-11-22	Grossi et al.		
	2	WO 0161987 A2	WO	A2	2001-08-23	Petrovic et al.		
	3	WO 2001061508 A1	WO	A1	2001-08-23	Ramos et al.		
	4	WO 2001071960 A1	WO	A1	2001-09-27	Levy et al.		
	5	WO 0208945 A1	WO	A1	2002-01-31	Levy		
	6	WO 2003043329 A2	WO	A2	2003-05-22	Masson		
	7	WO 03096337 A2	WO	A2	2003-11-20	Van Der Veen et al.		
	8	WO 05006758 A1	WO	A1	2005-01-20	Oostveen et al.		

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Application Number	
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	17-374-US-CON8

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	1	J.S. Patent Application No. 10/564,297, Non-Final Office Action mailed 07-12-2010, 11 pages.	
	2	J.S. Patent Application No. 10/564,297, Examiner Interview Summary dated 10-12-2010, 4 pages.	
	3	J.S. Patent Application No. 10/564,297, Examiner Interview Summary dated 10-12-2010, 1 page.	
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	5	J.S. Patent Application No. 10/564,297, Final Office Action mailed 04-01-2010, 13 pages.	
	6	J.S. Patent Application No. 10/564,297, Non-Final Office Action mailed 10-26-2009, 11 pages.	
	7	J.S. Patent Application No. 10/564,297, Notice of Allowance mailed 05-13-2011, 5 pages.	
	8	J.S. Patent Application No. 10/564,297, Preliminary Amendment filed 01-20-2006, 4 pages.	
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12	U.S. Patent Application No. 10/564,297, Response filed 03-16-2011 to Final Office Action mailed 12-22-2010, 11 pages.
13	U.S. Patent Application No. 10/564,297, Response filed 08-10-2009 to Restriction Requirement mailed 07-10-2009, 4 pages.
14	U.S. Patent Application No. 10/564,297, Restriction Requirement mailed 07-10-2009, 6 pages.
15	U.S. Patent Application No. 13/220,267, Non-Final Office Action mailed 03-20-2013, 12 pages.
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17	U.S. Patent Application No. 13/220,267, Preliminary Amendment filed 09-01-2011, 11 pages.
18	U.S. Patent Application No. 13/220,267, Response filed 06-18-2013 to Non-Final Office Action mailed 03-20-2013, 15 pages.
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26	J.S. Patent Application No. 14/569,044, Preliminary Amendment filed 03-23-2015, 8 pages.
27	J.S. Patent Application No. 14/659,044, Response filed 03-03-2016 to Non-Final Office Action mailed 11-03-2015, 14 pages.
28	J.S. Patent Application No. 15/164,605, Notice of Allowance mailed 09-14-2016, 13 pages.
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30	European Patent Application No. 04744496.3, Decision to Refuse mailed 05-17-2010, 2 pages.
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40	Japan Patent Application No. 2006-518477, Office Action mailed 05-25-2010, with English Translation of Claims, 5 pages.
41	ALATTAR, Adnan M., "Bridging Printed Media and the Internet Via Digimarc's Watermarking Technology," 5 pages.
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Biometrics: past, present and future

ST Fleming - Current security management & ethical issues of ..., 2003 - igi-global.com

... There is considerable reluctance to adopt DNA **fingerprinting** as a general method for identification and ... arranged so as to compare a certain number of minutiae (the unique characteristics of **fingerprints**) ... Such vulnerabilities exist for **fingerprint** and voiceprint recognition systems ...

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Secure audit logging with tamper-resistant hardware

CN Chong, Z Peng, PH Hartel - IFIP International Information Security ..., 2003 - Springer

... and thence the rights on the content, such as cryptography, digital **fingerprinting**, watermarking etc ... the content using an application that does not log any **actions**, then this ... Workshop on Interactive Distributed **Multimedia** Systems/Pmtools for **Multimedia** Systems (IDMS/PROMS ...

☆ 99 Cited by 79 Related articles All 13 versions

Watermarking protocols for authentication and ownership protection based on timestamps and holograms

J Dittmann, M Steinebach... - ... of Multimedia Contents IV, 2002 - spiedigitallibrary.org

... This is especially problematic if **fingerprinting** schemes are used to identify illegal distribution of copies of ... distributes it, the original client will be accused for this as his **fingerprint** is detected ... handles the similarity check and keeps a data base of image "**fingerprints**" together with ...

☆ 99 Cited by 21 Related articles All 3 versions

Multimedia watermarking techniques

F Hartung, M Kutter - Proceedings of the IEEE, 1999 - ieeexplore.ieee.org

... Section XI summarizes and concludes this paper on **multimedia** watermarking techniques. II ... **Fingerprinting** and labeling are terms that denote special applications of watermarking ... watermarks, which are unique codes out of a series of codes, are called "**fingerprints**" or "labels ...

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A guide tour of video watermarking

G Doerr, JL Dugelay - Signal processing: Image communication, 2003 - Elsevier

... **Multimedia** digital contents, stored throughout the world on thousands of computers logged on at the ... Legal **action** has been taken to ban such distributed systems but, when Napster has ... Another **fingerprinting** application has been considered with the apparition of a new kind of ...

☆ 99 Cited by 475 Related articles All 7 versions

Improving the functionality of SYN cookies

A Zuquete - Advanced Communications and Multimedia Security, 2002 - Springer

... For each dropped request the server sends an RST to the source host, enabling real clients to react to the server **action** ... Thus, an attacker may still occasionally affect connections requested by real clients. Page 4. 60 Advanced Communications and **Multimedia** Security ...

☆ 99 Cited by 54 Related articles All 13 versions

Secure electronic commerce of multimedia contents over open networks

JH Joancomartí - 2000 - crises2-deim.urv.cat

... One may think of a **fingerprint** as a serial number (ie something identifying ... similar to the c symbol that appears on books. The main difference between watermarks and **fingerprints** is the following ... all buyers, but in a **fingerprinting** scheme such mark depends on the buyer's ...

☆ 99 Cited by 1 Related articles All 9 versions

Biometric authentication for ID cards with hologram watermarks

LC Ferri, A Mayerhoefer, M Frank... - ... of Multimedia ..., 2002 - spiedigitallibrary.org

... such cards are a photograph and a signature of the owner, sometimes even the **fingerprint** of the ... Security and Watermarking of **Multimedia** Contents IV, Edward J. Delp III, Ping Wah Wong, Editors ... a time interval between the pen-up **action** and the start of the writing **action**, so that ...

☆ 99 Cited by 41 Related articles All 3 versions

A multi-expert based approach to continuous authentication of mobile-device users

O Mazhelis, A Seleznyov, S Puuronen - IFIP World Computer Congress ..., 2002 - Springer



... with integrating face and **fingerprints** [6], **fingerprints**, face, and speech [7], face, **fingerprint**, and hand ... involved do not support continuous and user-friendly authentication (as **fingerprints** and hand ... Similarly to the keystroke dynamics based features, the **action** time and tempo ...

☆ 99 Cited by 3 Related articles All 3 versions

Context awareness and adaptation in mobile learning

YK Wang - The 2nd IEEE International Workshop on Wireless ... , 2004 - ieeexplore.ieee.org

... via a logon system, or through special devices like smart cards or **fingerprint** readers ... context and spatial interface are needed in order to present different **multimedia** learning information at ... can infer additional information, lead to a more extensive situation, and issue an **action** ...

☆  Cited by 216 Related articles All 7 versions 

Bibliographic Data

Application No: 16/264,134

Foreign Priority claimed: ☒ Yes ☐ No

35 USC 119 (a-d) conditions met: ☒ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /DARREN B SCHWARTZ/

Examiner's Signature

Initials

Title:

Method and Device for Generating and Detecting a Fingerprint
Functioning as a Trigger Marker in a Multimedia Signal

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
01/31/2019	726	2435	17-374-US-CON8
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APPLICANTS

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Adrianus Johannes Maria Denissen Eindhoven, NETHERLANDS

David K. Roberts Cheddar,

CONTINUING DATA

This application is a CON of 16018022 06/25/2018 PAT 10250916

16018022 is a CON of 15622024 06/13/2017 PAT 10045054

15622024 is a CON of 15273185 09/22/2016 PAT 9712853

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10564297 is a 371 of PCT/IB2004/051128 07/05/2004

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EPO 03102116.5 07/11/2003

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	Filing Date		2019-01-31
	First Named Inventor		Job Cornelis Oostveen et al.
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	Examiner Name	Darren B. Schwartz	
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Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

1	Complaint, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 10/17/2018 (106 pages)
2	Defendant's Opening Brief in Support of its Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 03/04/2019 (52 pages)
3	Plaintiff's Memorandum in Opposition to Defendant's Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 04/01/2019 (31 pages)
4	Defendant's Reply Brief in Support of its Motion to Dismiss, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 04/15/2019 (14 pages)

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
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Knowledge based **fingerprint** image enhancement

X Luo, J Tian - ... Conference on Pattern Recognition, ICPR-2000, 2000 - [ieeexplore.ieee.org](#)



... We introduced human knowledge about **fingerprints** into the enhancement process in the form of rules and simulate what an ... **Action:** Connect C and D in the binary image ... 4. Experimental results
The images we used for experiment were captured using a **fingerprint** scanner ...

☆  Cited by 68 Related articles All 4 versions

Applications of gene arrays in environmental toxicology: **fingerprints** of gene regulation associated with cadmium chloride, benzo (a) pyrene, and trichloroethylene.

M Bartosiewicz, S Penn, A Buckpitt - Environmental health ..., 2001 - [ehp.niehs.nih.gov](#)


... Applications of Gene Arrays in Environmental Toxicology: **Fingerprints** of Gene Regulation Associated with Cadmium ... varying doses of CdCl₂, BaP, and TCE clearly indicate a unique **fingerprint** of gene ... to quickly categorize chemicals and assign a mode of toxic **action** but also ...

☆  Cited by 194 Related articles All 13 versions 

On time-dependent wavelet denoising

B Vidakovic, CB Lozoya - IEEE Transactions on Signal ..., 1998 - [ieeexplore.ieee.org](#)


... We emphasize that shrinkage and denoising are two related but not identical **actions**. The former is performed in the wavelet domain with wavelet coefficients as arguments ... Fig. 2(a) shows time-dependent thresholding in **action** ... (a) (b) (c) Fig. 4. (a) Original **fingerprint** image ...

☆  Cited by 144 Related articles All 6 versions

Fingerprint minutiae extraction from skeletonized binary images



A Farina, ZM Kovacs-Vajna, A Leone - Pattern recognition, 1999 - Elsevier

... No **action** 1.706 0.137 Segmentation 1.661 0.121 Segmentation 1.497 0.087 and filtering ... in the post-processed image set, which displays the real minutiae distribution in **fingerprints** ... Furthermore, the algorithms eliminate minutiae located in noisy inner **fingerprint** image regions ...

☆  Cited by 216 Related articles All 5 versions

Transcriptome **fingerprints** distinguish hallucinogenic and nonhallucinogenic 5-hydroxytryptamine 2A receptor agonist effects in mouse somatosensory cortex


J González-Maeso, T Yuen, BJ Ebersole - Journal of ..., 2003 - Soc Neuroscience

☆  Cited by 187 Related articles All 9 versions 

RNA **fingerprinting** displays UVB-specific disruption of transcriptional control in human melanocytes

TMM Vogt, J Welsh, W Stolz, F Kullmann, B Jung - Cancer research, 1997 - AACR


... RNA **Fingerprinting** Displays UVB-specific Disruption of Transcriptional Control in ... The DNA from RAP-PCR **fingerprints** was transferred to nylon membranes (Duralon-UV; Stratagene) by capillary **action** overnight in a 20X SSC ... Fig. 2 shows a representative RAP-PCR **fingerprint** ...

