

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner,

v.

CONTENTGUARD HOLDINGS, INC
Patent Owner.

Patent No. 6,963,859

Inter Partes Review No. IPR2015-00440

Petitioner's Motion for Rehearing

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Table of Abbreviations

MAC	Message Authentication Code
RTE	Right-To-Execute
PKI	Public Key Encryption Infrastructure

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I. Introduction

On July 13, 2015, the Board denied institution of *inter partes* review on certain claims of U.S. Patent No. 6,963,859. *See* Paper 11 (“Dec.”). It found, *inter alia*, that the Petition did not adequately explain the differences between each prior art reference and the challenged claims, and did not justify institution of trial on obviousness. *Id.* at 11. Three criticisms of the Petition were key to its Decision.

First, it faulted the Petition for comparing the challenged claims to an obvious variation of the system described in the primary reference (ABYSS), rather than identifying “claim limitations [that] are absent from ABYSS” with “particularity.” *Id.* at 13. But the Petition clearly explained that the system described in ABYSS would need to be *modified* to correspond to the claimed invention, and it identified which claim elements were the same as elements in ABYSS or which were obvious variants of ABYSS elements. *See, e.g.*, Pet. at 23, 37-40, 44-51. It also was perfectly appropriate for the Petition to establish obviousness by comparing the *combined* teachings of the prior art to the claimed invention. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents”). Indeed, by demanding compliance of the Petition with its rigid formula for obviousness, the Board committed a fundamental legal error. *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (it is error to adopt “a rigid approach to

determining obviousness based on the disclosures of individual prior-art references . . .”); *KSR*, 550 U.S. at 419 (if “a court transforms [a] general principle into a rigid rule that limits the obviousness inquiry... it errs”).

Second, the Board accused Petitioner of engaging in improper “hindsight.” Dec. at 17 (using “Patent Owner’s claims as a guide in constructing a system loosely based on ABYSS that resembles the claimed invention”). Petitioner did no such thing – it explained that the modifications of ABYSS proposed in the Petition flow directly from the explicit statement in ABYSS that each service provided by the supervisor process can be implemented using either public key or symmetric cryptosystems. Pet. at 37 (“ABYSS teaches its systems can be implemented using either of the two standard cryptographic systems (*i.e.*, ‘either a symmetric [] or a public key cryptosystem’). Ex. 1016 at 43.”). Notably, this allegedly hindsight-driven description is the *exact same passage* (*id.* at 37-40) which the Board also found to be “*divorced from the claim language*” (Dec. at 13)(emphasis added).

Finally, the Board held the Petition deficient for failing to provide a proper *Graham* analysis, criticizing it extensively for relying on explanations of the prior art teachings provided in other sections of the Petition and for citing to an expert declaration to support the facts advanced in it. This criticism, which echoes the grossly inaccurate characterizations of the Petition in Patent Owner’s preliminary response, is unwarranted. Prelim. Resp. (Paper 10) at 4-9. In reality, the Petition

did precisely what *Graham* requires – it presented an objective description of the teachings of the prior art and what they ***collectively*** conveyed to the skilled person, it identified how the ABYSS system differed from the claimed invention, and it explained why the prior art rendered the claimed invention obvious. On each point, it identified specific passages in ABYSS or other prior art for support, and properly relied on competent testimony of an expert (Ex. 1013).

Rehearing is thus respectfully requested because the Board overlooked or misapprehended substantial portions of the Petition which explained in detail how the prior art references either individually described or together suggested each element of the contested claims, and which, under the law, demonstrated the contested claims were obvious. *See* 37 C.F.R. § 42.71(d); *Daicel Corp. v. Celanese Int’l*, IPR2015-00173, Paper 15 at 2 (2105). Apple requests: (i) the Board withdraw the Decision and (ii) institute trial on claims 1 and 58 of the ’859 patent as obvious over ABYSS (Ex. 1016) and Denning (Ex. 1017), and over ABYSS, Denning, and Hartrick (Ex. 1021). Petitioner requests institution on these three claims as they are the only ones still being asserted by Patent Owner.

II. The Petition Properly Established All of the *Graham* Factors

The Board criticized the Petition for not presenting a “proper” *Graham* analysis. Dec. at 13-14. But, the Petition did exactly that.

