

Searching for Prior Art in the USPTO Database

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Patents & Licensing

Disclaimer: This seminar is provided
for informational purposes only and
should not be considered legal advice.



Patentability

Utility (non-provisional) patents are granted for a new, nonobvious and useful:

- Process
- Machine
- Article of manufacture
- Composition of matter
- Improvement to any of the above

Prior Art

- U.S. Patents and patent applications
- Foreign Patents and patent applications
- Journal and magazine articles
- Books, manuals, and catalogs
- Websites and databases
- Conference proceedings
- Scientific papers
- Product literature
- Other public documents

Benefits of a Good Prior Art Search

- Improved patent application
- Understanding work of other researchers
- Competitive information – companies
- Avoid patent infringement
- Learn more about your field of research

USPTO Patent Databases contain more than 7.5 million documents

- USPTO website includes a database of published patent applications from 2001 to present.
- Text searchable patent database from 1976 to present is available through USPTO website.
- Scanned images of patents back to 1790 are searchable by current U.S. patent classification, patent number, and issue date.

Classification

- A classification system is an arrangement of categories used to organize subject matter by characteristics and relationships.
- Classification systems are very useful for sorting and searching large collections of information.

US Patent Classification

- United States Patent Classification (USPC) system contains more than 460 classes and 150,000 subclasses.
- Notation is the broader class number followed by a slash and a second number indicating the more specific subclass within the class.

Key word Search Issues

- Vague or inconsistent terminology
- Obsolete names and terms
- Different meanings in different fields
- Synonyms

Classification searching is done to retrieve sets of relevant patents back to 1790

Seven Step Classification Based Search

Classification

1. Brainstorm key words that describe the invention - purpose, use, features, composition.
2. Look up the words in the Index to the U.S. Patent Classification to find potential class/subclasses.
3. Verify the relevancy of the class/subclasses by using the Classification Schedule in the Manual of Classification.
4. Read the Classification Definitions to verify the scope of the subclasses and note “see also” references.

Seven Step Search

Access Full Text

5. Search the Issued Patents and the Published Applications databases by “Current US Classification” and access full text patents and published applications.

Review and References

6. Review the claims, specification, and drawings of documents retrieved for relevancy.
7. Check all references for documents judged to be most relevant and note the “U.S. Cl.” and “Field of Search” areas for additional class/subclasses to search.

Step 1: Brainstorm key words

Description of the invention

- What does it do?
 - Essential function of the invention
- What is the end result?
 - Essential effect or basic product resulting from the invention
- What is it made of?
 - Physical structure of the invention
- What is it used for?
 - Intended use for the invention

Step 2: Index to USPC

Find potential classes and subclasses

- Look up each term that describes your invention in the Index
- Note class and subclass numbers for each term

Step 2: Index to USPC

- From USPTO Home Page select Patents / Patent Classification / Browse Index to USPC

Step 2: Index to USPC

- Look up additional terms in the Index to Classification that were identified in Step 1
- If the precise subclasses for an invention are not in the Index, use the Index to discover the potential classes
- Compile a list of potential classes/subclasses

Step 3: Verify relevancy of class

Judge relevancy of each of these classifications by looking in the Class Schedule for all the class/subclasses identified in Step 2

- Scan from top to bottom focusing on the bold, capitalized headings first
- See where subclasses suggested by the Index fall in the outline and decide if they are still relevant
- Subclasses are not always in numerical order

Step 3: Verify relevancy of class

- From USPTO Home Page / Patents / Patent Classification / Browse USPC Class Numbers and Titles, or
- From USPTO Home Page / Patents / Patent Classification / Search USPC Index, Schedules, and Definitions / Search Schedule, or
- From USPC Index click on class or subclass number

Step 4: Classification Definitions

- Read the definition of the classifications that are potentially relevant
- Based on the subclass definition, determine its relevancy
- Review “see or search class” for recommendations for additional related classes and subclasses