☆  Cited by 36 Related articles All 4 versions

Four-dimensional elastic light-scattering **fingerprints** as preneoplastic markers in the rat model of colon carcinogenesis

HK Roy, Y Liu, RK Wali, YL Kim, AK Kromine - Gastroenterology, 2004 - Elsevier



... Light-scattering **fingerprinting** ... Thus, PC1 is a convenient means to characterize the light-scattering **fingerprint** data ... Figure 6. PCA of light-scattering **fingerprints**: score of PC1 obtained from ELF collected for control and AOM-treated distal colon tissues at 2, 5, 6, 12, and 20 weeks ...

☆  Cited by 140 Related articles All 12 versions

Biometric template selection: a case study in **fingerprints**

A Jain, U Uludag, A Ross - International Conference on Audio-and Video ..., 2003 - Springer

... Page 7. Biometric Template Selection: A Case Study in **Fingerprints** 341 10-2 10-1 100 101 40 50 60 70 80 ... 1, no. 1, pp. 93-113, 2001. 335 [2] X. Jiang and W. Ser, "Online **fingerprint** template improvement," IEEE Trans- **actions** on PAMI, vol. 24, pp. 1121-1126, August 2002 ...

☆  Cited by 54 Related articles All 17 versions 

Real-time minutiae extraction in **fingerprint** images

JC Amengual, A Juan, JC Pérez, F Prat, S Sáez... - 1997 - IET

... can be encoded into a single byte and the corresponding **action** for the ... **Fingerprint** minutiae are described in a geometrical way, but the postprocessing procedures which remove ... be appreciated the adequateness of the proposed method for real-time fingerprint identification ...

☆ 99 Cited by 85 Related articles All 4 versions

High-throughput metabolic **fingerprinting** of legume silage fermentations via Fourier transform infrared spectroscopy and chemometrics

HE Johnson, O Broadhurst, DB Kell... - Appl. Environ ... , 2004 - Am Soc Microbiol

Skip to main content. ASM: Antimicrobial Agents and Chemotherapy; Applied and Environmental Microbiology; Clinical Microbiology Reviews; Clinical and Vaccine Immunology; EcoSal Plus; Eukaryotic Cell; Infection and Immunity; ...

☆ 99 Cited by 77 Related articles All 19 versions

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	32569	(segment fragment piece partition block) with (signature finger\$1print\$3 hash\$3) and (segment fragment piece partition block) with (content stream file audio music multimedia video movie) and (signature finger\$1print\$3 hash\$3) with (content stream file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L2	32569	(segment fragment piece partition block) with (signature finger\$1print\$3 hash\$3) and (segment fragment piece partition block) with (content stream file audio music multimedia video movie) and (signature finger\$1print\$3 hash\$3) with (content stream file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L3	6468	L2 and (replac\$5 substitut\$4) with (playback play\$3 adj "back" content file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L4	1148	L3 and @ad<"20040705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L5	30	L4 and (first) with (halt\$3 paus\$3 interrupt\$3 substitut\$4 replac\$5) with (another second different) near3 (segment fragment piece partition block content stream file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L6	2474	(instruct\$3 code) with (replac\$5) with (stream\$3 playback play\$3 adj "back")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45

EAST Search History (Prior Art)

L7	843	L6 and @ad<"20040705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L8	25	L7 and (segment fragment piece partition block) with (signature finger\$1print\$3 hash\$3) and (segment fragment piece partition block) with (content stream file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L9	189	(instruct\$3 code) with (replac\$5) with (stream\$3 playback play\$3 adj "back") with (second another different) near2 (stream\$3 playback play\$3 adj "back" content stream file audio music multimedia video movie)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L10	2	(signature hash\$3 finger\$1print) with (replac\$5 interrupt\$3 substitut\$4) with (stream\$3 playback play\$3 adj "back") with (alert\$3 alarm\$3 emergenc\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L11	913	(signature hash\$3 finger\$1print) same (replac\$5 interrupt\$3 substitut\$4) with (stream\$3 playback play\$3 adj "back")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L12	148	L11 and @ad<"20040705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L13	481	(signature hash\$3 finger\$1print) with (authentica\$3 authoriz\$5 valid\$5 verification verif\$5 compar\$3 match\$3 judg\$3 confirm\$5) same (replac\$5 interrupt\$3 substitut\$4) with (stream\$3 playback play\$3 adj "back" "ad" "advert" advertis\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45

EAST Search History (Prior Art)

L14	23	(signature hash\$3 finger\$1print) with (authenticat\$3 authoriz\$5 valid\$5 verification verif\$5 compar\$3 match\$3 judg\$3 confirm\$5) same (replac\$5 interrupt\$3 substitut\$4) with (stream\$3 playback play\$3 adj "back") with (second "next" another different) near2 (stream media content stream file audio music multimedia video movie i\$1frame frame)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L15	171	(signature hash\$3 finger\$1print) with (authenticat\$3 authoriz\$5 valid\$5 verification verif\$5 compar\$3 match\$3 judg\$3 confirm\$5) same (replac\$5 interrupt\$3 substitut\$4) with (second "next" another different) near2 (stream media content stream file audio music multimedia video movie i\$1frame frame)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L16	148	L15 not L14	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L17	2856	(signature hash\$3 finger\$1print) with (authenticat\$3 authoriz\$5 valid\$5 verification verif\$5 compar\$3 match\$3 judg\$3 confirm\$5) same (replac\$5 interrupt\$3 substitut\$4) with (stream media content stream file audio music multimedia video movie i\$1frame frame)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L18	456	L17 and @ad<"20040705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L19	80	L18 and (second another different) with (replac\$5 interrupt\$3 substitut\$4) with (stream media content stream file audio music multimedia video movie i\$1frame frame)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L20	4344	finger\$1print\$3 with water\$1mark\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45

EAST Search History (Prior Art)

L21	824	L20 and finger\$1print\$3 with (hash\$3 signature) and water\$1mark\$3 with (hash\$3 signature)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L22	62	L21 and @ad<"20030711"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L23	27975	Gracernote.as. nielsen.as. (Oostveen near2 (Job Cornelis)).inv. (Ten near Kate ten\$1kate Warner near (Rudolph Theophile)).inv. (Denissen near4 (Adrianus Johannes Maria)).inv. (Roberts near2 David).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L24	16	L23 and match\$3 with fingerprint with database with action and time adj point with action	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L25	16	match\$3 with fingerprint with database with action and time adj point with action	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L26	5824	L1 and (signature finger\$1print\$3 hash\$3) with (time\$1stamp\$3 (time) near2 (duration period window point stamp\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L27	319	L26 and @ad<"20030711"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45

EAST Search History (Prior Art)

L28	96	L27 and (event action trigger\$3 initializ\$5 start\$3 launch\$3) with (time\$1stamp\$3 (time) near2 (duration period window point stamp\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45
L29	223	L27 not L28	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/05 18:45

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L32	6267	Gracernote.as. nielsen.as. (Oostveen near2 (Job Cornelis)).inv. (Ten near Kate ten\$1kate Warner near (Rudolph Theophile)).inv. (Denissen near4 (Adrianus Johannes Maria)).inv. (Roberts near2 David).inv.	US-PGPUB; USPAT	OR	ON	2019/10/05 18:45
L33	16	L32 and match\$3 with fingerprint with database with action and time adj point with action	US-PGPUB; USPAT	OR	ON	2019/10/05 18:45
L34	16	match\$3 with fingerprint with database with action and time adj point with action	US-PGPUB; USPAT	OR	ON	2019/10/05 18:45



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8

CONFIRMATION NO. 4451

PUBLICATION NOTICE



OC000000112131282

139404
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

Title:Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

Publication No.US-2019-0327502-A1

Publication Date:10/24/2019

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	Filing Date	2019-01-31
	First Named Inventor	Job Cornelis Oostveen et al.
	Art Unit	2435
	Examiner Name	Darren B. Schwartz
	Attorney Docket Number	17-374-US-CON8

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(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

1	Report and Recommendation, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 11/1/2019 (19 pages)
2	Defendant Samba TV's Objections to the Report & Recommendation of Magistrate Judge Fallon (D.I. 22), Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 11/15/2019 (78 pages)
3	Plaintiff Gracenote, Inc.'s Memorandum in Opposition to Defendant Samba TV's Objections to the Report & Recommendation of Magistrate Judge Fallon (D.I. 22), Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/02/2019 (14 pages)
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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Signature	Gavin J. O'Keefe	Date (YYYY-MM-DD)	2019-12-05
Name/Print	Gavin J. O'Keefe	Registration Number	59,916

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16264134			
Filing Date:	31-Jan-2019			
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Gavin James O'Keefe			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
Total in USD (\$)				240

Electronic Acknowledgement Receipt

EFS ID:	37943232
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Gavin James O'Keefe
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	06-DEC-2019
Filing Date:	31-JAN-2019
Time Stamp:	11:02:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$240
RAM confirmation Number	E2019B6B03063333
Deposit Account	132490
Authorized User	Gavin O'Keefe

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00216

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	17-374-US-CON8_IDS3.PDF	612294	no	4
			2dbaa4fbf20d1935bd913c09be41133d139745f7		
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Non Patent Literature	17-374-US-CON8_DED-1-18-cv-01608-22.PDF	934318	no	19
			fd95675be11a0c7ec16da33303e53d4ffee993e		
Warnings:					
Information:					
3	Non Patent Literature	17-374-US-CON8_DED-1-18-cv-01608-23.PDF	404700	no	78
			003845d1544eae6a138f5a3008f1214ebc6ac393		
Warnings:					
Information:					
4	Non Patent Literature	17-374-US-CON8_20191202-Gracenote_Memo.PDF	312838	no	14
			fe91d48d504d0c2315abc72011e081c9c8ba4ac7		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30768	no	2
			b25316454dbcc36dca5259cbf0f084324499d12f		
Warnings:					
Information:					
Total Files Size (in bytes):			2294918		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

139404 7590 12/31/2019
McDonnell Boehnen Hulbert & Berghoff LLP/Gracnote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

EXAMINER

SCHWARTZ, DARREN B

ART UNIT	PAPER NUMBER
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2435

MAIL DATE	DELIVERY MODE
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12/31/2019

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**UNITED STATES DEPARTMENT OF COMMERCE****U.S. Patent and Trademark Office**

Address: COMMISSIONER FOR PATENTS

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Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
16/264,134	01/31/2019	Oostveen et al.	17-374-US-CON8

McDonnell Boehnen Hulbert & Berghoff LLP/Gracnote 300 South Wacker Drive, Suite 3100 Chicago, IL 60606		EXAMINER	
		DARREN B SCHWARTZ	
		ART UNIT	PAPER
		2435	20191228

DATE MAILED: _____

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

The Information Disclosure Statement filed 12/06/2019 has been reviewed and signed.

