Strafford

Presenting a live 90-minute webinar with interactive Q&A

Functional Claiming for Software Patents: Leveraging Recent Court Treatment

Surviving 112(f) and Disclosing Functional Basis for Software to Meet Heightened Standard of Review

THURSDAY, NOVEMBER 4, 2021

1pm Eastern | 12pm Central | 11am Mountain | 10am Pacific

Today's faculty features:

Carl A. Kukkonen, III, Partner, **Jones Day**, San Diego & Palo Alto, CA

Jonathan Lamberson, Partner, **White & Case**, Silicon Valley

The audio portion of the conference may be accessed via the telephone or by using your computer's speakers. Please refer to the instructions emailed to registrants for additional information. If you have any questions, please contact **Customer Service at 1-800-926-7926 ext. 1**.

Tips for Optimal Quality

FOR LIVE EVENT ONLY

Sound Quality

If you are listening via your computer speakers, please note that the quality of your sound will vary depending on the speed and quality of your internet connection.

If the sound quality is not satisfactory, you may listen via the phone: dial **1-877-447-0294** and enter your **Conference ID and PIN** when prompted. Otherwise, please **send us a chat** or e-mail **sound@straffordpub.com** immediately so we can address the problem.

If you dialed in and have any difficulties during the call, press *0 for assistance.

Viewing Quality

To maximize your screen, press the 'Full Screen' symbol located on the bottom right of the slides. To exit full screen, press the Esc button.

Continuing Education Credits

FOR LIVE EVENT ONLY

In order for us to process your continuing education credit, you must confirm your participation in this webinar by completing and submitting the Attendance Affirmation/Evaluation after the webinar.

A link to the Attendance Affirmation/Evaluation will be in the thank you email that you will receive immediately following the program.

For additional information about continuing education, call us at 1-800-926-7926 ext. 2.

Program Materials

FOR LIVE EVENT ONLY

If you have not printed the conference materials for this program, please complete the following steps:

- Click on the link to the PDF of the slides for today's program, which is located to the right of the slides, just above the Q&A box.
- The PDF will open a separate tab/window. Print the slides by clicking on the printer icon.

Recording our programs is not permitted. However, today's participants can order a recorded version of this event at a special attendee price. Please call Customer Service at 800-926-7926 ext.1 or visit Strafford's website at www.straffordpub.com.

FUNCTIONAL CLAIMING FOR SOFTWARE PATENTS

November 4, 2021

Presented by

Carl Kukkonen
Partner | Jones Day

Jonathan Lamberson
Partner | White & Case

PRESENTERS

JONATHAN LAMBERSON
Partner | White & Case

CARL KUKKONEN
Partner | Jones Day

PRESENTERS

CARL KUKKONEN

Partner | Jones Day
Intellectual Property
San Diego
+1.858.314.1178
ckukkonen@jonesday.com

Carl Kukkonen, a recognized IP leader, is a partner in the San Diego Office of Jones Day. He has more than 20 years of experience in strategic intellectual property counseling, technology transactions, and IP litigation. In particular, Carl advises clients on patent infringement and validity, preparation and prosecution of patent applications, PTAB matters, pre-litigation case assessment, active patent litigation, licensing and partnering agreements, IP due diligence, and brand protection matters. Carl has particular expertise in technologies utilizing artificial intelligence having assisted clients in diverse technologies including cybersecurity, FinTech, enterprise software, energy tech, manufacturing equipment, biopharma applications, and medical devices. He holds a B.S. in Engineering from Harvey Mudd College, and a J.D. with honors from The George Washington University.

PRESENTERS

Partner | White & Case LLP
Intellectual Property
Palo Alto
+1.650.213.0384
lamberson@whitecase.com

Jonathan Lamberson is a partner in the Global Intellectual Property Group at White & Case based in Silicon Valley. As a trial attorney, Jon has attended over a dozen patent jury trials in districts around the country, including as lead trial counsel for Microsoft in *Microsoft v. Corel*, where a jury in the Northern District of California returned a verdict that Corel had wilfully infringed six Microsoft patents. In addition to district court litigation, Jon has participated in several appeals, including the appeal in *Williamson v. Citrix*, where the Federal Circuit went *en banc* to significantly change the law for means-plus-function claiming. Jon also has a significant post-grant practice; he is a registered practitioner at the USPTO and has participated in several reexamination and IPR proceedings. Jon holds a B.S. in Computer Engineering from the University of Michigan, and a J.D. from Harvard Law School.

OVERVIEW OF FUNCTIONAL CLAIMING

OVERVIEW OF FUNCTIONAL CLAIMING

- Functional claiming is typical in mechanical and computer implemented inventions
- Potential risks:
  - Indefiniteness
  - Unintended “means-plus-function” interpretation
  - Overbreadth

OVERVIEW OF FUNCTIONAL CLAIMING

- Functional language examples: “adapted to,” “operable to,” “configured to,” etc.
  - Probably mean (read in light of your specification) designed or configured to accomplish the specified objective
  - Consider whether the specification is written in a way so that these could be construed as “capable of”

INDEFINITENESS

- Standard for definiteness tightened in *Nautilus, Inc. v. Biosig Instruments Inc.* (Sup. Ct. 2014)
  - Patent claim must inform those skilled in the art about the scope with ***reasonable certainty***
  - Previously: claims were indefinite if “not amenable to construction” and “insolubly ambiguous”

UNINTENDED “MEANS-PLUS-FUNCTION” ISSUES

- “Means-plus-function” element: construed as the structure disclosed in the patent that corresponds to the claimed function, and equivalents of that structure
  - Past: claim element lacking the word “means” should generally not be construed as “means” element (strong presumption)
  - Now: whether claim element should be construed as a means element depends on “whether the words of a claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.“ *Williamson v. Citrix Online* (Fed. Cir. 2015)

UNINTENDED “MEANS-PLUS-FUNCTION” ISSUES

- Now easier for certain language to invoke “means” interpretation
  - Consider, e.g.: “module for,” “component for,” “logic for,” etc.
- If such elements are construed (unintended) as “means” elements, you may:
  - wind up with different scope than expected
  - have other indefiniteness implications

POTENTIAL INDEFINITENESS – UNINTENDED “MEANS-PLUS-FUNCTION” ISSUE

- Potential indefiniteness – unintended “means-plus-function” issue
  - For software function under a “means” interpretation, the “structure” is the ***algorithm*** for that function
  - But if no such algorithm is actually disclosed in the description (including figures), the limitation is considered ***indefinite***
  - Could happen for some simple function where the drafter wasn’t contemplating a “means” interpretation
- It does ***not*** help if an algorithm for the function would have been readily known to a person of ordinary skill in the art

OVERBREADTH

- Issue here is whether claim element may be interpreted later too broadly
  - Concern of claim invalidity with respect to prior art
  - Could arise particularly where claim amendments use language not used in specification
- Fixing After Grant – Reissue Application
  - May be possible to fix deficiencies of types discussed here, improve/add claims, and file continuations for future claim drafting

GENERAL ELEC. CO. V. WABASH APPLIANCE CORP., 304 U.S. 364 (1938)

- In *General Electric*, the claim recited a "filament for electric incandescent lamps" made of tungsten "grains of such size and contour as to prevent substantial sagging and off-setting during a normal or commercially useful life for such a lamp or other device." 304 U.S. at 368.
- The Court noted that the claim "uses indeterminate adjectives which describe the function of the grains to the exclusion of any structural definition, and thus falls within the condemnation of the doctrine that a patentee may not broaden his product claims by describing the product in terms of function." *Id*. at 371.
- The Court stated that "the vice of a functional claim exists not only when a claim is 'wholly' functional, if that is ever true, but also when the inventor is painstaking when he recites what has already been seen, and then uses conveniently functional language at the exact point of novelty." *Id*

HALLIBURTON OIL WELL CEMENTING CO. V. WALKER, 329 U.S. 1 (1946)

- The patent in *Halliburton* recited a "means associated with said pressure responsive device for tuning said receiving means to the frequency of echoes from the tubing collars of said tubing sections to clearly distinguish the echoes from said couplings from each other." 329 U.S. at 8-9.
- The Court noted that it had previously struck down claims that used "conveniently functional language at the exact point of novelty." *Id*., citing *General Elec.*
- The Court highlighted the "broadness, ambiguity, and overhanging threat of the functional claim" in that it bars any performance of the claimed function using any possible structures, and thus found the claim invalid because the patentee failed to "adequately depict the structure, mode, and operation of the parts in combination." *Id*. at 8-12.

35 U.S.C. SECTION 112, SIXTH PARAGRAPH

- Congress enacted § 112(6) largely in response to *Halliburton*.
- Section 112(6) provides a safe harbor, but with an important *quid pro quo*: functional claiming would be saved from invalidity, but only because it would be construed to cover the corresponding structure disclosed in the specification, and equivalents thereof.
- From the P. J. Federico Commentary: "It is unquestionable that some measure of greater liberality in the use of **functional expressions** in combination claims is authorized than had been permitted by some court decisions…" *Id*. (emphasis added).

35 U.S.C. SECTION 112, SIXTH PARAGRAPH

- “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof”

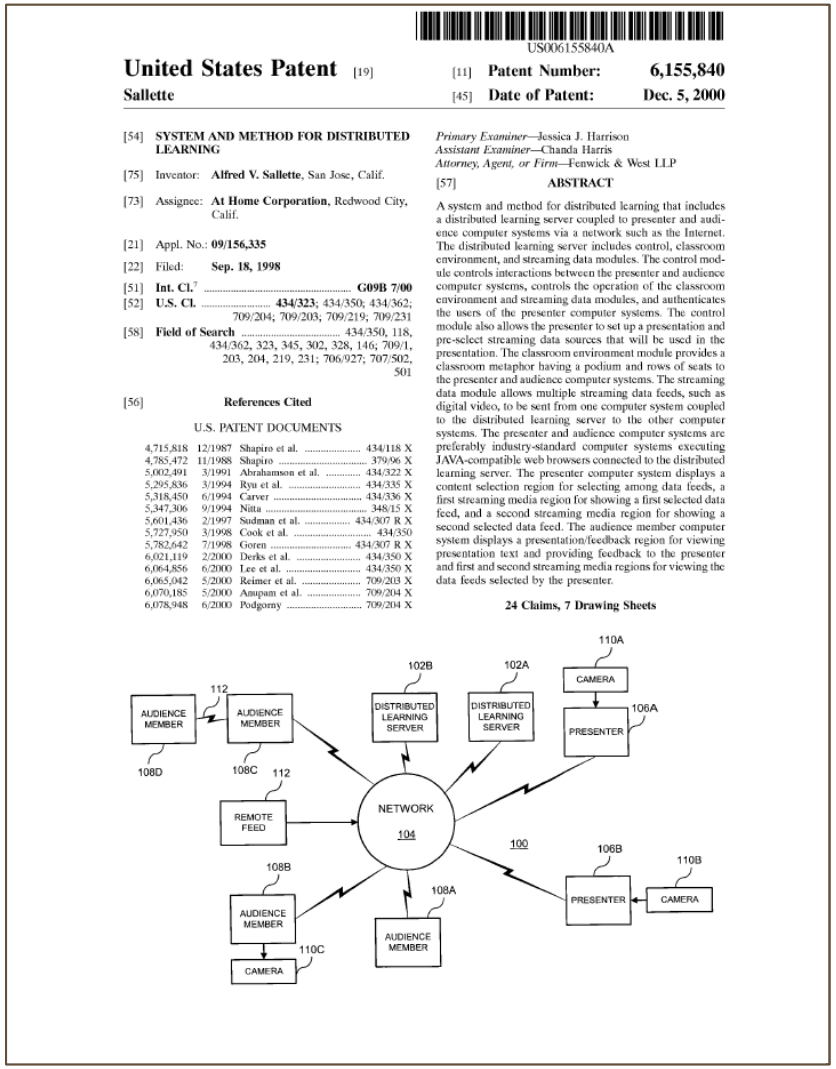
RISE OF THE "PRESUMPTION"

