

Section 112 and Functional Claiming

APLI Panel

11:15am – Noon on December 9, 2016

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Topics

- Functional Claiming Background
- Invoking 35 USC 112(f)
- Risks of a 112(f) Interpretation
- Review of CAFC and PTAB Decisions
- USPTO 112(f) Guidelines and Trends
- Practice Tips for Patent Drafting and Prosecution

Panel Q&A

- What is functional claiming?
- Is a functional claim that does not invoke 112(f) permissible?
- Why has there been a decrease in “means for” format claims?
- What are the trends at the USPTO regarding applying 112(f)?
- What impact is *Williamson v. Citrix* having on 112(f) interpretations?
- What is the USPTO’s 3-prong test for applying 112(f)?
- What are the risks of a 112(f) interpretation for the patentee?
- What is sufficient structure for supporting 112(f) claims?
- What are best practices for drafting specifications to support functional claims?
- When should patentees recite “means for” format claims?
- What are litigation and/or IPR strategies for functional claims?

Functional Claiming Background

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Halliburton v. Walker (1946)

“A claim which describes the most crucial element in a “new” combination in terms of what it will do, rather than in terms of its own physical characteristics or its arrangement in the new combination, is invalid.”

Functional Claiming Background

Halliburton v. Walker (1946)

- The U.S. Supreme Court found claims invalid that recite functional claim terms, which the Court described as those that focus on results – “what it will do” – and not on the actual physical implementation.
- 35 USC 112 para. 6/(f) expressly overruled this decision.

Functional Claiming Background

- What is functional claiming?
 - “A claim term is functional when it recites a feature ‘by what it does rather than by what it is’ (e.g., as evidenced by its specific structure or specific ingredients). ... There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper.” See [35 USC 2173.05\(g\)](#) and [35 USC 112\(f\)](#)

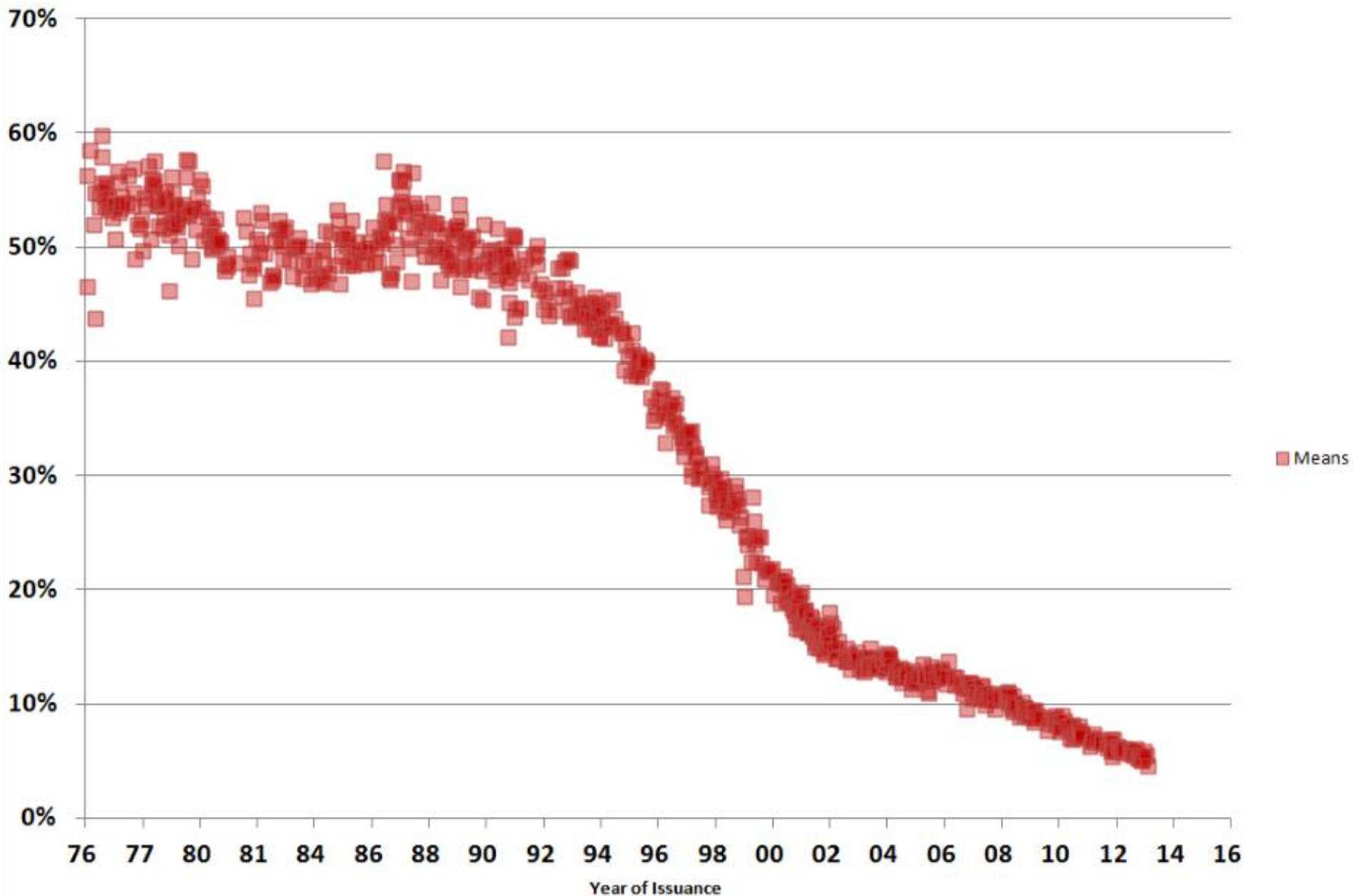
35 USC 112(f)

