



US007415662B2

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

(10) **Patent No.:** **US 7,415,662 B2**
(45) **Date of Patent:** **Aug. 19, 2008**

(54) **DIGITAL MEDIA MANAGEMENT APPARATUS AND METHODS**

5,668,966 A * 9/1997 Ono et al. 715/853
5,692,175 A * 11/1997 Davies et al. 707/3

(75) Inventors: **Kenneth Rothmuller**, Santa Rosa, CA (US); **Laurie Vertelney**, Palo Alto, CA (US); **Bernard L. Peuto**, San Francisco, CA (US); **Michael Slater**, Sebastopol, CA (US)

(Continued)

FOREIGN PATENT DOCUMENTS

JP 08030763 2/1996

(73) Assignee: **Adobe Systems Incorporated**, 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 536 days.

OTHER PUBLICATIONS

Smith, Brian K., et al., "Inquiry with Imagery: Historical Archive Retrieval with Digital Cameras", Multimedia '99, Orlando, Fl, Oct. 1999, pp. 405-408 [ACM 1-58113-151-8/99/0010].*

(21) Appl. No.: **10/198,618**

(Continued)

(22) Filed: **Jul. 17, 2002**

(65) **Prior Publication Data**

US 2003/0033296 A1 Feb. 13, 2003

Primary Examiner—Cam-Y Truong
Assistant Examiner—Robert Stevens
(74) *Attorney, Agent, or Firm*—Fish & Richardson P.C.

Related U.S. Application Data

(57) **ABSTRACT**

(60) Provisional application No. 60/334,516, filed on Oct. 31, 2001.

(51) **Int. Cl.**
G06F 17/00 (2006.01)
G06F 17/20 (2006.01)
G06F 17/30 (2006.01)
G06F 7/00 (2006.01)

(52) **U.S. Cl.** 715/200; 715/225; 707/3

(58) **Field of Classification Search** 715/500,
715/530; 707/3

See application file for complete search history.

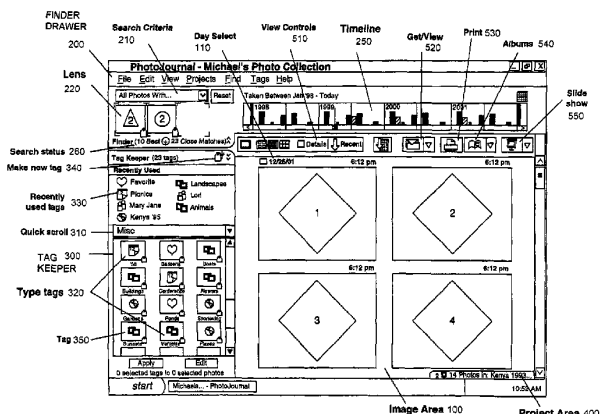
Methods and apparatus for managing, finding and displaying objects such as digital images. Objects are tagged ("associated") with descriptive textual and numeric data ("meta-data"), and stored in a relational database from which they can be selected, sorted, and found. Tags can be defined by name, tag type, and associated attributes. Objects can be tagged by dropping a tag onto the object, or relating a database record for the tag to a database record for the object. Tagged objects can be searched for and displayed according to the degree to which their metadata matches the search criteria. Visual cues can indicate whether displayed objects match all, some but not all, or none of the search criteria. Database object distributions can be displayed as histograms or scatter plots, including timelines, calendars or maps. Object distributions can be used to search for objects or to limit search results for a previous search.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,241,671 A 8/1993 Reed et al.
5,491,626 A * 2/1996 Williams et al. 705/9
5,557,747 A 9/1996 Rogers et al.
5,644,766 A 7/1997 Coy et al.

