PRECEDENTIAL OPINION

Pursuant to Board of Patent Appeals and Interferences Standard Operating Procedure 2, the opinion below has been designated a precedential opinion.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREA J. RODRIGUEZ, STEVEN R. EDWARDS,
CHRISTOPHER M. GILES, and RANDY S. MILLER

Appeal 2008-000693
Application 10/132,492
Technology Center 2100

Decided: October 1, 2009

Before MICHAEL R. FLEMING, *Chief Administrative Patent Judge*, JAMES T. MOORE and ALLEN R. MACDONALD, *Vice Chief Administrative Patent Judges*, HOWARD B. BLANKENSHIP, LINDA E. HORNER, JAY P. LUCAS, and ST. JOHN COURTENAY III, *Administrative Patent Judges*.

MACDONALD, *Vice Chief Administrative Patent Judge*.

DECISION ON APPEAL [1]

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[1] This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b) (2007). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

I. SUMMARY OF THE DECISION

We reverse the decision of the Examiner finally rejecting claims 1-4 and 6-20.

Specifically, we reverse the Examiner's rejections of apparatus claims 1-4, 6-10, 19, and 20, under 35 U.S.C. § 102(b) on the basis that these claims are indefinite. *See In re Steele*, 305 F.2d 859, 862 (CCPA 1962). We also reverse the Examiner's rejection of method claims 11-17 and computer readable medium claim 18 under 35 U.S.C. § 102(b).

However, we enter new grounds of rejection as to all pending claims pursuant to our authority under 37 C.F.R. § 41.50(b). By rule, this panel has discretion to add one or more new grounds of rejection.

> Should the Board have knowledge of any grounds not involved in the appeal for rejecting any pending claim, it *may* include in its opinion a statement to that effect with its reasons for so holding, which statement constitutes a new ground of rejection of the claim.

37 C.F.R. § 41.50(b) (emphasis added). The rule is permissive and merely provides the Board panel the option of making a new ground of rejection. Making a new ground of rejection is therefore an exercise of discretion made solely at the option of the panel and is not a mandatory requirement. In the opinion that follows, we have chosen to enter only the following new grounds of rejection.

We enter a new ground of rejection of means-plus-function claim 10 under 35 U.S.C. § 112, second paragraph, on the same basis set forth in *Aristocrat Techs. Austl. Pty Ltd. v. Inter. Game Tech.*, 521 F.3d 1328 (Fed. Cir. 2008).

We enter a new ground of rejection of apparatus claims 1-4, 6-9, 19, and 20, under 35 U.S.C. § 112, on the same basis set forth in *Aristocrat*.

We also enter an alternative new ground of rejection of apparatus claims 1-4, 6-9, 19, and 20, under 35 U.S.C. § 112, first paragraph, on essentially the same basis as set forth in *Ex parte Miyazaki*, 89 USPQ2d 1207 (BPAI 2008) (precedential).

We enter a new ground of rejection of method claims 11-17 and computer readable medium claim 18 under 35 U.S.C. § 112, first paragraph, for lack of enablement, based on an undue experimentation analysis using all of the *Wands* factors.

II. STATEMENT OF CASE

Introduction

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1-4 and 6-20. We have jurisdiction under 35 U.S.C. § 6(b).

Claim 5 has been cancelled.

According to Appellants, the invention relates to a first apparatus, a second apparatus, a method, and a computer readable medium to (a) generate a random system configuration file of a structurally variable and complex system; (b) build a system level netlist in response to the random system configuration file; (c) verify the structurally variable and complex system in response to the system level netlist; and (d) provide automatic random verification of the system in response to the random system configuration file. (Abstract).

Exemplary Claims

Exemplary claims 1, 10, 11, and 18, read as follows:

1. An apparatus comprising:

a system configuration generator configured to generate a random system configuration file of a structurally variable and complex system;

a system builder configured to (i) build a system level netlist and (ii) generate system parameters in response to said random system configuration file; and

a simulation verification environment configured to verify said structurally variable and complex system in response to said system level netlist, wherein said simulation verification environment is configured to provide automatic random verification of said structurally variable and complex system in response to said random system configuration file.

10. An apparatus comprising:

means for generating a random system configuration file of a structurally variable and complex system;

means for (i) building a system level netlist and (ii) generating system parameters in response to said random system configuration file;

means for verifying said structurally variable and complex system in response to said system level netlist; and

means for providing automatic random verification of said structurally variable and complex system in response to said system configuration file.

11. A method for automated random verification of structurally variable and complex systems, comprising the steps of:

(A) generating a random system configuration file of said system;

(B) generating one or more parameters of said system in response to said random system configuration file;

(C) generating a system level netlist of said system in response to said random system configuration file;

(D) verifying one or more target modules with said system in response to said system level netlist; and

(E) automatically and randomly adjusting step (D) in response to said random system configuration file.

18. A computer readable medium configured to perform the steps (A), (B), (C) and (D) of claim 11.

Prior Art

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Meyer	US 6,076,180	Jun. 13, 2000

Rejection on Appeal

The Examiner rejected claims 1-4 and 6-20 under 35 U.S.C. § 102(b) as being anticipated by Meyer.[2]

[2] Although both the final rejection and Examiner's Answer discuss a rejection of claim 5, we note that claim 5 was cancelled in the amendment filed January 17, 2006. Therefore, claim 5 is not before us in this appeal. Also, we note that the Examiner has withdrawn the rejection of claim 19 under 35 U.S.C. § 112, second paragraph, as being indefinite. (Ans. 9, ll. 2-3).

Examiner's Findings

The Examiner found that each limitation of claims 1-4 and 6-20 was described in Meyer. (Final Rej. 4-11).[3]

Appellants' Contentions

Appellants contend that the Examiner erred in rejecting claims 1-4 and 6-20 under 35 U.S.C. § 102(b) because Meyer fails to describe an element, means, or step for performing building (or generating) a system level netlist in response to a random system configuration file as is required by all the claims (App. Br. 7-10).

III. ISSUES

A. *Issues on Appeal*

Whether Appellants have shown that the Examiner has erred because Meyer does not teach the limitation of building (or generating) a system level netlist in response to a random system configuration file required by claims 1-4 and 6-20?

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[3] The Examiner's Answer repeats these rejections, but mistakenly labels each of the fifteen rejections of claims 6-20 as rejections of claims 5-19 respectively.

B. *Additional Issues Raised by the Pending Claims And Addressed in New Grounds of Rejection*

(1)
Apparatus Claims

Whether apparatus claim 10, which is in means-plus-function format, is definite under 35 U.S.C. § 112, second paragraph if a means is not supported by corresponding structure in the specification?

Whether apparatus claims 1-4, 6-9, 19, and 20, if construed as being in means-plus-function format, are definite under 35 U.S.C. § 112, second paragraph if a means is not supported by corresponding structure in the specification?

