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Rassool et al.

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(54) **MEDIA TRACKING SYSTEM AND METHOD**

(75) Inventors: **Reza Rassool**, Stevenson Ranch, CA (US); **William P. Worzel**, Milan, MI (US); **Brian Baker**, Bellevue, WA (US)

(73) Assignee: **Widevine Technologies, Inc.**, Seattle, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 425 days.

5,701,469 A * 12/1997 Brandli et al. 707/102
5,758,257 A 5/1998 Herz et al.
5,774,527 A 6/1998 Handelman et al.
5,774,546 A 6/1998 Handelman et al.
5,799,089 A 8/1998 Kuhn et al.
5,805,705 A 9/1998 Gray et al.
5,878,134 A 3/1999 Handelman et al.
5,883,957 A 3/1999 Moline et al.
5,892,900 A 4/1999 Ginter et al.
5,903,892 A * 5/1999 Hoffert et al. 707/10

(Continued)

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FOREIGN PATENT DOCUMENTS

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(Under 37 CFR 1.47)

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(Continued)

Related U.S. Application Data

OTHER PUBLICATIONS

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“Detecting Digital Copyright Violations on the Internet” by Narayanan Shivakumar, Aug. 1999.

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

(Continued)

(52) **U.S. Cl.** **707/6; 707/10; 707/104.1; 713/179**

Primary Examiner—Safet Metjahic
Assistant Examiner—Brian Goddard

(58) **Field of Classification Search** **707/104.1, 707/10, 6, 1, 2, 3; 713/150, 168, 176, 179–180**
See application file for complete search history.

(74) *Attorney, Agent, or Firm*—Jamie L. Wiegand; Darby & Darby

(57) **ABSTRACT**

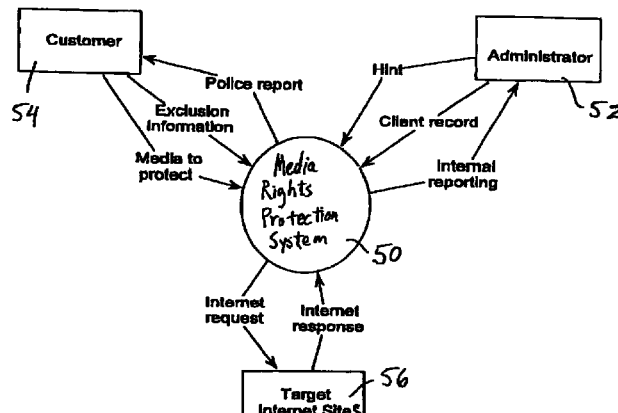
(56) **References Cited**

U.S. PATENT DOCUMENTS

4,694,489 A 9/1987 Frederiksen
5,067,035 A 11/1991 Kudelski et al.
5,134,656 A 7/1992 Kudelski
5,144,663 A 9/1992 Kudelski et al.
5,375,168 A 12/1994 Kudelski
5,539,450 A 7/1996 Handelman
5,590,200 A 12/1996 Nachman et al.
5,592,212 A 1/1997 Handelman
5,621,799 A 4/1997 Katta et al.
5,640,546 A 6/1997 Gopinath et al.
5,666,412 A 9/1997 Handelman et al.
5,684,876 A 11/1997 Pinder et al.

A method for identifying a media file transmitted over a network includes creating a plurality of known media file identifiers, each for a respective one of a plurality of known media files, using an identifier generating algorithm, storing the known media file identifiers in a database, creating a media file identifier for an unknown media file with the identifier generating algorithm and comparing the media file identifier for the unknown media file with known media file identifiers in order to produce an identification of the unknown media file.