30 Claims, 6 Drawing Sheets



U.S. PATENT DOCUMENTS

5,706,457	A	1/1998	Dwyer et al.	
5,734,888	A	3/1998	Li et al.	
5,751,286	A *	5/1998	Barber et al.	715/835
5,761,655	A *	6/1998	Hoffman	707/4
5,787,412	A *	7/1998	Bosch et al.	707/2
5,813,014	A *	9/1998	Gustman	707/103 R
5,832,495	A *	11/1998	Gustman	707/102
5,842,218	A *	11/1998	Robinson	707/102
5,844,572	A	12/1998	Schott	
5,884,298	A *	3/1999	Smith et al.	707/2
5,898,431	A	4/1999	Webster et al.	
5,956,730	A	9/1999	Burroughs et al.	
6,017,157	A	1/2000	Garfinkle et al.	
6,085,205	A	7/2000	Peairs et al.	
6,094,657	A *	7/2000	Hailpern et al.	707/103 R
6,148,260	A *	11/2000	Musk et al.	701/200
6,148,354	A	11/2000	Ban et al.	
6,202,061	B1 *	3/2001	Khosla et al.	707/3
6,240,423	B1 *	5/2001	Hirata	707/104.1
6,246,410	B1 *	6/2001	Bergeron et al.	715/854
6,370,541	B1	4/2002	Chou et al.	
6,396,963	B2 *	5/2002	Shaffer et al.	382/305
6,408,301	B1	6/2002	Patton et al.	
6,425,017	B1	7/2002	Dievendorff et al.	
6,434,546	B1 *	8/2002	Williamowski et al.	707/3
6,466,940	B1 *	10/2002	Mills	707/102
6,504,571	B1 *	1/2003	Narayanaswami et al.	348/231.99
6,581,102	B1	6/2003	Amini et al.	
6,587,856	B1 *	7/2003	Srinivasan et al.	707/102
6,598,046	B1 *	7/2003	Goldberg et al.	707/5
6,628,899	B1 *	9/2003	Kito	396/56
6,629,104	B1 *	9/2003	Parulski et al.	707/102
6,738,155	B1 *	5/2004	Rosenlund et al.	358/1.15
6,760,884	B1 *	7/2004	Vertelney et al.	715/500.1
6,904,427	B1 *	6/2005	Hagiwara et al.	707/3
6,947,959	B1 *	9/2005	Gill	715/501.1
7,296,032	B1	11/2007	Beddow	
2002/0140820	A1	10/2002	Borden, IV	
2003/0084065	A1	5/2003	Lin et al.	
2005/0044066	A1	2/2005	Hooper et al.	
2005/0050043	A1	3/2005	Pyhalamm et al.	
2005/0182752	A1	8/2005	Rojer	
2005/0207645	A1 *	9/2005	Nishimura et al.	382/170

OTHER PUBLICATIONS

Loui, Alexander C., et al., "A Software System for Automatic Albuming of Consumer Pictures", *Multimedia '99* (Part 2), Orlando, FL, Oct. 1999, pp. 159-162 [ACM 1-58113-239-5/99/0010].*

Cha, Guang-Ho, et al., "Object-Oriented Retrieval Mechanism for Semistructured Image Collections", *Multimedia '98*, Bristol, UK, Sep. 1998, pp. 323-332 [ACM 1-58113-036-8/98/0008] (plus citation page).*

Balabanović, Marko, et al., "Storytelling with Digital Photographs", *CHI '2000*, The Hague, Amsterdam, Apr. 1-6, 2000, CHI Letters, vol. 2 issue 1, pp. 564-571 [ACM 1-58113-036-8/98/0008].*

Bell, Gordon, "A Personal Digital Store", *Communications of the ACM*, vol. 44 No. 1, pp. 86-91.*

Mills, Timothy J., et al., "Managing Photos with AT&T Shoebox", *SIGIR 2000*, Athens, Greece, Jul. 2000, p. 390 [ACM 1-58113-226-3/00/0007] (plus citation page).*

Toyama, Kentaro, et al., "Geographic Location Tags on Digital Images", *MM '03*, Berkeley, CA, Nov. 2-8, 2003, pp. 156-166 [ACM 1-58113-722-2/03/0011].*

Kuchinsky, Allan, et al., "FotoFile: A Consumer Multimedia Organization and Retrieval System", *CHI '99*, Pittsburgh, PA, May 15-20, 1999, pp. 496-503.*

Ahlberg, Christopher, et al., "Visual Information Seeking Using the FilmFinder", *CHI '94*, Boston, MA, Apr. 1994, pp. 433 and 484 (2 pages).*

Christel, Michael, "Visual Digests for News Video Libraries", *ACM Multimedia '99*, Orlando, FL, Oct. 1999, pp. 303-311.*

North, Chris, et al., "Snap-Together Visualization: A User Interface for Coordinating Visualizations via Relational Schemata", *AVI 2000*, Palermo, Italy, May 2000, pp. 128-135.*

"Adobe Acquires Fotiva", *Silicon Valley / San Jose Business Journal*, Dec. 5, 2001, p. 1 (downloaded from: sanjose.bizjournals.com/sanjose/stories/2001/12/03/daily29.html?printable).*

"Adobe Acquires Technology to Create Complete Image Management and Sharing Solution", *Adobe Press Release*, Dec. 5, 2001, pp. 1-3 (downloaded from: www.adobe.com/aboutadobe/pressroom/pressreleases/200112/20011205fotiva.html).*