/DARREN B SCHWARTZ/
Primary Examiner, Art Unit 2435

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16264134
	Filing Date	2019-01-31
	First Named Inventor	Job Cornelis Oostveen et al.
	Art Unit	2435
	Examiner Name	Darren B. Schwartz
	Attorney Docket Number	17-374-US-CON8

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

1	Report and Recommendation, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 11/1/2019 (19 pages)
2	Defendant Samba TV's Objections to the Report & Recommendation of Magistrate Judge Fallon (D.I. 22), Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 11/15/2019 (78 pages)
3	Plaintiff Gracenote, Inc.'s Memorandum in Opposition to Defendant Samba TV's Objections to the Report & Recommendation of Magistrate Judge Fallon (D.I. 22), Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/02/2019 (14 pages)
4	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/DARREN B SCHWARTZ/	Date Considered	12/28/2019
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	Gavin J. O'Keefe	Date (YYYY-MM-DD)	2019-12-05
Name/Print	Gavin J. O'Keefe	Registration Number	59,916

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	16/264,134	Filing Date	2019-01-31	Docket Number (if applicable)	17-374-US-CON8	Art Unit	2435
First Named Inventor	Job Cornelis Oostveen			Examiner Name	Darren B. Schwartz		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other

Copies of 15 cited references

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
 The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No 132490

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	Gavin J. O'Keefe/	Date (YYYY-MM-DD)	2020-01-15
Name	Gavin J. O'Keefe	Registration Number	59916

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

(43) Date of A Publication 27.11.2002

(21) Application No 0111748.0

(22) Date of Filing 14.05.2001

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United Kingdom

(51) INT CL⁷

H04N 7/08

(52) UK CL (Edition T)

H4F FBB F22

(56) Documents Cited

EP 0210609 A2

US 6002443 A

US 4230990 A

WO 2001/004792 A1

US 5283639 A

(58) Field of Search

UK CL (Edition S) **H4F FBB**

Online: **WPI, EPODOC, JAPIO**

(54) Abstract Title

An automated recognition system

(57) An automated recognition system is used to recognise an audio cue, such as a piece of music or 'jingle', and to generate useful ancillary data therefrom. The cue identifier 10 has a library 12 storing information about different audio cues. A received signal is applied to an ADC 20 which samples overlapping windows of about the expected jingle length eg 2 secs. A frame generator 24 generates for each window a plurality of overlapping frames which are fed to an FFT processor 26 to estimate the frequency content of the frames. This data is filtered 28, the logarithm taken 30, and applied to a matrix generator 32. A processor 34 forms a covariance matrix which is compared with those in the library 12. The system may be used in a network or transmitter station (Fig. 3) to add a data signal to the signal, or at a receiver (Fig. 4) to control a recorder. The system can be used with TV rather than radio broadcasting.