46 Claims, 9 Drawing Sheets



U.S. PATENT DOCUMENTS

5,910,987 A 6/1999 Ginter et al.
 5,915,019 A 6/1999 Ginter et al.
 5,917,912 A 6/1999 Ginter et al.
 5,920,625 A 7/1999 Davies
 5,920,861 A 7/1999 Hall et al.
 5,922,208 A 7/1999 Demmers
 5,923,666 A 7/1999 Gledhill et al.
 5,933,498 A 8/1999 Schneck et al.
 5,939,975 A 8/1999 Tsuria et al.
 5,943,422 A 8/1999 Van Wie et al.
 5,949,876 A 9/1999 Ginter et al.
 5,982,891 A 11/1999 Ginter et al.
 6,009,116 A 12/1999 Bednarek et al.
 6,009,401 A 12/1999 Horstmann
 6,009,525 A 12/1999 Horstmann
 6,021,197 A 2/2000 von Willich et al.
 6,035,037 A 3/2000 Chaney
 6,038,433 A 3/2000 Vegt
 6,049,671 A 4/2000 Slivka et al.
 6,055,503 A 4/2000 Horstmann
 6,073,256 A 6/2000 Sesma
 6,112,181 A 8/2000 Shear et al.
 6,138,119 A 10/2000 Hall et al.
 6,157,721 A 12/2000 Shear et al.
 6,178,242 B1 1/2001 Tsuria
 6,185,683 B1 2/2001 Ginter et al.
 6,189,097 B1 2/2001 Tycksen, Jr. et al.
 6,191,782 B1 2/2001 Mori et al.
 6,199,081 B1* 3/2001 Meyerzon et al. 715/513
 6,226,794 B1 5/2001 Anderson, Jr. et al.
 6,237,786 B1 5/2001 Ginter et al.
 6,240,185 B1 5/2001 Van Wie et al.
 6,247,950 B1 6/2001 Hallam et al.
 6,253,193 B1 6/2001 Ginter et al.
 6,256,668 B1 7/2001 Slivka et al.
 6,272,636 B1 8/2001 Neville et al.
 6,285,985 B1 9/2001 Horstmann
 6,292,569 B1 9/2001 Shear et al.
 6,298,441 B1 10/2001 Handelman et al.
 6,314,409 B1 11/2001 Schneck et al.
 6,314,572 B1 11/2001 LaRocca et al.
 6,334,213 B1 12/2001 Li
 6,349,296 B1* 2/2002 Broder et al. 707/3
 6,363,488 B1 3/2002 Ginter et al.
 6,389,402 B1 5/2002 Ginter et al.
 6,401,118 B1* 6/2002 Thomas 709/224
 6,405,369 B1 6/2002 Tsuria
 6,409,080 B1 6/2002 Kawaglshi
 6,409,089 B1 6/2002 Eskicioglu
 6,427,140 B1 7/2002 Ginter et al.
 6,449,367 B1 9/2002 Van Wie et al.
 6,449,719 B1 9/2002 Baker
 6,453,252 B1* 9/2002 Laroche 702/75
 6,459,427 B1 10/2002 Mao et al.
 6,460,050 B1* 10/2002 Pace et al. 707/104.1
 6,466,670 B1 10/2002 Tsuria et al.
 6,505,299 B1 1/2003 Zeng et al.
 6,618,484 B1 1/2003 Van Wie et al.
 6,547,829 B1* 4/2003 Meyerzon et al. 715/501.1
 6,587,561 B1 7/2003 Sered et al.
 6,628,824 B1* 9/2003 Belanger 382/165
 6,629,243 B1 9/2003 Kleinman et al.

6,634,028 B1 10/2003 Handelman
 6,640,304 B1 10/2003 Ginter et al.
 6,643,641 B1* 11/2003 Snyder 707/4
 6,651,170 B1 11/2003 Rix
 6,654,420 B1 11/2003 Snook
 6,654,423 B1 11/2003 Jeong et al.
 6,658,403 B1* 12/2003 Kuroda et al. 707/2
 6,658,568 B1 12/2003 Ginter et al.
 6,668,325 B1 12/2003 Collberg et al.
 6,675,174 B1* 1/2004 Bolle et al. 707/104.1
 6,738,906 B1* 5/2004 Hippelainen 713/200
 2002/0059251 A1* 5/2002 Stern et al. 707/10
 2002/0087515 A1* 7/2002 Swannack et al. 707/2
 2003/0007568 A1 1/2003 Hamery et al.

