From: Erin Sheehan
Sent: Friday, April 12, 2013 1:09 PM
To: SoftwareRoundtable2013
Cc: Todd Dickinson; Albert Tramposch; Vincent Garlock; James Crowne; Claire Lauchner
Subject: AIPLA Comments on Software Quality

Good afternoon,

Attached please find the comments of the American Intellectual Property Law Association in response to USPTO notice entitled "Request for Comments and Notice of Roundtable Events for Partnership for Enhancement of Quality of Software Related Patents," 78 Fed. Reg. 292, published on January 3, 2013.

Please acknowledge receipt by return email.

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AIPLA
AMERICAN INTELLECTUAL PROPERTY LAW ASSOCIATION

April 12, 2013

Ms. Seema Rao
Director Technology Center 2100
United States Patent and Trademark Office
Mail Stop Comments
P.O. Box 1450
Alexandria, VA 22313-1450

RE: Response to "Request for Comments and Notice of Roundtable Events for Partnership for Enhancement of Quality of Software Related Patents" 78 Fed. Reg. 292 (January 3, 2013)

Dear Ms. Rao:

The American Intellectual Property Law Association (AIPLA) is pleased to have this opportunity to present its views with respect to the "Request for Comments and Notice of Roundtable Events for Partnership for Enhancement of Quality of Software Related Patents" as published in the January 3, 2013, issue of the Federal Register (the "Notice"). 78 Fed. Reg. 292. The Notice seeks comments to improve clarity of claim boundaries that define the scope of patent protection for claims that use functional language and to identify additional topics for future discussion by the Software Partnership.

AIPLA is a U.S.-based national bar association with approximately 14,000 members who are primarily lawyers in private and corporate practice, government service, and the academic community. AIPLA represents a diverse spectrum of individuals, companies and institutions involved directly and indirectly in the practice of patent, trademark, copyright, unfair competition, and trade secret law, as well as in other fields of law affecting intellectual property.

AIPLA does not support technology-specific rules for examining patent applications. Claims to inventions implemented using software do not require any different treatment than claims to other types of inventions. We also note that it is difficult to define a software patent application within any specificity. Software is used in a wide variety of technological innovations, from anti-lock braking systems to computer-implemented business methods, and the examination of these inventions is likely to be very different. Given this diversity, it is difficult to see why rules for software claims would need to differ from rules for non-software claims. Further, labeling an invention "software" may distract from an evaluation of the substantive features of the claim as a whole that define the invention. The patentability of a claim does not depend on whether the subject matter is or is not "software"; rather patentability is determined by the steps of the claimed method or by the features of the claimed apparatus, as a sub-combination or as elements of a larger combination.

The Notice seeks to create a template for analyzing software claims to determine if they comply with statutory requirements. The premise of the template is that software claims with functional limitations are either indefinite or must be interpreted under 35 U.S.C. § 112(f). We believe that this focus on Section 112(f) may be too narrow. Many other tools are already available to help applicants and examiners define clear functional claim elements. We note that, in addition to 35 U.S.C. § 112(b) and (f), the existing case law relating to enablement and written description under 35 U.S.C. § 112(a) may be effective for clarifying the scope of functional claim limitations.

Functional limitations are not unique to software-related claims. For example, it is common for chemical invention claims to use "functional" limitations: a claim to a plastic may include "a plasticizer" as a claim element, and a claim to a detergent may include "a surfactant" as an element. These claim terms do not, *per se*, define any particular chemical structure, but rather define the claim element by its functionality. They are acceptable, however, because the person of ordinary skill in the art knows their scope. Thus, there is no need to specifically describe a particular plasticizer or surfactant in the specification unless it is required to satisfy best mode. Similarly, in a claim to a system or method employing computer software, a claim element such as "sorting a list of values" should not require the disclosure of a particular algorithm because the term "sorting" is well understood by the ordinarily skilled computer programmer.

