

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

VEVEO, INC.,
Patent Owner.

IPR2019-00237
Patent 7,779,011 B2

Before KALYAN K. DESHPANDE, SHEILA F. McSHANE, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

DECISION
Instituting *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

A. Background

Comcast Cable Communications, LLC, (“Petitioner”)¹ filed a Petition requesting *inter partes* review of claims 1–24 (“the challenged claims”) of U.S. Patent No. 7,779,011 B2 (Ex. 1001, “the ’011 patent”) pursuant to 35 U.S.C. §§ 311–319. Paper 2 (“Pet.”). Veveo, Inc. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 9 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the Petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Taking into account Patent Owner’s Preliminary Response, and for the reasons that follow, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. For the reasons set forth below, and pursuant to 35 U.S.C. § 314, we institute an *inter partes* review of claims 1–24 of the ’011 patent.

B. Related Proceedings

Petitioner indicates that the ’011 patent is asserted in *Veveo Inc. v. Comcast Corp.*, Case No. 1:18-cv-10056-GAO (D. Mass.), and Patent Owner indicates that other litigations have been filed. Pet. 7; Paper 5, 1. The parties indicate that the ’011 patent has been asserted against some of the real parties-in-interest in *In the Matter of Certain Digital Video*

¹ Petitioner states that there are other real parties-in-interest for this Petition. See Pet. 6.

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Receivers and Related Hardware and Software Components, Investigation No. 337-TA-1103 (“the ITC proceeding”). *Id.* The parties indicate that two other requests for *inter partes* review, that is, Cases IPR2019-00238 and IPR2019-00239, have been filed challenging the ’011 patent. Pet. 7.

Petitioner further indicates that U.S. Patent No. 7,937,394, a continuation of the ’011 patent, is the subject of requests for *inter partes* review in Cases IPR2019-00290, IPR2019-00291, IPR2019-00292, and IPR2019-00293. *Id.* at 7–8. Petitioner indicates that the ’011 patent is related to Patent No. 8,433,696, which was held unpatentable in IPR2017-00715 (“the -00715 proceeding”) and which is currently on appeal at the Federal Circuit. *Id.* at 8.

C. The ’011 Patent

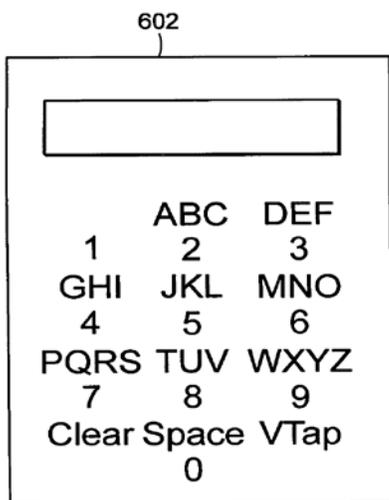
The ’011 patent is entitled “Method And System for Dynamically Processing Ambiguous, Reduced Text Search Queries and Highlighting Results Thereof” and issued on August 17, 2010 from an application filed on December 20, 2005. Ex. 1001, [22], [45], [54]. The ’011 patent claims priority to (1) U.S. Provisional Application No. 60/711,866 filed on August 26, 2005; and (3) U.S. Provisional Application No. 60/716,101 filed on September 12, 2005. *Id.* at [63], [60].

The ’011 patent is directed generally to a method of processing a search query entered by a user of a device having a text input interface with overloaded keys. Ex. 1001, Abst. More specifically, the ’011 patent method is directed to dynamically identify a group of one or more items from the set of items having one or more words in the names matching said search query as the user enters each character of the search query. *Id.* at 3:31–35. In one embodiment, the mapping scheme of the method enables the incremental

retrieval of results matching the ambiguous alphanumeric input query, as the user types in each character of the query. *Id.* at 3:53–56.

The '011 patent also discloses that “[t]he group of the one or more items is displayed on the device operated by the user with the characters of the one or more words in the names corresponding to the prefix substring of the search query” and “[t]he items are preferably displayed in an order of expected interest to the user.” Ex. 1001, 3:35–40. If the user does not find the desired results, he or she can continue to enter more characters to the search query. *Id.* at 6:31–33. Then “the system will perform the search based on the cumulative substring of characters of the search query entered by the user up to that point.” *Id.* at 6:34–36.

For instance, as keystrokes are entered, the identified subsets of items are identified and displayed, as shown in Figures 6A and 6B reproduced below, with the respective figures illustrating a text input interface and a display interface. *See* Ex. 1001, 2:65–3:2, 7:4–6.



USER INPUT: 866

FIG. 6A

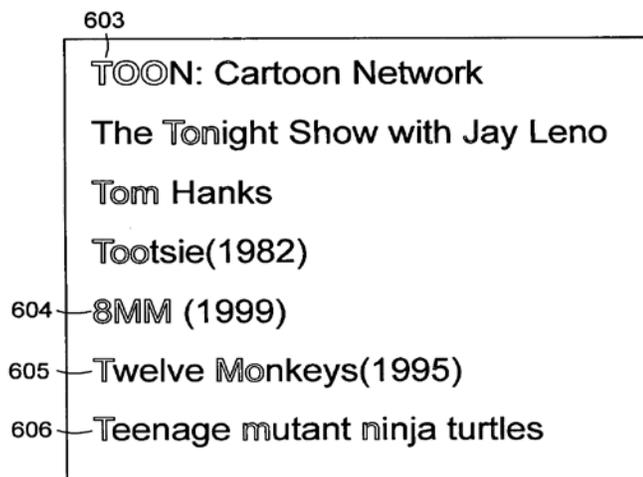


FIG. 6B

As illustrated in this example, in Figure 6A, the user has entered a single-word text input query “866” using the overloaded keypad interface 602 and the results of the search input are shown in Figure 6B. Ex. 1001, 7:6–8. Figure 6B shows single-word term matches 603 and 604 ordered before abbreviation matches 605 and 606. *Id.* at 7:9–12.

Claims 1, 9, and 17 of the '011 patent are independent. Claim 1, an illustrative independent claim of the '011 patent, is reproduced below, with annotations added to the step limitations for reference purposes.

