

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS, AMERICA, INC.,
Petitioner,

v.

CERENCE OPERATING COMPANY,
Patent Owner.

IPR2024-01267
Patent 9,026,428 B2

Before BRIAN J. McNAMARA, BART A. GERSTENBLITH, and
LISA A. MURRAY, *Administrative Patent Judges*.

MURRAY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Samsung Electronics Co., Ltd. and Samsung Electronics, America, Inc. (collectively, “Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting institution of *inter partes* review of claims 1–3, 7–9, 12, and 13 (“the Challenged Claims”) of U.S. Patent No. 9,026,428 B2 (Ex. 1001, “the ’428 patent”). Cerence Operating Company (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

An *inter partes* review may be instituted only if “the information presented in the petition . . . and any [preliminary] response . . . 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.” 35 U.S.C. § 314(a). For the reasons given below, on this record, Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we institute an *inter partes* review of the Challenged Claims on all grounds raised in the Petition.

B. Related Proceedings

Petitioner identifies the following pending litigation involving the ’428 patent: *Cerence Operating Co. v. Samsung Electronics Co.*, 2:23-cv-00482 (E.D. Tex.) (“Eastern District of Texas Litigation”). Pet. 55. Patent Owner identifies the Eastern District of Texas Litigation; *Cerence Operating Co. v. Samsung Electronics Co.*, 2:24-cv-00181 (E.D. Tex.); *Samsung v. Cerence*, IPR2024-00978; and *Samsung v. Cerence*, IPR2024-00979. Paper 4 (Patent Owner’s Mandatory Notices), 1.

C. Real Parties in Interest

Petitioner identifies Samsung Electronics Co., Ltd. and Samsung Electronics, America, Inc. as real parties in interest. Pet. 55. Petitioner notes that unlike in the IPR2024-00978 and IPR2024-00979 proceedings, “Google LLC is not a co-petitioner or real party-in-interest to this Petition.” *Id.* at 56. Patent Owner identifies Cerence Operating Co., a subsidiary of Cerence, Inc., as a real party in interest. Paper 4, 1. Patent Owner does not argue that Google LLC is a real party in interest in this proceeding. *See id.*

D. The Asserted Grounds of Unpatentability and Declaration Evidence

Petitioner challenges the patentability of claims 1–3, 7–9, 12, and 13 of the ’428 patent on the following two grounds. Pet. 1.

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–3, 7–9, 12, 13	103(a)	Arai, ² Fenwick ³
9, 12, 13	103(a)	Arai, Fenwick, Baker ⁴

Additionally, Petitioner supports its challenge with a Declaration of Jean Renard Ward (Ex. 1002).

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. The ’428 patent was filed before March 16, 2013 (*see, e.g.*, Ex. 1001, code (22)), and, therefore, we apply the pre-AIA version of the statutory basis for unpatentability.

² JP Patent Application JP 2006-323502 A, published Nov. 30, 2006 (Ex. 1005 (certified English translation), “Arai”).

³ US Patent 5,161,245, issued Nov. 3, 1992 (Ex. 1006, “Fenwick”).

⁴ EP Patent Application EP 0-830-668 B1, published Oct. 31, 2001 (Ex. 1007, “Baker”).

E. The '428 Patent

The '428 patent is directed to handwriting recognition on mobile devices. The Specification explains that in the prior art,

some devices have text input areas for inputting characters or letters drawn by the user, but the system must determine when one character/letter ends and the next one begins. Often, this is done with a button to commit a drawn character/letter, entry of a space character, or by a time-out or pause between inputted characters/letter. This, of course, decreases the speed of character/letter input by users.

Ex. 1001, 1:31–39.

The '428 patent recites an improved system and method for receiving character input from a user, including using a programmed processor to receive inputs from a user using a touchscreen, “disambiguate” the inputs, store a first recognized character in a temporary storage buffer, and then display the character to the user for editing before it is sent to an application running on the mobile device. *See id.* (Abstract). The Specification explains that the content of the temporary storage buffer can be modified in at least four ways, the first three of which involve some action by the user. *Id.* at 3:24–61. The disputed claims pertain to the fourth method, an “auto-commit” feature that recognizes words with no further input from the user, using “linguistics [and/or] other heuristic rules” to identify at least part of the current content of the buffer. *See id.* at 3:44–61.

F. Illustrative Claim

Claims 1 and 9 are independent claims. Claims 2, 3, 7, and 8 depend from claim 1, while claims 12 and 13 depend from claim 9. Ex. 1001, 20:10–21:42. Claim 1 is illustrative of the claimed subject matter and is reproduced below with Petitioner’s bracketing added for reference:

1. [pre] A method for data input on a touchscreen of a mobile device, the method comprising:

[1a] receiving a first user input, wherein the first user input is handwritten input received on the touchscreen of the mobile device;

[1b] determining a first recognized sequence based on the first user input; wherein the first recognized sequence is a best match of the first user input;

[1c] writing the first recognized sequence to a memory storage buffer of the mobile device;

[1d] generating a first candidate sequence, wherein the first candidate sequence is a best match of one or more recognized sequences;

[1e] presenting the first candidate sequence to the user, wherein the presenting includes displaying the first candidate sequence to the user and allowing the user to edit the first candidate sequence;

[1f] identifying at least a first sequence portion of the first candidate sequence wherein the identifying is at least partially based on one or more rules or dictionaries of words accessible to the mobile device:

[1g] removing the first sequence portion from the memory storage buffer, *wherein the removing is performed in the absence of receiving user input* editing the first candidate sequence, *representing a space character*, or selecting a word; and

[1h] sending the first sequence portion to an application running on the mobile device.

Ex. 1001, 20:10–40 (emphasis added to disputed limitation); *see* Pet. 12–34 (indicating Petitioner’s bracketing).

