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Pulling on the Threads of “Functional” Claiming Jurisprudence

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Jurisprudence

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In the world we inhabit, no significant difference would be attributed to a “detector of a signal” versus a “means for detecting a signal” or to a “generator of a configuration” versus a “configuration generator”. However, in patent claim construction, the differences can be profound. The first approach in each case allows a broadly-enforceable construction, while the latter results in a cramped claim construction that may not properly reward a patentee for his inventive contribution, and result in a finding of claim indefiniteness under § 112 ¶ 2. The latter result is from application of the combination of § 112 ¶6 and ¶2, which is not the correct tool for culling the chaff of invalid patents from the rest. In fact, the knee-jerk opposition to “functional” claims advances precisely the wrong policy objectives, by punishing those who have contributed new broadly applicable principles and relationships in favor of rewarding those who would simply implement such principles. Further, functional claiming jurisprudence increasingly forces patentees to either to accept a means-for construction or admit prior art status of the limitation at issue. A better approach is to dispense

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with the notion that “functional claiming” is strictly prohibited, and return to the basic questions of enablement, written description, novelty and non-obviousness.

**Overview**

Much ado was made about how the *en banc* decision from the Federal Circuit in *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.* 598 F.3d 1336 (Fed. Cir. 2010) (*en banc*) might change the law of written description. The decision was anti-climactic, from the perspective of non-biotechnology patent practitioners. Pragmatically, a larger potential change to what description is required comes from a reinvigorated attack on what is called “functional claiming”, including in recent precedential decisions of the Board of Patent Appeals and Interferences (BPAI), which decides appeals from decisions in *ex parte* prosecution at the U.S. Patent Office.

Functional claiming necessarily implicates 35 U.S.C. § 112 jurisprudence, advocacy and commentary, at least since §112 ¶ 6 is the only statute directly treating the subject. Functional claim limitations have been found to raise implications of “undue breadth”, which is a concern associated with what has become known as the written description requirement of § 112 ¶ 1.

The *Ariad* decision left the state of the law practically unchanged for non-biotechnology patent claims. Notably, even while challenging the existence of
a written description requirement, the Ariad petitioners nevertheless agreed that
the invention still must be defined (“what” the invention is), and that the full
scope of the defined invention be enabled. The question of how an inventor is
permitted to define “what” his invention goes to the heart of the controversy of
functional claiming.

Claims are of primary importance (a “bedrock principle”) in
understanding the scope of patented protection (or, what may be termed an
“invention”).\footnote{It is a bedrock principle of patent law that the claims of a patent define the invention to
which the patentee is entitled the right to exclude. (citing Innova, 381 F.3d at 1115, quotations
omitted).} Claims are to reflect what the applicant regards as his invention,
giving a freedom of language to patent applicants.\footnote{35 U.S.C. 112 ¶ 2.} However, courts often
have failed to give such latitude to patent applicants. Consider examples
where an inventor views his invention as a new combination of functions that
each individually are known, but such combination operates according to a
principle discovered by the inventor, or in such combination performs a new
function. Is the inventor entitled to a claim with a scope defined by generic
structures in combination, performing the recited functions?\footnote{Because this paper focuses on Section 112 ¶ 1 (aside from best mode), ¶ 2, and ¶6, potential §
101 and best mode issues are ignored.} If not, why not? Is it because the subject matter would have been obvious (§103) or because of a
fundamental deficiency in the claim itself (§ 112) (or both)? In other words, should the patentee be restricted to protection for only the example structures disclosed in the specification? This view converts U.S. patent claims from peripheral claims (demarcating the out limits of subject matter) to central claims (directed to the disclosure of the applicant).

Although not always wrong in outcome, older and newer decisions treating functional claiming are grounded on dubious assumptions relating to the scope of protection that should be granted in such situations. The rationale in these decisions cannot be reconciled entirely with rationale of decisions allowing a broader scope of protection under what are legitimately similar circumstances.

Situations in which functional claim limitations have been found indefinite often can be characterized better as being directed to results and were not appropriately scoped. The term “result” itself is often wrongly used interchangeably with “function”, and the failure to maintain the distinctness of these concepts has proven a source of considerable problems in claim interpretation. These problems often arise by virtue of reviewing bodies reliance on brief excerpts of claim language in decisions relating to § 112, while it is important to understand the structural context of the claim as a whole, in considering whether a few words of the claim are purely functional or not, or whether a claim is directed merely to a “result.”
One way to avoid a finding of “pure functionality” is to identify a portion of claim limitation as connoting structure to a person of ordinary skill. Practically, showing that a given term connotes structure often requires an admission that the structure in question is in the prior art. So, if jurisprudence dictates that “purely functional” claim limitations are not appropriate, one change that likely will occur over time is that patent applicants and those enforcing existing patents will have to take more definitive positions on whether a given limitation is in the prior art, or not. Terms undisputedly found in the prior art likely will not be subject to much scrutiny for being “purely functional”, as well-known functional words have been found to connote structure. Conversely, when asserting that functionally-oriented limitations are not disclosed in the prior art, patentees likely will have a higher proof burden to avoid means-function construction and its structural restrictions.

