

## **Software Patents: Enablement, Definiteness, Means Plus Function, Step Plus Function, On Sale, Public Use**

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THURSDAY, MARCH 12, 2020

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Today's faculty features:

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Shu Chen, Ph.D., Attorney, **Bass Berry & Sims**, Washington, D.C.

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# Software Patents: Enablement, Definiteness, Means Plus Function, Step Plus Function, On Sale, Public Use

**March 12, 2020**

**Michael L. Kiklis**

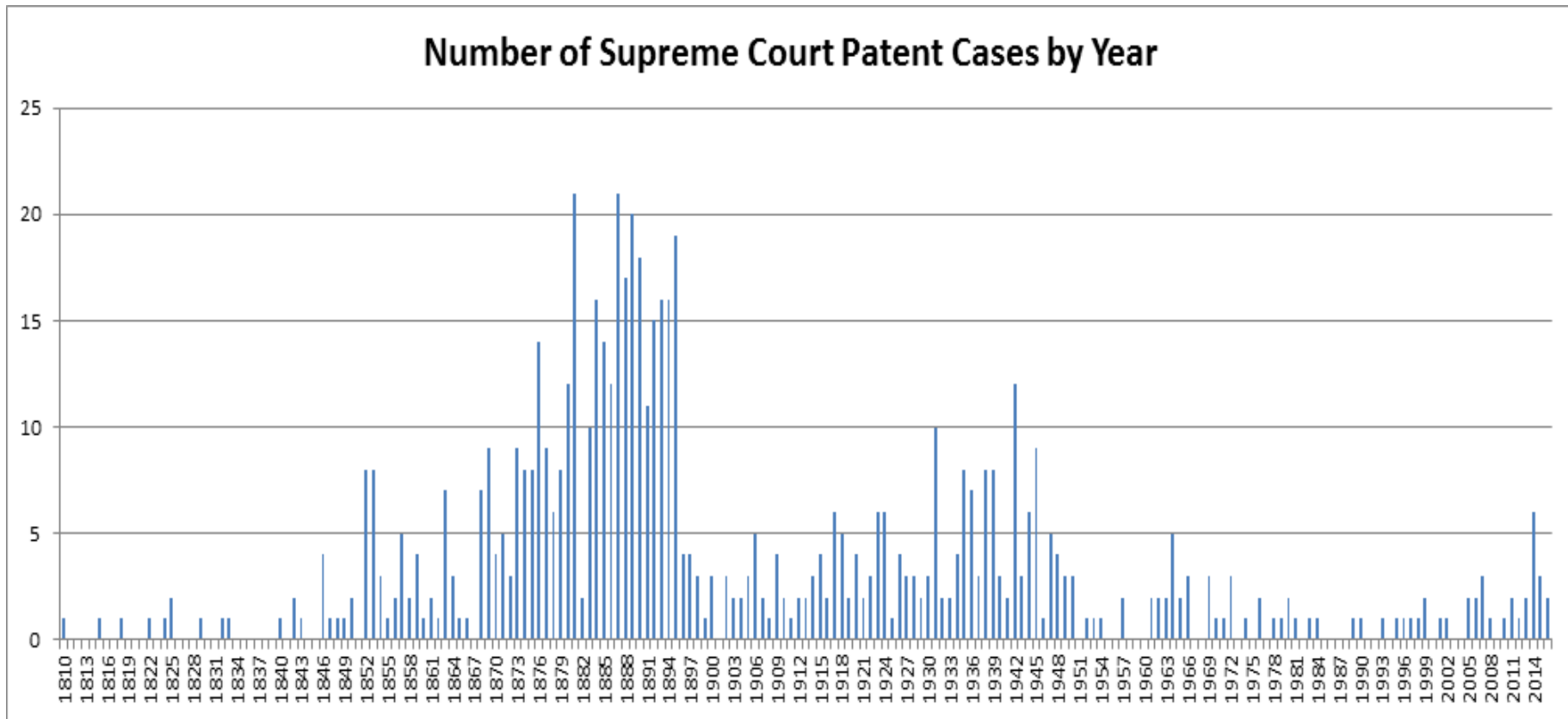
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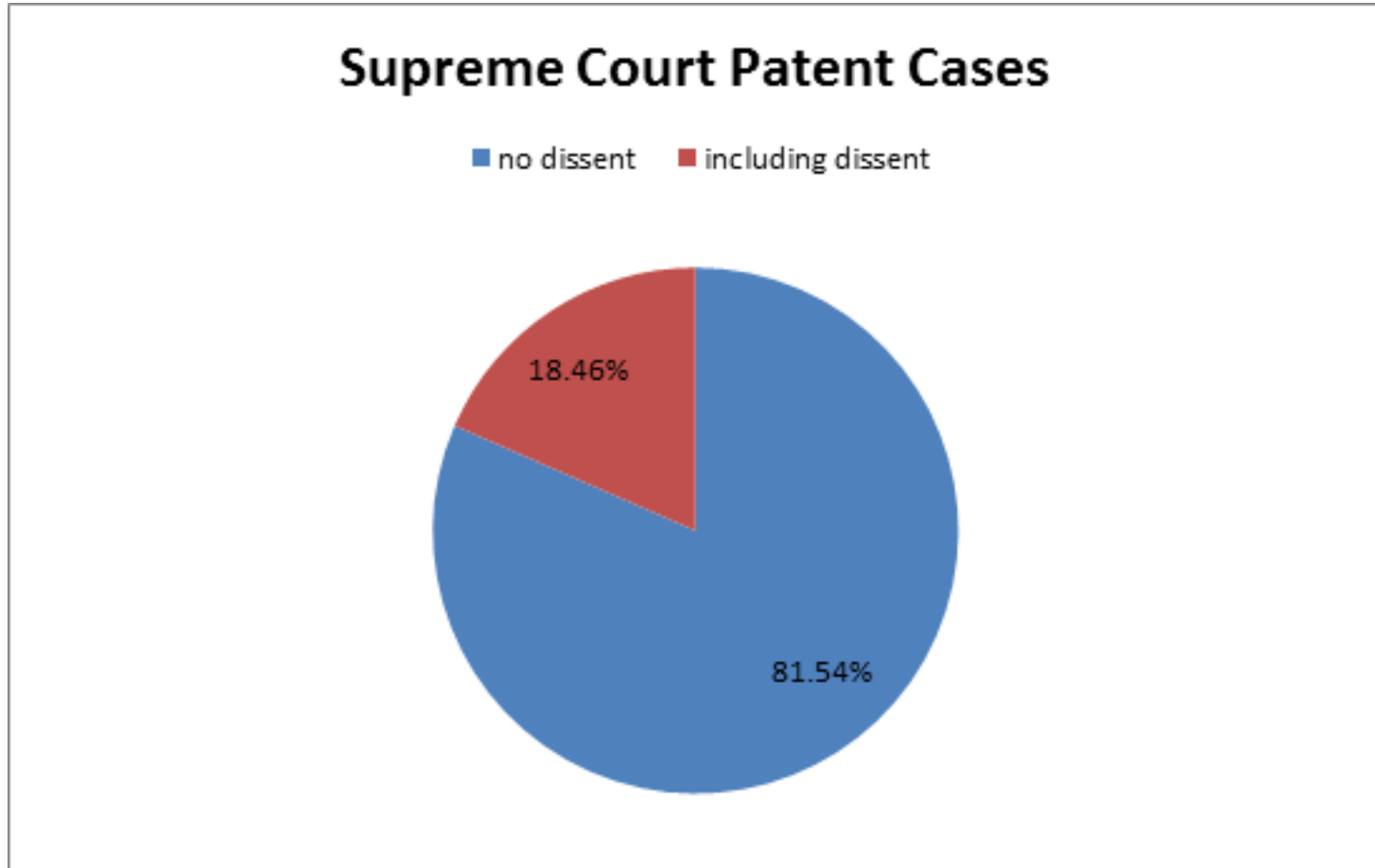
# The Supreme Court's historical treatment of patent law

## Number of Supreme Court Patent Cases by Year



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# The Supreme Court's historical treatment of patent law

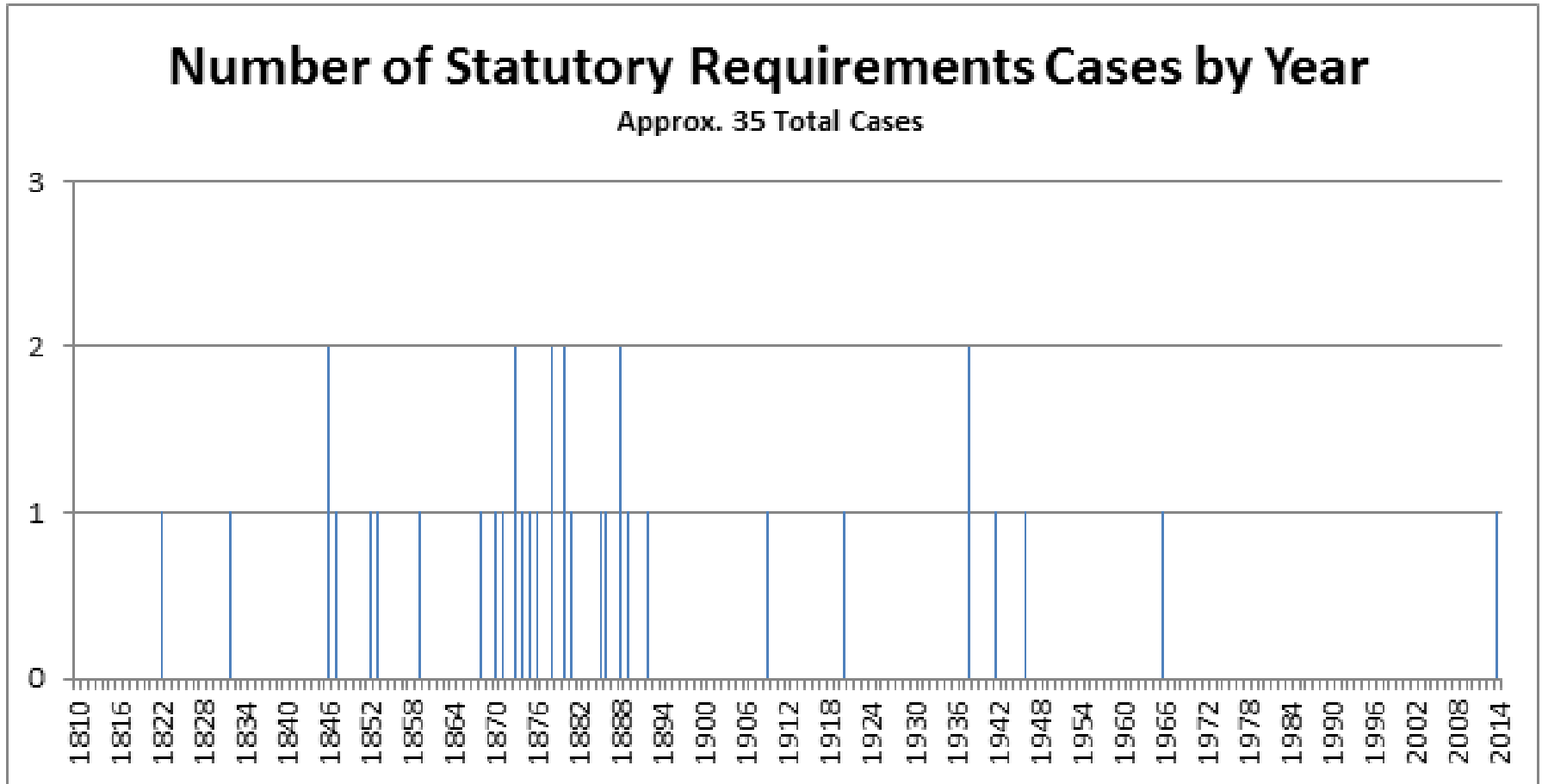


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# Statutory Requirements



# Statutory Requirements

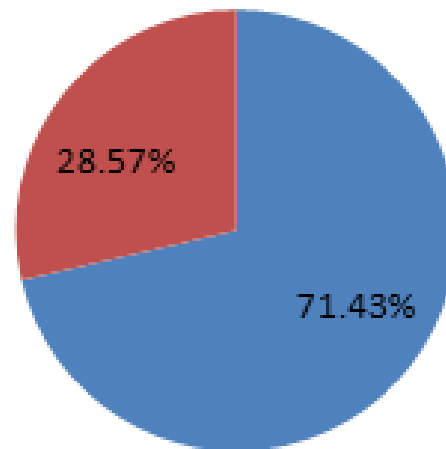


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# Statutory Requirements

## Statutory Requirements Supreme Court Cases

■ no dissent ■ including dissent



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# Statutory Requirements

- The Supreme Court has rarely considered the statutory requirements, such as:
  - Utility under 35 U.S.C. § 101;
  - Enablement under 35 U.S.C. § 112(a); and
  - Definiteness under 35 U.S.C. § 112(b)
- Before the *Nautilus v. Biosig* decision, the Supreme Court had not considered such a case in approximately fifty years.

# 35 U.S.C. § 112

# Definiteness

# Definiteness

- 35 U.S.C. 112 ¶ 2/(¶ b):
  - This section requires that the claims of a patent must “particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention.”
  - The claims of a patent should state the components with “clearness and precision” and “not leave the person attempting to use the discovery to find it out by experiment.” *Tyler v. City of Boston*, 74 U.S. 327, 330-31 (1868).
  - Claim limitations described only functionally, without requisite structure in the specification, may also be deemed too broad, vague, or ambiguous to meet the requirements. See *Gen. Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 372-75 (1938); *Halliburton Oil Well Cementing Company v. Walker*, 329 U.S. 1, 8-12 (1946)
  - The claims should be “sufficiently precise to permit a potential competitor to determine whether or not he is infringing.” *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470 (Fed. Cir. 1993).

# Definiteness at the Supreme Court

# Definiteness

The growth of the patent system in the last quarter of a century in this country has reached a stage in its progress where the variety and magnitude of the interests involved require accuracy, precision, and care in the preparation of all the papers on which the patent is founded. . . . It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.



# Definiteness

The growth of the patent system in the last quarter of a century in this country has reached a stage in its progress where the variety and magnitude of the interests involved require accuracy,

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## ***Merrill v. Yeomans (1876)***

what he has invented, and for what he claims a patent.

# Nautilus v. Biosig (2014)

- Issue:
  - Definiteness of claimed “spaced relationship”
- Holding at Federal Circuit:
  - Claims were not indefinite because they were not “insolubly ambiguous”
- Decided:
  - June 2, 2014
- Questions presented:
  - “Does the Federal Circuit's acceptance of ambiguous patent claims with multiple reasonable interpretations - so long as the ambiguity is not “insoluble” by a court - defeat the statutory requirement of particular and distinct patent claiming?”
  - “Does the presumption of validity dilute the requirement of particular and distinct patent claiming?”

# Nautilus v. Biosig (cont'd)

## ■ Holding:

- Supreme Court vacated and remanded to Federal Circuit to consider the patent under the proper test.
- It is ok to have a “modicum of uncertainty”.
- A “patent must be precise enough to afford clear notice of what is claimed . . .”
- The inquiries whether claims were “amenable to construction” or “insolubly ambiguous” “lack the precision §112, ¶2 demands.”
- A “patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”
- “The standard adopted here mandates clarity, while recognizing that absolute precision is unattainable.”

