

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FACEBOOK, INC.,
Petitioner,

v.

PALO ALTO RESEARCH CENTER INC.,
Patent Owner.

IPR2021-01467
Patent 8,606,781 B2

Before KARL D. EASTHOM, DANIEL J. GALLIGAN, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background

Facebook, Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–36 of U.S. Patent No. 8,606,781 B2 (“the ’781 patent,” Ex. 1001). Paper 2 (“Pet.”). Palo Alto Research Center Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

Under 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons explained below, we institute an *inter partes* review of all challenged claims on all grounds raised in the Petition.

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), the parties identify various related matters, including another petition for *inter partes* review challenging different claims of the ’781 patent. Pet. 1; Paper 4, 2–3.

C. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 1. Patent Owner identifies itself, Xerox Corp., and Xerox Holdings Corp. as real parties in interest. Paper 4, 2.

D. The '781 Patent and Illustrative Claim

The '781 patent is generally directed to techniques for providing personalized search results to a user. Ex. 1001, code (57). Claims 1 and 19 are the only independent claims. Claim 1 is illustrative and is reproduced below.

1. A method for personalized search comprising the steps of:
receiving a query from a user;
identifying the user;
retrieving a user history for the user comprising access patterns identifying linked information elements previously accessed by the user within an information repository;
identifying a user profile comprising keywords relevant to the access patterns in the user history;
determining a proximal neighborhood using the user history in the user profile, wherein the proximal neighborhood comprises only linked information elements previously unseen by the user that are within a threshold distance of the linked information elements in the user history; and
applying the query to the unseen linked information elements in the proximal neighborhood and determining search results comprising the unseen linked information elements that match the query.

E. Asserted Grounds of Unpatentability

Petitioner presents the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1–16, 19–34	103(a)	Konig, ¹ Manber, ² Van Vleet ³
10–12, 28–30	103(a)	Konig, Manber, Van Vleet, Khan ⁴
17, 18, 35, 36	103(a)	Konig, Manber, Van Vleet, Cradler ⁵

II. ANALYSIS

A. Principles of Law

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; and (4) any secondary

¹ US 6,981,040 B1, issued Dec. 27, 2005 (Ex. 1003).

² Udi Manber et al., “WebGlimpse – Combining Browsing and Searching,” *USENIX 1997 Annual Technical Conference* (Ex. 1004). On this record, we are persuaded that Manber is a prior art printed publication. See Pet. 9 (citing Ex. 1009 ¶¶ 39–44).

³ US 7,565,425 B2, issued July 21, 2009 (Ex. 1005).

⁴ US 6,546,393 B1, issued Apr. 8, 2003 (Ex. 1007).

⁵ Dan Cradler, *Hacker’s Guide to Navigator* © 1997 (Ex. 1006). On this record, we are persuaded that Cradler is a prior art printed publication. See Pet. 9 (citing Ex. 1009 ¶¶ 45–51).

considerations, if in evidence.⁶ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Citing the testimony of its declarant, Edward A. Fox, Ph.D., Petitioner contends that a person of ordinary skill in the art “would have possessed at least a bachelor’s degree in electrical engineering or computer science, and at least two years of experience in systems for search, retrieval, and processing of information, such as web pages obtained over the Internet.” Pet. 4–5 (citing Ex. 1002 ¶¶ 18–23).

Patent Owner does not dispute this assessment or offer its own assessment. *See* Prelim. Resp.

To the extent necessary, and for purposes of this Decision, we accept the uncontested assessment offered by Petitioner as supported by the ’781 patent specification and prior art of record, except that we delete the qualifier “at least” to eliminate vagueness as to the amount of education and experience. The qualifier expands the range indefinitely without an upper bound and thus precludes a meaningful indication of the level of ordinary skill in the art.

C. Claim Construction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in

⁶ At this stage, Patent Owner does not present any objective evidence of nonobviousness (i.e., secondary considerations) as to any of the challenged claims.

the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2021).

Petitioner argues that no express constructions are necessary. Pet. 9. Patent Owner does not address claim construction at this stage. See Prelim. Resp.

On this record, we determine that no terms or phrases in the claims require express construction. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

*D. Alleged Obviousness over
Konig, Manber, and Van Vleet
(Claims 1–16, 19–34)*

Petitioner asserts that claims 1–16 and 19–34 are unpatentable under 35 U.S.C. § 103(a) over the combined teachings of König, Manber, and Van Vleet. Pet. 3, 12–59. Patent Owner opposes. Prelim. Resp. 8–13.