Whether apparatus claims 1-4, 6-9, 19, and 20, if construed as <u>not</u> being in means-plus-function format, violate the rule set forth in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946), because the claims include functional elements which are not limited by the application of 35 U.S.C. § 112, sixth paragraph and do not contain any additional recitation of structure, so that claims 1-4, 6-9, 19, and 20 are not enabled under 35 U.S.C. § 112, first paragraph, for the scope of the claims?

(2)
Method Claims

Whether method claims 11-17 are unpatentable under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claims?

(3)
Computer Readable Medium Claim

Whether method claim 18 is unpatentable under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claim?

IV. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

Appellants' Admissions

1. According to Appellants:

> Conventional random verification methods manually generate a limited number of systems and run customized stimuli through each of the systems.

(Spec. 1, ll. 16-18).

2. Also according to Appellants:

> [S]uch approaches are not efficient for complex and variable system verification.

(Spec. 1, ll. 18-19).

3. Further according to Appellants:

> In complex and structurally variable systems a high number of possible combinations of system structures, configurations, stimuli, and responses are present. Conventional random verification systems do not adequately cover the vast range of possible system conditions. It is impractical to test an adequate portion of such combinations using conventional approaches.

(Spec. 2, ll. 1-7).

Appellants' Invention

4. According to Appellants, "[t]he present invention concerns an apparatus comprising a system configuration generator, a system builder and a simulation verification environment." (Spec. 2, ll. 14-16).

5. "The system builder may be configured to build a system level netlist in response to the random system configuration file." (Spec. 2, ll. 18-20).

6. Referring to FIG. 1, a block diagram of a circuit (or system) 100 is shown in accordance with a preferred embodiment of the present invention. The system 100 is shown comprising a system builder block (or circuit) 104. (Spec. 4, ll. 5-7 and 12-14).

7. Appellants state:

> The system builder block 104 may have an input 114 that may receive the signal SCF and an output 116 that may present a number of signals (e.g., SLN and SP). The signal SLN may be a system level netlist. The signal SP may be system parameters. The parameters SP may represent specific system parameters according to a particular configuration of the variable and complex system under test as indicated by the SCF.

(Spec. 5, ll. 3-9).

8. Appellants state:

> The system builder block 104 may generate the system level netlist SLN and the system parameters SP of the system described by the system configuration file SCF. The system level netlist SLN and the system parameters SP may then be presented to the SVE 106.

(Spec. 9, ll. 3-7).

9. "Referring to FIG. 3, an [sic] process (or method) 200 illustrating an operation of the system 100 is shown." (Spec. 10, ll. 8-9).

10. Appellants state:

> While in the state 208, the process 200 may receive a high-level system file and a verification test file (e.g., the system builder 104 may receive the file SCF). While in the state 210, the process 200 may build a detailed configuration file using the high-level system configuration file and component pinout (e.g., the system builder 104 may generate the netlist SLN and the system parameters SP).

(Spec. 10, l. 18, through Spec. 11, l. 3).

11. Appellants state:

> The function performed by the system 100 of FIGS. 1, 2 and 3 may be implemented using a conventional general purpose digital computer programmed according to the teachings of the present specification, as will be apparent to those skilled in the relevant art(s).

(Spec. 12, l. 18, through Spec. 13, l. 1).

12. Further, Appellants state:

> Appropriate software coding can readily be prepared by skilled programmers based on the teachings of the present disclosure, as will also be apparent to those skilled in the relevant art(s).

(Spec. 13, ll. 1-4).

13. Appellants state:

> The present invention thus may also include a computer product which may be a storage medium including instructions which can be used to program a computer to perform a process in accordance with the present invention. The storage medium can include, but is not limited to, any type of disk including floppy disk, optical disk, CD-ROM, and magneto optical disks, ROMs, RAMs, EPROMs, EEPROMs, Flash memory, magnetic

> or optical cards, or any type of media suitable for storing electronic instructions.

(Spec. 13, ll. 10-17).

V. APPARATUS CLAIM 10 - NEW GROUNDS OF REJECTION

A. *Rejection of Apparatus Claim 10 Under 35 U.S.C. § 112, Second Paragraph*

(1) *Introduction*

Using our authority under 37 C.F.R. § 41.50(b), we reject apparatus claim 10 under 35 U.S.C. § 112, second paragraph, as being indefinite.

(2) *Principles Of Law*

(a) *Claim Construction*

During prosecution, "the PTO gives claims their 'broadest reasonable interpretation.'" *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)).

The USPTO is not required in the course of prosecution to interpret claims in the same manner as courts are required to during infringement proceedings.

> It would be inconsistent with the role assigned to the PTO in issuing a patent to require it to interpret claims in the same manner as judges who, post-issuance, operate under the assumption the patent is valid.

In re Morris, 127 F.3d 1048, 1054 (Fed. Cir.1997).

The question then is whether the PTO's interpretation of the disputed claim language is "reasonable." *Id*. at 1055.

(b)
35 U.S.C. § 112

> It has long been understood that a patent must describe the exact scope of an invention and its manufacture to 'secure to [the patentee] all to which he is entitled, [and] to apprise the public of what is still open to them.' *McClain v. Ortmayer*, 141 U.S. 419, 424, 12 S.Ct. 76, 77, 35 L.Ed. 800 (1891). Under the modern American system, these objectives are served by two distinct elements of a patent document. First, it contains a specification describing the invention "in such full, clear, concise, and exact terms as to enable any person skilled in the art ... to make and use the same." 35 U.S.C. § 112. Second, a patent includes one or more "claims," which "particularly poin[t] out and distinctly clai[m] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112.

Markman v. Westview Instruments, Inc., 517 U.S. 370, 373 (1996) (citation omitted).

(c)
35 U.S.C. § 112, Second Paragraph

The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.,* 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted).

(d)
35 U.S.C. § 112, Sixth Paragraph

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in

> support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, sixth paragraph.

The sixth paragraph of 35 U.S.C. § 112 has just as much application during proceedings before the U.S. Patent and Trademark Office as it does in district court cases for infringement matters. *In re Donaldson Co.,* 16 F.3d 1189, 1193 (Fed. Cir. 1994) (in banc).

It is necessary to decide on an element by element basis whether 35 U.S.C. § 112, sixth paragraph, applies. Not all terms in a means-plus-function or step-plus-function clause are limited to what is disclosed in the written description and equivalents thereof, since 35 U.S.C. § 112, sixth paragraph, applies only to the interpretation of the means or step that performs the recited function. *See, e.g., IMS Technology Inc. v. Haas Automation Inc.,* 206 F.3d 1422 (Fed. Cir. 2000) (the term "data block" in the phrase "means to sequentially display data block inquiries" was not the means that caused the sequential display, and its meaning was not limited to the disclosed embodiment and equivalents thereof.).

"An element of a claim described as a means for performing a function, if read literally, would encompass any means for performing the function. But section 112 ¶ 6 operates to *cut back* on the types of *means* which could literally satisfy the claim language." *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580 (Fed. Cir. 1989) (citations omitted).