# Nautilus v. Biosig (cont'd)

## ■ Holding (cont'd):

- The “presumption of validity does not alter the degree of clarity that § 112, ¶2 demands . . . to the contrary, it incorporates [it] by reference.”
- “The parties nonetheless dispute whether factual findings subsidiary to the ultimate issue of definiteness trigger the clear-and-convincing-evidence standard and, relatedly, whether deference is due to the PTO's resolution of disputed issues of fact. We leave these questions for another day.”

# Definiteness at the Federal Circuit

# *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372 (Fed. Cir. 2018)

- Patent claims were directed to an application-aware resource allocator that allocates bandwidth resources to transmit information from software applications over a packet-switched network.
- The claims included “optimizing” “Quality of Service” (“QoS”) requirements.
- The Court held QoS was indefinite because they were “entirely subjective and user-defined,” which the patent analogized to a “continuum, defined by what network performance characteristic is most important to a particular user” and “a relative term, finding different meanings for different users.”

# *MasterMine Software, Inc. v. Microsoft Corporation*, 874 F.3d 1307 (Fed. Cir. 2018)

- Patent claims “disclose methods and systems “that allow[] a user to easily mine and report data maintained by a customer relationship management (CRM) application”.
  - Relevant language of system claim 8:
    - “wherein the reporting module installed within the CRM software application presents a set of user-selectable database fields as a function of the selected report template, receives from the user a selection of one or more of the user-selectable database fields, and generates a database query as a function of the user selected database fields.”
- The Federal Circuit held that “these claims are simply apparatus claims with proper functional language,” overturning the district court’s conclusion the claims were improperly claiming both a method and apparatus.

- The corresponding structure of a means plus function limitation must be disclosed and described in accordance with § 112(a) (*Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1381 (Fed. Cir. 1999)).
- For software implemented inventions an algorithm must be disclosed for performing the claimed function (*Noah Systems, Inc. v. Intuit, Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012)).



# Definiteness at the PTAB

# 35 U.S.C. 112, ¶ 2 at the PTAB

- IPR challenges are limited to §§ 102/103.
  - If claim is indefinite, PTAB may not institute IPR.
  - Petitioners should be wary of alleging indefiniteness in petitions.
  - Petitioners should also consider its proposed constructions in parallel district court proceedings that may hinge on indefiniteness.
- PGR and CBM challenges, however, may include §112.

# 35 U.S.C. 112 in IPR Proceedings

- *Samsung Elecs. Am., Inc. v. Prisia Eng'g Corp.*, No. 2019-1169, 2020 WL 543427, at \*3 (Fed. Cir. Feb. 4, 2020)
  - “A petition for inter partes review, for example, can request cancellation of claims ‘only on a ground that could be raised under section 102 or 103 [of the Patent Act] and only on the basis of prior art consisting of patents or printed publications.’ 35 U.S.C. § 311(b).”
  - “The statutory provisions governing the inter partes review process do not permit the Board to institute inter partes review of claims for indefiniteness.”

35 U.S.C. § 311. Inter partes review

(b) Scope.—

A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.

# 35 U.S.C. 112 in IPR Proceedings

- *Samsung Elecs. Am., Inc. v. Prisia Eng'g Corp* (cont'd)
  - The Patent Office would be acting “outside its statutory limits” by “canceling a patent claim for ‘indefiniteness under § 112’ in inter partes review.” *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2141–42 (2016).
  - The Board is not authorized to address challenges to patent eligibility under 35 U.S.C. § 101 in an IPR proceeding: “Congress expressly limited the scope of inter parties review to a subset of grounds that can be raised under 35 U.S.C. §§ 102 & 103.” *Neptune Generics, LLC v. Eli Lilly & Co.*, 921 F.3d 1372, 1378 (Fed. Cir. 2019).
  - “Under section 318(b) ... the Board’s authority with respect to new and amended claims [in an IPR proceeding] necessarily extends to other possible grounds of unpatentability, in particular, a failure to comply with section 112.”

# 35 U.S.C. 112 in IPR Proceedings

- *Samsung Elecs. Am., Inc. v. Prisia Eng'g Corp* (cont'd)
  - “The term ‘digital processing unit’ in claim 11 is not a ‘means-plus-function’ limitation subject to analysis under 35 U.S.C. § 112, ¶ 6. Because the reference to the digital processing unit does not contain the words ‘means for,’ there is a rebuttable presumption that section 112, paragraph 6, does not apply to that limitation.”
  - “The question whether the term ‘digital processing unit’ invokes section 112, paragraph 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter’s choice not to employ the word ‘means.’”
  - “The term ‘digital processing unit’ clearly serves as a stand-in for a ‘general purpose computer’ or a ‘central processing unit,’ each of which would be understood as a reference to structure in this case, not simply any device that can perform a particular function.”

# 35 U.S.C. 112 in IPR Proceedings

- *Samsung Elecs. Am., Inc. v. Prisia Eng'g Corp* (cont'd)
  - Indefinite claims “does not necessarily preclude the Board from addressing the patentability of these claims on section 102 and 103 grounds.”
  - “The proper course for the Board to follow, if it cannot ascertain the scope of a claim with reasonable certainty for purposes of assessing patentability, is to decline to institute the IPR or, if the indefiniteness issue affects only certain claims, to conclude that it could not reach a decision on the merits with respect to whether petitioner had established the unpatentability of those claims under sections 102 or 103.”

# 35 U.S.C. 112, ¶ 2 in IPR Proceedings

- *Micron Tech., Inc. v. Innovative Memory Systems, Inc.*, IPR2016-00324, 2016 WL 5027747 (June 13, 2016):
  - “If the scope and meaning of the claims cannot be determined without speculation, the differences between the challenged claims and the prior art cannot be ascertained...In other words, ‘[w]ithout ascertaining the proper claim scope, we cannot conduct a necessary factual inquiry for determining obviousness—ascertaining differences between the claimed subject matter and the prior art.’”

# 35 U.S.C. 112, ¶ 2 in PGR Proceedings

- *Dispersive Networks, Inc. v. Nicira, Inc.*, 2018 WL 6016703 (P.T.A.B. Nov. 15, 2018)
  - PGR where Petitioner argued that “claim 1 is indefinite based on recitation of ‘setting another MP network flow parameter based on the optimal multipath network flow setting’” and “it is not even clear whether this step involves ‘setting another MP network flow parameter’ for ‘the [recited] multipath network flow[,]’ or ‘setting another MP network flow parameter’ for a different multipath network flow.”
  - In light of this disclosure, we agree with Patent Owner that one of ordinary skill in the art would understand “the optimal multipath network flow setting” recited in the “setting” limitation as referring back to the recited “optimal multipath network flow setting” in the “determining” limitation”
  - BUT “we are persuaded that the claim recitation is, more likely than not, indefinite” because it is unclear as to what the “setting another ... parameter” refers. The cited portions of the '815 Patent do not discuss “setting another parameter”; rather, those portions describe updating or changing a parameter that is already set.



# 35 U.S.C. 112, ¶ 2 in PGR Proceedings (Cont'd)

- *Dispersive Networks, Inc. v. Nicira, Inc.*, 2018 WL 6016703 (P.T.A.B. Nov. 15, 2018) (Cont'd)
  - The PTAB also found the recitation related to a “software as a service (SaaS)” application was indefinite because the claim “appears to suggest that either a ‘value’ or a ‘network characteristic’ is communicatively coupling an application to an edge device,” and “it is not at all clear how either ... could communicatively couple an application.”
  - Further, “the claim itself is unclear given its structure. In particular, the claim appears to be missing some punctuation between ‘characteristic’ and ‘communicatively’ and/or needs rewording for parallel structure.”
  - Finally, a claim limitation related to a gateway was indefinite because “if ‘the gateway has no initial setup configuration[,] it is simply unclear how the gateway could possibly ‘use[] the initial setup configuration to automatically create multiple isolated configurations-per-enterprise’” and “the claim contradicts itself in reciting the gateway does not have an initial setup configuration and then uses the initial setup configuration.”

# Enablement

# Enablement

- 35 U.S.C. § 112 includes a requirement that the written description should describe the invention “in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same....”
- This requirement is separate from the written description requirement.

# Enablement at the Supreme Court

# Enablement at the Supreme Court

- In *Tyler v. City of Boston*, the Supreme Court set the standard for determining whether a patent is enabled: the specification must describe the invention with clearness and precision, and not leave the person attempting to use the discovery to find it out by experiment. 74 U.S. 327, 330-31 (1868).

# Enablement at the Supreme Court (Cont'd)

- Like the written description requirement, whether a specification enables one of skill in the art to make and use the invention without undue experimentation is viewed in light of the knowledge that existed in the art at the time of filing. *Lawther v. Hamilton*, 124 U.S. 1, 9 (1888); *Webster Loom Co. v. Higgins*, 105 U.S. 580, 585-86 (1881).
- Those things that are common or well known, are as if they were written out in the patent and delineated in the drawings. *Webster Loom*, 105 U.S. at 586; *Ives v. Hamilton*, 92 U.S. 426, 431 (1875); *Expanded Metal Co. v. Bradford*, 214 U.S. 366 (1909).

# Enablement at the Federal Circuit

# Undue Experimentation – *White Consolidated Industries v. Vega Servo-Control*, 713 F.2d 788 (Fed. Cir. 1983)

## ■ Background

- The patent at issue discloses a machine tool control system integrated with a computer program. The invention is directed to a translator converting a numerical control language using English-like words and abbreviations into a machine code to control the machine tool.
- The name of the software is called SPLIT which is integrated with the system, protected by trade secret and available only by purchase from Sundstrand.
- The district court held that the application failed to disclose SPLIT and failed to satisfy the enablement and best mode requirements of 35 U.S.C. § 112.



# Undue Experimentation – *White Consolidated Industries v. Vega Servo-Control* (cont'd)

## ■ Holding:

- “Though one may refer to an element of a claimed invention held as a trade secret by name only and yet satisfy 35 U.S.C. § 112 if equivalent elements are known, and known to be equivalents, and available to those skilled in the art, *In re Gebauer-Fuelnegg, et al.*, 50 USPQ 125, 28 Cust. & Pat.App. 1359, 121 F.2d 505 (1941), there is insufficient evidence here from which to conclude that suitable substitutes for SPLIT were known and widely available.”
- “The amount of required experimentation, however, must be reasonable. ... Richard Stitt, a skilled programmer in the NC field, testified in this case that development of a single pass language translator would require from 1 1/2 to 2 man years of effort, a clearly unreasonable requirement. Though White says that estimate is irrelevant because it concerns development of a commercially profitable single pass translator and suitable commercial translators were readily available, the language of the ‘653 patent, ‘a known translator ... as for example SPLIT’, is insufficient to identify which language translators could be satisfactorily used and White presented no evidence that one skilled in the art would be able to select or develop a suitable translator without undue experimentation and delay.”

*Auto. Techs. Int'l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1283  
(Fed. Cir. 2007)

- “Although the knowledge of one skilled in the art is indeed relevant, the novel aspect of an invention must be enabled in the patent.”
- “Given that the novel aspect of the invention is side impact sensors, it is insufficient to merely state that known technologies can be used to create an electronic sensor. As we stated in *Genentech*, the rule that a specification need not disclose what is well known in the art is ‘merely a rule of supplementation, not a substitute for a basic enabling disclosure.’ 108 F.3d at 1366. We further stated that the ‘omission of minor details does not cause a specification to fail to meet the enablement requirement. However, when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required.’ *Id.*”

# *Sitrick v. Dreamworks, LLC*, 516 F.3d 993 (Fed. Cir. 2008)

- “A patentee who chooses broad claim language must make sure the broad claims are fully enabled. ‘The scope of the claims must be less than or equal to the scope of the enablement’ to ‘ensure[] that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims.’”
- “Because the asserted claims are broad enough to cover both movies and video games, the patents must enable both embodiments.”

## *Sitrick v. Dreamworks, LLC* (cont'd)

- “Defendants showed with clear and convincing evidence that one skilled in the art could not take the disclosure in the specification with respect to substitution or integration of user images in video games and substitute a user image for a pre-existing character image in movies without undue experimentation.”
- An enablement analysis begins with the disclosure in the specification. Neither patent specification in this case teaches how the substitution and integration of a user image would be accomplished in movies. [The claims] provide for the ‘integration’ or ‘substitution’ of a visual or audio ‘user image’ in place of a ‘pre-defined character image’ or ‘character function’ within a ‘presentation’ such as a motion picture...” but “the specifications do not disclose how the IAS or Controller 260C would function for movies.”

# Enablement - MPEP

# Enablement

- Even though the statute does not use the term “undue experimentation,” it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737 (Fed. Cir. 1988).
  1. The quantity of experimentation necessary
  2. The amount of direction or guidance presented
  3. The presence or absence of working examples
  4. The nature of the invention
  5. The state of the prior art
  6. The relative skill of those in the art
  7. The predictability or unpredictability of the art
  8. The breadth of the claims

# Enablement – *Wands* Factors

- It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner’s analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole.
- A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562 (Fed. Cir. 1993).
- The determination that “undue experimentation” would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations.

# Enablement

- A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661 (Fed. Cir. 1991); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463 (Fed. Cir. 1984).
- Any part of the specification can support an enabling disclosure, even a background section that discusses, or even disparages, the subject matter disclosed therein. *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361 (Fed. Cir. 2005)(discussion of problems with a prior art feature does not mean that one of ordinary skill in the art would not know how to make and use this feature).
- Determining enablement is a question of law based on underlying factual findings. *In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1576 (Fed. Cir. 1984).



# Enablement - How to Make the Claimed Invention

- As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, (CCPA 1970).
- Failure to disclose other methods by which the claimed invention may be made does not render a claim invalid under 35 U.S.C. 112. *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533 (Fed. Cir. 1987), cert. denied, 484 U.S. 954 (1987).

# Enablement - How to Use the Claimed Invention

- If a statement of utility in the specification contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration are known and contemplated, 35 U.S.C. 112 is satisfied. *In re Johnson*, 282 F.2d 370, 373 (CCPA 1960); *In re Hitchings*, 342 F.2d 80, 87 (CCPA 1965); see also *In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir. 1995).
- For example, it is not necessary to specify the dosage or method of use if it is known to one skilled in the art that such information could be obtained without undue experimentation.

# Enablement – Working Example

- Compliance with the enablement requirement of 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, does not turn on whether an example is disclosed. An example may be “working” or “prophetic.”
  - A working example is based on work actually performed.
  - A prophetic example describes an embodiment of the invention based on predicted results rather than work actually conducted or results actually achieved.
- An applicant need not have actually reduced the invention to practice prior to filing.
  - *In Gould v. Quigg*, 822 F.2d 1074, 1078 (Fed. Cir. 1987), as of Gould’s filing date, no person had built a light amplifier or measured a population inversion in a gas discharge. The court held that “The mere fact that something has not previously been done clearly is not, in itself, a sufficient basis for rejecting all applications purporting to disclose how to do it.” 822 F.2d at 1078.