Practical claim construction may become more like an implicit Jepson claim – where patentees and applicants may be forced to go on the record as to why a claim limitation is not purely functional, or that it is a means-for limitation. In practice, by moving that a slew of claim limitations in an asserted claim are “purely functional”, a patent owner may be forced to respond with evidence concerning how the claim limitation would connote structure to a
person of ordinary skill, or risk having the claim narrowly construed or invalidated under means-for analysis.5

In other words, functional claiming will become more recognized for what it is (when used appropriately) – a convenience that implicitly admits to the notoriety of a given function in the art, such that it alone is not a basis for patentability in a claim. However, the usage of that function in a new combination, operating according to a newly discovered principle should not be denied broad protection, contrary to precedent.

In order for commentary on recent “functional claiming” case law to make sense, a treatment of historical cases on this subject is warranted, because current cases still frequently excerpt and paraphrase these older cases in a misleading fashion, and without a proper context for the overall holding of such cases.

5 Of course, a well-drafted specification would properly support even a means-for construction, but claim breadth likely would be narrower than a typical non-means for construction, given the practical impossibility of describing every means to implement a function in many arts.
Halliburton Oil Well Cementing Co. v. Walker et al. DBA Depthograph Co. 329 U.S. 1 (1946)

Halliburton demonstrates a flawed approach to patent claim analysis, based on a bias that has dogged functionally-oriented claims. The claims at issue in Halliburton admittedly were directed to an improvement (by Walker) on a prior art device attributed to Lehr and Wyatt. The Lehr and Wyatt device was supposed to measure oil well-depth using echo location techniques. However, the Lehr and Wyatt device did not work for at least the reasons identified in the opinion.

Walker, as also acknowledged in the opinion, realized that certain portions of the echo signal being received by the Lehr and Wyatt device, if emphasized and interpreted appropriately, could be used to accurately measure such well depth. The claims were directed to a Lehr and Wyatt device, supplemented with a generic “means” for accomplishing the desired emphasis (as recognized by the Court):

(a) claim typical of all of those held valid only describes the resonator and its relation with the rest of the apparatus as ‘means associated with said pressure responsive device for tuning said receiving means to the frequency of echoes from the tubing collars of said tubing sections to clearly distinguish the echoes from said couplings from each other.’

6 An interesting point about Halliburton is that it identifies all the ingredients that would have been a sound basis for a well-reasoned opinion, but failed to apply those ingredients to achieve that result.

7 Halliburton pp (quotes in original)
The Halliburton Court did not explicitly challenge the conclusion that the claim at issue was an “invention” (in that it was novel and not obvious), even though it only thinly disguises its view of the claim in relation to the prior art:

we can accept without ratifying the findings of the lower court that the addition of a tuned acoustical means performing the function of a sound filter brought about a new patentable combination, even though it advanced only a narrow step beyond Lehr and Wyatt’s old combination.8

Further, the Halliburton Court sets the context of its approach to the claim by declaring:

Patents on machines which join old and well-known devices with the declared object of achieving new results, or patents which add an old element to improve a pre-existing combination, easily lend themselves to abuse. And to prevent extension of a patent’s scope beyond what was actually invented, courts have viewed claims to combinations and improvements or additions to them with very close scrutiny. 9

This statement is rife with objectionable statements. For one thing, a “declared object” does not concede that the claim in Halliburton did in fact achieve new results and did in fact improve on a prior art device, to beneficial ends.

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8 Halliburton pp 7-8 (internal quotes removed); The Court also stated “(p)etitioner (Walker) was working in a field crowded almost, if not completely, to the point of exhaustion.” Id. at 11.
9 Id. (emphasis added)
Further, even though the Court characterizes the claim as a “narrow” step over the prior art, the Court still complains that the claim fails to suggest enough physical structure:

\[
\text{no one of the claims on which this judgment rests has even suggested the physical structure of the acoustical resonator. No one of these claims describes the physical relation of the Walker addition to the old Lehr and Wyatt machine. No one of these claims describes the manner in which the Walker addition will operate together with the old Lehr and Wyatt machine so as to make the “new” unitary apparatus perform its designed function.}^{10}
\]

However, it is not the claims that are supposed to describe—it is the description.\textsuperscript{11} Instead—the claims are to “particularly point out … the subject matter which the applicant regards as his invention.” Further, the description is to be directed to the fictional person of ordinary skill, who would have been aware of the Lehr and Wyatt device, as well as other “old and well-known devices”, which purportedly comprise the remainder of the claimed structure.\textsuperscript{12}

The Court also advances the self-contradictory view that the claim is to a “narrow” advancement over the prior art, while also finding that the claim represents a threat to future innovation in the technology area:

\[\text{________________________}\]

\textsuperscript{10} Id. (quotes in original)

\textsuperscript{11} “The specification shall contain a written description of the invention.” 35 U.S.C. 112 ¶ 1.