"Introducing Fotiva, Inc., NEA-Backed New Consumer Digital Software and Services Company; Led by Former Intuit SVP, Company Plans On Launching Mass-Appeal Digital Solutions", *Business Wire*, Oct. 8, 2001, pp. 1-2 (downloaded from: www.findarticles.com/p/articles/mi_m0EIN/is_2001_Oct_8/ai_78958587/print).*

Mills, Timothy J., et al., "Shoebox: A Digital Photo Management System", *Technical Report 2000. 10*, AT&T Laboratories Cambridge, (c) 2000, pp. 1-8.*

Hirata, Kyoji, et al., "Facilitating Object-Based Navigation Through Multimedia Databases", *Theory and Practice of Object Systems*, vol. 4, No. 4, © 1998, pp. 261-283.*

Hill, Linda L., et al., "Collection Metadata Solutions for Digital Library Applications", *Journal of the American Society for Information Science*, vol. 50, No. 13, © 1999, pp. 1169-1181.*

Li, Wen-Syan, et al., "Brokerage Architecture for Stock Photo Industry", *RIDE 1997*, Apr. 7-8, 1997, pp. 91-100.*

Mark Quinn: "PCT Invitation to Pay Additional Fees with Partial International Search Report", Sep. 19, 2002; PCT/US02/01530.

Shneiderman, Ben: "Designing the user interface: Strategies for effective human-computer interaction", 1999; Addison Wesley, USA XP 002210867; ISBN: 0-201-69497-2; Chapter 15: "Information Search and Visualization".

Christopher Ahlberg: "Spotfire: An Information Exploration Environment", Dec. 1, 1996; IVEE Development AB, Chalmers University of Technology & SSKKII, Sweden.

Beaza-Yates, R. and Ribeiro-Neto, B.: "Modern Information Retrieval"; Addison Wesley, USA XP002210866; ISBN: 0-201-39829-X; Chapter 10: "User Interfaces and Visualization".

Marti A. Hearst: "Next Generation Web Search: Setting our Sites"; Sep. 2000; Bulletin of the Technical Committee on Data Engineering, School of Information Management and Systems, University of California at Berkeley, CA.

Steven F. Roth, et al.: "Towards an Information Visualization Workspace: Combining Multiple Means of Expression"; 1997; *Human-Computer Interaction Journal*, vol. 12, No. 1-2, Lawrence Erlbaum Associates.

Goland, et al. "Simple Service Discovery Protocol/1.0 Operating Without an Arbiter", Oct. 28, 1999, published by the Internet Engineering Task Force (IETF), 17 sheets.

Christensson, et al. "Universal Plug and Play Connects Smart Devices", as archived by the Wayback Machine™ on Oct. 23, 1999 pp. 1-22 (Note: the May 27, 2004 on the page refers to the date of the download, not the publication date).

Web page, <http://www.upnp.org> as archived by the Wayback Machine™ on Oct. 23, 1999, 7 sheets.

"Read Me for iPhoto 2.0 for Mac OS X" [online], Jan. 30, 2003, Retrieved from Apple.Com Worldwide using Internet <http://docs.info.apple.com/article.html?artnum=12188>, pp. 1-3.

"Standard C++ Bible," Al Stevens and Clayton Walnum, IDG Books Worldwide, Inc. Copyright ©, 2000, pp. 324-327, 332-334, 353-354, 470-478, 589-598, 691-712.