# Relationship of Predictability of the Art and the Enablement Requirement

- The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. *In re Fisher*, 427 F.2d 833, 839 (CCPA 1970).
- The “amount of guidance or direction” refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification.
- If little is known in the prior art about the nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling.
  - *Chiron Corp. v. Genentech Inc.*, 363 F.3d 1247, 1254 (Fed. Cir. 2004) (“Nascent technology, however, must be enabled with a ‘specific and useful teaching.’ The law requires an enabling disclosure for nascent technology because a person of ordinary skill in the art has little or no knowledge independent from the patentee’s instruction. Thus, the public’s end of the bargain struck by the patent system is a full enabling disclosure of the claimed technology.” (citations omitted)).

# Specification Must Be Enabling as of the Filing Date

- Whether the specification would have been enabling as of the filing date involves consideration of the nature of the invention, the state of the prior art, and the level of skill in the art. The initial inquiry is into the nature of the invention, *i.e.*, the subject matter to which the claimed invention pertains. The nature of the invention becomes the backdrop to determine the state of the art and the level of skill possessed by one skilled in the art.
- The state of the prior art is what one skilled in the art would have known, at the time the application was filed, about the subject matter to which the claimed invention pertains. The relative skill of those in the art refers to the skill of those in the art in relation to the subject matter to which the claimed invention pertains at the time the application was filed.

## Specification Must Be Enabling as of the Filing Date (cont'd)

- The state of the prior art provides evidence for the degree of predictability in the art and is related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art is also related to the need for working examples in the specification.
- Therefore, the state of the prior art must be evaluated for each application based on its filing date.
- 35 U.S.C. 112 requires the specification to be enabling only to a person “skilled in the art to which it pertains, or with which it is most nearly connected.” In general, the pertinent art should be defined in terms of the problem to be solved rather than in terms of the technology area, industry, trade, etc. for which the invention is used.
- The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public.

## Specification Must Be Enabling as of the Filing Date (cont'd)

- The state of the art existing at the filing date of the application is used to determine whether a particular disclosure is enabling as of the filing date.
- Information published for the first time after the filing date generally cannot be used to show what was known at the time of filing. *In re Budnick*, 537 F.2d 535, 538 (CCPA 1976) (In general, if an applicant seeks to use a patent to prove the state of the art for the purpose of the enablement requirement, the patent must have an issue date earlier than the effective filing date of the application.).
- While a later dated publication cannot supplement an insufficient disclosure in a prior dated application to make it enabling, an applicant can offer the testimony of an expert based on the publication as evidence of the level of skill in the art at the time the application was filed. *Gould v. Quigg*, 822 F.2d 1074, 1077 (Fed. Cir. 1987).

# Specification Must Be Enabling to Persons Skilled in the Art

- The relative skill of those in the art refers to the skill level of those in the art in the technological field to which the claimed invention pertains.
- When an invention, in its different aspects, involves distinct arts, the specification is enabling if it enables those skilled in each art, to carry out the aspect proper to their specialty. “If two distinct technologies are relevant to an invention, then the disclosure will be adequate if a person of ordinary skill in each of the two technologies could practice the invention from the disclosures.” *Technicon Instruments Corp.v.Alpkem Corp.*, 664 F. Supp. 1558, 1578 (D. Ore. 1986), aff’d in part, vacated in part, rev’d in part, 837 F. 2d 1097 (Fed. Cir. 1987) (unpublished opinion), appeal after remand, 866 F. 2d 417 (Fed. Cir. 1989).



# Quantity of Experimentation

- The quantity of experimentation needed to be performed by one skilled in the art is only one factor involved in determining whether “undue experimentation” is required to make and use the invention. “[A]n extended period of experimentation may not be undue if the skilled artisan is given sufficient direction or guidance.” *In re Colianni*, 561 F.2d 220, 224 (CCPA 1977).
- Time and expense are merely factors in this consideration and are not the controlling factors. *United States v. Telectronics Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988), cert. denied, 490 U.S. 1046 (1989).

# Quantity of Experimentation (cont'd)

- Example of Reasonable Experiment

- In *United States v. Telectronics, Inc.*, 857 F.2d 778 (Fed. Cir. 1988), cert. denied, 490 U.S. 1046 (1989), the court reversed the findings of the district court for lack of clear and convincing proof that undue experimentation was needed. The court ruled that since one embodiment (stainless steel electrodes) and the method to determine dose/response was set forth in the specification, the specification was enabling. The question of time and expense of such studies, approximately \$50,000 and 6-12 months standing alone, failed to show undue experimentation.

# Quantity of Experimentation (cont'd)

- Example of Unreasonable Experiment

- In *In re Ghiron*, 442 F.2d 985, 991-92 (CCPA 1971), functional “block diagrams” were insufficient to enable a person skilled in the art to practice the claimed invention with only a reasonable degree of experimentation because the claimed invention required a “modification to prior art overlap computers,” and because “many of the components which appellants illustrate as rectangles in their drawing necessarily are themselves complex assemblages . . . . It is common knowledge that many months or years elapse from the announcement of a new computer by a manufacturer before the first prototype is available. This does not bespeak of a routine operation but of extensive experimentation and development work. . . .”

# Examples of Enablement Issues-Missing Information

- A disclosure of an electrical circuit apparatus, depicted in the drawings by block diagrams with functional labels, was held to be nonenabling in *In re Gunn*, 537 F.2d 1123, 1129 (CCPA 1976), where there was no indication in the specification as to whether the parts represented by boxes were “off the shelf” or must be specifically constructed or modified for applicant’s system. Also there were no details in the specification of how the parts should be interconnected, timed and controlled so as to obtain the specific operations desired by the applicant.
- In *In re Donohue*, 550 F.2d 1269 (CCPA 1977), the lack of enablement was caused by lack of information in the specification about a single block labeled “LOGIC” in the drawings.

## Examples of Enablement Issues-Missing Information (cont'd)

- Claims directed to a method of determining the location of a horizontal borehole in the earth failed to comply with enablement requirement of 35 U.S.C. 112 because certain computer programming details used to perform claimed method were not disclosed in the specification, and the record showed that a person of skill in art would not understand how to “compare” or “rescale” data as recited in the claims in order to perform the claimed method. *Union Pac. Res. Co. v. Chesapeake Energy Corp.*, 236 F.3d 684 (Fed. Cir. 2001).

## Examples of Enablement Issues-Missing Information (cont'd)

- *In re Ghiron*, 442 F.2d 985 (CCPA 1971), involved a method of facilitating transfers from one subset of program instructions to another which required modification of prior art “overlap mode” computers.
  - The Board rejected the claims on the basis that the disclosure was insufficient to satisfy the requirements of 35 U.S.C. 112, first paragraph and was affirmed.
  - The Board focused on the fact that the drawings were “block diagrams, i.e., a group of rectangles representing the elements of the system, functionally labeled and interconnected by lines.”
  - The specification did not particularly identify each of the elements represented by the blocks or the relationship therebetween, nor did it specify particular apparatus intended to carry out each function.
  - The Board further questioned whether the selection and assembly of the required components could be carried out routinely by persons of ordinary skill in the art.

## Examples of Enablement Issues-Missing Information (cont'd)

- An adequate disclosure of a device may require details of how complex components are constructed and perform the desired function.
  - The claim before the court in *In re Scarbrough*, 500 F.2d 560 (CCPA 1974), was directed to a system which comprised several component parts (e.g., computer, timing and control mechanism, A/D converter, etc.) only by generic name and overall ultimate function.
  - The court concluded that there was not an enabling disclosure because the specification did not describe how “complex elements known to perform broadly recited functions in different systems would be adaptable for use in Appellant’s particular system with only a reasonable amount of experimentation” and that “an unreasonable amount of work would be required to arrive at the detailed relationships appellant says that he has solved.” 500 F.2d at 566.

# Examples of Enablement Issues – Computer Programming Cases

- “In computer applications, it is not unusual for the claimed invention to involve two areas of prior art or more than one technology, e.g., an appropriately programmed computer and an area of application of said computer.” *White Consol. Indus. v. Vega Servo-Control, Inc.*, 214 USPQ 796, 821 (S.D.Mich. 1982).
- “In regard to the ‘skilled in the art’ standard, in cases involving both the art of computer programming, and another technology, the examiner must recognize that the knowledge of persons skilled in both technologies is the appropriate criteria for determining sufficiency.” See *In re Naquin*, 398 F.2d 863 (CCPA 1968); *In re Brown*, 477 F.2d 946 (CCPA 1973).



## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- In a typical computer application, system components are often represented in a “block diagram” format, *i.e.*, a group of hollow rectangles representing the elements of the system, functionally labeled, and interconnected by lines.
- Such block diagram computer cases may be categorized into
  - (A) systems that include but are more comprehensive than a computer and
  - (B) systems wherein the block elements are totally within the confines of a computer.

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (A) Block elements more comprehensive than a computer
  - The first category of such block diagram cases involves systems which include a computer as well as other system hardware and/or software components.
  - In order to meet the burden of establishing a reasonable basis for questioning the adequacy of such disclosure, the examiner should initiate a factual analysis of the system by focusing on each of the individual block element components.
  - More specifically, such an inquiry should focus on the diverse functions attributed to each block element as well as the teachings in the specification as to how such a component could be implemented.
  - If based on such an analysis, the examiner can reasonably contend that more than routine experimentation would be required by one of ordinary skill in the art to implement such a component or components, then enablement of the component or components should specifically be challenged by the examiner as part of a 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, rejection.

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (A) Block elements more comprehensive than a computer (cont'd)
  - Additionally, the examiner should determine whether certain of the hardware or software components depicted as block elements are themselves complex assemblages which have widely differing characteristics and which must be precisely coordinated with other complex assemblages. Under such circumstances, a reasonable basis may exist for challenging such a functional block diagram form of disclosure. See *In re Ghiron*, 442 F.2d 985 (CCPA 1971).
  - Even if the applicant has cited prior art patents or publications to demonstrate that particular block diagram hardware or software components are old, it should not always be considered as self-evident how such components are to be interconnected to function in a disclosed complex manner. See *In re Scarbrough*, 500 F.2d 560, 566 (CCPA 1974) and *In re Forman*, 463 F.2d 1125, 1129 (CCPA 1972).

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (A) Block elements more comprehensive than a computer (cont'd)
  - For example, where the specification provides in a block diagram disclosure of a complex system that includes a microprocessor and other system components controlled by the microprocessor, a mere reference to a commercially available microprocessor, without any description of the precise operations to be performed by the microprocessor, fails to disclose how such a microprocessor would be properly programmed to (1) either perform any required calculations or (2) coordinate the other system components in the proper timed sequence to perform the functions disclosed and claimed.
  - If a particular program is disclosed in such a system, the program should be carefully reviewed to ensure that its scope is commensurate with the scope of the functions attributed to such a program in the claims.

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (A) Block elements more comprehensive than a computer (cont'd)
  - If (1) the disclosure fails to disclose any program and (2) more than routine experimentation would be required of one skilled in the art to generate such a program, the examiner clearly would have a reasonable basis for challenging the sufficiency of such a disclosure. The amount of experimentation that is considered routine will vary depending on the facts and circumstances of individual cases and should be reviewed on a case-by-case basis. No exact numerical standard has been fixed by the courts, but the “amount of required experimentation must, however, be reasonable.” *White Consol. Indus.*, 713 F.2d at 791.

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (A) Block elements more comprehensive than a computer (cont'd)
  - One court found that the amount of experimentation involved was reasonable where a skilled programmer was able to write a general computer program, implementing an embodiment form, within four hours. *Hirschfield v. Banner*, 462 F. Supp. 135, 142 (D.D.C. 1978), aff'd, 615 F.2d 1368 (D.C. Cir. 1986), cert. denied, 450 U.S. 994 (1981).
  - Another court found that, where the required period of experimentation for skilled programmers to develop a particular program would run to one to two man years, this would be “a clearly unreasonable requirement.” *White Consol. Indus.*, 713 F.2d at 791.

# Examples of Enablement Issues – Computer Programming Cases (cont'd)

## ■ (B) Block elements within a computer

- The second category of block diagram cases occurs most frequently in pure data processing applications where the combination of block elements is totally within the confines of a computer, where there is no interfacing with external apparatus other than normal input/output devices.
- In some instances, it has been found that particular kinds of block diagram disclosures were sufficient to meet the enabling requirement of 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph. See *In re Knowlton*, 481 F.2d 1357 (CCPA 1973), *In re Comstock*, 481 F.2d 905 (CCPA 1973).

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

### ■ (B) Block elements within a computer (cont'd)

- The *Comstock* and *Knowlton* decisions turned on the appellants' disclosure of (1) a reference to and reliance on an identified prior art computer system, and (2) an operative computer program for the referenced prior art computer system.
- In *Knowlton*, the disclosure was presented in such a detailed fashion that the individual program's steps were specifically interrelated with the operative structural elements in the referenced prior art computer system. The court in *Knowlton* indicated that the disclosure did not merely consist of a cursory explanation of flow diagrams or a bare group of program listings together with a reference to a proprietary computer in which they might be run. The disclosure was characterized as going into considerable detail in explaining the interrelationships between the disclosed hardware and software elements. Under such circumstances, the court considered the disclosure to be concise as well as full, clear, and exact to a sufficient degree to satisfy the literal language of 35 U.S.C. 112, first paragraph.
- It must be emphasized that because of the significance of the program listing and the reference to and reliance on an identified prior art computer system, absent either of these items, a block element disclosure within the confines of a computer should be scrutinized in precisely the same manner as the first category of block diagram cases discussed above.



## Examples of Enablement Issues – Computer Programming Cases (cont'd)

### ■ (B) Block elements within a computer (cont'd)

- When USPTO personnel question the adequacy of computer system or computer programming disclosures, the reasons for finding the specification to be nonenabling should be supported by the record as a whole.
- It is also essential for USPTO personnel to reasonably challenge evidence submitted by the applicant. For example, in *In re Naquin*, an affiant's statement that the average computer programmer was familiar with the subroutine necessary for performing the claimed process, was held to be a statement of fact as it was unchallenged by USPTO personnel. In other words, unless USPTO personnel present a reasonable basis for challenging the disclosure in view of the record as a whole, a 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, rejection in a computer system or computer programming application may not be sustained on appeal. *In re Morehouse*, 545 F.2d 162, 165-66 (CCPA 1976).

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

### ■ (B) Block elements within a computer (cont'd)

- While no specific universally applicable rule exists for recognizing an insufficiently disclosed application involving computer programs, an examining guideline to generally follow is to challenge the sufficiency of disclosures that fail to include the programmed steps, algorithms or procedures that the computer performs necessary to produce the claimed function.
- These can be described in any way that would be understood by one of ordinary skill in the art, such as with a reasonably detailed flowchart which delineates the sequence of operations the program must perform.
- In programming applications where the software disclosure only includes a flowchart, as the complexity of functions and the generality of the individual components of the flowchart increase, the basis for challenging the sufficiency of such a flowchart becomes more reasonable because the likelihood of more than routine experimentation being required to generate a working program from such a flowchart also increases.