1. Overview of the Prior Art

König “relates generally to methods for personalizing a user’s interaction with information in a computer network” and more particularly “to methods for predicting user interest in documents and products.” Ex. 1003, 1:13–18. Additional pertinent details of König and the other applied references are discussed below.

2. Claim 1

a) Preamble and steps of “receiving a query” and “identifying the user”

Petitioner contends that “König discloses a ‘Personal Search’ feature that performs a personalized search” and therefore, teaches a “method for

personalized search,” as recited in the preamble. Pet. 12 (citing Ex. 1003, 7:48–50, 27:13; Ex. 1002 ¶ 95). At this stage, Patent Owner does not dispute this contention. On this record, Petitioner’s contentions for the preamble are persuasive.⁷ See Ex. 1003, 27:13–15 (“Personal Search[.] In this application, both the collection and filtering steps of searching are personalized.”).

For the step of “receiving a query from a user,” Petitioner relies on König’s disclosure of a user submitting a query. Pet. 12–13 (citing Ex. 1003, 7:46–50, 27:42–45; Ex. 1002 ¶ 96). At this stage, Patent Owner does not dispute this contention. On this record, Petitioner’s contentions for this step are persuasive. See Ex. 1003, 7:46–48 (“Client 18 performs a search using Personal Web 12 by submitting a query and receiving personalized search results.”).

For the step of “identifying the user,” Petitioner argues that König’s disclosures of finding documents of interest to the user teach that the user is identified. Pet. 13–14 (citing Ex. 1003, 9:40–42, 27:15–17, 27:30–41, 27:45–48, 27:55–28:17; Ex. 1002 ¶¶ 96–98). At this stage, Patent Owner does not dispute this contention. On this record, Petitioner’s contentions for this step are persuasive. See Ex. 1003, 27:15–17 (disclosing that a “set of documents of interest to the user is collected”).

b) “Retrieving a user history”

The next step of claim 1 recites “retrieving a user history for the user comprising access patterns identifying linked information elements

⁷ Because we determine that, on the record before us, the cited evidence sufficiently supports Petitioner’s undisputed contentions regarding the preamble, we need not decide whether the preamble is limiting for purposes of this Decision.

previously accessed by the user within an information repository.”

Petitioner relies on König’s disclosure relating to a user’s previous browsing history to teach this subject matter. Pet. 14–18 (citing Ex. 1003, 5:15–18, 7:27–31, 8:46–67, 17:19–30, 17:33–40, 27:21–24; Ex. 1002 ¶¶ 100–112, 129). More particularly, Petitioner argues that a user’s browsing history shows access patterns and that the web pages previously accessed by a user “are linked and accessible via URLs,” i.e., “linked information elements,” as recited in claim 1. Pet. 16–17 (citing Ex. 1003, 17:33–40; Ex. 1002 ¶¶ 107–108, 110; Ex. 1001, 5:34–38). Petitioner also argues that websites from which the web pages are accessed are an “information repository.” Pet. 17 (citing Ex. 1002 ¶¶ 111–112; Ex. 1001, 1:18–20, claim 6). At this stage, Patent Owner does not dispute these contentions. On this record, Petitioner’s contentions for this step are persuasive. See Ex. 1003, 17:33–40 (“The Internet Temporary folder contains all of the web pages that the user has opened recently (e.g., within the last 30 days). . . . [T]he history file contains links to all pages that the user has opened within a set time period.”).

c) “Identifying a user profile”

Claim 1 next recites “identifying a user profile comprising keywords relevant to the access patterns in the user history.” Petitioner argues that König’s “User Model” and the user history information discussed for the preceding limitation together teach the claimed “user profile.” Pet. 18–19 (citing Ex. 1003, 3:48–51, 7:48–50, 17:19–40, 27:20–23; Ex. 1002 ¶¶ 114–115). Petitioner contends that König’s Figure 13 shows how documents accessed by a user are parsed to identify keywords, which are then stored in

the User Model. Pet. 19–23 (citing Ex. 1003,⁸ 5:15–18, 6:13–14, 7:48–50, 10:52–55, 17:19–40, 17:48–18:16, 27:21–24, 27:33–34, 27:45–46, 27:55–56, Figs. 4A, 13; Ex. 1002 ¶¶ 101–102, 116–120; Ex. 1001, 6:40–45). At this stage, Patent Owner does not dispute this contention. On this record, Petitioner’s contentions for this step are persuasive. For example, König discloses that “[t]he personal search feature collects, indexes, and filters documents, and responds to the user query, all based on the user profile stored in the User Model.” Ex. 1003, 7:48–50. König discloses how the “User Model” is initialized and updated with reference to Figure 13 (not shown), explaining that “documents 80 are parsed and separated into text, images and other non-text media 88, and formatting” and that “[f]urther processing is applied to the text, such as stemming and tokenization to obtain a set of words and phrases 86.” Ex. 1003, 17:55–60. König explains that “user informative words 10 or phrases 98 are obtained from document words and phrases 86.” Ex. 1003, 18:9–11.