- The first mention of a "presumption" appears to be in *Greenberg v. Ethicon Endo-Surgery, Inc*., 91 F.3d 1580, 1584 (Fed. Cir. 1996), and in that case it was an *affirmative* presumption that the statute applied where the word "means" was used:
  - "[T]he use of the term 'means' has come to be so closely associated with 'means-plus-function' claiming that it is fair to say that the use of the term 'means' (particularly as used in the phrase 'means for') **generally invokes** section 112(6) and that the use of a different formulation generally does not."
- No analysis of the "strength" of the presumption

THE “PRESUMPTION” BECOMES A “STRONG PRESUMPTION”

- The statement that the presumption is “strong” first appeared in *Lighting World, Inc. v. Birchwood Lighting, Inc*., 382 F.3d 1354, 1358 (Fed. Cir. 2004).
- The Court announced that “the presumption flowing from the absence of the term ‘means’ is a **strong one** that is not readily overcome.” *Id*., citing *Al-Site Corp. v. VSI Int’l, Inc*., 174 F.3d 1308, 1318-19 (Fed. Cir. 1999), and P*ersonalized Media Communs., L.L.C. v. ITC*, 161 F.3d 696, 703 (Fed. Cir. 1998)
- However, neither *Al-Site* nor *Personalized Media* says anything about the “strength” of the presumption

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)



US006155840A

United States Patent [19]
Sallette

[11] **Patent Number: 6,155,840**
[45] **Date of Patent: Dec. 5, 2000**

[54] **SYSTEM AND METHOD FOR DISTRIBUTED LEARNING**

[75] Inventor: **Alfred V. Sallette**, San Jose, Calif.

[73] Assignee: **At Home Corporation**, Redwood City, Calif.

[21] Appl. No.: **09/156,335**

[22] Filed: **Sep. 18, 1998**

[51] **Int. Cl.**[7] **G09B 7/00**

[52] **U.S. Cl.** **434/323**; 434/350; 434/362; 709/204; 709/203; 709/219; 709/231

[58] **Field of Search** 434/350, 118, 434/362, 323, 345, 302, 328, 146; 709/1, 203, 204, 219, 231; 706/927; 707/502, 501

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,715,818	12/1987	Shapiro et al.	434/118 X
4,785,472	11/1988	Shapiro	379/96 X
5,002,491	3/1991	Abrahamson et al.	434/322 X
5,295,836	3/1994	Ryu et al.	434/335 X
5,318,450	6/1994	Carver	434/336 X
5,347,306	9/1994	Nitta	348/15 X
5,601,436	2/1997	Sudman et al.	434/307 R X
5,727,950	3/1998	Cook et al.	434/350
5,782,642	7/1998	Goren	434/307 R X
6,021,119	2/2000	Derks et al.	434/350 X
6,064,856	6/2000	Lee et al.	434/350 X
6,065,042	5/2000	Reimer et al.	709/203 X
6,070,185	5/2000	Anupam et al.	709/204 X
6,078,948	6/2000	Podgorny	709/204 X

Primary Examiner—Jessica J. Harrison
Assistant Examiner—Chanda Harris
Attorney, Agent, or Firm—Fenwick & West LLP

[57] **ABSTRACT**

A system and method for distributed learning that includes a distributed learning server coupled to presenter and audience computer systems via a network such as the Internet. The distributed learning server includes control, classroom environment, and streaming data modules. The control module controls interactions between the presenter and audience computer systems, controls the operation of the classroom environment and streaming data modules, and authenticates the users of the presenter computer systems. The control module also allows the presenter to set up a presentation and pre-select streaming data sources that will be used in the presentation. The classroom environment module provides a classroom metaphor having a podium and rows of seats to the presenter and audience computer systems. The streaming data module allows multiple streaming data feeds, such as digital video, to be sent from one computer system coupled to the distributed learning server to the other computer systems. The presenter and audience computer systems are preferably industry-standard computer systems executing JAVA-compatible web browsers connected to the distributed learning server. The presenter computer system displays a content selection region for selecting among data feeds, a first streaming media region for showing a first selected data feed, and a second streaming media region for showing a second selected data feed. The audience member computer system displays a presentation/feedback region for viewing presentation text and providing feedback to the presenter and first and second streaming media regions for viewing the data feeds selected by the presenter.

24 Claims, 7 Drawing Sheets

a distributed learning server remote from the presenter and audience member computer systems of the plurality of computer systems and coupled to the presenter computer system and the audience member computer system via the network and comprising:

a streaming data module for providing the streaming data from the remote streaming data source selected with the content selection control to the presenter and audience member computer systems; and

a distributed learning control module for receiving communications transmitted between the presenter and the audience member computer systems and for relaying the communications to an intended receiving computer system and for coordinating the operation of the streaming data module.

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- District court found the limitation subject to 112(6) and invalid for lack of corresponding structure in the specification
- Original panel (Moore, Linn, Reyna) reversed, with Judge Reyna dissenting
  - Relied on *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004), holding that the presumption against means treatment is "a strong one that is not readily overcome."
  - “To rebut this strong presumption, it must be demonstrated that ‘skilled artisans, after reading the patent, would conclude that [the] claim limitation is **so devoid of structure** that the drafter constructively engaged in means-plus-function claiming.”

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- "[W]e have seldom held that a limitation not using the term 'means' must be considered to be in means-plus-function form, and the circumstances must be unusual to overcome the presumption," again citing *Lighting World*
- “The word ‘module’ has a number of dictionary meanings with structural connotations … connoting either hardware or software structure to those skilled in the computer arts”
- “the ‘distributed learning control module’ is claimed as a part of the definite structure ‘distributed learning server’”
- “A claimed expression cannot be said to be devoid of structure if it is used in common parlance or by persons of skill in the pertinent art to designate structure.”

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- Judge Reyna dissent:
  - "'module' is simply a generic description for software or hardware that performs a specified function."
  - "distributed," "learning" and "control" do nothing to add structure to the claimed "module"
  - There is no corresponding structure for the claimed "coordinating" function, so the claim is invalid

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- *En banc* petition:
  - The statute, 112(6), does not speak of “presumptions” let alone “strong” presumptions
  - *Lighting World* created the “strong” presumption out of thin air
  - Different panels treated the 112(6) analysis inconsistently, with some looking for sufficiently definite structure and others (such as the panel here) looking for any structure (e.g., looking for claims “devoid of structure”)

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- *En banc* decision:
  - "[M]erely because an element does not include the word 'means' does not automatically prevent that element from being construed as a means-plus-function element"
  - "The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure"

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- *En banc* decision:
  - "When a claim term lacks the word 'means,' the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function'"
  - "[A] heightened burden is unjustified and that we should abandon characterizing as 'strong' the presumption that a limitation lacking the word 'means' is not subject to § 112, para. 6"

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- *En banc* decision:
  - "'Module' is a well-known nonce word that can operate as a substitute for 'means' in the context of § 112, para. 6. As the district court found, 'module' is simply a generic description for software or hardware that performs a specified function."
  - "The prefix 'distributed learning control' does not impart structure into the term 'module.' These words do not describe a sufficiently definite structure."

WILLIAMSON V. CITRIX ONLINE (FED. CIR. 2015)

- *En banc* decision:
  - "[T]he claim does not describe how the 'distributed learning control module' interacts with other components in the distributed learning control server in a way that might inform the structural character of the limitation."
  - Lack of corresponding structure in the specification renders the limitation invalid

POST-*WILLIAMSON*

- Lack of “strong presumption” against applying 112(6) makes it easier to argue indefiniteness at claim construction, but…
- *Williamson-based* 112(6) arguments are still frequently rejected by district courts
- No mass invalidation because of *Williamson*
- Impact on patent case volumes likely much lower than, e.g., *Alice* or IPR

RECENT FEDERAL CIRCUIT DECISIONS

ZEROCLICK, LLC V. APPLE INC., 891 F.3D 1003, 126 U.S.P.Q.2D 1765 (FED. CIR. 2018)

(12) **United States Patent**
Irvine

(10) **Patent No.: US 8,549,443 B2**
(45) **Date of Patent: *Oct. 1, 2013**

(54) **ZEROCLICK**

(76) Inventor: **Nes Stewart Irvine**, Hertfordshire (GB)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 134 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/877,994**

(22) Filed: **Sep. 8, 2010**

(65) **Prior Publication Data**

US 2011/0093819 A1 Apr. 21, 2011

Related U.S. Application Data

(63) Continuation of application No. 10/275,863, filed as application No. PCT/GB01/01978 on May 3, 2001, now Pat. No. 7,818,691.