II. DISCRETIONARY DENIAL

Patent Owner asserts that we should exercise our discretion to deny institution pursuant to 35 U.S.C. § 314(a) “due to the advanced state of parallel district court litigation regarding the same issues.” Prelim. Resp. 12. Patent Owner asserts that the “six *Fintiv* factors weigh in favor of the Board exercising its discretion to deny institution here.” *Id.* at 12–13 (citing *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential)); *see id.* at 14–20 (discussing the *Fintiv* factors).

With the authorization of the Board, Petitioner filed Exhibit 1020, an e-mailed letter stipulating that if the Board “institutes this IPR petition on the grounds presented therein, then Samsung will not pursue in the above-captioned litigation any grounds that were raised or reasonably could have been raised in the IPR with respect to claims 1–3, 7–9, 12, and 13 of the ’428 patent.” Ex. 1020, 1 (e-mail from Jin-Suk Park to James S. Tsuei, dated Dec. 20, 2024) (Petitioner clarifies in the e-mail that “Samsung” refers to both Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.); *see also* Ex. 3002 (e-mail correspondence with the Board).

As set forth in the Director’s Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (dated June 21, 2022), at 7, *available at* https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf,

the PTAB will not discretionarily deny institution of an IPR . . . in view of parallel district court litigation where a petitioner stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition.

Petitioner's stipulation in Exhibit 1020 satisfies the language from the Director's Memorandum quoted above. Therefore, we need not analyze each *Fintiv* factor before determining that we will not exercise our discretion to deny institution in view of the parallel Eastern District of Texas Litigation. In light of Petitioner's stipulation, Patent Owner's request is denied.

III. ANALYSIS

A. Legal Standards – Obviousness

The U.S. Supreme Court set forth the framework for applying the statutory language of 35 U.S.C. § 103 in *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966):

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

The Supreme Court explained in *KSR International Co. v. Teleflex Inc.* that

[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)) (“[R]ejections on obviousness grounds cannot be sustained by mere

conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (alteration in original))).

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

B. Level of Ordinary Skill in the Art

Petitioner, supported by Jean Renard Ward’s testimony, proposes that a person of ordinary skill in the art at the time of the invention would have had

at least a Bachelor’s of Science Degree (or equivalent) in electrical engineering, computer science, or computer engineering, or a related technical field and two years of experience working with handwriting recognition, user interfaces incorporating on-line recognition technologies, or related technical fields.

Pet. 11 (citing Ex. 1002 ¶ 26). Petitioner further proposes that “[a] greater amount of professional education could compensate for fewer years of work experience, and vice versa.” *Id.*

Patent Owner does not currently take a position on the relevant level of ordinary skill in the art and believes that “the Board could assume

Petitioner’s proposed level of ordinary skill for the purposes of deciding whether to institute.” Prelim. Resp. 2.

At this stage of the proceeding and on the present record, we adopt Petitioner’s uncontested, proposed level of ordinary skill in the art, which we find consistent with the level of ordinary skill in the art reflected by the ’428 patent and the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

C. Claim Construction

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2024). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims, as would have been understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17.

An exception to this general rule exists if the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[, in which case] . . . the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Another exception to the general rule that claims are given their ordinary and customary meaning is “when the patentee disavows the full scope of a claim

term either in the specification or during prosecution.” *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1313 (Fed. Cir. 2013) (quoting *Thorner v. Sony Computer Entm’t Am., LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)).

Additionally, only terms that are in controversy need to be construed, and these need be construed only to the extent necessary to resolve the controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those 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)).

At this time, neither party proposes a specific construction of any given claim term, instead requesting that the claims be given their plain and ordinary meaning. Pet. 11; Prelim. Resp. 5. Accordingly, we do not expressly construe any claim term at this stage of the proceeding.

D. Petitioner’s Ground 1: Obviousness over Arai (Ex. 1005) and Fenwick (Ex. 1006)

Petitioner asserts that the combination of Arai and Fenwick would have rendered the subject matter of claims 1–3, 7–9, 12, and 13 obvious to one of ordinary skill in the art at the time of the invention. Pet. 12–47.

1. Scope and Content of the Prior Art

a. Arai (Ex. 1005)

Arai is directed to a mobile device used for handwritten character recognition. *See Ex. 1005*. A user provides handwritten input on a touch panel for a mobile device, and a “handwritten character recognition unit 35” compares the handwritten input to a “reference character dictionary data

within the recognition dictionary.” *Id.* ¶¶ 50, 55. Arai discloses that a postprocessing unit 34 determines a character string “through considering the probability that the characters in the candidate character string . . . are linked together, and considering the degree of match with reference character dictionary data within the recognition dictionary.” *Id.* ¶ 53. The post-processing unit 34 selects the candidate with the highest probability of being correct and displays the resulting text to the user. *Id.* ¶ 114. Arai further discloses “a text editing processing unit” that allows modifying character strings, “such as deletion, kana-kanji conversion, insertion into a character input area of an application, and the like.” *Id.* ¶ 51. In Arai, the user presses an Enter Key button to send the modified character strings to an application such as an email program. *Id.* ¶ 91.

b. Fenwick (Ex. 1006)

Fenwick discloses a system of pattern recognition that determines where to place spaces between inputted individual characters to create words. Ex. 1006, code (57); *see* Pet. 9. The preferred embodiment recognizes words and determines where to place spaces between those words by: (a) storing each input character in one or more buffers in memory; (b) comparing the last entry of each buffer against a dictionary of known words; (c) copying last entries which match words to new buffers and placing a space after the last entry in the old buffer; (d) deleting a buffer when a last entry from that buffer does not at least match the beginning of a known word in the dictionary; (e) repeating steps (a) through (d) until all of the buffers have been deleted or until an end character, such as a carriage return or period has been stored in each buffer; (f) again comparing the last entries from each buffer to the dictionary and deleting any buffer having a

last entry which is not a known word in the dictionary or which does not end with a space followed by an end character; and (g) saving and/or outputting the remaining words. Ex. 1006, 2:45–63.