FOREIGN PATENT DOCUMENTS

EP 714204 B1 5/1996
 WO WO-96/06504 A1 2/1996
 WO WO-96/32702 A1 10/1996
 WO WO-99/30499 A1 6/1999
 WO WO-99/54453 A1 10/1999
 WO WO-01/35571 A1 5/2001

OTHER PUBLICATIONS

<http://www.ntt.co.jp/news/news02e/0209/020927.htm>, Sep. 27, 2002.
 Coverage and Generalization in an Artificial Immune System, Balthrop, et al., 2002.
 Video Protection by Partial Content Corruption, C. Griwodz, Sep. 1998.
 An Overview of Multimedia Content Protection in Consumer Electronics Devices, Eskicioglu et al.
 Performance Study of a Selective Encryption Scheme for the Security of Networked, Real-Time Video, Spanos et al., 1995.
 Goonatilake, Suran, ed. et al., Intelligent Systems for Finance and Business, 1995, chapter 2-10, pp. 31-173.
 Irdeto Access and Optibase create Strategic Alliance—Dec. 14, 2000, <http://www.irdetoaccess.com/press/0000041.htm>.
 System Security, Streaming Media, S. Blumenfeld, Oct. 2001.
<http://www.cs.unm.edu/~forest/projects.html>, Dec. 2, 2003.
 Partial Encryption for Image and Video Communication, H. Cheng, 1998.
 A Review of Video Streaming Over the Internet, Hunter et al., Dec. 2, 2003.
 Standards Track, Schulzrinne, et al., Apr. 1998, pp. 1-86. http://www.optibase.com/html/news/Dec_14_2000.html, Dec. 14, 2004.
 Omneon Video Networks Product Announcement, Broadband Streaming, pp. 1-4.
 Yoshida, Kazuhiro, et al., "A Continuous-media Communication Method for Minimizing Playback Interruptions", IS&T/SPIE Conference on Visual Communications and Image Processing, Jan. 1999, San Jose, California, vol. 3653.