(30) **Foreign Application Priority Data**

May 11, 2000	(GB)	0011321.7
May 12, 2000	(GB)	0011370.4
May 12, 2000	(GB)	0011441.3
May 24, 2000	(GB)	0012582.3
Nov. 1, 2000	(GB)	0026891.2
Nov. 20, 2000	(GB)	0028097.4
Nov. 27, 2000	(GB)	0028693.0
Nov. 30, 2000	(GB)	0029148.4
Dec. 21, 2000	(GB)	0031164.7
Dec. 27, 2000	(GB)	0031680.2

(51) **Int. Cl.**
G06F 3/00 (2006.01)
G06F 3/033 (2006.01)

(52) **U.S. Cl.**
USPC **715/863**; 715/711; 715/856; 715/862; 345/157; 345/163; 345/179

(58) **Field of Classification Search**
USPC 715/711, 802, 805, 856, 862, 863; 345/157, 163, 179
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,733,222	A	3/1988	Evans	
4,878,553	A	11/1989	Yamanami et al.	
5,321,381	A *	6/1994	Essig	337/398
5,543,588	A	8/1996	Bisset et al.	
5,615,384	A *	3/1997	Allard et al.	715/800
5,856,822	A *	1/1999	Du et al.	345/73
6,433,801	B1 *	8/2002	Moon et al.	715/840
6,466,197	B1 *	10/2002	Kim et al.	345/156
6,580,442	B1 *	6/2003	Singh et al.	715/840
6,757,002	B1 *	6/2004	Oross et al.	715/864
2001/0035854	A1 *	11/2001	Rosenberg et al.	345/156
2002/0018051	A1 *	2/2002	Singh	345/173

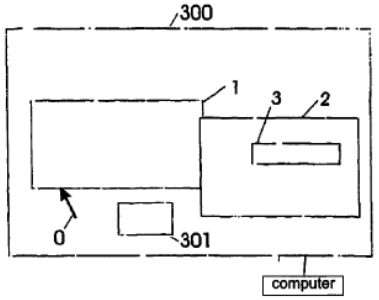
* cited by examiner

Primary Examiner — Tadeese Hailu

(57) **ABSTRACT**

A GUI interface, a method of programming a GUI interface, and an apparatus which enables functions of controls in the GUI to be activated by a movement to a control and then another subsequent movement related to that control. It may be defined more precisely below. A GUI in which, when a pointer **0** is immediately adjacent or passes over a control area **1**, a procedure is initiated whereby subsequent movement of the pointer over a predetermined path area **3** generates a 'click' event which simulates direct clicking of the control **1** and moving outside the predetermined path area **3** prior to completion of the path **3** resets the control to as if the pointer has never started along the predetermined path area **3**.

21 Claims, 42 Drawing Sheets



19. A device capable of executing software comprising:

a touch-sensitive screen configured to detect being touched by a user's finger without requiring an exertion of pressure on the screen;

a processor connected to the touch-sensitive screen and configured to receive from the screen information regarding locations touched by the user's finger;

executable user interface code stored in a memory connected to the processor; the user interface code executable by the processor;

the user interface code being configured to detect one or more locations touched by a movement of the user's finger on the screen without requiring the exertion of pressure and determine therefrom a selected operation; and

the user interface code is further configured to cause one or more selected operations, which includes one or more functions available to the user interface code of the device, to deactivate while the user's finger is touching one or more locations on the screen.

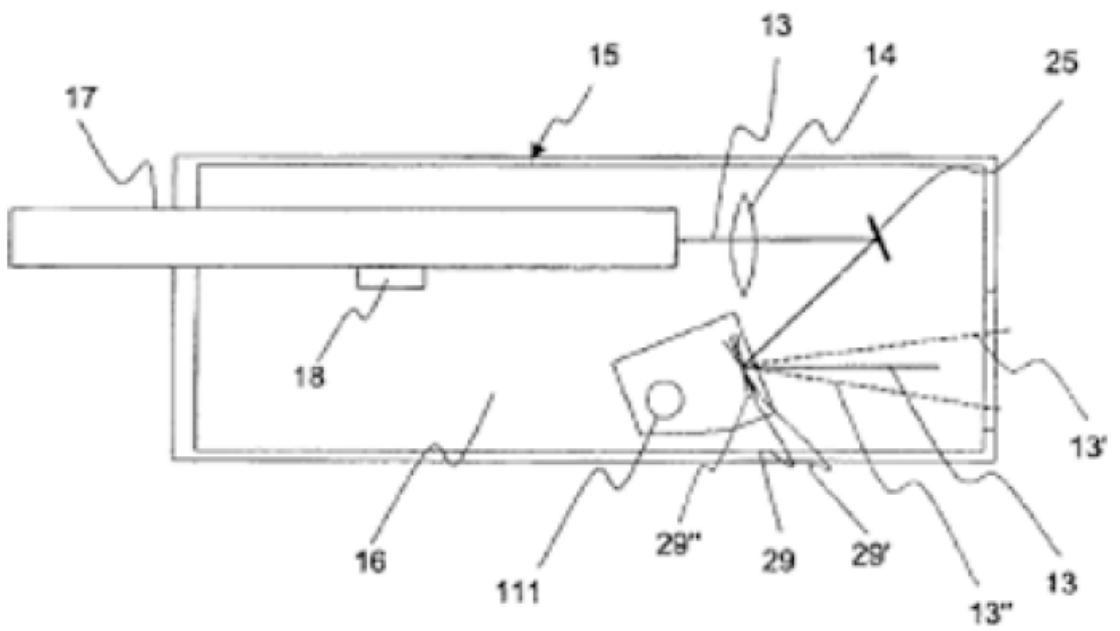
ZEROCLICK, LLC V. APPLE INC., 891 F.3D 1003, 126 U.S.P.Q.2D 1765 (FED. CIR. 2018)

- Plaintiff asserted two patents: 7,818,691 and 8,549,443
- District court found asserted claims invalid for indefiniteness in that means-plus-function terms not supported by structure in the specification
- Federal Circuit vacated and remanded finding that district court did not undertake relevant inquiry in this regard
- District court deemed means-plus-function treatment for:
  - “program that can operate the movement of the pointer”
  - “user interface code being configured to detect one or more locations touched by a movement of the user's finger on the screen without requiring the exertion of pressure and determine therefrom a selected operation”

ZEROCLICK, LLC V. APPLE INC., 891 F.3D 1003, 126 U.S.P.Q.2D 1765 (FED. CIR. 2018)

- District erred based on three reasons:
  - Fact that disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions
  - District court's analysis removed terms from their context, which otherwise strongly suggests the plain and ordinary meaning of the terms
  - District court made no pertinent finding that compels conclusion that graphical user interface program or code is used in common parlance as substitute for "means”

FIBER, LLC V. CIENA CORP., 792 FED. APPX. 789, 2019 U.S.P.Q.2D 448330 (FED. CIR. 2019)



a *control* operative for at least one of 1) *positioning* a first beam directing device to direct the optical beam from at least one source to at least one additional beam directing device, 2) *positioning* at least one additional beam directing device to direct the optical beam from said additional beam directing device to a second beam directing device, and 3) *positioning* a second beam directing device to direct the optical beam from said second beam directing device to a selected one of said plurality of optical receptors; and

FIBER, LLC V. CIENA CORP., 792 FED. APPX. 789, 2019 U.S.P.Q.2D 448330 (FED. CIR. 2019)

- "[T]he term 'control,' which is used in relation to the function of positioning the beam directing device, is a means-plus-function term."
- "[T]he 'control' depicted in Figure 7A is a generic box with no indication of any structure."
- Found "control" was not analogous to "circuit" which may connote structure
- Notes that material incorporated by reference cannot operate as the corresponding structure for 112(6)/(f)
- Found insufficient corresponding structure in the specification

RAIN COMPUTING, INC. V. SAMSUNG ELECS. AM., INC., 989 F.3D 1002 (FED. CIR. 2021)

US009805349B1

(12) **United States Patent**
Chang

(10) **Patent No.: US 9,805,349 B1**
(45) **Date of Patent: Oct. 31, 2017**

(54) **METHOD AND SYSTEM FOR DELIVERING APPLICATION PACKAGES BASED ON USER DEMANDS**

(71) Applicant: **Hsuan-Yeh Chang**, Chestnut Hill, MA (US)

(72) Inventor: **Hsuan-Yeh Chang**, Chestnut Hill, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 873 days.

(21) Appl. No.: **13/865,217**

(22) Filed: **Apr. 18, 2013**

Related U.S. Application Data

(63) Continuation of application No. 11/944,456, filed on Nov. 22, 2007, now abandoned.

(51) **Int. Cl.**
G06Q 20/12 (2012.01)

(52) **U.S. Cl.**
CPC ***G06Q 20/1235*** (2013.01); ***G06Q 20/123*** (2013.01); ***G06Q 20/127*** (2013.01)

(58) **Field of Classification Search**
CPC G06Q 20/00–20/425; G06Q 30/00–30/08
USPC 705/1.1–500
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,765,205	A	6/1998	Breslau et al.
5,790,753	A	8/1998	Krishnamoorthy et al.
6,311,221	B1	10/2001	Raz et al.
6,546,547	B1	4/2003	Runyan et al.
6,754,896	B2	6/2004	Mishra et al.
6,826,546	B1 *	11/2004	Shuster 705/52
6,854,009	B1	2/2005	Hughes
6,918,113	B2	7/2005	Patel et al.
6,954,852	B2	10/2005	Burokas et al.
6,954,853	B2	10/2005	Wang et al.
6,959,320	B2	10/2005	Shah et al.
7,017,162	B2	3/2006	Smith et al.
7,035,874	B1	4/2006	Reed et al.
7,036,040	B2	4/2006	Nicholson et al.
7,062,567	B2	6/2006	Benitez et al.
7,072,950	B2	7/2006	Toft
7,089,300	B1	8/2006	Birse et al.
7,233,985	B2	6/2007	Hahn et al.
7,281,068	B2	10/2007	Davis et al.
7,321,936	B2	1/2008	Zimmerman et al.
7,334,122	B2	2/2008	Burokas et al.
7,356,679	B1	4/2008	Le et al.

(Continued)

OTHER PUBLICATIONS

"Diskless Clients for Ubuntu," Linux Magazine, Issue 69, p. 12, Aug. 2006 (1 page).

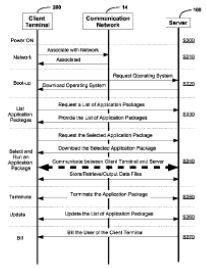
(Continued)

Primary Examiner — Mohammad A. Nilforoush

(57) **ABSTRACT**

A method and a system are provided for delivering on-demand software packages. In one aspect, the method may include subscribing services of a service provider operating a server, the server including an operating system and several application packages installed therein, initiating a client terminal by performing a network booting process using the operating system installed in the server, and executing in the client terminal a subscribed application package installed in the server using resources of the operating system resident in the client terminal. The method may further include charging the user a fee according to the application packages and the operating system subscribed by the user.