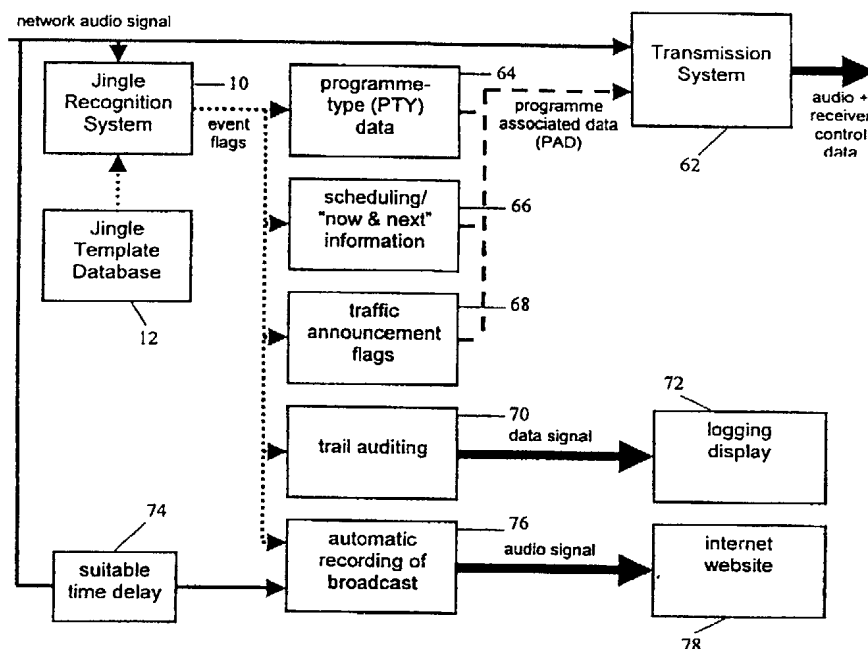


Fig. 3

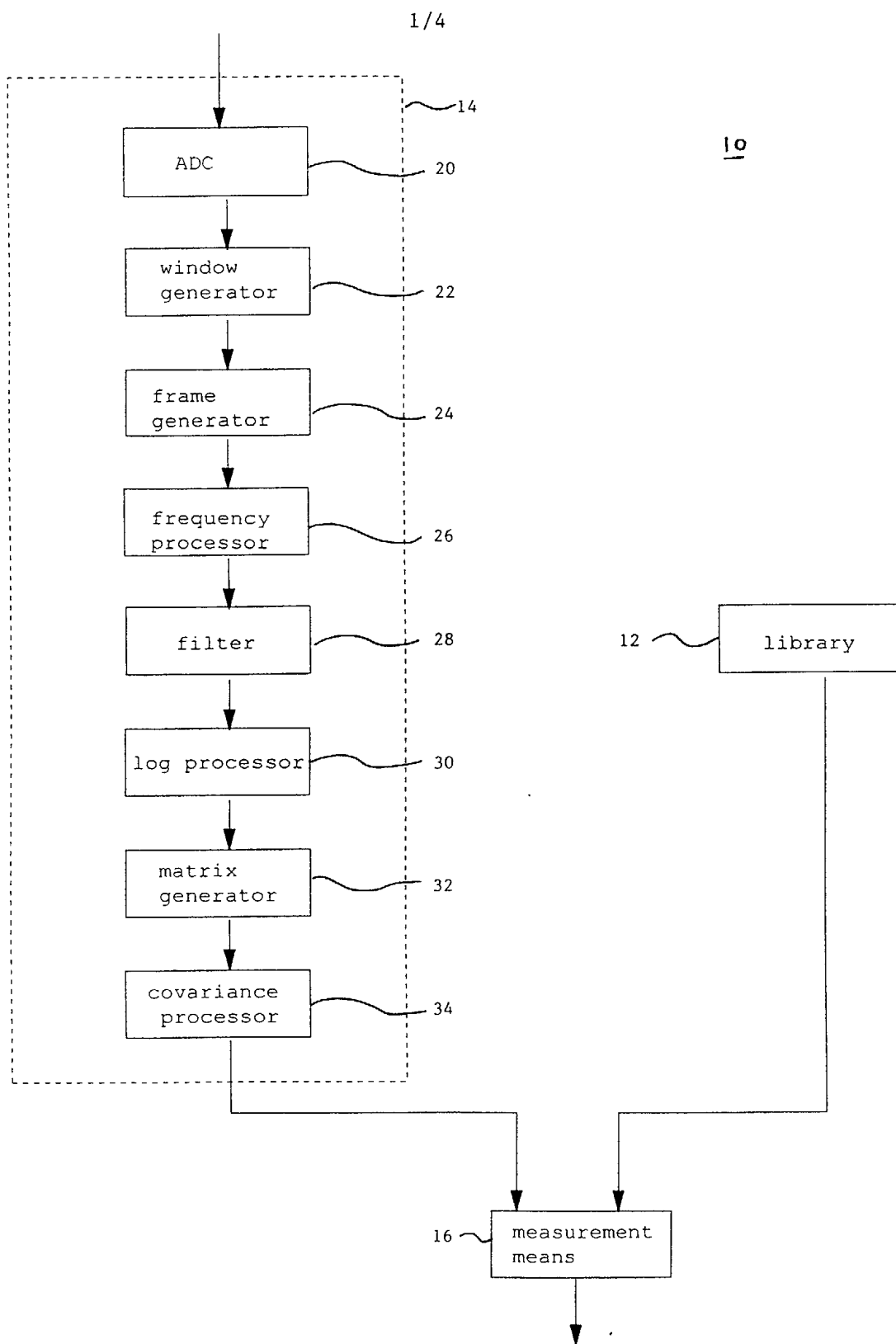


Fig. 1

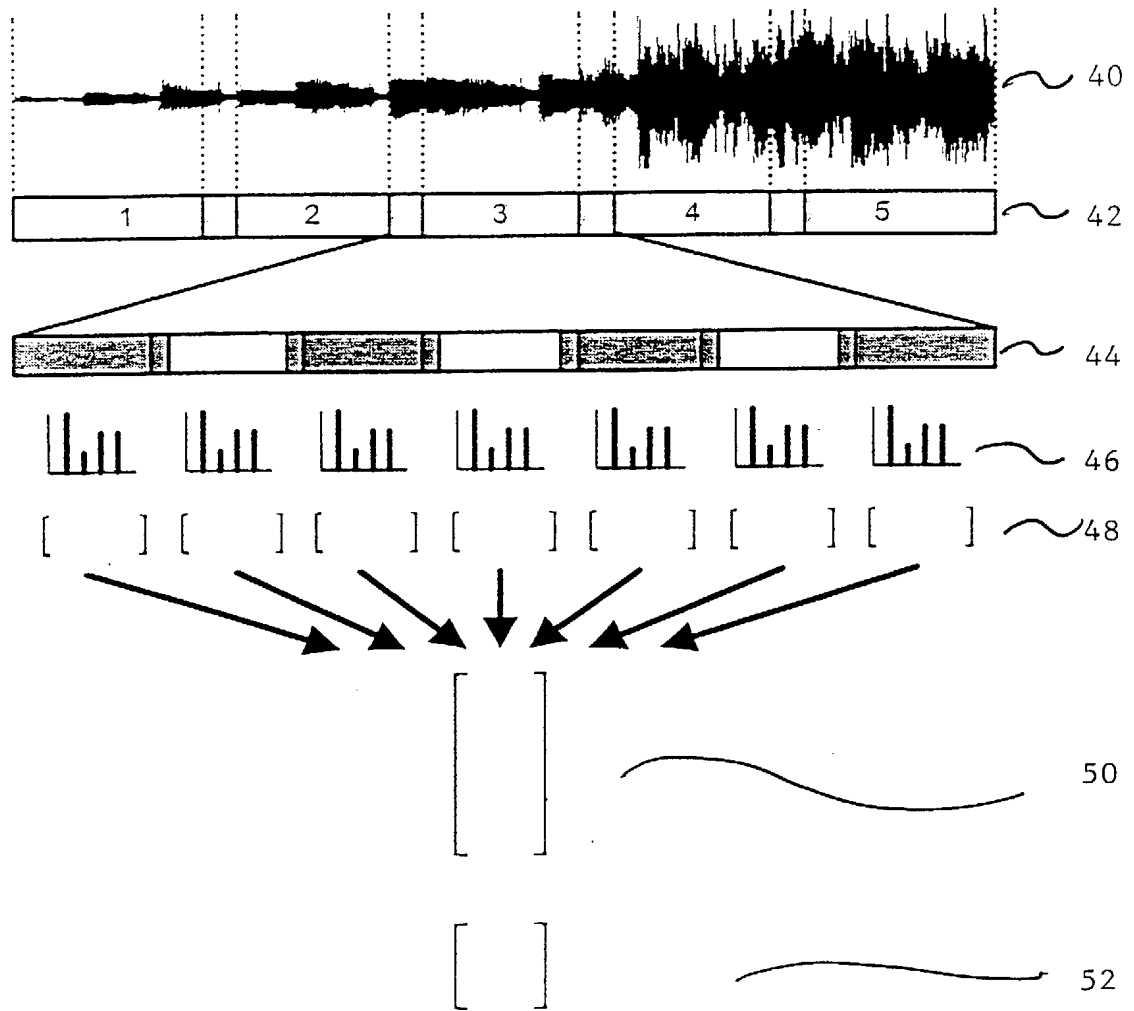


Fig. 2

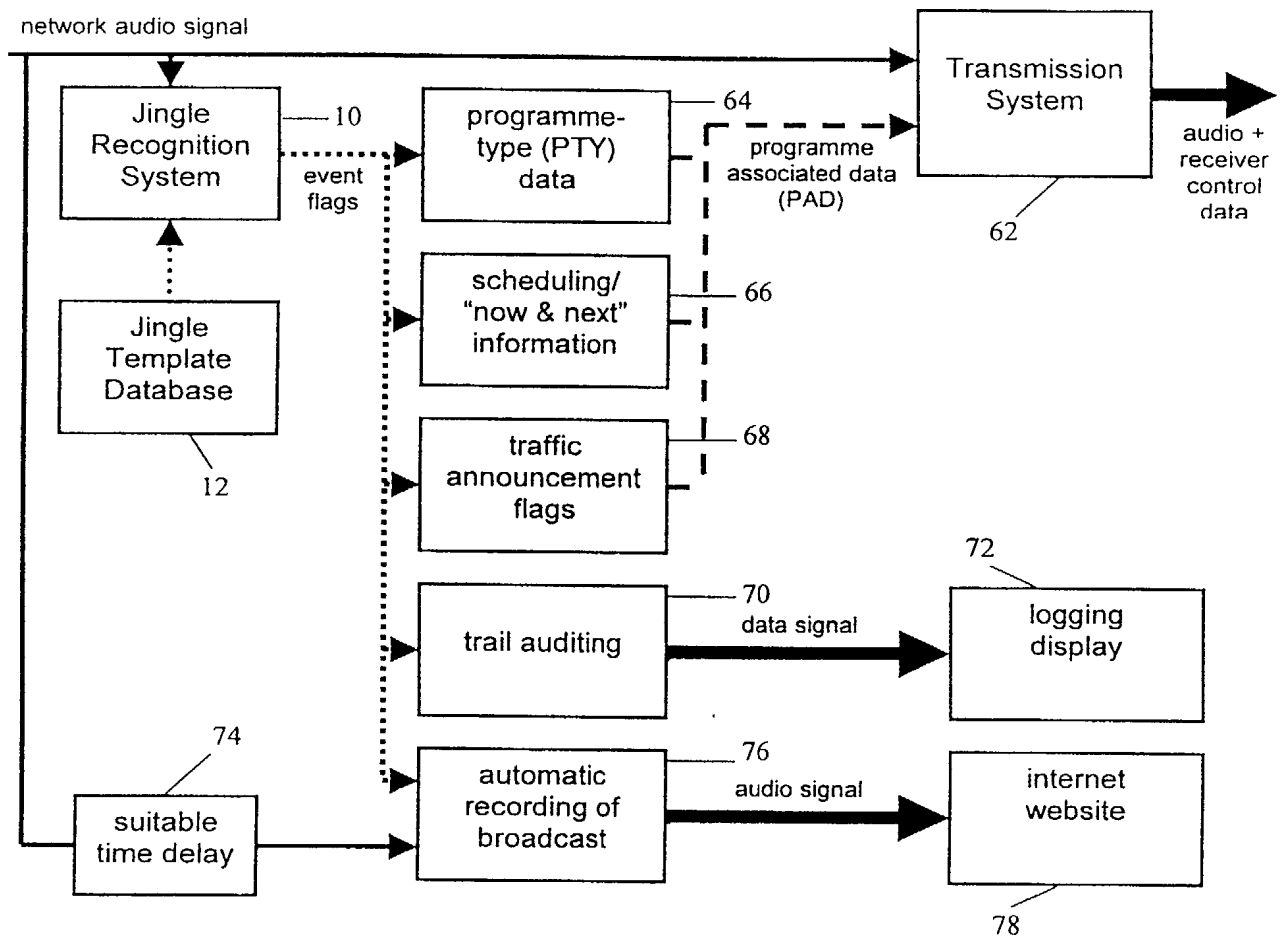


Fig. 3

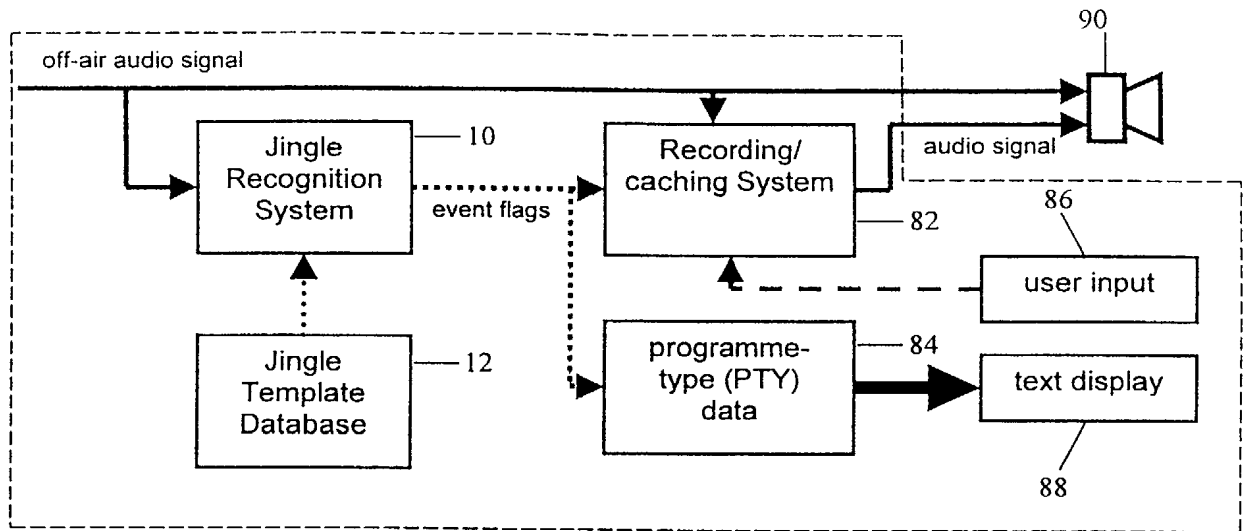


Fig. 4

AN AUTOMATED RECOGNITION SYSTEM

This invention relates to an automated recognition system. In particular the invention relates to an automated
5 recognition system for recognising that a portion of a signal matches a known programme cue associated with a programme of interest contained in the signal and for generating a data signal containing information about the programme of interest.

10 The increasing use of digital technology in the broadcasting of both television and radio services means that broadcasters now have the capability to transmit additional data as well as programme material. This additional data can be used to provide listeners and
15 viewers with extra information about the services that they are receiving. For example, Radio Data System (RDS) and Digital Audio Broadcasting (DAB) enabled radios can display the type of programme which is being received. For example, the programme type may be flagged as a news
20 programme or travel announcement. In the case of digital television (DTV), viewers are able to obtain schedule information about the programmes that are currently being broadcast and those that are due to be broadcast next.

However, these systems rely on the programme provider
25 transmitting the appropriate information in a data signal which is added to the programme signal before it is broadcast. Control information transmitted by broadcasters is used to control the display of information on appropriately adapted receivers. Schedule and programme-
30 type information which is currently made available by broadcasters is based purely on the programme schedule and the time of day. The schedule for a particular day is entered into a computer which has been programmed to generate event flags, leading to the generation of a data
35 signal containing appropriate programme information, at

the time indicated by the schedule. The known system does not make any allowance for programmes starting early or late and is passive rather than reactive. The information provided is often, therefore, out of date and does not reflect the actual transmission.

We have appreciated that the service to users would be improved if the information that was provided was generated with reference to the actual broadcast signal rather than a theoretical schedule. We have perceived a number of ways of generating the real-time programme signal related information. For example, a newsreader could press a "news bulletin" switch as they began to read the news bulletin. An event flag would be generated by the depression of the switch which could be transmitted with the programme signal to allow an adapted receiver to display up to date information. However, this approach would directly increase the workload of the programme presenter and there is a marked reluctance by broadcasters to introduce any system which increases presenter workload. Another problem with this method is that the function of the news bulletin switch is not directly related to the audio of the programme and it would be easy for the presenter to forget to press the switch. Furthermore, this type of system would require an investment in additional infrastructure by the broadcast station to support the switching and routing of the control signals carrying the event flags around the broadcast centre from the studios to the transmission system.

Another solution would be place an inaudible code, or watermark, which the receiver could decode within an audio cue or jingle preceding a programme. The receiver could then display the information contained in the watermark. The problem with this technique is that there is a conflict between making the watermark inaudible and making

it robust enough to be detected reliably. Furthermore, a jingle may come from any one of a variety of sources and it is not possible to rely on every instance being watermarked as required. This is especially true in the case of archive material such as repeat broadcasts of previously recorded programmes. To overcome this would require changes in ways of working and would introduce further production steps. This solution would, therefore, be unattractive.

10 It is standard practice for programme makers and broadcasters to place an audio cue such as a piece of music or jingle immediately before a particular programme to alert the user that the particular programme is coming up next. The user learns to recognise the audio cue and to associate it with the particular programme which usually follows. Audio cues are therefore distinctive and easily recognisable from one another by the human ear. We have appreciated that the audio programme cue could be used by an automated system to insert up-to-date information about the programmes in an audio signal. By providing an automated system capable of recognising a programme cue occurring in a signal information about the programme being broadcast can be automatically generated. The present invention relates to such an automated recognition system and overcomes the problems associated with providing programme information on an inflexible, schedule basis.

According to the present invention a recognition system according to claim 1 is provided. The dependent claims define preferred features of the invention.

The recognition system is automated and preferably uses the audio signal and stored information on particular programmes which are to be identified to generate a data

signal. The data signal is generated from the actual programme signal and, therefore, reflects true information on the current programme. Preferably the data signal is added to the audio signal using standard techniques and the resulting signal broadcast. Receivers adapted to use information transmitted under that standard will automatically benefit from up to date information on the broadcast. Preferably the data signal is generated in accordance with an industry standard such as RDS or DAB. Preferably the identification of the programme from the programme cue is performed by detecting a match between the frequency content of a portion of the signal with the frequency content of the programme cue associated with a given programme of interest.

The recognition system may be used in diverse applications such as a broadcast audio marking system to allow broadcasters to generate a data signal containing up-to-date information on the programme content of their signal automatically. The data in the data signal is generated by reference to the programme signal and is therefore correct even if the programme is being aired outside its scheduled time. Preferably the data signal is generated in substantially real-time.

The recognition system may also be used in receivers to display information on a given programme even when the broadcast signal does not include such information. A database of information on the given programmes and the programme cues associated with the given programmes may be created by the user or by a third party and used by the receiver with the recognition system to display information on the current programme.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a block diagram showing an audio recognition system in accordance with an embodiment of the invention;

Figure 2 is a diagram showing how an audio signal is processed by the recognition system of figure 1;

5 Figure 3 is a block diagram of an application of the recognition system in a network station environment; and

Figure 4 is a block diagram of an application of the recognition system in a receiver.

10 The audio recognition system is designed to detect a match between an input audio signal and one or more known audio cues stored for recognition purposes. Any method of characterising a signal which makes it discernable from a different signal could be used to detect the presence of an audio cue in an audio signal. For example,
15 characterisation could be based on acoustical features of the signal, such as pitch or tempo, or statistical characterisation, such as correlation. However, it is not sufficient to simply compare sample values of the audio signal with a stored version of the audio cue because
20 such a system would fail to operate adequately in the presence of changes in amplitude, the use of audio bit-rate reduction or sample by sample synchronisation issues between the stored audio cue and the detected audio signal from the programme audio feed.

25 There has been substantial research activity in the field of speech recognition. In the presently preferred embodiment of the invention, recognition of an audio cue in an audio signal is based on detecting a match between the frequency content of the audio signal and the
30 frequency content of the audio cue. A paper titled "A method for direct audio search with applications to indexing and retrieval" published in Proceedings ICASSP

2000 by Johnson and Woodland describes a technique for searching audio data to find a match in the data for a given piece of voice audio using a cepstral parameterisation of the audio and a covariance based distance metric. However, we have found that the
5 technique described is not particularly effective for recognising a general music based audio cue, such as a piece of music or jingle marking the beginning or end of a particular programme.