\textsuperscript{12} The disclosure required by § 112 is directed to those skilled in the art.” \textit{Randomex Inc. v. Scopus Corp.}, 849 F.2d 585, 587, 7 USPQ2d 1050, 1053 (Fed.Cir.1988) (citing \textit{W.L. Gore & Assocs., Inc. v. Garlock, Inc.}, 721 F.2d 1540, 1556, 927 220 USPQ 303, 315 (Fed.Cir.1983)). The present concern is how Halliburton may influence functional claiming jurisprudence today, and as such, the scope of disclosure in today’s law is of primary importance (rather than whether the person of ordinary skill would have been the standard in that time).
The broadness, ambiguity, and overhanging threat of the functional claim of Walker become apparent. What he claimed in the court below and what he claims here is that his patent bars anyone from using in an oil well any device heretofore or hereafter invented which combined with the Lehr and Wyatt machine performs the function of clearly and distinctly catching and recording echoes from tubing joints with regularity.  

To such a statement, one naturally would respond: Indeed, that summarizes Walker’s exact inventive contribution and that’s no more and no less than what he claimed! Walker was the one, after all, who determined this operational principle, and described a machine to enable a person of ordinary skill to employ this principal to useful effect.

The Court rationalizes its inconsistent position by identifying the infringing device as “employ(ing) an electric filter for this purpose”. The Court’s policy perspective was that “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.” Following this logic to its conclusion, the “inventive genius” of the accused infringing device (the “electric filter”) also would be unpatentable, to avoid frightening other genius from developing any of a variety of electronic filters to accomplish the same purpose.

Stated differently, the Court refuses to acknowledge the meritorious contribution of Walker, who determined the underlying principal of operation of a class of devices, while those “inventive genius(es)” following later, using the  

13 Halliburton
discovery of Walker might “evolve many more devices” that simply implement Walker’s inventive contribution, and should be protected in those efforts.14

In sum, the Halliburton confused the respective functions of a specification and claims, failed to correctly identify the inventive contribution at issue, and failed to consider the appropriate legal and factual bases for judging the validity of Walker’s claim.

One may ask how the Court arrived at the Halliburton decision, in view of its problematic reasoning. The case General Electric Co. v. Wabash Appliance Corp. 304 U.S. 364 (1938) (GE) pre-dated Halliburton by four years, and was a principal authority relied on by Halliburton. Reviewing General Electric, in view Halliburton, helps identify how the Court went awry.

**General Electric Co. v. Wabash Appliance Corp. 304 U.S. 364 (1938) (GE).**

GE provides a contrasting example to Halliburton where a claim at issue almost certainly should have been, and was, invalidated. GE was the principal authority for the decision in Halliburton, but the rationale went awry only a few years thereafter.

The claim in GE was as follows:

“25. A filament for electric incandescent lamps or other devices, composed substantially of tungsten and made up mainly of a number of comparatively large grains of such

14 Of course, the Court’s statement also demonstrates a failure to grasp that such “inventive genius” may be rewarded with its own patent protection.
size and contour as to prevent substantial sagging and offsetting during a normal or commercially useful life for such a lamp or other device."

What was problematic about the opinion was not so much the finding of invalidity of the claim, as the basis for the invalidity finding. The Circuit Court decision had invalidated claim 25 as being anticipated by a patent identified in the specification of the patent at issue. However, the Court stated that it “need not inquire whether Pacz exhibited invention, or whether his product was anticipated.”15 Rather, the Court stated, “(t)he claim is invalid on its face. It fails to make a disclosure sufficiently definite to satisfy the requirements of R.S. § 4888, 35 U.S.C. § 33.”16

Even though the Court disavowed consideration of the prior art, the basis of its holding almost entirely resided in the Court’s treatment of the prior art. As such, even though the Court’s holding is based on purported definiteness concerns, the Court’s rationale resides almost entirely in its view of the scope and content of the prior art:

Pacz did not adequately set out “what he claims to be new.” The (claimed) tungsten filament … differentiates … (Schaller No. 1,256,930), and from Coolidge’s fine-grained thoriated filament, but serves aptly to describe the product of earlier manufacture, with its large regular grains subject to offsetting.

15 Id. at 368.

16 Id. (at 368)
According to the District Court, the earliest, so-called ‘squirted’, tungsten filaments, also consisted of comparatively large crystals, many of which were large enough to extend clear across the filament, but they shifted. The failure of the patentee to make claim to a distinct improvement is made clear by comparison of the language of the claims under consideration with descriptions of offset difficulties recognized by other inventors.\(^\text{17}\)

The Court further muddies the waters by indicating the law requires “that the inventor set out a definite limitation of his patent … difficulty of making adequate description … cannot justify a claim describing nothing new except perhaps in functional terms.”

Although one may argue that the claim was in “functional” terms, a better description of the only possible basis for distinguishing the claim from the prior art, “(grains of) such size and contour as to prevent substantial sagging and offsetting”, is not so much that it describes a \textit{function}, but rather a \textit{result}.

More properly viewed, a \textit{function} relates to the performance of a specified action or behavior, to generate an output, or result. In other words, a \textit{function} should be properly considered to require a reasonably particular or specific principle of operation, by which an action is accomplished, and which may or may not provide a recited result. In this case, the claim specifies no operating principle, relationship or action involving grain size and contour which would \textit{cause} the desired result of preventing sagging.