A. The Petition Described the Scope and Contents of the Prior Art

Under *Graham v. John Deere Co.*, the first factual inquiry is a determination of the scope and content of the prior art. 383 U.S. 1, 17 (1966). Importantly, this determination is based not on the teachings of each reference in isolation, but must include their interrelated teachings, as well as background knowledge possessed by the skilled person. *See, e.g., KSR*, 550 U.S. at 418 (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the background knowledge possessed by a person having ordinary skill in the art...”).

The Board did not appear to appreciate that the Petition provided this analysis of the scope and content of the prior art in the manner *Graham* requires. The Petition first described the teachings of ABYSS and Denning individually, “quot[ing] heavily from each reference” (Dec. at 8), and explained how a skilled artisan would have understood certain portions of those references. *See* Pet. at 23-34. Then, it described their interrelated teachings as well as background knowledge known to the skilled person. *Id.* at 37-43. Here, the Petition identified an *explicit link* in ABYSS between its teachings and the public key cryptosystems discussed in the Denning textbook – it identified the statement on page 43 of ABYSS that the various services provided by the supervisor process in the ABYSS system can be implemented using either of the two well known types of cryptosystems (*i.e.*, public key or symmetric cryptosystems). *Id.* at 37 (“ABYSS teaches its systems can be implemented using either of the two standard

cryptographic systems (*i.e.*, ‘either a symmetric [] or a public key cryptosystem’). Ex. 1016 at 43.”). The Petition followed that precise guidance within ABYSS, explaining how four services of the supervisor processes (which ABYSS shows as using a symmetric cryptosystem) would have been implemented using a public key cryptosystem. *Id.* at 37-40. It also explained how the modified components would have worked together. *Id.* at 40-43; *In re Preda*, 401 F.2d 825, 826 (CCPA 1968).

B. The Petition Identified an Explicit Suggestion to Combine the Art

The Board found the Petition deficient for not identifying which claim elements were missing from ABYSS. Dec. at 13. To reach that conclusion, the Board overlooked or did not appreciate that the Petition had explained that only a single *modification* of ABYSS was necessary to yield the claimed invention. In the first paragraph to discuss ABYSS (Pet. at 23), the Petition explained ABYSS did not use “digital certificates”¹ but instead used symmetric cryptosystems within the supervisor process. It then explained ABYSS itself instructs that its supervisor process can use public key instead of symmetric cryptosystems, and that doing so would have been obvious from the combined teachings of ABYSS and Denning:

¹ The Petition had earlier explained that “communications” and “behavioral” integrity each requires use of “digital certificates” (Pet. at 16-18), which use public key cryptography systems. *Id.* at 17 (“a digital certificate is a digitally signed message that binds an identity to a public key”); *see also id.* at 32-33.

ABYSS teaches its systems can use public key encryption, but leaves many implementation details to the knowledge of a person of ordinary skill. To the extent those techniques are not described in ABYSS, they were well-known to those of skill in the art, as described in Denning.

Pet. at 23; *see also id.* at 32 (“ABYSS makes clear that while it describes examples that use symmetric ‘supervisor’ keys, its systems ‘can employ either a symmetric cryptosystem or a public key cryptosystem.’” (quoting Ex. 1016 at 43)).

The Petition also explained that making this single change, which ABYSS itself suggests (*i.e.*, using public key instead of symmetric cryptosystems in various supervisor processes), “would lead that person to incorporate public-key encryption into at least four different elements of the ABYSS system.” *Id.* at 37. Those were: (1) instead of initiating communications between protected processors by using common symmetric supervisor keys, a digital certificate exchange process would be used (*id.* at 37-38), (2) instead of using symmetric message authentication codes (MACs) to authenticate software, digital signatures and certificates² would be used (*id.* at 38-39), (3) instead of encrypting Rights-To-

² The Petition explained Denning teaches distributing software with a digital signature and certificate to validate its authenticity, and a person of ordinary skill would have used this standard technique in the place of a symmetric MAC for all of the software in ABYSS, including application software and system software.

Execute (“RTEs”) with symmetric supervisor keys, they would be encrypted with public keys (*id.* at 39), and (4) when obtaining authorization via a “cryptographic transaction,” the system would use digitally signed receipts (*id.*).