27 Claims, 3 Drawing Sheets



1. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;

a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;

RAIN COMPUTING, INC. V. SAMSUNG ELECS. AM., INC., 989 F.3D 1002 (FED. CIR. 2021)

- The Court's findings:
  - Section 112(6)/(f) terms can be nested in method claims where they are used to describe the structure that performs the claimed method
  - "Module" is a well-known nonce word
  - "User identification" does not add structure, it only describes the function of the module, to identify a user
  - "User identification module" has no commonly understood meaning and is not used in the field to connote a particular structure
  - The specification does not even mention the term, much less what its structure is

FEDERAL CIRCUIT TAKE-AWAYS

- Mostly a dutiful attempt to apply Williamson (no serious effort to return to the “strong” presumption)
- Remaining inconsistency in exactly what software claims/terms will trigger Section 112(f) and when
- Continued emphasis of sufficient algorithms in the specification to serve as corresponding structure

RECENT DISTRICT COURT CASES

K2M, Inc. v. *OrthoPediatrics Corp.* NO. 17-61-GMS, 2018 BL 190775, 2018 WL 2426660 (D. Del. May 30, 2018)

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

(10) **Patent No.: US 9,655,664 B2**
(45) **Date of Patent: *May 23, 2017**

(54) **ROD REDUCTION DEVICE AND METHOD OF USE**

(71) Applicant: **K2M, Inc.**, Leesburg, VA (US)

(72) Inventors: **Michael Barrus**, Ashburn, VA (US); **Scott A. Jones**, McMurray, PA (US)

(73) Assignee: **K2M, Inc.**, Leesburg, VA (US)

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

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **15/394,025**

(22) Filed: **Dec. 29, 2016**

(65) **Prior Publication Data**

US 2017/0105773 A1 Apr. 20, 2017

Related U.S. Application Data

(60) Division of application No. 14/609,868, filed on Jan. 30, 2015, now Pat. No. 9,532,816, which is a (Continued)

(51) **Int. Cl.**
A61B 17/88 (2006.01)
A61B 17/70 (2006.01)

(52) **U.S. Cl.**
CPC ***A61B 17/8872*** (2013.01); ***A61B 17/7086*** (2013.01); ***A61B 17/7089*** (2013.01); ***A61B 17/88*** (2013.01); ***A61B 17/8875*** (2013.01)

(58) **Field of Classification Search**
CPC . A61B 17/88; A61B 17/8872; A61B 17/8886; A61B 17/8891; A61B 17/8875; A61B 17/7086
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,720,751 A * 2/1998 Jackson A61B 17/7032 606/104
6,123,707 A 9/2000 Wagner
(Continued)

FOREIGN PATENT DOCUMENTS

FR 2985166 A1 7/2013
JP 2008-508935 A 3/2008

OTHER PUBLICATIONS

Definition of "anvil"; accessed from www.dictionary.com on Apr. 1, 2014.

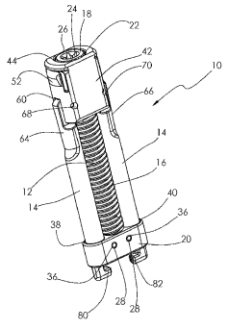
(Continued)

Primary Examiner — Eduardo C Robert
Assistant Examiner — Julianna N Harvey
(74) *Attorney, Agent, or Firm* — Carter, DeLuca, Farrell & Schmidt, LLP

(57) **ABSTRACT**

Provided is a novel rod reducing device including a screw jack mechanism that is moveably engaged with an elongated grasping fork assembly, the screw jack mechanism having an elongated threaded portion, the elongated threaded portion being connected at its most distal end to a rod contact member, which is positioned in sliding circumferential contact with each of the two opposing elongated grasping members and the most proximal end of the elongated threaded portion terminating in a controlling member, which can be activated in a measured and controlled manner. A method of using the device is also provided.

19 Claims, 8 Drawing Sheets



12. A system for reducing a connecting rod, the system comprising:

a bone anchor;

a connecting rod; and

a rod reduction device including:

a housing defining a longitudinal axis, the housing including first and second grasping members configured to grasp a portion of the bone anchor therebetween, the first and second grasping members defining a plane;

a rotatable member extending through the housing along the longitudinal axis; and

a rod contact member positioned at a distal end of the rotatable member, the rod contact member translatable within the plane in response to rotation of the rotatable member about the longitudinal axis.

K2M, INC. V. ORTHOPEDIATRICS CORP. (D. DEL. MAY 30, 2018)

- Claim construction order in D. Delaware in connection with two patents 9,532,816 and 9,655,664
  - Court determined that inclusion of features “first and second’ or “grasping” does not convey sufficiently definite structure, material or acts to bring the claims out of purview of 112, par. 6
    - Claim language does not provide a list of structure underlying grasping means or provide a detailed recitation of structure for performing function of grasping bone anchor
  - Parties agreed that identified function is grasping a portion of bone anchor
  - Court found that rod contact member is corresponding structure

MICROCHIP TECH. INC. V. NUVOTON TECH. CORP. AM., NO. 19-CV-01690-SI, 2020 BL 79111 (N.D. CAL. FEB. 28, 2020)

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

(10) **Patent No.: US 9,772,970 B2**
(45) **Date of Patent: Sep. 26, 2017**

(54) **MULTI-PROTOCOL SERIAL COMMUNICATION INTERFACE**

(71) Applicant: **Atmel Corporation**, San Jose, CA (US)

(72) Inventors: **Yong Luo**, Cupertino, CA (US); **Ian Fullerton**, Tanem (NO); **Benjamin Francis Froemming**, San Jose, CA (US); **Morten Werner Lund**, Tiller (NO)

(73) Assignee: **Atmel Corporation**, 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 658 days.

(21) Appl. No.: **14/014,128**

(22) Filed: **Aug. 29, 2013**

(65) **Prior Publication Data**

US 2015/0067206 A1 Mar. 5, 2015

(51) **Int. Cl.**
G06F 13/42 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 13/4282*** (2013.01); ***G06F 13/4291*** (2013.01); ***G06F 13/4295*** (2013.01)

(58) **Field of Classification Search**
CPC G06F 13/36; G06F 13/42; G06F 13/4282
USPC 710/105, 313, 104, 110
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,570,217	A *	2/1986	Allen	G06F 1/14 700/83
2005/0172059	A1 *	8/2005	Yoshimura	G06F 9/54 710/110
2008/0027587	A1 *	1/2008	Nickerson	A01G 25/16 700/284
2009/0132751	A1 *	5/2009	Simmons	G06F 13/385 711/5
2013/0290577	A1 *	10/2013	Fugate	G06F 13/4081 710/105

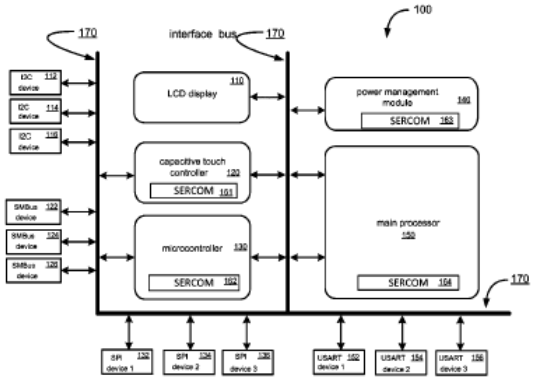
* cited by examiner

Primary Examiner — Tim T Vo
Assistant Examiner — Kim T. Huynh
(74) *Attorney, Agent, or Firm* — Fish & Richardson P.C.

(57) **ABSTRACT**

Systems and methods for multi-protocol serial communication interfaces are described. One example system includes an interface module including a buffer for storing a protocol selection. The system includes a protocol module coupled to the interface module and configured for providing one or more serial communication protocols. Based on the protocol selection, one of the serial communication protocols is selected. The system also includes a serial engine module coupled to the interface module and the protocol module. The serial engine module is configured for transmitting and receiving data or commands based on the selected serial communication protocol.

19 Claims, 5 Drawing Sheets



1. A system comprising:

an interface module including a buffer or register for storing a protocol selection;

a protocol module coupled to the interface module and configured for providing configuration data for one of two or more serial communication protocols based on the protocol selection;

a serial engine module coupled to the interface module and the protocol module, the serial engine module configured for:

determining from the protocol selection that data or commands are to be transmitted and received on a serial communication bus using synchronous communication;

determining that a port control module coupled to the serial communication bus is configured for asynchronous communication on the serial communication bus;

reconfiguring the port control module from asynchronous serial communication to synchronous serial communication on the serial communication bus, including selecting one of an internal or an external clock signal for synchronous communication on the serial communication bus; and

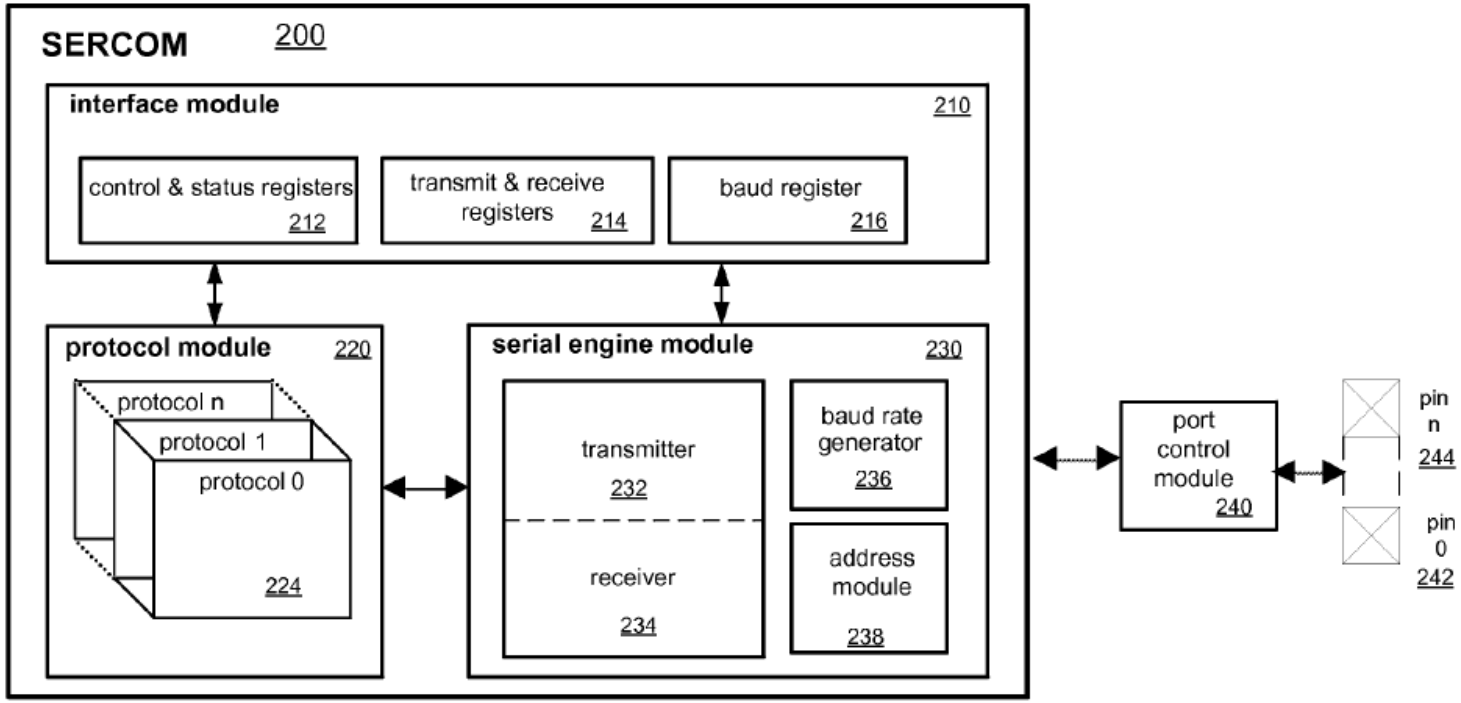
transmitting and receiving data or commands over the serial communication bus synchronously using the clock signal.

