



US009554176B2

(12) **United States Patent**  
**Gharaat et al.**

(10) **Patent No.:** **US 9,554,176 B2**  
(45) **Date of Patent:** **Jan. 24, 2017**

(54) **MEDIA CONTENT FINGERPRINTING SYSTEM**

(71) Applicant: **TiVo Inc.**, Alviso, CA (US)

(72) Inventors: **Amir H. Gharaat**, Menlo Park, CA (US); **James M. Barton**, Alviso, CA (US); **Mukesh K. Patel**, Fremont, CA (US)

(73) Assignee: **TiVo Inc.**, San Jose, CA (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 108 days.

(21) Appl. No.: **13/965,125**

(22) Filed: **Aug. 12, 2013**

(65) **Prior Publication Data**

US 2013/0332951 A1 Dec. 12, 2013  
US 2016/0353181 A9 Dec. 1, 2016

**Related U.S. Application Data**

(63) Continuation of application No. 12/631,783, filed on Dec. 4, 2009, now Pat. No. 8,510,769.  
(Continued)

(51) **Int. Cl.**  
**H04N 5/765** (2006.01)  
**H04N 21/435** (2011.01)  
(Continued)

(52) **U.S. Cl.**  
CPC ..... **H04N 21/435** (2013.01); **G06F 3/1454** (2013.01); **G06F 17/3002** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
CPC ..... H04N 21/8358; H04N 21/442; H04N 21/44213; H04N 21/44222; H04N 21/422; H04H 2201/90; H04H 60/31  
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,230,990 A \* 10/1980 Lert, Jr. .... G06K 9/00711 348/473  
4,420,769 A 12/1983 Novak  
(Continued)

FOREIGN PATENT DOCUMENTS

EP 0627857 A1 12/1994  
EP 2083568 A1 7/2009  
(Continued)

OTHER PUBLICATIONS

European Patent Office, "Search Report" in application No. 10816288.4-1902, dated Nov. 29, 2013, 6 pages.  
(Continued)

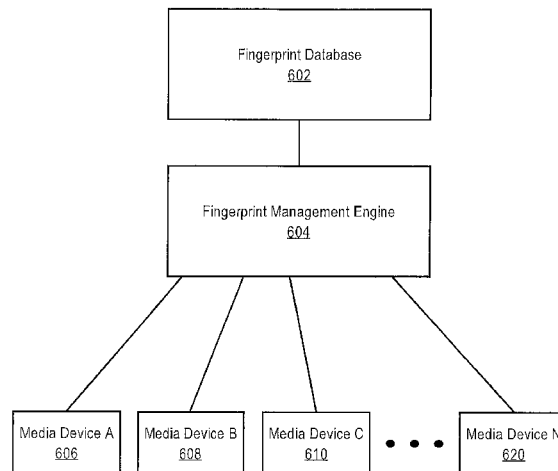
*Primary Examiner* — David Harvey

(74) *Attorney, Agent, or Firm* — Wong & Rees LLP

(57) **ABSTRACT**

A method of deriving fingerprints for media content that is being watched by a user is described. For example, a user may select a particular show on an electronic programming guide displayed by a media device. The media device may then request the content stream, from the content source, that includes the particular show. The source may indicate whether a fingerprint is needed for the particular show requested by the media device. The indication may be a flag in the data received by the media device. If the particular show needs to be fingerprinted as indicated by the flag, the media device may decompress the corresponding video frames, load the decompressed video frames into memory and analyze the video frames to derive a fingerprint from the video frames.