\(^{17}\) Id. at 369-370.
Because the claim failed to recite any particular function that could provide the result of resisting sagging, the claim only repeated what was the art-recognized objective or goal of preventing filament sagging. The claim at issue here can be contrasted readily with the patent at issue in *Halliburton*, in which the inventor described a particular enabling embodiment, and a general operating principal by which the embodiment worked.

The Court hints towards claim invalidity over the prior art by noting that “a characteristic essential to novelty may not be distinguished from the old art solely by its tendency to remedy the problems in the art met by the patent”, and it would follow that the claim simply fails to distinguish the prior art, and is not novel or non-obvious.

The Court could have relied on such finding, found that the claim read on prior art, and used that as a basis for invalidating the claim. Instead, the Court continues by “doubt[ing] whether the language used in [the claim] … conveyed definite meaning to those skilled in the art.”18 Contrary to the Court’s view, the language in the claim is quite simple; there are no terms in the claim these claims that would present a challenge to a person of skill in the art to understand their *definition*. For example, terms such as grains, size, contour, sagging, and offsetting all were terms known and appreciated in the prior art. What was lacking from the claim was not that the claim terms failed to define or describe, but rather the claim failed to circumscribe any novel territory: the scope of the subject matter defined by the claim included (perhaps only included) what was already known: a filament, composed of an element, tungsten, which was known in the art, to be used for a purpose known in the art, and constituted in an unspecified manner to address a known problem, which was not yet adequately solved.

18 pp 371-372
GE, followed by Halliburton show how bad facts make law that is applied badly in the future. The following case provides another example of circumstances where the Supreme Court could have invalidated a patent based on cited prior art, but again instead to use an approach focused on claim scope.

Union Carbon Co. et al. v. Binney & Smith Co. 317 U.S. 228 (1942) (Binney)

The Binney case provides yet another example of how prior Courts have treated patents with broadly drafted claims; Binney was decided in 1942 – 4 years after GE, and several years before Halliburton. Binney also concerns circumstances whether descriptions of a process to produce a product can support a broad claim to the product itself, divorced from any process of making it. A representative claim at issue in Binney is reproduced below.

2. As an article of manufacture, a pellet of approximately one-sixteenth of an inch in diameter and formed of a porous mass of substantially pure carbon black."

The Court considered expert testimony to understand the meaning of some of the claim terms used. After such testimony, the Court construed the claim as follows:

2. A pellet between a diameter of one hundredth of an inch and one quarter of an inch and formed of a porous mass of carbon black substantially free of binders."

This claim was supported by a specification that disclosed a process of producing a product within the scope of the claim. The process disclosed in the patent was a two-step process that was not widely adopted. However, a simpler, commercially successful process for producing a product, which also

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19 Binney was decided after, and referenced GE, discussed above.
was within the scope of the claim, was invented and patented shortly thereafter.

The following quote demonstrates that the Court was concerned with the definition of the invention and that a lack of definition would contravene the requirements of the statute.

*Patents ... must comply accurately and precisely with the statutory requirements ... The inventor must inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not. The claims 'measure the invention.' ... In a limited field the variant must be clearly defined ... To sustain claims so indefinite as not to give the notice required by the statute would be in direct contravention of the public interest.*


However, the claims did not suffer from a lack of definiteness – especially in view of the uncontroverted expert testimony used in construing the claims. For example, if the Court found that the apparently large range of particle sizes troubling, then a different claim construction could have been proposed. Instead, the Court adopted the claim construction and then takes its construction as a rationale supporting invalidity. A better view is that the breadth of the claim was such that the claim failed to adequately distinguish the prior art of record in the case.

To delineate the logic more fully, *Binney* rationalizes that a “limited field” (a crowded art), supports a higher standard of definiteness: *In a limited field the variant must be clearly defined.* Would the converse be true, such that in an “unlimited field”, a claim can be indefinite? More logically, a claim in a crowded field necessarily must be narrow to be novel and non-
obvious. But, then why should an overly broad claim be rejected for being indefiniteness, rather than for reading on the prior art?

The Court also advanced the concern that the public would not have been on notice of the scope of the claims. However, the opinion shows that neither side produced conflicting expert testimony about what a person of ordinary skill would have understood the claim terms to mean. Although litigation strategy can always play a role, such as a defendant concurring in a broad construction, to strengthen an invalidity argument, at least some evidence on the record suggests that those of ordinary skill in the art would have arrived at a construction similar to what was proposed and adopted in the case, such that the relevant public audience was adequately on notice about the scope of the claim at issue.

Here also, the Court reasonably had available an element of prior art that could have been used to find that the claims at issue read on the prior art and were invalid by virtue of anticipation. Therefore, the Court also appeared to have a convincing invalidity rationale on which it could have relied to reach the same result.

*GE, Binney and Halliburton* are a trio of cases that staked out some of the early positions concerning judicial perspectives on so-called “functional claiming”. The distillation of these cases was the over-simplification that functional claiming was not permitted, especially at the “exact point of novelty”, which is known as the “Halliburton rule”.