MICROCHIP TECH. INC. V. NUVOTON TECH. CORP. AM., (N.D. CAL. FEB. 28, 2020)

- Claim construction order in N.D. Cal. in connection with six patents 7,075,261, 7,126,515, 7,353,417, 7,930,576, 9,442,873, and 9,772,970
  - For the '970 patent, Court separately analyzed each of the recited modules
    - Determined that specification provides adequate structure for each "interface module", "serial engine module", and "port control module" to sustain presumption that §112(f) does not apply
      - Plain and ordinary meaning of terms adopted

MICROCHIP TECH. INC. V. NUVOTON TECH. CORP. AM., (N.D. CAL. FEB. 28, 2020)

- Parties agreed that "protocol module" subject to §112(f) and agreed on function of same
- Disputed whether '970 patent disclosed structure corresponding to claimed function of "providing configuration data for one of two or more serial communication protocols based on the protocol selection."
- Court determined that specification did not support function and deemed claim 1 indefinite



T-JAT SYS. 2006 LTD. V. *EXPEDIA, INC.*, NO. 16-CV-581-RGA, 2019 BL 312718, 2019 US DIST LEXIS 142404 (D. DEL. AUG. 21, 2019)

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

(10) **Patent No.: US 8,064,434 B2**
(45) **Date of Patent: *Nov. 22, 2011**

(54) **METHOD FOR PROVIDING INTERNET SERVICES TO A TELEPHONE USER**

(75) Inventors: **Oleg Golobrodsky**, Petah Tikva (IL); **Gideon Drori**, Sha'arei Tikva (IL); **Yitzhak Peterburg**, Tal Shahar (IL); **Moshe Peterburg**, Ramat Hasharon (IL)

(73) Assignee: **T-JAT Systems 2006 Ltd.**, Tel-Aviv (IL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 2 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/476,214**

(22) Filed: **Jun. 28, 2006**

(65) **Prior Publication Data**

US 2008/0126510 A1 May 29, 2008

(51) **Int. Cl.**
H04L 12/66 (2006.01)

(52) **U.S. Cl.** **370/352**; 379/88.12; 379/88.13; 379/88.23; 379/900; 709/217; 709/227

(58) **Field of Classification Search** 379/88.12, 379/88.13, 88.23, 900; 370/352; 455/412.2, 455/414.1; 709/217, 227

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,889,845	A *	3/1999	Staples et al.	379/211.02
6,401,131	B1	6/2002	Haverstock et al.	
6,732,332	B1	5/2004	Borysewicz et al.	
6,745,230	B1 *	6/2004	Cao et al.	379/88.17
6,757,365	B1 *	6/2004	Bogard	379/88.17
6,865,608	B2 *	3/2005	Hunter	709/229
7,174,006	B2 *	2/2007	Guedalia et al.	379/88.13
7,254,220	B1 *	8/2007	Reding et al.	379/88.17
2002/0083127	A1	6/2002	Agrawal	
2003/0002633	A1	1/2003	Kredo et al.	
2003/0069934	A1	4/2003	Garcia-Martin et al.	
2004/0128310	A1	7/2004	Zmudzinski et al.	
2006/0014530	A1	1/2006	Denenberg et al.	
2006/0168037	A1 *	7/2006	Audu et al.	709/206
2008/0086564	A1 *	4/2008	Putman et al.	709/227

FOREIGN PATENT DOCUMENTS

DE	102 37 093 A1		2/2003
EP	1 274 222	*	3/2002
EP	1 274 222 A2		1/2003
WO	02/43351 A		5/2002

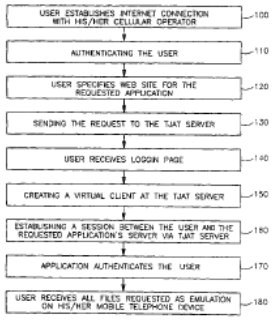
* cited by examiner

Primary Examiner — Melur Ramakrishnaiah
Assistant Examiner — Yosef K Laekemariam
(74) *Attorney, Agent, or Firm* — Abraham Hershkovitz; Harold L. Novick; Hershkovitz & Associates, LLC

(57) **ABSTRACT**

A method for providing a user of a telephone device with a capability to use Internet-based applications. The user of a telephone device sends a request to be connected to an Internet-based application to a first server, which establishes a communication path extending between the telephone device and a second server at which the application resides, via that first server. A virtual client entity is created at that first server specific to the telephone device to allow communication between the telephone device and the application and concluded upon termination of the communication session. The user's ID for that application is stored, and used to forward messages for that user when the user is not actively connected to that application. After the message has been received and stored by the first server, an indication is sent to the user that such messages have been received.

19 Claims, 4 Drawing Sheets



1. A method for providing a user of a telephone device with a capability to use Internet-based applications, which method comprises the steps of:

transmitting from said telephone device an indication towards a first server, denoting a request to be connected to an Internet-based application residing at a second server;

providing said user with a menu from which the user selects a requested Internet-based application;

after selecting an application, establishing a communication path that extends between said telephone device and said second server via said first server;

at said first server, creating a virtual client entity specific to said telephone device and said Internet-based application to be used, created specifically to allow communication between said telephone device and said Internet-based application residing at said second server, and maintained only for the duration of a communication session that is about to take place between said user and said Internet-based application, thereby providing the user of said telephone device with the capability to use said Internet-based application; and

exchanging communications between said second server and said telephone device.

T-JAT SYS. 2006 LTD. V. *EXPEDIA, INC.* (D. DEL. AUG. 21, 2019)

- Claim construction order in Delaware in connection with Pat. Nos. 8,064,434 and 9,210,142
- Construction of “virtual client entity” in dispute; function of allowing communication between telephone device and Internet-based application
- Plaintiff proposed: “"an instance of executable software that emulates connectivity and/or resources of a computing device or software adapted to connect and request information from a server“
- Defendant argued 35 USC 112, ¶ 6 treatment
- Court deemed that plaintiff did not identify an algorithm and steps in flow chart does not explain how virtual client is created
- “Virtual client entity” deemed to be indefinite

UNILOC UNITED STATES V. *SAMSUNG ELECS. AM.*, NO. 2:17-CV-651-JRG, 2018 WL 5296046 (E.D. TEX. OCT. 24, 2018)

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

(10) **Patent No.: US 7,690,556 B1**
(45) **Date of Patent: Apr. 6, 2010**

(54) **STEP COUNTER ACCOUNTING FOR INCLINE**

(75) Inventors: **Philippe Kahn**, Aptos, CA (US); **Arthur Kinsolving**, Santa Cruz, CA (US)

(73) Assignee: **DP Technologies, Inc.**, Scotts Valley, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 362 days.

(21) Appl. No.: **11/698,633**

(22) Filed: **Jan. 26, 2007**

(51) **Int. Cl.**
G01C 22/00 (2006.01)

(52) **U.S. Cl.** **235/105**; 702/160; 702/155; 702/158; 482/8; 377/24.2

(58) **Field of Classification Search** 235/105; 702/160; 377/24.2
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,976,083	A *	11/1999	Richardson et al.	600/300
5,989,200	A *	11/1999	Yoshimura et al.	600/587
6,493,652	B1 *	12/2002	Ohlenbusch et al.	702/160
6,522,266	B1	2/2003	Soehren et al.	
6,813,582	B2	11/2004	Levi et al.	
6,898,550	B1	5/2005	Blackadar et al.	
7,561,960	B2	7/2009	Soehren	
2005/0033200	A1	2/2005	Soehren et al.	
2005/0054938	A1 *	3/2005	Wehman et al.	600/483
2005/0272564	A1 *	12/2005	Pyles et al.	482/54
2006/0020177	A1 *	1/2006	Seo et al.	600/300
2006/0064276	A1 *	3/2006	Ren et al.	702/160
2007/0260418	A1	11/2007	Ladetto et al.	
2008/0254944	A1 *	10/2008	Muri et al.	482/8

FOREIGN PATENT DOCUMENTS

JP 11347021 A * 12/1999

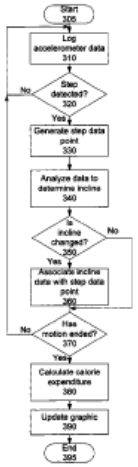
* cited by examiner

Primary Examiner—Michael G Lee
Assistant Examiner—Suezu Ellis
(74) *Attorney, Agent, or Firm*—Blakely, Sokoloff, Taylor & Zafman, LLP; Judith A. Szepesi

(57) **ABSTRACT**

A method and apparatus for a step counter system is described. The step counter system comprises an accelerometer to detect motion of a user, a step calculation logic to utilize the motion detected by the accelerometer to detect and count steps, and an incline logic to calculate an incline of a surface on which the user moved.

24 Claims, 4 Drawing Sheets



1. A step counter system comprising:
an accelerometer to detect motion of a user;
a step calculation logic to utilize the motion detected by the accelerometer to detect and count steps; and
an incline logic to utilize the motion detected by the accelerometer to make a calculation of an incline of a surface on which the user moved for one or more of the steps, wherein the calculation is performed for a step based on identifying a vertical travel up portion of the step, identifying a vertical travel down portion of the step, and computing a difference between the vertical travel up portion and the vertical travel down portion of the step.