**21 Claims, 12 Drawing Sheets**



Related U.S. Application Data

			7,774,407 B2	8/2010	Daly et al.	
			7,784,078 B2	8/2010	Ohnuma et al.	
			7,805,055 B2	9/2010	Kimoto et al.	
			7,818,771 B2	10/2010	Duchenaud et al.	
			7,822,815 B1	10/2010	Gress et al.	
			7,840,980 B2	11/2010	Gutta	
			7,908,635 B2	3/2011	Barton et al.	
			7,912,206 B2	3/2011	Miller et al.	
			7,930,714 B2	4/2011	Konig et al.	
			7,984,473 B1	7/2011	Casile et al.	
			7,991,129 B2	8/2011	Timmins et al.	
			8,000,685 B2	8/2011	Benco et al.	
			8,006,261 B1	8/2011	Haberman et al.	
			8,032,383 B1	10/2011	Bhardwaj et al.	
			8,032,909 B2	10/2011	Davis et al.	
			8,094,872 B1*	1/2012	Yagnik .....	G06K 9/00711 380/201
			8,156,520 B2	4/2012	Casagrande et al.	
			8,233,601 B2	7/2012	Mendilola	
			8,265,990 B2	9/2012	Penberthy et al.	
			8,306,859 B2	11/2012	Lerman et al.	
			8,346,798 B2	1/2013	Spiegelman et al.	
			8,351,761 B2	1/2013	Harris	
			8,364,703 B2	1/2013	Ramanathan et al.	
			8,370,765 B2	2/2013	Martin	
			8,381,241 B2*	2/2013	Ramaswamy et al. ....	725/14
			8,417,096 B2	4/2013	Gharaat et al.	
			8,538,324 B2	9/2013	Hardacker et al.	
			8,910,199 B2	12/2014	Slaney et al.	
			8,984,626 B2	3/2015	Barton et al.	
			9,036,979 B2	5/2015	Gharaat et al.	
			9,264,758 B2	2/2016	Gharaat et al.	
			9,369,758 B2	6/2016	Gharaat et al.	
			2001/0023431 A1	9/2001	Horiguchi	
			2002/0037104 A1	3/2002	Myers et al.	
			2002/0099552 A1	7/2002	Rubin et al.	
			2002/0099774 A1	7/2002	Yamato et al.	
			2002/0119800 A1	8/2002	Jagers et al.	
			2002/0124252 A1	9/2002	Schaafer	
			2002/0127000 A1	9/2002	Yamato et al.	
			2002/0152117 A1	10/2002	Cristofalo et al.	
			2002/0188945 A1	12/2002	McGee et al.	
			2003/0093580 A1	5/2003	Thomas et al.	
			2003/0093790 A1	5/2003	Logan et al.	
			2003/0093806 A1	5/2003	Dureau et al.	
			2003/0095791 A1	5/2003	Barton et al.	
			2003/0114145 A1	6/2003	Boda et al.	
			2003/0126600 A1	7/2003	Heuvelman	
			2003/0156827 A1	8/2003	Janevski	
			2003/0163823 A1	8/2003	Logan et al.	
			2003/0177503 A1	9/2003	Sull et al.	
			2003/0202773 A1	10/2003	Dow et al.	
			2004/0015992 A1	1/2004	Hasegawa et al.	
			2004/0043724 A1	3/2004	Weast	
			2004/0059570 A1	3/2004	Mochinaga et al.	
			2004/0078610 A1	4/2004	Naitoh	
			2004/0078817 A1	4/2004	Horowitz et al.	
			2004/0143349 A1	7/2004	Roberts et al.	
			2004/0189873 A1	9/2004	Konig et al.	
			2004/0220858 A1	11/2004	Maggio	
			2004/0226035 A1	11/2004	Hauser, Jr.	
			2004/0250212 A1	12/2004	Fish	
			2004/0260682 A1	12/2004	Herley et al.	
			2005/0022251 A1	1/2005	Ohnuma et al.	
			2005/0025249 A1	2/2005	Zhao et al.	
			2005/0028161 A1	2/2005	Numakami et al.	
			2005/0044189 A1	2/2005	Ikezoye et al.	
			2005/0044561 A1	2/2005	McDonald	