Step 4: Classification Definitions

- From Class Schedule select the Class Number to get Class definition
- From Class Schedule select the subclass number or words to open the subclass definition window
- From USPTO Home Page / Patents / Patent Classification / Search USPC Index, Schedules, and Definitions / Search Definitions

Step 5: Search Issued Patents and Patent Applications

USPTO Website Retrieval Options

- Select red P icon to the left of the subclass number to retrieve the list of patent numbers and titles for all patents within the subclass
- Select blue A icon to the left of the subclass number to retrieve the list of patent application numbers and titles for all patent applications within the subclass

Step 5: Search Issued Patents and Patent Applications

- USPTO website provides TIFF images
- Free Patents Online to get pdf files
<http://www.freepatentsonline.com/>
- Google Patents

Step 5: Search Issued Patents and Patent Applications

- If there is a large number of documents in the class/subclass, the number of patents issued after 1976 may be reduced by a classification and key word search.
- Note: All patents prior to 1976 should be reviewed.

Step 6: Review documents



US007770523B2

(12) **United States Patent**
Kovac

(10) **Patent No.:** US 7,770,523 B2
(45) **Date of Patent:** Aug. 10, 2010

(54) **INTERACTIVE AMUSEMENT PARK
ATTRACTION VEHICLE**

(75) Inventor: **Michael G. Kovac**, Temple Terrace, FL
(US)

(73) Assignee: **University of South Florida**, Tampa, FL
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 229 days.

(21) Appl. No.: **11/539,680**

(22) Filed: **Oct. 9, 2006**

(65) **Prior Publication Data**

US 2007/0089633 A1 Apr. 26, 2007

Related U.S. Application Data

(60) Provisional application No. 60/725,030, filed on Oct.
7, 2005.

(51) **Int. Cl.**
A63G 1/00 (2006.01)

(52) **U.S. Cl.** **104/86**

(58) **Field of Classification Search** 104/53,
104/57, 59, 63, 68, 82, 86
See application file for complete search history.

(56) **References Cited**

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4,272,093 A	6/1981	Filice et al.	
4,487,410 A *	12/1984	Sassak	472/131
4,501,434 A *	2/1985	Dupuis	280/206
4,545,574 A	10/1985	Sassak	
5,453,053 A	9/1995	Danta et al.	
5,791,254 A	8/1998	Mares et al.	
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7,030,894 B2	4/2006	Allen et al.	

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Primary Examiner—S. Joseph Morano
Assistant Examiner—Robert J McCarry, Jr.

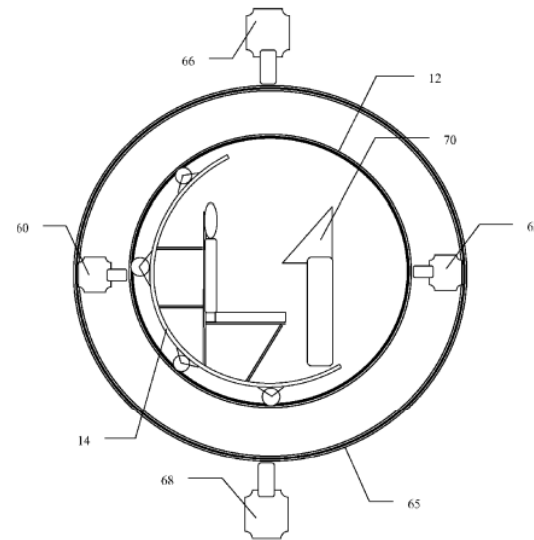
(74) *Attorney, Agent, or Firm*—Ronald E. Smith; Smith &
Hopen P.A.

(57) **ABSTRACT**

An apparatus capable of transporting a rider, specifically for an amusement ride. The apparatus is constructed in the form of a substantially hollow sphere which rides along the ground, which is preferably inclined, a track, or a predetermined path (being substantially flat but with guide rails or walls along its sides). An inner carriage, to which the rider's seat is attached, moves independently of the sphere and maintains a substantially constant attitude while the sphere rolls. The inner carriage can be formed in varying shapes such as a sphere, hemisphere, semicircle, tube or a circle.