A claimed invention consists of the entire combination. Claims must be interpreted as a whole, and examination must address all of the elements of that whole. The extent to which a functional element must be recited in the claim or described in the specification depends on the particular invention. A skilled person may understand that one claim element may cover a broad range of structures or acts corresponding to that element. The skilled person may also understand that another claim element may need to be defined with more particularity. For example, if the invention is a detergent that uses a particular polymer as an anti-deposition agent, a claim for the invention may allow a broad range of surfactants. The particular polymer, however, would need to be described with particularity. There is nothing *per se* wrong with a functional claim limitation for a software-implemented invention as long as it is definite.

In some cases, the scope of a functional claim limitation may depend on an understanding of structure or acts disclosed in the patent specification when read by a person of ordinary skill in the art. Where examiners lack a good understanding of the contents of the specification, they should be encouraged to consult with the applicant, or applicant's attorney, early in the examination process and ideally before searching the claimed subject matter, to understand the context of the invention as a skilled person would understand it. We further recommend that examiners be provided with semantic analysis tools that may be used to link claim terms to their uses in the specification.

By focusing on claim elements directed to software running on a general purpose computer, the Notice puts form before substance. It is hard to imagine any technology-specific guidelines that can apply to all types of software applications. A claim element specifying a particular function could be implemented with various combinations of hardware and software. If there is an ambiguity problem in the claims of any specific functional limitation, the problem must be addressed for that specific application; any rules in this area should be relevant to all technologies.

Finally, we note that claim interpretation under 35 U.S.C. § 112(f) has been discussed in a number of recent cases, some of which are referenced below. In addition, such claim interpretation may be affected by the Federal Circuit's en banc review of the issue in *Lighting Ballast Control LLC v. Philips Electronics N. Am. Corp.*[1] Thus, it may be beneficial to take these cases into consideration before formulating any new guidelines.

Topic 1: Establishing Clear Boundaries for Claims that Use Functional Language

The questions in the Notice are directed only to "means-plus-function" claims under 35 U.S.C. § 112(f). We note that these are apparatus claims and may be less relevant for software-related patents than method claims. The method analog to the "means-plus-function" claim is a "step-plus-function" claim. For these claims, Section 112(f) states that a step for performing a specified function without the recital of acts in the claim shall be construed to cover the corresponding acts described in the specification and equivalents thereof. We are concerned that the acts in a step-plus-function claim may be confused with functional statements. If a method claim recites a step that includes sufficient acts in support of that step, it does not fall under Section 112(f). In the materials that follow, we address both means-plus-function and step-plus-function claim types under 35 U.S.C. § 112(f).

> **1. For software-related claims under 35 U.S.C. § 112(f), the specification, pursuant to 35 U.S.C. § 112(b), must disclose an algorithm in sufficient detail to accomplish the claimed function. In general, are the requirements of 35 U.S.C. § 112(b) for providing corresponding structure to perform the claimed function typically being complied with by applicants and are such requirements being applied properly during examination?**

We do not have the data to answer this question. Any response that we might provide would be based only on anecdotal evidence. Instead of a direct response to the question, we describe the applicant's legal obligations with respect to claims that are subject to Section 112(f).

To meet the requirements of Section 112(f), the specification must contain only sufficient descriptive material from which a person of ordinary skill in the art would know and understand what structure or acts correspond to the means limitation.[2] The quantity and quality of the provided descriptive material depend on the subject matter being described.[3] In this context, given the relatively high level of skill in the software arts, a Section 112(f) claim could be adequately supported by disclosures that are simply general descriptions of the structures or acts corresponding to functions recited by the claims. It is not unusual for the adequacy of the disclosure to depend on the level of skill in the art. For example, a claim element of "means for reducing the surface tension of water" may be adequately supported by a description in the specification such as "a cationic or anionic surfactant" because the bounds of this description would be understood by the skilled person.

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[1] __ Fed. App'x __, No. 2012-1014, 2013 WL 11874 (Fed. Cir. 2013*)* (nonprecedential) *reh'g en banc granted, opinion vacated*, __ Fed. App'x __, No. 2012-1014, 2013 WL 1035092 (Fed. Cir. 2013).
[2] See *Typhoon Touch Tech. v. Dell* 659 F.3d 1376, 1384 (Fed. Cir. 2011).
[3] *Id*. at 1385.