10 Tools for measuring the resemblance between audio signals are also known. US 5,469,529 by Bimbot et al describes a process for measuring the resemblance between sound samples using the covariance matrices of a test phase signal and a learning phase signal. Arithmetic, geometric
15 and harmonic means of the covariance matrices are calculated and used to determine sphericity functions from which it is possible to deduce a resemblance measurement between the test and learning phase signals. A preferred
20 embodiment of the present invention makes use of the Arithmetic Harmonic Sphericity measurement (AHS) to determine whether or not there is a match between a portion of the audio signal and a stored audio cue.

The presently preferred audio recognition system will now be described with reference to figures 1 and 2. The
25 recognition system is implemented on a processor or as a program in a computer. It comprises a signal receiver, a programme cue identifier and a data signal generator. The programme cue identifier 10 is shown in Figure 1 and comprises a database, or library, 12 a processor 14 and a
30 distance measurement processor 16. The database 12 stores information on the audio cues which the system is required to recognise. Rather than store the raw audio cue signal, the audio cue is pre-processed to determine an individual determining characteristic, or signature. This helps to
35 minimise the amount real-time data processing performed by

the recognition system. Preprocessing may be performed by the recognition system itself or the signature of the audio cue may be generated by a compatible system and simply downloaded into the store of the recognition system. It may use a clean, noise-free version of the audio cue or an audio cue recorded from a previous broadcast signal. The audio cue and programme information may be stored on a CD or minidisc for use by the recognition system. Information concerning the programme, such as the programme type, with which the audio cues are associated is also stored.

The processor 14 processes the signal in a number of steps which will now be described. The signal on which information is required is received by the signal receiver as an input to the recognition system.

Analogue audio signals must be converted to digital data before further processing. The raw signal is received by the signal receiver and fed into an analogue to digital converter (ADC) 20 which samples the audio signal and outputs the sampled signal to a window generator 22. A sample rate of 16kHz has been found to work well providing a reasonable balance between capturing a good proportion of the frequency information in the signal and keeping the amount of data to be processed to a minimum. If the audio signal is digital, sample rate conversion is required if the sample rate of the digital signal differs from that used to generate the audio cue signature.

A standard length audio cue is used for the identification process. The presently preferred embodiment of the invention uses an audio cue length of 2 seconds. A window generator 22 segments the sampled audio signal into windows corresponding in length to the length of the audio cues to be recognised. The window generator 22 produces

overlapping windows 42 from the audio signal 40 as shown in figure 2. There is a trade off between the amount of overlap between the windows and the amount of processing. Missing the start of the audio cue may result in failing to recognise the audio cue. However, moving the window by a single sample each time results in very high processing overheads and slow processing time. We have found that a suitable overlap is one second.

Each overlapping window is then further segmented by the frame generator 24 to generate a series of overlapping frames 44 (see figure 2). Each frame is preferably 400 samples long, with the overlap between frames being 160 samples. The overlapping frames are fed to a Fast Fourier Transform (FFT) processor 26 to estimate the frequency contents of the frames. The data is then filtered using a 12-band mel-frequency bank filter 28. This generates 12 coefficients corresponding to the energy contained within each frequency bank of the frame. The logarithms of the coefficients are calculated by the log processor 30. Next a frame feature vector is generated. The first 12 entries of the frame feature vector are the 12 log values of the coefficients. The remaining 6 entries are generated by taking the difference between the first 6 log values of current frame and the first 6 log values of the next frame. These values relate to the low frequency energy content of the frames. No difference values can be obtained for the last frame in a given window. The feature vector for the last frame is therefore only 12 entries long and is discarded before the matrix of feature vectors is assembled. The feature vectors for each frame corresponding to a single window are assembled in a matrix by matrix generator 32 with frame feature vectors forming the rows of the matrix 50. The matrix is processed by the covariance matrix processor 34 to form a covariance matrix 52. The covariance matrix is unique to the particular window of data signal and can be compared to the

covariance matrix of known audio cues to find a match, thereby identifying the window of data as the audio cue. The covariance matrix is therefore a suitable signature of the signal which may be used for recognition purposes.

5 The covariance matrix of the audio cue is determined in a similar manner except that windowing of the audio cue is not required. The covariance matrix is stored as the signature of the audio cue.

10 In practice, the covariance matrix estimated for a window of data from the audio signal and the covariance matrix of the audio cue may differ slightly. A method of measuring how much the covariance matrices differ is therefore required. Once the difference has been quantified, a threshold is applied to the measurement and if the
15 measurement is below the threshold a match is detected between the window of audio signal and the audio cue. Various distance measures could be used. The presently preferred measurement is the arithmetic harmonic
20 sphericity measure which is described in US 5,469,529 and a paper "Text-free Speaker Recognition using an Arithmetic Harmonic Sphericity Measure" by F. Bimbot and L. Mathan published in Proc. Eurospeech 1993 pp 169-172.

25 The arithmetic and harmonic mean values of the eigenvalues of the covariance matrix of the window of audio signal is compared with those of the covariance matrices of the known audio cues. When the values differ by less than a threshold value a match is detected between the audio signal and the audio cue and a data signal is generated by the data signal generator of the recognition system which
30 can be used by an ancillary system to indicate information concerning the audio signal. The data signal includes the information on the programme associated with the matching audio cue stored in the database. The data signal is generated in accordance with the RDS standard.

The recognition system of the present invention could be put to a number of different uses. For example, figure 3 shows an application of the recognition system in a broadcast radio environment 60. The audio signal generated by a network or station is continuously analysed by comparing it to any number of audio cues or jingles corresponding to given programmes. Information on the given programmes and on the corresponding audio cues is stored in the template database 12. A data signal containing information on the given programme is generated when an audio cue associated with the given programme is detected.

The audio signal is fed directly to the transmission system 62 and also to the input of the recognition system which looks for a match with audio cues stored in the template database 12. When a match is detected, appropriate event flags are generated and a data signal incorporating programme associated data (PAD) is sent to the transmission system. The PAD is added to the audio signal in accordance with the particular standard, eg RDS, being used and the combined signal transmitted. For example, if the audio cue corresponds to that played at the start of a traffic announcement, a traffic announcement flag is generated 68 and the PAD sent to the transmission system 62 in the data signal includes a Traffic Programme Identification Code. Receivers capable of detecting PAD signals may use the data signal to display additional information or provide additional functionality to the user, such as changing channel to listen to a traffic announcement being broadcast on another channel.

The recognition system may also be used to generate scheduling information 66 such as a start flag for a particular programme by detecting from the audio signal a portion of signal corresponding to the audio cue of that

particular programme. Once a start flag has been generated, an end flag could be generated on the repeated occurrence of the audio cue or on the occurrence of a second, play-out, audio cue. Once the recognition system has detected a match between a portion of the audio signal and a stored audio cue it could generate a Programme-Type (PTY) data flag 64 allowing programme type data stored by the system to be included in the data signal and broadcast in a combined data and programme signal. Event flags could also be used to update the now and next schedule information for an electronic programme guide (EPG) and to indicate artist and title information as a dynamic label which could be used by a Digital Audio Broadcasting (DAB) receiver to display to the user the artist and title of the song currently playing on that channel.

The recognition system may also be used to allow stations to perform trail auditing by determining if and when certain programmes (including advertisements or news bulletins) are broadcast. Studio operators may be obliged by the station to play particular advertisements or news bulletins at a given time or at a regular frequency. However, operators may choose not to comply or simply forget to play the programmes. By including suitable audio cues in the template database 12 the recognition system may be used to detect if and when a particular programme is played. By generating a suitable event flag a trail auditor 70 monitoring the event flags can be made to maintain a database showing when the particular programmes were played. The station manager could then use the database to assess whether or not the studio operator is fulfilling his obligations to play the programmes and to take corrective action if necessary.

The recognition system may also be used to allow automated recording of selected programmes. Frequently stations have Internet sites which contain, amongst other things,

information extracted from the programmes, such as news bulletins, that they are broadcasting. News bulletins are particularly prone to scheduling disruption as stations react to live stories or sports events causing the news bulletin to be displaced within the schedule. It has
5 therefore been difficult to automate recording of the news bulletins for subsequent playback on the website.

The recognition system may be used to overcome this problem by detecting the start of a news bulletin and generating a particular event flag. An automated
10 recording system 76 monitoring the output of the recognition system would then start recording when the news bulletin event flag is detected. The automatically recorded broadcast may then be provided for output via the
15 station's website 78 reducing or eliminating the need for specially recorded bulletins.

In order to provide a suitable quality of recording, a time delay unit 74 may be connected between the audio signal path and the automated recording system 76.
20 Although the recognition system processes the audio signal rapidly, any delay in the generation of the event flag would result in the beginning of the programme failing to be recorded. In order to avoid the possibility of losing the initial part of the programme, the automated recording
25 system 76 may be configured to record a delayed version of the audio signal provided by a time delay unit 74. The effort involved in providing the updated information on a website using the recognition system is far less than that currently required.

30 An advantage of the recognition system is that it is self-standing and does not require any input other than the signal to be broadcast, specifically it does not require any control signals to operate. It may, therefore, be located physically close to the transmission system to

avoid additional large-scale data switching and routing infrastructure within the station. The recognition system is not overly affected by bit-rate reduction or any form of computer-controlled playout systems because it
5 recognises the audio cue or jingle based purely on audio characteristics. It is independent of the particular physical media.

A further use of the recognition system is in receivers to provide information to users on programmes for which the
10 broadcaster has not used RDS or a similar standard to provide this information in a combined data and programme signal. The information can be automatically called up from a database by a receiver using the recognition system.

15 Figure 4 shows a receiver 80 adapted to include the recognition system. The receiver 80 receives a broadcast audio signal which is outputted to the loudspeaker 90. The received signal is also fed to the recognition system where it is processed as described above and checked for a
20 match with any of the audio cues stored in the template database 12. When a match with a particular audio cue is detected an event flag is set. The event flag may be a programme start flag which, when detected by the recording system 82, causes the recording system 82 to start
25 recording the signal or programme-type data (PTY), which when detected by a text display 88, is displayed.

The recording system 82 may be programmed by the user using a user input device 86 to record a particular programme whose associated audio cue has been identified
30 in the template database 12. The audio cue may be assigned a particular code and when the programme starting with that audio cue is to be recorded, the code is entered on the recording system 82. The recording system 82 would be activated when it detected an event flag associated

with that code. Either the length of the programme could be specified by the user or the recording system 82 may look for an end flag to stop the recording.

Population of the database could be performed by the
5 manufacturer or a facility to allow the user to build up
the database could be incorporated. The template database
12 could be populated by downloading from the particular
broadcaster, or a centrally provided database, the
signature of the audio cue for the particular programme.
10 Alternatively, the audio cue itself could be downloaded,
pre-processed and stored. Alternatively, the user could
input to the recognition system a sample of the audio cue
recorded off-air and use the recognition system to process
the signal and store in the database the appropriate audio
15 cue information. The system could be adapted to allow
subsequent episodes of programmes to be recorded
automatically. The recognition based recording would have
the benefit of starting at the beginning of the desired
programme regardless of whether or not the programme was
20 broadcast at its scheduled time. The system does not
require the broadcaster to adapt the signal to include
additional data which can be detected and used to control
the recording system 82 nor does it impose any particular
information format onto broadcasters; the added
25 functionality is generated entirely by the receiver using
characteristics of the transmitted signal to deliver to
the user additional functionality. Thus the receiver 80
may be used to record programmes and indicate information
about programmes from broadcasters who are not equipped to
30 transmit this information or who transmit such information
in a format which is not supported by the receiver 80.

It should be noted that the features described by
reference to particular figures and at different points of
the description may be used in combinations other than
35 those particularly described or shown. All such

modifications are encompassed within the scope of the invention as set forth in the following claims.