(f) ELEMENT IN CLAIM FOR A COMBINATION.—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.***

35 USC 112(f)

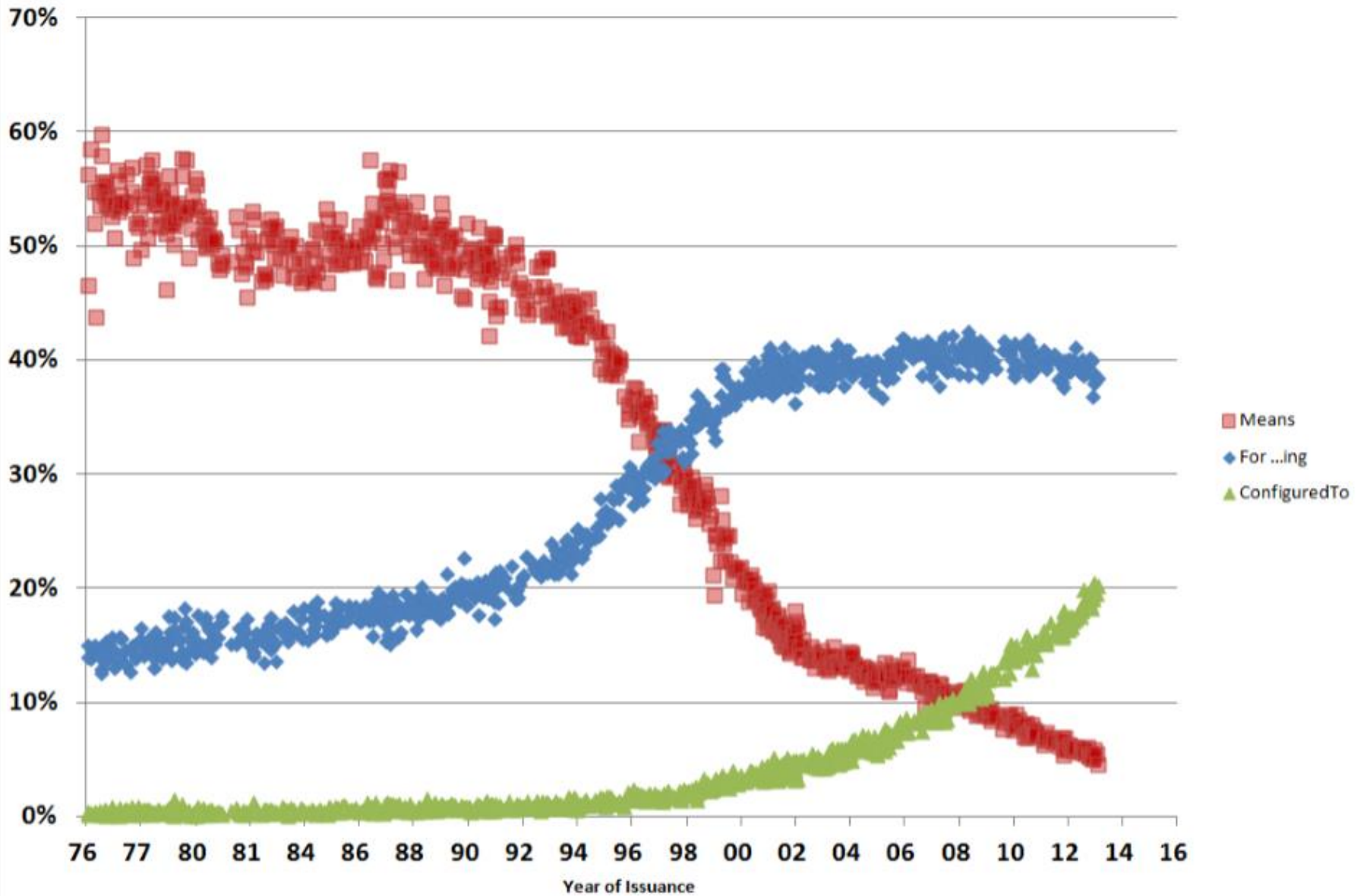
(f) ELEMENT IN CLAIM FOR A COMBINATION.—An element in a claim for a combination may be expressed as a ***means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and [HOWEVER] such claim shall be construed to cover [ONLY] the corresponding structure, material, or acts described in the specification and equivalents thereof.***

Functional Patent Claims



Patently O Blog, January 23, 2014, available at <http://patentlyo.com/>.

Functional Patent Claims



Patently O Blog, January 23, 2014, available at <http://patentlyo.com/>.

Functional Claim Trend Change

- What happened to cause a decline in means format claims?
- [See *In re Donaldson Co.* \(Fed. Cir. 1994\) \(*en banc*\)](#)
 - Holding that a reasonable interpretation of the scope of means (and step)-plus-function limitations is *only made by considering the embodiments disclosed in the specification and their equivalents*

Functional Claim Trend Change

- Will the recent *Williamson* decision be a similar game changer for 112(f) trends?
- [Richard A. Williamson v. Citrix Online, LLC, No. 13-1130 \(Fed. Cir. June 16, 2015\) \(*en banc*\)](#) (eliminates *strong* presumption of not invoking 112(f) if claim does not explicitly recite “means for” or “step for”)
 - *To be discussed further below*

Invoking 35 USC 112(f)

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- “means for” + functional language recited
 - Presumption that 112(f) is invoked
 - The presumption is overcome if sufficient structure to perform the claimed function
- “means for” is not explicitly recited
 - The presumption is overcome when the claim recites (1) generic placeholder for structure, (2) with functional language, and (3) insufficient structure to perform the claimed function

Invoking 35 USC 112(f)

- Means claim example – explicitly recites “means for” language:
 - **Means for [function]** (e.g., determining a router path from a source to a destination)
- Non-means claim example – does not explicitly recite “means for” language:
 - **[Nonce] for [function]** (e.g., determining a router path from a source to a destination)
 - **[Nonce] configured to [function]** (e.g., determining a router path from a source to a destination)

Risks of a 112(f) Interpretation

Risks of a 112(f) Interpretation

- Claim interpreted as invoking 112(f), which may result in a narrower claim interpretation
 - Limited to specification disclosure and equivalents for claimed function(s)
 - *Benefits of a 112(f) claim interpretation?*
 - E.g., prior art must disclose structure or equivalents
 - Patent eligible subject matter benefits?

