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Molyneux et al.

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(54) **ATHLETIC PERFORMANCE MONITORING SYSTEMS AND METHODS IN A TEAM SPORTS ENVIRONMENT**

(75) Inventors: **James Molyneux**, Portland, OR (US);
Aaron B. Weast, Portland, OR (US);
Brandon S. Burroughs, Portland, OR (US)

(73) Assignee: **NIKE, Inc.**, Beaverton, OR (US)

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4,980,871 A	12/1990	Sieber et al.	
5,363,297 A	11/1994	Larson et al.	
5,446,701 A	8/1995	Utke et al.	
5,513,854 A	5/1996	Daver	
5,825,327 A	10/1998	Krasner	
5,982,352 A	11/1999	Pryor	
6,002,982 A	12/1999	Fry	
6,013,007 A	1/2000	Root et al.	
6,042,492 A	3/2000	Baum	
6,073,086 A *	6/2000	Marinelli	702/141
6,141,041 A	10/2000	Carlbom et al.	
6,148,262 A	11/2000	Fry	
6,148,271 A	11/2000	Marinelli	
6,151,563 A	11/2000	Marinelli	
6,157,898 A *	12/2000	Marinelli	702/141
6,204,813 B1	3/2001	Wadell et al.	

(Continued)

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(51) **Int. Cl.**
A63B 71/00 (2006.01)

(52) **U.S. Cl.** **482/1; 482/8; 482/9; 482/901; 434/247**

(58) **Field of Classification Search** 473/198-200, 473/405, 570; 463/7; 434/251, 247; 702/138, 702/141, 142; 482/1-9, 900-902
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,496,148 A	1/1985	Morstain et al.
4,664,378 A	5/1987	Van Auken
4,890,111 A	12/1989	Nicolet et al.

FOREIGN PATENT DOCUMENTS

EP 1042686 A2 10/2000

(Continued)

OTHER PUBLICATIONS

International Search Report in corresponding PCT Application, International Application No. PCT/US2009/066745, mailed Jun. 15, 2010.

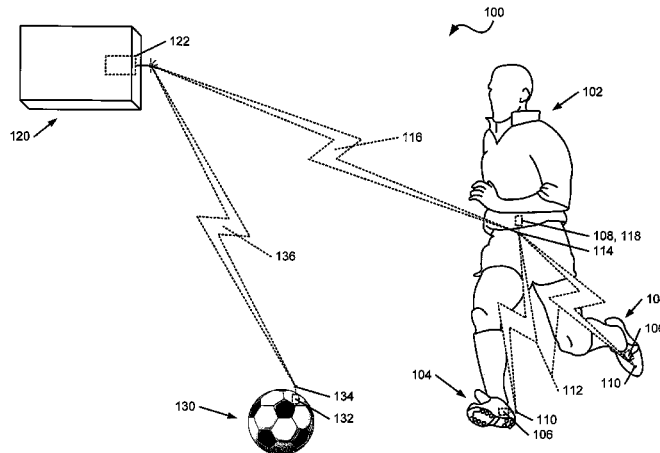
Primary Examiner — Glenn Richman

(74) *Attorney, Agent, or Firm* — Banner & Witcoff Ltd.

(57) **ABSTRACT**

Systems and methods for sensing and monitoring various athletic performance metrics, e.g., during the course of a game, a practice, a training session, training drills, and the like, are described. These systems and methods can provide useful metrics for players and coaches relating to athletic performances in various sports, including various team sports.

26 Claims, 60 Drawing Sheets



U.S. PATENT DOCUMENTS

6,270,433 B1 8/2001 Orenstein et al.
 6,308,565 B1 10/2001 French et al.
 6,430,997 B1 8/2002 French et al.
 6,567,038 B1 5/2003 Granot et al.
 6,567,116 B1 5/2003 Aman et al.
 6,582,330 B1* 6/2003 Rehkemper et al. 473/570
 6,671,390 B1 12/2003 Barbour et al.
 6,707,487 B1 3/2004 Aman et al.
 6,710,713 B1 3/2004 Russo
 6,784,826 B2 8/2004 Kane et al.
 6,831,603 B2 12/2004 Menache
 7,005,970 B2 2/2006 Hodsdon et al.
 7,091,863 B2 8/2006 Ravet
 7,139,582 B2 11/2006 Couronne et al.
 7,273,431 B2* 9/2007 DeVall 473/570
 7,391,886 B1 6/2008 Clark et al.
 7,487,045 B1* 2/2009 Vieira 702/2
 7,791,808 B2 9/2010 French et al.
 2005/0143199 A1 6/2005 Saroyan
 2005/0187644 A1 8/2005 Neale et al.
 2006/0148594 A1* 7/2006 Saintoyant et al. 473/405
 2006/0178235 A1 8/2006 Coughlan et al.
 2007/0059675 A1* 3/2007 Kuenzler et al. 434/251
 2007/0060425 A1 3/2007 Kuenzler et al.
 2007/0105629 A1 5/2007 Toyama