13 Claims, 6 Drawing Sheets

- Title
- Abstract
- Drawing



Step 6: Review documents

- Drawings
- Background of the invention
- Summary of the invention
- Detailed description of the invention

Step 6: Review documents

What is claimed is:

1. A method of tracking and analyzing movement of human subjects, the method comprising:
 - providing a plurality of tracking technology sensors;
 - placing the plurality of sensors within a designated space;
 - determining an origin location within the space;
 - providing a plurality of tracking technology transponders, wherein the transponders provide location parameters;
 - affixing one of the plurality of transponders to each human subject;
 - collecting the location parameters of each human subject from the transponders at predetermined time intervals using the sensors;
 - determining a plurality of movement paths for each human subject from the location parameters, wherein each movement path comprises the location parameters from each period of movement of each human subject;
 - recording the plurality of movement paths for fractal dimension tortuosity characteristics;
 - setting a spatial scale;
 - calculating an estimated fractal dimension for each of the plurality of movement paths of each human subject; and
 - calculating an average of the estimated fractal dimensions for each of the plurality of movement paths for each subject to produce a single fractal dimension score for each human subject, wherein a high fractal dimension score corresponds to a high likelihood of agitated movement and the greater the value of the fractal dimension score corresponds to the greater degree of agitated movement.
2. The method of claim 1, further comprising:
 - removing location parameters that represent impossible movement.

Review Claims

- Located at the end of the patent
- Legal boundaries of the intellectual property

Note: Claim interpretation may require legal opinion from a patent attorney.

Step 7: Check references cited

(12) **United States Patent**
Barbeau et al. (10) **Patent No.:** **US 8,036,679 B1**
(45) **Date of Patent:** **Oct. 11, 2011**

(54) **OPTIMIZING PERFORMANCE OF LOCATION-AWARE APPLICATIONS USING STATE MACHINES**
2007/0032225 A1 2/2007 Konicek et al.
2009/0005061 A1* 1/2009 Ward et al. 455/456.1
2010/0130228 A1* 5/2010 Vendrow et al. 455/456.1

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(75) Inventors: **Sean J. Barbeau**, Tampa, FL (US);
Philip L. Winters, Tampa, FL (US);
Rafael Perez, Temple Terrace, FL (US);
Miguel Labrador, Tampa, FL (US);
Nevine Georggi, Valrico, FL (US)
EP 1139206 A2 10/2001
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(73) Assignee: **University of South Florida**, Tampa, FL (US)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 553 days.
http://www.medien.ifl.mu.de/pubdb/publications/pub/butz2004awareness/butz2004awareness.pdf.
http://www.sciencedaily.com/releases/2007/05/070521115913.htm.
Sean J. Barbeau, Miguel A. Labrador, Philip L. Winters, Rafael Perez, Nevine Labib Georggi. "A general architecture in support of interactive, multimedia, location-based mobile applications." Communications Magazine. IEEE. Nov. 2006. vol. 44. Issue. 11. pp. 156-163.
Diep Dao, Chris Rizos and Jinling Wang. "Location-based services: technical and business issues." GPS Solutions. vol. 6. No. 3. Dec. 2002. pp. 169-178.
Yilin Zhao. "Mobile phone location determination and its impact on intelligent transportation systems." Intelligent Transportation Systems. IEEE. vol. 1. Issue 1. Mar 2000. pp. 55-64.

(21) Appl. No.: **12/245,072**
(22) Filed: **Oct. 3, 2008**

Related U.S. Application Data

(60) Provisional application No. 60/977,140, filed on Oct. 3, 2007.

(51) **Int. Cl.**
H04Q 7/20 (2006.01)

(52) **U.S. Cl.** **455/456.1**; 455/414.1; 455/456.3; 340/539.13

(58) **Field of Classification Search** 455/456.1, 455/456.2, 456.3, 456.5, 456.6, 414.1, 403, 455/404.2, 67.11, 115.1, 115.3; 340/539.13
See application file for complete search history.