The Board criticized this portion of the Petition as reflecting a series of arbitrary changes supported by only “threadbare” reasoning. Dec. at 15. They plainly are neither arbitrary nor “threadbare.” ABYSS itself explained that the supervisor process can employ either of the two, very well known cryptosystems. Demanding a *further* motivation for altering functions of the supervisor process is contrary to *KSR* and subsequent cases holding that such a motivation need not be present for a known and conventional alternative to be obvious. 383 U.S. at 421. The Board also misread ABYSS as providing “an explicit suggestion ... [only] for the first of these changes” (Dec. at 14). ABYSS’s plain language states that “[e]ach of these [supervisor] services can employ either a symmetric cryptosystem or a public key cryptosystem.” Ex. 1016 at 43; Pet. at 37. ABYSS, thus, did not limit its suggestion to use symmetric and public key cryptosystems equivalently to *one* aspect of the ABYSS system; it stated they could be used for *any or all* of the supervisor services (“each of these services...”), including the four services explicitly discussed in the Petition. Pet. at 37-43. The Board did not appreciate that all of the modifications identified in the Petition were the result of this *single*

Pet. at 38-39; *see also id.* at 29-30; 42 (illustrating use), 47 (behavioral integrity).

change. *See KSR*, 550 U.S. at 424 (“the interaction of multiple components means that changing one component often requires the others to be modified as well.”); *In re Bascom*, 230 F.2d 612, 614 (CCPA 1956).

The Board also criticized the Petition’s discussion of the ABYSS lending library example, contending that “unsupported hidden modifications” “litter” this section. Dec. at 15. The Board did not recognize this section did not advance any new modifications or obviousness grounds, but simply described how features of ABYSS would work together (*e.g.*, using “targeted distribution” to only permitting protected processors with a particular supervisor key to join a library). Pet. at 41; *see id.* at 26-27. The Petition identified the explanation in ABYSS that a software vendor (*i.e.*, the entity selling software³ through the ABYSS system) can use “unique supervisor keys” to restrict software distribution because, in ABYSS, RTEs “can be ‘loaded only onto particular processors,’ such as those that have ‘the trusted manufacturers supervisor key’” (Pet. at 26-27), and that in the public key configuration, the symmetric supervisor keys are replaced with “public-private key pairs and digital certificates”, (*id.* at 38, 39 (§ IV.D.1)).⁴ Explaining how features

³ The Petition and ABYSS explained, “Software vendors may use the [ABYSS] system to obtain technical enforcement of virtually any terms and conditions.” Ex. 1016 at 38; *see, e.g.*, Pet. at 24 (quoting same), 26-27, 41; *cf.* Dec. at 16.

⁴ The Petition also explained a person of ordinary skill could have restricted

of a reference work together is not a new “modification.” *Preda*, 401 F.2d at 826.

The Board also overlooked or misunderstood the substantial evidence identified in the Petition showing the skilled person would have understood that public key cryptosystems could be readily used in the place of symmetric cryptosystems in ABYSS. This evidence was not limited to expert testimony, but included cited passages of the Denning textbook on using public key encryption (Pet. at 37-40; *see also id.* at 32-34), other contemporaneous publications showing similar uses of public key systems (*id.* at 40), and one reference that *explicitly stated* it would be advantageous to modify ABYSS to use public key systems (*id.* at 40 (citing Ex. 1057)); *see In re Taylor Made Golf Co., Inc.*, 589 Fed. Appx. 967, 971 (Fed. Cir. 2014). The Petition also cited specific portions of Dr. Sherman’s declaration to support the explanations in the Petition of how a skilled person could have substituted public key techniques into the ABYSS system. Pet. at 37-40.