Petitioner describes Fenwick as follows (referring to Figures 4 and 5a):

Fenwick analyzes its buffers, and if there is a word “common to all of the remaining buffers . . . then that word has been properly identified and can be saved with its appended blank space in memory.” “After saving the word and blank space, both are deleted from each of the buffers, block 88. The word and blank space are then output to the output device, block 90.”

Additionally, Fenwick depicts the removal of a word without user input in rows 6 and 7 of Figure 5a, in which the word “the” is deleted from the buffer.

Pet. 28–29 (emphasis omitted) (citing Ex. 1006, 6:21–29, Fig. 4 (blocks 88, 90), Fig. 5a).

2. Analysis of Claim 1

Petitioner, relying on the Declaration of Jean Renard Ward, contends that claims 1–3, 7–9, 12, and 13 of the ’428 patent are unpatentable as obvious in light of the combination of Arai and Fenwick. Pet. 12–47. Patent Owner focuses its opposition on claim 1, particularly on element 1[g] of that claim. Prelim. Resp. 5–9. With regard to the claims that depend from claim 1, Patent Owner argues only that “[e]ach of claims 2, 3, 7, and 8 depends from claim 1 and accordingly incorporates limitation 1[g].” *Id.* at 9. Consequently, we focus our analysis on whether Petitioner has established that it is likely to prevail in its challenge to claim 1.

a. Preamble 1[pre]

The preamble to claim 1 reads: “[a] method for data input on a touchscreen of a mobile device, the method comprising” Ex. 1001, 20:10–11. Petitioner contends that “[t]o the extent the preamble is limiting, Arai discloses or suggests this feature.” Pet. 12. According to Petitioner, Arai discloses that its “invention relates to an information processing device and controlling method and program thereof for inputting stroke data of a handwritten character[.]” *Id.* (emphasis omitted) (quoting Ex. 1005 ¶ 1). Petitioner also asserts that Arai discloses a “mobile information device” for performing the method of the invention. *Id.* at 12–13 (emphasis omitted) (quoting Ex. 1005 ¶ 22) (citing Ex. 1005 ¶¶ 21–25). Petitioner further contends that Arai discloses a user can input stroke data through pressing with a stylus on the display screen of the mobile device. *Id.* at 13–14 (citing Ex. 1005 ¶¶ 32, 36, 70). Relying on the declaration of Jean Renard Ward, Petitioner argues that these disclosures satisfy the preamble of claim 1. *Id.* at 14 (citing Ex. 1002 ¶ 95); *see* Ex. 1002 ¶¶ 90–95. Patent Owner does not dispute this allegation. *See* Prelim. Resp. 5–9.

We find, at this stage of the proceeding and on the present record, that Petitioner has shown Arai satisfies the preamble of claim 1, for the reasons provided by Petitioner.

b. Undisputed Elements 1[a]–1[f] and 1[h]

At this time, Patent Owner does not contest any of the following representations made by Petitioner in the Petition. *See* Prelim. Resp. 5–9; Pet. 14–26, 34.

Element 1[a] recites: “receiving a first user input, wherein the first user input is handwritten input received on the touchscreen of the mobile

device[.]” Ex. 1001, 20:12–14. Petitioner asserts that Arai discloses or suggests this feature. Pet. 14–17; *see* Ex. 1002 ¶¶ 96–103. For example, Petitioner contends Arai discloses that a “user is able to input stroke data through pressing, with a stylus 3” on a “touch panel.” Pet. 14 (emphasis omitted) (citing Ex. 1005 ¶ 32).

Element 1[b] recites: “determining a first recognized sequence based on the first user input; wherein the first recognized sequence is a best match of the first user input[.]” Ex. 1001, 20:15–18. Petitioner asserts that Arai discloses or suggests this feature. Pet. 17–19; *see* Ex. 1002 ¶¶ 104–109. Specifically, Petitioner contends Arai discloses that “a recognition process is executed on the stroke data that has been obtained,” by comparing that stroke data to “the recognition dictionary” to calculate “the values for the degree of matching (the evaluation values).” Pet. 18 (citing Ex. 1005 ¶ 142). Petitioner also asserts Arai discloses that those “recognition result candidates” having the “highest degrees of matching” are then stored. *Id.* at 18–19 (citing Ex. 1005 ¶¶ 142–145).

Element 1[c] recites: “writing the first recognized sequence to a memory storage buffer of the mobile device[.]” Ex. 1001, 20:19–20. Petitioner asserts that Arai discloses or suggests this feature. Pet. 20–21; *see* Ex. 1002 ¶¶ 110–116. Petitioner contends Arai discloses that “the recognition results are stored in the RAM 7.” Pet. 20 (emphasis omitted) (citing Ex. 1005 ¶ 142). Petitioner argues that “[a] POSITA would have understood from Arai’s disclosure that the RAM to which the recognition results . . . are written . . . constitute[s] a memory storage buffer as recited in the claim.” *Id.* (citing Ex. 1002 ¶¶ 111–112).

Element 1[d] recites: “generating a first candidate sequence, wherein the first candidate sequence is a best match of one or more recognized sequences[.]” Ex. 1001, 20:21–23. Petitioner asserts that Arai discloses or suggests this feature. Pet. 21–22; *see* Ex. 1002 ¶¶ 117–119. In particular, Petitioner contends that Arai, a Japanese patent originally written in the Japanese language, describes receiving two character inputs, 工 (“kou”) and 場 (“jyou”), determining the recognized sequence for each, namely, 工 and 場, and from these two sequences, generating a first candidate word sequence, namely 工場 (“koujyou” or “factory”). Pet. 21–22 (citing Ex. 1002 ¶¶ 117–119; Ex. 1005 ¶¶ 144, 145, 151); *see* Ex. 1005 ¶¶ 142–148.