			2005/0066366 A1	3/2005	Takamine	
			2005/0101303 A1	5/2005	Pelaez et al.	
			2005/0149968 A1	7/2005	Konig et al.	
			2005/0172312 A1	8/2005	Lienhart et al.	
			2005/0183041 A1	8/2005	Chiu et al.	
			2005/0239545 A1	10/2005	Rowe	
			2006/0015609 A1	1/2006	Hagale et al.	
			2006/0023849 A1	2/2006	Timmins et al.	
			2006/0036688 A1	2/2006	McMahan et al.	
(60)	Provisional application No. 61/242,277, filed on Sep. 14, 2009.					
(51)	<b>Int. Cl.</b>					
	<b>G06F 17/30</b> (2006.01)					
	<b>G06Q 30/02</b> (2012.01)					
	<b>G06Q 30/04</b> (2012.01)					
	<b>G06Q 30/06</b> (2012.01)					
	<b>G06Q 50/00</b> (2012.01)					
	<b>G11B 27/32</b> (2006.01)					
	<b>G06F 3/14</b> (2006.01)					
	<b>H04N 9/79</b> (2006.01)					
	<b>H04N 21/422</b> (2011.01)					
	<b>H04N 21/8358</b> (2011.01)					
	<b>H04N 21/442</b> (2011.01)					
(52)	<b>U.S. Cl.</b>					
	CPC ..... <b>G06Q 30/0244</b> (2013.01); <b>G06Q 30/0255</b> (2013.01); <b>G06Q 30/04</b> (2013.01); <b>G06Q 30/0631</b> (2013.01); <b>G06Q 50/01</b> (2013.01); <b>G11B 27/322</b> (2013.01); <b>H04N 5/765</b> (2013.01); <b>H04N 9/79</b> (2013.01); <b>H04N 21/422</b> (2013.01); <b>H04N 21/42201</b> (2013.01); <b>H04N 21/442</b> (2013.01); <b>H04N 21/8358</b> (2013.01)					
(58)	<b>Field of Classification Search</b>					
	USPC ..... 725/19, 20					
	See application file for complete search history.					
(56)	<b>References Cited</b>					
	<b>U.S. PATENT DOCUMENTS</b>					
	4,750,213 A	6/1988	Novak			
	5,343,251 A	8/1994	Nafeh			
	5,469,207 A	11/1995	Chambers			
	5,481,294 A*	1/1996	Thomas et al. ....	725/20		
	5,504,518 A	4/1996	Ellis et al.			
	5,617,539 A	4/1997	Ludwig et al.			
	5,668,917 A	9/1997	Lewine			
	5,748,263 A	5/1998	Ball			
	5,956,455 A	9/1999	Hennig			
	6,167,428 A	12/2000	Ellis			
	6,243,445 B1	6/2001	Begeja et al.			
	6,317,784 B1	11/2001	Mackintosh et al.			
	6,393,412 B1	5/2002	Deep			
	6,404,977 B1	6/2002	Iggulden			
	6,469,749 B1	10/2002	Dimitrova et al.			
	6,633,651 B1	10/2003	Hirzalla et al.			
	6,636,688 B1	10/2003	Otana			
	6,725,250 B1	4/2004	Ellis			
	6,771,316 B1	8/2004	Iggulden			
	6,771,885 B1	8/2004	Agnihotri et al.			
	6,795,530 B1	9/2004	Gilbert et al.			
	6,928,231 B2	8/2005	Tajima			
	6,963,897 B1	11/2005	Hubbard			
	7,080,392 B1	7/2006	Geshwind			
	7,170,566 B2	1/2007	McGee et al.			
	7,171,108 B1	1/2007	Masters et al.			
	7,222,071 B2*	5/2007	Neuhauser .....	G10L 19/018 704/231		
	7,269,330 B1	9/2007	Iggulden			
	7,302,160 B1	11/2007	Wells			
	7,418,497 B2	8/2008	Hagale et al.			
	7,477,739 B2	1/2009	Haitsma et al.			
	7,483,835 B2*	1/2009	Neuhauser .....	H04H 20/33 704/270		
	7,486,875 B2	2/2009	Yamashita et al.			
	7,548,950 B2	6/2009	Numakami et al.			
	7,571,226 B1	8/2009	Partovi et al.			