"Properly understood section 112 ¶ 6 operates more like the reverse doctrine of equivalents than the doctrine of equivalents because it restricts the scope of the literal claim language." *Id.*

"[T]he 'broadest reasonable interpretation' that an examiner may give means-plus-function [or step-plus-function] language is that statutorily mandated in paragraph six." *In re Donaldson Co.*, 16 F.3d at 1194-95.

When a claim uses the term "means" to describe a limitation, a presumption inheres that the inventor used the term to invoke § 112, ¶ 6. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1375 (Fed. Cir. 2003). "This presumption can be rebutted when the claim, in addition to the functional language, recites structure sufficient to perform the claimed function in its entirety." *Id.*

As the court set forth in *LG Electronics*:

> " '[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 ¶ 6 does not apply.' " This presumption can be rebutted "by showing that the claim element recite[s] a function without reciting sufficient structure for performing that function."

LG Electronics, Inc. v. Bizcom Electronics, Inc., 453 F.3d 1364, 1372 (Fed. Cir. 2006) (citations omitted).

This presumption that § 112 ¶ 6 does not apply is overcome when there is "no structural context for determining the characteristics of the [claim element] other than to describe its function." *Welker Bearing Co. v. PHD, Inc.* 550 F.3d 1090, 1096 (Fed. Cir. 2008). For example, "the unadorned term 'mechanism' is 'simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term 'means for.' ' " *Id.* (quoting *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1360 (Fed. Cir. 2004)).

(e)
Aristocrat

Recently in *Aristocrat*, 521 F.3d 1328, the court set forth that for a claim to a programmed computer, a particular algorithm may be the corresponding structure under § 112, sixth paragraph:

> For a patentee to claim a means for performing a particular function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming. Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to "the corresponding structure, material, or acts" that perform the function, as required by section 112 paragraph 6.

Id. at 1333. The court went on to point out:

> Thus, 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." [*WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339, 1349 (Fed. Cir. 1999).]

Id.

> The court in [*Harris Corp.*] characterized the rule of *WMS Gaming* as follows: "[T]he corresponding structure for a § 112 ¶ 6 claim for a computer-implemented function is the algorithm disclosed in the specification." [*Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1249 (Fed. Cir. 2005).]

Id.

In *Aristocrat*, the court found that a mere reference to using "appropriate programming" imposed no limitation whatever on the structure corresponding to the three functions performed by the claimed "game control means", as any general purpose computer must be programmed. *Id.* at 1334. The court further found that the language of claim 1 referring to "the game control means being arranged to pay a prize when a predetermined combination of symbols is displayed in a predetermined arrangement of symbol positions selected by a player" simply describes the function to be performed and not the algorithm by which it is performed. *Id.* The court further found that the language in claim 1 that recites "defining a set of predetermined arrangements for a current game comprising each possible combination of the symbol position selected by the player which have one and only one symbol position in each column of the display means" is merely a mathematical expression that describes the outcome of performing the function and not a means for achieving that outcome. *Id.*

Thus, the court held that Aristocrat failed to disclose the algorithms that transform the general purpose microprocessor to a special purpose computer programmed to perform the disclosed algorithm. *Id.* at 1335. *See also Ex parte Catlin*, 90 USPQ2d 1603 (BPAI 2009) (precedential).

(f)
Blackboard

In *Blackboard, Inc. v. Desire2Learn Inc.*, 574 F.3d 1371 (Fed. Cir. 2009), the court repeated its *Aristocrat* concerns with respect to the failure to provide a corresponding structure required under § 112, sixth paragraph:

> That ordinarily skilled artisans could carry out the recited function in a variety of ways is precisely why claims written in "means-plus-function" form must disclose the particular structure that is used to perform the recited function. By failing to describe the means by which the access control manager will create an access control list, Blackboard has attempted to capture any possible means for achieving that end. Section 112, paragraph 6, is intended to prevent such pure functional claiming. *Aristocrat*, 521 F.3d at 1333.

Blackboard, 574 F.3d at 1385.

(3)
§ 112(2) Rejection of Claim 10

Independent claim 10 recites four means plus function elements. A presumption arises that the Appellants used the term "means" in claim 10 to invoke 35 U.S.C. § 112, sixth paragraph.

The functions recited in the elements of claim 10 are "generating a random system configuration file of a structurally variable and complex system," "(i) building a system level netlist and (ii) generating system parameters in response to said random system configuration file," "verifying said structurally variable and complex system in response to said system level netlist," and "providing automatic random verification of said structurally variable and complex system in response to said system configuration file." Claim 10 does not recite any structure that would perform these claimed functions in their entirety. As such, the presumption that § 112, sixth paragraph, applies is not rebutted by structure recited in the claim.

Our rules require that the Appeal Brief contain:

> For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of

> paragraph (c)(l)(vii) of this section, every means plus function and step plus function as permitted by 35 U.S.C. § 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference character.

37 C.F.R. § 41.37(c)(l)(v). Thus, we consult the Appellants' Summary of the Claimed Subject Matter in the Appeal Brief to assess whether the Specification describes structure, material, or acts corresponding to the functions recited in claim 10.

The Appellants describe the subject matter of claim 10 as follows:

> A second embodiment of the present invention (as represented by claim 10) concerns an apparatus comprising the means for generating a system configuration file (102) of a structurally variable and complex system; means for building a system level netlist (104) in response to the random system configuration file (SCF); means for verifying the structurally variable and complex system (e.g., page 4, lines 5-11) in response to said system level netlist (SLN); and means for providing automatic random verification of the structurally variable and complex system in response to the system configuration file.

(App. Br. 4-5).

The cited portion of the Appellants' Specification describes generally that the system 100 may provide automated random verification of complex and structurally variable systems. However, the cited portion of the Specification does not provide an algorithm by which the system is able to perform the functions recited in claim 10 to provide automated random verification of complex and structurally variable systems.

In addition to the specific portion of the Specification identified by the Appellants in the Appeal Brief, we have thoroughly reviewed the Appellants' Specification and have not been able to locate an adequate disclosure of structure, material, or acts corresponding to the functions of "generating," "building and generating," "verifying," and "providing" as recited in claim 10. In particular, the Specification does not disclose any specific algorithm that could be implemented on a general purpose computer to provide automated random verification of complex and structurally variable systems. Exemplary of this is Appellants' lack of disclosure of how to implement the "building and generating" functions. (*See* FFs 5-8 and 10). Similar to the "appropriate programming" discussed in Aristocrat, 521 F.3d at 1334, Appellants merely indicate that "[a]ppropriate software coding can readily be prepared by skilled programmers" (FF 12). Accordingly, the Specification fails to disclose the algorithms that transform the general purpose processor to a special purpose computer programmed to perform the disclosed functions of the elements of claim 10.

The Appellants have failed to disclose any algorithm, and thus have failed to adequately describe sufficient structure, for performing the functions recited in the means elements contained in claim 10 so as to render the claim definite. Accordingly, claim 10 is unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite. *Aristocrat*, 521 F.3d at 1333.