Element 1[e] recites: “presenting the first candidate sequence to the user, wherein the presenting includes displaying the first candidate sequence to the user and allowing the user to edit the first candidate sequence[.]” Ex. 1001, 20:24–27. Petitioner asserts that Arai discloses or suggests this feature. Pet. 22–23; *see* Ex. 1002 ¶¶ 120–124. Petitioner also contends that Arai has “a text editing processing unit, which executes editing processes on a text character string obtained from the handwritten character recognition unit 35, such as deletion, kana-kanji conversion, insertion into a character input area of an application, and the like.” Pet. 23 (quoting Ex. 1005 ¶ 51) (citing Ex. 1002 ¶¶ 122–24).

Element 1[f] recites: “identifying at least a first sequence portion of the first candidate sequence wherein the identifying is at least partially based on one or more rules or dictionaries of words accessible to the mobile device[.]” Ex. 1001, 20:28–32. Petitioner asserts that Arai discloses or suggests this feature. Pet. 23–26 (citing Ex. 1002 ¶¶ 125–130). Petitioner contends that Arai discloses “post-processing dictionary data (dictionary

data for chain probability calculation)” stored in ROM 8. *Id.* at 24 (quoting Ex. 1005 ¶ 27). Petitioner contends that, using chain probabilities and this dictionary, post-processing unit 34 selects the candidate combination with “the highest chain probabilities between the character strings, to change the display within the input character buffer area 61 to display the combination with the highest value as the first candidate.” *Id.* (quoting Ex. 1005 ¶ 114). Petitioner notes that Arai explains the following:

As described above, when “工場”, is inputted as the handwritten characters, then even if the recognition results by the handwritten character recognition unit 35 are [a different character string,] “工場”, the process in the post-processing unit 34 in Step S904 will determine that the candidate character string with the highest chain probability is “工場,” so “工場” is read out as the candidate character string for the handwritten character. In this case, here the “工場” that is the recognition result by the handwritten character recognition processing unit 35 may be replaced with “工場”.

Id. at 24–25 (quoting Ex. 1005 ¶ 148).

Element 1[h] recites: “sending the first sequence portion to an application running on the mobile device.”⁵ Ex. 1001, 20:39–40. Petitioner asserts that Arai discloses or suggests this feature. Pet. 34 (citing Ex. 1002 ¶¶ 145–148). Specifically, Petitioner contends that Arai discloses “an electronic mail application that runs on the mobile information device[.]” *Id.* (emphasis omitted) (quoting Ex. 1005 ¶ 68). Petitioner asserts Arai discloses that confirmed character strings from the input character buffer area 61 are entered into the electronic mail application when the user presses Enter Key button 65. *Id.* (citing Ex. 1005 ¶¶ 71, 91; Ex. 1002 ¶ 146).

⁵ Element 1[g] is discussed in the next subsection.

As noted above, the Preliminary Response does not challenge any of the above contentions. *See* Prelim. Resp. 5–9. We find that Petitioner’s arguments that Arai teaches or discloses elements 1[a]–1[f] and 1[h] of claim 1 are persuasive and supported on the record before us, for the reasons explained by Petitioner.

c. Contested Element 1[g]

Element 1[g] of claim 1 recites: “removing the first sequence portion from the memory storage buffer, wherein the removing is performed in the absence of receiving user input editing the first candidate sequence, representing a space character, or selecting a word[.]” Ex. 1001, 20:33–38.

Petitioner asserts that Arai in combination with Fenwick discloses or suggests element 1[g]. Pet. 26–34 (citing Ex. 1002 ¶¶ 131–144). Petitioner argues, “Arai discloses or suggests writing handwritten character recognition results to a temporary memory such as RAM. Arai is silent on when and under what conditions the results are removed from the RAM. . . . Arai states, however, that conventional handwritten character recognition techniques may be used to implement its invention.” *Id.* at 26 (citing Ex. 1002 ¶ 132; Ex. 1005 ¶¶ 2, 28, 112, 141). Petitioner further argues, “Fenwick relates ‘to a pattern recognition system for recognizing known patterns or groups of pattern,’ and is an example of a conventional handwritten character recognition system.” *Id.* at 27 (citing Ex. 1006, 1:7–9; Ex. 1002 ¶ 133). According to Petitioner, “[w]hile Arai requires hitting the Enter Key to send a word (or words) to the application . . . , Fenwick performs this function automatically absent any user input[.]” *Id.* at 31; *compare* Ex. 1005 ¶ 91 with Ex. 1006, 6:21–34, Fig. 4 (blocks 88, 90).

Relying on the Declaration of Jean Renard Ward, Petitioner contends that “[a] POSITA would have been motivated to incorporate[] Fenwick’s teachings regarding automatically sending recognized words to an application into Arai because this would have furthered Arai’s purpose of having a natural, uninterrupted flow in entering characters without having to press extra keys.” Pet. 31–32 (citing Ex. 1002 ¶ 139). Petitioner concludes that the combination would have been obvious in that it would apply Fenwick’s known technique for recognizing words without additional user confirmation to Arai’s known method of performing handwriting recognition, ready for improvement, to yield the predictable result of the Arai/Fenwick combination: “recognition results are sent to an application without further user confirmation—e.g., pressing the Enter Key—and handwritten character recognition results are removed from the temporary memory such as RAM when the recognition results are sent to the application.” *Id.* at 32 (citing Ex. 1002 ¶ 140).

Patent Owner contends that Petitioner has not shown the combination of Arai and Fenwick discloses or renders obvious claim 1 because, according to Patent Owner, neither reference discloses the claimed “‘wherein the removing is performed in the absence of receiving user input editing the first candidate sequence, *representing a space character*, or selecting a word’ of limitation 1[g][.]” Prelim. Resp. 5. We understand Patent Owner to argue that in Fenwick the handwriting recognition depends on the user manually inserting a space between each word.