d) *“Determining a proximal neighborhood”*

Claim 1 further recites “determining a proximal neighborhood using the user history in the user profile, wherein the proximal neighborhood comprises only linked information elements previously unseen by the user that are within a threshold distance of the linked information elements in the user history.” Petitioner relies on a combination of the references’ disclosures to teach this subject matter. Pet. 23–34. Patent Owner argues

⁸ Page 19 of the Petition includes the following citation: “’781, e.g., 5:15-18, 17:19-40.” Based on the context, we view the reference to the ’781 patent as a typographical error. For example, column 17 of the ’781 patent ends at line 21 with dependent claim 29. Thus, we understand these citations to refer to König.

that Petitioner has not shown the “previously unseen” and the “threshold distance” aspects of this subject matter. We address each below.

(1) “Previously unseen”

Petitioner argues that König teaches a proximal neighborhood having only information previously unseen by the user. Pet. 23–28 (citing Ex. 1003, 27:14–41, 24:52–54, 24:60–61, Fig. 18; Ex. 1002 ¶¶ 106, 109, 122–132; Ex. 1001, 5:57–62, Fig. 4). More particularly, Petitioner relies on certain steps in König’s Figure 18, which is reproduced below.

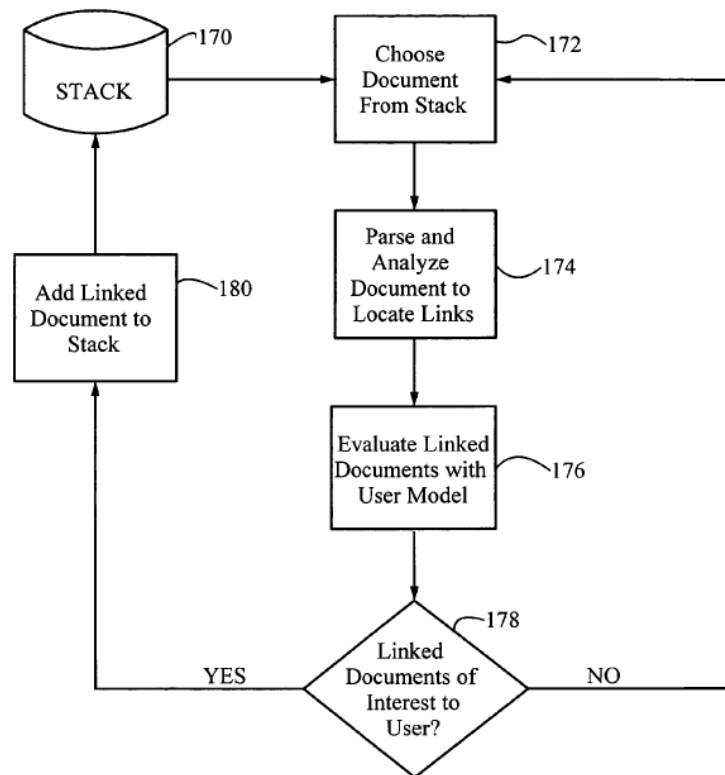


Fig. 18

König’s Figure 18, reproduced above, is a block diagram showing how documents of interest to a user are collected. Ex. 1003, 27:15–21. König explains that “stack 170 is initialized with documents of high interest to the user, such as documents in the bookmarks file or documents specified by the user.” Ex. 1003, 27:21–24. Petitioner contends, therefore, that stack 170

includes the documents in the “user history” discussed above. Pet. 25 (citing Ex. 1002 ¶¶ 122–123). König further explains the operation of Figure 18 as follows:

In step 172, the crawler selects a document from the top of the stack to begin crawling. The document is parsed and analyzed (step 174) to identify any links to other documents. If there are links to other documents, each linked document is scored using the User Model (176). If the linked document is of interest to the user (178), i.e., if $P(u|d)$ exceeds a threshold level, then it is added to the stack in step 180, and the crawler continues crawling from the linked document (step 172). If the document is not of interest to the user, then the crawler selects the next document on the stack to continue crawling.