At the first level, a claim element that invokes Section 112(f) must be described in the specification with significant definiteness to satisfy Section 112(b). The definiteness requirement, however, applies to all claims, not just to Section 112(f) claims. As described in *S3 Inc. v. Nvidia Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001),

> The requirement that the claims "particularly point[] out and distinctly claim[]" the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when the claim is read in conjunction with the rest of the specification. "If the claims when read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, §112 demands no more." [Citations omitted.]

If a claim invokes Section 112(f), the sufficiency of the description of corresponding structure or acts is not governed by Section 112(b) alone, but by the written description requirement of Section 112(a) as well. This part of Section 112(a) requires claims to be written so that the skilled person would understand their scope and so that the scope of the claims is commensurate with the invention described in the patent specification.[4] Thus, for claims controlled by Section 112(f), the question that must be answered by both the applicant and the examiner is whether the structure or acts set forth in the specification, identified as corresponding to the claimed function, would be understood to limit the claimed invention commensurate with the overall description of the applicant's contribution. This determination must be made in view of the patent specification, as it would be understood by the person of ordinary skill in the art.

(a) Do supporting disclosures adequately define any structure corresponding to the claimed function?

We have only anecdotal data with regard to this question, and the evidence varies widely depending on the application. Thus, we cannot answer the question directly.

As explained above, an adequate description of a claim element is one which can be identified with the function in the claim element and that describes the structure or acts sufficiently well to enable a skilled person to understand the scope of the invention, including the element. However, because the technologies using software are extremely diverse, there is no single standard by which to judge the adequacy of disclosures identifying structures or acts that correspond to claimed functions. Software claim elements may be found in inventions covering many different technical areas with widely varying levels of ordinary skill in the art. It would thus be difficult or impossible to determine a "level of supporting disclosure" that would be adequate for all software inventions.

[4] See *Ariad v. Lilly*, 598 F.3d 1336, 1353-1354 (Fed. Cir. 2010) ("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.'") (Citation omitted.)

(b) If some structure is provided, what should constitute sufficient 'structural' support?

To meet the requirements of Section 112(a) and (b), the specification must contain structural support sufficient to allow the skilled person to associate that structure with the functional claim element. In addition, the description of that structural support must be commensurate with the inventor's contribution, as would be understood by the skilled person from the specification. As described above, there is no formula that would work for all software claim elements.

(c) What level of detail of algorithm should be required to meet the sufficient structure requirement?

It is important to keep in mind that the word "algorithm" is nothing more than a synonym for "method." The important question is not whether "an algorithm" has been sufficiently detailed, but whether a person of skill would understand that the substantive features of the method have been described.

We believe that the existing case law provides sufficient guidance as to the level of detail needed for an algorithm. "Precedent and practice permit a patentee to express [a] procedural 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.' In *Finisar* the court explained that the patent need only disclose sufficient structure for a person of skill in the field to provide an operative software program for the specified function." *Typhoon Touch*, 659 F.3d at 1385, citing *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323 (Fed. Cir. 2008). Consequently, the emphasis should not be on the form of the presentation but on its substance as understood by the skilled person.

Thus, the focus should be on 1) whether some description of the method is provided in the specification and 2) whether that description is sufficient for a skilled person to understand the operation of the invention.

2. For software-related claims that do not invoke 35 U.S.C. § 112(f) but do recite functional language, what would constitute sufficient definiteness under 112(b) for the claim boundaries to be clear?

In the USPTO, a claim term must be given its broadest reasonable construction, as it would be understood by a person of ordinary skill in the art, in view of the specification. The Federal Circuit explained it this way in *In Re Suitco Surface, Inc*. 603 F.3d 1255, 1260 (Fed. Cir. 2010):

> Although the PTO emphasizes that it was required to give all "claims their broadest reasonable construction"…, this court has instructed that any such construction be "*consistent with the specification*, … and that claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." [Citations omitted, emphasis in original.]