Petitioner’s position is that Fenwick satisfies the “in the absence of receiving user input . . . representing a space character” requirement of element 1[g]. *See* Pet. 30 (citing Ex. 1002 ¶¶ 136–138) (“a POSITA would

have understood Fenwick to teach removing a word from the buffer after it has been confirmed as the correct word without receiving user input editing the candidate sequence, representing a space character or selecting a word”). Patent Owner characterizes this argument as relying on Fenwick Figure 5a, reproduced below. Prelim. Resp. 6–7 (citing Pet. 30; Ex. 1006 Fig. 5a).

	100 PASS	102 BUFFER 1	104 BUFFER 2	106 BUFFER 3	108 BUFFER 4
1	t				
2	th				
3	the_	the			
4	the_n	then_	then		
5	the_ne	then_e	~~there~~		
6	the_new_	~~the_ew~~	the_new		
7	new_t	newt	newt_		
8	new_to_	newto	newt_o	new_to	

Fenwick Figure 5a “illustrate[s] the manner in which characters and spaces are appended in buffer memory in accordance with the method of [Figures] 2, 3 and 4.” Ex. 1006, 3:10–12. Very generally speaking, with each pass, a new character is appended to each memory buffer in use, and the results are analyzed to determine which buffers, if any, contain recognizable words. *Id.* at 6:35–8:17. For example, Patent Owner notes that “with pass 7 of the process, the word ‘the’ and its following space are removed from buffers 1 and 3. In this example, the user is intending to enter the sentence: ‘the newton<cr>is real<.>’” Prelim. Resp. 7 (citing Ex. 1006, 6:38–39). Patent Owner argues, without citation to any evidence, that “[t]here is every indication in Fenwick that the space following ‘the’ in buffers 1 and 3 of Figure 5a reflect a space in the user’s written input, not a space that Fenwick’s system simply created from nothing.” *Id.*

Patent Owner contends that as shown by the title of the reference, “Pattern Recognition System Having Inter-Pattern Spacing Correction,” the preferred embodiment of Fenwick “is described in terms of detecting words and correcting or preventing spacing errors between characters.” *Id.* at 8–9 (quoting Ex. 1006, 3:63–65). According to Patent Owner,

Fenwick is not trying to address a situation where the user simply does not put space between consecutive words. Rather, Fenwick is trying to correct or prevent errors in the recognition system, by addressing the problem of irregular spacing between letters leading to gaps between words that cause the recognition system to *mistakenly identify spaces where the user did not intend them*. The “correction” being performed is correction of erroneous identification of spaces that might otherwise occur using purported prior art techniques. But the handwriting that the system is operating on is normal—though perhaps “sloppy”—English-language handwriting, with intended spaces left between the words “the” and “newton.”

Id. at 9.⁶ Patent Owner argues that “[t]he Petition identifies no example in Fenwick where a word is removed from a buffer without the user providing input containing a space, either the normal space between written English words or a ‘hard space.’” *Id.* Patent Owner concludes that “[a]ccordingly, the Petition fails to show this claimed scenario is taught or rendered obvious by Arai in combination with Fenwick.” *Id.*

On the present record, we disagree with Patent Owner’s arguments. The Petition does not rely solely on Fenwick Figure 5a, but also includes a

⁶ We note that Patent Owner’s reference to “normal . . . English-language handwriting” is not especially pertinent to the proposed combination, in which Fenwick modifies Arai. As noted above, Arai primarily relates to handwriting recognition for Asian languages such as Japanese. *See supra* § II.D.2.b (discussing element 1[d]).

discussion of Fenwick Figures 2–4, which are parts of a method flowchart. *See* Pet. 28–30; Ex. 1006, 3:6–9. While Figure 5a depicts a specific example of how that method would be applied to a specific sentence, the explanation of whether and when “a word is removed from a buffer without the user providing input containing a space” is illustrated in Figures 2–4.

The flowchart begins with Fenwick Figure 2. An annotated version with block 40 highlighted is reproduced below.

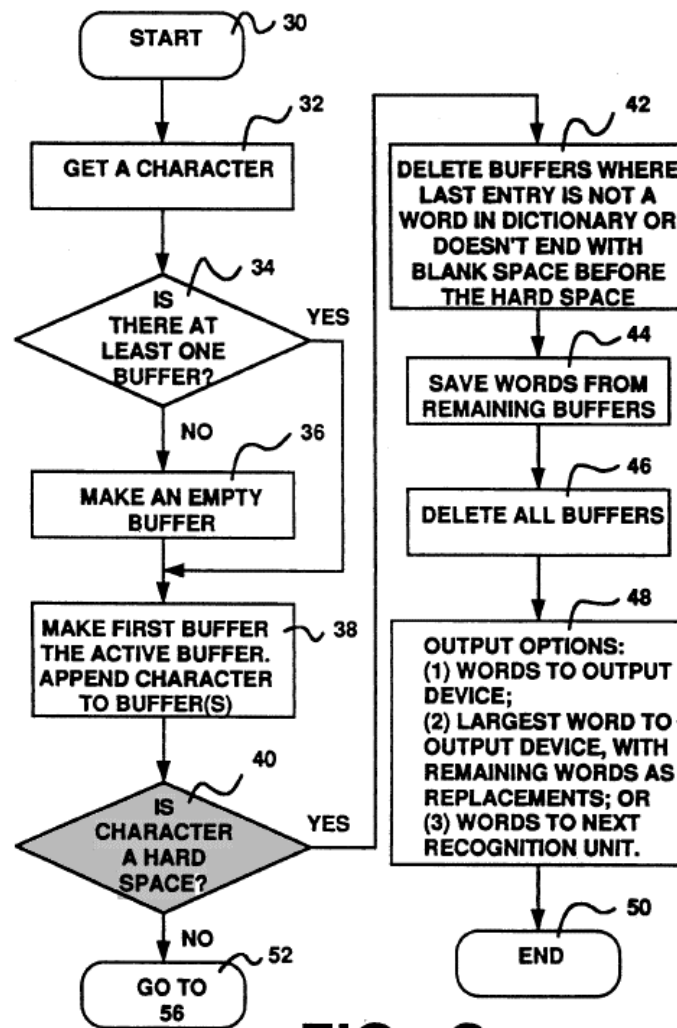


FIG. 2

Figure 2 is a “flow chart diagram[] illustrating a method for implementing [the Fenwick] pattern recognition system.” Ex. 1006, 3:6–9. As shown in