## Examples of Enablement Issues – Computer Programming Cases (cont'd)

- (B) Block elements within a computer (cont'd)
  - Once USPTO personnel have advanced a reasonable basis or presented evidence to question the adequacy of a computer system or computer programming disclosure, the applicant must show that the specification would enable one of ordinary skill in the art to make and use the claimed invention without resorting to undue experimentation.
  - In most cases, efforts to meet this burden involve submitting affidavits, referencing prior art patents or technical publications, presenting arguments of counsel, or combinations of these approaches.

# Enablement Commensurate in Scope With the Claims

- All questions of enablement are evaluated against the claimed subject matter. The focus of the examination inquiry is whether everything within the scope of the claim is enabled. Accordingly, the first analytical step requires that the examiner determine exactly what subject matter is encompassed by the claims.
  - *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244, 68 USPQ2d 1280, 1287 (Fed. Cir. 2003) (When a range is claimed, there must be reasonable enablement of the scope of the range. Here, the claims at issue encompassed amounts of silicon as high as 10% by weight, however the specification included statements clearly and strongly warning that a silicon content above 0.5% by weight in an aluminum coating causes coating problems. Such statements indicate that higher amounts will not work in the claimed invention.).
- The examiner should determine what each claim recites and what the subject matter is when the claim is considered as a whole, not when its parts are analyzed individually. No claim should be overlooked. With respect to dependent claims, 35 U.S.C. 112(d) or pre-AIA 35 U.S.C. 112, fourth paragraph, should be followed. These paragraphs state “a claim in a dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers” and requires the dependent claim to further limit the subject matter claimed.

## Enablement Commensurate in Scope With the Claims (cont'd)

- Not everything necessary to practice the invention need be disclosed. In fact, what is well-known is best omitted. All that is necessary is that one skilled in the art be able to practice the claimed invention, given the level of knowledge and skill in the art. Further the scope of enablement must only bear a “reasonable correlation” to the scope of the claims. *In re Fisher*, 427 F.2d 833, 839 (CCPA 1970).
- With respect to the breadth of a claim, the relevant concern is whether the scope of enablement provided to one skilled in the art by the disclosure is commensurate with the scope of protection sought by the claims. *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244 (Fed. Cir. 2003).
- The propriety of a rejection based upon the scope of a claim relative to the scope of the enablement concerns (1) how broad the claim is with respect to the disclosure and (2) whether one skilled in the art could make and use the entire scope of the claimed invention without undue experimentation.

## Enablement Commensurate in Scope With the Claims (cont'd)

- An enabling disclosure may be set forth by specific example or broad terminology; the exact form of disclosure is not dispositive. *In re Marzocchi*, 439 F.2d 220, 223-24 (CCPA 1971).
- A rejection of a claim under 35 U.S.C. 112 as broader than the enabling disclosure is a 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, enablement rejection and not a 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph, definiteness rejection. Claims are not rejected as broader than the enabling disclosure under 35 U.S.C. 112 for noninclusion of limitations dealing with factors which must be presumed to be within the level of ordinary skill in the art; the claims need not recite such factors where one of ordinary skill in the art to whom the specification and claims are directed would consider them obvious. *In re Skrivan*, 427 F.2d 801, 806, (CCPA 1970).
- One does not look to the claims but to the specification to find out how to practice the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1558 (Fed. Cir. 1983).

# Enablement Commensurate in Scope With the Claims (cont'd)

- When analyzing the enabled scope of a claim, the teachings of the specification must not be ignored because claims are to be given their broadest reasonable interpretation that is consistent with the specification. “That claims are interpreted in light of the specification does not mean that everything in the specification must be read into the claims.” *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 957 (Fed. Cir. 1983), cert. denied, 469 U.S. 835 (1984).
- The record must be clear so that the public will have notice as to the patentee’s scope of protection when the patent issues. If a reasonable interpretation of the claim is broader than the description in the specification, it is necessary for the examiner to make sure the full scope of the claim is enabled. Limitations and examples in the specification do not generally limit what is covered by the claims.

# Enablement Requirement – Critical Feature Not Claimed

- A feature which is taught as critical in a specification and is not recited in the claims should result in a rejection of such claim under the enablement provision section of 35 U.S.C. 112. *In re Mayhew*, 527 F.2d 1229, 1233 (CCPA 1976).
- In determining whether an unclaimed feature is critical, the entire disclosure must be considered. Features which are merely preferred are not to be considered critical. *In re Goffe*, 542 F.2d 564, 567 (CCPA 1976).
- Limiting an applicant to the preferred materials in the absence of limiting prior art would not serve the constitutional purpose of promoting the progress in the useful arts. Therefore, an enablement rejection based on the grounds that a disclosed critical limitation is missing from a claim should be made only when the language of the specification makes it clear that the limitation is critical for the invention to function as intended. Broad language in the disclosure, including the abstract, omitting an allegedly critical feature, tends to rebut the argument of criticality.



# Written Description

# Written Description

- The written description requirement is separate and distinct from the enablement requirement, though, at times, the concepts overlap.
- The Supreme Court has described three purposes for the written description requirement (*Gill v. Wells*, 89 U.S. 1, 16 (1874)):
  - “(1) That the government may know what they have granted and what will become public property when the term of the monopoly expires.
  - (2) That licensed persons desiring to practice the invention may know, during the term, how to make, construct, and use the invention.
  - (3) That other inventors may know what part of the field of invention is unoccupied. Purposes such as these are of great importance in every case, but the fulfillment of them is never more necessary than when such inquiries arise in respect to a patent for a machine which consists of a combination of old ingredients.”

# Written Description at the Supreme Court

# Written Description at the Supreme Court

- To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art could have reasonably concluded that the inventor had possession of the claimed invention. One may not claim the rights to an invention it has not described and/or has not invented and therefore could not have described. *O'Reilly v. Morse*, 56 U.S. 62, 113 (1853).

# Written Description at the Supreme Court (Cont'd)

- The specification must be “sufficiently explicit to show the nature of the invention” and should “not leave the person attempting to use the discovery to find it out by experiment.” *LeRoy v. Tatham*, 63 U.S. 132, 138 (1859); *Tyler v. City of Boston*, 74 U.S. 327, 330-31 (1868).
- The sufficiency of the description is viewed in light of the knowledge that existed in the art at the time of filing. *Lawther v. Hamilton*, 124 U.S. 1, 9 (1888).
- Specifications are written for those of skill in the art and items which were well-known when the patent application was filed may not require explanation. *Lawther v. Hamilton*, 124 U.S. 1, 9-10 (1888); *Webster Loom Co. v. Higgins*, 105 U.S. 580, 585-86 (1881).

# Written Description at the Federal Circuit

# *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275 (Fed. Cir. 2017)

- The patent disclosed “an emulator comprised of a series of field programmable gate arrays.”
  - Each asserted claim requires that “the signal routing clock is independent of the first clock signal and the second clock signal.” The district court construed “independent” as “wherein there is no required timing relationship between clock edges.”
  - The challenger argued “there is a relationship between the signal routing clock and the user clock, given that the signal routing clock must operate at a higher frequency than the user clock. Therefore, the specification does not disclose an ‘independent’ signal routing clock.”
  - BUT the “very language of claim 1 which the court held was not supported by the specification was present in the originally-filed claims. Original claims are part of the original specification and in many cases will satisfy the written description requirement.”
  - “We conclude that this original claim language clearly demonstrates that the inventor possessed an invention including [the disputed limitation].”

- Patent claims were directed to microelectromechanical system (“MEMS”) packages comprising a substrate, a microphone, and a cover accommodating the microphone.
  - The PTAB concluded the relevant claims “failed to meet the written description requirement, because ‘the present [s]pecification merely discloses a genus—solder pads that are capable of being connected to a board. But the [s]pecification fails completely to disclose the newly claimed species of such pads—pads that are connectable to a board specifically by using a reflow process.’”
  - The Federal Circ. held the PTAB’s determination was supported by substantial evidence because, although solder reflow was a known process, multiple ways of connecting solder pads existed in the prior art and the specification contained “at best a passing reference to solder pads.”



# *MercExchange, LLC v. eBay, Inc.*, 401 F.3d 1323 (Fed. Cir. 2005)

- MercExchange, L.L.C., is the assignee of three patents, U.S. Patent Nos. 5,845,265, 6,085,176, and 6,202,051 (“the '051 patent”). MercExchange filed suit against eBay, Inc.; Half.com, Inc.; and ReturnBuy, Inc., in the United States District Court for the Eastern District of Virginia, alleging willful infringement.
- Prior to trial, the defendants asserted that the claims of the '051 patent were invalid because the written description is inadequate to support either “establish[ing] a seller's account” or “debiting [or charging] a seller's account” for a fee.
- Claim 12 contains both terms and is representative of the independent claims at issue with regard to the '051 patent:

A computer-implemented method for facilitating Internet-based auctions, the method comprising:

Requiring a seller to establish a seller's account, the seller's account being based at least on the seller's identity and a financial instrument associated with the seller;

Initiating an Internet-based auction for an item offered by the seller; and

Debiting the seller's account for a fee amount corresponding to a result of the auction.

## *MercExchange, LLC v. eBay, Inc.* (cont'd)

- The district court concluded, on summary judgment, that the reference to “establish[ing] a seller's account” was adequately supported by the written description, but that the process of “debiting the seller's account for a fee” was not. Therefore, the asserted claims of the '051 patent are invalid.
- The district court construed the term “debiting a seller's account” to mean “record[ing] a debt (or charge) against a person's name or account.” The court held that the written description of the patent provided support for recording a credit to a seller's account, but not for recording a debit against the seller's account.
  - a statement from the written description that “[a]fter the transaction clears the charge ..., the consignment node credits the consignment node user's commission account ... to extract the consignment node transaction fee.” '051 patent, col. 12, ll. 52–55.
- The court interpreted that statement as describing a process in which the consignment node takes the proceeds of a sale from the buyer, takes a commission or fee, credits the seller's account with the balance, and transfers that amount to the seller. Because the seller never owes money to the node, the court concluded that debiting never occurs in the disclosed process.

# *MercExchange, LLC v. eBay, Inc.* (cont'd)

## ■ Holding

- “MercExchange argues that the joint declaration of its experts created a genuine issue of material fact as to the adequacy of the written description. The declaration explained that a person of ordinary skill in the art would understand the process of extracting a fee or commission, as described in the written description, to involve ‘debiting a seller's account.’ We agree.”
- “The written description refers to the seller’s agreement to allow the consignment node user to extract a consignment fee or commission following the sale. . . . It also refers to the consignment node user's creating a credit or deposit account for the participant and crediting the consignment node user’s commission account to extract the commission.”
- “According to MercExchange’s experts, a person of ordinary skill in the art would understand that creating a credit, as described in the specification, would require creating a corresponding debit against the proceeds due to the seller. Hence, MercExchange provided evidence that the specification would be understood by a person of skill in the art to describe a process that includes debiting the seller's account.”
- “MercExchange introduced sufficient evidence that the '051 patent was not invalid for lack of written description to create a genuine issue of material fact on that issue.”

# Written Description - MPEP

# Written Description

- To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor has possession of the claimed invention. *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319 (Fed. Cir. 2003).
- However, a showing of possession alone does not cure the lack of a written description. *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956, 969-70 (Fed. Cir. 2002).
- It is now well accepted that a satisfactory description may be found in originally-filed claims or any other portion of the originally-filed specification. However, that does not mean that all originally-filed claims have adequate written support. The specification must still be examined to assess whether an originally-filed claim has adequate written support.
  - Not sufficient to show that skilled artisan could write a program to achieve claimed function. *Vasudevan Software, Inc. v. Microstrategy, Inc.*, 782 F.3d 671, 681-683 (Fed. Cir 2015)

# Written Description

- An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. Amer. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997).
- Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was “ready for patenting” such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention. See, e.g., *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 68 (1998).
- "Compliance with the written description requirement is essentially a fact-based inquiry that will ‘necessarily vary depending on the nature of the invention claimed.’” *Enzo Biochem*, 323 F.3d at 963.

# Written Description

- A question as to whether a specification provides an adequate written description may arise in the context of determining:
  - whether an original claim is described sufficiently (*LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336 (Fed. Cir. 2005)),
  - whether new or amended claims are supported by the description of the invention in the application as filed (*In re Wright*, 866 F.2d 422 (Fed. Cir. 1989)),
  - whether a claimed invention is entitled to the benefit of an earlier priority date or effective filing date under 35 U.S.C. 119, 120, 365, or 386 (*New Railhead Mfg. L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290 (Fed. Cir. 2002); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed. Cir. 1998); *Fiers v. Revel*, 984 F.2d 1164 (Fed. Cir. 1993); *In re Ziegler*, 992 F.2d 1197, 1200 (Fed. Cir. 1993)), or
  - whether a specification provides support for a claim corresponding to a count in an interference (*Martin v. Mayer*, 823 F.2d 500, 503 (Fed. Cir. 1987); *Fields v. Conover*, 443 F.2d 1386 (CCPA 1971)).

# Written Description – Original Claims

- There is a presumption that an adequate written description of the claimed invention is present when the application is filed. *In re Wertheim*, 541 F.2d 257, 263 (CCPA 1976) (“[W]e are of the opinion that the PTO has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.”).
- However, issues of adequate written description may arise even for original claims, for example, when an aspect of the claimed invention has not been described with sufficient particularity such that one skilled in the art would recognize that the applicant had possession of the claimed invention at the time of filing.
- The claimed invention as a whole may not be adequately described if the claims require an essential or critical feature which is not adequately described in the specification and which is not conventional or known in the art.



# Written Description – Original Claims (cont'd)

- An invention described solely in terms of a method of making and/or its function may lack written descriptive support where there is no described or art-recognized correlation between the disclosed function and the structure(s) responsible for the function. *In re Deuel*, 51 F.3d 1552 (Fed. Cir. 1995) (holding that a process could not render the product of that process obvious under 35 U.S.C. 103).
- Source code is not a requirement for software inventions!
  - *Fonar Corp. v. Gen. Elec. Co.*, 107 F.3d 1543, 1549 (Fed. Cir. 1997) (“As a general rule, where software constitutes part of a best mode of carrying out an invention, description of such a best mode is satisfied by a disclosure of the functions of the software. This is because, normally, writing code for such software is within the skill of the art, not requiring undue experimentation, once its functions have been disclosed.... Thus, flow charts or source code listings are not a requirement for adequately disclosing the functions of software.”).

# Written Description – Original Claims (cont'd)

- Written description issues may also arise if the knowledge and level of skill in the art would not have permitted the ordinary artisan to immediately envisage the claimed product arising from the disclosed process.
  - *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571 (Fed. Cir. 1996) (a “laundry list” disclosure of every possible moiety does not necessarily constitute a written description of every species in a genus because it would not “reasonably lead” those skilled in the art to any particular species.).
  - *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1328 (Fed. Cir. 2000) (“[T]he specification does not clearly disclose to the skilled artisan that the inventors ... considered the ratio... to be part of their invention ... There is therefore no force to Purdue’s argument that the written description requirement was satisfied because the disclosure revealed a broad invention from which the [later-filed] claims carved out a patentable portion.”).