1. A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, said unresolved keystroke entries being directed at identifying an item from a set of items, each of said items being associated with information describing the item comprising one or more words, said method comprising:

[a] indexing said items by associating subsets of said items with corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings;

[b] for at least one subset of items, which determining letters and numbers present in the information associated with and describing the indexed items of said subset caused said items to be associated with the strings of one or more unresolved keystrokes that are directly mapped to said subset;

[c] subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;

[d] in response to each unresolved keystroke, identifying and displaying the subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on the

direct mapping of strings of unresolved keystrokes to subsets of items;

[e] in response to each unresolved keystroke, as the identified items are displayed, highlighting the letters and numbers present in the one or more words in said information describing the identified items that were determined to have caused the displayed items to be associated with the strings of unresolved keystrokes that are directly mapped to said items received so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items; and

[f] ordering the displayed items in accordance with one or more given criteria.

Ex. 1001, 8:39–9:13.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Ground	Claim(s)	References
§ 103(a)	1–3, 5–11, 13–19, and 21–24	Howard, ² King, ³ and Payne ⁴
§ 103(a)	4, 12, and 20	Howard, King, Payne, and Sanders ⁵
§ 103(a)	5, 13, and 21	Howard, King, Payne, and Gross ⁶

Pet. 13.

² U.S. Patent Publication No. 2007/0027848 A1 (published February 1, 2007) (Ex. 1007).

³ U.S. Patent No. 6,011,554 (issued January 4, 2000) (Ex. 1008).

⁴ U.S. Patent No. 6,370,518 B1 (issued April 9, 2002) (Ex. 1009).

⁵ U.S. Patent No. 7,885,963 B2 (issued February 8, 2011) (Ex. 1010).

⁶ U.S. Patent Publication No. 2004/0133564 A1 (published July 8, 2004) (Ex. 1011).

II. ANALYSIS

A. § 325(d) and §314(a) Issues

1. 35 U.S.C. § 325(d)

Patent Owner contends that institution should be denied under 35 U.S.C. § 325(d). Prelim. Resp. 43–49 (citing *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, slip op. at 17–18 (PTAB Dec. 15, 2017) (Paper 8) (“*Becton*”) (informative)).

Patent Owner argues that, when considering the ’011 patent prosecution history, *Becton*’s first, second, third, and fourth factors weigh in favor of denying the Petition because Howard, King,⁷ and Payne are cumulative to prior art (Verbeck, Ortega, and Belfiore, respectively) asserted during prosecution of the ’011 patent, and are relied upon in the same way in the Petition.⁸ Prelim. Resp. 43–47. Patent Owner argues that with regard to the fifth factor of *Becton*, Petitioner fails to explain “how the Office erred in evaluating the asserted prior art.” *Id.* at 44, 47–48. For the sixth *Becton* factor, Patent Owner contends that the additional facts or arguments raised

⁷ Patent Owner further notes that King appears on the face of the ’011 patent. Pet. 46.

⁸ Patent Owner additionally argues that a substantially identical Howard publication to the Howard reference asserted in the Petition is cited on the face of the ’011 patent. *Id.* at 44, n.10. Although a Howard reference is cited on the face of the ’011 patent and is related to the Howard reference asserted here (*id.*), there is no evidence in the record indicating that the Examiner relied on or fully considered the Howard reference listed on the ’011 patent. Patent Owner does not present arguments that we should exercise our discretion and deny the Petition because the Howard relied on in the Petition is cumulative or is substantially the same as the Howard reference cited on the face of the ’011 patent. *Id.*

by Petitioner do not warrant reconsideration because they are ancillary to the central problem with the art identified during prosecution. *Id.* at 48–49.

Our institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“the PTO is permitted, but never compelled, to institute an IPR proceeding”). Section 325(d) states that “[i]n determining whether to institute . . . the Director may take into account whether . . . the same or substantially the same prior art or arguments previously were presented to the Office.” In evaluating whether to exercise our discretion under Section 325(d), we consider the *Becton* non-exclusive factors. *See Becton*, slip op. at 17–18. In view of the record in this case, we determine that the factors weigh against exercising our discretion under § 325(d) to deny institution of *inter partes* review.

With respect to the first *Becton* factor, although Patent Owner alleges that Howard, King, and Payne are cumulative to the prior art (Verbeck, Ortega, and Belfiore) considered during prosecution of the ’011 patent asserted here, Patent Owner does not provide sufficient evidence and arguments explaining why Howard, King, and Payne are cumulative to Verbeck, Ortega, and Belfiore, respectively. *See Prelim. Resp.* 44–47. We find that Patent Owner’s comparison of the prior art is conclusory with little explanation of the similarities and material differences between the prior art. *See id.* The record also contains no details on the relative similarities (or differences) in how the art is combined. *See id.*

With respect to the remaining *Becton* factors, we determine that the Petition presents new prior art to that previously before the Patent Office and a new combination of the new prior art. Although there are some general similarities in the prior art that was before the Patent Office and that asserted here, the record does not indicate that there are significant similarities in the

details of how the individual prior art is applied or in the combinations of the respective prior art. Thus, we do not find that this proceeding involves “substantially the same” prior art or arguments previously presented to the Examiner. 35 U.S.C. § 325(d). Accordingly, we decline to exercise our discretion to deny institution under § 325(d).

2. 35 U.S.C. § 314(a)

Patent Owner asserts that the Board should exercise its discretion under 35 U.S.C. § 314(a) and deny institution because: (1) Petitioner has attempted to gain a tactical advantage by delaying the Petition filing until after trial at the ITC; and (2) multiple petitions have been filed so this is a redundant proceeding. Prelim. Resp. 43–61. In Patent Owner’s view, *General Plastic Industrial Co. v. Canon Kabushiki Kaisha*, Case IPR2016-01357, slip op. at 9–10 (PTAB Sept. 6, 2017) (Paper 19) (precedential as to § II.B.4.i) (“Gen. Plastic”), weighs against the institution of the Petitions. *See id.* at 49, 52–53. Patent Owner, however, does not identify the specific *General Plastic* factors that weigh in favor of denying institution of *inter partes* review. *See id.* Instead, it appears that the ITC proceedings issue is being argued by Patent Owner based on an alleged abuse of process, which is a general consideration in *General Plastic*. *See id.* As to the issue raised on multiple petitions, Patent Owner references the Board’s Order (Paper 10), which refers to the Board’s ability to meet statutory factors and the speedy resolution of proceedings (factors 6 and 7), and we address those issues below. Our decision focuses on factors 6 and 7 because no other *General Plastic* factors are raised or argued by Patent Owner.

a. *Alleged Tactical Advantage*

On the first issue, Patent Owner argues that by delaying the filing of the Petition, Petitioner gained a tactical advantage and engaged in

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gamesmanship by having the advantage of the full record before the ITC. Prelim. Resp. 54–58. More specifically, Patent Owner contends that Petitioner attempted to prove invalidity in the ITC by relying on several prior art references that are at issue in the Petitions filed, namely, Gross, Smith, King, and Payne. *Id.* at 54. Patent Owner also asserts that Petitioner attempts to “leverage statements by Rovi’s expert given in the context of the ITC action,” attempts to advance “a claim construction position that it lost before the ITC . . .,” and misconstrues the Board’s claim construction of “directly mapped” in IPR2017-00715. *Id.* at 55–56. Patent Owner additionally argues that although Petitioner was aware of evidence of objective indicia from the ITC proceeding before it filed the Petition, Petitioner did not address this evidence in the Petition, and “blinded their expert from considering” it. *Id.* at 58.