Figure 2, the method begins by obtaining a character and appending that character to all active memory buffers. “After the character has been appended to the available buffers, the character is then analyzed to determine if it corresponds to a ‘hard space’, block 40, indicating the end of the string of characters being input to the CPU 14 during this round of processing.” Ex. 1006, 4:61–65. In other words, in Fenwick a user *may* manually insert a space character, in which case the method proceeds to block 42 of Figure 2. *See id.* at 5:9–47. Of interest here, however, is the circumstance in which the character is *not* a hard space. As shown in block 52 of Figure 2, in that circumstance the method proceeds to block 56, which appears in Fenwick Figure 3.

An annotated version of Figure 3 with block 60 highlighted is reproduced below.

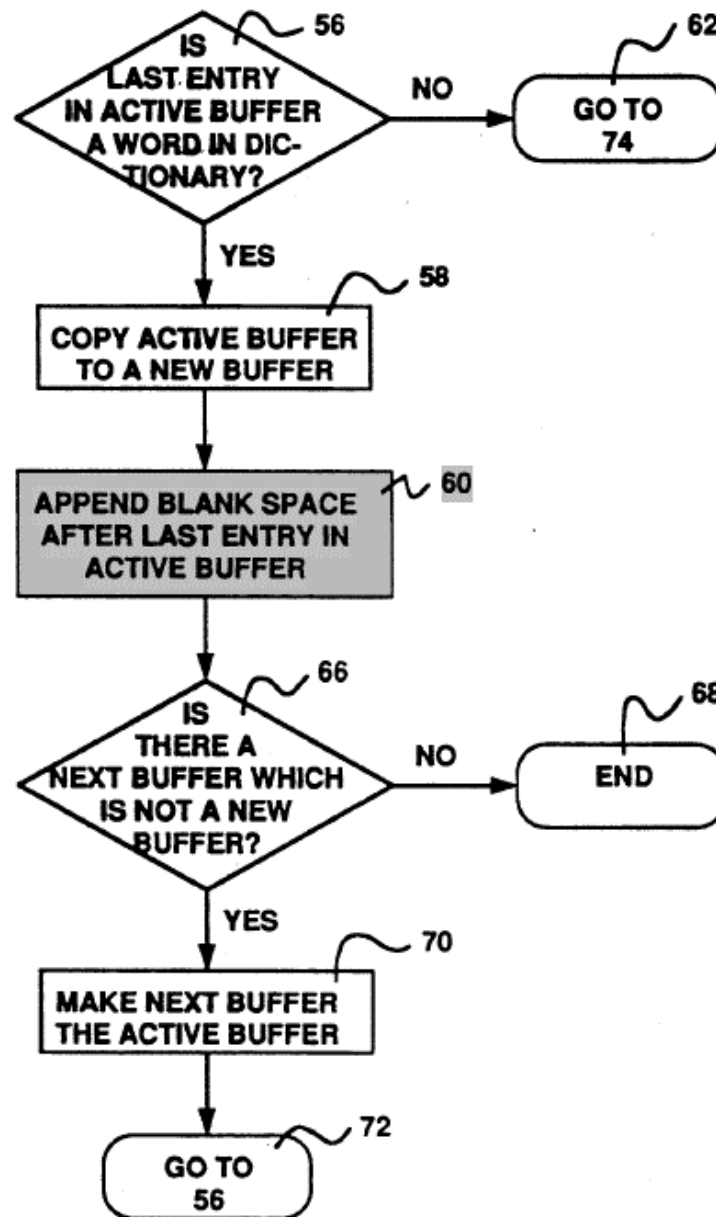


FIG. 3

Figure 3 is a “flow chart diagram[] illustrating a method for implementing [the Fenwick] pattern recognition system.” *Id.* at 3:6–9. Specifically, Figure 3 continues the flowchart from Figure 2. *See id.* at 5:48–52, Fig. 2 block 52. Where the most recently appended character is not a hard space, in block 56 the method determines whether appending that character to the

previous contents of the active memory buffer has created a dictionary word. Ex. 1006 Fig. 3, 5:48–55. If so, then the active buffer is copied to a new buffer and “[a] ‘blank space’ is then appended after this matched last entry in the active buffer, block 60, to indicate that a word has been formed.”

Id. at 5:55–57. Importantly, this blank space is appended by the system, independent of the user. *See id.* at 5:62–65 (“After appending a blank space after the matched last entry in the active buffer, block 60, the system looks to see if there is a next buffer which is not a new buffer, block 66.”). Thus, contrary to Patent Owner’s argument, in Fenwick handwriting recognition does *not* depend on the user manually inserting a space between each word.

The flowchart in Fenwick Figures 2 and 3 continues in Figure 4, which illustrates the process of removing a recognized word from memory and outputting it, along with its appended blank space, to an “output device.” *Id.* at 6:21–29, Fig. 4. The “output device” may consist of a display screen or a more permanent form of memory storage. *Id.* at 3:28–31 (“Properly identified groups of patterns or words are then output to an output device 18, such as a display screen or some other type of peripheral device and/or storage.”).

An annotated version of Fenwick Figure 4, with blocks 86–90 highlighted, is reproduced below.