UNILOC UNITED STATES V. *SAMSUNG ELECS. AM.* (E.D. TEX. OCT. 24, 2018)

- Claim construction order in E.D. Tex in front of Judge Gilstrap for U.S. Pat. No. 7,690,556
- Construction of “step calculation logic to utilize the motion detected by the accelerometer to detect and count steps” and “to utilize the motion detected by the accelerometer to make a calculation of an incline of a surface on which the user moved for one or more of the steps” at issue
- Court found that presumption against means-plus-function treatment overcome
- Parties agreed that function is "to utilize the motion detected by the accelerometer to detect and count steps"
- “step calculation logic” deemed to be indefinite due to lack of corresponding structure
- “incline logic” construed as plain and ordinary meaning in some claims due to claims themselves setting forth algorithms
  - Other claims reciting “incline logic” do not have such detail and were deemed indefinite

WEATHERFORD TECH. HOLDINGS, LLC V. *TESCO CORP.*, NO. 2:17-CV-456, 2018 BL 235971 (E.D. TEX. JULY 02, 2018)

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

(10) **Patent No.: US 7,249,637 B2**
(45) **Date of Patent: Jul. 31, 2007**

(54) **METHOD AND DEVICE TO CLAMP CONTROL LINES TO TUBULARS**

(75) Inventors: **Michael Hayes**, Houston, TX (US); **Troy F. Hill**, Lafayette, LA (US); **Timothy Bedore**, Woodlands, TX (US); **Jimmy L. Hollingsworth**, Lafayette, LA (US); **David M. Haugen**, League City, TX (US)

(73) Assignee: **Weatherford/Lamb, Inc.**, Houston, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 368 days.

(21) Appl. No.: **11/037,800**

(22) Filed: **Jan. 18, 2005**

(65) **Prior Publication Data**

US 2005/0161227 A1 Jul. 28, 2005

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/625,840, filed on Jul. 23, 2003, now Pat. No. 7,073,598, which is a continuation of application No. 09/860,127, filed on May 17, 2001, now Pat. No. 6,742,596, application No. 11/037,800, which is a continuation-in-part of application No. 10/611,565, filed on Jul. 1, 2003, now Pat. No. 7,043,814, which is a continuation of application No. 09/486,901, filed as application No. PCT/GB98/02582 on Sep. 2, 1998, now Pat. No. 6,591,471.

(60) Provisional application No. 60/536,800, filed on Jan. 15, 2004.

(51) **Int. Cl.**
E21B 19/14 (2006.01)

(52) **U.S. Cl.** **166/385**; 166/77.1; 166/85.5; 166/241.5; 166/380

(58) **Field of Classification Search** ..... None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,541,669 A 6/1925 Summers

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2 284 428 4/2001

(Continued)

OTHER PUBLICATIONS

PCT Search Report, International Application No. PCT/US2005/001326, dated May 3, 2005.

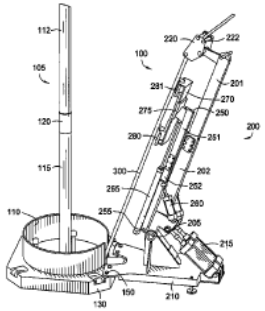
(Continued)

Primary Examiner—Zakiya W. Bates
(74) *Attorney, Agent, or Firm*—Patterson & Sheridan, LLP

(57) **ABSTRACT**

The inventions relates to an apparatus for connecting a control line to a tubular string. In one embodiment, the apparatus includes a guide boom pivotable around a location adjacent the string and with a guide member at an end thereof to guide the control line. The apparatus further includes a clamp boom that is independently pivotable and includes a clamp housing at an end thereof for clamping the control line against the tubular string. The guide boom and the clamp boom each have a center line which is substantially aligned with the center line of the tubing string permitting the control line to be aligned adjacent the tubular string prior to clamping.

38 Claims, 4 Drawing Sheets



1. A control line positioning apparatus comprising:

a control line holding assembly movable between a staging position and a clamping position;

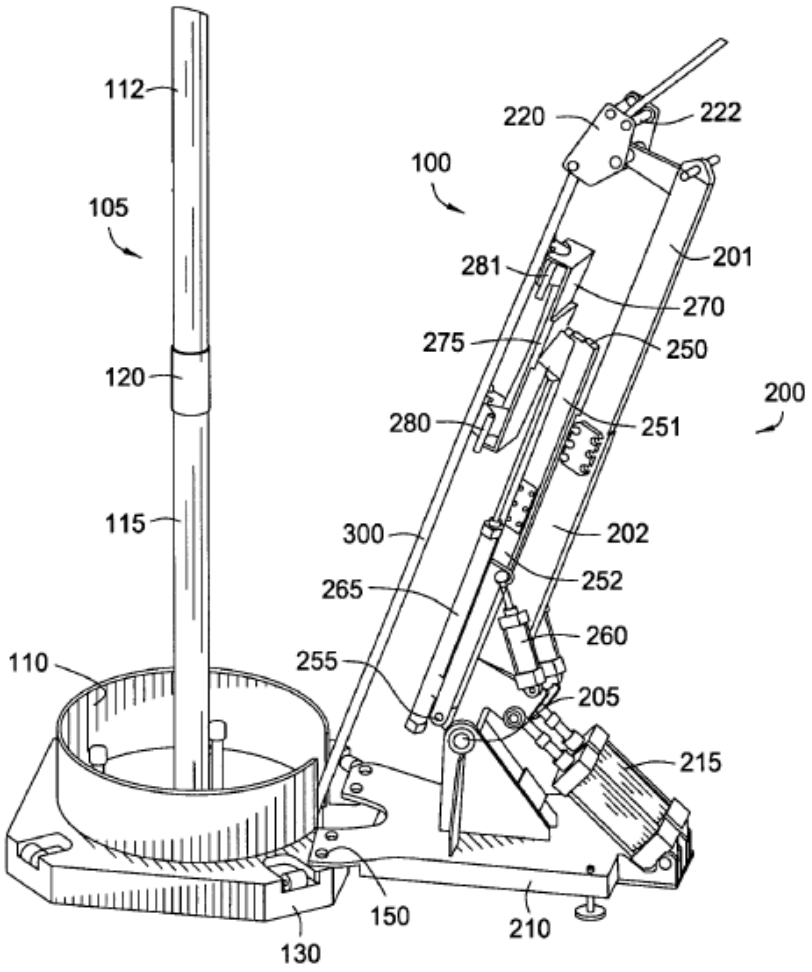
a mounting assembly for connecting the control line holding assembly to a rig structure, the rig structure having a rig floor and the mounting assembly located substantially adjacent the rig floor;

a motive member for moving the control line holding assembly between the staging position and the clamping position; and

an arm for connecting the control line holding assembly to the mounting assembly, wherein the arm extends at an angle relative to the rig floor when the control line holding assembly is in the clamping position.

WEATHERFORD TECH. HOLDINGS, LLC V. *TESCO CORP.* (E.D. TEX. JULY 02, 2018)

- Claim construction order in E.D. Tex in front of Judge Gilstrap for U.S. Pat. No. 7,249,637
- Defendants argued "mounting assembly" should be treated under 35 § USC 112, ¶ 6
  - Court found that mount has a reasonably-well understood structural meaning and that claims do not recite functional language
  - "mounting assembly" construed to mean "base"



BEST MED. INT'L, INC. V. VARIAN MED. SYS., INC., NO. C.A. NO. 18-1599, 2020 U.S. DIST. LEXIS 128221 (D. DEL. JULY 21, 2020)

US006038283A

United States Patent [19]
Carol et al.

[11] **Patent Number: 6,038,283**
[45] **Date of Patent: Mar. 14, 2000**

[54] **PLANNING METHOD AND APPARATUS FOR RADIATION DOSIMETRY**

[75] Inventors: **Mark P. Carol**, Sewickley; **Robert C. Campbell**, Cranberry Twp.; **Bruce Curran**, Sewickley; **Richard W. Huber**, Harmony; **Richard V. Nash**, Allison Park, all of Pa.

[73] Assignee: **Nomos Corporation**, Sewickley, Pa.

[21] Appl. No.: **08/957,206**

[22] Filed: **Oct. 24, 1997**

Related U.S. Application Data

[60] Provisional application No. 60/029,480, Oct. 24, 1996.

[51] **Int. Cl.**[7] **A61B 5/01**; A61B 5/10
[52] **U.S. Cl.** **378/65**
[58] **Field of Search** 378/65

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,027,818	7/1991	Bova et al.	600/427
5,317,616	5/1994	Swerdloff et al.	378/65
5,351,280	9/1994	Swerdloff et al.	378/65
5,379,333	1/1995	Toth	378/16
5,394,452	2/1995	Swerdloff et al.	378/65
5,400,378	3/1995	Toth	378/16
5,511,549	4/1996	Legg et al.	600/436
5,513,238	4/1996	Leber et al.	378/65
5,602,892	2/1997	Llacer	378/65
5,647,663	7/1997	Holmes	600/407

FOREIGN PATENT DOCUMENTS

0 560 331 A1	10/1993	European Pat. Off. .
0 695 560 A2	7/1996	European Pat. Off. .
WO 90/14129	11/1990	WIPO .

OTHER PUBLICATIONS

"Wedge–Shaped Dose Distributions by Computer–Controlled Collimator Motion"; Kijewski et al; Med. Phys., vol. 5, Sep./Oct. 1978; pp. 426–429.
"Dosage Calculations in Radiation Therapy"; Urban & Schwarzenberg, 1979; W. L. Saylor and T. Ames; pp. 19–34.
"Treatment Plan Optimization for Conformal Therapy"; I. Rosen and R. Lane; pp. 357–360; The Use of Computers in Radiation Therapy, 1987.
"Shaping of Arbitrary Dose Distributions by Dynamic Multileaf Collimation"; P. Kallman et al.; Phys. Med. Biol., 1988, vol. 33, No. 11, pp. 1291–1300.
"Computer–Assisted Conformation Radiotherapy With a Variable Thickness Multi–Leaf Filter"; Kobayashi et al.; I. J. Radiation Oncology Biology Physics., Jun. 1989, vol. 16, pp. 1631–1635.
"Optimisation of Conformal Radiotherapy Dose Distributions by Simulated Annealing"; S. Web; Phys. Med. Biol. 1989, vol. 34, No. 10, pp. 1349–1370.
"Radiation Physics"; F. Bova; Stereotacit Neurosurgery; Neurosurgery Clinics of North America, vol. 1, No. 4, Oct. 1990, pp. 909–931.
"Optimization of Conformal Radiotherapy Dose Distributions by Simulated Annealing: 2. Inclusion of Scatter in the 2D Technique"; S. Webb; Phys. Med. Biol. 1991, vol. 36, No. 9, pp. 1227–1237.
"Optimization by Simulated Annealing of Three–Dimensional Conformal Treatment Planning for Radiation Fields Defined by a Multileaf Collimator"; S. Webb; Phys. Med. Biol. 1991, vol. 36, No. 9, pp. 1201–1226.

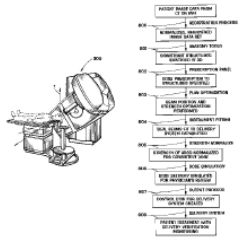
(List continued on next page.)

Primary Examiner—David Vernon Bruce
Attorney, Agent, or Firm—Tobor, Goldstein & Healey L.L.P.