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7,224,979 B2* 5/2007 Singhal et al. 455/456.1
2003/0158609 A1 8/2003 Chiu
2005/0024277 A1 2/2005 Hanshew et al.
2006/0240866 A1 10/2006 Eilts

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Primary Examiner — Cong Tran

(74) *Attorney, Agent, or Firm* — Courtney M. Dunn; Smith & Hopen, P.A.

(57) **ABSTRACT**

A location-aware method that dynamically adjusts software parameters in Location-Based Service (LBS) applications in real-time based on environmental conditions and application requirements. The invention saves power expended during position calculations while increasing application performance, optimizes settings for the application based on real-time conditions, and reduces bandwidth used. In an embodiment, the present method comprises a state machine or a plurality of state machines.

27 Claims, 11 Drawing Sheets

Review for relevancy

- US Patents
- Foreign Patents
- Other Publications



Step 7: Field of Search

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

(10) **Patent No.:** US 6,783,273 B1
(45) **Date of Patent:** Aug. 31, 2004

(54) **METHOD FOR TESTING INTEGRITY OF CONCRETE SHAFTS**
(75) Inventors: **Austin Gray Mullins**, Odessa, FL (US); **Stanley C. Kranc**, Tampa, FL (US)
(73) Assignee: **University of South Florida**, Tampa, FL (US)

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5,041,987 A 8/1991 Kuwahara et al.
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2001/0035053 A1 * 11/2001 McAfee et al. 73/803

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

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Primary Examiner—Diego Gutierrez
Assistant Examiner—Mirellys Jagan
(74) *Attorney, Agent, or Firm*—Ronald E. Smith; Smith & Hopen, P.A.

(21) Appl. No.: **10/249,508**
(22) Filed: **Apr. 15, 2003**

(57) **ABSTRACT**

Related U.S. Application Data
(60) Provisional application No. 60/319,196, filed on Apr. 22, 2002.
(51) **Int. Cl.**⁷ **G01N 25/00**; G01N 25/72; G01K 3/00
(52) **U.S. Cl.** **374/45**; 374/4; 374/137; 374/53
(58) **Field of Search** 374/4, 45, 53, 374/136, 137, 141, 148; 73/803

A method for detecting and locating foreign inclusions in a drilled cylindrical shaft includes the steps of positioning at least one logging tube within the drilled shaft in parallel relation to a longitudinal axis of the drilled shaft, providing a temperature sensing means, identifying a plurality of temperature locations along the extent of the logging tube, pouring concrete into the drilled shaft, covering the at least one logging tube and monitoring in real time the temperature at various depths and radial directions within the logging tube during the hydration phase of the concrete curing. Temperature readings that differ from expected readings are deemed positioned in the vicinity of an anomalous inclusion. The range over which these anomalous readings are detected, the magnitude of the variance, and the orientation are used to predict the size and location of anomalies prior to the full curing of the concrete.

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4,120,166 A 10/1978 Brooks, Jr.
4,232,554 A 11/1980 Aleck
4,715,726 A * 12/1987 Tsuruta 374/102
4,748,855 A 6/1988 Barnoff

9 Claims, 4 Drawing Sheets

- Current U.S. Classification – may provide additional ideas for other subclasses to review
- Field of Search – classifications the patent examiner searched

Compare these classifications to your search – review classification schedule and class definitions



Classification Search

1. Brainstorm key words to describe the invention
2. Use key words to find initial class/subclass
Index to the U.S. Patent Classification
3. Verify the relevancy of the class/subclass
Classification Schedule
4. Confirm scope of subclass
Classification Definitions

Classification Search

5. Access patents and patent applications
6. Review the claims, specification, and drawings for relevancy
7. Check references and note Classification and Field of Search for additional class/subclasses to search

USPTO website links

- United States Patent and Trademark Office
<http://www.uspto.gov/>
- Index to the U.S. Patent Classification
<http://www.uspto.gov/web/patents/classification/uspcindex/indextouspc.htm>
- Classification Schedule in Manual of Classification
<http://www.uspto.gov/web/patents/classification/>
- Classification Definitions
<http://www.uspto.gov/web/patents/classification/>
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