C. The Petition Showed How the Claims Differed from the Prior Art

The Petition also mapped ABYSS, Denning, and their interrelated teachings to each element of the challenged claims using a two-step process. It first mapped the prior art to key claim terms (Pet. at 44-47, § IV.E), and then to each claim borrowing using the “authorization process” by requiring each protected processor to have a digitally signed receipt (Pet. at 42) before authorizing installation (*id.* at 43). *See id.* at 28-29 (§ IV.A.4, authorization process), 39 (§ IV.D.1, receipt).

limitation (*id.* at 47-57, § IV.F). On the first point, it explained in detail that the ABYSS protected processors, in a public key configuration, would be repositories as they would possess: (i) physical integrity, as ABYSS teaches its protected processors are tamper-resistant, Pet. at 46; *see id.* at 24, 27-28; (ii) communications integrity, as ABYSS teaches its protected processors only communicate with other protected processors, and would do so in a public key configuration using digital certificates, *Id.* at 46-47; *see id.* at 30-31, 37-38, 41; and (iii) behavioral integrity, as ABYSS teaches protected processors only install software after verifying its integrity, and would do so in a public key variation by replacing use of a symmetric MAC with its public key equivalent, a digital certificate, *Id.* at 47; *see id.* at 29-30, 38-39, 42. It also explained how ABYSS protected processors enforce usage rights by enforcing specified terms and conditions in a “Right-to-Execute.” *Id.* at 47; *see id.* at 24-26, 27, 43. Each of these elements was analyzed in detail in the Petition (§ IV.A to § IV.D), quoting the most relevant passages of ABYSS and Denning. *See, e.g., id.* at 27-28 (the protected processor), 28-30 (installing and executing software), 30-32 (communications between processors). The Board criticized the Petition for doing this, contending it “plucks out certain claim terms ‘usage rights’ and ‘repositories’...” Dec. at 13. But the Board used this same approach in its earlier IPR decisions involving Stefik patents, analyzing the term “repository” separately from its use within the claim languages. IPR2013-00139,

Paper 15 at 29-30 (July 9, 2013), Paper 57 at 26-29 (June 26, 2014).

The Petition similarly mapped the prior art to each element of each claim. For example, the first sentence of § IV.F.1.a explains that ABYSS's "software" corresponds to the claimed "content" and the ABYSS "terms and conditions of use" are the claimed "usage rights." Pet. at 47-48. The citations identify the most relevant pages of ABYSS (*i.e.*, 39-40, 44-45, 49) as well as the earlier sections of the Petition where those portions of ABYSS were quoted and discussed (§ IV.A.2 & § IV.E.1). The Petition also indicated whether it was relying on ABYSS alone or on interrelated teachings of ABYSS and Denning. For example, in analyzing the claimed "repository," the Petition stated "When implemented using [PKI], digital certificates are used to establish the secure communication channels." Pet. at 46. The sentence clearly explains that it is relying on a *modified* ABYSS element (discussed in § IV.D.1). And while the Board criticized the Petition's use of the "lending library" example in ABYSS, claiming it was seeking to improperly link disparate teachings of ABYSS to recreate the claimed invention (Dec. at 15-17), the Petition never relied on the lending library example alone to satisfy any element of the claims, but simply used it to illustrate the operation of the ABYSS system. The Board also criticized the analyses in the Petition as "conclusory." Dec. at 13. But the comparison of the prior art to the claims could only be described as conclusory if the analysis in §IV.A to §IV.D of the Petition is ignored.

D. The Petition Explained Why the Claims Would Have Been Obvious to the Skilled Person

The Petition also established the third *Graham* element, explaining why the claimed invention, despite the identified differences between it and ABYSS (*i.e.*, use of symmetric rather than public key cryptosystems), would have been obvious. Pet. at 44-57. It articulated reasons with rational underpinning for modifying ABYSS in view of Denning (including, notably, an explicit suggestion in ABYSS), and described the consequences of the modifications in detail. *Id.* at 37-43.

The Board criticized this explanation as being a “description of a hypothetical operation of a hypothetical implementation of a system relying, in part, on Petitioner’s description and characterization of the disclosed system.” Dec. at 9. But every obviousness analysis involves comparison of the claims to a “hypothetical” variation of what is actually disclosed a prior art reference, otherwise the claims would be *anticipated* by that reference, and comparing the claims to what is suggested by a *combination* of references is a perfectly permissible under the law. *See In re Kaslow*, 707 F.2d 1366, 1374 (Fed. Cir. 1983) (discussing a “hypothetical combination” of references); *Bascom*, 230 F.2d at 614 (same); *Nest Labs Inc. v. Allure Energy Inc.*, IPR2015-00181, Inst. Dec. (Paper 6), slip op. at 23 (2015) (finding a claim element was taught by a combination of references); IPR2013-00481, Paper 54 at 23 (“we determine that [three references], taken together, teach” a claim element).