(56)

References Cited

U.S. PATENT DOCUMENTS

2006/0109854 A1 5/2006 Cancel  
 2006/0111917 A1 5/2006 Dhanakshirur  
 2006/0116885 A1 6/2006 Shostak  
 2006/0136220 A1 6/2006 Gurram et al.  
 2006/0161947 A1 7/2006 Laksono et al.  
 2006/0174277 A1 8/2006 Sezan et al.  
 2006/0195859 A1 8/2006 Konig et al.  
 2006/0230422 A1 10/2006 Kunin et al.  
 2006/0239642 A1 10/2006 Yuasa et al.  
 2006/0245625 A1 11/2006 Tichelaar et al.  
 2006/0259942 A1 11/2006 Toyama et al.  
 2006/0271947 A1 11/2006 Lienhart et al.  
 2006/0271959 A1 11/2006 Jacoby et al.  
 2006/0282856 A1 12/2006 Errico et al.  
 2006/0294557 A1 12/2006 Morris et al.  
 2007/0001806 A1 1/2007 Poll  
 2007/0083887 A1 4/2007 Gutta et al.  
 2007/0092204 A1 4/2007 Wagner et al.  
 2007/0112939 A1 5/2007 Wilson et al.  
 2007/0136744 A1 6/2007 Simons et al.  
 2007/0136782 A1\* 6/2007 Ramaswamy ..... G11B 27/11  
 725/138  
 2007/0140187 A1 6/2007 Rokusek et al.  
 2007/0143778 A1 6/2007 Covell et al.  
 2007/0157249 A1\* 7/2007 Cordray et al. .... 725/58  
 2007/0169155 A1 7/2007 Pasquale et al.  
 2007/0186242 A1 8/2007 Price et al.  
 2007/0192410 A1 8/2007 Liversidge et al.  
 2007/0247477 A1 10/2007 Lowry et al.  
 2007/0250716 A1 10/2007 Brunk et al.  
 2007/0283380 A1 12/2007 Aoki et al.  
 2007/0286463 A1 12/2007 Ritzau et al.  
 2007/0294081 A1 12/2007 Wang et al.  
 2008/0040807 A1 2/2008 Lu et al.  
 2008/0052742 A1 2/2008 Kopf et al.  
 2008/0130958 A1 6/2008 Ziomek  
 2008/0170836 A1 7/2008 Kinoshita et al.  
 2008/0175566 A1 7/2008 Khedouri et al.  
 2008/0184326 A1 7/2008 Nakajima  
 2008/0235283 A1 9/2008 Turnball et al.  
 2008/0281601 A1 11/2008 Reichardt et al.  
 2008/0306826 A1 12/2008 Kramer et al.  
 2008/0313050 A1 12/2008 Basir  
 2008/0317439 A1 12/2008 Wong et al.  
 2009/0017792 A1 1/2009 Matsumoto et al.  
 2009/0063277 A1 3/2009 Bernosky et al.  
 2009/0077179 A1 3/2009 Bi et al.  
 2009/0083631 A1 3/2009 Sidi et al.  
 2009/0083742 A1 3/2009 Ramanathan  
 2009/0088207 A1 4/2009 Sweeney et al.  
 2009/0089587 A1 4/2009 Brunk et al.  
 2009/0091629 A1 4/2009 Casey  
 2009/0100469 A1 4/2009 Conradt et al.  
 2009/0102973 A1 4/2009 Harris  
 2009/0103893 A1 4/2009 Sugino et al.  
 2009/0119714 A1 5/2009 Schlarb et al.  
 2009/0124241 A1 5/2009 Krishnaswamy et al.  
 2009/0133059 A1 5/2009 Gibbs et al.  
 2009/0133070 A1 5/2009 Hamano et al.  
 2009/0144156 A1 6/2009 Girgis et al.  
 2009/0144769 A1 6/2009 Liebhold et al.  
 2009/0172108 A1 7/2009 Sing  
 2009/0207979 A1 8/2009 Russell  
 2009/0210908 A1 8/2009 Sammarco  
 2009/0216847 A1 8/2009 Krishnaswamy et al.  
 2009/0251526 A1 10/2009 Book  
 2009/0259499 A1 10/2009 Bhojwani et al.  
 2009/0259690 A1 10/2009 Bogdanov  
 2009/0317052 A1 12/2009 Sezan et al.  
 2010/0023553 A1 1/2010 Gausman et al.  
 2010/0040342 A1 2/2010 Kemp et al.  
 2010/0111269 A1 5/2010 Younger et al.  
 2010/0122279 A1 5/2010 Zhang