We are not persuaded by Patent Owner that Petitioner has gained a tactical advantage or engaged in gamesmanship by having the full record before the ITC prior to filing this Petition. Specifically, we find that there is not substantial overlap between the ITC proceeding and the Petition because (1) the prior art asserted in the ITC proceeding is different than that relied on in the grounds of unpatentability alleged in the Petition; and (2) the claims that are the subject of the ITC proceeding are different than those challenged in the Petition. We have reviewed the Post-Hearing Reply Brief,⁹ as well as the other ITC-related exhibits in the record (Ex. 2007, 2009, 2010), and find

⁹ Patent Owner refers to the Patent Owner’s Post-Hearing Reply Brief from the ITC proceeding. Prelim. Resp. 58 (citing Ex. 2008).

no arguments related to Howard, King,¹⁰ or Payne therein. *See* Ex. 2008, 3–10. Although Gross is discussed in the Post-Hearing Reply Brief (*see id.*), the Petition differs from the ITC proceeding; here, Gross is relied on to teach the limitations of dependent claims 5, 13, and 21, which are only a subset of the challenged claims, and Gross is relied on only in combination with differing prior art. *See* Pet. 72–77. Additionally, the ITC proceeding involves different claims (independent claims 1 and 9) from those that are challenged in the Petition (claims 1–24). Ex. 2008, 3–10. Therefore, we determine that because there is not a substantial overlap between the ITC proceeding and the Petition, Petitioner did not have a tactical advantage by having the full record of the ITC proceeding before filing this Petition. Furthermore, we are the first and only tribunal considering the merits of all of Petitioner’s challenges. *See* Trial Practice Guide 10 (stating that “the merits” should be considered as part of a balanced assessment in whether to deny institution under § 314(a)). In considering those merits on the record before us, for the reasons expressed below, we find Petitioner’s proposed grounds to be sufficiently strong to weigh in favor of not denying institution based on §314(a).

Also, we find this proceeding distinguishable from *NHK Spring Co. v. Intri-Plex Technologies., Inc.*, Case IPR2018-00752 (PTAB Sept. 12, 2018) (Paper 8) (precedential) (“*NHK*”) for similar reasons to those discussed above. In *NHK*, the Board found that the “same prior art . . . and arguments” were being advanced in a parallel district court proceeding and that a decision was expected to issue in the short term. *Id.* at 19–20. For those

¹⁰ The Post-Hearing Reply Brief states that the combination of Gross and King had been withdrawn as the basis of an obviousness challenge in the ITC proceeding. Ex. 2008, 3, n.1.

reasons, the Board determined in *NHK* that institution of *inter partes* review would not “provide an effective and efficient alternative to district court litigation,” and that factor (“inefficient use of Board resources”) weighed in favor of exercising discretion to deny institution of *inter partes* review. *Id.* at 20 (citing *Gen. Plastic* 16–17). The facts before us in this proceeding, however, are different. Here, we determine that there is not substantial overlap of the obviousness issues before us with those before the ITC because the asserted prior art in the ITC proceeding is substantially different from the prior art asserted in the Petition. Furthermore, as noted above, the ITC proceeding only concerns independent claims 1 and 9, whereas the claims challenged in the Petition are claims 1–24 of the ’011 patent. As such, we determine that the facts before us are distinguished from those in *NHK*.

Accordingly, based on the record before us, we have weighed all of the factors for exercising our discretion to deny institution of *inter partes* review and we are not persuaded we should deny institution under § 314(a) on the basis of the ITC proceeding.

b. Cumulative Petitions

Petitioner filed seven petitions in two sets: (1) four petitions requesting *inter partes* review of the same claims of the ’394 patent, including the instant petition, and (2) three petitions requesting *inter partes* review of the same claims of the related ’011 patent. *See* Paper 10, 2. Patent Owner argues that the references and combinations asserted across Petitioner’s three petitions challenging the same claims of the ’011 patent are cumulative to each other. *Prelim. Resp.* 49–50. Patent Owner contends that Petitioner does not explain why the prior art references are not

redundant or that there are any material distinctions among the petitions. *Id.* at 50–51.

We ordered Petitioner to provide a notice ranking for the three petitions in the '011 proceedings in the order in which Petitioner wished the Board to consider the merits of the petition—if the Board used its discretion to institute any of the petitions—and to provide explanations of the differences in the respective petitions. Paper 10, 4 (“Order”).

In the proffered ranking, Petitioner requested that we consider the instant Petition first and the Petition in IPR2019-00239 second. Paper 11, 1 (“Notice”). Petitioner identified a distinction between these two Petitions: that the primary reference in the instant Petition, Howard, could potentially be antedated, but contends the prior art asserted in IPR2019-00239 could not be antedated. *Id.* at 3, 5. Patent Owner filed a Response to Petitioner’s Notice Ranking Petitions, and did not present arguments relating to the relative strength of the petitions and also did not assert that it would not attempt to antedate the Howard reference. Paper 12 (“Response to Notice”).

Here, we agree with Patent Owner that when a patent is challenged by multiple petitions at the same time, as is the case for the collective group of petitions filed against the '011 patent, this may place an unfair burden on the Patent Owner and can undermine the Office’s ability to complete proceedings in a timely manner. *See* Trial Practice Guide Update at 10; *cf. Gen Plastic*, at 16 (requiring the Board to consider ability to meet statutory deadlines as an institution factor); 37 C.F.R. § 42.1(b) (“[The rules] shall be construed to secure the just, speedy, and inexpensive resolution of every proceeding.”); *see also* Prelim. Resp. 53–56; Notice; Response to Notice. Consistent with this, and for the reasons set forth in another decision issued

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concurrently with this decision, we deny institution of *inter partes* review in IPR2019-00238 which challenges the '011 patent.