* cited by examiner



FIG. 1



FIG. 2

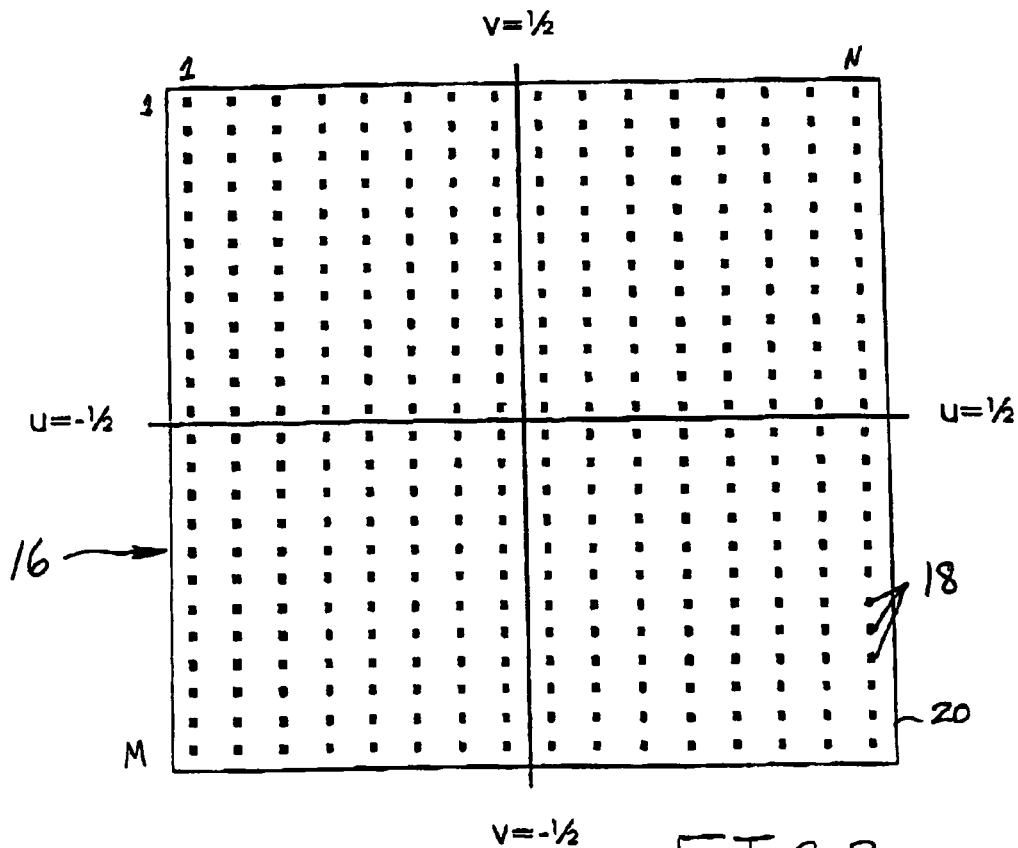


FIG. 3

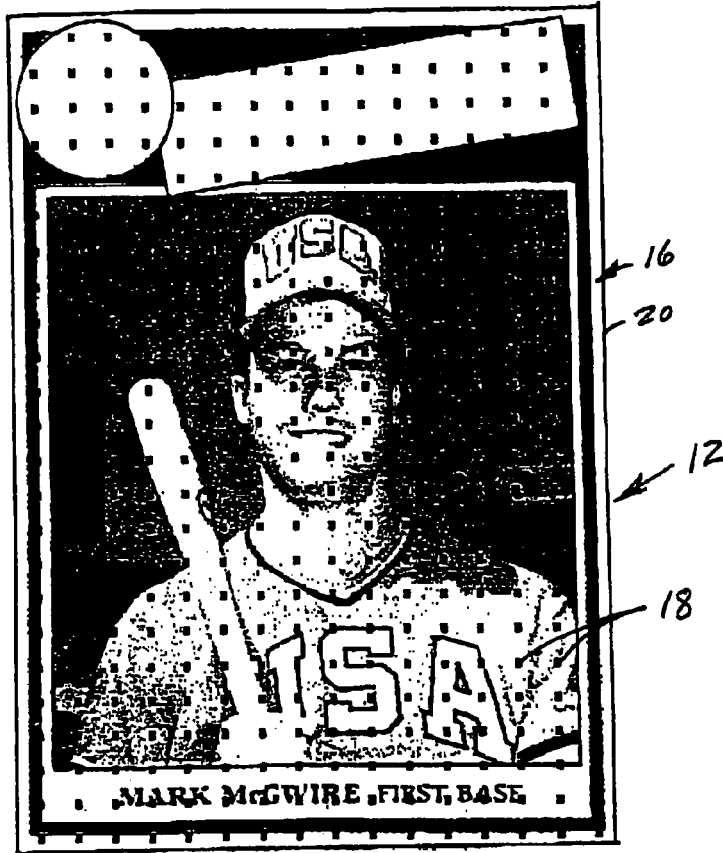


FIG. 4

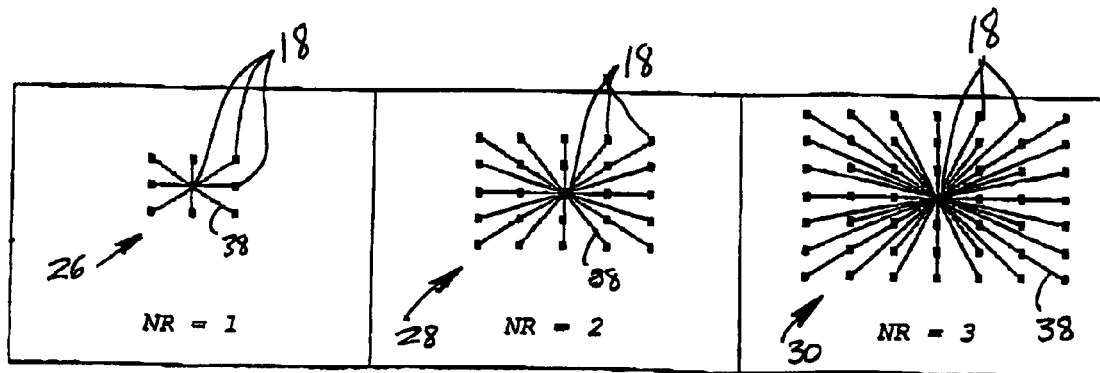