With respect to the above description, it is to be realized that equivalent apparatus and methods are deemed
5 readily apparent to one skilled in the art, and all equivalent apparatus and methods to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention. Therefore, the foregoing is considered as illustrative
10 only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications
15 and equivalents may be resorted to, falling within the scope of the invention.

For example the recognition system is not intended to be restricted to programme cue recognition in audio broadcasts but could be used in a television network using
20 the audio track of the signal to recognise audio cues and insert programme information for transmission by the station. A further example would be using the recognition system to recognise video cues in video signals rather than rely on recognition via the audio
25 track.

Claims

1. An automated recognition system for use with a signal including programmes and associated programme cues, the system comprising:
 - 5 a signal receiver, for receiving a signal including programme content and associated programme cues;
 - a programme cue identifier, coupled to the signal receiver, for identifying portions of the signal as programme cues;
 - 10 a data signal generator, coupled to the programme cue identifier, for generating a data signal containing data related to a given programme when the programme cue associated with the given programme is identified.
2. An automated recognition system according to claim 1, wherein the data signal generator generates a data signal in substantially real-time.
3. An automated recognition system according to either claim 1 or claim 2, wherein the signal is an audio signal and the programme cue is an audio cue.
4. An automated recognition system according to claim 3, wherein the programme cue identifier includes a frequency processor for determining the frequency content of each signal portion and the programme cue identifier uses the frequency content of each signal portion to identify portions of the signal as audio cues.
5. An automated recognition system according to claim 4, wherein the programme cue identifier includes a filter whose frequency response imitates the

frequency response of the human ear for filtering the frequency content of the signal portions prior to identification of portions of the signal as audio cues.

- 5 6. An automated recognition system according to claim 4,
 wherein the programme cue identifier further
 comprises a frame generator for generating a
 plurality of overlapping frames from the signal
10 the frames to determine the frequency content of each
 frame and the programme cue identifier using the
 frequency content of each frame to identify the
 signal portion as audio cues.
- 15 7. An automated recognition system according to any of
 the preceding claims, further comprising a store for
 storing data concerning programme cues and wherein
 the programme cue identifier includes a comparator
 for comparing each signal portion with the stored
 data.
- 20 8. An automated recognition system according to claim 7,
 wherein the data stored by the store is related to
 the frequency content of the programme cues.
- 25 9. An automated recognition system according to claim 7,
 wherein the store stores data on the programmes
 associated with the stored programme cues for
 generation of the data signal.
- 30 10. An automated recognition system according to any of
 the preceding claims, further comprising a window
 generator, coupled to the signal receiver, for
 segmenting the signal into portions having a length
 substantially the same as the programme cues.

11. An automated recognition system according to claim 5, wherein the programme cue identifier includes a logarithm processor for estimating the logarithm of the filtered data and a covariance matrix generator, coupled to the logarithm estimator, for generating a covariance matrix of the logarithm data, the covariance matrix of the signal portion being used by the programme cue identifier to identify the signal portion as an audio cue.
12. An automated recognition system according to claim 11, wherein the programme cue identifier includes a sphericity measurement processor for quantifying the difference between the covariance matrix of the signal portion and covariance matrices of the programme cues, the programme cue identifier thresholding the quantified difference to determine whether the signal portion matches an audio cue.
13. An automated recognition system according to any of the preceding claims, wherein the data signal generator generates a data signal complying with one of the following Standards: Radio Data System Standard EN 50097, Digital Audio Broadcasting Standard ETS 300 401, Digital Video Broadcasting TR 101 200.
14. A broadcast marking system comprising a signal generator for generating a signal including programmes and associated programme cues, an automated recognition system according to any of claims 1 to 13, coupled to the signal generator, and a transmission system, coupled to the signal generator and to the automated recognition system, for adding the signal from the signal generator and the data signal from the automated recognition system and transmitting the combined signal.

15. A receiver for displaying programme information from a signal containing programmes and associated programme cues, the receiver comprising an automated recognition system according to any of claims 1 to 13 and a display, coupled to the automated recognition system, the display using the data signal generated by the automated recognition system to display data on the programme being received.
16. A method of generating a data signal containing information on a programme of interest contained in a signal, the programme being preceded in the signal by a programme cue, the method comprising:
identifying portions of a signal as programme cues; and
automatically generating a data signal containing data related to a given programme when the programme cue associated with the given programme is identified.
17. A method of generating a data signal according to claim 16, wherein the data signal is generated in substantially real-time.
18. A method of generating a data signal according to either claim 16 or claim 17, further including the steps of:
storing data on at least one programme cue associated with a given programme;
storing for each identified programme cue data concerning the given programme;
segmenting the audio signal into windows of substantially the same length as the programme cues;
comparing the segmented signal with the programme cues to determine whether there is a match;
using the stored data on the given programme in

the data signal when the programme cue associated with the given programme is identified.

19. An automated recognition system substantially as
hereinbefore described with reference to any of
5 figures 1 and 2 of the accompanying drawings.
20. A broadcast marking system substantially as
hereinbefore described with reference to figure 3 of
the accompanying drawings.
21. A receiver for displaying programme information
10 substantially as hereinbefore described with
reference to figure 4 of the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0111748.0
Claims searched: 1, 16

Examiner: Ms Ceri Witchard
Date of search: 5 November 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
 UK Cl (Ed.S): H4F (FBB)
 Int Cl (Ed.7):
 Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0210609 A2 NIELSON See especially column 2 line 36 to column 3 line 10.	1-5, 7-9, 13-17 at least
X	WO 01/04792 A1 KONINKLIJKE PHILIPS See whole document, especially page 2 lines 19-27, page 4 lines 13-17 and page 10 lines 20-23.	1-3, 13-17 at least
X	US 6002443 IGGULDEN See especially column 4 line 39 to column 6 line 9.	1-3, 7, 13-17 at least
X	US 5283639 ESCH et al See especially column 1 line 58 to column 2 line 61.	1-3, 13-17 at least
X	US 4230990 LERT et al See whole document, especially column 6 lines 15-40, column 7 lines 46-51, column 8 lines 34-42 and column 12 lines 6-12.	1-5, 7-9, 13-17 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16264134
	Filing Date	2019-01-31
	First Named Inventor	Job Cornelis Oostveen
	Art Unit	2435
	Examiner Name	Darren B. Schwartz
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	2	9407962	B2	2016-08-02	Oostveen et al.	
	3	9479831	B2	2016-10-25	Oostveen et al.	
	4	6637032	B1	2003-10-21	Feinleib	
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	1	20020126872	A1	2002-09-12	Brunk et al.	

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2	20020178410	A1	2002-11-28	Haitsma et al.
3	20020032864	A1	2002-03-14	Rhoads et al.

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	2375907	GB	A	2002-11-27	British Broadcasting Corporation		

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Petition for Inter Partes Review of U.S. Patent 9,066,114, Free Stream Media Corp. d/b/a Samba TV v. Gracenote, Inc., Case No. IPR2020-00216 filed December 6, 2019, 84 pages.	
	2	Petitioner's Exhibit 1007 from Petition for Inter Partes Review of U.S. Patent 9,066,114 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,066,114 ("Tewfik Decl.")", 126 pages.	
	3	Petitioner's Exhibit 1010 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "Curriculum Vitae of Dr. Ahmed H. Tewfik", 74 pages.	
	4	Petitioner's Exhibit 1013 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "W. Kate, et al. "trigg&link: A New Dimension in Television Program Making," in Lecture Notes in Computer Science 1197, vol. 1242, Multimedia Applications, Services and Techniques-ECMAST '97, (1997) 51-65 ("Kate")".	

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Examiner Name	Darren B. Schwartz	
Attorney Docket Number		17-374-US-CON8

5	Petitioner's Exhibit 1014 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "J. Oostveen, T. Kalker, and J. Haitsma, "Feature Extraction and a Database Strategy for Video Fingerprinting," in Recent Advances in Visual Information Systems, 5th International Conference, VISUAL (2002) 117-128 ("Oostveen")".
6	Petitioner's Exhibit 1015 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "S.E. Johnson and P.C. Woodland, "A Method for Direct Audio Search with Applications to Indexing and Retrieval," IEEE International Conference on Acoustics, Speech, and Signal Processing, June 5-9 2000 (2000) 1427-1430 ("Johnson")".
7	Petitioner's Exhibit 1017 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "R. Venkatesan, S.-M. Koon, M. H. Jakubowski, and P. Moulin, "Robust Image Hashing," 0-7803-6297-7/00, IEEE (2000), 664-666 ("Venkatesan")".
8	Petition for Inter Partes Review of U.S. Patent 9,479,831, Free Stream Media Corp. d/b/a Samba TV v. Gracenote, Inc., Case No. IPR2020-00218 filed December 6, 2019, 84 pages.
9	Petitioner's Exhibit 1009 from Petition for Inter Partes Review of U.S. Patent 9,479,831 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,479,831 ("Tewfik Decl.")", 128 pages.
10	Petition for Inter Partes Review of U.S. Patent 9,407,962, Free Stream Media Corp. d/b/a Samba TV v. Gracenote, Inc., Case No. IPR2020-00217 filed December 6, 2019, 69 pages.
11	Petitioner's Exhibit 1008 from Petition for Inter Partes Review of U.S. Patent 9,407,962 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,407,962 ("Tewfik Decl.")", 108 pages.
12	Memorandum Opinion, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/11/2019 (7 pages).
13	Order, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/11/2019 (1 page).
14	Defendant Samba TV's Answer to Complaint and Affirmative Defenses, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 1/6/2020 (32 pages).

If you wish to add additional non-patent literature document citation information please click the Add button

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	Gavin J. O'Keefe	Date (YYYY-MM-DD)	2020-01-15
Name/Print	Gavin J. O'Keefe	Registration Number	59,916

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16264134			
Filing Date:	31-Jan-2019			
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Gavin James O'Keefe/Erika Eklund			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1300	1300
Total in USD (\$)				1300

Electronic Acknowledgement Receipt

EFS ID:	38304295
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Gavin James O'Keefe
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	15-JAN-2020
Filing Date:	31-JAN-2019
Time Stamp:	19:59:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1300
RAM confirmation Number	E20201EJ59361894
Deposit Account	132490
Authorized User	Gavin O'Keefe

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00216

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	17-374-US- CON8_RCE_Transmittal.pdf	1349989	no	3
			9fe87465e52014c19e4101af331aac7f00b9424b		
Warnings:					
Information:					
2	Foreign Reference	GB2375907A.pdf	918476	no	26
			696b73dbb7ec0e2c3387818c1e93798eb4a45dde		
Warnings:					
Information:					
3	Non Patent Literature	IPR2020-00216_Petition.pdf	1577177	no	84
			41056b7df95c14bed6d51b111ebb2f6fcae3c405		
Warnings:					
Information:					
4	Non Patent Literature	Venkatesan_Robust_Image_Hashing.pdf	597753	no	3
			9236ded5eb3dc44082489cb8113f1ddab1cd699df		
Warnings:					
Information:					
5	Non Patent Literature	IPR2020-00218_Petition.pdf	1612086	no	84
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Warnings:					
Information:					
6	Non Patent Literature	IPR2020-00217_Petition.pdf	1504609	no	69
			107ce10f5a98bf28f0ad6fb5f2897200ac4b003a7		
Warnings:					
Information:					