We have determined to institute *inter partes* review of two Petitions: (1) the IPR2019-00237 Petition, ranked first by the Petitioner, and (2) IPR2019-00239, ranked second by the Petitioner. *See* Notice 1. We have done so in view of the specific circumstance of the cases. Petitioner identifies that in IPR2019-00237 Patent Owner may present arguments to antedate a prior art reference relied on in the ground of unpatentability presented. Notice 3. Patent Owner has not indicated whether it will present arguments and evidence to antedate that prior art reference. *See* Response to Notice. Patent Owner does, however, argue that Petitioner “was not required to rely on art that Veveo can antedate,” and Petitioner’s ranking is a “transparent attempt to steer the Board towards instituting on more than one Petition.” Response to Notice, 4. We are not persuaded by Patent Owner’s argument because Petitioner clearly identifies the differences between the prior art references relied on in each Petition (Notice, 1–5), and we see no evidence that Petitioner attempts to “steer the Board towards instituting on more than one Petition.” Petitioner further identifies that the Petitions present different arguments and evidence, including different claim construction arguments as applied to the prior art, towards the “determining” step of claim 1. Notice, 1–5. We are persuaded that the potential to antedate a reference relied on in a Petition and claim construction arguments resulting in different manner of application of the prior art are material differences between the submitted Petitions, and these differences warrant institution of *inter partes* review of a second petition. In our view, institution of IPR2019-00237 and IPR2019-00239 sufficiently addresses all of the material issues identified by Petitioner in the Notice. Accordingly, in addition to instituting

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inter partes review for this case, we have determined to institute *inter partes* review of a second petition – IPR2019-00239, which was ranked second by Petitioner (for which we issue a separate decision).

For the reasons explained below, we conclude that Petitioner establishes a reasonable likelihood that it would prevail in demonstrating claims 1–24 of the ’011 patent are unpatentable. In view of the denial of another petition in the collective group of petitions filed against the ’011 patent, we find the circumstances do not warrant denying institution in this proceeding as well. Accordingly, we decline to exercise our discretion to deny institution under 35 U.S.C. § 314(a).

B. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b).¹¹ Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as they would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

“directly mapped”

Petitioner proposes that the term “directly mapped” be construed as “each alphanumeric character of a search query prefix substring associated with an item is matched with its corresponding numeric key equivalent on an

¹¹ The amendment to this rule does not apply here because the Petition was filed on November 12, 2018, which is prior to the November 13, 2018 effective amendment date. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,343–44 (Oct. 11, 2018).

overloaded keypad” under the broadest reasonable interpretation of the term. Pet. 15 (citing Ex. 1014 ¶¶ 89–90). Petitioner contends that its proposed construction parallels that adopted by the Board for a related patent in the -00715 proceeding for the term “direct mapping.” *Id.* (citing Ex. 1006, 7–9).

Patent Owner argues that Petitioner’s proposed construction of the term “directly mapped” does not resemble the construction previously adopted by the Board, and instead is an attempt to revive Petitioner’s failed proposal for the term advanced in the ITC proceeding. Prelim. Resp. 21–22. In support, Patent Owner presents Petitioner’s proposed positions on claim construction, reproduced below, as well as the construction adopted in the ITC proceeding and the -00715 proceeding.¹² *Id.* at 22.

“directly mapped”			
<i>Comcast’s Construction in Petition</i>	<i>Comcast’s Construction before ITC</i>	<i>ITC’s Construction (Ex.1018)</i>	<i>Board’s Prior Construction of ’696 Patent</i>
“each alphanumeric character of a search query prefix substring associated with an item is matched with its corresponding numeric key equivalent on an overloaded keypad.”	“each alphanumeric character of a search query prefix substring associated with an item is matched with its corresponding numeric key equivalent on an overloaded keypad.”	“each alphanumeric character of a prefix substring associated with an item is matched with its corresponding numeric key equivalent on an overloaded keypad.”	“matching each alphanumeric character of a descriptor identifying a content item with its corresponding numeric key equivalent on an overloaded keypad”

¹² Patent Owner disputes Petitioner’s characterization that the ’696 patent in the -00715 proceeding is related to the ’011 patent because the patents only claim priority to a common provisional application, but do not share a specification. Prelim. Resp. 21, n.6.

Patent Owner argues that the ITC rejected Petitioner’s proposed construction because the claim language and specification require mapping before a search query occurs. Prelim. Resp. 22 (citing Ex. 1017, 24–25). Patent Owner argues the plain and ordinary meaning of the term should be adopted, which is “abundantly clear based on the claim language.” *Id.* at 23. Patent Owner disputes Petitioner’s contention that a person of ordinary skill would understand that limitation 1[b] of the ’011 patent could be performed before or after receipt of a search query. *See id.* at 22, n.7 (citing Pet. 42).

At this stage in the proceedings, we interpret the term “directly mapped” as “each alphanumeric character of a prefix substring associated with an item is matched with its corresponding numeric key equivalent on an overloaded keypad.” This construction of “directly mapped” is consistent with the ITC’s construction. Ex. 1017, 24–25.¹³ Although not directly required as part of the construction of the term “directly mapped,” the respective parties’ positions and arguments raise issues as to how the steps of claim 1 should be construed, that is, does the claim require “direct mapping” before a search query occurs. *See* Prelim. Resp. 25–26, 31–35.

Whether the order of the steps recited in a method claim must be performed in a particular order is properly a part of claim construction. *See, e.g., Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371–72 (Fed. Cir. 2003). Generally, steps may be performed in any order so long as “nothing in the intrinsic evidence” compels otherwise. *Id.* at 1370. There is a two part test: “[f]irst, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written.” *Id.* “If not, we next look to the rest of the specification to determine whether it

¹³ Cited page numbers are those added by Petitioner and do not correspond to the original document pagination.

directly or implicitly requires such a narrow construction.” *Id.* If not, the sequence in which such steps are written is not a requirement.

The ITC proceeding addressed this issue for the ’011 patent and, more specifically, the portion of the ITC’s discussion of “directly mapped” that both Petitioner and Patent Owner base some of their arguments upon. *See* Ex. 1017, 23. In its determination, the ITC recognized that the “subsequent to indexing” language of the ’011 independent patent claims¹⁴ reflected mapping potential search queries to subsets of items occurs before search queries occur. *See id.* at 23, 25. We agree with the ITC’s interpretation because the express language of the claims recites that “receiving the search query” of step 1[c] occurs “subsequent to said indexing.” Accordingly, for the purposes of this decision, we interpret “directly mapped” as “each alphanumeric character of a prefix substring associated with an item is matched with its corresponding numeric key equivalent on an overloaded keypad.”