# Written Description – New or Amended Claims

- The proscription against the introduction of new matter in a patent application (35 U.S.C. 132 and 251) serves to prevent an applicant from adding information that goes beyond the subject matter originally filed. See *In re Rasmussen*, 650 F.2d 1212, 1214 (CCPA 1981).
- The claims as filed in the original specification are part of the disclosure and, therefore, if an application as originally filed contains a claim disclosing material not found in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter. *In re Benno*, 768 F.2d 1340 (Fed. Cir. 1985). Thus, the written description requirement prevents an applicant from claiming subject matter that was not adequately described in the specification as filed.
- New or amended claims which introduce elements or limitations that are not supported by the as-filed disclosure violate the written description requirement.

# Written Description – New or Amended Claims (cont'd)

- While there is no in *haec verba* requirement, newly added claims or claim limitations must be supported in the specification through express, implicit, or inherent disclosure. An amendment to correct an obvious error does not constitute new matter where the ordinary artisan would not only recognize the existence of the error in the specification, but also recognize the appropriate correction. *In re Oda*, 443 F.2d 1200 (CCPA 1971).
- Under certain circumstances, omission of a limitation can raise an issue regarding whether the inventor had possession of a broader, more generic invention. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998) (claims to a sectional sofa comprising, inter alia, a console and a control means were held invalid for failing to satisfy the written description requirement where the claims were broadened by removing the location of the control means).

# Written Description – New or Amended Claims (cont'd)

- A claim that omits an element that applicant describes as an essential or critical feature of the invention originally disclosed does not comply with the written description requirement. *See Gentry Gallery*, 134 F.3d at 1480.
- A claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may also be subject to rejection under 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, as not enabling, or under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph. *See In re Mayhew*, 527 F.2d 1229 (CCPA 1976); *In re Venezia*, 530 F.2d 956 (CCPA 1976); and *In re Collier*, 397 F.2d 1003 (CCPA 1968). *See also* MPEP § 2172.01.
- The fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. *Vas-Cath, Inc.*, 935 F.2d at 1563-64.

# Methodology For Determining Adequacy of Written Description

- There is a presumption that an adequate written description of the claimed invention is present in the specification as filed, thus the examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize the written description of the invention as providing adequate support for the claimed invention.
- To make a *prima facie* case, it is necessary to identify the claim limitations that are not adequately supported, and explain why the claim is not fully supported by the disclosure.
  - In *Hyatt v. Dudas*, 492 F.3d 1365, 1371, (Fed. Cir. 2007), the court found the “examiner was explicit that while each element may be individually described in the specification, the deficiency was lack of adequate description of their combination” and, thus, “[t]he burden was then properly shifted to [inventor] to cite to the examiner where adequate written description could be found or to make an amendment to address the deficiency.”
  - *Stored Value Solutions, Inc. v. Card Activation Techs.*, 499 Fed.App’x 5, 13-14 (Fed. Cir. 2012) (non-precedential) (Finding inadequate written support for claims drawn to a method of processing debit purchase transactions requiring 3 separate authorization codes because “the written description [did] not contain a method that include[d] all three codes” and “[e]ach authorization code is an important claim limitation, and the presence of multiple authorization codes in [the claim] was essential”.).

## Methodology For Determining Adequacy of Written Description (cont'd)

- For newly added or amended claims, applicant should show support in the original disclosure for the new or amended claims.
  - *Hyatt v. Dudas*, 492 F.3d 1365, 1370, n.4 (Fed. Cir. 2007) (citing MPEP § 2163.04 which provides that a “simple statement such as ‘applicant has not pointed out where the new (or amended) claim is supported, nor does there appear to be a written description of the claim limitation ‘\_\_\_’ in the application as filed’ may be sufficient where the claim is a new or amended claim, the support for the limitation is not apparent, and applicant has not pointed out where the limitation is supported.”).
  - MPEP §§ 714.02 and 2163.06 (“Applicant should ... specifically point out the support for any amendments made to the disclosure.”).
  - MPEP § 2163.04 (“If applicant amends the claims and points out where and/or how the originally filed disclosure supports the amendment(s), and the examiner finds that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of the filing of the application, the examiner has the initial burden of presenting evidence or reasoning to explain why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.”).

## Methodology For Determining Adequacy of Written Description (cont'd)

- For Each Claim, Determine What the Claim as a Whole Covers
  - Claim construction is an essential part of the examination process. Each claim must be separately analyzed and given its broadest reasonable interpretation in light of and consistent with the written description. See, e.g., *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1319-1320, (Fed. Cir. 2011).
  - The entire claim must be considered, including the preamble language and the transitional phrase.
  - The claim as a whole, including all limitations found in the preamble (see *Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801 (Fed. Cir. 1990) (determining that preamble language that constitutes a structural limitation is actually part of the claimed invention)), the transitional phrase, and the body of the claim, must be sufficiently supported to satisfy the written description requirement. An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations. *Lockwood*, 107 F.3d at 1572.



# Methodology For Determining Adequacy of Written Description (cont'd)

- For Each Claim, Determine What the Claim as a Whole Covers (cont'd)
  - The examiner should evaluate each claim to determine if sufficient structures, acts, or functions are recited to make clear the scope and meaning of the claim, including the weight to be given the preamble. *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (“[A] claim preamble has the import that the claim as a whole suggests for it.”); *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989) (The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application “to gain an understanding of what the inventors actually invented and intended to encompass by the claim.”).
  - The absence of definitions or details for well-established terms or procedures should not be the basis of a rejection under 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, for lack of adequate written description. Limitations may not, however, be imported into the claims from the specification.

## Methodology For Determining Adequacy of Written Description (cont'd)

- Review the Entire Application to Understand How Applicant Provides Support for the Claimed Invention Including Each Element and/or Step
  - Prior to determining whether the disclosure provides adequate written description for the claimed subject matter, the examiner should review the claims and the entire specification, including the specific embodiments, figures, and sequence listings, to understand how applicant provides support for the various features of the claimed invention. The disclosure of an element may be critical where those of ordinary skill in the art would require it to understand that applicant was in possession of the invention.
  - The analysis of whether the specification complies with the written description requirement calls for the examiner to compare the scope of the claim with the scope of the description to determine whether applicant has demonstrated possession of the claimed invention.

## Methodology For Determining Adequacy of Written Description (cont'd)

- Review the Entire Application to Understand How Applicant Provides Support for the Claimed Invention Including Each Element and/or Step (cont'd)
  - Such a review is conducted from the standpoint of one of ordinary skill in the art at the time the application was filed (*Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 865 (Fed. Cir. 1993)) and should include a determination of the field of the invention and the level of skill and knowledge in the art.
  - For some arts, there is an inverse correlation between the level of skill and knowledge in the art and the specificity of disclosure necessary to satisfy the written description requirement.
  - Information which is well known in the art need not be described in detail in the specification. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379-80 (Fed. Cir. 1986). However, sufficient information must be provided to show that the inventor had possession of the invention as claimed.

## Methodology For Determining Adequacy of Written Description (cont'd)

- Determine Whether There is Sufficient Written Description to Inform a Skilled Artisan That Applicant was in Possession of the Claimed Invention as a Whole at the Time the Application Was Filed
  - Possession of original claims: describing an actual reduction to practice of the claimed invention; or a clear depiction of the invention in detailed drawings or in structural chemical formulas which permit a person skilled in the art to clearly recognize that applicant had possession of the claimed invention.
  - An adequate written description of the invention may be shown by any description of sufficient, relevant, identifying characteristics so long as a person skilled in the art would recognize that the inventor had possession of the claimed invention.
  - A specification may describe an actual reduction to practice by showing that the inventor constructed an embodiment or performed a process that met all the limitations of the claim and determined that the invention would work for its intended purpose. *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998).

## Methodology For Determining Adequacy of Written Description (cont'd)

- Determine Whether There is Sufficient Written Description to Inform a Skilled Artisan That Applicant was in Possession of the Claimed Invention as a Whole at the Time the Application Was Filed (cont'd)
  - If a claim limitation invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it must be interpreted to cover the corresponding structure, materials, or acts in the specification and “equivalents thereof.” See 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.
  - A rejection under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph, “cannot stand where there is adequate description in the specification to satisfy 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, regarding means-plus-function recitations that are not, *per se*, challenged for being unclear.” *In re Noll*, 545 F.2d 141, 149 (CCPA 1976).

## Methodology For Determining Adequacy of Written Description (cont'd)

- Determine Whether There is Sufficient Written Description to Inform a Skilled Artisan That Applicant was in Possession of the Claimed Invention as a Whole at the Time the Application Was Filed (cont'd)
  - When a means- (or step-) plus-function claim limitation is found to be indefinite based on failure of the specification to disclose sufficient corresponding structure, materials, or acts that perform the entire claimed function, then the claim limitation necessarily lacks an adequate written description.
  - When a claim is rejected as indefinite under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph because there is no corresponding structure, materials, or acts, or an inadequate disclosure of corresponding structure, materials, or acts, for a means- (or step-) plus-function claim limitation, then the claim must also be rejected under 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, for lack of an adequate written description.

## Methodology For Determining Adequacy of Written Description (cont'd)

- Determine Whether There is Sufficient Written Description to Inform a Skilled Artisan That Applicant was in Possession of the Claimed Invention as a Whole at the Time the Application Was Filed (cont'd)
  - What is conventional or well known to one of ordinary skill in the art need not be disclosed in detail. *Capon v. Eshhar*, 418 F.3d 1349, 1357 (Fed. Cir. 2005) (“The ‘written description’ requirement must be applied in the context of the particular invention and the state of the knowledge.... As each field evolves, the balance also evolves between what is known and what is added by each inventive contribution.”).
  - If a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate description requirement is met. *Martin v. Johnson*, 454 F.2d 746, 751 (stating “the description need not be in *ipsis verbis* [*i.e.*, “in the same words”] to be sufficient”).

# Circumstances Where Adequacy of Written Description Issue Arises

- **Amendment affecting a claim**
  - An amendment to the claims or the addition of a new claim must be supported by the description of the invention in the application as filed. *In re Wright*, 866 F.2d 422 (Fed. Cir. 1989).
  - An amendment to the specification (*e.g.*, a change in the definition of a term used both in the specification and claim) may indirectly affect a claim even though no actual amendment is made to the claim.
- **Reliance on filing date of parent application under 35 USC 120**
  - Under 35 U.S.C. 120, the claims in a U.S. application are entitled to the benefit of the filing date of an earlier filed U.S. application if the subject matter of the claim is disclosed in the manner provided by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph in the earlier filed application. *See, e.g., Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed. Cir. 1998); *In re Scheiber*, 587 F.2d 59 (CCPA 1978).



# Circumstances Where Adequacy of Written Description Issue Arises (cont'd)

- **Reliance on priority under 35 USC 119**
  - Under 35 U.S.C. 119(a) or (e), the claims in a U.S. application are entitled to the benefit of a foreign priority date or the filing date of a provisional application if the corresponding foreign application or provisional application supports the claims in the manner required by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph. *In re Ziegler*, 992 F.2d 1197, 1200 (Fed. Cir. 1993); *In re Gosteli*, 872 F.2d 1008 (Fed. Cir. 1989).
- **Support for a claim corresponding to a count in an interference**
  - In an interference proceeding, the claim corresponding to a count must be supported by the specification in the manner provided by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph.
  - Furthermore, when a party to an interference seeks the benefit of an earlier-filed U.S. patent application, the earlier application must meet the requirements of 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph for the subject matter of the count. *Hyatt v. Boone*, 146 F.3d 1348, 1352 (Fed. Cir. 1998).

## Circumstances Where Adequacy of Written Description Issue Arises (cont'd)

### ■ Original claim not sufficiently described

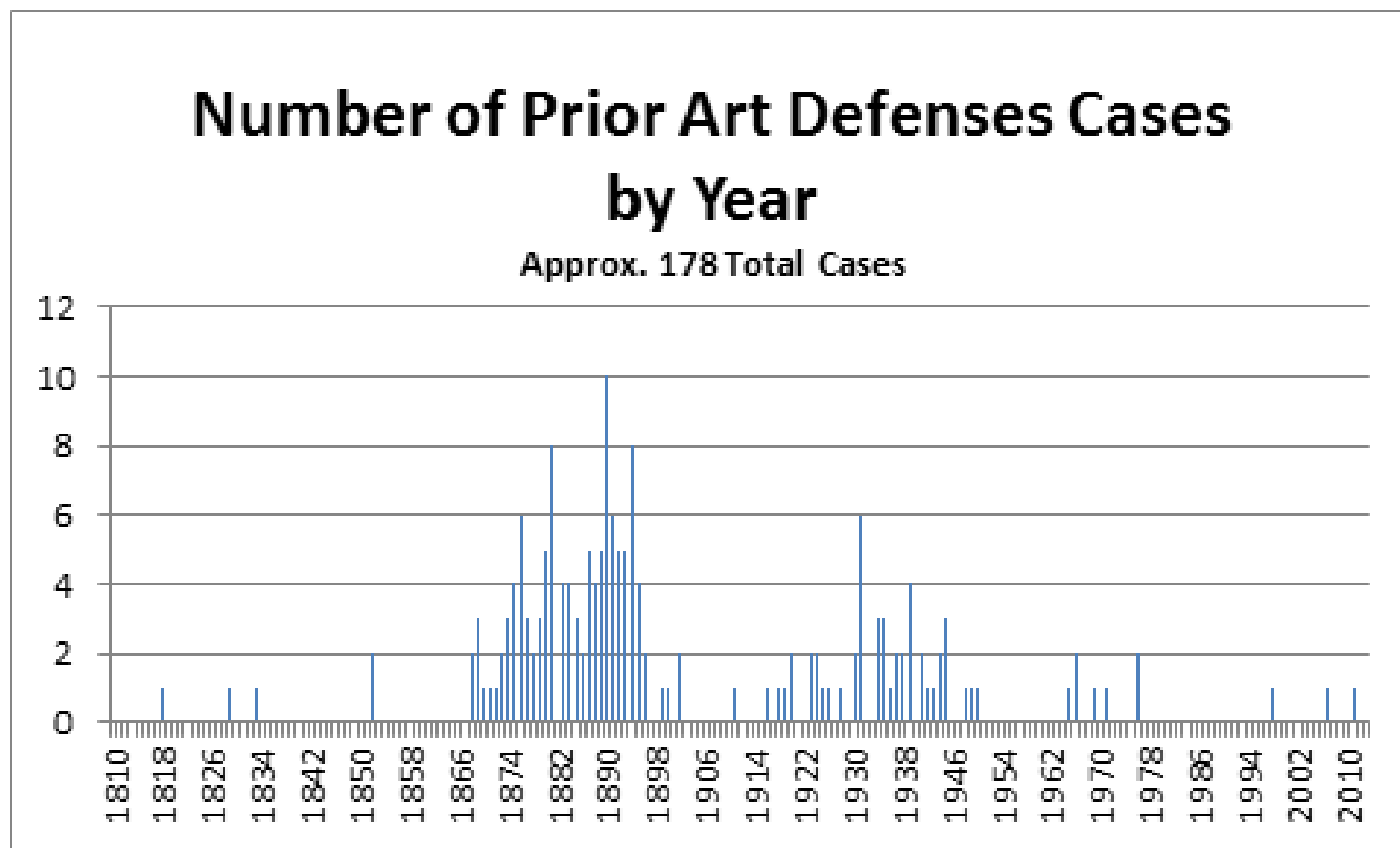
- While there is a presumption that an adequate written description of the claimed invention is present in the specification as filed, a question as to whether a specification provides an adequate written description may arise in the context of an original claim.
- An original claim may lack written description support when (1) the claim defines the invention in functional language specifying a desired result but the disclosure fails to sufficiently identify how the function is performed or the result is achieved or (2) a broad genus claim is presented but the disclosure only describes a narrow species with no evidence that the genus is contemplated.
- The written description requirement is not necessarily met when the claim language appears in *ipsis verbis* in the specification. “Even if a claim is supported by the specification, the language of the specification, to the extent possible, must describe the claimed invention so that one skilled in the art can recognize what is claimed. The appearance of mere indistinct words in a specification or a claim, even an original claim, does not necessarily satisfy that requirement.” *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956, 968 (Fed. Cir. 2002).