The Board also criticized this “hypothetical” as being the creation of hindsight. Here, the Board failed to appreciate that ABYSS itself (not Petitioner) provided the motivation to alter its system to yield the “hypothetical” described in the Petition. The Board also overlooked that the Petition did not refer to or use the claim language in any way when describing the four alterations of ABYSS. Pet. at 37-40. Instead, it identified the supervisor processes in ABYSS that used symmetric cryptosystems, and described changes, as expressly suggested by ABYSS, to use public key cryptosystems for those various supervisor processes. *Id.* at 37-43. The Board committed legal error by dismissing portions of the analyses for this reason. *Randall Mfg.*, 733 F.3d at 1362; *KSR*, 550 U.S. at 418 (it is proper to “look[] to interrelated teachings of multiple [references]”).

The Board also misperceived the differences between ABYSS and the claims, believing these to be numerous and unrelated. Dec. at 16. They are not. There is *one* difference identified in the Petition – use of symmetric rather than public key cryptosystems in the ABYSS supervisor processes – and when the change that ABYSS suggests is made by a person of skill, the resulting public-key-based ABYSS system satisfies every element of each contested claim. This difference is plainly not inventive: use of public key cryptosystems is identified by ABYSS as a known equivalent to symmetric cryptosystems, the changes can be made with no consequence to the functionality or operation of ABYSS, and the

public key technique is well known and described in a widely used 1982 textbook, as the Petition clearly explained. *See, e.g.*, Pet. at 32-34.

These numerous oversights and uses of legally improper criteria prevented the Board from appreciating that the Petition presented accurate and proper *Graham* factual findings, supported by substantial evidence, which established that the claims would have been obvious.

E. The Form of the Petition Complied with the Law and the Rules

The Petition clearly identified “the evidence that supports ... the challenge to each claim,” as required by 35 U.S.C. § 312(a)(3) and Rules 42.104(b)(4)-(5), and explained that evidence’s significance pursuant to Rule 42.22(a)(2). The Petition’s substance fully complied with the rules. *Versata Dev. Group, Inc. v. SAP Am., Inc.*, No. 2014-1194, slip op. at 45 (Fed. Cir. July 9, 2015) (cautioning against substituting a “hyper-technical adherence to form” for “an understanding of substance”). Despite this, the Board extensively criticized the Petition’s structure and use of internal citations. Dec. at 6-10. The Board has accepted numerous petitions that use this form, and issued several decisions that use a similar structure and citation format. *See, e.g.*, *Nest Labs*, IPR2015-00181, Paper 1 at 18-20, 40, 43-45, 54-57 (citations); *id.*, Paper 6 at 18-27; *Actifio, Inc. v. Delphix Corp.*, IPR2015-00128, Paper 1 at 9-60; IPR2015-00128, Paper 7 at 25-30; IPR2015-00108, Paper 1 at 11-59; IPR2015-00026, Paper 1 at 11-60; *Facebook v. Software*

Rights Archive, IPR2013-00481, Paper 54 at 15-19.

The Board also criticized the Petition for use of “imprecise” citations to ABYSS and Denning (Dec. at 10). But ABYSS and Denning are academic publications without line numbers; citing a page number was the finest level of granularity possible. Citations were accompanied by quotes or characterization of the passage being cited, and followed earlier sections of the Petition that “quote[d] heavily from each reference.” Dec. at 8. Pages 23 to 37 of the Petition are part of the obviousness analysis in the Petition, and they provide the precision the Board sought. The Board also ignores that an obviousness inquiry should be flexible and fit the facts of each case. *See Leapfrog Enters. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007); *Perfect Web Techs, Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009). The rigid obviousness formula advocated by Patent Owner and used by the Board was inapt because it did not fit the facts of ABYSS, or account for the features of the challenged claims.

III. Conclusion

Because the Board’s decision overlooked and misapprehended the arguments and evidence presented, and was “based on an erroneous interpretation of law,” rehearing is warranted. *Daicel Corp.*, IPR2015-00173, Paper 15 at 2; *KSR*, 550 U.S. at 419. Petitioner respectfully requests that the Decision be set aside, and a trial instituted.

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Respectfully Submitted,

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