Other Terms

We determine that no other claim term requires an express construction for the purposes of this Decision. “[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

¹⁴ Although ITC only addressed claims 1 and 9, we note that similar claim language is also used in independent claim 17. *See* Ex. 1001, 8:59–60, 9:59–60, 10:60–62; Ex. 1017, 24–25.

C. Alleged Obviousness of Claims 1-3, 5-11, 13-19, and 21-24 over Howard, King, and Payne

Petitioner contends that claims 1–3, 5–11, 13–19, and 21–24 would have been obvious over Howard, King, and Payne. Pet. 29–68. To support its contentions, Petitioner provides explanations as to how the prior art teaches each claim limitation. *Id.* Petitioner also relies upon the Declaration of Dr. Edward A. Fox (“Fox Declaration”) to support its positions.

Ex. 1014. Patent Owner argues that the prior art fails to teach some of the limitations of the claims and the rationale to combine the references is insufficient. Prelim. Resp. 28–42.

At this stage of the proceeding, we are persuaded that Petitioner has demonstrated a reasonable likelihood it will prevail in showing the obviousness of claims 1–3, 5–11, 13–19, and 21–24. We begin our discussion with a brief summary of Howard, King, and Payne, and then address the issues, evidence, analysis, and arguments presented by the parties.

1. Howard (Ex. 1007)

Howard is directed to a search system on a mobile electronic device with a “restricted keyboard, such as the numeric keypad often found on many cell phones.” Ex. 1007 ¶ 5. Howard states that

A user can type in a character from that restricted keyboard, and it will be mapped to a fuller character set, such as the alphabet. In an exemplary embodiment, the numbers on the keypad will be mapped to the letters listed on the face of the keypad buttons, such that “2 maps to “A,” “B,” and “C,” “3” maps to “D,” “E,” and “F” and so on. Therefore, to look up “DAD”, a user would type in “323”.

Ex. 1007 ¶ 5.

An expanded lookup set is then used to search a database, which may have separate databases, for items matching the characters. Ex. 1007 ¶ 30. Figure 11, reproduced below, is a sample display for displaying key word searches. *Id.* ¶ 19.

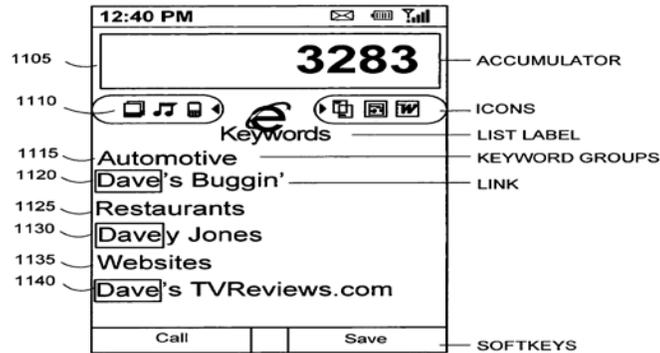


FIG. 11

As illustrated in Figure 11, a user enters data as shown in “accumulator” 1105, and categories such as “Automotive” 1115, “Restaurants” 1125, and “Websites” 1135 are displayed, along with key words 1120, 1130, 1140 that match the character string (3283) in the accumulator 1105. Ex. 1007 ¶¶ 49–50.

2. King (Ex. 1008)

King is directed to the use of a keyboard that has a reduced number of keys where the keys contain multiple characters, and where each keystroke may indicate one of several letters. Ex. 1008, 1:41–50. When a user enters keystrokes, matching words, stems of words, phrases, or other objects are identified and displayed. *Id.* at 10:29–37. “The keystroke sequence is processed by comparing the keystroke sequence with stored vocabulary modules to match the sequence with corresponding stored words or other

interpretations.” *Id.* at 3:3–6. King describes the use of a tree data structure that allows identification of matching objects based on the keystrokes, as illustrated in Figure 4A. *Id.* at 11:10–19.

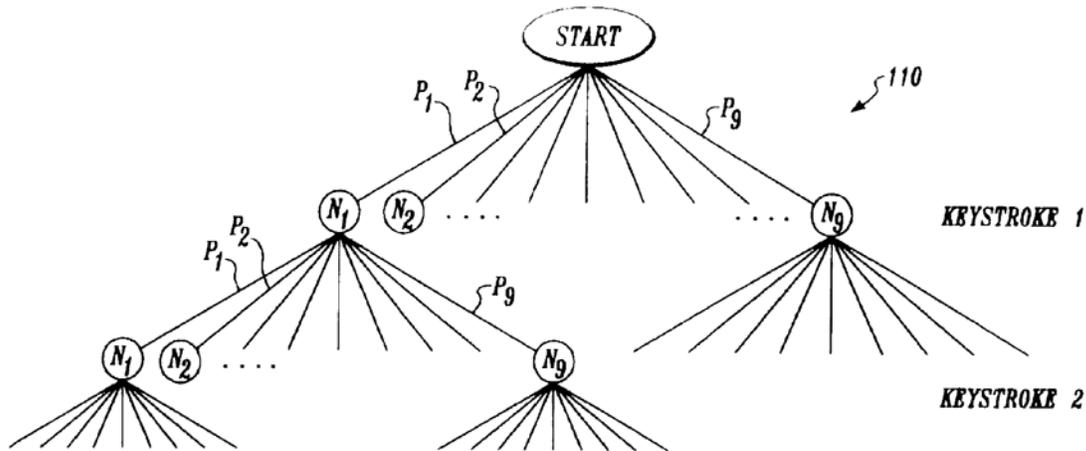


Fig. 4A.

As shown in Figure 4A above, each node N_1, N_2, \dots, N_9 in the vocabulary module tree represents a particular keystroke sequence. Ex. 1008, 11:13–15.

3. Payne (Ex. 1009)

Payne is directed to a system with query input to a portable device using a numeric-based keypad to find a progressively reduced list of items as the user enters the numeric keys. Ex. 1009, 2:30–34, 2:52–65. When a user is performing a look-up and enters a query of a “2” followed by a second keystroke of “2,” for example, the search system finds corresponding items beginning with “aa,” “ab,” “ac,” “ba,” “bb,” etc. *Id.* at 8:66–9:3. Visual feedback indicators are used to assist a user in selecting items, as shown in Figure 3D, reproduced below. *Id.* at 5:45–50.