VI. APPARATUS CLAIMS 1-4, 6-9, 19, AND 20 - NEW GROUNDS OF REJECTION

A. *Rejection of Apparatus Claims 1-4, 6-9, 19, and 20, Under 35 U.S.C. § 112, Second Paragraph*

(1)
Introduction

Using our authority under 37 C.F.R. § 41.50(b), we reject apparatus claims 1-4, 6-9, 19, and 20, under 35 U.S.C. § 112, second paragraph, as being indefinite.

(2)
§ 112(2) Rejection of Claims 1-4, 6-9, 19, and 20

(a)
Claim Construction

Independent claim 1 (and dependent claims 2-4, 6-9, 19, and 20) contains no elements which Appellants have identified in the Appeal Brief as being a "means plus function." Such identification is required by 37 C.F.R. § 41.37(c)(1)(v). Thus, Appellants have in effect indicated that claims 1-4, 6-9, 19, and 20 are not intended to contain any "means plus function" elements despite the format of any individual claim element.

The three elements of claim 1 are a "system configuration generator configured to generate a random system configuration file of a structurally variable and complex system," "system builder configured to (i) build a system level netlist and (ii) generate system parameters," and "simulation verification environment configured to verify said structurally variable and complex system in response to said system level netlist" respectively. Here,

each of the claim elements begins with a term followed by functional language. We agree that the claim elements do not use the term "means" which would normally indicate that the claim element is intended to be a "means plus function" element. This absence of the term "means" triggers a rebuttable presumption that § 112 ¶ 6 does not apply.

However, this does not end our claim construction analysis as to these claim terms, i.e., "system configuration generator," "system builder," and "simulation verification environment." We must determine "whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term 'means for.' " *Lighting World*, 382 F.3d at 1360. As the Federal Circuit stated in *Lighting World*:

> In *Greenberg* and subsequent cases, we have looked to the dictionary to determine if a disputed term has achieved recognition as a noun denoting structure, even if the noun is derived from the function performed. *See Greenberg*, 91 F.3d at 1583 ("Dictionary definitions make clear that the noun 'detent' denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms."); *Linear Tech. Corp.*, 379 F.3d at 1311 (technical dictionary makes clear that "circuit" is structural); *CCS Fitness*, 288 F.3d at 1369 (dictionary definitions consulted to determine that an artisan of ordinary skill would understand the term in question to have an ordinary meaning); *Personalized Media Communications*, 161 F.3d at 704 (same).

382 F.3d at 1360-61.

We have looked to both general and subject matter specific dictionaries[4] and we find no evidence that any of these terms have achieved recognition as a noun denoting structure. Therefore, based upon our consultation of dictionaries, a review of the record before us, and a search of the prior art patents in this field, we conclude that none of these three terms is an art-recognized structure to perform the claimed function, and claim 1 does not recite any other structure that would perform these claimed functions.

Nor does the specification provide a description sufficient to inform one of ordinary skill in the art the meaning of the term. Since Appellants have urged the Board that these claim elements represent the advancement over the prior art (Spec. 2-3; App. Br. 4) and argued that the prior art fails to teach such "system configuration generator" or "system builder" elements (App. Br. 7-8), the prosecution history supports a conclusion that these terms are used to connote structures unknown in the art. Thus, unlike, for example, the term "detector" as used in the claim at issue in *Personalized Media Communications, LLC v. International Trade Commission*, 161 F.3d 696 (Fed. Cir. 1998), we have no basis for concluding that these terms evoke for one of ordinary skill in the art either a particular structure or a variety of structures. Instead, like the phrase "lever moving element" addressed in *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206 (Fed. Cir. 1998), these terms do not denote devices that take their names from the functions being

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[4] Microsoft Computer Dictionary, Microsoft Press, 5th edition, 2002; Computer Science and Communications Dictionary, Volume 2 By Martin H. Weik, 2000; The American Heritage Dictionary of the English Language, 4th edition, 2006.

performed or have a generally understood relevant meaning in the art. Rather, they could mean every conceivable means of performing the function.

Therefore, we conclude there is no structural context for determining the characteristics of these claim elements other than to describe the function of each element. We further conclude that these claim elements are verbal constructs that are not recognized as the name of a structure and are simply a substitute for the term "means for."[5]

(b)
Rejection Under § 112(2)

For independent claim 1, we have concluded that the "system configuration generator," "system builder," and "simulation verification environment" elements of claim 1 are limited under § 112, sixth paragraph, as "means plus function" elements. Given such treatment, a rejection under 35 U.S.C. § 112, second paragraph is appropriate for this claim. *Aristocrat*, 521 F.3d 1328.

Independent claim 1 recites three means plus function elements in the form of "a system configuration generator configured to generate," "a system builder configured to (i) build . . . and (ii) generate," and "a simulation verification environment configured to verify . . . [and] configured to provide".

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[5] The Board may determine that a claim limitation falls within the scope of 35 U.S.C. § 112, sixth paragraph. See MPEP 2181 ("[T]he phrase 'means for' or 'step for' was not used but either the Board or courts nevertheless determined that the claim limitation fell within the scope of 35 U.S.C. 112, sixth paragraph.")

The functions recited in the three elements of claim 1 are "generat[ing] a random system configuration file of a structurally variable and complex system," "(i) build[ing] a system level netlist and (ii) generat[ing] system parameters in response to said random system configuration file," and "verify[ing] said structurally variable and complex system in response to said system level netlist" and "provid[ing] automatic random verification of said structurally variable and complex system in response to said system configuration file."

We repeat that our rules require that the Appeal Brief contain:

> For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of paragraph (c)(l)(vii) of this section, every means plus function and step plus function as permitted by 35 U.S.C. § 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference character.

37 C.F.R. § 41.37(c)(l)(v). Thus, we consult the Appellants' Summary of the Claimed Subject Matter in the Appeal Brief to assess whether the Specification describes structure, material, or acts corresponding to the functions recited in claim 1.

The Appellants describe the subject matter of claim 1 in the Appeal Brief as follows:

> A first embodiment of the present invention (as represented by claim 1) concerns an apparatus comprising a system configuration generator (102), a system builder (104), and a simulation verification environment (106). The system configuration generator (102) may be configured to generate a random system configuration file (SCF in FIG. 1) of a

> structurally variable and complex system (e.g., page 4, lines 5-11). The system builder (104) may be configured to build a system level netlist (SLN in FIG. 1) in response to the random system configuration file (SLF). The simulation verification environment (106) may be configured to verify the structurally variable and complex system in response to the system level netlist (SLN). The simulation verification environment (106) may be configured to provide automatic random verification of the structurally variable and complex system in response to the random system configuration file (SLF).

(App. Br. 4).