Thus, if a claim element that does not invoke Section 112(f) uses a term which appears to be functional, the examiner must consult the specification to determine if the skilled person would understand that term to be a particular structure or act.[5]

In the USPTO, the rules for applying Section 112(b) to claims that are not subject to Section 112(f) are different from the rules used by the courts because a patent application does not enjoy the presumption of validity extended to an issued patent. In *Ex parte Miyazaki* 89 USPQ2d 1207, 1216-1217 (BPAI 2008), referring to *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S.1 (1946), the Board stated:

> This general prohibition against the use of "purely functional claim language" (and the more specific *Halliburton* rule) has not been completely eliminated. Rather, "purely functional claim language" is now permissible but only under the conditions of 35 U.S.C. [§ 112(f)], i.e., if its scope is limited to the corresponding structure, material, or act disclosed in the specification and equivalents thereof.
>
> In the absence of such limited construction, the concerns expressed by the Court in *Halliburton* are still applicable to prohibit the use of "purely functional" claim language. Hence, any claim that includes purely functional claim language, and which is not subject to the limited construction under 35 U.S.C. [§ 112(f)], fails to meet the requirements of 35 U.S.C. [§ 112(a)], according to reasoning in *Halliburton* and thus is unpatentable.

The particular test described in *Miyazaki* is that, "if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. [§ 112(b)], as indefinite." 89 USPQ2d at 1211.

As set forth in MPEP § 2173, however, claim breadth should not be confused with indefiniteness.[6]

> **(a) Is it necessary for the claim element to also recite structure sufficiently specific for performing the function?**

Where a claim uses functional language and recites structure or acts, the recited structure or acts must be sufficient to perform the claimed function in its entirety.[7] The sufficiency of these claim elements is judged in light of the specification as it would be understood by the person of ordinary skill in the art.

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[5] See, e.g. *Inventio AG v, ThyssenKrupp*, 649 F.3d 1350, 1358 (Fed. Cir. 2011) in which a claim element to a "modernizing device" was found not to be subject to Section 112(f) and was presumed to contain sufficient structure as it would be understood by a skilled person in view of the specification.

[6] See *Ultimax Cement Mfg. v. CTS Cement Mfg.*, 587 F.3d 1339, 1352 (Fed. Cir. 2010) ("a claim to a formula containing over 5,000 possible combinations is not necessarily ambiguous if it sufficiently notifies the public of the scope of the claims").

[7] See *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1375 (Fed. Cir. 2003).

(b) If not, what structural disclosure is necessary in the specification to clearly link the structure to the recited function and to ensure the bounds of the invention are sufficiently demarcated?

There should be no requirement for any specific structural disclosure. A functional claim element must be interpreted in view of the specification as it would be understood by a person of ordinary skill in the art. If the claim element is not described in the specification in a manner that is fully enabling, or if the description of the element in the specification is not commensurate with its use in the claim, then the claim may be rejected under Section 112(a).[8]

(c) Should claims that recite a computer for performing certain functions be treated as invoking 35U.S.C. § 112(f) even though the elements are not set forth in conventional means-plus-function format?

We do not agree that there should be technology specific rules for interpreting claims. Apparatus claims to computer systems include at least two elements: the computer and the software that controls the computer. The dividing line between the hardware and software for any invention may be fluid because many software functions may be implemented partially or completely in hardware. As established in *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994), "a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software."

Section 112(b) is satisfied if the skilled person, on reading the specification, would understand the structure of the software or combination of hardware and software that implements the described functions. As noted above, however, because the disclosure that is required is in terms of what would be understood by a skilled person, little or no additional disclosure in the specification may be required for a well-known claim element, especially if it is not central to the invention. Conversely, less well-known claim elements may require a more detailed description of the algorithm to provide sufficient disclosure. Where a particular element falls on this continuum would be known by the person of ordinary skill in the art.

Topic 2: Future Discussion Topics for the Software Partnership

1. How can determinations of obviousness or nonobviousness be improved?

One problem with obviousness determinations concerns the reasons for combining references. As set forth in *KSR v. Teleflex*, 550 US 398, 418 (2007), "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." A study of decisions by the Board of Patent Appeals and Interferences conducted in 2009 found that the leading cause for reversal of an obviousness rejection was the examiner's failure to

[8] See e.g. *Liebel-Flarsheim v. Medrad* 481 F.3d 1371, 1380 (Fed. Cir. 2007) (a claim directed to an injector system having a disposable syringe without a pressure jacket was found not to be enabled by the specification and, thus, invalid).

provide a suitable reason for combining references.[9] These statistics are in agreement with anecdotal evidence from our members. Some examiners improperly support a rejection based on a combination of references using a general pronouncement, for example, that the references are from the same field of endeavor and would have been combined for reasons of efficiency. Determinations of obviousness could be improved by additional examiner training on what reason is needed to support a combination of references.