## Circumstances Where Adequacy of Written Description Issue Arises (cont'd)

- **Indefiniteness rejection of a means- (or step-) plus function limitation**
  - A claim limitation expressed in means- (or step-) plus-function language “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.
  - If the specification fails to disclose sufficient corresponding structure, materials, or acts that perform the entire claimed function, then the claim limitation is indefinite because the applicant has in effect failed to particularly point out and distinctly claim the invention as required by 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph.
  - Such a limitation also lacks an adequate written description as required by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph, because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention.

# Prior Art Defenses At the Supreme Court

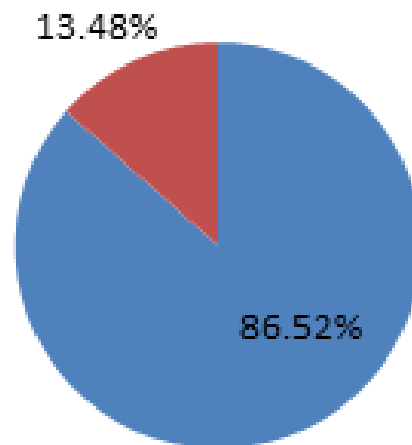
# Prior Art Defenses



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## Prior Art Defenses Supreme Court Cases

■ no dissent ■ including dissent



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# Prior Art Defenses

- Historically, the most patent law-related cases that the Supreme Court has heard involve the prior art defenses
- The Supreme Court has shown a fairly broad view of the anticipation defense, for example:
  - *Brush v. Condit* – Anticipation
  - *Electric Storage Battery v. Shimadzu* – Public use
  - *Wayne K. Pfaff v. Wells Electronics, Inc.* – Public sale
- The Supreme Court has also ruled on a variety of obviousness cases, but it has only been within the last fifty years that these rulings have had a significant impact on patent law
  - *Graham v. John Deere* – 1966
  - *KSR Int'l Co. v. Teleflex Inc.* – 2007

# 35 U.S.C. §102



# Novelty

- The novelty requirement of basically three categories:
  - (1) prior use
  - (2) the on-sale bar
  - (3) anticipation based on prior publications.

# 35 U.S.C. §102 at the Supreme Court

# Novelty

- *Electric Storage Battery Co. v. Shimadzu et al.*, 307 U.S. 5 (1939)
  - “A mere experimental use is not the public use defined by the Act, but a single use for profit, not purposely hidden, is such. The ordinary use of a machine or the practise of a process in a factory in the usual course of producing articles for commercial purposes is a public use.”
- *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55 (1998)
  - [T]he on-sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. . . . Second, the invention must be ready for patenting.

# *Helsinn v. Teva*, 139 S. Ct. 628 (2019)

## ■ Federal Circuit held:

- A “secret” sale constitutes a sale.
- Agreement obligated purchaser to buy patentee's claimed invention upon FDA approval.
- This constituted a “sale” of the claimed invention prior to critical date, as required for both pre-AIA and post-AIA version of statute.
- The agreement contained all the material terms to constitute a sale.

## ■ Question to Supreme Court:

- Does the “otherwise available to the public” language of post-AIA § 102 now limit the statute as to only apply to public sales?
  - 102(a)(1): “(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.”

## *Helsinn v. Teva* (cont'd)

- “It has long been held that ‘secret sales’ can invalidate a patent.”
- “In light of this settled pre-AIA precedent on the meaning of ‘on sale,’ we presume that when Congress reenacted the same language in the AIA, it adopted the earlier judicial construction of that phrase.”
- The Court re-affirmed the *Pfaff* test.
- “The AIA ... retained the on-sale bar and added the catchall phrase ‘or otherwise available to the public....’ We must decide whether these changes altered the meaning of the ‘on sale’ bar. We hold that they do not.”

# 35 U.S.C. §102 at the Federal Circuit

# Anticipation – Elements Arranged as in Claim

- *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008)
  - “[I]n order to demonstrate anticipation, the proponent must show ‘that the four corners of a single, prior art document describe every element of the claimed invention.’”
  - “Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’”
- *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 21 (Fed. Cir. 2012)
  - But, “the reference need not satisfy an *ipsissimis verbis* test” and the reference must “enable one of ordinary skill in the art to make the invention without undue experimentation.”

# Anticipation – Immediate Envisagement

- *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016)
  - In the *Blue Calypso* case, the patent owner did not dispute that the prior art reference (Paul) disclosed all the elements of the claim, but argued the combination was not explicitly found in Paul and that two relevant elements were precluded from combination.
    - Those elements were a “campaign” tool used to create targeted marketing campaigns and a refer-a-friend tool that were argued as “separate and distinct.”
  - “[A] prior art reference will anticipate if it ‘disclose[s] each and every element of the claimed invention ... arranged or combined in the same way as in the claim.’”



# Anticipation – Immediate Envisagement

- *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016) (Cont'd)
  - But “a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.” (citing *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed.Cir.2015)).
  - The Federal Circuit applied the *Kennametal* case to find the PTAB’s decision finding the claims anticipated because Paul contemplated “combining the disclosed functionalities” and relied Paul’s disclosure that said the features “may be produced in a single computer system having ... elements or means combining the performance of any of the functions or steps disclosed or claimed....”

# Inherency

- *HTC Corp. v. Cellular Commc'ns Equip., LLC*, 877 F.3d 1361, 1368 (Fed. Cir. 2017)
  - “A party seeking to establish inherent anticipation must show that a person of ordinary skill in the art would recognize that missing descriptive matter in a prior art reference is nevertheless necessarily present.”
  - The '174 Patent “is directed to methods and apparatuses for a radio communications system where a subscriber station, *i.e.*, a mobile device, is assigned a plurality of codes for transmitting messages.”
  - The '174 Patent was challenged as anticipated by the Baker reference, where Baker disclosed a mobile station that transmits acknowledgment (“ACK”) or non-acknowledgement (“NACK”) signals to a base station.

# Inherency

- *HTC Corp. v. Cellular Commc'ns Equip., LLC (cont'd)*
  - “The Board found that HTC failed to show that the Baker reference discloses a mobile station that transmits EDCH messages, relying on an admission from HTC's counsel stating that he did not know whether ‘Baker [is] talking about an EDCH message and not something else....”
  - “Absent evidence that Baker teaches a mobile station that sends single-frame EDCH messages, the Board found that the start of a frame in Baker is not inherently the start of a message transmission.”
  - “HTC failed to identify evidence showing that Baker transmits EDCH messages. Without such evidence, HTC has only shown that it is possible for the start of a frame preceding an ACK/NACK signal to correspond to the start of a message transmission. This possibility, however, is not enough to find that Baker necessarily discloses the ‘start of a message transmission’ limitation in independent claims 1, 9 and 18 of the '174 patent.”

# Incorporation-By-Reference and Claim Scope

- *X2Y Attenuators, LLC v. Int'l Trade Comm'n*, 757 F.3d 1358 (Fed. Cir. 2014)
  - The appeal arose from a dispute at the ITC, and the claims were directed toward shielded electrodes arranged to reduce “parasitic capacitance.”
  - The patent-at-issue’s disclosure incorporated-by-reference that the configuration is a “feature[] universal to all embodiments.”
  - “[W]e have held that labeling an embodiment or an element as ‘essential’ may rise to the level of disavowal.”

# Incorporation-By-Reference and Claim Scope

- *X2Y Attenuators, LLC v. Int'l Trade Comm'n* (cont'd)
  - The incorporated statement “demonstrates a clear intention to limit the claim scope ‘using words or expressions of manifest exclusion or restriction.’”
  - “[I]ncorporated patents are ‘effectively part of the host [patents] as if [they] were explicitly contained therein.’”
  - “Of course, ‘incorporation by reference does not convert the invention of the incorporated patent into the invention of the host patent.’... And it is certainly possible that a clear and unmistakable disavowal in an incorporated patent is no longer so when placed in the context of the disclosure of the host patent. This, however is not the case.”

# Public Use and On-Sale Bar at the Federal Circuit

## ■ Background

- Konrad is the owner of three patents, all directed to systems that allow a computer user to access and search a database residing on a remote computer.
- Konrad argues that the district court erred in determining that his 1991 demonstration of the Lawrence Berkeley Laboratory STAFF remote database object to University of California computing personnel Shuli Roth and Dick Peters was an invalidating public use.
- He maintains that the invention disclosure he submitted to the Lawrence Berkeley Laboratory patent department in October of 1990, established an expectation of confidentiality from Roth and Peters.

# Netscape Communications Corp. v. Konrad (cont'd)

## ■ Holding

- “Public use includes ‘any use of [the claimed] invention by a person other than the inventor who is under no limitation, restriction or obligation of secrecy to the inventor.’ *Petrolite Corp. v. Baker Hughes Inc.*, 96 F.3d 1423, 1425, 40 USPQ2d 1201, 1203 (Fed. Cir. 1996) (citing *In re Smith*, 714 F.2d 1127, 1134, 218 USPQ 976, 983 (Fed. Cir. 1983)).”
- “The law recognizes that an inventor may test his invention in public without incurring the public use bar. ‘Experimental use negates public use; when proved, it may show that particular acts, even if apparently public in a colloquial sense, do not constitute a public use within the meaning of section 102.’”
- “We look to the totality of the circumstances when evaluating whether there has been a public use within the meaning of section 102(b). ... The circumstances may include: the nature of the activity that occurred in public; the public access to and knowledge of the public use; whether there was any confidentiality obligation imposed on persons who observed the use; whether persons other than the inventor performed the testing; the number of tests; the length of the test period in relation to tests of similar devices; and whether the inventor received payment for the testing.”



# *Netscape Communications Corp. v. Konrad* (cont'd)

## ■ Holding

- “Konrad did not show that Roth or Peters were ever made aware of any requirement of confidentiality or even apprised of the invention disclosure forms that he submitted to the Lawrence Berkeley Laboratory patent department. He also did not make any discernable effort to inform the 1991 demonstration attendees of the requirement of confidentiality, or otherwise indicate to them that they would owe him a duty of confidentiality.”
- “Konrad argues that the 1991 demonstration was not a public use because he did not disclose every limitation of his invention, particularly the starter client of the remote database object, to Roth and Peters. We are not persuaded. Section 102(b) may bar patentability by anticipation if the device used in public includes every limitation of the later claimed invention, or by obviousness if the differences between the claimed invention and the device used would have been obvious to one of ordinary skill in the art.”

# Public Use Bar - *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565 (Fed. Cir. 1997)

## ■ Background

- Lawrence B. Lockwood is the owner of patents regarding a computerized system of tailoring sales presentations to travel agents' customers brought action against American Airlines, claiming that airline's computerized reservation SABRE system was infringing.
- The District Court held that patents were invalid and not infringed by American Airlines, Inc.'s SABREvision system, and patent owner appealed.
- American Airlines submitted an affidavit averring that the SABRE system was introduced to the public in 1962, had over one thousand connected sales desks by 1965, and was connected to the reservation systems for most of the other airlines by 1970.
- The District Court relied upon the original SABRE system as prior art to the patents at issue.

## ■ Holding

- “If a device was ‘known or used by others’ in this country before the date of invention or if it was ‘in public use’ in this country more than one year before the date of application, it qualifies as prior art. See 35 U.S.C. § 102(a) and (b) (1994).”
- “Lockwood attempts to preclude summary judgment by pointing to record testimony that one skilled in the art would not be able to build and practice the claimed invention without access to the secret aspects of SABRE. However, it is the claims that define a patented invention. . . . American’s public use of the high-level aspects of the SABRE system was enough to place the *claimed* features of the '359 patent in the public's possession.”

## ■ Summary

- The Medicines Company (“MedCo”) asserted two patents covering its Angiomax drug product against Hospira, a generic drug maker and ANDA filer. Although Angiomax has been available for decades, MedCo developed a new method of formulating Angiomax to reduce impurities. This formulation was the subject of the asserted patents, which issued on July 27, 2008.
- Prior to filing the patents, MedCo entered into a distribution agreement on February 27, 2007 with Integrated Commercialization Solutions, Inc. (“ICS”) to distribute the new Angiomax formulation.
- The agreement stated that MedCo “desire[d] to sell the Product” to ICS and ICS “desire[d] to purchase and distribute the Product.” Under the agreement, title passed to ICS upon receipt of the Product at the distribution center.
- The district court found that the invention was ready for patenting at the time of the agreement, but found that the patents were not invalid under 102(b)’s on-sale bar because the distribution agreement between MedCo and ICS did not constitute an offer to sell.

# Medicines Co. v. Hospira, Inc. (cont'd)

## ■ Holding

- “A patent is invalid under the on-sale bar if, before the critical date, 1) the product is the subject of a commercial offer for sale, and 2) the invention is ready for patenting. *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 67 (1998).”
- “Although the Uniform Commercial Code (UCC) is not dispositive, it is a useful guide for defining whether ‘a communication or series of communications rises to the level of a commercial offer for sale.’ *Id.* (quoting *Grp. One*, 254 F.3d at 1047). A commercial sale “is a contract between parties to give and to pass rights of property for consideration which the buyer pays or promises to pay the seller for the thing bought or sold.” *Id.* (quoting *Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1361 (Fed. Cir. 2010)). An offer for sale is ‘one which the other party could make into a binding contract by simple acceptance.’ *Grp. One*, 254 F.3d at 1048.”

# Medicines Co. v. Hospira, Inc. (cont'd)

## ■ Holding (cont'd)

- “The terms of the Distribution Agreement make clear that the Medicines Company and ICS entered into an agreement to sell and purchase the product. See J.A. 14674. Those relevant terms include: a statement that The Medicines Company ‘now desire[d] to sell the Product’ to ICS and ICS ‘desire[d] to purchase and distribute the Product,’ J.A. 14674; the price of the product, J.A. 14697; the purchase schedule, J.A. 14676 ¶ 3.1; and the passage of title from The Medicines Company to ICS, J.A. 14678 ¶ 4.1.”
- “Furthermore, the on-sale bar does not exempt commercial agreements between a patentee and its supplier or distributor.”