Ex. 1003, 27:30–41. König defines “ $P(u|d)$ ” as the “probability . . . that a document is of interest to the user.” Ex. 1003, 4:31–34. Petitioner argues that steps 174–178 result in “a set of documents determined to be interesting to the user according to the User Model.” Pet. 26 (citing Ex. 1002 ¶ 125). Petitioner further argues that König’s disclosure of applying $P(u|d)$ only to unseen documents teaches that the “the proximal neighborhood comprises only linked information elements previously unseen by the user,” as recited in claim 1. Pet. 27–28 (citing Ex. 1003, 24:52–54, 24:60–61, 27:35–36; Ex. 1002 ¶¶ 131–132).

Patent Owner argues that König’s “stack includes not only the previously seen bookmarked and favorited items, but also new linked documents if they exceed a certain probability score,” and, therefore, that König does not teach a proximal neighborhood that has only “previously unseen” information. Prelim. Resp. 9 (citing Ex. 1003, 27:21–32, 27:34–36). This argument, however, is not responsive to Petitioner’s contentions because Petitioner does not rely on König’s stack to teach this subject

matter. Petitioner acknowledges that Konig’s stack includes previously seen documents. *See* Pet. 25 (emphasis omitted) (“Konig therefore discloses that stack 170 can include the same documents that were identified by the “user history” of claim 1[c].”). Petitioner argues that “[t]he ‘proximal neighborhood’ in Konig . . . corresponds to the end result of steps 174–178 of Figure 18.” Pet. 25–26 (emphasis omitted). On this record, Petitioner’s explanation that Konig’s steps 174–178 result in a set of previously unseen documents is persuasive. *See* Pet. 27–28 (citing Ex. 1003, 24:52–54, 24:60–61, 27:35–36; Ex. 1002 ¶¶ 131–132). Patent Owner’s argument suggests agreement with this: “As a result, the stack includes not only the previously seen bookmarked and favorited items, *but also new linked documents if they exceed a certain probability score.*” Prelim. Resp. 9 (emphasis added).

Petitioner also argues that the “previously unseen” aspect of claim 1 would have been obvious in view of Van Vleet, citing certain disclosures of Van Vleet and providing reasons supporting the combination. Pet. 28–30 (citing Ex. 1005, code (57), 1:67–2:5, 10:25–28, 11:55–56; Ex. 1003, 17:46–49, 27:14–15; Ex. 1002 ¶¶ 134–140). Patent Owner disputes Petitioner’s contentions, arguing that “Van Vleet discloses a system that searches the universe of all documents (seen and unseen) and later the user may filter the search results shown to the user to include only previously unseen documents,” which “is the opposite of what is required by the ’781 Patent claims.” Prelim. Resp. 10. Because we are persuaded, on this record, that Konig teaches the “previously unseen” aspect of claim 1, we need not rely on Petitioner’s alternative argument based on Van Vleet for purposes of institution. But, to provide guidance to the parties, we note that Petitioner’s position appears persuasive on this record. In particular, as Patent Owner’s argument acknowledges, Van Vleet teaches including previously unseen

documents as one option, even if there is another option to show all documents, seen and unseen. See Prelim. Resp. 10. Thus, on this record we are persuaded that restricting an information set to only “previously unseen” elements would have been obvious to a person of ordinary skill in the art.

(2) “*Threshold distance*”

Petitioner argues that the combination of Konig and Manber teaches linked information elements “that are within a threshold distance of the linked information elements in the user history.” Pet. 30–34 (citing Ex. 1004, 7, 9–10, 12, 15; Ex. 1002 ¶¶ 142–150). Petitioner argues that Manber discloses looking for documents within a certain distance of a root document. Pet. 31 (citing Ex. 1004, 10). For example, Manber discloses “[s]tarting with a set of root URLs” and “travers[ing] local and remote pages reachable by a path of links of a given maximum distance from the initial set.” Ex. 1004, 10 (emphasis and footnote omitted). Manber discloses a default distance of two links. Ex. 1004, 12, *cited in* Pet. 31. Petitioner argues that a person of ordinary skill in the art would “have appreciated from the express disclosures of Manber that some limit or ‘threshold distance’ must be placed on the collection process of Konig to avoid having to crawl through potentially thousands, millions, or even billions, of linked pages.” Pet. 33 (citing Ex. 1002 ¶ 147).