2. How can prior art searching be improved?

Examiners using electronic search tools typically rely on keywords. The initial search performed by the examiner may not be based on a good understanding of the invention and may not use proper keywords.

One solution to this problem may be to give examiners better tools to more quickly understand the invention, such as the semantic analysis tools, described above, that map claim terms to corresponding passages in the specification. Another solution may be to allow the examiner to have an interview with the applicant or applicant's attorney before performing the search to gain a better understanding of the context of the invention and how it is described and claimed in the patent application. We encourage early and frequent oral communications between examiners and applicants.

3. How can determinations of whether claim limitations invoke Section 112(f) be made more uniform?

We have observed large differences in the way that examiners determine whether a claim is subject to Section 112(f). For example, some examiners take the position that "unit for" and "unit configured to" both invoke Section 112(f), while other examiners take the position that "unit for" (but not "unit configured to") invokes Section 112(f). We are not aware of any authority supporting either approach. Even the MPEP takes the position that "unit for" is merely an example of a non-structural term that may invoke Section 112(f), explaining that "Examiners will apply § 112(f) to a claim limitation that uses a non-structural term associated with functional language, unless the non-structural term is (1) preceded by a structural modifier, defined in the specification as a particular structure or known by one skilled in the art, that denotes the type of structural device (e.g., 'filters'), or (2) modified by sufficient structure or material for achieving the claimed function." MPEP § 2181(I)(C) (emphasis added).

We note that the training examples posted May 20, 2011, do not in any way address the "unit for" issue. Moreover, the Federal Circuit has at least twice held that limitations including the term "unit for" do not invoke Section 112(f).[10] The case law is relatively clear on this issue.

[9] See M. Messinger et al., "Winning a Non-Obviousness Case at the Board" BPAI Conference February 19, 2010, at http://ptolitigationcenter.com/wp-content/uploads/2010/02/USPTO-Winning-on-Non-Obviousness-at-the-Board.pdf.
[10] See, e.g., *Inventio AG v. ThyssenKrupp Elevator Americas Corp*., 649 F.3d 1350, 1360 (Fed. Cir. 2011); *LG Electronics, Inc. v. Bizcom Electronics, Inc*., 453 F.3d 1364, 1372 (Fed. Cir. 2006) rev'd on other grounds *sub nom. Quanta Computer, Inc. v. LG Electronics, Inc.*, 553 U.S. 617, 128 S. Ct. 2109, 170 L. Ed. 2d 996 (2008).

If an applicant wants to invoke Section 112(f), then the claims should recite "means for" or "step for" plus the recited function. When applicants do not do this, the term should be given its broadest reasonable interpretation as would be understood by a skilled person based on the patent specification.

4. How can indefiniteness rejections be made more uniform?

Examiners routinely reject claims as indefinite for matters of form or because they are deemed to be too broad. For example, examiners routinely reject claims that include the word "or." Additionally, examiners routinely reject claims in which a term is introduced with "a"/"an" for a second time, even though no reference is again made to the term.

For example, in the following claim, no ambiguity is created by the double use of "an arm" because no reference is ever made to "the arm":

> A chair comprising:
> a cushion;
> an arm attached to a first side of the cushion; and
> an arm attached to a second side of the cushion.

Examiners rarely reject a functional element as being susceptible to more than one meaning or as not being supported in the specification. When these rejections are made, they are presented without any analysis of basis, requiring the applicant to point out the basis in the specification.

We believe that it would be beneficial for the technology centers within the USPTO to discuss these issues with each other to develop guidelines that would better harmonize and ensure consistent use of indefiniteness rejections.

Thank you for allowing AIPLA the opportunity to provide comments on this initiative. AIPLA would be pleased to engage in further dialog as a member of the Software Partnership.

Sincerely,

Jeffrey I.D. Lewis
President
American Intellectual Property Law Association