The cited portion of the Appellants' Specification describes generally that the system 100 may provide automated random verification of complex and structurally variable systems. However, the cited portion of the Specification does not provide an algorithm by which the system is able to perform the functions recited in claim 1 to provide automated random verification of complex and structurally variable systems.

In addition to the specific portion of the Specification identified by the Appellants in the Appeal Brief, we have thoroughly reviewed the Appellants' Specification and have not been able to locate an adequate disclosure of structure, material, or acts corresponding to the functions of "generating," "building and generating," "verifying," and "providing" as recited in claim 1. In particular, the Specification does not disclose any specific algorithm that could be implemented on a general purpose computer to provide automated random verification of complex and structurally variable systems. Exemplary of this is Appellants' lack of disclosure of how to implement the "building and generating" functions. (*See* FFs 5-8 and 10). Accordingly, the Specification fails to disclose the algorithms that transform

the general purpose processor to a special purpose computer programmed to perform the disclosed functions of the elements of claim 1.

The Appellants have failed to disclose any algorithm, and thus have failed to adequately describe sufficient structure, for performing the functions recited in the means elements contained in claim 1 so as to render the claim definite. Accordingly, claim 1 is unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite. *Aristocrat*, 521 F.3d at 1333.

In addition, as with the "access control manager" discussed in *Blackboard*, 574 F.3d at 1382-84, the means plus function elements of claim 1 are simply abstractions that describe the function of the system, each function which is performed by some undefined component of the system. In *Blackboard*, the claims at issue recited a "means for assigning a level of access." The patentee asserted that the structure disclosed in the specification corresponding to the recited function of "assigning a level of access" was an "access control manager." The court found, however, that the specification failed to provide any structure corresponding to the access control manager; instead, the specification merely described a "black box that performs the recited function." Similarly here (although the elements "system configuration generator," "system builder," and "simulation verification environment" are in Appellants' claim rather than the specification), the elements are essentially a black box that performs a recited function. But how each does so is left undisclosed. The specification contains no description of the structure or the process that these elements use to perform their functions. Nor have

Appellants ever suggested that these elements represents a particular structure defined other than as any structure that performs the recited function. Nor have Appellants ever suggested that these elements are a known structure in the prior art. In fact, as noted *supra* in Section VI (A)(2)(a), Appellants argue that these elements are of their invention and not known in the prior art.

Claims 2-4, 6-9, 19, and 20, depend from claim 1. These claims incorporate the same problem by that dependency.

B. *Rejection of Apparatus Claims 1-4, 6-9, 19, and 20 Under 35 U.S.C. § 112, First Paragraph*

(1)
Introduction

For independent claim 1, using our authority under 37 C.F.R. § 41.50(b), we reject apparatus claims 1-4, 6-9, 19, and 20 under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claims.

We have found *supra* that the recitation of a "system configuration generator," "system builder," and "simulation verification environment" do not recite definite structure. Also, we have concluded *supra* that for these claim elements § 112, sixth paragraph does apply (i.e., the presumption that § 112, sixth paragraph does not apply has been rebutted for these claim elements).

In addition, if § 112, sixth paragraph does not apply to these claim limitations, then we make an alternative rejection of claims 1-4,

6-9, 19, and 20 for lack of enablement under § 112, first paragraph because the claim elements are purely functional (*i.e.*, there is no particular structure to support the function being performed).

(2)
Principles of Law

(a)
Scope of Enablement

> Section 112 requires that the patent specification enable "those skilled in the art to make and use the full scope of the claimed invention without 'undue experimentation' " in order to extract meaningful disclosure of the invention and, by this disclosure, advance the technical arts. *Koito Mfg.* [*Co., Ltd. v. Turn-Key-Tech, LLC*], 381 F.3d [1142] at 1155 [(Fed. Cir. 2004)] (quoting *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed.Cir.1997) (citation omitted)). Because such a disclosure simultaneously puts those skilled in the art on notice of the enforceable boundary of the commercial patent right, the law further makes the enabling disclosure operational as a limitation on claim validity. "The scope of [patent] claims must be less than or equal to the scope of the enablement. The scope of enablement, in turn, is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation." *Nat'l Recovery* [*Techs., Inc. v. Magnetic Separation Sys., Inc.*], 166 F.3d [1190] at 1196 [(Fed. Cir. 1999)]; *see also In re Goodman*, 11 F.3d 1046, 1050 (Fed.Cir.1993) ("[T]he specification must teach those of skill in the art 'how to make and how to use the invention as broadly as it is claimed'."); *In re Fisher*, 57 C.C.P.A. 1099, 427 F.2d 833, 839 (1970) ("[T]he scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.").

Invitrogen Corp. v. Clontech Labs. Inc, 429 F.3d 1052, 1070-71 (Fed. Cir. 2005) (footnote omitted).

(b)
Undue Experimentation - Wands Factors

> Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations.

In re Wands, 858 F.2d at 737.

The *Wands* factors include:

> (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, and (8) the breadth of the claims.

Id.

In reviewing for lack of enablement, the *Wands* court elected to consider "all of the factors." *Id.* at 740. However, it is not necessary to review all the *Wands* factors to find a disclosure enabling. Rather, the *Wands* factors "are illustrative, not mandatory" and what is relevant to an enablement determination depends upon the facts of the particular case. *See Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991). *See also Enzo Biochem, Inc. v. Calgene, Inc.,* 188 F.3d 1362, 1371 (Fed. Cir. 1999) and *Warner-Lambert Company v. Teva Pharmaceuticals USA, Inc.*, 418 F.3d 1326, 1337 (Fed. Cir. 2005).

(c)

Functional Claiming versus 35 U.S.C. § 112, sixth paragraph,

35 U.S.C. § 112, sixth paragraph, when enacted, was a statutory response to the Supreme Court's decision in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946). In *Halliburton*,[6] the Supreme Court held invalid an apparatus claim on the ground that it used "means-plus-function" term which was purely functional. Such a claim was improper because the means term with a stated function merely described a particular end result, did not set forth any specific structure, and would encompass any and all structures for achieving that result, including those which were not what the applicant had invented.

In *Greenberg*, the Court of Appeals for the Federal Circuit stated:

> As this court has observed, "[t]he record is clear on why paragraph six was enacted." *In re Donaldson Co.*, 16 F.3d 1189, 1194, 29 USPQ2d 1845, 1849 (Fed. Cir. 1994)(in banc). In *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 71 USPQ 175 (1946), the Supreme Court held invalid a claim that was drafted in means-plus-function fashion. Congress enacted paragraph six, originally paragraph three, to overrule that holding. In place of the *Halliburton* rule, Congress adopted a compromise solution, one that had support in the pre-*Halliburton* case law: Congress permitted the use of purely functional language in claims, but it limited the breadth of such claim language by restricting its scope to the structure disclosed

[6] *Halliburton* was the culmination of a long line of cases dealing with use of terms such as "means" and "mechanisms" in claims. *See, e.g.*, A.W. Deller, *Walker on Patents,* § 166, pp. 790-794 (Deller's Edition 1937).