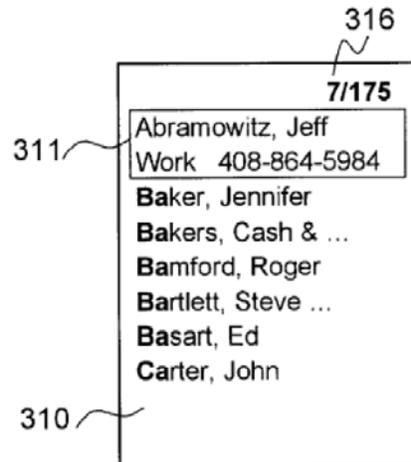


Fig. 3D

As shown by the bold letters in Figure 3D above, highlighting is used to provide visual feedback to the user when searching. *Id.* at 7:55–58.

4. *Obviousness Discussion*

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

(3) the level of ordinary skill in the art;¹⁵ and (4) objective evidence of nonobviousness.¹⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

a. Independent Claim 1

Petitioner asserts that Howard combined with King teaches limitation 1[a] of claim 1 of “indexing said items . . .”. Pet. 35–40. Petitioner contends that Howard teaches an “‘expanded lookup set’ approach that first maps ambiguous input to various possible combinations.” *Id.* at 35 (citing Ex. 1007, Abst., ¶¶ 29–31). Petitioner contends that in Howard “an input of ‘6’ may be mapped to an expanded set of 6, M, N, and O to generate four different queries.” *Id.* (citing Ex. 1014 ¶ 138). Petitioner asserts that King describes a more efficient, improved approach than Howard which uses a tree data structure that directly map strings of unresolved keystrokes to multiple search result objects, and one of skill in the art would be motivated to use King’s indexing method because it would be more efficient. *See id.* at 30–31, 38–39. Petitioner contends that King’s tree structure teaches the claimed indexing by the use of its paths where search result objects associated with each node can be found by traversing the tree. *Id.* at 36–37 (citing Ex. 1008, 11:10–30, Fig. 4A; Ex. 1014 ¶¶ 117, 141–143, 151). Petitioner contends that King’s objects are also associated with keystrokes “for various search query prefix substrings” and the objects associated with

¹⁵ Petitioner proposes an assessment of the level of ordinary skill in the art. Pet. 21 (citing Ex. 1014 ¶ 49). Patent Owner does not provide proposed qualifications. At this juncture, we adopt Petitioner’s proposed qualifications.

¹⁶ Although Patent Owner generally mentions the success of its products in its Preliminary Response, Patent Owner does not present objective indicia of nonobviousness. *See* Prelim. Resp. 1.

the nodes may be stems of longer words or portions of phrases. *Id.* (citing Ex. 1008, 10:41–61; Ex. 1014 ¶¶ 146, 157).

Petitioner asserts that the combination of Howard and King teaches the 1[b] limitation by the teaching of traversing the tree data structure of Howard in view of King, after receiving a search query. Pet. 40. Petitioner alleges that the system also meets limitation 1[b] because King’s system determines which letters and numbers “(i.e., which characters indicated by the symbol field) present in the information that is associated with and describes the indexed items of said subset (the symbol field is a data field for each object of the subset of objects associated with a node) and causes the items to be associated with the strings of one or more unresolved keystrokes” (the symbol field indicates the character that caused the item to be mapped to a particular keystroke sequence) that are directly mapped to said subset. *Id.* at 41–42. (citing Ex. 1008, 11:10–39, 12:8–61; Ex. 1014 ¶ 163). Petitioner alleges this step is taught by the prior art, even if Patent Owner’s interpretation is adopted which requires this step to be performed prior to searching. *Id.* at 43.

Petitioner alleges that the combination of Howard and King teaches limitation 1[c] because Howard teaches that a user runs a search query with ambiguous input, which is a “search query for desired items composed of unresolved keystrokes.” Pet. 45 (citing Ex. 1007 ¶ 5, 20; Ex. 1014 ¶ 178). Petitioner also contends that “Howard further teaches that search queries (e.g., “3283”) are a prefix substring of keywords (e.g., keywords beginning with “DAVE”) and associated with various items,” and matches items based on a search query with prefix substring. *Id.* at 45 (citing Ex. 1007 ¶ 50, Fig. 11; Ex. 1014 ¶¶ 179–180). Petitioner asserts that a search query would be received “subsequent to the indexing” because King’s index is used for

finding results matching the search query, and a person of ordinary skill would understand that the index would be generated before receiving the search query. *Id.* at 46 (citing Ex. 1008, 11:23–33; Ex. 1014 ¶ 181).

Petitioner further asserts that the combination of Howard and King teaches limitation 1[d]. Pet. 46–48. Petitioner relies on Howard’s disclosures of dynamic incremental searches that update searches as a user types more unresolved keystrokes. *Id.* at 47. Petitioner contends that Howard teaches the identification and display of subsets of items, and that King also discloses each node of the index tree is associated with a subset of items, which are retrieved and displayed. *Id.* Petitioner contends that King’s identifying and displaying is a direct mapping because each node associates subsets of items (and corresponding search query prefix substrings) with strings of unresolved keystrokes. *Id.* at 47–48.

Petitioner contends that the combination of Howard, King, and Payne teaches limitation 1[e]. Pet. 49–55. Petitioner asserts that Howard describes the use of a box to serve as highlight for users, as depicted in Figure 11 of Howard, and as reproduced below. *Id.* at 49–50.



Petitioner refers to the boxes around the letters “Dave” as depicted in above Figure 11 of Howard for the teaching of highlighting. Pet. 49. Petitioner also asserts, that even if Howard did not directly teach updated search result highlighting, a person of ordinary skill in the art would be motivated to modify Howard and it would be a minor variation. *Id.* at 51–52. Petitioner also asserts, that if the Board disagrees with these assertions, Payne teaches highlighting of search results associated with entered keys, as shown in Figure 3D of Payne, reproduced below. *Id.* at 52.

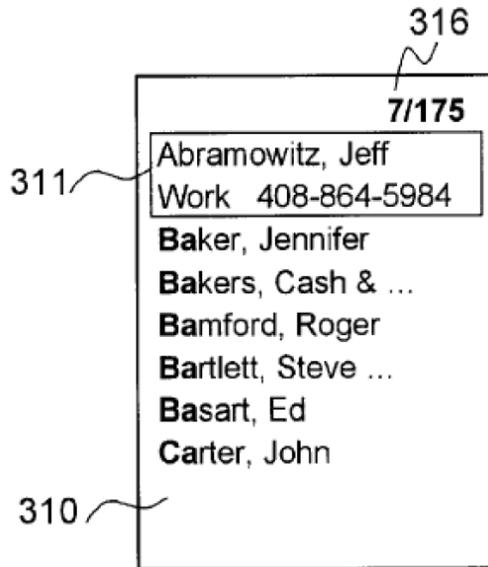


Fig. 3D

In Figure 3D of Payne above, a partial list of search results is shown with highlighted characters. Pet. 52–53. Petitioner contends that one of ordinary skill in the art would have been motivated to implement the incremental highlighting of Payne with Howard and King in order to provide better visual feedback for the user. *Id.* at 53–54.