Patent Owner cites various alleged differences between Konig and Manber to argue that they are “are incompatible, teach away from one another, and/or render the system(s) inoperable for their intended purpose(s).” Prelim. Resp. 12–13 (citing Ex. 1003, Figs. 1, 18, 19; Ex. 1004, 15–17). On this record, we do not agree with Patent Owner’s arguments, which suggest that Petitioner is advocating some combination of two disparate systems. For example, Patent Owner argues that “Konig’s

universe is the Internet” whereas Manber “works within that single website” and that “[t]he link structures between the Internet and Manber’s system are different.” Prelim. Resp. 12. But these arguments ignore the purpose for which Petitioner relies on Manber, namely to “disclose[] the known and unremarkable feature of limiting a web crawler to a maximum link distance when traversing web pages.” Pet. 11 (citing Ex. 1002 ¶¶ 144, 147). If anything, the fact that “Konig’s universe is the Internet” (Prelim. Resp. 12) underscores the need to set link distance limits on Konig’s crawler; otherwise, it might crawl the Internet indefinitely.

Thus, on this record we are persuaded that restricting an information set to only elements “that are within a threshold distance of the linked information elements in the user history” would have been obvious to a person of ordinary skill in the art.

(3) Preliminary determination for “determining a proximal neighborhood”

In view of the foregoing and on this record, we are persuaded by Petitioner’s contentions, summarized above, for the step of claim 1 reciting “determining a proximal neighborhood using the user history in the user profile, wherein the proximal neighborhood comprises only linked information elements previously unseen by the user that are within a threshold distance of the linked information elements in the user history.”

e) “Applying the query”

The final step of claim 1 recites “applying the query to the unseen linked information elements in the proximal neighborhood and determining search results comprising the unseen linked information elements that match the query.” Petitioner argues that Konig discloses running a search based on a user query after collecting documents during the crawling phase. Pet. 34–35 (citing Ex. 1003, 7:46–50, 27:42–45; Ex. 1002 ¶ 152). Petitioner argues

that Konig does not limit the application of the query only to unseen elements, but Petitioner contends this isn't required because the claim does not prohibit searching additional documents. Pet. 35–36.

At this stage, Patent Owner does not dispute Petitioner's contentions as to how Konig teaches this subject matter. On this record, Petitioner's contentions for this step are persuasive. See Ex. 1003, 27:42–45 (“The subsequent searching step is illustrated in FIG. 19. In response to a query 190, a set of search results is located from the set containing all documents D and user documents obtained during personal crawling.”). On this record, we also agree with Petitioner that claim 1 does not prohibit searching additional documents. See Pet. 35–36. Thus, a reference that discloses applying the query as recited in the claim teaches the subject matter, even if the reference teaches applying the query to additional information elements.

Petitioner further argues that, if the claim requires limiting the query only to unseen documents, this would have been obvious in view of Van Vleet for reasons discussed with respect to the “previously unseen” recitation of claim 1. Pet. 36–37 (citing Ex. 1005, 10:25–28, 11:54–58; Ex. 1002 ¶¶ 138–139; 156–159). On this record, we are persuaded that, if the claim were so limited, it would have been obvious to apply the query only to unseen documents in view of Van Vleet. See § II.D.2.d(1) above.

f) Preliminary determination for claim 1

For the reasons discussed above and based on Petitioner's contentions and evidence, we determine, on this record, that Petitioner has shown a reasonable likelihood of prevailing in its argument that claim 1 is unpatentable as obvious over the combined teachings of Konig, Manber, and Van Vleet.

3. *Claims 2–16 and 19–34*

Petitioner also asserts that claims 2–16 and 19–34 are unpatentable as obvious over the combined teachings of Konig, Manber, and Van Vleet. Pet. 37–59. At this stage of the proceeding, Patent Owner does not separately address Petitioner’s contentions for these claims. We have reviewed Petitioner’s contentions, and we determine, on this record, that Petitioner has shown a reasonable likelihood of prevailing in its argument that claims 2–16 and 19–34 are unpatentable as obvious over the combined teachings of Konig, Manber, and Van Vleet.

E. Remaining Grounds

As noted above in § I.E, Petitioner asserts that claims 10–12 and 28–30 are unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Konig, Manber, Van Vleet, and Khan and that claims 17, 18, 35, and 36 are unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Konig, Manber, Van Vleet, and Cradler. Pet. 59–67. At this stage of the proceeding, Patent Owner does not separately address Petitioner’s contentions in these grounds. We have reviewed Petitioner’s contentions, and we determine, on this record, that Petitioner has shown a reasonable likelihood of prevailing on these grounds.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in challenging at least one claim of the ’781 patent, and we institute *inter partes* review of all challenged claims on all grounds raised in the Petition. See 37 C.F.R. 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the

challenged claims and on all grounds of unpatentability asserted for each claim.”). At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims or the construction of any claim term.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, an *inter partes* review is hereby instituted as to claims 1–36 of the ’781 patent on all challenges raised in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which will commence on the entry date of this decision.

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