2010/0169911 A1\* 7/2010 Zhang ..... 725/19  
 2010/0212001 A1 8/2010 Kashyap et al.  
 2010/0257052 A1 10/2010 Zito et al.  
 2010/0272420 A1 10/2010 Soohoo et al.  
 2010/0318515 A1\* 12/2010 Ramanathan ..... G06F 17/30799  
 707/723  
 2010/0318596 A1 12/2010 Bergman  
 2011/0022638 A1\* 1/2011 Jiang ..... G06F 17/30743  
 707/797  
 2011/0041153 A1 2/2011 Simon et al.  
 2011/0063317 A1 3/2011 Gharaat  
 2011/0064377 A1 3/2011 Gharaat  
 2011/0064378 A1 3/2011 Gharaat  
 2011/0064385 A1 3/2011 Gharaat  
 2011/0064386 A1 3/2011 Gharaat  
 2011/0066489 A1 3/2011 Gharaat  
 2011/0066663 A1 3/2011 Gharaat  
 2011/0066942 A1 3/2011 Barton  
 2011/0066944 A1 3/2011 Barton  
 2011/0067066 A1 3/2011 Barton  
 2011/0067099 A1 3/2011 Barton  
 2011/0085781 A1 4/2011 Olson  
 2011/0135283 A1 6/2011 Poniatowki et al.  
 2011/0137976 A1 6/2011 Poniatowski  
 2013/0223816 A1 8/2013 Gharaat  
 2014/0205267 A1 7/2014 Poniatowski et al.  
 2014/0229969 A1 8/2014 Gharaat

FOREIGN PATENT DOCUMENTS

JP H05-56386 3/1993  
 JP 405205343 8/1993  
 JP 11-328769 11/1999  
 JP 2002077458 A 3/2002  
 JP 20041-056669 2/2004  
 JP 2004-222014 A 8/2004  
 JP 2004297685 A 10/2004  
 JP 2004-320608 A 11/2004  
 JP 2004-264186 12/2004  
 JP 2005-78627 3/2005  
 JP 2005-110047 4/2005  
 JP 2005-509229 4/2005  
 JP 2005-197987 7/2005  
 JP 2005328167 A 11/2005  
 JP 2006-229494 8/2006  
 JP 2006-524473 10/2006  
 JP 2006-311098 A 11/2006  
 JP 2007-159166 A 6/2007  
 JP 2007-173918 A 7/2007  
 JP 2007-214861 8/2007  
 JP 2008-219947 9/2008  
 JP 2008-277933 11/2008  
 JP 2008-277933 A 11/2008  
 JP 2008277933 11/2008  
 JP 2009-118189 5/2009  
 JP 2009-130548 6/2009  
 JP 2009-522858 6/2009  
 WO H-5-260082 A 10/1993  
 WO WO 00/13415 3/2000  
 WO WO 00/13416 3/2000  
 WO WO 00/45291 8/2000  
 WO WO 01/24524 4/2001  
 WO WO 2005/122579 12/2005  
 WO WO 2008/078093 7/2008  
 WO WO 2008/119372 9/2008  
 WO WO 2009/033182 A1 3/2009  
 WO WO 2009/143667 \* 12/2009  
 WO WO 2011/032167 A1 3/2011  
 WO WO 2011/032168 A1 3/2011  
 WO WO2011/069035 A1 6/2011

OTHER PUBLICATIONS

Current Claims in application No. 10816288.4-1902, dated Nov. 2013, 2 pages.  
 The State Intellectual Property Office of the People's Republic of

(56)

**References Cited**

## OTHER PUBLICATIONS

Current Claims in application No. 201080063087.7, dated Mar. 2014, 5 pages.