[57] **ABSTRACT**

A method and apparatus for determining an optimized radiation beam arrangement for applying radiation to a tumor target volume while minimizing radiation of a structure volume in a patient, which uses an iterative cost function based on a comparison of desired partial volume data, which may be represented by cumulative dose volume histograms and proposed partial volume data, which may be represented by cumulative dose volume histograms for target tumors and tissue structures for delivery of the optimized radiation beam arrangement to the patient by a conformal radiation therapy apparatus.

47 Claims, 6 Drawing Sheets



25. An apparatus for determining an optimized radiation beam arrangement for applying radiation to a tumor target volume while minimizing radiation of a structure volume in a patient, comprising:

a computer, adapted to computationally obtain a proposed radiation beam arrangement,

the computer further adapted to computationally change the proposed radiation beam arrangement iteratively, wherein the proposed radiation beam arrangement is changed by changing the beam weights,

the computer further adapted to incorporate a cost function at each iteration to approach correspondence of partial volume data associated with the proposed radiation beam arrangement to partial volume data associated with a pre-determined desired dose prescription, and

the computer further adapted to reject the change of the proposed radiation beam arrangement if the change of the proposed radiation beam arrangement leads to a lesser correspondence to the desired dose prescription and to accept the change of the proposed radiation beam arrangement if the change of the proposed radiation beam arrangement leads to a greater correspondence to the desired dose prescription to obtain an optimized radiation beam arrangement.

BEST MED. INT'L, INC. V. VARIAN MED. SYS., INC., NO. C.A. NO. 18-1599, 2020 U.S. DIST. LEXIS 128221 (D. DEL. JULY 21, 2020)

- Plaintiff's position: plain meaning, or a "computer" is "a programmable electronic device that can store, retrieve, and process data."
- Defendant's position: "computer…to" should be construed under 112(6)/(f)
- Court's conclusion: The term is not subject to 112(6)/(f) and should receive it's plain and ordinary meaning

BEST MED. INT'L, INC. V. VARIAN MED. SYS., INC., NO. C.A. NO. 18-1599, 2020 U.S. DIST. LEXIS 128221 (D. DEL. JULY 21, 2020)

- Court's reasoning:
  - Rebuttable presumption applies
  - No case law finding "computer" subject to 112(6)/(f)
  - Claims themselves describe the components communicating with or connected to the computer, which are structural limitations
  - Specification describes computer as a general purpose computer, which is a structure
  - PTAB did not apply 112(6)/(f) in a co-pending IPR

DYFAN, LLC V. TARGET CORP., NO. W-19-CV-00179-ADA, 2020 BL 522938 (W.D. TEX. NOV. 24, 2020)

○ **Representative term**: Term 14 from Joint Statement ("said code, when executed, further configured to . . . after the first visual information is caused to be output based on the first location-relevant information; after the at least one mobile device is moved in the building; and in response to the receipt, from the at least one server and via the second wireless communications protocol, of the second response message including the second location-relevant information: cause to be output, via the at least one mobile device, the second visual information based on the second location-relevant information")

○ **Representative term**: Term 10 from Joint Statement ("said application, when executed, further configured to cause the at least one mobile device to . . . in response to the receipt, from the at least one server and via the another wireless communications protocol, of the response message including the particular location-relevant information; control, utilizing the application, the one or more mobile device application actions of the application including causing to be output, via the at least one mobile device, the mobile device application visual information based on the particular location-relevant information")

○ **Representative term**: Term 28 from Joint Statement ("the system is configured such that the subsequent output of the different visual information is capable of being caused without additional user input after the user input")

○ **Representative term**: Term 24 from Joint Statement ("the system is configured such that the visual information is automatically caused to be output without requiring further communication with the at least one broadcast short-range communications unit, after the receipt of the indication of the receipt of the one or more messages")

DYFAN, LLC V. TARGET CORP., NO. W-19-CV-00179-ADA, 2020 BL 522938 (W.D. TEX. NOV. 24, 2020)

- Target's arguments:
  - Code is a nonce word
  - Code by itself cannot connote structure
  - The claim does not recite an algorithm
  - No corresponding structure in specification
  - No off-the-shelf software could perform the recited function

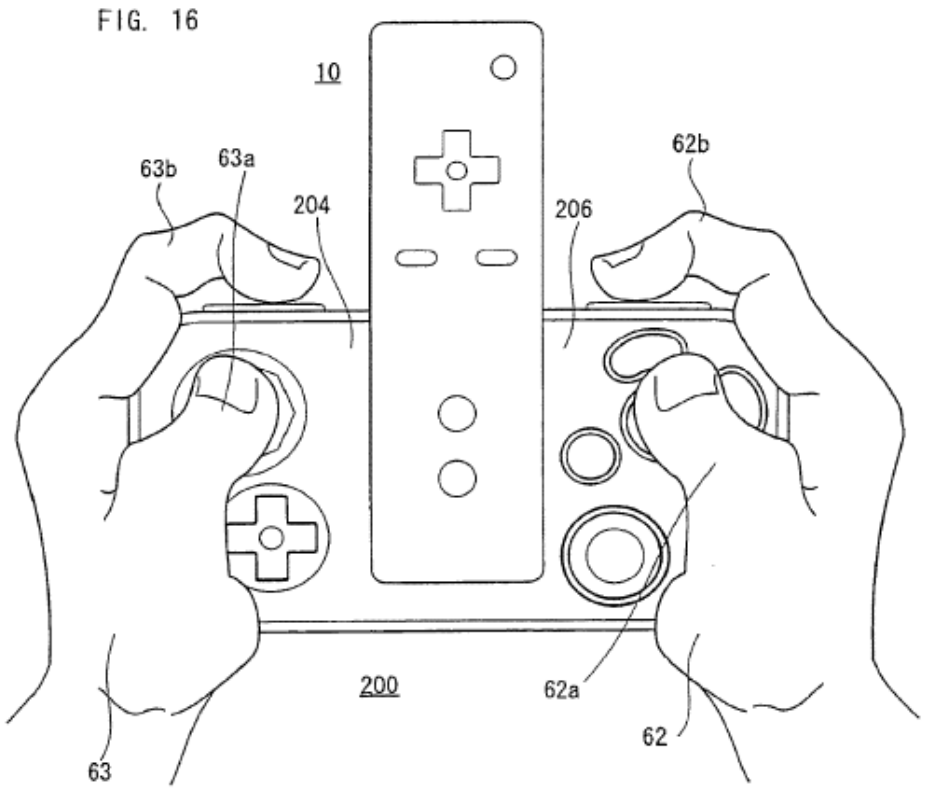
DYFAN, LLC V. TARGET CORP., NO. W-19-CV-00179-ADA, 2020 BL 522938 (W.D. TEX. NOV. 24, 2020)

- Plaintiff's argument:
  - "Code" and "application" are not substitutes for "means"
- Court conclusions:
  - Rebuttable presumption applies
  - Claim recites only a function the code performs, plus some conditions on when it is performed
  - Code is therefore defined only by function is performs
  - Fact that claims also recited a "computer" did not change the outcome
  - Claim is invalid because there is no corresponding structure

DYFAN, LLC V. TARGET CORP., NO. W-19-CV-00179-ADA, 2020 BL 522938 (W.D. TEX. NOV. 24, 2020)

- "Application configured to" construed the same as "code configured to"
  - Parties did not treat them differently
- Court conclusions for "system … configured" claims:
  - Claims do not specify which part of the system performs the recited function
  - Effectively makes the "system" a black box
  - No corresponding structure in claim for performing the recited function

GAMEVICE, INC. V. NINTENDO CO., NO. 18-CV-01942-RS, 2019 US DIST LEXIS 129803 (N.D. CAL. AUG. 02, 2019)



1. A gaming device for providing a predetermined gaming function to an electronic device that includes an input device configured to receive input from a user located on a main surface of the electronic device, the gaming device comprising:

a first input device configured to receive input from a user;

an interface that allows circuitry in the gaming device to communicate with circuitry in the electronic device;

a support configured to detachably hold at least two sides of the electronic device located on opposite sides of the main surface of the electronic device such that the main surface of the electronic device is visible to the user while the user grasps the gaming device; and

a first directional input device located such that a thumb of a first hand of the user who grasps the gaming device can operate the first directional input device.

GAMEVICE, INC. V. NINTENDO CO., NO. 18-CV-01942-RS, 2019 U.S. DIST. LEXIS 129803 (N.D. CAL. AUG. 02, 2019)

- Court's analysis:
  - The claim language describes the term as a detachable part which attaches to the left and right-hand sides of the game controller and physically holds the electronic device in place by gripping the two sides of the electronic device
  - This is not merely a functional description—rather it provides specific physical features of the "support," such as where the support attaches to, or grips, the various devices
  - Because it describes structure, it is not subject to 112(6)

XR COMMC'NS, LLC V. RUCKUS WIRELESS, INC., NO. 18-CV-01992-WHO, 2021 BL 331816 (N.D. CAL. SEPT. 01, 2021)

US006611231B2

(12) **United States Patent**
Crilly, Jr. et al.

(10) **Patent No.: US 6,611,231 B2**
(45) **Date of Patent: Aug. 26, 2003**

(54) **WIRELESS PACKET SWITCHED COMMUNICATION SYSTEMS AND NETWORKS USING ADAPTIVELY STEERED ANTENNA ARRAYS**

(75) Inventors: **William J. Crilly, Jr.**, Liberty Lake, WA (US); **Ken Biba**, San Fransciso, CA (US); **Robert J. Conley**, Liberty Lake, WA (US)

(73) Assignee: **Vivato, Inc.**, San Francisco, CA (US)

(*) 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.: **09/976,246**

(22) Filed: **Oct. 12, 2001**

(65) **Prior Publication Data**

US 2002/0158801 A1 Oct. 31, 2002

Related U.S. Application Data

(60) Provisional application No. 60/287,163, filed on Apr. 27, 2001.

(51) **Int. Cl.**[7] **G01S 3/16**; G01S 3/28

(52) **U.S. Cl.** **342/378**; 370/310.1; 370/310.2; 370/902; 370/903; 370/905; 370/913

(58) **Field of Search** ..... 842/379, 378; 370/310.1, 310.2, 902, 903, 905, 913, FOR 110

(56) **References Cited**

U.S. PATENT DOCUMENTS

2002/0105961 A1 * 8/2002 Hottinen et al. 370/442

FOREIGN PATENT DOCUMENTS

WO WO 00/72464 A1 * 11/2000 ..... H04B/7/06

OTHER PUBLICATIONS

An Overview of Smart Antenna Technology for Mobile Communications Systems, P.H. Lehne et al., IEEE Communications Surveys, http://www.comsoc.org/pubs/surveys, vol. 2(4), p. 2–13, Fourth Quarter 1999.*

Smart Antennas for Dummies, A. Jacobsen, Telenor Business Solutions AS, http://www.telenor.no/fou/publisering/Rapp01/smart_antennas.pdf, Jul. 2000.*

A new adaptive MAC layer protocol for broadband packet wireless networks in harsh fading and interference environments, A.S.Acampora et al., IEEE/ACM Transactions on Networking, vol. 8(3), p. 328–336, Jun. 2000.*

High throughput slotted ALOHA packet radio networks with adaptive arrays, J. Ward et al., IEEE Transactions on Communications, vol. 41(3), p. 460–470, Mar. 1993.*

Carrier–sense protocols for packet–switched smart antenna basestations, C. Sakr et al., 1997 International Conference on Network Protocols, p. 45–52, 1997.*

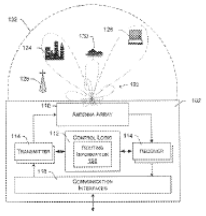
(List continued on next page.)