20 The Binney court cited as prior art a patent to Knowlton and Hoffman, No. 1,286,024.

21 For example, the U.S.P.T.O. Board of Patent Appeals and Interferences (BPAI) have provided two precedential opinions, *Ex parte Rodriguez* and *Ex parte Mlyazaki*, which both tackle questionable claims, but which mischaracterize some of the case law described herein, and
Congress responded to this line of cases with enactment of 35 U.S.C. 112 ¶ 6, which has been characterized as a legislative compromise. Since 35 U.S.C. 112 ¶ 6 is the only part of the patent code explicitly concerned with functional claiming, jurisprudence relating thereto informs the largely issue.

More recently, the Board of Patent Appeals and Interferences (BPAI) has sought to reinvigorate the Halliburton rule, with two precedential *ex parte* decisions: *Ex parte Rodriguez* and *Ex parte Miyazaki*.

**Means-For Case Law Illuminates § 112 Written Description Analysis**

Responsive to *Halliburton*, present day paragraph 6 (then ¶ 3) of § 112 was enacted, statutorily giving a basis for “purely functional” claiming according to means-for claim construction, which limits a purely functional claim limitation to only those structures linked to the function that are recited in the specification. Because § 112 ¶ 6 jurisprudence relates to determining whether a given limitation is “purely functional” and consequently being impermissibly broad, or indefinite, this area of law is useful in considering whether functional claiming should be found to violate § 112 at all or under particular circumstances.

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otherwise excerpt the case law to advance a doctrine in conflict with Federal Circuit practice. These decisions are addressed below.
Whether certain claim limitations invoke 35 U.S.C. § 112, ¶ 6 is a question of law.\textsuperscript{22}

The Federal Circuit has characterized its jurisprudence as “consistently” holding that “(m)eans-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function.”\textsuperscript{23} However, the full extent of its case law, and other reviewing bodies interpreting that case law do not appear to find such comforting consistency.

It is well-established that use of the words “means for” in a claim limitation gives rise to a presumption that means-for analysis applies to that claim limitation.\textsuperscript{24} The law also recognizes the converse holds, in that absence of “means for” causes a presumption that means-for analysis does not apply. More recently, the Federal Circuit has characterized the presumption as a “strong” presumption.\textsuperscript{25} Other terms have been characterized as giving rise to the presumption, including “mechanism for”.\textsuperscript{26} The presumption can be rebutted by demonstrating that the disputed claim term recites structure sufficient for performing the function, and the presumption arising from non-use

\textsuperscript{22} In re Donaldson Co. 16 F. 3d 1189, 19993-1994 (Fed. Cir. 1994).
\textsuperscript{23} Phillips v. 1096 AWH Corp., 415 F.3d at 1311 (Fed.Cir. 2005); see also Finisar Corp. v. DirecTV Group, Inc., 523 F. 3d 1323 (Fed. Cir. 2006).
\textsuperscript{24} TriMed, Inc. v. Stryker Corp., 514 F.3d 1256, 1259 (Fed.Cir.2008). (from wellker bearing)
\textsuperscript{25} Lighting World, Inc. v. Birchwood Lighting, Inc. 382 F;3d 1354, 1358 (Fed.Cir. 2004) (“we have seldom held that a limitation not using the term ‘means’ must be considered to be in means-plus-function form” and only in ‘unusual’ circumstances will the presumption be overcome.
\textsuperscript{26} Id.
of “means for” can be rebutted by failure to “recite sufficiently definite structure”.  

The following “means for” cases are discussed to show that the practices of the Federal Circuit cannot be reconciled with the prohibition of “purely functional” claiming, except by adding the provisos that a function known in the art can be claimed functionally, and that the limitation should not be relied on (solely) for patentability.

_A “Selector”: S3 Inc. v. nVIDIA Corp., 259 F.3d 1364 (Fed. Cir. 2001) (“S3” contrasted with Blackboard, Inc. v. Desire2learn Inc. 574 F.3d 1371 (Fed. Cir. 2009) (“Blackboard”).

Contrasting the outcome and rational in S3 with the outcome and rational in Blackboard points up the problem. In S3, the limitation at issue was “a selector supplying one of said video information data stream from the video controller and said video display information data stream from said random-access memory to said digital-to-analog converter.” The description disclosed the selector as a box in a single figure, without any internal structure, in a

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27 Watts 232 F.3d at 880 summarizes the results of several decisions discussed herein, including Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996) and Personalized Media Communications, LLC v. Int’l Trade Comm’n, 161 F.3d 696, 48 USPQ2d 1880 (Fed. Cir. 1998); see also LG Electronics, Inc. v. Bizcom Electronics, Inc. 453 F.3d 1364, 1372 (Fed. Cir. 2006).
specification that was only 3 pages long and mentioned the selector once, in passing.\footnote{The following quote is the only disclosure relating to the “selector” in the patent specification: “In certain modes of operation, it may be desirable for the VGA controller 11 to bypass the RAM portion of the RAMDAC 23 and instead provide video display information directly to the DAC portion of the RAMDAC 23 through a selector 24.” Para line #}

In upholding the claims validity, the Court reasoned that it was unnecessary for the written description to disclose additional detail because a person skilled in the art would have recognized that the selector as shown in the patent was an electronic device with a “known structure”\footnote{S3 259 F.3d at 1370-71.}. The Court never explained what the “known structure” of the selector would have been to the person of ordinary skill, and there appears to be no limitation on what structure could satisfy the “selector” limitation, except that it performs the function attributed to it. Also, even though the person of ordinary skill may have known of a structure for the selector, the limitation is not limited to any known selector structure, and one invented later could also meet the claim limitation.

