US006665003B1

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

(10) **Patent No.: US 6,665,003 B1**
(45) **Date of Patent: Dec. 16, 2003**

(54) **SYSTEM AND METHOD FOR GENERATING AND DISPLAYING PANORAMIC IMAGES AND MOVIES**

(75) Inventors: **Shmuel Peleg**, Mevaseret Zion (IL); **Moshe Benezra**, Jerusalem (IL); **Robert S. Rosenschein**, Jerusalem (IL)

(73) Assignee: **Issum Research Development Company of the Hebrew University of Jerusalem**, Jerusalem (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/396,248**

(22) Filed: **Sep. 16, 1999**

Related U.S. Application Data

(60) Provisional application No. 60/100,721, filed on Sep. 17, 1998, provisional application No. 60/102,720, filed on Sep. 29, 1998, provisional application No. 60/113,962, filed on Dec. 28, 1998, provisional application No. 60/116,138, filed on Jan. 12, 1999, provisional application No. 60/116,139, filed on Jan. 12, 1999, provisional application No. 60/123,080, filed on Mar. 4, 1999, and provisional application No. 60/129,987, filed on Apr. 18, 1999.

(51) **Int. Cl.**[7] **H04N 7/00**
(52) **U.S. Cl.** **348/36**
(58) **Field of Search** 348/42, 47, 51, 348/53, 64, 39; 382/154, 284, 285, 294; 349/15, 62, 74, 194

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,049,987	A	*	9/1991	Hoppenstein	348/48
5,130,794	A	*	7/1992	Ritchey	348/39
5,510,831	A	*	4/1996	Mayhew	348/47
5,649,032	A		7/1997	Burt et al.	382/284
5,686,975	A	*	11/1997	Lipton	349/15
5,721,585	A		2/1998	Keast	348/36
5,768,447	A		6/1998	Irani	382/305
5,850,352	A	*	12/1998	Moezzi et al.	364/514
5,929,951	A	*	7/1999	Sasakura et al.	349/62
5,963,664	A	*	10/1999	Kumar et al.	382/154
6,064,353	A	*	5/2000	Hoshi	345/7
6,141,036	A	*	10/2000	Katayama et al.	348/47
6,157,747	A	*	12/2000	Szeliski et al.	382/284
6,252,707	B1	*	6/2001	Kleinberger et al.	359/465
6,275,254	B1	*	8/2001	Beeteson et al.	348/59
6,278,480	B1	*	8/2001	Kurahashi et al.	348/59
6,301,447	B1		10/2001	Jackson	396/329
6,331,871	B1	*	12/2001	Taylor	348/159
2002/0005921	A1	*	1/2002	Sasakura et al.	349/62

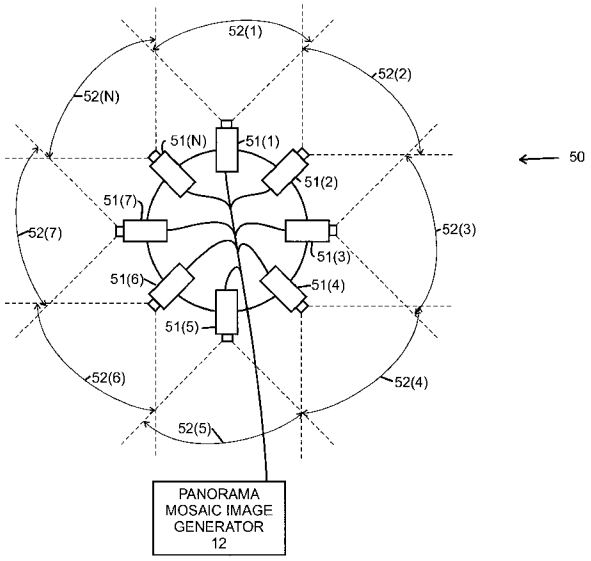
* cited by examiner

Primary Examiner—Vu Le
Assistant Examiner—Behrooz Senfi
(74) *Attorney, Agent, or Firm*—Fenster & Company