Risks of a 112(f) Interpretation

- Claim interpreted as invoking 112(f) and the specification is found to
 - lack enablement and/or written description under 35 USC 112(a)
 - be indefinite under 35 USC 112(b)

Risks of a 112(f) Interpretation

- Determining whether a 112(f) is indefinite under 35 USC 112(b)
 - (1) adequate structure in the specification for performing the claimed function? (e.g., *no algorithm described in specification* (see [*Aristocrat* \(Fed Cir. 2008\)](#)))
 - (2) the structure in the specification is not linked to the claimed function (see [*B. Braun Medical* \(Fed. Cir. 1997\)](#)))
 - See [MPEP 2173.02](#)

Review of CAFC and PTAB Decisions

Relevant CAFC Decisions

- [In re Alappat \(Fed. Cir. 1994\)](#) (35 USC 101 patentable subject matter decision for a means for claim – “such programming creates a new machine, because a general purpose computer in effect becomes a ***special purpose computer*** once it is programmed to perform particular functions pursuant to instructions from program software”)

Relevant CAFC Decisions

- [Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech \(Fed. Cir. 2008\)](#) (the corresponding structure must include the **algorithm** needed to transform the general purpose computer or processor disclosed in the specification into the special purpose computer programmed to perform the disclosed algorithm)

Recent Functional Claiming Trends

- Commentators advocating using 35 USC 112 to address functional claims for software related inventions.
- *See, e.g.,* Lemley, Mark A. “Software Patents and the Return of Functional Claiming.” Stanford Public Law Working Paper No. 2117302 Working Paper Series, 2012.

Recent CAFC Decisions

- Functional claiming is not prohibited
 - [Cox v. Sprint \(Fed. Cir. 2016\)](#) (“Claims are not per se indefinite merely because they contain functional language.”)
 - [Halliburton Energy Services Inc. v. MI LLC \(Fed. Cir. 2008\)](#) (“[A]pparatus claims are not necessarily indefinite for using functional language”; “When a claim limitation is defined in purely functional terms, ***the task of determining whether that limitation is sufficiently definite is a difficult one that is highly dependent on context*** (e.g., the disclosure in the specification and the knowledge of a person of ordinary skill in the relevant art area). ***We note that the patent drafter is in the best position to resolve the ambiguity in the patent claims***”)

Recent CAFC Decisions

- [EnOcean v. Face Int'l. \(Fed. Cir. 2014\)](#)
(claim term that conveys *sufficient structure to POSITA* should be seen as a structural limitation rather than one governed by 35 U.S.C. §112¶6)
- E.g., Claim 37: “a ***signal receiver for*** receiving a first electromagnetic signal transmitted by said first signal transmitter;”

Recent CAFC Decisions

- *In re Katz Interactive Call Processing Patent Litig.* (Fed. Cir. 2011) (holding that a standard microprocessor can serve as sufficient structure for “functions [that] can be achieved by any general purpose computer without special programming”)
 - claim terms involving basic “processing,” “receiving,” and “storing” do not need to be “be specially programmed to perform the recited function.”

Recent CAFC Decisions

- [EON Corp. v. AT&T Mobility LLC, No. 14-1392 \(Fed. Cir. May 6, 2015\)](#) (affirming indefiniteness invalidity for failing to disclose software algorithms corresponding to (explicit) means-plus-function claim language and distinguished *In re Katz*).
 - The claims in *Eon Corp.* were indefinite, because a general purpose microprocessor could not perform the functions claimed, such as “causing selected themes to automatically display a second menu” without special programming (*not* disclosed in specification).