This holding directly contradicts reasoning found in parallel precedent grounded in means-for claim analysis. For example, in \textit{Blackboard}, a “means for access control” was claimed. Blackboard argued that a disclosed “access control manager” was the corresponding structure for implementing the function of access control. With respect to the structure of the “access control
"access control manager", the Court characterized the disclosure as a box labeled with the term, parroting the function:

Blackboard has never suggested that the “access control manager” represents a particular structure defined other than as any structure that performs the recited function. In other words, the access control manager, according to Blackboard, is any computer-related device or program that performs the function of access control.

Responding to arguments that an “access control manager” would be enough for a person of ordinary skill in the art to understand structure, the Blackboard court held:

A patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function. To allow that form of claiming under section 112, paragraph 6, would allow the patentee to claim all possible means of achieving a function. 30

S3 holds otherwise, in that a “selector” identifies no structure, other than a structure that performs the requisite function. To the extent that a system performs a function, the system must implement the function somehow; no system “selects” without a “selector”. As such, even though a reference to a “selector” may indeed connote structure to a person of ordinary skill, that

30 Blackboard 574 F.3d 1371 (emphasis added); see also Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374, 1380 (Fed. Cir. 1999) (“consideration of the understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification”).
structural connotation is not sufficient to place any limitation on what structure could meet that limitation, aside from the underlying function.\textsuperscript{31}

Then, one question that follows is whether the lack of limitation of the structure to any particular kind of “selector” presents a policy concern that such a patentee “has not paid the price” for such claim breadth. Although the thrust of \textit{Halliburton} suggests that a policy concern exists, a more nuanced answer is informed by decisions relating to “means-for” claim analysis. \textsuperscript{32}

The rationale of S3 is not an isolated example. Personalized Media Communications v. ITC 161 F. 3d 696 (Fed. Cir. 1998) reaches a similar conclusion, based on a similar rationale, for the term “detector” in United States Patent 5,335,277.\textsuperscript{33} In PMC, an Administrative Law Judge had found the term to be a means-for term, construed the term according to § 112 ¶6 and held the claim invalid under §112 ¶2. \textsuperscript{34}

\textsuperscript{31} See also Personalized Media Communications v. ITC 161 F. 3d 696, 705 (reaching a similar result for the term “detector”).


\textsuperscript{33} The limitation in its entirety recites, “a digital detector for receiving said transmission and detecting said predetermined signal in said transmission based on either a specific location or a specific time”. PMC 161 F.3d at 698.

\textsuperscript{34} PMC, 161 F.3d at 700-701.

Lighting World exemplifies the most permissive functional claiming approach, where claim limitations will rarely be considered so lacking in structure that they invoke means-function analysis. By extension, finding that a claim does not lack structure demands concluding that the claim is “not purely functional”. Hence, the logic in Lighting World informs the more general questions of functional claiming addressed here.

According to Lighting World, anything other than a “nonce word” or “verbal construct” is sufficient structure in a claim term to avoid rebuttal of the presumption that means-for does not apply.\(^{35}\) Lighting World characterized the question as whether a limitation could be understood to “describe a structure”; apparently, Lighting World is using the word “a” in the non-limiting sense of practically “any” structure, in that the holding seeks only to exclude claim terms that are “simply a substitute for the term means for”.\(^ {36}\)

For example, one claim limitation considered in Lighting World was “connector assembly”.\(^ {37}\) This small excerpt was selected for attention by the court from a claim that recited “a connector assembly for connecting each

\(^{35}\) Lighting World, 382 F.3d at 1360.

\(^{36}\) Id.

\(^{37}\) U.S. Pat. No 5,448,460 (“the ’460 patent”)
pair of adjacent support members, said connector assembly being pivotally connected to said pair of adjacent support members."

However, the Court, in considering the “connector assembly” in the abstract, reasoned although this term “does not bring to mind a particular structure … 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.”

Granted, a “connector assembly” is something that likely could be touched – i.e., there is some notion of structure in the term. However, a more appropriate question would be whether “connector assembly” precludes any structure that performs the function of connecting. If not, then the claim – in reality – is purely functional. According to Halliburton jurisprudence, such a finding would require the claim to be found indefinite and invalid.


Over the last few years, the Board of Patent Appeals and Interferences has made a concerted effort to publish more opinions that are precedential, and which should therefore influence behaviors at the Patent Office and in future appeals.
Two precedential opinions published over the last few years revive and emphasize precisely the wrong policy perspectives and de-contextualize precedent to advance unhelpful ends.