# On Sale Bar - *Plumtree Software, Inc. v. Datamize, LLC*, 473 F.3d 1152 (Fed. Cir. 2006)

## ■ Background

- On February 27, 1996, Kevin Burns, owner of Datamize, LLC (Datamize) (defendant), applied for patents for a computer program authoring tool and software. The patents were eventually issued.
- Burns had completed development of the authoring tool in December 1994, at which time Burns' company, Multimedia Adventures (MA), discovered that the Ski Industry of America (SIA) was holding a tradeshow in March 1995.
- On January 17, 1995, MA representatives gave a presentation about the authoring tool to SIA. On January 25, 1995, SIA sent MA a letter memorializing the parties' agreement that, in exchange for a waived sponsorship fee and floor space at the tradeshow, MA would provide the software package necessary to produce a touch-screen information kiosk.
- Plumtree Software, Inc. filed a declaratory judgment action against Datamize, contending that the patents were invalid under the 35 U.S.C. § 102(b) on sale bar.
- The district court granted Plumtree's motion for summary judgment, and Datamize appealed.

## ■ Holding

- “However, on this record, we cannot sustain the district court's conclusion that the method claims are invalid under the on sale bar rule. The district court reasoned that ‘the agreement with SIA embodied all of the claims of the ‘040 and ‘418 patents’ because ‘the kiosk at the trade show embodied all of the claims.’ Plumtree, slip op. at 24. In so holding, the district court relied on Kevin Burns's testimony that ‘the network kiosk system that was demonstrated in March of 1995 at the Las Vegas show embod[ied] all the claims’ of the ‘040 and ‘418 patents. These statements reflect confusion as to the nature of the patented product. Here the invention reflected in the method claims is a process for creating a kiosk system, not the kiosk system itself. The kiosk system itself is not patented. The court’s focus on whether the kiosk system somehow embodied the claims of the patent was misplaced, and the district court's reasoning does not support a grant of summary judgment. Nor does the record support the ultimate result reached by the district court.”



## ■ Holding

- “Plumtree could meet the first prong of the *Pfaff* test under either of two alternative theories. First, Plumtree could demonstrate that before the critical date MA made a commercial offer to perform the patented method (even if the performance itself occurred after the critical date). Second, Plumtree could demonstrate that before the critical date MA in fact performed the patented method for a promise of future compensation. Under the second theory, Plumtree would not need to prove that the contract itself required performance of the patented method.”

# Means-Plus-Function/Step-Plus-Function

## 35 U.S.C. § 112(f)

- Under 35 U.S.C. § 112(6)/(f), a claim element may be expressed as “means for...” or a “step for...” without reciting specific structure, materials, or acts in the claim language.
- These claims are interpreted to cover only the corresponding structure, material, or acts described in the specification and any equivalents thereof.

# Means-Plus-Function at the Federal Circuit

# *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003 (Fed. Cir. 2018)

- Patent claims were directed to the graphical user interfaces of devices such as computers and mobile phones with modifications that allow the interfaces to be controlled using pre-defined pointer or touch movements instead of mouse clicks.
- The district court found the claims invalid as indefinite, treating the “program” and “user interface code” terms as nonce words, invoking § 112, ¶ 6.

# *Zeroclick, LLC v. Apple Inc.* (cont'd)

- The Federal Circuit reversed and remanded because the district court “legally erred by not giving effect to the unrebutted presumption against the application of § 112, ¶ 6.”
- This was for three reasons:
  - 1. “the mere fact that the disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions.”
  - 2. “the court’s analysis removed the terms from their context, which otherwise strongly suggests the plain and ordinary meaning of the terms.”
  - 3. “the district court made no pertinent finding that compels the conclusion that a conventional graphical user interface program or code is used in common parlance as substitute for ‘means.’”

# 35 U.S.C. 112, ¶ 6 at the Federal Circuit

- *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999):
  - “In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.”
- *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328 (Fed. Cir. 2008):
  - “In cases involving a computer-implemented invention in which the inventor has invoked means-plus-function claiming, this court has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor. The point of the requirement that the patentee disclose particular structure in the specification and that the scope of the patent claims be limited to that structure and its equivalents is to avoid pure functional claiming.”

## 35 U.S.C. 112, ¶ 6 at the Federal Circuit (Cont'd)

- *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359 (Fed. Cir. 2008):
  - “[A] means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function.”



# *In re Katz*, 639 F.3d 1303 (Fed. Cir. 2011)

## ■ Means-Plus-Function:

- Certain claims contained “a means-plus-function limitation that recites a ‘processing means ... for receiving customer number data entered by a caller and for storing the customer number data ... and based on a condition coupling an incoming call to the operator terminal, the processing means visually displaying the customer number data.’ The [patents], however, do not disclose an algorithm that corresponds to the ‘based on a condition coupling an incoming call to the operator terminal’ function.”
- And “by claiming a processor programmed to perform a specialized function without disclosing the internal structure of that processor in the form of an algorithm, Katz's claims exhibit the ‘overbreadth inherent in open-ended functional claims.’”

## *In re Katz* (cont'd)

- But other claims had not “claimed a specific function performed by a special purpose computer, but has simply recited the claimed functions of ‘processing,’ ‘receiving,’ and ‘storing.’ Absent a possible narrower construction of the terms ‘processing,’ ‘receiving,’ and ‘storing,’ discussed below, those functions can be achieved by any general purpose computer without special programming. As such, it was not necessary to disclose more structure than the general purpose processor that performs those functions. Those seven claims do not run afoul of the rule against purely functional claiming, because the functions of ‘processing,’ ‘receiving,’ and ‘storing’ are coextensive with the structure disclosed, i.e., a general purpose processor.”
- “The key inquiry is whether one of ordinary skill in the art would understand the patent to disclose structure that sufficiently corresponds to the claimed function, which in the case of a specific function implemented on a general purpose computer requires an algorithm.”

# Step-Plus-Function

- *Masco Corp. v. United States*, 303 F.3d 1316, 1327 (Fed. Cir. 2002)
  - “[W]here a method claim does not contain the term ‘step[s] for,’ a limitation of that claim cannot be construed as a step-plus-function limitation without a showing that the limitation contains no act.”
- *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 381 F.3d 1371, 1382 (Fed. Cir. 2004)
  - “Method claims necessarily recite the steps of the method, and the preamble words that “the method comprises the steps of” do not automatically convert each ensuing step into the form of § 112 ¶ 6. Nor does the preamble usage “steps of” create a presumption that each ensuing step is in step-plus-function form; to the contrary, the absence of the signal “step for” creates the contrary presumption.”

# Indefiniteness and Means-Plus-Function

- *Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027 (Fed. Cir. 2017)
  - Patent relates to a handheld tool for (i) activating remote tire pressure monitoring system (RTMS) tire sensors and (ii) communicating with a vehicle's RTMS receiving unit.
  - The Board found the claims unpatentable as obvious and denied a motion to amend in an IPR.
  - The new claims recited “means for recording a most recent means for activating signal that was utilized to successfully activate a tire sensor.”
  - “When no structure in the specification is linked to the function in a means-plus-function claim element, that claim is indefinite under 35 U.S.C. § 112, ¶ 2.”

# Indefiniteness and Means-Plus-Function

- *Bosch Automotive Service Solutions, LLC v. Matal*, 878 F.3d 1027 (Fed. Cir. 2017) (Cont'd)
  - “The Board concluded that this means-plus-function limitation could not be construed and thus was indefinite because the portions of the figures and written description on which Bosch relied for the disclosure of an algorithm for performing the recited function lacked sufficient disclosure”
  - The Federal Circuit overturned this ruling, however, because it improperly placed the burden of patentability on the patent owner, and the case was remanded.

# 112(f) and Incorporation-by-Reference

- *Droplets, Inc. v. E\*TRADE Bank*, 887 F.3d 1309, 1318 (Fed. Cir. 2018)
  - “‘Essential material’ can be incorporated by reference, but only by way of a U.S. patent or U.S. patent application publication which ‘does not itself incorporate such essential material by reference.’ 37 C.F.R. § 1.57(c). ‘Essential material’ is defined as material ‘that is necessary to:’ (1) provide a written description of the claimed invention as required by the first paragraph of 35 U.S.C. § 112; (2) describe the claimed invention as required by the second paragraph of § 112; or (3) describe the structure, material, or acts that correspond to a claimed means or step for performing a specified function as required by the sixth paragraph of § 112. *Id.* Accordingly, ‘essential material’ is expressly defined as material necessary to meet the requirements of § 112.”

# *William Grecia v. Samsung Electronics* (Fed. Cir. 2019)

## ■ Background

- William Grecia asserted claims 21, 22, 24, 25, and 27–30 of U.S. Patent No. 8,533,860 in a patent infringement suit against Samsung Electronics America, Inc.
- At claim construction, the district court concluded that claim 21 invokes 35 U.S.C. § 112, ¶ 6 and is indefinite under § 112, ¶ 2. Because claims 22, 24, 25, and 27–30 depend from claim 21, the district court ruled that those claims were likewise in- definite.
- The Federal Circuit affirmed the district court’s decision that claim 21, and thus also dependent claims 22, 24, 25, and 27–30, are invalid as indefinite.

# William Grecia v. Samsung Electronics (cont'd)

## Claim 21, the only claim at issue, recites:

21. A computer product comprising a memory, a CPU, a communications console and a non-transitory computer usable medium, the computer usable medium having an operating system stored therein, **the computer product further comprising a customization module**, the computer product authorizing access to digital content, wherein the digital content is at least one of an application, a video, or a video game, wherein the digital content is at least one of encrypted or not encrypted, the computer product configured to perform the steps of:

- receiving a digital content access request from the communications console, the access request being a read or write request of metadata of the digital content, the metadata of the digital content being one or more of a database or storage in connection to the computer product, the request comprising a verification token corresponding to the digital content, the verification token is handled by a user as a redeemable instrument, wherein the verification token comprises at least one of a purchase permission, a rental permission, or a membership permission wherein the at least one of purchase permission, rental permission, or membership permission being represented by one or more of a tag, a letter, a number, a combination of letters and numbers, a successful payment, a rights token, a phrase, a name, a membership credential, an image, a logo, a service name, an authorization, a list, an interface button, a downloadable program, or the redeemable instrument;

- authenticating the verification token;

- establishing a connection with the communications console, wherein the communications console is a combination of a graphic user interface (GUI) and an Applications Programmable Interface (API) wherein the API is obtained from a verified web service, the web service capable of facilitating a two way data exchange session to complete a verification process wherein the data exchange session comprises at least one identification reference;

- requesting the at least one identification reference from the at least one communications console, wherein the identification reference comprises one or more of a verified web service account identifier, letter, number, rights token, e-mail, password, access time, serial number, address, manufacturer identification, checksum, operating system version, browser version, credential, cookie, or key, or ID;

- receiving the at least one identification reference from the communications console; and

- writing at least one of the verification token or the identification reference into the said metadata.

(Emphasis added.)



# William Grecia v. Samsung Electronics (cont'd)

## ■ Holding:

- Module is a well-known nonce word that can operate as a substitute for “means.”
- Nor does the prefix “customization” impart structure, because it at best describes the module’s intended functionality.
- The specification fails to explain how such customization is performed. Instead, the specification only describes the results of customization, *i.e.*, customizing a user access panel of encrypted digital media with information such as “a banner, a logo, an image, an advertisement, a tag line, a header message and textual information.”
- Because the specification merely describes the results of customization without any algorithm for configuring the claimed module to obtain those results, the “corresponding structure” required under § 112, ¶ 6, thus rendering claim 21 indefinite under § 112, ¶ 2.

## ■ Summary

- Fiber had asserted claims directed to an optical beam switching system that recited a “*control* so that a first beam directing device will be *positioned* to direct the optical beam.”
- The district court held that “control” was a nonce word that was directly tied to the function of positioning the beam.
- After determining that “control” invoked § 112, ¶ 6, the district court looked to the specification for the corresponding structure but did not find it, and held the claims invalid for indefiniteness.
- Fiber argued that another patent, incorporated by reference in the specification, disclosed the necessary structure, and appealed this issue to the Federal Circuit.
- The Federal Circuit affirmed the district court’s final judgement that all asserted claims are invalid as indefinite.

# Fiber, LLC. v. Ciena Corp. (cont'd)

27. An optical beam switching system for transmitting an optical beam from at least one source to at least one of a plurality of optical receptors comprising:

- at least one source of an optical beam;
- at least one first beam directing device mounted across a first area of free space from the source;
- at least one additional beam directing device;
- at least one second beam directing device mounted across a second area of free space from the first beam directing device;
- a plurality of optical receptors;
- 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
- at least one data gathering and transmission element to provide an indication regarding the current orientation of the controlled beam directing device or the current location of the optical beam to the control for adjusting at least one of the beam directing devices.

(Emphasis added.)

# Fiber, LLC. v. Ciena Corp. (cont'd)

53. An optical beam switching system for transmitting an optical beam from at least one source to at least one of a plurality of optical receptors comprising:

- at least one source of an optical beam;
- at least one first beam directing device mounted across a first area of free space from the source;
- a plurality of optical receptors mounted across a second area of free space from the first beam directing device;
- a **control** so that a first beam directing device will be **positioned** to direct the optical beam from at least one source to a selected one of said plurality of optical receptors; and data gathering and transmission element
  - at least one to provide an indication regarding the current orientation of the controlled beam directing device or the current location of the optical beam to the control for adjusting at least one of the beam directing devices.

(Emphasis added.)

# *Fiber, LLC. v. Ciena Corp.* (cont'd)

## ■ Holding:

- The term “control” is a means-plus-function limitation invoking § 112, ¶ 6 because it is used in relation to the function of positioning the beam directing device.
- Material incorporated by reference cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a means-plus-function clause.
- The definiteness requirement is that the specification adequately disclose corresponding structure. Expert testimony cannot create structure where none is adequately disclosed in the specification.

# 35 U.S.C. §112(f) at the PTAB

# 35 U.S.C. 112, ¶ 6 in IPR Proceedings

- *BlackBerry Corp. v. MobileMedia Ideas, LLC*, Case, IPR2013–00036, slip op. at 19–20 (PTAB Mar. 7, 2014) (Paper 65)
  - “Except for a narrow exception explained in *In re Katz*, 639 F.3d 1303, 1316 (Fed. Cir. 2011), concerning generic functions performed by a general-purpose computer, such as “processing,” “receiving” and “storing,” a computer-implemented means-plus-function element is indefinite unless the specification discloses the specific algorithm used by the computer to perform the recited function.”
  - “[A]llowing a computer programmed to perform a specialized function to be claimed without disclosure of the algorithm used for that programming would exhibit the same type of impermissible overbreadth of purely functional claims.”

## 35 U.S.C. 112, ¶ 6 in IPR Proceedings

- *BlackBerry Corp. v. MobileMedia Ideas, LLC*, Case, IPR2013–00036, slip op. at 19–20 (PTAB Mar. 7, 2014) (Paper 65) (Cont’d)
  - “Thus, the disclosure of a general-purpose computer is insufficient to provide the corresponding structure required by 35 U.S.C. § 112, sixth paragraph, for a means-plus-function element recited as performing anything other than a basic generic function of a general-purpose computer.”
  - As a result, the term “processing means for encrypting the information signals prior to storage in said memory means” was deemed indefinite, despite the specification’s recitation of “recording/reproducing section 18 (Fig. 1)” that is “made of a microprocessor and the like, or an equivalent thereof, programmed as described in the patent to perform the claimed function.”