FIG. 5

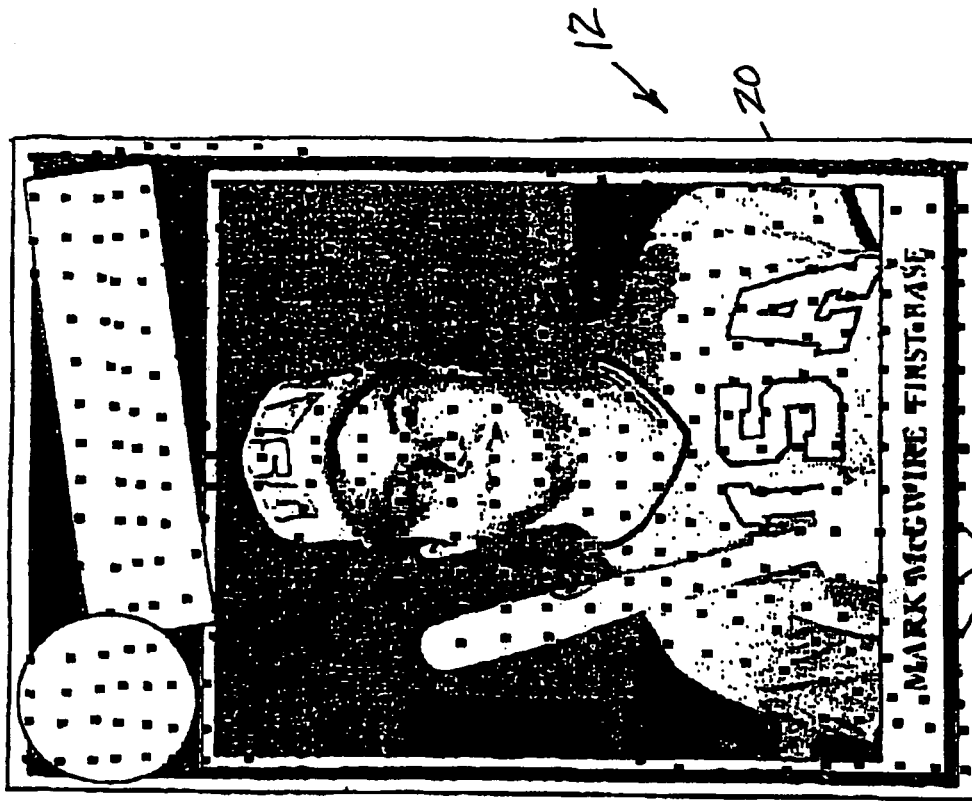


FIG. 7

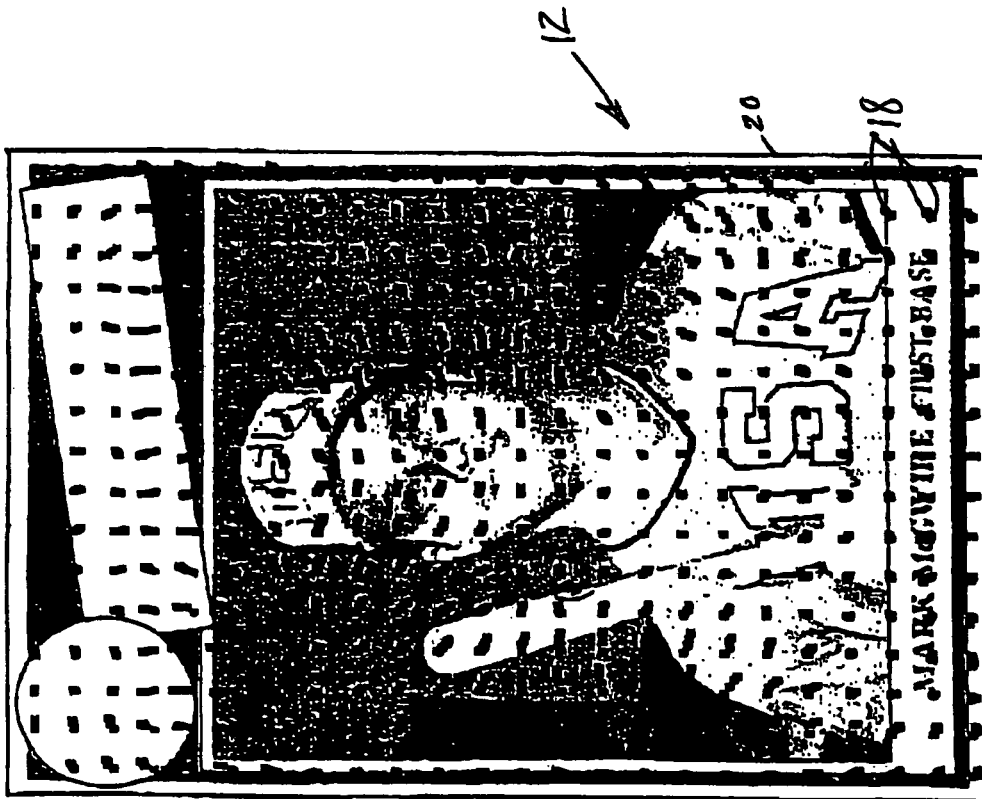


FIG. 6

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