Recent CAFC Decisions

- [*Robert Bosch, LLC v. Snap-On Inc.* \(Fed. Cir. 2014\)](#) (affirming claim limitations as indefinite after determining that the claims invoke 35 U.S.C. § 112(f), even though the “means” not explicitly recited in the claims)
- Claim 1: “External diagnostic tester for motor vehicles *a program recognition and program loading device* ... to obtain the current program version that applies for the control unit connected to the diagnostic tester and to store it there”

Recent CAFC Decisions

- [Richard A. Williamson v. Citrix Online, LLC \(Fed. Cir. 2015\) \(en banc\)](#) (eliminates *strong* presumption of not invoking 112(f) if claim does not explicitly recite “means for” or “step for”)
 - *But it is still a presumption that if claims do not recite means/step for that 112(f) not invoked*
 - *BRI implications at the US Patent Office during patent prosecution or AIA trials given this presumption?*

Recent CAFC Decisions

Citrix – continued

Claim 8 excerpt:

“a distributed learning control module [NONCE] for [1] receiving communications transmitted between the presenter and the audience member computer systems and for [2] relaying the communications to an intended receiving computer system and for [3] coordinating the operation of the streaming data module.”

Recent CAFC Decisions

Citrix – continued

- 112 para. 6 invoked – *nonce for*:

“[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-in question or otherwise impart structure to the “distributed learning control module” as recited in the claim.”

Recent CAFC Decisions

Citrix – continued

- Specification lacks corresponding structure – *no algorithm(s) disclosed for 3 recited functions*:

“A special purpose computer is required because ***the distributed learning control module has specialized functions*** as outlined in the written description. See, e.g., '840 patent col.5 ll.48–64.”

“[T]his court has consistently required that the structure disclosed in the specification be ***more than simply a general purpose computer*** or microprocessor. E.g., Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech. ... (Fed. Cir. 2008)”

Recent PTAB Decisions

Key BPAI/PTAB Decisions Involving Functional Claiming

- claim language ivo 35 USC 112(f) and 112(a)/(b)

See [USPTO list of PTAB decisions](#) (including Precedential Opinions and Informative Opinions from patent prosecution appeals and representative AIA Trial Decisions (IPR/CBM))

Recent PTAB Decisions

Precedential Opinions

- Decisions reviewing functional claim language under 35 U.S.C. § 112
- [Ex Parte Miyazaki](#) (November 19, 2008) [PDF]
- [Ex Parte Catlin](#) (February 3, 2009) [PDF]
- [Ex Parte Gutta](#) (August 10, 2009) [PDF]
- [Ex Parte Rodriguez](#) (October 1, 2009) [PDF]

PTAB Precedential Decisions

- The Board has a software issues committee to identify and discuss cases of interest related to software appeals and trials, particularly concerning functional claiming and issues under 35 U.S.C. §§ 101 and 112.
- Every Board opinion is, by default, a routine opinion until it is designated as precedential or informative. PTAB Standard Operating Procedure 2, Rev. 8 § V.A. (August 12, 2013). Opinions designated as precedential are binding on the PTAB. The purpose of a precedential opinion is to create a consistent line of authority as to a holding that is to be followed in future Board decisions. Informative and Representative opinions are not binding, but illustrate norms of Board decision-making.
- For more information about Trial Practice at the PTAB, [click here](#).

Recent PTAB Decisions

- [Ex Parte Myazaki \(BPAI 2008\)](#) (indefinite)
 - Claim 1 – a printer comprising: a *paper feeding unit operable to feed* at least one roll of paper, at least one substantially flat sheet of paper and at least one stiff carton, **the paper feeding unit being located at a height that enables a user, who is approximately 170 cm tall, standing in front of the printer** to execute the paper feeding process
 - Specification *fails to impose a positional relationship between user and printer*, and an infinite number of combinations of printer and user positions could be imposed and the specification does not impose structural limitation

Recent PTAB Decisions

Informative Opinions

- Decisions interpreting 'processor for' and/or means-plus-function claim language under 35 U.S.C. § 112
- [Ex Parte Lakkala](#) (March 13, 2013)
- [Ex Parte Erol](#) (March 13, 2013)
- [Ex Parte Smith](#) (March 14, 2013)
- [Ex Parte Cadarso](#) (April 26, 2013)