7	Non Patent Literature	Tewfik_Declaration_9066114.pdf	1371872	no	126
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Warnings:					
Information:					
8	Non Patent Literature	Tewfik_CV.pdf	370202	no	74
			f92c11261e4f9669202d70ec787bdbba887ab659		
Warnings:					
Information:					
9	Non Patent Literature	Kate_A_New_Dimension.pdf	1849668	no	27
			a6768951162f41963609ee2fe87f1b6d41c0716c		
Warnings:					
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Information:					
10	Non Patent Literature	Oostveen_Feature_Extraction.pdf	437879	no	24
			b88f89caed0b2286b4bf461c034b06687696fdce		
Warnings:					
Information:					
11	Non Patent Literature	Johnson_Method_For_Direct_Audio_Search.pdf	390234	no	4
			767c48a3f9b1b235b93af53e9bbad476576d5442		
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Information:					
12	Non Patent Literature	Tewfik_Declaration_9479831.pdf	1549819	no	128
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Warnings:					
Information:					
13	Non Patent Literature	Tewfik_Declaration_9407962.pdf	1321037	no	108
			e9a2be281b369c084052e4c418ea77b2fd55fe6c		

Warnings:					
Information:					
14	Non Patent Literature	Memorandum_Opinion_2019-12-11_DKT025.pdf	471722	no	7
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Warnings:					
Information:					
15	Non Patent Literature	Order_2019-12-11_DKT026.pdf	131974	no	1
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Warnings:					
Information:					
16	Non Patent Literature	Samba_Answer_to_Complaint_Affirmative_Defenses_2020-01-06_DKT028.pdf	163051	no	32
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Warnings:					
Information:					
17	Information Disclosure Statement (IDS) Form (SB08)	17-374-US-CON8_IDS.pdf	613644	no	6
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Warnings:					
Information:					
18	Fee Worksheet (SB06)	fee-info.pdf	30535	no	2
			d35ac7c5e59fc2148a08102c08c5ff517a19ec16		
Warnings:					
Information:					
Total Files Size (in bytes):			16261727		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

139404 7590 01/29/2020
McDonnell Boehnen Hulbert & Berghoff LLP/Gracnote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

EXAMINER	
SCHWARTZ, DARREN B	
ART UNIT	PAPER NUMBER

2435

DATE MAILED: 01/29/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

TITLE OF INVENTION: Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	04/29/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

139404 7590 01/29/2020
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

TITLE OF INVENTION: Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
SCHWARTZ, DARREN B	2435	726-027000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451
139404	7590	01/29/2020	EXAMINER	
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote 300 South Wacker Drive, Suite 3100 Chicago, IL 60606			SCHWARTZ, DARREN B	
			ART UNIT	PAPER NUMBER
			2435	
DATE MAILED: 01/29/2020				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation of Federal, State, or local law.

Notice of Allowability	Application No. 16/264,134	Applicant(s) Oostveen et al.	
	Examiner DARREN B SCHWARTZ	Art Unit 2435	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed 15 Jan 2020.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-22. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>20200115</u> . 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material _____. 4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date. _____.	5. <input type="checkbox"/> Examiner's Amendment/Comment 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 7. <input type="checkbox"/> Other _____.
---	--

/DARREN B SCHWARTZ/
Primary Examiner, Art Unit 2435

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Claims 1-22 are presented for examination.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 15 January 2020 has been entered.

Remarks & Allowable Subject Matter

The body of art has been carefully considered, including art cited in the Information Disclosure Statement and found in an updated search & consideration of the art: Murphy (GB 2375907 A), hereinafter referred to as Murphy, Brunk et al (U.S. Pat App Pub 2002/0126872), hereinafter referred to as Brunk and Tichelaar et al (U.S. Pat App Pub 2006/0245625 A1), hereinafter referred to as Tichelaar.

Murphy teaches an automated recognition system using fingerprints to match signals with pre-stored cues in a database.

Brunk teaches a linked list of signatures and linking or associating signatures with additional data which “may include identifying information for the content (e.g., author, title, label, serial numbers, etc.), security information (e.g., copy control), data specifying (e.g., providing a URL, licensing information or rights, etc.), context information, metadata, etc.” but is silent as to the recited time point limitations.

Tichelaar teaches generating and detecting fingerprints, attaching and executing actions associated with those fingerprints but is silent as to the recited time point limitations.

While a person of ordinary skill in the art (POSITA) can trigger an action at the beginning of a particular piece of content, end of a particular piece of content or at some point in between, the claim requires the action be executed in association with a time point which indicates when in the multimedia content such action is to be executed; this explicit mapping is silent in the references and the fact that the art provides for execution of an action requires speculation as to the time point as recited. The Examiner is constrained by what the reference explicitly recites. The Examiner would be resorting to speculation as to applying art to the entirety of the claims. An inherent characteristic must be inevitable, and not merely a possibility or probability. See *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981). For the Examiner to fit the separate pieces of the reference together to render the claim obvious would be resorting to a clear hindsight reconstruction; based upon the identified embodiments supra, it would be further hindsight reconstruction to combine any one or more of references with themselves or rely on Official Notice to combine those embodiments. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

In combination with the recited limitations, the art does not teach nor suggest in response to determining that the one of the in response to determining that the one of the derived fingerprints matches the at least one reference fingerprint, causing execution of the action associated with the at least one reference fingerprint, wherein the action to be executed is associated with a time point indicating when, in the multimedia content, the action is to be executed.

Claims 1-22 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTOL-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARREN B SCHWARTZ whose telephone number is (571)270-3850. The examiner can normally be reached on 9am-7pm EST, Monday-Thursday, 9am-5pm EST, Friday.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph P Hirl can be reached on (571)272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DARREN B SCHWARTZ/
Primary Examiner, Art Unit 2435

Notice of References Cited	Application/Control No. 16/264,134		Applicant(s)/Patent Under Reexamination Oostveen et al.	
	Examiner DARREN B SCHWARTZ		Art Unit 2435	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20020082731-A1	06-2002	Pitman, Michael C.	G06Q30/0283	700/94
*	B	US-20020083440-A1	06-2002	Dupuis, Jean-Charles	H04H20/14	725/32
*	C	US-20030121046-A1	06-2003	Roy, Yves	G06K9/00536	725/90
*	D	US-20060245625-A1	11-2006	Tichelaar; JohannesY	H04N7/163	382/124
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					


FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	


*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

CPC						
Symbol					Type	Version
H04N	/	21	/	23418	F	2013-01-01
H04N	/	19	/	467	I	2014-11-01
H04N	/	21	/	23109	I	2013-01-01
H04N	/	21	/	433	I	2013-01-01
H04N	/	21	/	8126	I	2013-01-01
H04N	/	21	/	4394	I	2013-01-01
H04N	/	21	/	44008	I	2013-01-01
H04N	/	21	/	4586	I	2013-01-01
H04N	/	21	/	6587	I	2013-01-01
H04N	/	21	/	435	I	2013-01-01
H04N	/	21	/	8133	I	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) 25 January 2020		O.G. Print Claim(s) 1	O.G. Print Figure 1b


Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	21	/	234
H04N	/	21	/	231
H04N	/	21	/	439
H04N	/	21	/	81
H04N	/	21	/	433
H04N	/	21	/	435
H04N	/	21	/	44
H04N	/	21	/	458
H04N	/	21	/	6587
H04N	/	19	/	467
NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					


NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) _____		25 January 2020 O.G. Print Claim(s) 1	O.G. Print Figure 1b

Issue Classification 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant	<input type="checkbox"/> CPA	<input checked="" type="checkbox"/> T.D.	<input type="checkbox"/> R.1.47
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CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	21	21										
4	4	13	13	22	22										
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 22	
/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435 (Primary Examiner) _____ (Date) 25 January 2020		O.G. Print Claim(s) 1	O.G. Print Figure 1b

<i>Search Notes</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435


CPC - Searched*		
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H04N21/23418 H04N21/23109 H04N21/4394 H04N21/8133 H04N21/433 H04N21/8126 H04N21/435 H04N21/44008 H04N21/4586 H04N21/6587 H04N19/467	10/05/2019	DS
H04N21/23418 H04N21/23109 H04N21/4394 H04N21/8133 H04N21/433 H04N21/8126 H04N21/435 H04N21/44008 H04N21/4586 H04N21/6587 H04N19/467	01/25/2020	DS

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.


/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435	
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<i>Search Notes</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

Search Notes		
Search Notes	Date	Examiner
CPC search (H04N21/23418 H04N21/23109 H04N21/4394 H04N21/8133 H04N21/433 H04N21/8126 H04N21/435 H04N21/44008 H04N21/4586 H04N21/6587 H04N19/467) with keywords (see search history)	10/05/2019	DS
keywords search (see search history)	10/05/2019	DS
NPL search (see search history)	10/05/2019	DS
Inventor, Assignment, Double Patenting, Interference search (see search history)	10/05/2019	DS
Reviewed FAMILY applications	10/05/2019	DS
Updated above searches (see search history)	01/25/2020	DS
Reviewed IPRs	01/25/2020	DS

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	keywords search in East (USPAT, US-PGPUB) (see search history)	10/05/2019	DS
	keywords search in East (USPAT, US-PGPUB) (see search history)	01/25/2020	DS

/DARREN B SCHWARTZ/ Primary Examiner, Art Unit 2435	
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<i>Index of Claims</i> 	Application/Control No. 16/264,134	Applicant(s)/Patent Under Reexamination Oostveen et al.
	Examiner DARREN B SCHWARTZ	Art Unit 2435

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47										
CLAIM		DATE								
Final	Original	10/05/2019	01/25/2020							
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17	17	=	=							
18	18	=	=							
19	19	=	=							
20	20	=	=							
21	21	=	=							
22	22	=	=							

Video sequence matching

R Mohan - Proceedings of the 1998 IEEE International ..., 1998 - [ieeexplore.ieee.org](#)

... We used a **fingerprint** based on the ordinal values of 3x3 reduced intensity image for each frame.

Thus ... The top **match** is the original, real-time dive of which we used the slow motion. In the top

5 matches, all sequences are correctly identified dive sequences ...

☆ 99 Cited by 259 Related articles All 5 versions

Monitoring and reporting of **fingerprint** image quality and **match** accuracy for a large user application

T Ko, R Krishnan - 33rd Applied Imagery Pattern Recognition ..., 2004 - [ieeexplore.ieee.org](#)

... search transactions with positive **matches** (sTPM), search transactions with confirmed false

matches (sTFM), and ... image quality of the search subjects and **match** candidates, (2) **match** scores

and ... the desirable effect of improving the overall quality of the **fingerprint** database over ...

☆ 99 Cited by 30 Related articles All 5 versions

Fingerprint enhancement by directional Fourier filtering

BG Sherlock, DM Monro, K Millard - IEEE Proceedings-Vision, Image and Signal ..., 1994 - IET

... held in the database, thereby gener- ating a shortlist of most likely candidate **matches** ... 2, April

1994 candidates, determining which (if any) is the correct **match** ... 5 Fingerprint enhancement by

directional filtering Previous sections developed a position-dependent aniso- tropic ...

☆ 99 Cited by 547 Related articles All 8 versions

Fingerprints and the Daubert standard for admission of scientific evidence: Why **fingerprints** fail and a proposed remedy

N Benedict - Ariz. L. Rev., 2004 - HeinOnline

... to adequately quantify such low-probability events as a false positive DNA **match**.95 But ... the second

key claim: that **fingerprint** examiners can accurately determine that two **fingerprint** samples came ...

the agencies to select "court qualified" examiners to see if any **matches** could be ...

☆ 99 Cited by 46 Related articles All 4 versions

Biometric recognition: Security and privacy concerns

S Prabhakar, S Pankanti, AK Jain - IEEE security & privacy, 2003 - [ieeexplore.ieee.org](#)

... at the risk of manually examining a large number of potentially incorrect **matches** that the ... On the

other hand, a **match**- ing algorithm with a verification FMR of 0.001 percent will ... modal-biometric

systems (for example, requiring multiple **fingerprints**, a face and **fingerprint**, or some ...