Primary Examiner—Thomas H. Tarcza
Assistant Examiner—F H Mull
(74) *Attorney, Agent, or Firm*—Lee & Hayes, PLLC

(57) **ABSTRACT**

Methods, apparatuses and systems are provided for use in a wireless routing network. One apparatus, for example, includes an adaptive antenna that is configurable to receive a transmission signal from a transmitter and in response transmit corresponding outgoing multi-beam electromagnetic signals exhibiting a plurality of selectively placed transmission peaks and transmission nulls within a far field region of a coverage area. The adaptive antenna may also be configured to selectively receive at least one incoming electromagnetic signal directed through the coverage area. The adaptive antenna includes at least one antenna array and logic. The antenna array has a plurality of antenna elements. The logic is operatively coupled to the antenna array and configured to selectively control the placement of the transmission peaks and transmission nulls within the outgoing multi-beam electromagnetic signals. The logic may also be configured to selectively control the reception of at least one incoming electromagnetic signal. The logic is configured to be responsive to routing information. Such routing information may be dynamically maintained in one or more routing tables.

66 Claims, 18 Drawing Sheets



1. An apparatus for use in a wireless routing network, the apparatus comprising:

an adaptive antennas;

at least one transmitter operatively coupled to said adaptive antenna;

at least one receiver operatively coupled to said adaptive antenna;

control logic operatively coupled to said transmitter and configured to cause said at least one transmitter to output at least one transmission signal to said adaptive antenna to transmit corresponding outgoing multi-beam electromagnetic signals exhibiting a plurality of selectively placed transmission peaks and transmission nulls within a far field region of a coverage area based on routing information; and

search receiver logic operatively coupled to said control logic and said at least one receiver and configured to update said routing information based at least in part on cross-correlated signal information that is received by said receiver using said adaptive antenna.

XR COMMC'NS, LLC V. RUCKUS WIRELESS, INC., NO. 18-CV-01992-WHO, 2021 BL 331816 (N.D. CAL. SEPT. 01, 2021)

- The Court rejected plaintiff's argument that "search receiver logic" connotes a known class of circuit structures
  - Does not expressly say *Williamson* overrules *Power Integrations* and similar CAFC cases, but that may be an implication of the Court's logic
- That terms may have been used in other fields (electronic warfare, GPS receivers) is not found relevant to this patent, which involves WiFi
- Notes patent defines "logic" broadly to mean "hardware, firmware, software, or any combination thereof …" which is not a specific structure
- Says being coupled to other structures does not make this limitation structural
- Found patent indefinite for failing to disclose sufficient structure

TAKE-AWAYS

- It can be hard to predict what district courts will do when faced with functional claim language
- Avoid use of “nonce words” that may trigger analysis under Section 112(f): "mechanism for," "module for," "device for," "unit for," "component for," "element for," "member for," "apparatus for," "machine for," or "system for.“
- Know that even technical terms may trigger 112(f), e.g., “code for,” “processor for,” “computer for”
- Be aware that many verbs can trigger 112(f): “adapted to,” “configured to,” “operable to,” etc.
- Best protection is to include clear structures (i.e., algorithms) in the specification to perform any recited functions

IS AN “ALGORITHM” ALWAYS REQUIRED?

QUALCOMM INC. V. INTEL CORP., 6 F.4TH 1256 (FED. CIR. 2021)

28. An apparatus comprising:

- **means for determining** a single power tracking signal based on a plurality of in-phase (I) and quadrature (Q) components of a plurality of carrier aggregated transmit signals being sent simultaneously, wherein a power tracker receives the plurality of I and Q components corresponding to the plu-rality of carrier aggregated transmit sig-nals and generates the single power tracking signal based on a combination of the plurality of I and Q components, wherein the plurality of carrier aggregated transmit signals comprise Orthogonal Frequency Division Multiplexing (OFDM) or Single Carrier Frequency Division Multiple Access (SC-FDMA) signals;
- means for generating a single power supply voltage based on the single power tracking signal; and
- means for receiving the single power supply voltage and the plurality of carrier aggregated transmit signals being sent simultaneously and producing a single output radio frequency (RF) signal.

QUALCOMM INC. V. INTEL CORP., 6 F.4TH 1256 (FED. CIR. 2021)

- The Board determined the function to be, in short, "determining a single power tracking signal."
- The Board identified power tracker 582, which it found to be a circuit rather than a computer, as the corresponding structure
- Qualcomm argues that the corresponding structure, in addition to the integrated circuit on which the power tracker may be implemented, must include algorithms for programming that circuit.
- Holding: "our case law does not require a specific algorithm when the identified structure is not a general-purpose computer or processor."
- "electrical arts [can] rely on circuitry as the corresponding structure for their means-plus-function claim limitations."

INTERPLAY WITH SECTION 101

ALICE CORP. PTY. LTD. V. CLS BANK INT'L, 573 U.S. 208 (2014)

- Abstract ideas have long been held to be ineligible for patenting
- Alice established the two-step test currently used for patent eligibility of computer software inventions:
  - Step 1: determine if the claims are directed to an abstract idea
  - Step 2: determine whether the claims contain an "inventive concept" sufficient to transform the claimed abstract idea into a patent-eligible application.

ALICE CORP. PTY. LTD. V. CLS BANK INT'L, 573 U.S. 208 (2014)

1. A data processing system to enable the exchange of an obligation between parties, the system comprising:

- a data storage unit having stored therein information about a shadow credit record and shadow debit record for a party, independent from a credit record and debit record maintained by an exchange institution;
- and **a computer**, coupled to said data storage unit, that is **configured to** (a) receive a transaction; (b) electronically adjust said shadow credit record and/or said shadow debit record in order to effect an exchange obligation arising from said transaction, allowing only those transactions that do not result in a value of said shadow debit record being less than a value of said shadow credit record; and (c) generate an instruction to said exchange institution at the end of a period of time to adjust said credit record and/or said debit record in accordance with the adjustment of said shadow credit record and/or said shadow debit record, wherein said instruction being an irrevocable, time invariant obligation placed on said exchange institution.

ALICE CORP. PTY. LTD. V. CLS BANK INT'L, 573 U.S. 208 (2014)

- "Petitioner's claims to a computer system and a computer-readable medium fail for substantially the same reasons [as its method claims]. … As to its system claims, petitioner emphasizes that those claims recite 'specific hardware' configured to perform 'specific computerized functions.' But what petitioner characterizes as specific hardware—a 'data processing system' with a 'communications controller' and 'data storage unit' … **is purely functional and generic.** Nearly every computer will include a 'communications controller' and 'data storage unit' capable of performing the basic calculation, storage, and transmission functions required by the method claims. As a result, none of the hardware recited by the system claims offers a meaningful limitation beyond generally linking the use of the method to a particular technological environment, that is, implementation via computers."

INTERVAL LICENSING LLC V. AOL INC., 896 F.3D 1335 (FED. CIR. 2018)

18. A computer readable medium, for use by a content display system, encoded with one or more computer programs for enabling acquisition of a set of content data and display of an image or images generated from the set of content data on a display device during operation of an **attention manager**, comprising:
[1] **acquisition instructions for** enabling acquisition of a set of content data from a specified information source;
[2] **user interface installation instructions for** enabling provision of a user interface that allows a person to request the set of content data from the specified information source;
[3] **content data scheduling instructions for** providing temporal constraints on the display of the image or images generated from the set of content data;
[4] **display instructions for** enabling display of the image or images generated from the set of content data;
[5] **content data update instructions for** enabling acquisition of an updated set of content data from an information source that corresponds to a previously acquired set of content data;
[6] **operating instructions for** beginning, managing and terminating the display on the display device of an image generated from a set of content data;
[7] **content display system scheduling instructions for** scheduling the display of the image or images on the display device;
[8] **installation instructions for** installing the operating instructions and content display system scheduling instructions on the content display system; and
[9] **audit instructions for** monitoring usage of the content display system to selectively display an image or images generated from a set of content data.

INTERVAL LICENSING LLC V. AOL INC., 896 F.3D 1335 (FED. CIR. 2018)

- "The focus of the claims here is directed to 'providing information to a person without interfering with the person's primary activity,' i.e., the result-centric construction of the claimed 'attention manager.'"
- "[T]he act of providing someone an additional set of information without disrupting the ongoing provision of an initial set of information is an abstract idea … found in, for example, a television station's use of a breaking news ticker across the bottom of the screen."
- As part of *Alice* Step 1 analysis: "the content data update instructions, which enable updating the displayed information, are recited **only at the broadest, functional level**, without explaining how that is accomplished, let alone providing a technical means for performing that function."
- Also no improvement at Alice Step 2, so claims were found invalid

UNIV. OF FLA. RESEARCH FOUND., INC. V. GE CO., 916 F.3D 1363 (FED CIR. 2019)

1. A method of integrating physiologic treatment data comprising the steps of:

- receiving physiologic treatment data from at least two bedside machines;
- converting said physiologic treatment data from a machine specific format into a machine independent format within a computing device remotely located from said bedside machines;
- performing at least one programmatic action involving said machine-independent data; and
- presenting results from said programmatic actions upon a bedside graphical user interface.

UNIV. OF FLA. RESEARCH FOUND., INC. V. GE CO., 916 F.3D 1363 (FED CIR. 2019)

- The '251 patent "fails to provide any technical details for the tangible components, . . . **instead predominately describ[ing] the system and methods in purely functional terms**."
- Claim 1 is directed to the abstract idea of “collecting, analyzing, manipulating, and displaying data.”
- The claim merely recites the abstract idea along with the requirement to perform it on a computer
- Patent found invalid under Section 101

SECTION 101 TAKE-AWAYS

- Need to be aware of *Alice* two-part test, and whether claims contain an inventive concept, but more importantly:
- Know that broadly functional language, in addition to raising Section 112 concerns, will also potentially trigger heightened scrutiny under Section 101

QUESTIONS?