> in the specification and equivalents thereof. *See Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1041-42, 25 USPQ2d 1451, 1453-54 (Fed. Cir. 1993); *In re Fuetterer*, 319 F.2d 259, 264 n.11, 138 USPQ 217, 222 n.11 (CCPA 1963). (Emphasis added.)

Greenberg v. Ethicon Endo-Surgery Inc., 91 F.3d 1580, 1582 (Fed. Cir. 1996). As the Federal Circuit explained, the statutory solution represents only a compromise.

(d)
Halliburton

In *Halliburton*, the Supreme Court held invalid an apparatus claim on the ground that it used "conveniently functional language." 329 U.S. at 8.

The apparatus claim of *Halliburton* used a "means-plus-function" term which was purely functional. Such a claim was improper because the means term with a stated function merely described a particular end result, did not set forth any specific structure, and would encompass any and all structures for achieving that result, including those which were not what the applicant had invented.

(e)
Continued Applicability of the Halliburton Rule

The Board stated the following in *Miyazaki*:

> *Halliburton* proscribed purely functional claiming by prohibiting a patentee from using "broad functional claims" to "obtain greater coverage by failing to describe his invention than by describing it as the statute commands." *Id.* at 12-13.

Miyazaki, 89 USPQ2d at 1216.

The Board went on to state the following in *Miyazaki*:

> In particular, the Court in *Halliburton* feared the "overhanging threat" of the functional claim which "barred anyone from using in an oil well any device heretofore or hereafter invented which combined with the [prior art] machines performs the function of clearly and distinctly catching and recording echoes from tubing joints with regularity." [*Halliburton,* 329 U.S.] at 12. The Court explained that "[j]ust how many different devices there are of various kinds and characters which would serve to emphasize these echoes, we do not know." *Id.* The Court further explained,
>
>> In this age of technological development there may be many other devices beyond our present information or indeed our imagination which will perform that function and yet fit these claims. And unless frightened from the course of experimentation by broad functional claims like these, inventive genius may evolve many more devices to accomplish the same purpose.
>
> *Id.* (citations omitted).

Miyazaki, 89 USPQ2d at 1216.

Functional claim language is permissible only if the scope of the functional claim language is commensurate in scope with an enabling disclosure. *See In re Boller*, 332 F.2d 382, 386-387 (CCPA 1964) (In considering "whether the claims are 'unduly broad' ", Judge Rich writing for the court first concluded that as to a functionally claimed *volatile neutralizing agent*,[7] "we believe that appellant's disclosure, even though of a limited class of 'volatile neutralizing agents,' is sufficient to justify claims which define broadly a volatile neutralizing agent"; however, the court also

[7] Claim 76 of Boller recited "a volatile neutralizing agent for said residual carboxyl groups temporarily inhibiting further reaction between the unreacted portions of said alkyd and the epoxidized ester compound."

concluded that claims which differ by reciting a functionally claimed " 'neutralizing agent' broadly without saying it is volatile do not comply with 35 U.S.C. § 112."). Therefore, a claim which is limited by its construction to be commensurate in scope with an enabling disclosure is enabled, and a claim which is not so limited is not enabled.[8]

In the absence of such a limited construction, the concerns expressed by the Court in *Halliburton* are still applicable to prohibit the use of functional claim language. For claims having functional claim language, we conclude that we must determine whether the scope of the claim is enabled as required under 35 U.S.C. § 112, first paragraph. The breadth of the functional limitation must be commensurate with the scope of the supporting disclosure.

(f)
Functional Language In and Of Itself

We recognize that functional language does not, in and of itself, render a claim improper. *See In re Swinehart*, 439 F.2d 210, 212 (CCPA 1971). For example, a composition of matter formed of two specific components in a certain proportion that is "transparent to infra-red rays and resistant to thermal shock", although stating the ultimate desired property of the composition, provides a clear-cut indication of the scope of subject

[8] Although in *Boller*, 332 F.2d 382, the CCPA speaks of undue breadth in terms of § 112, second paragraph, in the later decided *In re Borkowski*, 422 F.2d 904, 909 (CCPA 1970), the CCPA makes clear that undue breadth is instead an issue of enablement under § 112, first paragraph.

matter embraced by the claim and does not have a scope of protection beyond that which is justified by the disclosure. *Id.*

The issue of the claims before us is distinguished from the claim found in *Swinehart*, in that the scope of the functional claim language here in claim 1 is not enabled to its entire scope. In *Swinehart*, the claim at issue recited a composition of barium fluoride and calcium fluoride in approximately eutectic proportion. *Id.* at 211. Thus, even though the claim at issue recited the desired property of the composition in functional terms, the claim nonetheless tied that functional language to a definite structure. In contrast to the claim in *Swinehart*, Appellants' claim recites no meaningful structure. Instead, the scope of the functional claim language of claim 1 is so broad and sweeping that it includes all structures or means that can perform the function. It is not limited to any corresponding structure, material, or act disclosed in the specification and equivalents thereof. [9]

(g)

Federal Circuit and Court of Customs & Patent Appeals Precedent

Our view that functional limitations must be commensurate with the scope of the supporting disclosure (*i.e.*, must be enabled) is supported by CCPA and Federal Circuit case law. The CCPA, for example, recognized that functional language is objectionable when it attempts to extend the monopoly provided by the claim beyond the scope of invention. *In re Krodel*, 223 F.2d 285, 289 (CCPA 1955) ("[F]unctional language . . . [is] in essence . . . an attempt to extend the monopoly beyond the scope of the

[9] We note that there was no challenge in *Swinehart* that the claim at issue fell under § 112, sixth paragraph.

invention."). While the CCPA later explained that "there is nothing intrinsically wrong" with functional claiming, it nevertheless acknowledged that doing so may cause a claim to be so broad that it has "a potential scope of protection beyond that which is justified by the specification disclosure" under 35 U.S.C. § 112. *In re Swinehart*, 439 F.2d 210, 212-13 (CCPA 1971). Indeed, the court cautioned,

> "Functional" terminology may render a claim quite broad. By its own literal terms a claim employing such language covers any and all embodiments which perform the recited function. Legitimate concern often properly exists, therefore, as to whether the scope of protection defined thereby is warranted by the *scope of enablement indicated* and provided by the description contained in the specification.