Recent PTAB Decisions

- *Ex Parte Smith* (PTAB 2013) (indefinite)

Claim 1: **A computer system comprising:**

- memory; and
- **a processor in communication with the memory, the processor programmed to:**
 - receive, from a user, a first review of an asset;
 - store the first review of the asset in association with a user identifier in a memory device;
 - receive, from the user, a second review of the asset;
 - store the second review in association with the first review and the user identifier in a memory device; and
 - **generate an opinion timeline for the asset for the user associated with the user identifier.**

Recent PTAB Decisions

Ex Parte Smith – continued

- PTAB held that the term “processor” would be recognized to mean a general purpose computer.
- The term “**processor**” also appears in claim 1 by itself without a structural modifier, ... is a **nonce word** that is not recognized as the name of structure.
- “We are not convinced that the disclosure of a CPU or a GPU (FF2) is sufficient structure for generating an opinion timeline or performing the other functions recited by the “processor” limitation without additional programming.”
- The Specification does *not* disclose ***how to generate an opinion timeline for the asset for the user associated with the user identifier***, as recited in claim 1, just includes a flow chart illustrating a five-step process for creating an opinion timeline that just restates the 5 claimed functions as recited in claim 1.
- Claim 1 invalid under 35 U.S.C § 112 ¶ 1 as indefinite.

Informative AIA Trial Decisions

Inter Partes Reviews

- [IPR2013-00016 Research In Motion Corp. v. Mobile Media Ideas LLC. Decision to Institute, Paper 16](#) (March 18, 2013)
- [IPR2013-00152 Universal Remote Control, Inc. v. Universal Electronics, Inc. Decision Denying Institution, Paper 8](#) (August 19, 2013)

Informative AIA Trial Decisions

Covered Business Method Reviews

- [CBM2012-00001 SAP America v. Versata Development Group, Inc. Final Decision, Paper 70](#) (June 11, 2013)

USPTO 112(f) Guidelines and Trends

USPTO 112(f) Examination Guidelines and Training Materials

- 35 USC 112(f): Evaluating § 112(f) Limitations in Software-Related Claims for Definiteness under 35 USC 112(b)
- 35 USC 112(f): Identifying Limitations That Invoke 112(f)
 - See <http://www.uspto.gov/patent/laws-and-regulations/examination-policy/examination-guidance-and-training-materials> (e.g., examples of non-means claims that should be interpreted as invoking 112(f))

USPTO 112(f) Guidelines

- Examining Functional Claim Limitations: Focus on Computer/Software-related Claims
 - See <http://www.uspto.gov/patent/laws-and-regulations/examination-policy/examination-guidance-and-training-materials> (e.g., for USPTO's goal to provide a *clear prosecution record by explaining claim interpretation of functional claim limitations* and ensuring *functional claims have clear boundaries*)

USPTO's 3-prong Test for Means Claims

Following [MPEP 2181\(I\)](#), a claim limitation should be interpreted according to 112(f) if it meets the following 3-prong analysis:

1. The claim limitation uses the phrase “means” or a term used as *a substitute for* “means” that is a generic placeholder;
2. The phrase “means” or the substitute [NONCE] term is modified by *functional language*, typically linked by the transition word “for” (e.g., “means for”) or another linking word; and
3. The phrase “means” or the substitute term is *not* modified *by sufficient structure or material for performing the claimed function*.