☆ 99 Cited by 1273 Related articles All 20 versions

On the individuality of **fingerprints**

S Pankanti, S Prabhakar, AK Jain - IEEE Transactions on ..., 2002 - [ieeexplore.ieee.org](#)

... **fingerprints** from the same source, number of positions (different translations and rotations of

the input **fingerprint** to **match** with the ... few studies which empirically estimate the probability of

finding a **fingerprint** in a large database that successfully **matches** the input **fingerprint** ...

☆ 99 Cited by 777 Related articles All 19 versions

The decision to confess falsely: Rational choice and irrational **action**

RJ Ofshe, RA Leo - Denv. UL Rev., 1996 - HeinOnline

... about which they have no memory and that confessing is the proper and optimal course of **action** ...

At this **point** investigators neither take a hos- tile tone nor tell the individual that he is a ... relations

with the victim, his knowledge of the offense, and his whereabouts at the **time** of the ...

☆ 99 Cited by 473 Related articles All 2 versions

What counts for identity? The historical origins of the methodology of latent **fingerprint** identification

S Cole - Science in Context, 1999 - [cambridge.org](#)

... **Matches** are not established by accumulating "points of similarity"; but, rather, by trained and ... so

much to provide a precise reckoning of the likelihood of a **fingerprint match**, but rather ... in the

mid-1890s in colonial Bengal, Britain officially switched over to **fingerprint** identification in ...

☆ 99 Cited by 39 Related articles All 4 versions

Fingerprint evidence in an age of DNA profiling

JL Mnookin - Brook. L. Rev., 2001 - HeinOnline

... a false positive) or erroneously think that two prints did not **match** when they ... Neither the judge in Jennings nor those who considered **fingerprint** evidence throughout the decade ... to identify criminals and suspected criminals (the FBI, for example, began **fingerprinting** in 1904 ...

☆ 99 Cited by 190 Related articles All 5 versions

Characterisation of global protein expression by two-dimensional electrophoresis and mass spectrometry: proteomics of *Toxoplasma gondii*

AM Cohen, K Rumpel, GH Coombs... - International journal for ... , 2002 - Elsevier

... However, some protein spots gave weak peptide mass **fingerprint matches** to single ESTs and ... All proteins that were identified by peptide mass **fingerprint** data were subsequently confirmed ... In each case, the protein **match** obtained with peptide fragmentation data agreed with ...

☆ 99 Cited by 123 Related articles All 10 versions 99

Related searches

fingerprint classification and matching

global orientation field fingerprint matching

fingerprint matching approach

fingerprint minutiae matching

fingerprint matching method

global alignment fingerprint matching

pores and ridges fingerprint matching

level 3 features fingerprint matching

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	85261	(fingerprint signature jingle cue) with (match\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:08
L2	12840	1 and @ad<"20040705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:11
L3	2279	2 and (event action flag) with (fingerprint signature jingle cue)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:13
L4	245	2 and (H04N21/23418 or H04N21/8133 or H04N21/435 or H04N21/6587 or H04N21/4586 or H04N21/44008 or H04N21/4394 or H04N19/467 or H04N21/433 or H04N21/8126 or H04N21/23109).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:14
L5	1272	2 AND ((G06F21/10 OR G06F21/64 OR G06F21/52 OR G06F21/60 OR G06F21/565 OR G06F21/00 OR G06F21/105 OR G06F21/6227 OR G06F21/80 OR G06F2221/0733 OR G06F21/16 OR H04L9/3247 OR H04L63/12 OR H04L2209/603).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:20
L6	297	3 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 12:28
L7	964	5 not (4 6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 13:13

EAST Search History (Prior Art)

L10	358	7 and (fingerprint signature jingle cue) with (segment fragment piece portion partition shard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 13:39
L11	41391	gracernote.as. gracernote.aanm. nielsen.as. nielsen.aanm. (Oostveen near2 (Job Cornelis)).inv. ((Ten Kate) near4 (Warner Rudolph Theophile)).inv. (Denissen near4 (Adrianus Johannes Maria)).inv. (Roberts near4 David).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 14:29
L17	73	11 and reference with fingerprint with action	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 14:39
L19	19	11 and time adj point with action with fingerprint	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 14:39
L20	11	17 and 19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 14:40
L21	11	time adj point with action with fingerprint and reference with fingerprint with action	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/25 14:40

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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EAST Search History (Interference)

L12	8305	gracernote.as. gracernote.aanm. nielsen.as. nielsen.aanm. (Oostveen near2 (Job Cornelis)).inv. ((Ten Kate) near4 (Warner Rudolph Theophile)).inv. (Denissen near4 (Adrianus Johannes Maria)).inv. (Roberts near4 David).inv.	US-PGPUB; USPAT	OR	ON	2020/01/25 14:30
L13	68	12 and reference with fingerprint with action	US-PGPUB; USPAT	OR	ON	2020/01/25 14:36
L14	18	12 and time adj point with action with fingerprint	US-PGPUB; USPAT	OR	ON	2020/01/25 14:37
L15	11	13 and 14	US-PGPUB; USPAT	OR	ON	2020/01/25 14:37
L16	11	reference with fingerprint with action and time adj point with action with fingerprint	US-PGPUB; USPAT	OR	ON	2020/01/25 14:37

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9066114	B2	2015-06-23	Oostveen et al.	
	2	9407962	B2	2016-08-02	Oostveen et al.	
	3	9479831	B2	2016-10-25	Oostveen et al.	
	4	6637032	B1	2003-10-21	Feinleib	
	5	8020000	B2	2011-09-13	Oostveen et al.	
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U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020126872	A1	2002-09-12	Brunk et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

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Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

2	20020178410	A1	2002-11-28	Haitsma et al.
3	20020032864	A1	2002-03-14	Rhoads et al.

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	2375907	GB	A	2002-11-27	British Broadcasting Corporation		

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Petition for Inter Partes Review of U.S. Patent 9,066,114, Free Stream Media Corp. d/b/a Samba TV v. Gracnote, Inc., Case No. IPR2020-00216 filed December 6, 2019, 84 pages.	
	2	Petitioner's Exhibit 1007 from Petition for Inter Partes Review of U.S. Patent 9,066,114 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,066,114 ("Tewfik Decl.")", 126 pages.	
	3	Petitioner's Exhibit 1010 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "Curriculum Vitae of Dr. Ahmed H. Tewfik", 74 pages.	
	4	Petitioner's Exhibit 1013 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "W. Kate, et al. "trigg&link: A New Dimension in Television Program Making," in Lecture Notes in Computer Science 1197, vol. 1242, Multimedia Applications, Services and Techniques-ECMAST '97, (1997) 51-65 ("Kate")".	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

5	Petitioner's Exhibit 1014 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "J. Oostveen, T. Kalker, and J. Haitsma, "Feature Extraction and a Database Strategy for Video Fingerprinting," in Recent Advances in Visual Information Systems, 5th International Conference, VISUAL (2002) 117-128 ("Oostveen")".
6	Petitioner's Exhibit 1015 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "S.E. Johnson and P.C. Woodland, "A Method for Direct Audio Search with Applications to Indexing and Retrieval," IEEE International Conference on Acoustics, Speech, and Signal Processing, June 5-9 2000 (2000) 1427-1430 ("Johnson")".
7	Petitioner's Exhibit 1017 from Petitions for Inter Partes Review of U.S. Patents 9,066,114, 9,479,831 and 9,407,962 entitled "R. Venkatesan, S.-M. Koon, M. H. Jakubowski, and P. Moulin, "Robust Image Hashing," D-7803-6297-7/00, IEEE (2000), 664-666 ("Venkatesan")".
8	Petition for Inter Partes Review of U.S. Patent 9,479,831, Free Stream Media Corp. d/b/a Samba TV v. Gracenote, Inc., Case No. IPR2020-00218 filed December 6, 2019, 84 pages.
9	Petitioner's Exhibit 1009 from Petition for Inter Partes Review of U.S. Patent 9,479,831 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,479,831 ("Tewfik Decl.")", 128 pages.
10	Petition for Inter Partes Review of U.S. Patent 9,407,962, Free Stream Media Corp. d/b/a Samba TV v. Gracenote, Inc., Case No. IPR2020-00217 filed December 6, 2019, 69 pages.
11	Petitioner's Exhibit 1008 from Petition for Inter Partes Review of U.S. Patent 9,407,962 entitled "Declaration of Dr. Ahmed H. Tewfik regarding U.S. Pat. No. 9,407,962 ("Tewfik Decl.")", 108 pages.
12	Memorandum Opinion, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/11/2019 (7 pages).
13	Order, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 12/11/2019 (1 page).
14	Defendant Samba TV's Answer to Complaint and Affirmative Defenses, Gracenote, Inc. v. Free Stream Media Corp. d/b/a Samba TV, Case No. 1:18-cv-01608-RGA (D. Del.) filed 1/6/2020 (32 pages).

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

EXAMINER SIGNATURE

Examiner Signature	/DARREN B SCHWARTZ/	Date Considered	01/25/2020
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	16264134
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen
Art Unit	2435
Examiner Name	Darren B. Schwartz
Attorney Docket Number	17-374-US-CON8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	Gavin J. O'Keefe	Date (YYYY-MM-DD)	2020-01-15
Name/Print	Gavin J. O'Keefe	Registration Number	59,916

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

139404 7590 01/29/2020
McDonnell Boehnen Hulbert & Berghoff LLP/Gracenote
300 South Wacker Drive, Suite 3100
Chicago, IL 60606

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/264,134	01/31/2019	Job Cornelis Oostveen	17-374-US-CON8	4451

TITLE OF INVENTION: Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
SCHWARTZ, DARREN B	2435	726-027000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 McDonnell Boehnen Hulbert &

Berghoff LLP

2 _____

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Gracenote, Inc.

Emeryville, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

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NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Brett W. Scott/

Date February 4, 2020

Typed or printed name Brett W. Scott

Registration No. 74,484

Electronic Patent Application Fee Transmittal

Application Number:	16264134			
Filing Date:	31-Jan-2019			
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal			
First Named Inventor/Applicant Name:	Job Cornelis Oostveen			
Filer:	Brett William Scott			
Attorney Docket Number:	17-374-US-CON8			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	38493344
Application Number:	16264134
International Application Number:	
Confirmation Number:	4451
Title of Invention:	Method and Device for Generating and Detecting a Fingerprint Functioning as a Trigger Marker in a Multimedia Signal
First Named Inventor/Applicant Name:	Job Cornelis Oostveen
Customer Number:	139404
Filer:	Brett William Scott
Filer Authorized By:	
Attorney Docket Number:	17-374-US-CON8
Receipt Date:	04-FEB-2020
Filing Date:	31-JAN-2019
Time Stamp:	18:34:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1000
RAM confirmation Number	E202024I34403409
Deposit Account	132490
Authorized User	Brett Scott

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

IPR2020-00216

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	17-374-US- CON8_issue_fee_transmittal. pdf	1633771	no	1
			7f67b74ab70beb0ebce98b9bcf08bfce276 b46c6		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30777	no	2
			bbabec1489a244f26fbd4557d720a964ab 6486c		

Warnings:

Information:

Total Files Size (in bytes):			1664548
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-01-31
First Named Inventor	Job Cornelis Oostveen et al.
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	17-374-US-CON8

Change(s) applied to document, /M.G./ 12/27/2019	9	9479831		2016-05-25	Oostveen et al.	
	10	9712853		2016-09-22 7/2017	Oostveen et al.	
	11	10045054		2018-08-07	Oostveen et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20020028000	A1	2002-03-07	Conwell et al.	
	2	20020032864	A1	2002-03-14	Rhoads et al.	
	3	20020033844	A1	2002-03-21	Levy et al.	
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ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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