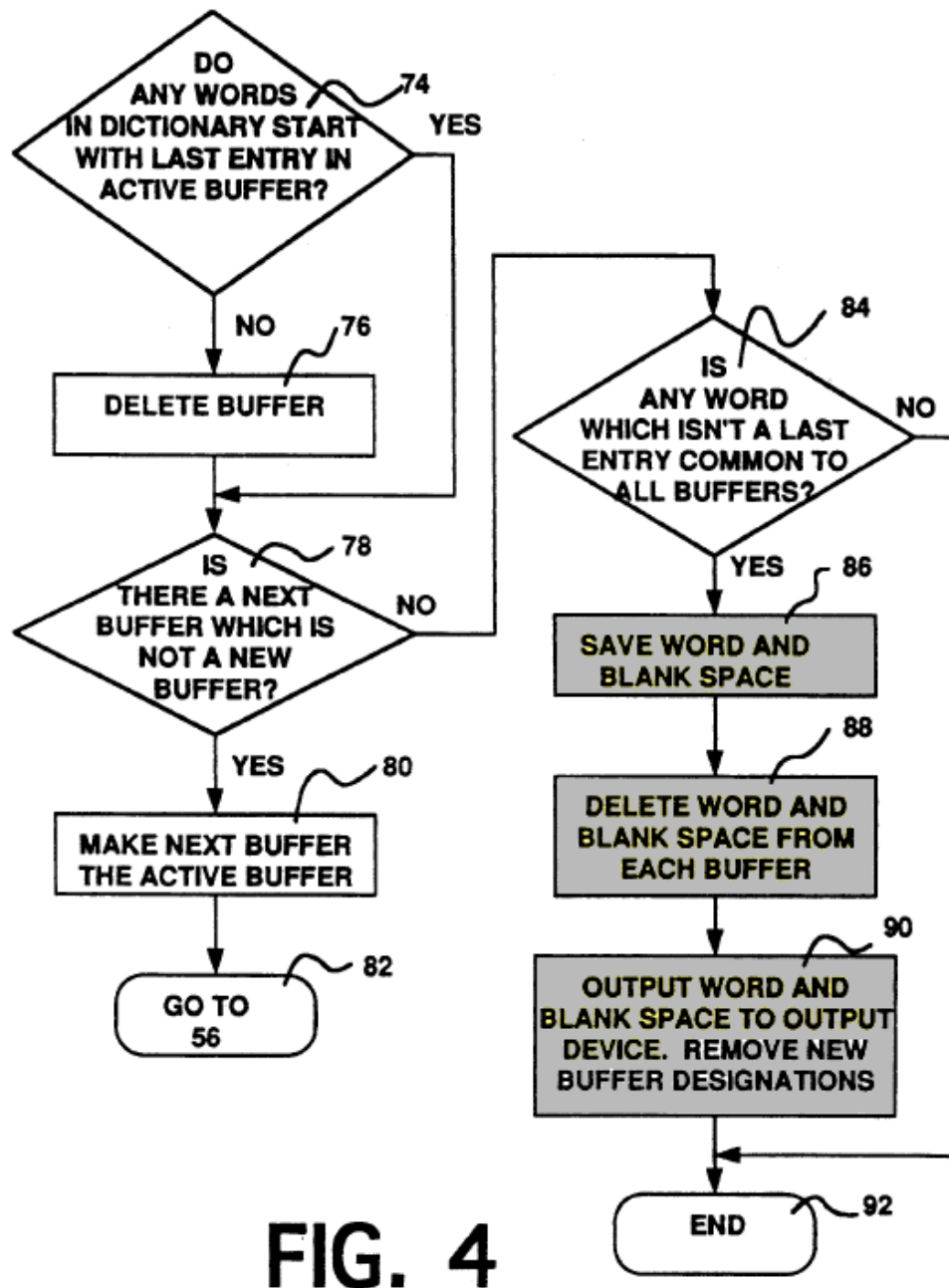


FIG. 4

Figure 4 is a “flow chart diagram[] illustrating a method for implementing [the Fenwick] pattern recognition system.” Ex. 1006, 3:6–9. Figure 4 continues the flowchart from Figure 3. As shown in Figure 4, outputting a recognized word involves outputting both the word and its appended blank space and deleting both from each memory buffer:

If there are no more old buffers to check, block 78, the system looks to see if there is any word, which is not a last entry, which is common to all of the remaining buffers, block 84. If there is such a word, then that word has been properly identified and can be saved with its appended blank space in memory, block 86. After saving the word and blank space, both are deleted from each of the buffers, block 88. The word and blank space are then output to the output device, block 90

Id. at 6:21–29. Thus, Fenwick Figure 4 illustrates that the recognized text is removed from the memory storage buffer, “wherein the removing is performed in the absence of receiving user input editing the first candidate sequence, representing a space character, or selecting a word,” as recited by element 1[g].

Petitioner argues that “a POSITA would have understood Fenwick to teach removing a word from the buffer after it has been confirmed as the correct word without receiving user input editing the candidate sequence, representing a space character or selecting a word.” Pet. 30 (citing Ex. 1002 ¶¶ 136–138). Petitioner concludes that “[a] POSITA would have found it obvious to incorporate these teachings of Fenwick into Arai to delete the recognition results from the RAM when . . . the candidate sequence . . . is identified as the correct sequence.” *Id.* at 30–31 (citing Ex. 1002 ¶ 139). Based on the current state of the record and on the evidence currently before us, we find that Patent Owner has not provided any evidence contradicting Petitioner’s description of how a person of ordinary skill in the art would have understood the teachings of Fenwick.

d. Weighing the Graham Factors

A claim is unpatentable under 35 U.S.C. § 103 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 of the invention to a person having ordinary skill in the art. *KSR*, 550 U.S. at 406. “Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat*, 876 F.3d at 1361. Relevant factors include: (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) objective evidence of non-obviousness, if present. *See Graham*, 383 U.S. at 17–18.