On this record, we determine Petitioner has shown a reasonable likelihood that the asserted prior art teaches the limitations of claim 1. Petitioner has further demonstrated sufficient rationale to combine the prior art. Patent Owner’s contrary arguments, discussed below, do not persuade us otherwise at this stage of the proceeding.

Patent Owner argues that the Petition fails to demonstrate that the asserted prior art teaches the claim 1[a] step of “indexing.” Prelim. Resp. 28–33. According to Patent Owner, under the claim language, this step has to be performed before any search queries are entered by the user. *Id.* at 28–30. Patent Owner asserts that Petitioner failed to identify any

teaching in the art that indexing occurs prior to entry of a search query. *Id.* at 29. Patent Owner alleges that Petitioner proposes modifying Howard’s search system to use the tree index of King, but King’s tree structure alone would not pre-index because Howard “admittedly does not pre-index.” *Id.* at 30. Patent Owner argues that Howard discloses that a user types in characters and then generates its expanded lookup set by taking the ambiguous characters and mapping them to a larger set of characters, and, in turn, the expanded lookup set is used to search for keywords matching ambiguous characters. *Id.* (citing Ex. 1007, Abst., ¶¶ 5, 6, 28–30). Patent Owner further asserts, that even though the Petition discusses the modification of Howard with King’s tree index, it fails to explain how the pre-indexing would be done in Howard or how it would perform pre-indexing prior to a search. *Id.* at 31.

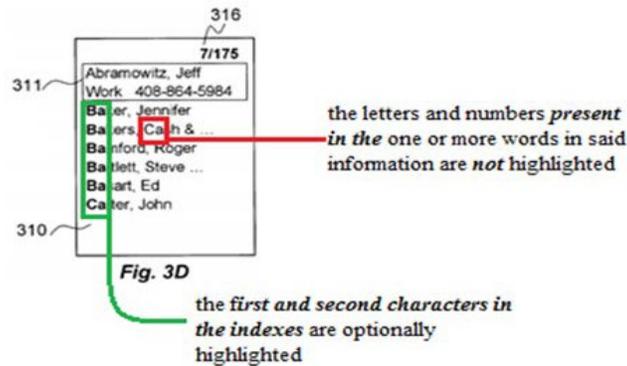
Although we agree with the Patent Owner that the steps of claim 1 require indexing prior to searching (*supra* Section II.B), we do not agree that the evidence and arguments presented in the Petition are insufficient to teach that “indexing” occurs prior to “searching” on this record. Although Patent Owner’s arguments focus on Howard’s dynamic incremental searches, Petitioner relies upon Howard in combination with King as teaching this limitation. That is, Howard, King, and Payne are asserted in combination in the Petition. Nonobviousness cannot be established by attacking the references individually when the unpatentability challenge is based on a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). On this record, we agree with Petitioner that King discloses the use of a tree structure that maps unresolved keystrokes to multiple search result objects. Petitioner describes the use of King’s tree structure for traversing, “where the tree data structure is generated by *storing*

“[w]ords corresponding to a particular keystroke sequence,” and Dr. Fox testifies that a person of ordinary skill would understand that this tree structure is an index. Pet. 36 (citing Ex. 1008, 4:32–40; Ex. 1014 ¶ 144). We are persuaded on this record that the disclosure of storage of keystroke sequence to words provides support for Petitioner’s assertion that one of skill would understand that an index would be generated before receiving the search query, as disclosed by King. *See id.* at 46 (citing Ex. 1008, 11:23–33; Ex. 1014 ¶ 181). Accordingly, we are persuaded that the combination of Howard and King discloses the limitations of claim 1[a].

Patent Owner also argues that the combination of Howard, King and, Payne fails to teach the step of “determining which letters and numbers . . . caused said items to be associated” and “highlighting the letters and numbers.” Prelim. Resp. 33–38. Patent Owner argues that the teaching of limitation 1[b] has not been demonstrated because the combination fails to address the pre-indexing requirement, which we discuss and address above. *Id.* at 34–35.

Patent Owner also argues that Payne does not disclose functionality for “highlighting *the* letters and numbers as claimed.” Prelim. Resp. 35. More specifically, Patent Owner asserts that claim 1 first requires “determining letters and numbers present in the information associated with . . . the indexed items,” with the highlighting then applied to those letters and numbers. *Id.* Patent Owner asserts that Payne does not highlight the particular letters and numbers that caused a direct mapping. *Id.* Patent Owner argues that Payne only discloses that “first and second characters in the indexes are optionally highlighted,” but Payne only indicates how many characters a user has entered, and not which characters caused a match to occur. *Id.* at 35–36 (citing Ex. 1009, 7:55–58).

Patent Owner additionally refers to annotated Figure 3D of Payne, reproduced below. Prelim. Resp. 36.



Referring to annotated Figure 3D above, Patent Owner argues that Payne shows the first and second letters of the indexed string, but not the letters present in the words in the information that were determined to have caused the displayed items to be associated with the strings of unresolved keystrokes. Prelim. Resp. 36.

We do not find Patent Owner's arguments persuasive because Patent Owner argues the references individually, whereas the Petition alleges the combination of Howard, King, and Payne teaches the claim 1 limitations. *See Merck*, 800 F.2d at 1097. Here, Howard and King are relied on for determining which letters and numbers are associated with and describe the indexed items and are then combined with Payne for its teachings on highlighting. Additionally we note that the Petition asserts that a person of skill "would have been motivated to modify the system of Howard/King to replace or augment Howard's box highlighting with the bold-text highlighting illustrated by Payne to change a visual design of the user interface." *See* Pet. 54 (citing Ex. 1014 ¶ 199). We find the evidence provided in the Petition to be sufficient that one of ordinary skill in the art

would have sought to use the bold-text highlighting of Payne for better visual feedback for the user. *See id.* at 51–54.