Id. at 213 (emphasis added). The Federal Circuit has also recognized that the use of functional language may render a claim invalid for lack of enablement. The Court has explained that an element of a claim recited in functional terms "covers all embodiments performing the recited function." *Geneva Pharmaceuticals, Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003); *see also In re Hauserman*, 15 U.S.P.Q.2d 1157, 1989 WL 144145 at *2 (Fed. Cir. 1989) (unpublished) ("'[F]unctional language' (not to be confused with "means plus function" language under 35 USC 112, ¶ 6) *by itself* covers any and all embodiments which perform the recited function.") (emphasis in original). As such, the specification may not enable the full scope of the functional language of the claim without undue experimentation. In *Monsanto Co. v. Syngenta Seeds, Inc.*, for example, the Court held that a broad functional limitation requiring a promoter sequence to function in all plant cells was not enabled because, at the time the patent

at issue was filed, it was not possible to insert the promoter sequence into all types of plant cells. 503 F.3d 1352, 1361-62 (Fed. Cir. 2007). Similarly, in *In re Vaeck*, the Court upheld the Board's finding that a functional limitation requiring a claimed gene to function in all Cyanobacteria cells was not enabled because Cyanobacteria comprised approximately 150 different genera, was poorly studied, and highly unpredictable. 947 F.2d 488, 493, 495-96 (Fed. Cir. 1991).

(3)
§ 112(1) Rejection Analysis

In the present case, as discussed *supra*, we are presuming that despite the lack of structure in the claims, it is not proper to perform claim construction under 112, ¶ 6 paragraph. That is, the "system configuration generator configured to generate," "system builder configured to (i) build . . . and (ii) generate," and "simulation verification environment configured to verify" elements of claim 1 do not require claim interpretation under § 112, sixth paragraph.[10] As such, the result would be that these three elements are each a functional recitation in that there is no structure presented in the claim element itself, and we are not required to import structure from the Specification into the claim under 35 U.S.C. § 112, sixth paragraph. These claim elements are purely functional.

We focus on the functional claim language of the "system builder" of claim 1. As discussed *supra* in Section VI.A.(2)(b), "the Specification does

[10] Contrast claim 1 to claim 10 which is written as a series of means-plus-function elements, which is of much more limited scope, and which is not rejected for lack of enablement.

not disclose any specific algorithm that could be implemented on a general purpose computer to provide automated random verification of complex and structurally variable systems." More particularly, Appellants' disclosure lacks even a single embodiment showing how to implement the "system builder" and its functions. (*See* FFs 5-8 and 10).

Further, as discussed *supra* in Section VI.A.(2), "system builder" is not a term which has achieved recognition as a noun denoting structure, Appellants argued that the prior art fails to teach such a "system builder" element, and Appellants do not suggest that these elements represent a particular structure defined other than as any structure that performs the recited function (i.e., it is essentially a black box that performs the recited function). We reiterate our conclusion that Appellants' "system builder" is not a definite structure. Therefore, if the "system builder" element is not a means to which § 112, sixth paragraph is applicable, then it is simply an element defined solely by the function being performed (i.e., a purely functional element unlimited by any particular structure).

We now look to pertinent *Wands* factors. We find that as to Wands factor (5), "the state of the prior art" with regard to the "system builder" element is that this element is not known in the prior art. Appellants point out that a "system builder" is part of the invention of claim 1 (Spec. 2 and App. Br. 4). Appellants go on to argue that the prior art fails to describe such a system builder. (App. Br. 7-8). Thus, Appellants have admitted through their argument that the "system builder" is not known in the prior art.

We additionally find that as to *Wands* factor (8), "the breadth of the claims" with regard to the "system builder" element is unbounded as it encompasses every means of accomplishing the "build" and "generate" functions of the "system builder". We also find that as to *Wands* factor (2), "the amount of direction and guidance presented" by Appellants is minimal; and as to *Wands* factor (3), there are no "working examples" presented by Appellants in their Specification.

We find before us an extremely broad claim element directed to a highly complex invention for which no working examples have been provided by Appellants. Further, Appellants also argue that working examples of this element are not found in the prior art. Based on *Wands* factors (2), (3), (5), and most particularly (8) (unbounded claim breadth), the weight of which is so heavy towards undue experimentation that it cannot be overcome by any mitigating *Wands* factors, we conclude that Appellants' Specification does not enable those skilled in the art to make and use the full scope of the claimed invention without undue experimentation.

That is, we conclude that the "system builder" limitation encompasses any and all structures or acts for achieving its result, including those which were not what the applicant had invented. As such, this claim is unpatentable under 35 U.S.C. § 112, first paragraph, for lack of an enabling disclosure commensurate with the scope of the claims.

With this opinion we do not mean to imply that all functional language will violate the *Halliburton* rule as it does here. We note that functional claim language tied to a definite structure in the claim (as in the claim at issue in *Swinehart*) is unlikely to give rise to an

enablement rejection where a person of ordinary skill in the art would likely know how to make and use the embodiments that give rise to the structure. However, in this case and those like it, the purported "structures" in the claims are essentially black boxes not connoting any structure to the skilled artisan, and are merely circularly defined by their desired functions. For the reasons expressed above, these "structures" are not enabled and are properly rejected under § 112, first paragraph.

Claims 2-4, 6-9, 19, and 20, depend from claim 1. These claims incorporate the same problem by that dependency and fail to resolve the problem through the recitation of a specific device for performing the functions of the "system builder."

VII. METHOD CLAIMS 11-17 - NEW GROUND OF REJECTION

A. *Rejection of Method Claims 11-17 Under 35 U.S.C. § 112, First Paragraph*

(1) *Introduction*

Using our authority under 37 C.F.R. § 41.50(b), we reject method claims 11-17 under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claims.

(2) *Principles of Law*

See *Principles of Law* Sections VI.B.(2)(a) and (b) *supra* covering *Scope of Enablement* and *Undue Experimentation - Wands Factors*.

(3)
Analysis

(a)
Claims Construction

As a preliminary matter, we address the construction of method claims 11-17. Claim 11 is exemplary (reproduced *supra*). Appellants' claim 11 recites "[a] method for automated random verification of structurally variable and complex systems."

We find that step (A) of claim 11 recites "generating a random system configuration file of said system." Appellants define a system configuration file (SCF) in their disclosure as a file which "may specify a randomly generated system composed of bus functional models, target modules, and their respective interconnections." (Spec. 8, l. 21 through Spec. 9, l. 2).

We find that step (B) of claim 11 recites "generating one or more parameters of said system in response to said random system configuration file." Appellants indicate that the parameters may represent specific system parameters according to a particular configuration of the variable and complex system under test as indicated by the SCF. (Spec. 5, ll. 6-9).

We find that step (C) of claim 11 recites "generating a system level netlist of said system in response to said random system configuration file." Appellants do not define a netlist in their disclosure; however, it is known in the art that a netlist is a type of data structure. *See* Geiger[11] at column 1,

[11] Geiger US 6,304,837 patented Oct. 16, 2001. These Appellants already have knowledge of Geiger because a copy of Geiger was previously provided as part of the examination of co-pending application Serial No.

lines 29-34 ("A netlist is essentially a list of 'nets,' which specify components (know as 'cells') and their interconnections which are designed to meet a circuit design's performance constraints. The "netlist" therefore defines the connectivity between pins of the various cells of an integrated circuit design.").