(57) **ABSTRACT**

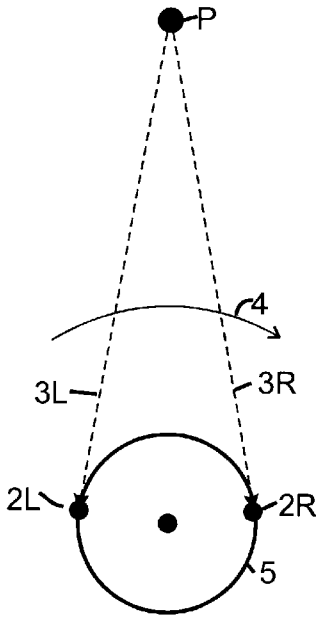
Systems are disclosed for generating left and right panoramic mosaic images for use in facilitating panoramic stereoscopic viewing of a scene, and for displaying stereoscopic panoramic images to a viewer. The left and right panoramic image generators generate the left and right panoramic mosaic images from a series of images recorded or otherwise generated corresponding to respective angular or other positions, each image having a respective left and right image portion, and mosaics portions of those images together to form the respective left and right panoramic images. The display system displays a stereoscopic panoramic image to a viewer by displaying left and right panoramic images such that each is viewed by a respective one of the viewer's eyes.

100 Claims, 9 Drawing Sheets

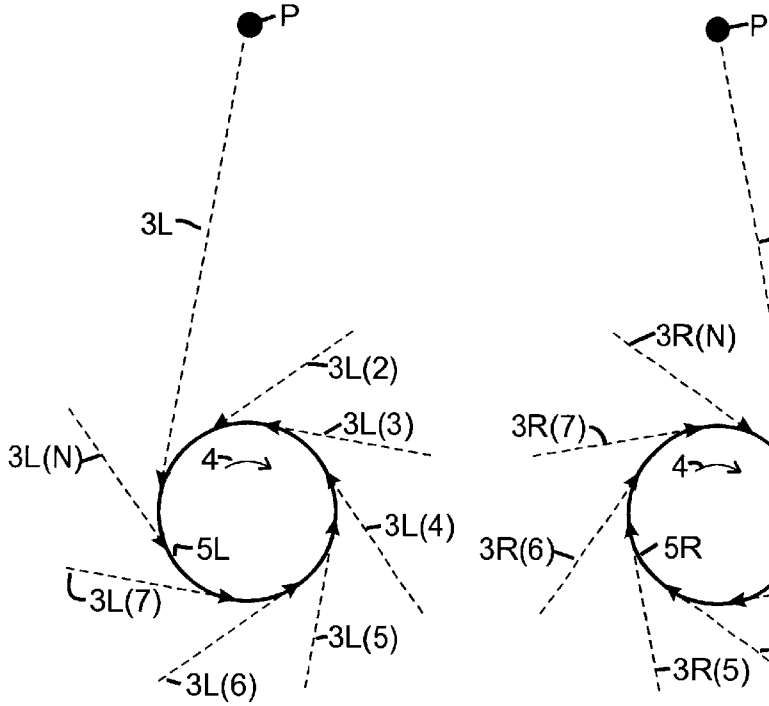


Petition for *Inter Partes* Review of U.S. Pat. No. 7,477,284
IPR2013-00327
EXHIBIT
Sony- 1103

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.



F I G. 1A



F I G. 1B

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

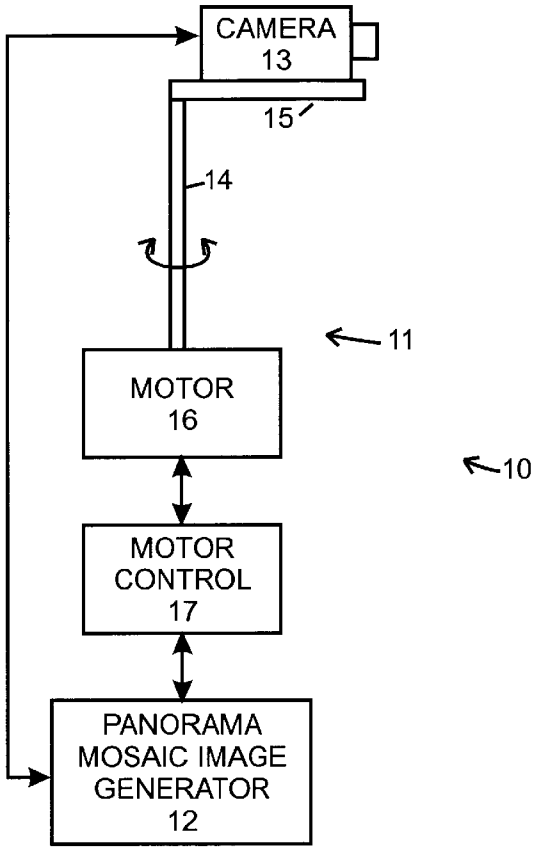
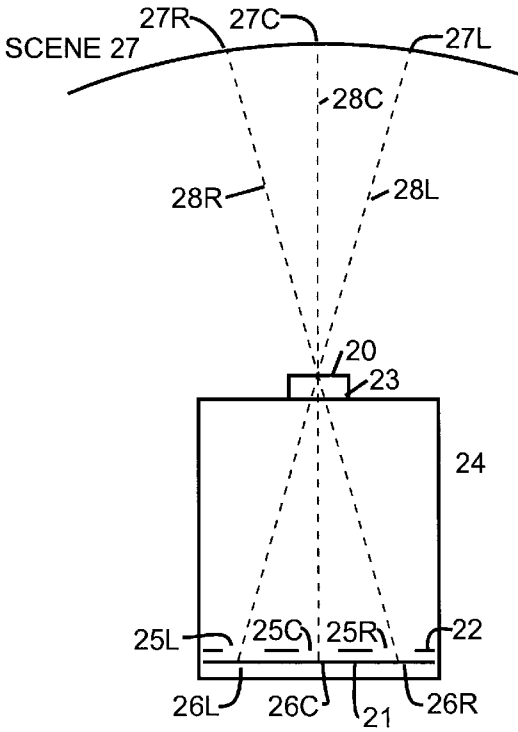