*Miyazaki* fails to recognize non-sequitur posed in Halliburton: that the protection according to the invention of a new operating principle should be limited only to the example structures disclosed for practicing the principle – so that copyists (mis-named “inventive geniuses”) can be free to practice the principle using other implementations.

The *Miyazaki* decision also relies on *In re Fuetterer* (CCPA 1963) as support. However, *Fuetterer* clearly condemns logic used in Miyazaki, and overruled a Board of Appeals decision invalidating claim for impermissive “functionality”. Miyazaki cites *Fuetterer* as endorsing the proposition that “‘functional claiming merely the desired result well known to and sought after by workers skilled in the art’ is prohibited.”

In fact, *Fuetterer* capably distinguishes *GE* and *Halliburton*, and appears to be the only case that recognizes what should be readily apparent: that the “exact point of novelty” in many situations is a “new

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38 *Miyazaki* at 26, citing *Fuetterer* 319 F. 2d at 263.
combination” of a class of structures or substances – and not a combination of any particular one.\(^{39}\)

This point cannot be emphasized too much – Miyazaki notes that a “USPTO concern is that such unlimited purely functional claiming (is) construed to encompass any and all structures for performing the recited function, including those which are not what the applicant invented.”\(^{40}\) This statement evidences a failure to understand that an applicant need not have invented any particular structure – and that a basis for patentability need not reside in the existence of a new structure.

The quotations in Miyazaki concerning prohibition of claims directed to “merely the desired result well known to …workers” also have been shown inapposite in the large majority of cases. What lacks from Miyazaki and other case law using this phrase is the failure to emphasize the word “merely”, as being an essential qualifier to the concept. For example, the GE case is an example of a claim that could be fairly stated as being directed merely to a

\(^{39}\) “The instant case appellant’s ‘exact point of novelty’ is a new combination 264*264 of substances constituting a rubber tire tread stock. This combination is distinguishable ‘from the old art’ in that, inter alia, it is new, i. e., no evidence exists that it describes a ‘product of earlier manufacture.’ Fuetterer 319 F. 2d at 263-264.

\(^{40}\) Miyazaki at 27.
result, while Halliburton, in which this phrase originated is an example to the contrary.  

However, a claim to a combination where a limitation has a functional claim cannot legitimately be considered a claim to “merely” a known desired result. One important distinction is that, for example, in Halliburton, the desire to implement the function at all was caused by the inventive contribution of the patentee. Further, a functional claim limitation is not congruent with a claim directed to a result, as the examples above delineate.

Rodriquez follows a logical path similar to Miyazaki. Principally, the decision fails to account for a large portion of the case law that directly contradicts its propositions. For example, Rodriquez notes that the language of claim is functional, and “so broad and sweeping that it includes all structures or means that can perform the function. It is not limited to any corresponding structure...in the specification. However, cases such as S3 (detector), Lighting World (connector assembly), and PMC (detector) refused to invalidate claims

41 The claim in Miyazaki is uninteresting; rather, the logic applied in Miyazaki is of concern.

42 As often is the case, bad facts make bad law. The claims in the patent application at issue in Rodriguez should have been rejected. The question is on what basis, and given that the Rodriguez opinion was precedential, what damage does the opinion do to legitimate interests of patent applications.

43Rodriquez p. 34
about which this statement was true. Therefore, whether or not a claim limitation meets this criteria seems at best an inappropriate criterion for validity.

Such criticism is not to suggest that the claims in Rodriguez should have survived. To the contrary, the panel’s criticism of the claims was warranted. Rather, the problem is relying upon the formula of prohibiting a claim as that encompasses “all structures that can perform the function”, which is an over inclusive prohibition. Rather, the Rodriguez panel should have instead emphasized that the Rodriguez claim limitations were each directed to results—not functions. The distinction is that a result is an output of an unspecified group of operations, i.e., that the nature of the operations to be performed to reach the output are not specific enough. The distinct can best be illustrated through example.

One limitation of claim 1 of the Rodriguez application was

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.

The Rodriguez specification was 8 pages long, and did little more than reiterate the subject matter of the claims. Such a high-level disclosure

44 The Rodriguez application published as US 2003/0204388 see FIG. 2, element 106 and ¶
(0015).
supporting this claim directed to complex subject matter is nothing more than “a mere wish” for a system performing according to the high-level specification. In other words, the claim, itself, is not per se invalid because of “undue breadth” or because of impermissive functional claim language. Rather, the problem is with the disclosure supporting the claim. The disclosure fails to demonstrate that the applicants were in possession of the claimed subject matter, or that the claim was enabled. Thus, the claim was nothing more than a recitation of a “mere wish” for such an apparatus.\textsuperscript{45}

The selector and detector of S3 and PMC, for example, were disclosed in no more particularity than the “environment” of the Rodriguez claim. The difference was the scope of the limitation, and evidence that the functionality was conventional in the art, and hence, the functionality was not simply a “mere wish” but could be implemented readily by those in the art.