# **USPTO Examination Guidance For Computer-Implemented Functional Claim Limitations for Compliance with 35 U.S.C. § 112**

# Functional Claim Language

- An element of a functional claim is described in terms of what it does rather than by its physical structure. *Halliburton Oil Well Cementing Company v. Walker*, 329 U.S. 1 (1946).
- MPEP 2173.05(g) Functional Limitations
  - 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). *In re Swinehart*, 439 F.2d 210, 212, 169 USPQ 226, 229 (CCPA 1971).
  - 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. *Id.*
  - In fact, 35 U.S.C. 112(f) and pre-AIA 35 U.S.C. 112, sixth paragraph, expressly authorize a form of functional claiming (means- (or step-) plus- function claim limitations discussed in MPEP § 2181 *et seq.*).
  - Functional language may also be employed to limit the claims without using the means-plus-function format. See, e.g., *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1363, 52 USPQ2d 1001, 1005 (Fed. Cir. 1999).

# Functional Claim Language

- Functional claim language could be written broadly enough to encompass every existing and future structure capable of performing a claimed function.
  - The way the functional language is recited can determine whether the claim covers any device *capable of* performing the function, or only devices *designed* or *made* to perform the function. *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335 (Fed. Cir. 2012).
  - Narrower meaning: made to, designed to, configured to
  - Broader meaning: suitable for, capable of, having the capacity of
  - “In common parlance, the phrase ‘adapted to’ is frequently used to mean ‘made to,’ ‘designed to,’ or ‘configured to,’ but it can also be used in a broader sense to mean ‘capable of’ or ‘suitable for.’”
  - Intrinsic evidence (*i.e.*, the specification, file history, or other claims) may provide the context for determining the interpretation of “adapted to.”

# Functional Claim Language

- During patent prosecution, patent applicants have increasingly used various claim wording strategies in an attempt to have the benefit of functional language while avoiding 112(f) interpretation.
  - Examples: replacing the word “means” with another word such as “mechanism” or “unit,” and/or replacing the word “for” with “configured to,” “adapted to,” or “arranged to.”
  - In contrast to means-plus-function claim terms, “adapted to” or “configured to” may not be an automatic trigger for the narrow interpretations limited to the structure/function described in the specification during prosecution.
  - Courts will apply §112(f) to claim limitations that are purely functional and do not recite structure or acts in support thereof, regardless of whether the actual words “means for” or “step for” are used.

# USPTO Federal Register Notice (Jan. 7, 2019)

- The patent examination process must ensure that:

(1) The claims of an application have proper written description and enablement support under 35 U.S.C. § 112(a) in the disclosure of the application, and

(2) functional limitations (*i.e.*, claim limitations that define an element in terms of the function it performs without reciting the structure, materials, or acts that perform the function) are properly treated as means (or step) plus function limitations under 35 U.S.C. § 112(f), and are sufficiently definite under 35 U.S.C. § 112(b), as appropriate.

These requirements are particularly relevant to computer-implemented functional claims.

# Background

Federal Circuit recognized a problem with broad functional claiming without adequate structural support in the specification.

- *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (*en banc*)
  - § 112, ¶ 6 may still apply even when “means” is not used when claiming in functional, rather than structural, terms.
  - The rebuttable presumption against invoking § 112, ¶ 6 in the absence of that word can be overcome “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.”
  - “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.”

## Background - 35 U.S.C. §§ 101 and 112

- In the context of 35 U.S.C. § 101, the Federal Circuit has also criticized improper functional claiming. *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2016) (observing that “the claims do not go beyond requiring the collection, analysis, and display of available information in a particular field, stating those functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over conventional computer and network technology”); see also *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1327 (Fed. Cir. 2016) (Mayer, J., concurring) (stating, “[s]oftware patents typically . . . describe, in intentionally vague and broad language, a particular goal or objective [of the software]”).
- Problems with functional claiming, *i.e.*, when a claim is purely functional in nature rather than reciting with any specificity how the claimed function is achieved, can be effectively addressed using long-standing, well-understood principles under 35 U.S.C. § 112.

# PTO Guidance Part I: 35 U.S.C. §§ 112(f) and 112(b)

- Broadest reasonable interpretation (BRI) of claims.
- Application of 35 U.S.C. § 112(f) is driven by the claim language, not by applicant's intent or mere statement to the contrary included in the specification or made during prosecution.
- 3-Prong analysis of identifying 35 U.S.C. § 112(f) claim limitations
  - The claim limitation uses the term “means,” “step,” or a generic placeholder for performing the claimed function.
  - The term is modified by a functional language .
  - The term is not modified by sufficient structure, material or acts for performing the function.

See MPEP 2181(I).



# Example Non-Structural Generic Placeholders

- Mechanism
- Module
- Device
- Unit
- Component
- Element
- Member
- Apparatus
- Machine
- System

Linking word or transition word: “for,” “configured to,” or “so that.”

The list is not exhaustive and similar generic placeholders may invoke 35 U.S.C. § 112(f).

# Structural Modifiers

- A limitation will not invoke 112(f) interpretation if a structural modifier further describes the “means” or the generic placeholder.
  - The term “detent mechanism” did not invoke 112(f) because the modifier “detent” denotes a type of structural device with a generally understood meaning in the mechanical arts. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996).
  - The term “colorant selection mechanism” did invoke 112 (f) because the modifier “colorant selection” does not connote sufficient structure to a person of ordinary skill in the art. *Mass. Inst. of Tech. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006).

# Structural Modifiers (cont'd)

- To determine whether a word, term, or phrase coupled with a function denotes structure, examiners should check whether:
  - The specification provides a description sufficient to inform one of ordinary skill in the art that the term denotes structure.
  - General and subject matter specific dictionaries provide evidence that the term has achieved recognition as a noun denoting structure.
  - The prior art provides evidence that the term has an art- recognized structure to perform the claimed function.

# USPTO Examination

- Examiners should apply the applicable presumption and the 3-prong analysis to interpret a computer-implemented functional claim limitation in accordance with 35 U.S.C. 112(f) as appropriate, including determining if the claim sets forth sufficient structure for performing the recited function.
- A determination that a claim is being interpreted according to 35 U.S.C. 112(f) should be expressly stated in the examiner's Office action.
- In response to the Office action, if applicant does not want to have the claim limitation interpreted under 35 U.S.C. 112(f), applicant may:
  - (1) Present a sufficient showing to establish that the claim limitation recites sufficient structure to perform the claimed function so as to avoid interpretation under 35 U.S.C. 112(f); or
  - (2) amend the claim limitation in a way that avoids interpretation under 35 U.S.C. 112(f) (e.g., by reciting sufficient structure to perform the claimed function).

# BRI of 112(f) Limitations

- BRI of a claim limitation under 35 U.S.C. 112(f) “is the structure, material or act described in the specification as performing the entire claimed function and equivalents to the disclosed structure, material or act.” MPEP § 2181.
- If the claim limitation is being interpreted under 35 U.S.C. 112(f), the specification must be consulted to determine the corresponding structure, material, or act for performing the claimed function.

# BRI of Non 112(f) Limitations

- The BRI given to a claim term that is not subject to 35 U.S.C. 112(f) is its plain meaning unless limited by a special definition or disavowal of claim scope set forth in the specification which must be clear and unmistakable (note that changing the plain meaning of a claim term by setting forth a special definition or disavowal of claim scope is uncommon).
- The plain meaning is the ordinary and customary meaning given to the term by those of ordinary skill in the art at the time of the effective filing date, evidenced by, for example, the words of the claims themselves, the specification, drawings, and prior art.

# Computer-Implemented § 112(f) Claim Limitations

- For a computer-implemented 35 U.S.C. 112(f) claim limitation, the specification must disclose an algorithm for performing the claimed specific computer function, or else the claim is indefinite under 35 U.S.C. 112(b).
  - An algorithm is defined, *e.g.*, as a finite sequence of steps for solving a logical or mathematical problem or performing a task. MPEP § 2181(II)(B).
  - Applicant may express that algorithm in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure. MPEP § 2181(II)(B); *Finisar Corp. v. DirectTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008).

# Computer-Implemented § 112(f) Claim Limitations

- In cases “involving a special purpose computer-implemented means-plus-function limitation, the Federal Circuit has consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor and that the specification must disclose an algorithm for performing the claimed function.” *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012).
- The corresponding structure for performing the specific computer function is not simply a general purpose computer by itself but a special purpose computer as programmed to perform the disclosed algorithm.



# Indefiniteness of computer-implemented § 112(f) claim limitations under § 112(b)

- Computer-implemented 35 U.S.C. 112(f) claim limitations will be indefinite under 35 U.S.C. 112(b):
  - The specification fails to disclose any algorithm to perform the claimed function.
  - Disclosure of an algorithm cannot be avoided by arguing that one of ordinary skill in the art is capable of writing software to convert a general purpose computer to a special purpose computer to perform the claimed function.

# Indefiniteness of computer-implemented § 112(f) claim limitations under § 112(b) (cont'd)

- Computer-implemented 35 U.S.C. 112(f) claim limitations will be indefinite under 35 U.S.C. 112(b):
  - A disclosed algorithm in the specification is insufficient to perform the entire claimed function(s).
  - The sufficiency of the algorithm is determined in view of what one of ordinary skill in the art would understand as sufficient to define the structure and make the boundaries of the claim understandable.

# Indefiniteness of computer-implemented § 112(f) claim limitations under § 112(b) (cont'd)

- Computer-implemented 35 U.S.C. 112(f) claim limitations will be indefinite under 35 U.S.C. 112(b) when the 3-prong analysis for determining whether the claim limitation should be interpreted under 35 U.S.C. 112(f) is inconclusive because of ambiguous words in the claim.
  - The Examiner should make a determination regarding whether the words in the claim recite sufficiently definite structure that performs the claimed function.
  - An Applicant has the opportunity during examination to present arguments to disagree with the examiner's 112(f) interpretation of the claim limitation, and amend the claim if needed, to clarify whether 112(f) applies.

# 35 U.S.C. § 112(a) – Written Description and Enablement

- When a claim containing a computer-implemented 35 U.S.C. 112(f) claim limitation is found to be indefinite under 35 U.S.C. 112(b) for failure to disclose sufficient corresponding structure (e.g., the computer and the algorithm) in the specification that performs the entire claimed function, it will also lack written description under 35 U.S.C. 112(a).
- Examiners should further consider whether the disclosure contains sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the full scope of the claimed invention in compliance with the enablement requirement of 35 U.S.C. 112(a).
- The written description and enablement requirements of 112(a) are separate and distinct.

# PTO Guidance Part II: 35 U.S.C. § 112(a)

- 35 U.S.C. § 112(a)
  - (a) IN GENERAL.—The specification shall contain a written description of the invention and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.
- As of September 16, 2011, America Invents Act (AIA) amended § 282 so failure to disclose “best mode” can no longer be grounds for invalidity or unenforceability in “proceedings” commenced on or after September 16, 2011.
- However, “best mode” remains as a statutory requirement of § 112. MPEP § 2165-2165.04.

# Written Description Requirement of 112(a)

- The specification must describe the claimed invention in sufficient detail (*e.g.*, by disclosure of an algorithm), such that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing.
- The specification must provide a sufficient description of an invention, not an indication of a result that one might achieve.

# Written Description Requirement of 112(a) (cont'd)

- The level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.
- Information that is well known in the art need not be described in detail in the specification. However, sufficient information must be provided to show that the inventor had possession of the invention as claimed. MPEP § 2163(II)(A)(2).

# Compliance with the Written Description Requirement

- Compare the scope of the claim with the scope of the description to determine whether applicant has demonstrated possession of the claimed invention.
- “The purpose of [the written description requirement] is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification.” *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed. Cir. 2000).
- “A claim will not be invalidated on [§ ] 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language.” *Union Oil Co. v. Atl. Richfield Co.*, 208 F.3d 989, 997 (Fed. Cir. 2000).



# Written Description Requirement for Computer-Implemented Inventions

- The determination of the sufficiency of the disclosure will require an inquiry into the sufficiency of both the disclosed hardware and the disclosed software (*i.e.*, how the claimed function is achieved), due to the interrelationship and interdependence of computer hardware and software.
- Whether the specification discloses the computer and the algorithm(s) that achieve the claimed function in sufficient detail that one of ordinary skill in the art can reasonably conclude that the inventor possessed the claimed subject matter at the time of filing.

# Enablement Requirement of 112(a)

- The specification must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.
- In determining whether experimentation is undue, *Wands* lists a number of factors to consider:
  1. The quantity of experimentation necessary
  2. The amount of direction or guidance presented
  3. The presence or absence of working examples
  4. The nature of the invention
  5. The state of the prior art
  6. The relative skill of those in the art
  7. The predictability or unpredictability of the art
  8. The breadth of the claims

*In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

# Enablement Requirement of 112(a) (cont'd)

- Determine what each claim recites and what subject matter is encompassed by the claim when the claim is considered as a whole, not when its parts are analyzed individually.
- Not everything necessary to practice the invention need be disclosed.
  - A specification need not disclose what is well known in the art.
  - Applicant cannot rely on the knowledge of one skilled in the art to supply information that is required to enable the novel aspect of the claimed invention when the enabling knowledge is in fact not known in the art.

# Enablement Requirement of 112(a) (cont'd)

- This is of particular importance with respect to computer-implemented inventions due to the high level of skill in the art and the similarly high level of predictability in generating programs to achieve an intended result without undue experimentation.
- A rejection for lack of enablement must be made when the specification does not enable the full scope of the claim.

# Patent Legislation

# Patent Eligibility Reform in Congress

- In April 2019, Senators Chris Coons (D-DE) and Thom Tillis (R-NC) proposed a draft framework for legislation reformulating the standards for determining patent eligibility under § 101 of the Patent Act.
- The draft bill would be expected to significantly reduce challenges to patents under § 101, leaving patent law to focus on the definiteness, enablement and written description requirements of § 112 and the prior art requirements of §§ 102 and 103.

# Draft Tillis-Coons Bill

- Section 100:

(k) The term “useful” means any invention or discovery that provides specific and practical utility in any field of technology through human intervention.

- Section 101:

(a) Whoever invents or discovers any useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

(b) Eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation.

- Section 112

(f) Functional Claim Elements—

An element in a claim expressed as a specified function without the recital of structure, material, or acts in support thereof shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

# Draft Tillis-Coons Bill (cont'd)

- Additional Legislative Provisions:

The provisions of section 101 shall be construed in favor of eligibility.

No implicit or other judicially created exceptions to subject matter eligibility, including “abstract ideas,” “laws of nature,” or “natural phenomena,” shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.

The eligibility of a claimed invention under section 101 shall be determined without regard to: the manner in which the claimed invention was made; whether individual limitations of a claim are well known, conventional or routine; the state of the art at the time of the invention; or any other considerations relating to sections 102, 103, or 112 of this title.



# Senate Subcommittee on Intellectual Property Hearings

- On June 4, 5, and 11, 2019, the Senate Subcommittee on Intellectual Property held hearings on its recent proposal (draft Tillis-Coons Bill) to revise 35 U.S.C. § 101.
  - 45 individuals representing a broad swathe of patent expertise including industry executives and groups, inventors, a former Federal Circuit judge, former U.S. Patent and Trademark Office officials, and law professors
  - Notably absent were representatives of high-tech companies, though a software industry association representing many of these organizations sent an envoy.