(b)
Wands Analysis

We focus particularly on steps (B) and (C) of claim 11. Appellants point out that a "system builder" is part of the invention of claim 1 (Spec. 2 and App. Br. 4). Appellants point out that step (B) of claim 11 corresponds to state (208) and step (C) of claim 11 corresponds to state (210). (App. Br. 5). Appellants disclose that process states (208) and (210) are performed by the "system builder." (FF 10). Appellants also argue that the prior art fails to describe such a system builder. (App. Br. 7-8). Appellants further argue that the prior art fails to describe steps (B) and (C) of claim 11. (App. Br. 10, ll. 3-11).

As discussed *supra* in Section VI.A.(2)(b), "the Specification does not disclose any specific algorithm that could be implemented on a general purpose computer to provide automated random verification of complex and structurally variable systems." More particularly, Appellants' disclosure lacks even a single embodiment showing how to implement the "system builder" and steps (B) and (C). (*See* FFs 5-8 and 10).

09/915,806, referenced at page 1, lines 5-6, of the Specification. The application on appeal and the co-pending application share three inventors and shared the same assignee during their examinations. The co-pending application was abandoned after a prior art rejection based on Geiger.

Therefore, we find that as to *Wands* factor (1), "the quantity of experimentation necessary" is high; as to *Wands* factor (2), "the amount of direction and guidance presented" by Appellants is minimal; as to *Wands* factor (3), there are no "working examples" presented by Appellants in their Specification; as to *Wands* factor (4), "the nature of the invention" is highly complex as shown by Appellants' description of the significant prior art failings (Spec. 2:1-8) and Appellants' indications that their invention will overcome these failings (Spec.2:14-3:12); as to *Wands* factor (5), "the state of the prior art" is well developed as shown by the Geiger patent cited *supra*; as to *Wands* factor (6), Appellants contend (without further support) that "the relative skill of those in the art" is high (*see* FF 11); as to *Wands* factor (7), Appellants also contend (without further support) that "the predictability of the art" is above average (*see* FF 12); and as to *Wands* factor (8), "the breadth of the claims" is very broad as it encompasses every way of accomplishing the "generating" results of steps (B) and (C).

We have adopted a view of Factors (5)-(7) that is most beneficial to Appellants. However, the remaining factors run counter to Appellants' benefit. In particular, we find before us two extremely broad claim steps directed to a highly complex invention for which no working examples have been provided by Appellants. Further, Appellants also argue that working examples of these steps are not found in the prior art. Weighing all of these eight factors together, with factors (1)-(4) and (8) weighing towards undue experimentation and factors (5)-(7) weighing against, we conclude that Appellants' Specification does not enable those skilled in the art to make

and use the full scope of the claimed invention without undue experimentation.

Claims 12-17, depend from claim 11. These claims incorporate the same problem by that dependency and fail to resolve the problem through the recitation of specifically how to accomplish the "generating" functions of steps (B) and (C) of claim 11.

VIII. COMPUTER READABLE MEDIUM CLAIM 18 - NEW GROUNDS OF REJECTION

A. *Rejection of "Computer Readable Medium" Claim 18 Under 35 U.S.C. § 112, First Paragraph*

(1) *Introduction*

Using our authority under 37 C.F.R. § 41.50(b), we reject computer readable medium claim 18 under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claim.

(2) *Analysis*

Claim 18 recites: "A computer readable medium configured to perform the steps (A), (B), (C) and (D) of claim 11". As discussed *supra*, we have rejected claim 11 as not being enabled for the scope of the claim with regard to steps (B) and (C). Claim 18 incorporates steps (B) and (C) of claim 11 and is rejected under 35 U.S.C. § 112, first paragraph, on the same basis as claim 11.

IX. ANALYSIS – EXAMINER'S REJECTIONS

A. Examiner's Rejection of Claims 1-4, 6-10, 19, and 20

We reverse the rejection of claims 1-4, 6-10, 19, and 20 under § 102 as being anticipated by Meyer.

A prior art rejection of a claim which is so indefinite that "considerable speculation as to meaning of the terms employed and assumptions as to the scope of such claims" is needed, is likely imprudent. *See In re Steele*, 305 F.2d at 862 (holding that the examiner and the board were wrong in relying on what at best were speculative assumptions as to the meaning of the claims and basing a rejection under 35 U.S.C. § 103 thereon).

We find it imprudent to speculate as to the scope of (a) the "means" elements of independent claim 10 or (b) the purely functional claim elements of independent claim 1, in order to reach a decision on the anticipation of the claimed subject matter under § 102. It should be understood, however, that our decision to reverse this rejection is based on the indefiniteness of the claimed subject matter and does not reflect on the merits of the underlying rejection.

B. Examiner's Rejection of Claims 11-17

We reverse the rejection of claims 11-17 under § 102 as being anticipated by Meyer.

As discussed *supra*, we have rejected claims 11-17 under 35 U.S.C. § 112, first paragraph, as not being enabled for the scope of the claims. In reaching this conclusion we found it self evident that "the nature of the

invention" is highly complex and there is no "working example" of steps (B) and (C) of claim 11 presented by Appellants in the Specification.

During examination, the Examiner set forth an initial *prima facie* showing which found that each limitation of claims 11-17 was described in Meyer and rejected claims 11-17 under 35 U.S.C. § 102(b) as being anticipated by Meyer. (Office Action, Oct. 11, 2005, 7-9). In response, Appellants argued that the prior art failed to describe performing the functions of steps (B) and (C) of claim 11 (a system builder). (Amendment, Jan. 17, 2006, 9-11; *see also* Amendment After Final, Jun. 12, 2006, 8-12). The Examiner then reached a final conclusion that each limitation of claims 11-17 was described in Meyer and finally rejected claims 11-17 under 35 U.S.C. § 102(b) as being anticipated by Meyer. (Final Rej., Apr. 10, 2006, 8-10).[12]

However, we conclude that the facts of Appellants' failure to comply with the requirements of 35 U.S.C. § 112 effectively precludes the Office from properly reaching a final conclusion of anticipation by the prior art. For this reason, we reverse the Examiner's rejections of claims 11-17 under 35 U.S.C. § 102(b).

[12] An examiner is required to determine patentability on the totality of the record, by a preponderance of the evidence with due consideration to persuasiveness of the applicant's arguments. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

C. Examiner's Rejection of Claim 18

We reverse the Examiner's rejection of claim 18 under § 102(b) as being anticipated by Meyer for the same reasons set forth *supra* for claim 11.

X. FINALITY OF DECISION

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b) (2007). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner. . . .
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2009).

XI. CONCLUSIONS OF LAW

(1) Claims 1-4 and 6-20 are not patentable.

(2) Since we have entered diverse new grounds of rejection, our decision is not a final agency action.

XII. DECISION

The Examiner's rejection of claims 1-4 and 6-20 is reversed.

We reject claims 1-4, 6-9, and 11-20, under 35 U.S.C. § 112, first paragraph.

We reject claims 1-4, 6-10, 19, and 20, under 35 U.S.C. § 112, second paragraph.

REVERSED
37 C.F.R. § 41.50(b)

msc

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