Patent Owner also argues that the Petition fails to explain how a person of ordinary skill in the art would have adapted Howard’s keyword search system to display substrings and fragments, as taught by King. Prelim. Resp. 38–42. Patent Owner asserts that the Petition does not address how Howard’s dynamic incremental search, which updates search results as a user types more unresolved keystrokes, could be used to retrieve and display substrings. *Id.* at 38–39, 41. Patent Owner argues that Petitioner cannot rely on King for this teaching because reliance has been limited to the use of King’s tree data structure. *Id.* at 41. Patent Owner further argues that although Petitioner states that the combination of Howard with King would have been a simple substitution of known elements by the incorporation of King’s data structure, Petitioner fails to explain how Howard would search for, retrieve, and then display substrings when Howard is only designed to handle keyword matches. *Id.* As such, Patent Owner contends that Petitioner fails to meet its burden of demonstrating that a person of skill would have been motivated to combine these prior art teachings. *Id.* at 42.

Patent Owner’s arguments focus on implementation details of the prior art based on bodily incorporation, instead of the view of ordinary skill in the art of the combination, and we therefore do not find the arguments persuasive. Dr. Fox testifies that a person of ordinary skill in the art would have had a reasonable expectation of success because the art is predictable and well understood and King’s search technique would be compatible with Howard’s system. *See* Pet. 32–33 (citing Ex. 1014 ¶¶ 52–61, 156). As such, we find the evidence of record on the issues of the rationale to combine and

reasonable likelihood of success of the combination of prior art to be sufficient at this juncture.

Thus, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claim 1 of the '011 patent would be obvious over the combination of Howard, King, and Payne.

b. Independent Claims 9 and 17

Petitioner contends that independent claims 9 and 17 would have been obvious over Howard, King, and Payne. Pet. 62–66. We have reviewed the Petitioner's assertions and on this record we are persuaded by Petitioner's explanation and evidence in support of this obviousness ground for claims 9 and 17. Patent Owner presents the same arguments on these claims as those presented for claim 1, and which we do not find persuasive for the reasons discussed above. *See* Prelim. Resp. 27–42.

Thus, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claims 9 and 17 of the '011 patent would be obvious over the combination of Howard, King, and Payne

c. Dependent Claims 2, 3, 5–8, 10, 11, 13–16, 18, 19, and 21–24

Petitioner contends that dependent claims 2, 3, 5–8, 10, 11, 13–16, 18, 19, and 21–24 would have been obvious over Howard, King, and Payne, and provides explanations as to how the prior art teaches each claim limitation. Pet. 56–62, 66–68. We have reviewed the Petitioner's assertions and on this record we are persuaded by Petitioner's explanation and evidence in support of this obviousness ground for claims 2, 3, 5–8, 10, 11, 13–16, 18, 19, and 21–24. Patent Owner does not present any arguments specific to these dependent claims, except those directed to the independent claims, which we do not find persuasive for the reasons discussed above. *See* Prelim. Resp. 27–42.

Thus, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claims 2, 3, 5–8, 10, 11, 13–16, 18, 19, and 21–24 of the '011 patent would be obvious over the combination of Howard, King, and Payne.

D. Alleged Obviousness of Claims 4, 12, and 20 over Howard, King, Payne, and Sanders

Petitioner contends that claims 4, 12, and 20 would have been obvious over Howard, King, Payne, and Sanders. Pet. 68–72. To support its contentions, Petitioner provides explanations as to how the prior art teaches each claim limitation. *Id.* Petitioner also relies upon the Fox Declaration to support its positions. Ex. 1014.

At this stage of the proceeding, we are persuaded that Petitioner has demonstrated a reasonable likelihood it will prevail in showing the obviousness of claims 4, 12, and 20. We begin our discussion with a brief summary of Sanders, and then address the issues, evidence, analysis, and arguments presented by the parties.

1. Sanders (Ex. 1010)

Sanders is directed to a search engine for an electronic program guide (“EPG”) where search conditions of varying degrees of complexity are created according to the interpretation of the terms in the search string. Ex. 1010, Abst. Sanders discloses using a stem transformer to stem a search term in order “to broaden the scope of a search.” *Id.* at 6:42–61. Search results may be grouped by relevance. *Id.* at 12:22–23. Sanders discloses the use of a results ranker that may organize hits by relevance, and may assign different priorities to exact matches in comparison to some that are searched after transformation, such as stemming or spell-correcting. *Id.* at 11:48–62.

2. Analysis

Petitioner contends that claims 4, 12, and 20 would have been obvious over Howard, King, Payne, and Sanders, and provides explanations as to how the prior art teaches each claim limitation as well as support for a rationale to combine the references. Pet. 68–72. We have reviewed the Petition’s explanation and evidence in support of this obviousness ground for claims 4, 12, and 20 and find it to be sufficient at this juncture. Patent Owner does not present any arguments specific to these dependent claims, except those directed to the independent claims, which we do not find persuasive for the reasons discussed above.

Thus, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claims 4, 12, and 20 of the ’011 patent would have been obvious over the combination of Howard, King, Payne, and Sanders.

E. Alleged Obviousness of Claims 5, 13, and 21 over Howard, King, Payne, and Gross

Petitioner contends that claims 5, 13, and 21 would have been obvious over Howard, King, Payne, and Gross. Pet. 72–76. To support its contentions, Petitioner provides explanations as to how the prior art teaches each claim limitation. *Id.*

Petitioner asserts that Gross teaches “‘a server-based search application’ that processes the search at a server remote from the user as an alternative to a client-based search application.” Pet. 73 (citing Ex. 1011, Fig. 6, step 612, ¶¶ 8, 35, 63, 66). Petitioner contends that a person of skill in the art would have sought to modify Howard’s search system to be server-based for several reasons, including that such a modification would result in faster search speeds. *Id.* at 73–74.

We have reviewed the Petition's explanation and evidence in support of this obviousness ground for claims 5, 13, and 21 and find it to be sufficient at this juncture. Patent Owner does not present any arguments specific to this dependent claim, except those directed to the independent claims, which we do not find persuasive for the reasons discussed above.

Thus, we determine that Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claims 5, 13, and 21 of the '011 patent would have been obvious over the combination of Howard, King, Payne, and Gross.

III. CONCLUSION

Based on the arguments and evidence presented in the Petition, the Preliminary Response, and accompanying exhibits, we have determined there is a reasonable likelihood Petitioner would prevail with respect to at least one claim challenged in the Petition. We conclude that the threshold has been met for instituting *inter partes* review, and we institute on all challenged claims and all grounds. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354 (2018). We have not made a final determination on claim construction or as to the patentability of any of the challenged claims. Our final determination will be based on the record as fully developed during trial.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to challenged claims 1–24 of the '011 patent for all grounds raised in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and

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37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this Order.

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