Japan Patent Office, "Decision of Rejection" in application No. 2012-528995, dated Apr. 22, 2014, 3 pages.

Current Claims in Japan application No. 2012-258995, dated Apr. 2014, 2 pages.

Japan Patent Office, "Decision of Rejection" in application No. 2012-528996, dated May 7, 2014, 4 pages.

Hiroshi Tuuki, Introduction to CGI program making by Perl, Basic edition, initial version, Jan. 25, 1998, Softbank Corporation, 4 pages.

Current Claims in Japan Application No. 2012-528996, dated May 2014, 2 pages.

International Searching Authority, International Search Report with Written Opinion, PCT/US 10/48811, Applicant: Tivo Inc., Dated Oct. 29, 2010, 12 pages.

Claims, PCT/US 10/48811, applicant Tivo Inc., 6 pages.

International Search Authority/US, Search Report and Written Opinion for International Application No. PCT/US10/48812 mailed Jan. 6, 2011, 15 pages, Alexandria Virginia USA.

Current Claims as of Jan. 6, 2011 of International Application No. PCT/US10/48812, 11 pages.

Nokai et al., Machine Generated Translation of JP 2004-364186, dated Dec. 2004.

The State Intellectual Property Office of the People's Republic of China, "Notification of First Office Action" in application No. 201080051626.5, dated Jun. 26, 2014, 11 pages.

Claims in China Application No. 201080051626.5, dated Jun. 2014, 5 pages.

Australian Government, "Patent Examination Report No. 1", in application No. 2010291945, dated Jul. 4, 2013, 4 pages.

Current Claims in application No. 2010291945, dated Jul. 2013, 5 pages.

Australian Government, "Patent Examination Report No. 1", in application No. 2010325897, dated May 17, 2013, 3 pages.

Current Claims in application No. 2010325897, dated May 2013, 4 pages.

Hungarian Intellectual Property Office, "Written Opinion" in application No. 201201703-4, dated Jul. 18, 2013, 14 pages.

Current Claims in application No. 201201703-4, dated Jul. 2013, 5 pages.

European Patent Office, "European Search Report" in application No. 10816287.6 dated Nov. 11, 2013, 13 pages.

Current Claims in application No. 10816287.6, dated Nov. 2013, 3 pages.

The Japan Patent Office, "Notification of Reasons for Rejection" in application No. 2012-542214, dated Nov. 11, 2013, 4 pages.

Current Claims in application No. 2012-542214, dated Nov. 2013, 6 pages.

Danish Patent and Trademark Office, "Singapore Written Opinion and Search Report" in application No. 201204066-3, dated Sep. 13, 2013, 36 pages.

Current Claims in Singapore application No. 201204066-3, 4 pages.

Canadian Intellectual Property Office, "Office Action" in application No. 2,773,558, dated Oct. 11, 2013, 2 pages.

Current Claims in application No. 2,773,558, dated Oct. 2013, 12 pages.

Japan Patent Office, "Notification of Reasons for Rejection", in application No. 2012-528995, dated Sep. 3, 2013, 12 pages.

Current Claims in application No. 2012-528995, dated Sep. 2013, 12 pages.

U.S. Appl. No. 12/631,782, filed Dec. 4, 2009, Final Office Action, Apr. 7, 2014.

U.S. Appl. No. 12/631,778, filed Dec. 4, 2009, Final Office Action, May 22, 2014.

U.S. Appl. No. 12/631,759, filed Dec. 4, 2009, Final Office Action, Apr. 22, 2014.