FIG. 2

FIG. 3



DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

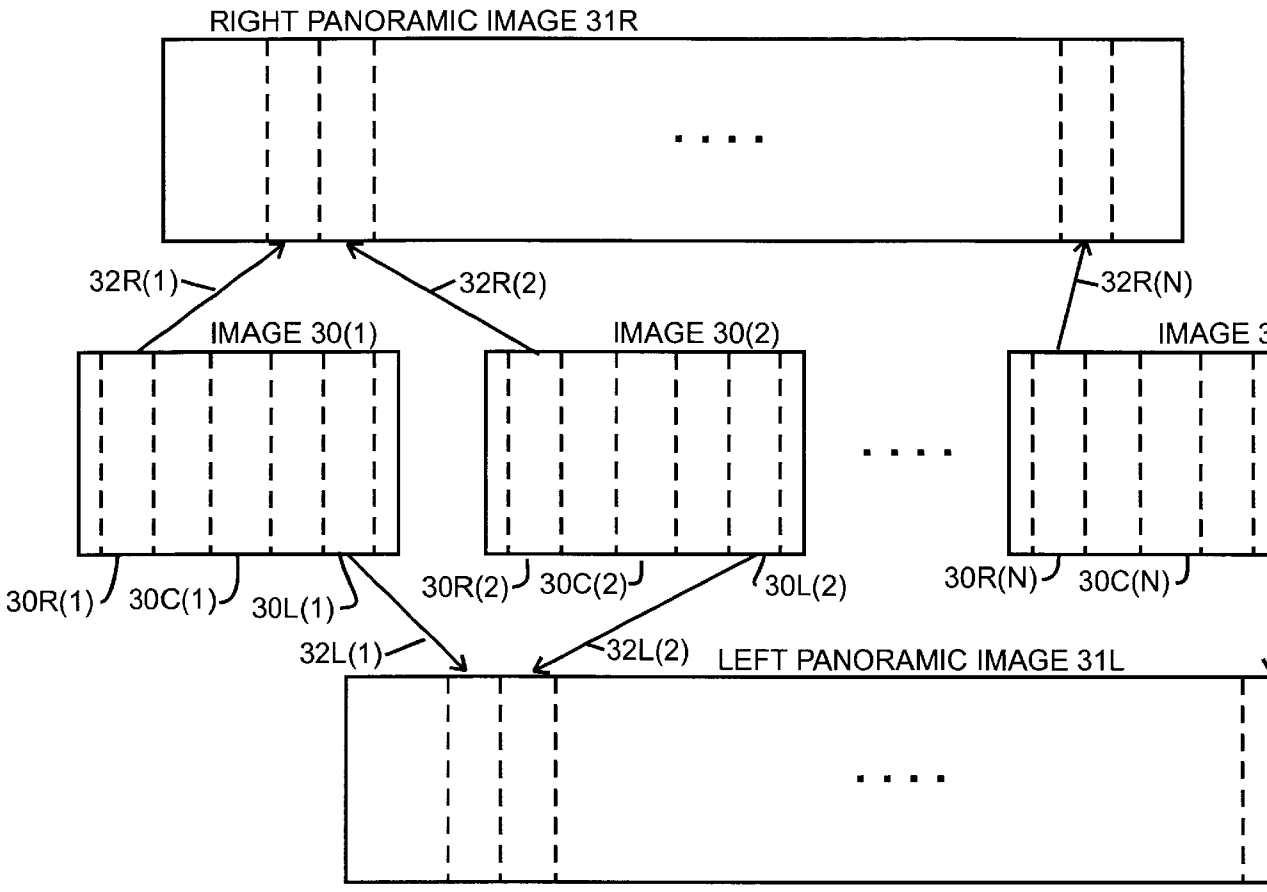


FIG. 4

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