At this juncture, neither Petitioner nor Patent Owner has presented any evidence of objective indicia of nonobviousness. We conclude that on balance, considering the record presently before us, Petitioner has established a reasonable likelihood of showing that the differences between the subject matter of claim 1 and the teachings of Arai and Fenwick are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art.

e. Summary as to Claim 1

For the reasons discussed above, on the present record we find that Petitioner has established a reasonable likelihood that it would prevail in showing that the combination of Arai and Fenwick teaches or suggests each element of claim 1 of the ’428 patent. *See* 35 U.S.C. § 314(a).

3. Analysis of Claims 2, 3, 7, and 8

Petitioner argues that Arai in combination with Fenwick discloses or suggests each limitation of claim 2, which depends from claim 1, for the same reasons discussed in connection with elements 1[a], 1[b], and 1[d] of claim 1. Pet. 35 (citing Ex. 1002 ¶¶ 149–151). Petitioner further argues that

the same combination of Arai and Fenwick discloses or suggests the additional limitations of dependent claims 3, 7, and 8. *Id.* at 36–39.

Petitioner’s arguments concerning these dependent claims are largely undisputed. Patent Owner argues only that “[e]ach of claims 2, 3, 7, and 8 depends from claim 1 and accordingly incorporates [disputed] limitation 1[g].” Prelim. Resp. at 9.

We have determined that at this stage of the proceeding and on the present record, the information presented in the Petition shows that there is a reasonable likelihood that Petitioner will prevail with respect to its challenge to claim 1 based on Arai and Fenwick. Consequently, we need not address Petitioner’s additional challenges to claims 2, 3, 7, and 8 in this Decision. *See* 35 U.S.C. § 314(a); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“Section 314(a) does not require the Director to evaluate every claim individually. Instead, it simply requires him to decide whether the petitioner is likely to succeed on ‘at least 1’ claim. Once that single claim threshold is satisfied, it doesn’t matter whether the petitioner is likely to prevail on any additional claims; the Director need not even consider any other claim before instituting review.”); 37 C.F.R. § 42.108(a).

4. Analysis of Claims 9, 12, and 13

Petitioner argues that Arai in combination with Fenwick discloses or suggests each limitation of independent claim 9 for the same reasons discussed in connection with claim 1. Pet. 39–47. Petitioner contends that the same combination discloses or suggests each limitation of claim 12 for the reasons discussed in connection with element 1[e] of claim 1. *Id.* at 47. Petitioner further argues that the same combination teaches or suggests each

limitation of dependent claim 13 for the reasons discussed in connection with claims 7 and 8 and element 1[a] of claim 1. *Id.*

Patent Owner argues that the combination of Arai and Fenwick fails to teach or suggest elements 9[e] (“automatically determining that at least a portion of the sequence matches a word or phrase in a database of acceptable words and/or phrases without the user inputting a space or selecting a word”) and 9[f] (“sending the first sequence to an application or service running on, or accessible by, the wireless device, wherein the sending comprises removing the first sequence from the memory storage buffer, and wherein the sending is performed in the absence of user editing of the first sequence”). Prelim. Resp. 10–11. Patent Owner also argues that “[e]ach of claims 12 and 13 depends from claim 9 and accordingly incorporates limitations 9[e] and 9[f].” *Id.* at 11.

Patent Owner’s arguments regarding claims 9, 12, and 13 mirror those discussed above in connection with claim 1. *See id.* We have determined above, however, that the evidence presently before us shows that there is a reasonable likelihood that Petitioner will prevail with respect to its challenge to claim 1 based on Arai and Fenwick. Consequently, we need not address claims 9, 12, and 13 further in this Decision. *See* 35 U.S.C. § 314(a); *SAS Inst.*, 138 S. Ct. at 1356; 37 C.F.R. § 42.108(a).

E. Petitioner’s Ground 2: Obviousness over Arai (Ex. 1005), Fenwick (Ex. 1006), and Baker (Ex. 1007)

Petitioner asserts Ground 2 as an additional challenge to the validity of claims 9, 12, and 13 based on the combination of Arai, Fenwick, and

Baker.⁷ Pet. 48–51. According to Patent Owner, Petitioner’s challenges under this ground assert the same theory as that asserted in Ground 1 above. Prelim. Resp. 12. We have determined above, however, that the evidence presently before us shows that there is a reasonable likelihood that Petitioner will prevail with respect to its Ground 1 challenge to claim 1. Consequently, we need not address Petitioner’s Ground 2 in this Decision. *See* 35 U.S.C. § 314(a); *SAS Inst.*, 138 S. Ct. at 1356; 37 C.F.R. § 42.108(a).

IV. CONCLUSION

For the reasons discussed above, we do not exercise our discretion to deny institution. Additionally, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that at least one claim of the ’428 patent is unpatentable. Our analysis is based on the preliminary record developed thus far and may change after the record is developed fully, during trial.

⁷ Baker is directed to methods and systems for word recognition. *See* Ex. 1007. Petitioner contends that, to perform character recognition, Baker teaches that it uses “‘known techniques’ to ‘offer several words as choice words to replace [an] unrecognized word.’ . . . Baker compares choice words to a ‘reference database 40 [that] can be a dictionary[.]’” Pet. 49 (citing Ex. 1007 ¶¶ 25, 72–73). Petitioner argues that “[t]o the extent the Board disagrees that Arai’s disclosure encompasses that its dictionary data would be stored in a database or other similar data structure, Arai in combination with Fenwick and Baker discloses or suggests this limitation, including ‘a database of acceptable words and/or phrases.’” *Id.* at 48.

V. ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review is instituted as to claims 1–3, 7–9, 12, and 13 of the '428 patent on each of the grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '428 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

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