In essence, the question of functional claiming has become a proxy for questions of enablement. \textit{Rodriguez} comes closest to being explicit about the true problem posed claims such those in Rodriguez. Rodriguez finds relevance in whether the limitation at issue was admitted prior art, in deciding whether the limitation is an impermissibly functional limitation.

\textsuperscript{45} Regents of University of Cal. v. Eli Lilly & Co., 119 F. 3d 1559, 1566 (Fed. Cir 1997); Fiers v. Revel 984 F.2d 1164, 1171 (Fed. Cir. 1993).
Rodriquez states "(s)ince Appellants have urged the Board that these claim elements represent the advancement over the prior art...and argued that the prior art fails to teach (them)...the prosecution history supports a conclusion that these terms are used to connote structures unknown in the art ... Thus ... we have no basis for concluding that these terms evoke ...structure."\textsuperscript{46} "nor have appellants ever suggested that these claim elements are a known structure in the prior art. In fact ... Appellants argue that these elements are of their invention and not known it the prior art."\textsuperscript{47}

Considering this rationale in more detail, the S3 and PMC decisions both had and considered evidence that those of ordinary skill "connoted" structure from the claimed limitations. For example, in S3, the patentee provided evidence that the claimed "selector" component was a component well-known in the art. For example, in PMC the Court noted that the ALJ in the district court proceeding referenced dictionary definitions for "detector" and found that the term had a well-known meaning to those of skill in the electrical arts, including a rectifier or demodulator.\textsuperscript{48} In Halliburton, the limitation at issue was admittedly the only distinction between the claimed apparatus and the prior art.

\textsuperscript{46}

\textsuperscript{47} p. 27

\textsuperscript{48} PMC at 704-705 (internal quotations omitted)
Technology Licensing Corp. v. Videotek, Inc., 545 F. 3d 1316 (Fed. Cir. 2008) ("Videotek") presents an example case proceeding differently, but which supports importance of the question whether a limitation is being relied on for distinguishing the prior art. Videotek concerned an appeal from a trial court decision that a claim was not invalid for failure to satisfy the written description and was not indefinite. The limitation at issue did not recite a term giving rise to the means-for presumption. However, the parties agreed that the term should be considered a means-for limitation, and the court agreed. That limitation reads: "circuitry to provide a format signal changeable in response to the format of said video type signal.\footnote{Id.; U.S. Pat. No. 5,486,869 col.17 ll. 46-47.}

Here, the Federal Circuit did not challenge the view that the "circuitry" limitation was to be interpreted as a means-function limitation (even though claim interpretation is a "matter of law" and should not necessarily be influenced by whether parties agree to pursue an interpretation contrary to law).\footnote{Technology Licensing Corp. v. Videotek, Inc., 545 F. 3d 1316, 1338 (Fed. Cir. 2008).} The Federal Circuit opinion cited a number of cases construing whether a formulation of "circuitry for (function)" is a means-for limitation or not. (e.g., Apex, Inc. v. Raritan Computer, Inc. 325 F.3d 1364 (Fed. Cir. 2003)("interface circuit"); Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311 (Fed. Cir.2004); Massachusetts Institute of Technology v. Abacus Software, 462 F.3d 1344 (Fed. Cir. 2006). Typically, these cases hold that such limitations are not means for, in that the function recited invokes structure, in conjunction with the claim. Addressing whether this view is in dissonance with the cases cited herein is beyond the scope of this article.
extensive passages concerning the testimony concerning availability or unavailability of structures that could perform the recited function “(Defendant) argued … that no detector (then) known in the art … could detect both analog and HDTV signals .. to support a conclusion that claim 31 was indefinite. **Cooper, on the other hand, testified for TLC that technology to perform the claimed function was available at the relevant time and would have been known to a person skilled in the art.** (We agree that (defendant) failed to show that the written description of the ‘869 patent lacks structure corresponding to the function.”

Thus, Videotek can be seen giving weight to the prior art, in informing a limitation that admittedly was means for – even though other cases – e.g., Blackboard, hold that resort to considerations whether a person of ordinary skill would understand how to build a device to perform the recited function. One important difference between Videotek and Blackboard is that the patentee in Blackboard was advancing an argument that the limitation at issue was a basis for distinguishing prior art, while in Videotek, the patentee was testifying as to the limitation’s presence in the prior art.

Such a result was a recognized side effect in *Lighting World*, where it was plainly stated that claim limitations would not be found lacking in structure, simply because of broad, generic structural recitation. Rather, the proposition
was that such claims would be more vulnerable to invalidation based on prior art.\textsuperscript{52}

In essence, courts are increasingly forcing patentees to choose between a narrow interpretation of a limitation under § 112 ¶ 6 by denying prior art status of the claim limitation, or to attempt a broader functional interpretation of the limitation, even while admitting its prior art status.

\textsuperscript{52} \textit{Lighting World} 382 F. 3d at 1361-1362 (Fed. Cir. 2004) ("The consequence of defining the term connector assembly free of the constraints of section 112 ¶ 6 may be to render the claim more vulnerable to attack for invalidity") (quotes omitted).