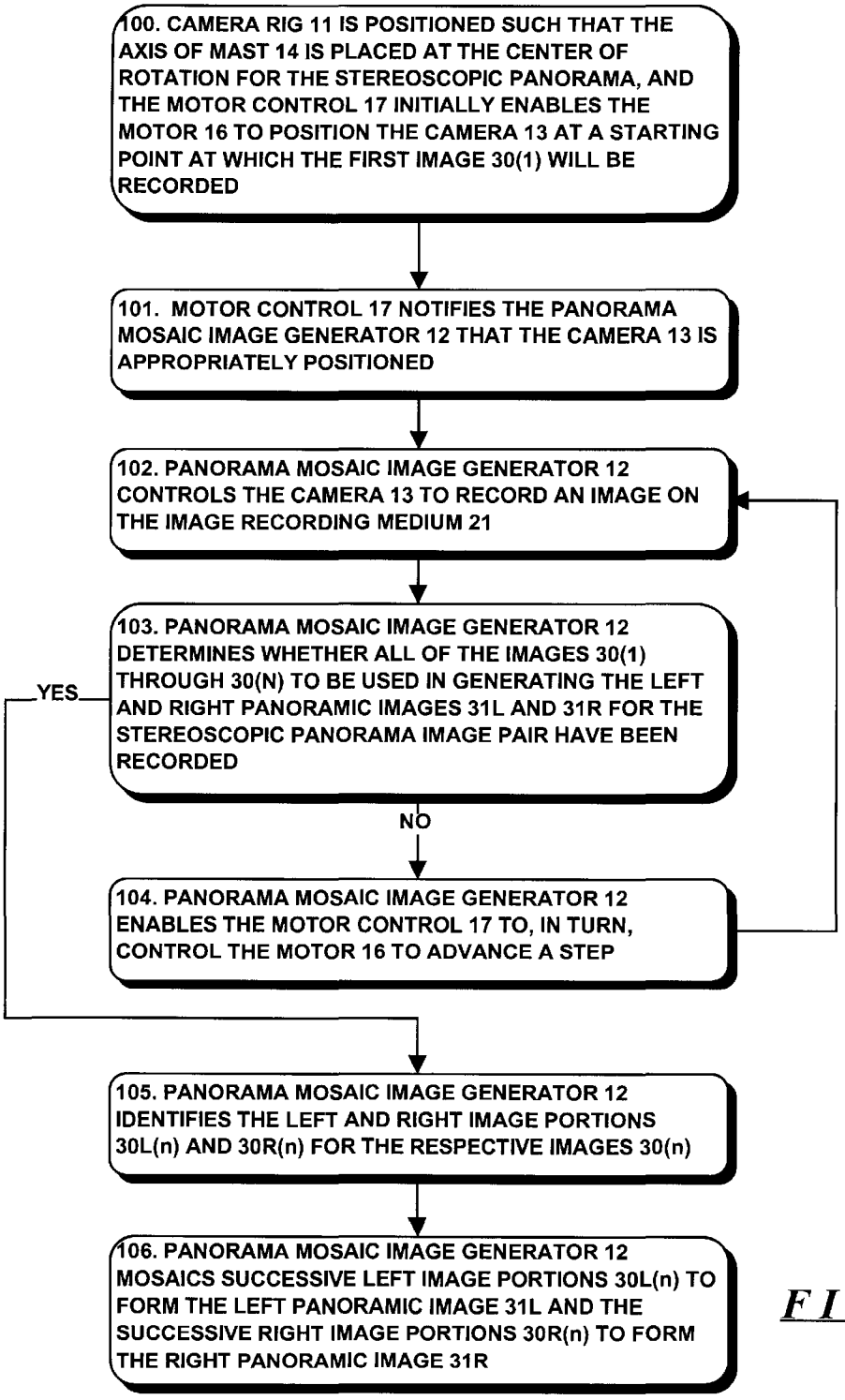


FIG. 5

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

DOCKET ALARM

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.