USPTO Guidance for Computer Implemented Functions

- Specialized v. non-specialized computer-implemented functions
 - ***Specialized computer functions*** refer to functions that require “special programming” for a general purpose computer
 - ***Non-specialized computer functions*** refer to functions that are understood as being commonly performed by a general purpose computer by a POSITA
 - e.g., means/nonce for receiving/sending/storing data

USPTO Guidance for Computer Implemented Functions

- Non-specialized computer-implemented functions
 - Example system claim formats to recite non-specialized computer functions that do not invoke 112(f)?
 - Does a claim format such as the following invoke 112(f): processor configured to perform [function]?
 - *See Katz*

Computer Implemented Functions

- Specialized computer-implemented functions
 - Specification requirements for supporting specialized computer functions recited in the claims?
 - *Is the general purpose computer/component sufficient structure?*
 - *Is a step-by-step description of the algorithm and/or a flow chart sufficient structure?*
 - *See Alappat and WMS Gaming and compare Noah Systems v. Intuit (Fed. Cir. 2012)*

USPTO Clarity of the Record Pilot

For claim interpretation:

- documenting all 35 USC 112(f) presumptions on the record
- explaining how the presumptions were overcome
- identifying on the record the structure in the specification that performs the function
- when a prior reference is used to reject multiple claims, clearly addressing specific limitations in each claim that is anticipated by the art
- “As a result of this pilot, we found there is progress to be made in the treatment of 35 USC 112(f) limitations, interview summaries, and reasons for allowance, while our highest clarity was in the area of 35 USC 102 and 103 rejections. Going forward, we plan to continue increasing clarity in all aspects of our practice.”

USPTO OA Trends

- Increasing number of Office Actions that are applying these new functional claim guidelines for software/computer related inventions?
 - Claim interpretation under 112(f) in Office Actions?
 - No rejection or objection.
 - Rejection based on a combination of 112(f) and 112(a)/(b)?

Practice Tips for Patent Drafting and Prosecution

Practice Guidance

- Drafting claims that do not invoke 112(f)
- No bright line rules and no magic claim language or template that can necessarily avoid invoking 112(f) if claim terms recite functional language
 - Programmed computer for [function]
 - Processor for [function]
 - Circuit for [function]
 - Module for [function]
 - Component for [function]

Practice Guidance

- Drafting claims that do not invoke 112(f)
 - Do not explicitly recite “means” or “step” for plus a claimed function
 - Explicitly recite “means” or “step” for plus a claimed function in other claims in the patent or continuation(s)
 - Varying claim scope and strategies for a potential claim differentiation benefit or at least different potential claim scope interpretations?

Practice Guidance

- Drafting claims that do not invoke 112(f)
 - avoid using coined terms that do not connote structure to a POSITA
 - for functional claim elements at the ***point of novelty***, which may be deemed to be ***specialized*** functions
 - recite each sub-step (e.g., well-known ***non-specialized*** operations) for implementing that function in independent or dependent claims

Practice Guidance

- Draft specifications to have sufficient disclosure in case of 112(f) interpretations
 - technical description for implementing and linking of claimed functions in specification
 - see [*Braun Medical, Inc. v. Abbott Lab.* \(Fed. Cir. 1997\)](#)
 - e.g., algorithm (process) must be explained if not an off the shelf (OTS) component, see [*Function Media v. Google* \(Fed. Cir. 2013\)](#) (“the PGP is merely a black box that accomplishes the claimed function” and “having failed to provide any disclosure of the structure for the function, FM cannot rely on the knowledge of one skilled in the art to fill in the gaps”)
 - Flow diagrams and text description in the specification can be sufficient for computer implemented inventions

Practice Guidance

- Drafting specifications (*continued*)
 - describe how functional components interact, *see Citrix*
 - list/describe any existing/foreseeable alternative algorithms and examples,
 - e.g., 112(f) equivalents scope based on disclosed and linked structures, *see also* DOE discussion *infra*
 - draft specification to support (option for) explicit means/step for claims
 - e.g., include explicit MPF claims in original or continuation application

Practice Guidance

- Invention Disclosure Meetings
 - For each function/component for implementing the invention, verify with the inventor(s) whether such is an OTS or custom/special programming component
 - For OTS components, obtain specific examples
 - For custom/special programming components, drill down to obtain details of an algorithm for implementing that custom/special programming component and/or alternatives/equivalents (e.g., flow diagram, text/pseudo code description in the specification linked to that function/component) and how any such functional components interact