U.S. Appl. No. 12/631,751, filed Dec. 4, 2009, Office Action, May 16, 2014.

U.S. Appl. No. 12/631,740, filed Dec. 4, 2009, Final Office Action, Apr. 25, 2014.

U.S. Appl. No. 13/859,620, Non-Final Office Action dated Aug. 21, 2014.

U.S. Appl. No. 12/631,782, Non-Final Office Action dated Sep. 15, 2014.

U.S. Appl. No. 12/631,781, Non-Final Office Action dated Sep. 22, 2014.

U.S. Appl. No. 12/631,740, Non-Final Office Action dated Oct. 7, 2014.

U.S. Appl. No. 12/631,759, Notice of Allowance dated Nov. 4, 2014.

U.S. Appl. No. 12/631,765, Non-Final Office Action dated Nov. 12, 2014.

U.S. Appl. No. 12/631,762, Non-Final Office Action dated Dec. 3, 2014.

U.S. Appl. No. 12/631,778, Non-Final Office Action dated Jan. 14, 2015.

U.S. Appl. No. 13/859,620, Notice of Allowance dated Jan. 20, 2015.

U.S. Appl. No. 12/631,751, Final Office Action dated Feb. 4, 2015.

U.S. Appl. No. 12/631,786, Non-Final Office Action dated Feb. 10, 2015.

U.S. Appl. No. 12/631,782, Final Office Action dated Mar. 20, 2015.

U.S. Appl. No. 12/631,781, Final Office Action dated May 14, 2015.

U.S. Appl. No. 12/631,740, Final Office Action dated May 21, 2015.

U.S. Appl. No. 12/631,762, Final Office Action dated Jun. 26, 2015.

U.S. Appl. No. 14/225,393, Non-Final Office Action dated Jun. 29, 2015.

U.S. Appl. No. 12/631,782, Advisory Action dated Jul. 1, 2015.

U.S. Appl. No. 12/631,751, Non-Final Office Action dated Jul. 13, 2015.

U.S. Appl. No. 12/631,765, Final Office Action dated Jul. 31, 2015.

U.S. Appl. No. 12/631,778, Final Office Action dated Aug. 19, 2015.

U.S. Appl. No. 12/631,786, Final Office Action dated Sep. 4, 2015.

U.S. Appl. No. 14/259,145, Non-Final Office Action dated Sep. 25, 2015.

U.S. Appl. No. 12/631,781, Notice of Allowance dated Sep. 28, 2015.

Chinese Patent Office, Application No. 201080051626.5, Foreign Office Action dated Jun. 26, 2014.

Chinese Patent Office, Application No. 201080051626.5, Foreign Office Action dated Apr. 3, 2015.

Chinese Patent Office, Application No. 201080051626.5, Pending Claims as of Jun. 26, 2014.

Chinese Patent Office, Application No. 201080051626.5, Pending Claims as of Apr. 3, 2015.

Chinese Patent Office, Application No. 201080051627.X, Foreign Office Action dated Jul. 31, 2014.

Chinese Patent Office, Application No. 201080051627.X, Foreign Office Action dated Jun. 18, 2015.

Chinese Patent Office, Application No. 201080051627.X, Pending Claims as of Jul. 31, 2014.

Chinese Patent Office, Application No. 201080051627.X, Pending Claims as of Jun. 18, 2015.

Chinese Patent Office, Application No. 201080063087.7, Foreign Office Action dated Nov. 3, 2014.

Chinese Patent Office, Application No. 201080063087.7, Foreign Office Action dated Apr. 13, 2015.

Chinese Patent Office, Application No. 201080063087.7, Pending Claims as of Nov. 3, 2014.

Chinese Patent Office, Application No. 201080063087.7, Pending Claims as of Apr. 13, 2015.

Japanese Patent Office, Application No. 2012-542214, Foreign Office Action dated Dec. 2, 2014.

Japanese Patent Office, Application No. 2012-542214, Pending Claims as of Dec. 2, 2014.