* cited by examiner

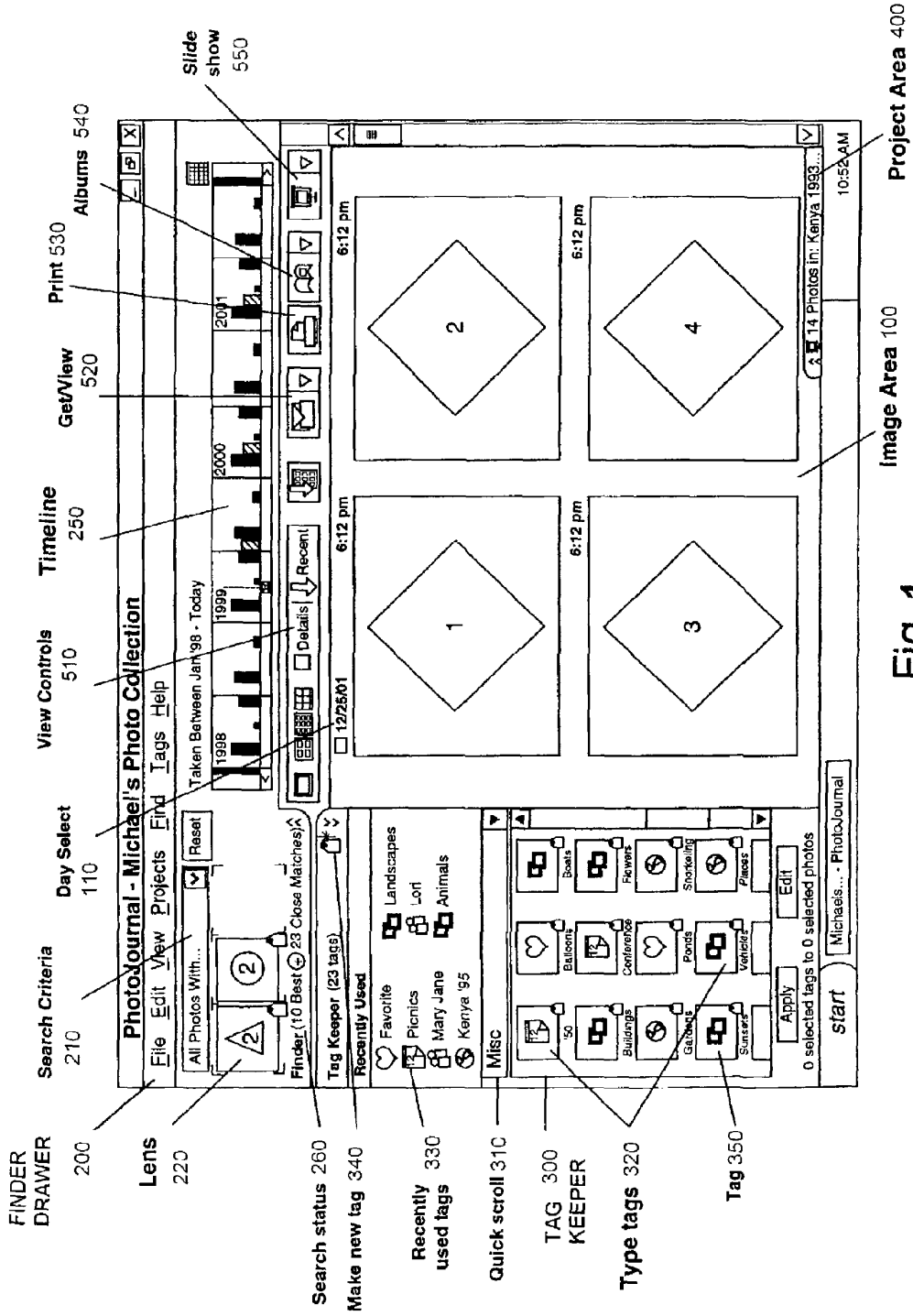


Fig. 1

Photo Notes

At: 2:38 pm

Shot On: 12/29/01

2

Lori on the road at Legoland

edit crop rot fix eye revert delete

Lori R. San Diego

Shared From: Aunt Mary
 Shared with: Sis, Andy
 Printed On: 8/10/01, 8/17/01,...

In Album:
 In Slideshow: Legoland

Image: /Photos/D122101/Photos
 2048 x 1280 (725 KB)

Fig. 2

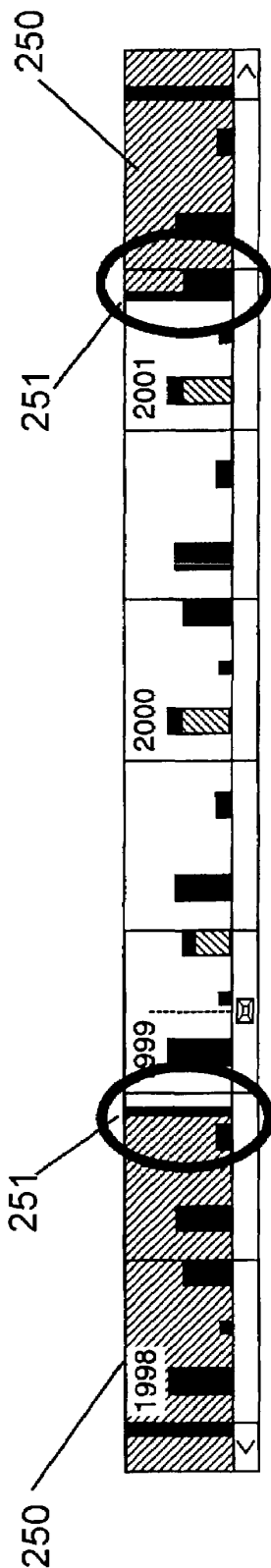


Fig. 3

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.