USPTO OA Example 1

- OA states that claim 1 (system claim using standard template format) invokes 35 USC 112(f)
- OA states that claim 1 has sufficient specification support for purposes of 35 USC 112(a)(b) and cites to one or more paragraphs/figures of the specification
- *Suggestions on how to respond?*

USPTO OA Example 2

- OA states that claim 1 (system claim using standard template format) invokes 35 USC 112(f)
- OA states that claim 1 inadequate specification support for purposes of 35 USC 112(a) (e.g., lack of written description/enablement) or 35 USC 112(b) (e.g., indefinite)
- *Suggestions on how to respond?*

Future Trends – 101 and 112

Are broad functional claims abstract under 35 USC 101?

- See [Halliburton v. Walker \(1946\)](#) (“A claim which describes the most crucial element in a “new” combination in terms of what it will do, rather than in terms of its own physical characteristics or its arrangement in the new combination, is invalid.”)

and

Future Trends – 101 and 112

- see [Amdocs v. Openet \(Fed. Cir. 2016\)](#) (“The dissent offers a different paradigm for identifying an abstract idea: “it is apparent that a desired goal (i.e., a ‘result or effect’), absent structural or procedural means for achieving that goal, is an abstract idea.” Dissent at 6– 7. The dissent focuses on the difference between ‘means’ and ‘ends.’ Id. at 6.”).
- See also [Internet Patents Corp. v. Active Networks](#) (Fed. Cir. 2015) (e.g., finding that a functional claim element at point of novelty is an abstract idea).

Future Trends – 101 and 112

- Intersection of 35 USC 101 and 112 jurisprudence and practice
 - Rejection(s) based on 112(f) and implications for 101?
 - Rejection(s) based on 101 and implications for 112(f)?
 - Is a 112(f) interpretation desired to overcome a 101 rejection?
 - See [*In re Alappat* \(Fed. Cir. 1994\)](#)

Litigation Strategies

- Litigation strategies for 35 USC 112(f)
 - Consider potential 112(f) interpretations for any functional claim elements/terms
 - Non-infringement strategies
 - Narrower interpretation strategies
 - Design around options
 - (In)validity strategies
 - in combination with 35 USC 112(a)/(b)
 - in combination with 35 USC 101
 - *Narrower interpretations may support validity*

35 USC 112(f) and IPRs

- As the petitioner...
 - if possible, argue both:
 - claim indefiniteness for lack of disclosed structure
 - prior art invalidity
 - If the panel finds sufficient structure, proceed with prior art invalidity
 - If the panel agrees the claim is indefinite
 - will not institute on the MPF claim...
 - but will state in the decision that they agree no corresponding structures were disclosed!

35 USC 112(f) and IPRs

- As the patent owner...
 - the broadest reasonable interpretation of the MPF claim is statutorily defined as:
 - disclosed structures corresponding to the function
 - equivalents thereof

DOE vs. MPF Equivalents

- [Ring & Pinion v. ARB \(Fed. Cir. 2014\)](#)
 - no foreseeability bar/practitioner drafting estoppel per *Sage Products*
 - but there are still differences
 - timing
 - 112(f): evaluated at time of issuance
 - DOE: evaluated at time of infringement
 - function
 - 112(f): must be the identical function
 - DOE: substantially the same function in substantially the same way with substantially the same results

DOE vs. MPF Equivalents

- *Ring & Pinion v. ARB* (Fed. Cir. 2014)
 - Literal infringement of MPF claim
 - after-arising technology
 - 112(f): no
 - DOE: yes
 - known technology of identical function
 - 112(f): yes
 - DOE: yes

DOE vs. MPF Equivalents

- [Ring & Pinion v. ARB \(Fed. Cir. 2014\)](#)
 - Can you get DOE on top of the MPF claim?
“non-infringement under § 112(f)...on the lack of identical function...does not preclude a finding of equivalence under the doctrine of equivalents.”

Questions