Japanese Patent Office, Application No. 2014-165383, Foreign Office Action dated Jun. 16, 2015.

(56)

**References Cited**

OTHER PUBLICATIONS

Japanese Patent Office, Application No. 2014-182543, Foreign Office Action dated Jun. 16, 2015.  
Japanese Patent Office, Application No. 2014-182543, Pending Claims as of Jun. 16, 2015.  
WIPO, "System and Method for Analyzing Video Content Using Detected Text Video, Patent Scope, Frames" <http://www.wipo.int/patentscope/search/en/detail.jsf?docId=EP13463397&recNum=1&max>, Apr. 9, 2012.  
World Intellectual Property Organization, Application No. PCT/US2010/48811, Claims dated Oct. 29, 2010.  
World Intellectual Property Organization, Application No. PCT/US2010/48811, International Search Report and Written Opinion dated Oct. 29, 2010, 12 pages.  
World Intellectual Property Organization, Application No. PCT/US2010/48812, International Search Report and Written Opinion dated Jan. 6, 2011, 15 pages.  
World Intellectual Property Organization, Application No. PCT/US2010/48812, Claims dated Jan. 6, 2011.  
U.S. Appl. No. 12/631,782, filed Dec. 4, 2009, Final Office Action, Aug. 22, 2013.  
U.S. Appl. No. 12/631,778, filed Dec. 4, 2009, Office Action, Sep. 25, 2013.  
U.S. Appl. No. 12/631,759, filed Dec. 4, 2009, Office Action, Sep. 27, 2013.  
U.S. Appl. No. 12/631,782, Final Office Action dated Apr. 15, 2016.  
U.S. Appl. No. 12/631,765, Non-Final Office Action dated Jun. 17, 2016.  
U.S. Appl. No. 12/631,762, Final Office Action dated Jul. 14, 2016.  
U.S. Appl. No. 14/259,145, Notice of Allowance dated Feb. 17, 2016.  
U.S. Appl. No. 12/631,751, Final Office Action dated Feb. 19, 2016.

U.S. Appl. No. 14/225,393, Final Office Action dated Feb. 25, 2016.  
U.S. Appl. No. 12/631,786, Non-Final Office Action dated Apr. 1, 2016.  
U.S. Appl. No. 12/631,778, Non-Final Office Action dated Apr. 7, 2016.  
Chinese Patent Office, Application No. 201080051627.X, Foreign Office Action dated Jan. 28, 2016.  
Chinese Patent Office, Application No. 201080051627.X, Pending Claims as of Jan. 28, 2016.  
Japanese Patent Office, Application No. 2014-165383, Foreign Office Action dated Feb. 23, 2016.  
Japanese Patent Office, Application No. 2014-165383, Pending Claims as of Feb. 23, 2016.  
Japanese Patent Office, Application No. 2014-182543, Foreign Office Action dated Feb. 23, 2016.  
Japanese Patent Office, Application No. 2014-182543, Pending Claims as of Feb. 23, 2016.  
U.S. Appl. No. 12/631,782, Non-Final Office Action dated Oct. 26, 2015.  
U.S. Appl. No. 12/631,778, Notice of Allowance dated Dec. 9, 2015.  
U.S. Appl. No. 12/631,762, Non-Final Office Action dated Dec. 31, 2015.  
U.S. Appl. No. 12/631,740, Non-Final Office Action dated Jan. 15, 2016.  
U.S. Appl. No. 12/631,751, Non-Final Office Action dated Sep. 16, 2016.  
U.S. Appl. No. 12/631,740, Final Office Action dated Sep. 27, 2016.  
U.S. Appl. No. 12/631,778, Final Office Action dated Oct. 17, 2016.  
Japanese Patent Office, Application No. 2014-165383, Foreign Office Action dated Sep. 20, 2016.  
Japanese Patent Office, Application No. 2014-165383, Pending Claims as of Sep. 20, 2016.

\* cited by examiner

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.