2007/0135225 A1 6/2007 Nieminen et al.
 2007/0135243 A1 6/2007 LaRue et al.
 2007/0149361 A1* 6/2007 Jung et al. 482/8
 2007/0191083 A1* 8/2007 Kuenzler et al. 463/7
 2007/0299625 A1 12/2007 Englert et al.
 2008/0031492 A1 2/2008 Lanz
 2008/0084351 A1 4/2008 Englert et al.
 2008/0085790 A1 4/2008 Englert
 2008/0088303 A1 4/2008 Englert
 2008/0090683 A1 4/2008 Englert et al.
 2008/0261776 A1 10/2008 Skiba
 2008/0284650 A1 11/2008 MacIntosh et al.
 2008/0286733 A1* 11/2008 Claudel et al. 434/251
 2009/0048039 A1 2/2009 Holthouse et al.
 2009/0048044 A1* 2/2009 Oleson et al. 473/570
 2009/0210078 A1 8/2009 Crowley

FOREIGN PATENT DOCUMENTS

EP 2025370 A1 2/2009
 WO 0166201 9/2001
 WO 2007069014 6/2007
 WO 2008080626 7/2008
 WO 2008104247 9/2008
 WO 2008119479 10/2008

* cited by examiner

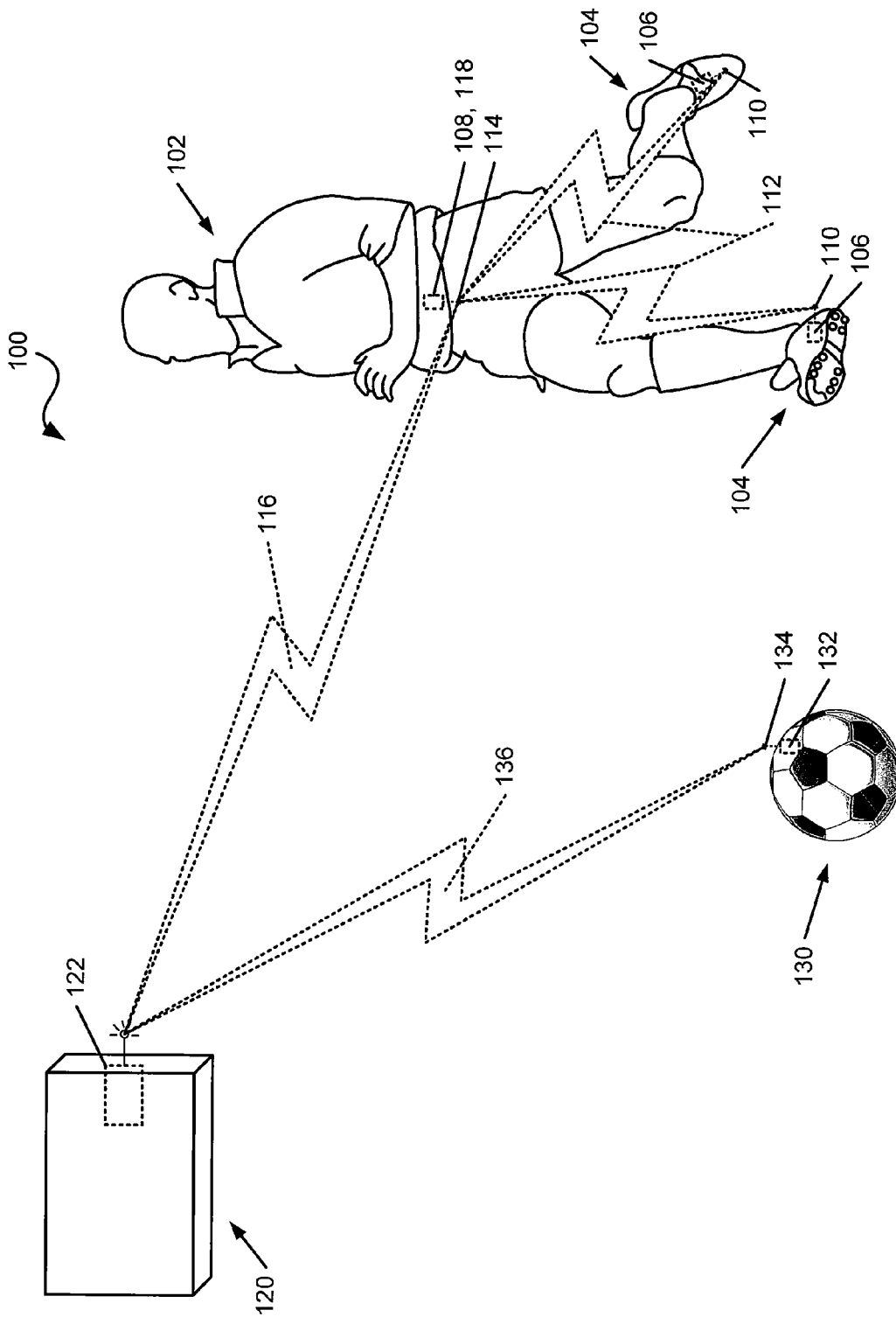


FIG. 1

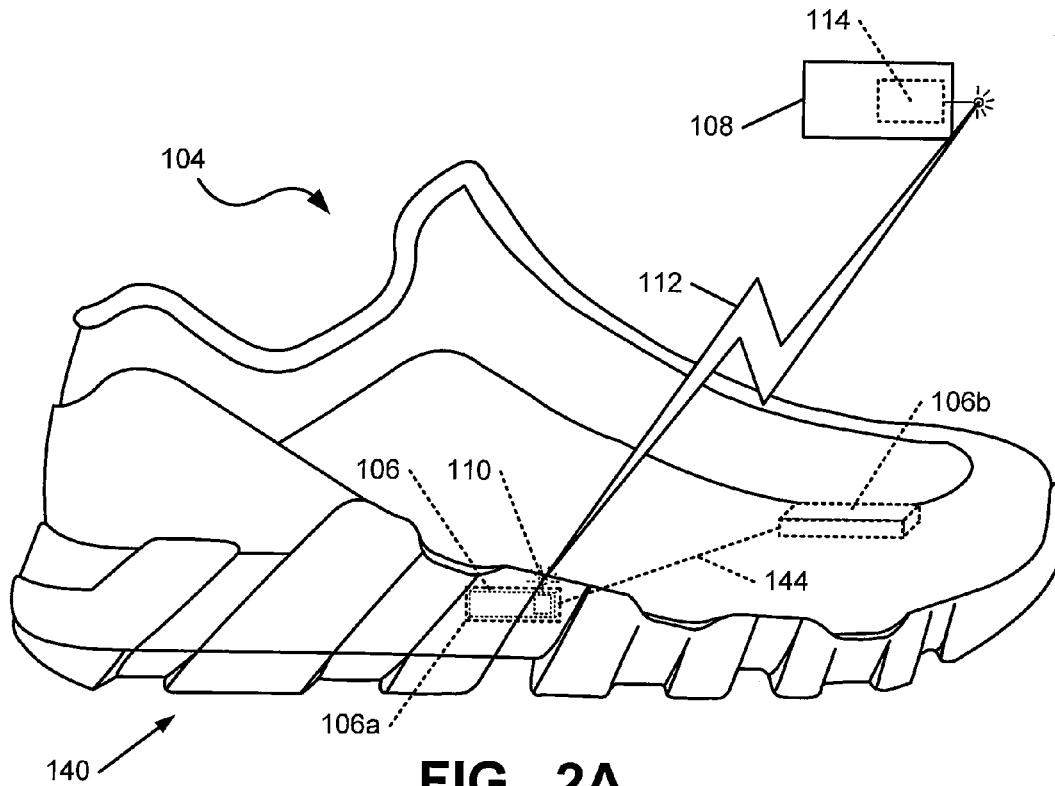


FIG. 2A

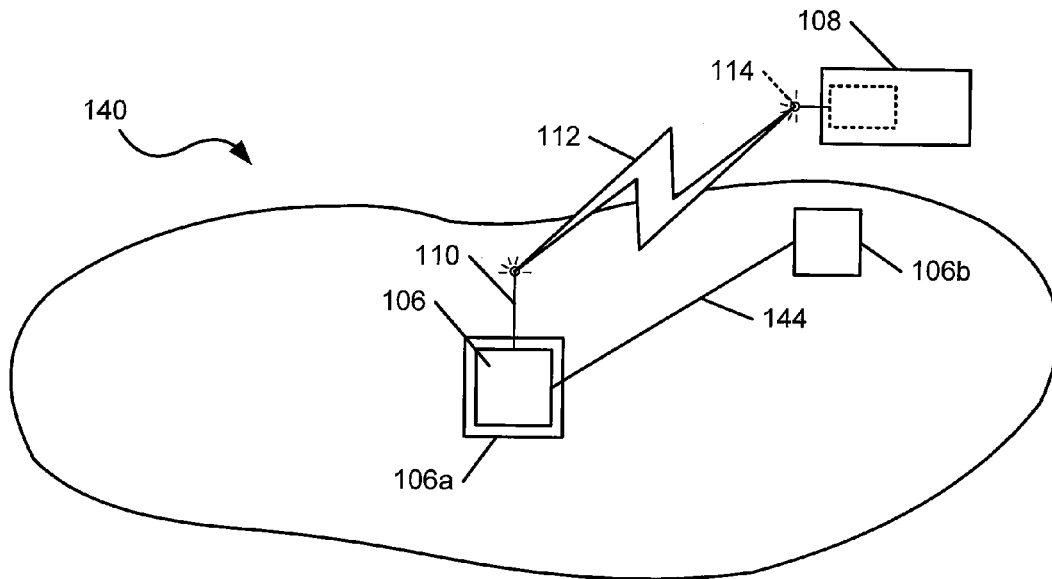


FIG. 2B

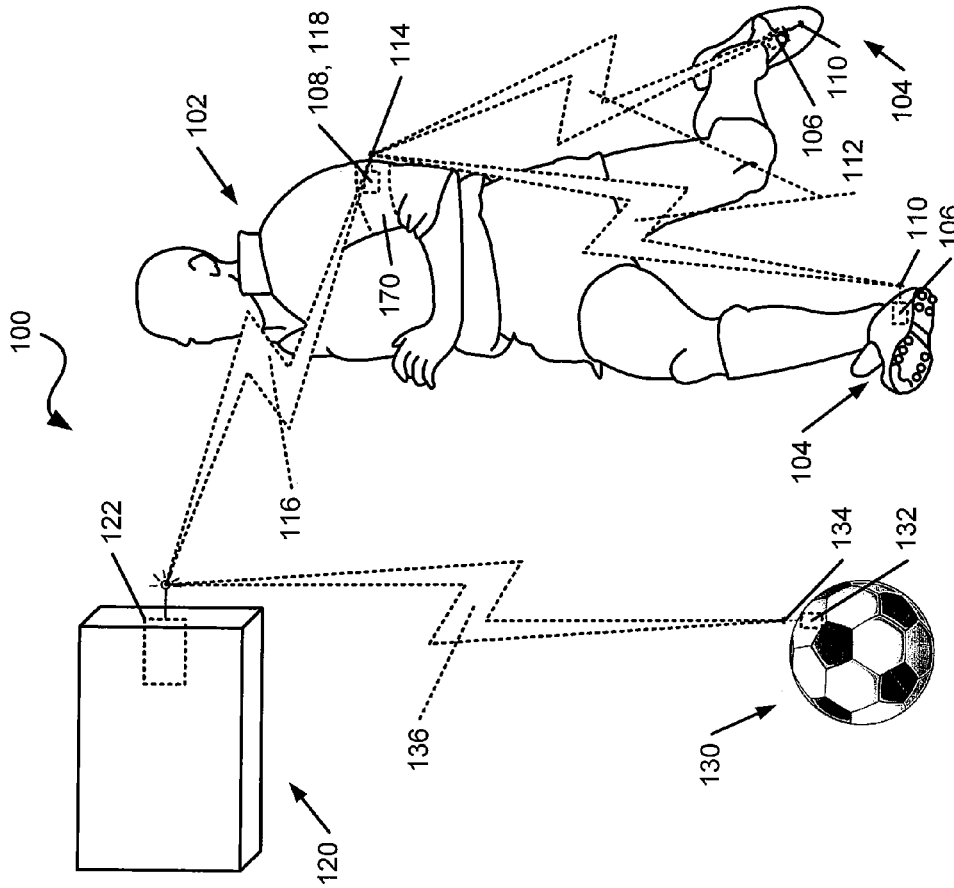


FIG. 2C

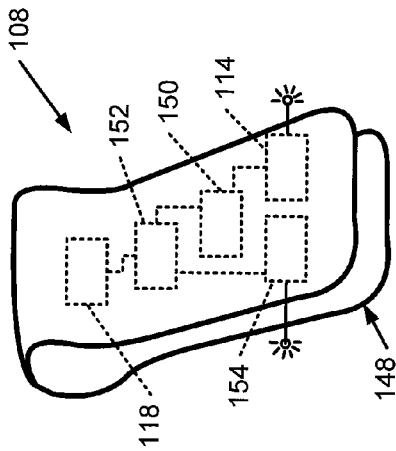


FIG. 2D

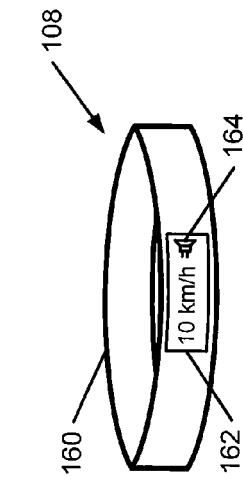


FIG. 2E

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